Settlement pattern, environmental factors and ethnic background on a southwestern Quebec frontier (1795-1842)

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In studies of frontier settlement patterns, different site factors are recognized as influential on the immigrant settlement process. Environmental factors such as soil features, while widely cited as crucial, have rarely been studied in enough depth to measure their relationship to other phenomena such as ethnic attractiveness. Qualitative and quantitative case studies in early 19th century Godmanchester township's sequence of land occupancy indicate that pioneer settlers in this region of Quebec were influenced by a mixed set of factors that changed over time. In reconstructing Godmanchester's land colonization process and pattern based on local historical sources and Lower-Canada manuscript censuses of 1825, 1831 and 1842, the traditional way of understanding such processes was put into question. Geomorphological deposits, while remaining a relatively decisive factor in determining settlement patterns until the end of the 1820s, were gradually displaced by ethnic proximity, as revealed in censuses up to 1842. To understand this settlement pattern, one must consider the pioneers' goals from their perspective: they were primarily interested in self-sufficiency and were not all necessarily market-oriented farmers. From this standpoint, attractive land *to settle seems more appropriate than the standard assumption of good land for cash-crop farming.*

Key words: settlement frontier development; 19th century agriculture; historical landscape dynamics; rural immigration; Southern Québec.

Dans les études portant sur la colonisation des fronts pionniers, les variables reconnues susceptibles d'orienter la marche du peuplement sont multiples. Pour expliquer la localisation des colons, une majorité de ruralistes accorde la prépondérance aux propriétés du sol. Bien qu'elle soit considérée déterminante par plusieurs, l'attirance ethnique ne se voit pas attribuer une importance équivalente. Afin d'évaluer le rôle respectif de ces deux facteurs, nous avons reconstitué l'occupation initiale du sol dans le canton de Godmanchester (Québec). Pour y parvenir, nous avons consulté l'historiographie locale et dépouillé les recensements nominatifs de 1825, 1831 et 1842. Nos résultats indiquent que les deux variables examinées exercent une influence sur l'orientation du peuplement mais que leur attrait respectif ne s'exprime pas nécessairement au même moment. Après avoir été décisifs jusqu'à la fin des années 1820, les dépôts de surface semblent ensuite perdent de leur influence au profit de l'attirance ethnique. Pour comprendre ce patron d'implantation, il importe de reconnaître que les colons sont des producteurs résidentiels plutôt que des agriculteurs commerciaux. Ces derniers recherchent probablement davantage des sites facilitant l'établissement de leur famille que des terres propices à l'agriculture de marché.

Mots clés: colonisation des fronts pionniers; agriculture au 19e siècle; dynamiques historiques du paysage; immigration rurale; Sud du Québec

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Introduction

In North America, the writings of Turner (1962) have spawned a wealth of literature on the advance of pioneer settlement and the development of frontier society.[1] Since the beginning of the 20th century, particularly in the United States, studies on farming frontiers abound.[2] Many Canadian geographers[3] and historians[4] have contributed to this debate by studying the role played by factors such as soil types on frontier settlement pattern. According to many scholars, the first colonists tended to settle on the *best farmland* available. Although this pattern seems rational at first glance, the presumed link between early arrival and *best land* occupancy is not without question.[5] In the 19th century, settlement patterns were occasionally hard to predict and settlers' locations difficult to understand.[6] The relationship between immigrants and their new landscape remains to be properly explored. The role actually played by soil types, and their relationship with other factors, has yet to be clarified.[7] Using geomorphological deposit maps, this paper will attempt to determine how and when soil features influenced where pioneers chose to settle, and the role played by ethnic attraction during colonization.

From Canadian case studies, three sets of site factors emerge as having influenced rural immigrants' decisions as to where to settle.[8] For some scholars, the environmental features of the region under settlement are paramount. Hydrographical networks, for one, could determine the major lines along which settlement would take place, since they provided an access to the territory (Brunger 1975; Craig 1986; Courville 1988; Lockwood 1988). Soil types, however, may have played a more decisive role (Kelly 1970, 1975; Russel 1983; Bitterman 1988; McNabb 1988). The erratic settlement patterns sometimes observed on the frontier may reflect the location of specific kinds of soil, presumably, the *best land* available.[9] In this process, the settlers' knowledge and their perceptions of the landscape were crucial (Osborne 1977).[10] In the 19th century, the judgment of both the soil and the site was based on the nature of the tree cover.[11] The dates when immigrants arrived in an area may also have influenced their place of settlement. The first settlers were deemed the lucky ones, since they were able to monopolize the better lands (Latouche 1980; Bitterman 1988; Hornsby 1990; Bitterman *et al.* 1993).[12]

A second group of scholars insists that social influences played the determining role on settlement patterns. They argue that in colonial times, it was advantageous to settle in the same area as relatives and kin, thus creating a network of mutual support (Craig 1986; Elliot 1988a; Bouchard 1996). According to Elliot (1988a, 6), "the location of distant kin, more than soil capability, nearness of markets, and transportation routes influenced the choice of destination." Numerous studies have shown that ethnic ties also played an important role in determining where people would settle. Even if they were not related, the fact that they shared the same background prompted people to cluster together.[13] In the 19th century, for example, Irish and Scottish immigrants tended to settle in the same area as their compatriots, the assumption being that they obtained the benefits of a familiar social milieu (Lockwood 1988; McLean 1991).

Lastly, some scholars emphasize local economic factors such as the role of the road networks (McIlraith 1970; Gaffield 1987), speculation by rich landlords, and the amount of capital possessed by settlers. Powerful landowners and colonization agents may have influenced local settlement patterns (Widdis 1982; Clarke and Brown 1987). If under their control, all lots may not have been equally available. Knowing the attraction of the road network, settlement promoters sometimes structured land concessions around paths they themselves opened in the forest cover (Norris 1984; Gaffield 1987; Little 1989). Upon arrival, new immigrants were sometimes directed to specific groups of lots (Brunger 1975; McLean 1991). Moreover, depending on differences in the amount of capital and labour at their disposal, different types of colonists preferred different types of soil, thus creating diverse patterns in their settlement processes (Kelly 1970; Bitterman 1988).[14]

Among the site factors suggested to explain local patterns of land occupancy, soils types and ethnic background recur with the most frequency. While certain scholars see ethnic attraction as crucial (mainly those studying a specific immigrant community),[15] most geographers and historians believe that the advance of the settlement shows evidence of a strategy favouring the occupation of the *best lands*.[16] Without any detailed investigation, many researchers have taken for granted that soil types were the prime factor in directing the settlement patterns of the region under study.[17] In referring to both groups of factors, Gaffield (1987) reminds us of the complexity

of this phenomenon. From his viewpoint, the sites chosen by settlers could depend on both the features of soil and their ethnic background.[18]

As part of a long-term project aimed at understanding the settlement of Quebec's Upper St. Lawrence regions in the 19th and 20th centuries, this paper attempts to clarify the role played by geomorphological deposits in frontier settlement patterns. Along with soil features, other factors such as the ethnic background of immigrants and the layout of the local road network will also be examined. To measure the impact of such local factors on the course of frontier settlement, the pioneer settlers' decision-making processes must be considered. Unlike studies of larger areas that emphasize macro-level explanations, we will try to adopt the settlers' point of view and "see the land with the eyes of its former occupants, from the standpoint of their needs and capacities" (Wynn 1990, 16).

Methodology

Our reconstruction of Godmanchester's settlement process and pattern between 1795 and 1842 is based on both qualitative and quantitative sources. The process of early land concession was first documented by consulting the work of Langelier (1891). To help retrace the steps of American immigrants, we examined the research of Bouchette (1815, 1832) and Sellar (1963), whose monograph and collection of pioneer testimonies are of unparalleled richness. The circumstances surrounding the settlement of the European immigrants, as well as the initial trail network, were reconstructed using the work of Belden (1881), Sellar (1963) and Sommerville (1987). To estimate the role played by the biggest local absentee landowners, the work of Larose (1987) was most informative.

From 1825 on, it is possible to reconstruct the sequence of land occupancy with greater accuracy. The manuscript census of 1825 enabled the identification of Godmanchester's residents, yet did not locate them on specific lots. Coupling the 1825 census data with the one collected in 1831 allowed us to identify which lots most of the residents occupied.[19] In order to crosscheck these data, we referred to Sellar's chart on early occupancy and Ellice's land agent's census, done around 1830. From 1831 on, the government censuses became more detailed. The increased precision of the questionnaires, and the geographical localization of the residents, made it easier to map out the advance of the settlement.

Using these sources, we were able to locate most of occupied lots in Godmanchester between 1825 and 1842. While deeds of sale only give information about land ownership, census returns enable us to be more accurate and to know whether a lot was occupied or not at a given time.[20] Using these returns, we reconstructed the sequence of land occupancy, charted the pattern of settlement and mapped the ethnic background of the settlers. While a few pioneers could not be located, and the first occupancy of certain lots not traced, this reconstruction still proved highly satisfactory. The identification of ethnic backgrounds was based on the 1842 census question on country of origin and on settlers' surnames taken from the 1825 and 1831 censuses. The resulting association of a surname with each lot permitted the identification of clusters of lots held by related household heads.

In order to measure the relationship between these variables and the different geomorphological deposit types on each lot, the occupancy maps were superimposed on a map showing these deposits. Specifically, we are attempting to relate the progress of settlement with types of geomorphological deposits (morainic, marine, and so on). In the context of this study, these deposits are of particular interest given a wealth of detailed cartographic information already available for the study area (Bariteau 1988; Delage 1998). Because these works reveal that geomorphological deposits represent a determining factor in existing soil conditions, this method of investigation is particularly appropriate to this paper's objectives. Ideally, while the drainage and stoniness of the lots should have been taken into consideration, the characteristics of the geomorphological deposits present are a good approximation of these soil conditions. As such, within the study area, present day land use is strongly correlated to the type of geomorphological deposit found on the lot (Bouchard and Domon 1997; Pan *et al.* 1999).

Therefore, each lot studied was characterized according to: 1) whether it was occupied or not; 2) the ethnic background of its inhabitants; and 3) the percentages of the different geomorphological deposit types present. In the latter case, a lot could either be dominated by only one type of deposit (morainic, marine or biogenic) or characterized by a combination of these main types of deposits. Using SAS software (Version 6.11), multiple correspondence analyses (MCA) were conducted to evaluate to what

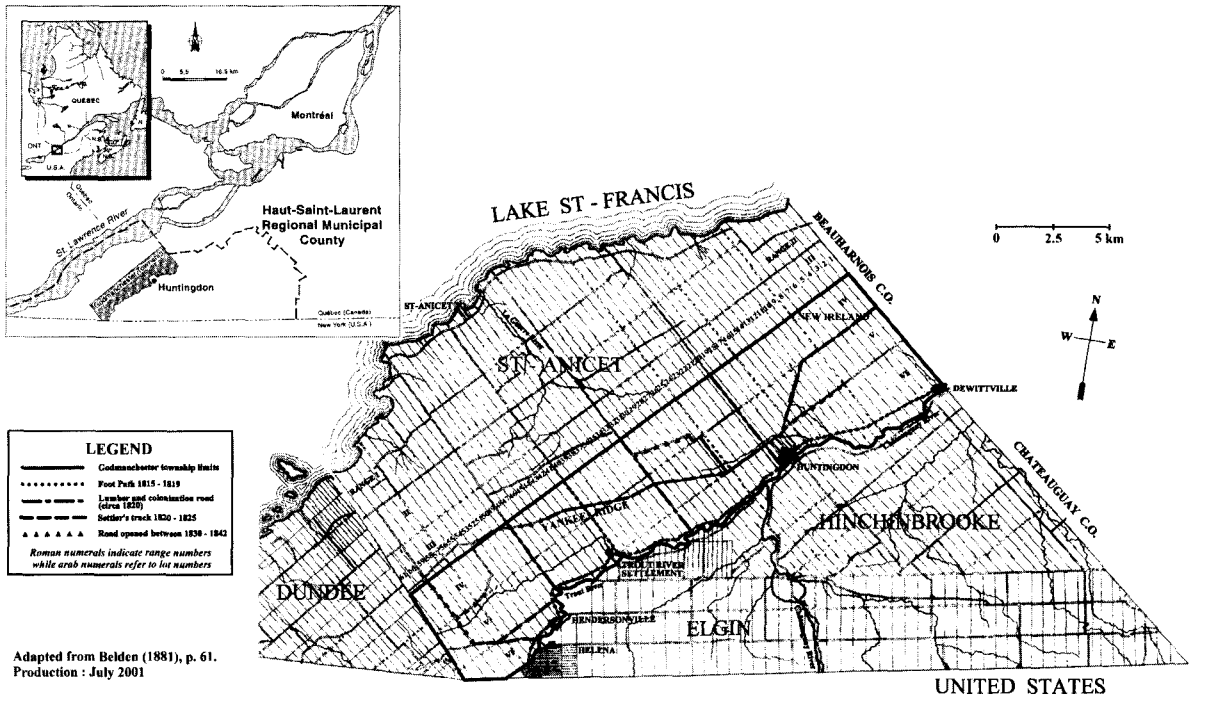

Figure 1
The location of Godmanchester Township showing the progression of road and path networks

degree both occupied and unoccupied lots were associated with specific geomorphological deposits. The MCA allows the levels of these variables to be represented on a two-dimensional graph where the axes are defined to explain the maximum variability: the higher the percentage of the variability, the greater the correlation between the variables. The analysis of the data was conducted following two distinct steps. First, at the scale of each lot, MCA was conducted to evaluate the relationships between the land occupation data (1825-42) and the geomorphological deposit data. To better assess the different relationships between these data at distinct steps of the settlement process, another set of MCA revealed the specific associations existing between the newly occupied lots (between 1825-31 and between 1831-42) and their geomorphological deposits.

Case study area

The township of Godmanchester is located in Quebec's Upper St. Lawrence region (Figure 1). This area is of particular interest for a study of historical land occupancy dynamics for three reasons. First, it was settled fairly late (*circa* 1800), only a few years before the first Lower-Canada census of 1825. Second, the early local history is generally well documented, due to efforts of a regional historian, Robert Sellar (1963), who settled in the county in 1863. Third, as a result of more than ten years of multidisciplinary research, an important body of knowledge concerning geomorphological features (Bariteau 1988; Delage 1998), pre-colonial forest vegetation (Simard and Bouchard 1996), vegetation dynamics (Meilleur *et al.* 1994) and landscape changes (Domon *et al.* 1993; Bouchard and Domon 1997; Paquette and Domon 1997) now exists for this township.

Using geomorphological (Figure 2a) and topographical (Figure 2b) criteria, five main landscape types can be discerned in Godmanchester (Figure 2c). The first, located in the area known as New Ireland (Figure 1), is a plain composed of marine deposits dotted with islands of morainic boulders with a maximum elevation of 60 m. The second is a morainic ridge in the highest area of the township (57-90 m), known as Yankee Ridge (Figure 1). The third is a flat,

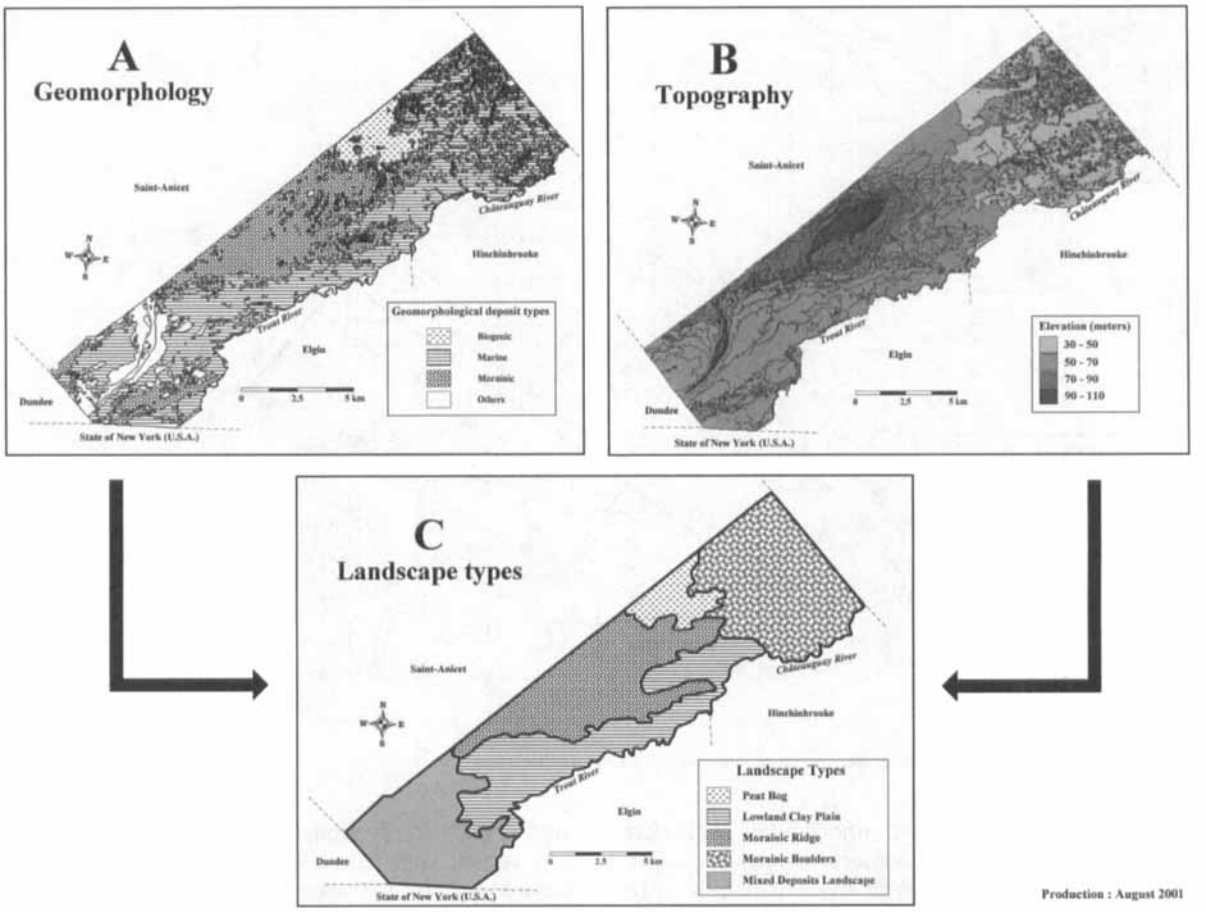

Figure 2
Geomorphological deposit types, topography and landscape types observed in Godmanchester Township

lowland clay plain (mean elevation 50 m) essentially composed of marine deposits, bordered by the Trout and Chateauguay Rivers.[21] The fourth is a large peat bog, called the Teafield, composed mainly of biogenic deposits. Lastly, a landscape type characterized by mixed deposits is located in the vicinity of a landmark known as the Beaver.

The present day vegetation is typical of the Great Lakes - St. Lawrence Forest region, with sugar maple being the dominant tree type in the upland mesic sites. Bitternut hickory, American beech, hemlock, basswood, ironwood and white ash are also present. This vegetation is significantly different from that existing in pre-colonial times. Simard and Bouchard (1996) have shown that the more valuable pine and oak trees were harvested at the beginning of the 19th century. From Ellice's land agents' censuses in the 1830s, we know that parts of the morainic ridge were covered with maple, beech and hemlock, and that the lowlands were mostly covered with ash, elm and tamarack.

The Advance of Settlement in Godmanchester

The American squatters and the riverbank settlement (1795-1819)

In 1785, the government of Lower Canada decided to establish the township of Godmanchester near Lake St-Francis, south of St-Anicet and west of Beauharnois (Figure 1). The leader and associates

system that had been used since the British conquest to allocate crown lands was replaced by a practice that favoured single individuals or families (Bouchette 1832; Langelier 1891). A few wealthy individuals who would never actually settle in the area amassed large holdings through government concessions and land transactions (Sellar 1963). If pioneers wanted to buy a piece of land and settle in the township, they had to deal with one of these absentee owners whose estates were scattered throughout in the township (Langelier 1891).

The first pioneers to settle in Godmanchester were Americans coming from New England via the township of Hinchinbrook and the Chateauguay River (Figure 1). Around 1795, some of these early immigrants settled in scattered locations on the lowlands near the present-day site of Huntingdon (Figure 1). The journey of B. Roberts is a good example of this initial wave of settlement. In 1796, he moved from Vermont with his family and established himself in Huntingdon County. Once settled, they were unsatisfied with their choice of location, and started to explore the country in their vicinity. "The advantage presented by the country they thus explored over the spruce-crowned sandhills on which they had built their shanties, they were quick to perceive: the land was better, elm and hardwood abounded for making potash and the river afforded an easy mode of access to Montreal, then the only market for the entire country south of the St.-Lawrence..." (Sellar 1963, 31)

In 1808, the first sawmills were built downstream in the area that would become Dewittville (Sommerville 1987, 132). Though slowed by the War of 1812 between the United States and Great Britain, the American settlement spread during the 1810s, as a network of sawmills reached Huntingdon (*ibid.*, 152). A few kilometres upstream, on Trout River, the foundations of an almost exclusively American settlement were in place (Sellar 1963, 161). According to Sellar, their clearings did not extend rapidly (*ibid.*, 32). Up to 1820, Godmanchester remained sparsely populated. When Bouchette (1815, 262) visited the region before the mid-1810s, he noticed that only squatters occupied certain isolated areas along the banks of the rivers.

The settlement of the morainic ridge and British colonization (1820-1824)

At the beginning of the 1820s, some of the early American pioneers began to venture away from the rivers toward the morainic ridge. Following an old foot path mapped by Bouchette, a few of them left Trout River for the hilly inland and settled on what would be called Yankee Ridge (Figure 1): "Those Americans had come in from Trout River, the attraction being the splendid growth of timber for ashes. They shifted along the Ridge staying in no place long, making potash and working for the lumbers" (Sellar 1963, 416).

In the following years, with the expansion of lumbering activities and the arrival of the first Scottish and Irish immigrants, the colonization of the township increased. In the lowlands on the shores of the Chateauguay River, Dewittville became the center of the local lumber industry. Despite the growth of this industry, riverside lots located even slightly upstream tended to be settled more slowly (Sommerville 1987, 21). Further west, some newly arrived British immigrants settled close to the Americans who lived along the banks of the Chateauguay River.[22] Between the settlement of Trout River and Helena (Figure 1), the American squatters who could not pay for their lots were forced to give them up to the newly arrived Europeans, who bought them from absentee landowners, the most influential of which were the Ellices of Beauharnois (Sellar 1963, 431).

On the hilly inland, undaunted by the isolation of these backlands, a few Scottish families settled close to the American pioneers' shanties on Yankee Ridge (*ibid.*, 416). In the northeastern part of the township, a similar occurrence took place. After having lived for some time on the shores of the Chateauguay River between Dewittville and Huntingdon, a few Americans settled on Range IV (*ibid.*, 412). Then, although unoccupied lots remained by the riverside, the Irish newcomers that followed also chose to settle on Range IV, in an area soon known as New Ireland. The testimonies of these pioneers are an interesting reflection on this settlement process. Charles McNarland left Ireland for Lower-Canada in 1822. Upon arriving in St.-Anicet, he left the shore of the lake and travelled by a logging road until it came out on a beaver meadow. He examined the land and after finding that a fellow-countryman had made a small clearing nearby, bought it. The following year, two of his acquaintances joined him there (*ibid.*, 416).[23]

By the mid 1820s, shanties were clustered more closely on Yankee Ridge as "the road naturally grew out of the track that was made from one door to the next." (*ibid.*, 230). To learn, and sometimes to sur-

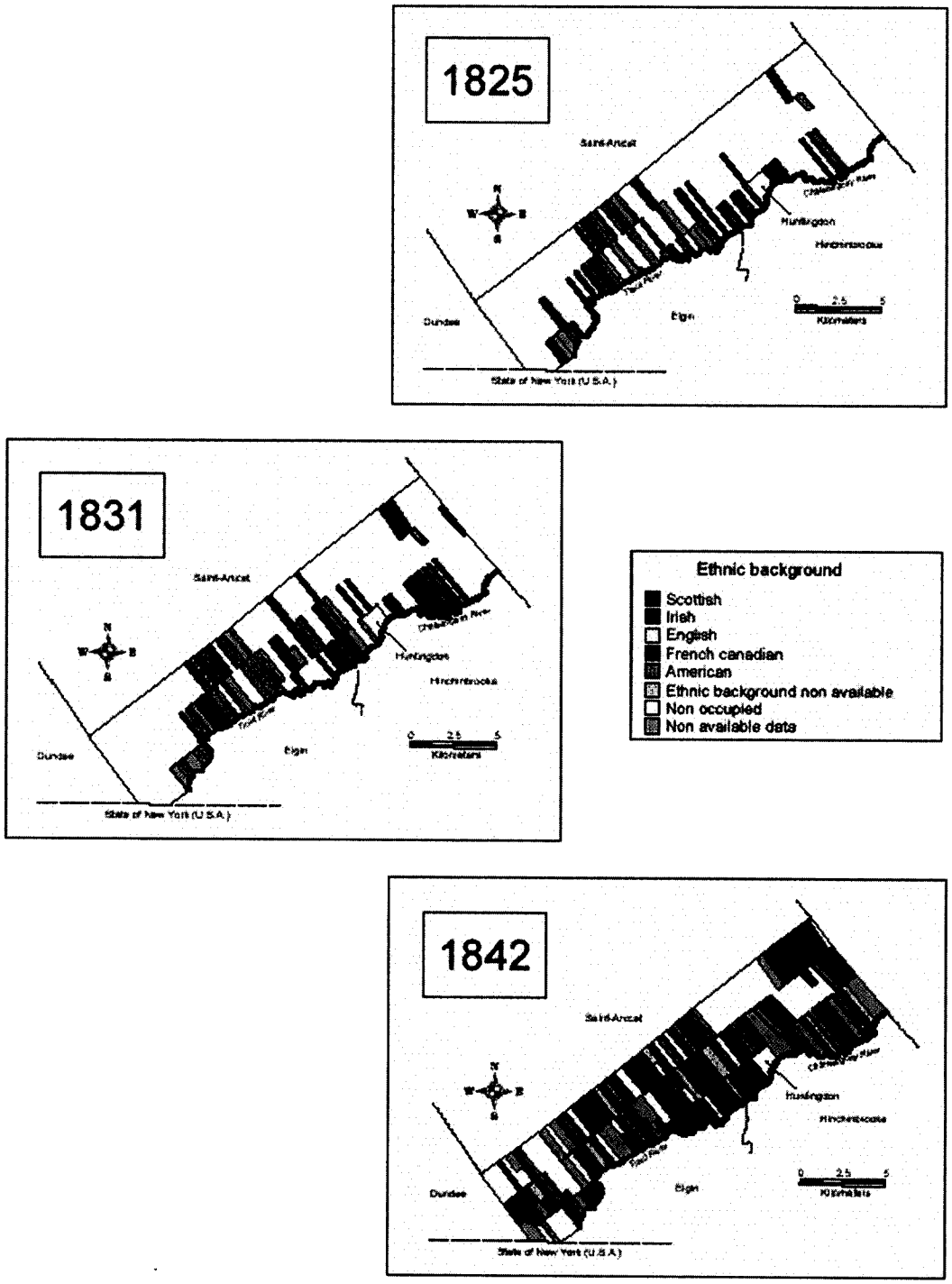

Figure 3
Land occupancy evolution and the ethnic background of settlers (1825-1842)

vive, the first Scottish and the Irish settlers must have relied on their American neighbours, whose "presence was of vital consequence... for they showed them how to handle the ax, how to fell trees, to build log-house, to make potash, to plant corn..." (*ibid.*, 41) During those years, farming activities were rudimentary. On the morainic ridge, colonists "grew corn and potatoes, depending on selling ashes and timber for money to buy store goods and pay for their lots." (*ibid.*, 230)

Geomorphological deposits, ethnicity and the pattern of land occupancy (1825-1842)

The census of 1825 revealed that in the mid-1820s, many of Yankee Ridge's lots were occupied before all those bordering the rivers were settled (Figure 3). The British newcomers progressively settled the land located along the morainic ridge between Huntingdon and the border of St. Anicet. Further north, the limited number of lots occupied between the morainic boulders of New Ireland shows a more hesitant development. However, the settlement of the hilly inlands did not correspond to a systematic abandonment of the lowland lots, as a majority of the early pioneers remained on the clay-based soil near the rivers where they had initially settled (Figure 3). By the end of the 1820s, as the main clusters of settlement began to consolidate, the principal lines of the road network became visible (Figure 1). While the number of lots occupied increased noticeably from 1825 to 1831 (from 57 to 76), and then from 1831 to 1842 (from 76 to 155), the overall settlement pattern remained largely unchanged (Figure 3).

Using the census manuscripts, we were able to categorize the lots occupied between 1825 and 1842, as well as to evaluate to what degree the patterns of land occupancy were a reflection of local geomorphological deposits. The results of an MCA based on the status of these lots (occupied or unoccupied) and on the different types of geomorphological deposits are presented in Figure 4. The total percentage of the two axes generated is 92 percent, an indication that highly significant relationships exist between the variables. Among eight profiles of geomorphological deposits, the three in which one type of deposit (morainic, marine, biogenic) is predominant are distinctively distributed along Axis I.

When considered with lot occupancy status, these results reveal two significant tendencies. First, a close relationship exists between the lots occupied in 1825 and 1831 and those where morainic deposits

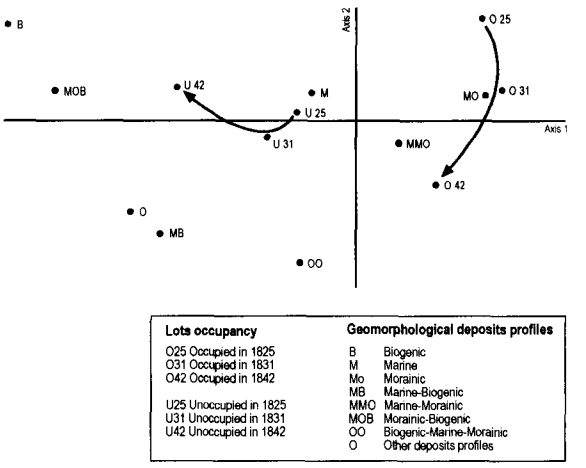

Figure 4
Results of multiple correspondence analysis: the relationship between lot occupancy and geomorphological deposit profiles (1825-1842).

predominate. By 1842, this relationship has weakened, with the occupied lots now more closely associated with morainic and marine-morainic deposits (Figure 4). Secondly, unoccupied lots tend to be associated with marine deposits, although there was a gradual reduction in the intensity of this relationship from 1825 to 1842. This result suggests that the earlier tendency to avoid moist, clay-base soil decreases up to 1842. In general, the analysis indicates that most of the lots settled from 1825 to 1842 were associated with land where morainic deposits predominated. It was also revealed that unoccupied lots were associated with land where marine deposits were prevalent. Nevertheless, both of these relationships weakened between 1825 and 1842.

Furthermore, if only the 19 newly-settled lots between 1825 and 1831 and the 79 lots first occupied up to 1842 are taken into account, the MCA conducted on these lots reveals no significant relationship between them and any type of geomorphological deposits. The percentages of variability that result from the axes generated remain very low (44% and 39%). These results suggest that those who settled in Godmanchester after 1825 did not select a particular kind of soil type, or avoid another, aside from the biogenic deposits of the Teafield, which appeared consistently unappealing.

A closer examination of the data on ethnic backgrounds (Figure 3) leads to the following remarks. In 1825, American settlers were mostly located near

Trout River and on Yankee Ridge. The Scottish immigrants were just southwest of Huntingdon, on the riverbanks and on the morainic ridge. While fewer in number, Irish and French-Canadian settlers are also scattered throughout the area. In 1831, the ethnic pattern of land occupancy remained essentially the same, even though American and Scottish clustering increased. For all intents and purposes, colonists of Scottish origin avoided settling anywhere but in proximity to the areas occupied by their compatriots since 1820. Up to that time, Godmanchester's immigrants seem to have settled in smaller ethnic clusters made of only two or three adjacent lots.

Between 1831 and 1842, things would change. Despite a few isolated shanties, a growing majority of newcomers would choose to settle near fellow countrymen and relatives. While Americans and French-Canadians remain on a few lots, Irish settlers are now almost as numerous as the Scots. During this period, two distinct ethnic neighbourhoods gradually take shape. In central Godmanchester, on Yankee Ridge and along Trout River near Huntingdon, there is a strong Scottish presence. In the northeast, around New Ireland and Dewittville, the Irish settlers have established a homogeneous community of their own. To the south in the vicinity of the Beaver, the ethnic pattern is not as evident, even though a second Irish cluster seems to emerge.

Even though it is difficult to determine the precise family ties relating these colonists, it would seem that the sectors with the highest ethnic concentration are distinguished by the least amount of surnames. In New Ireland and on the Ridge, for example, up to 4 different lots are held by household heads with the same surname.

Godmanchester's Colonization Pattern and Process

Was this settlement pattern predictable and was it similar to others observed elsewhere on the Canadian frontier? Three distinct stages of settlement (the river bank settlement, the morainic ridge settlement, and settlement through ethnic clustering) emerge from our data, shedding new light on the major site factors cited in the literature. From an inspection of Godmanchester's colonization pattern, it seems inappropriate to conclude that soil features were the decisive factors in settlement location, since physical access, geomorphological deposits and ethnic attraction all played an important role in the settlement process.

The early pioneers' riverbank settlement (1795-1819)

In Godmanchester and its vicinity, as in territories studied by Brunger (1975) and Courville (1975), the local waterways determined where the very first pioneers settled. Close to the United States border, American colonists went down the Trout River and then settled on its shores, where marine deposits predominated. It is likely that the primary intent of these first pioneers was to harvest timber from the local forest rather than to grow crops. At this early stage of Godmanchester's land colonization process, settlers seem to have first occupied either sites which gave easy access to the area or those that were appealing because of their tree cover: "The inducement to select his lot was the abundance of ash and elm that covered an old beaver-meadow" (Sellar 1963, 18).

While the first American pioneers were free to choose the land that they wanted to settle, the situation soon changed. To keep their riverside lots or to enlarge their homesteads, they had to deal with absentee landowners. In a situation similar to that of Quebec's Eastern Townships (McGuigan 1963), all lots in Godmanchester were not equally available for settlement due to the occasional reticence of the Ellice family to sell their lands (Larose 1987). However, given that none of these absentee landowners possessed large contiguous estates, successive waves of immigrants were free to settle many lots, and consequently, on all types of soils.

The settlement of the morainic ridge (1820-1830)

At the end of the 1810s, the poor condition of roadways made it difficult to settle any distance from the waterways. Along with many lumbermen, some of the early American settlers ventured into the hilly inland on hunting and logging expeditions and familiarized themselves with the territory. Leaving behind the more accessible banks of the rivers, a few of them decided to establish their homesteads on the morainic ridge. Because sandy soil was easier to work and clear than the clay soil of the lowland plain, which was generally heavy, poorly drained and subject to flooding, the drier land of the Yankee Ridge became increasingly attractive to immigrants who wanted to farm the land.[24] However, even though a growing number of colonists seemed to consider the features of the soil when choosing where to settle, the forest cover remained a key attraction. As Sellar (1963, 432) remarked, the production of morainic ridge was superior to that the river-flats, even in

potash manufacture.

As in other studies, the specific locations chosen by the first settlers of the morainic ridge and the routes they took to get there lead us to explore the importance of the road network (McIlraith 1970; Brunger 1975; Gaffield 1987; Little 1991). At the time, the tendency in Godmanchester was "to settle along the track which in time came to be the main road, and very few were out of sight of it" (Sellar 1963, 30). A single path, originally cleared by First Nations people, first linked Trout River and Lake St. Francis (Figure 1). If not for this 'established' pathway, it is possible that the initial settlement of the inland could have taken place elsewhere than around Yankee Ridge, due to the length of the hillside and the uniformity of its geomorphological deposits.[25] When highland lots were still plentiful, those closest to existing trails were chosen first.

The British immigrants who followed the Americans also did not settle haphazardly. Using the trails cleared by the first pioneers, they headed toward the populated sections established by the Americans along the rivers and on the hillsides. As shown by MCA as well as by Sellar's testimonies, the European newcomers of 1825 showed a distinct preference for morainic lands. Those lots were then more occupied than lots with marine deposits, which were initially favoured by the early American pioneers, who were probably more interested in the trees growing there than in the soil. The Irish and Scottish immigrants who headed for the countryside in order to cultivate the soil duplicated a settlement pattern characteristic of British settlers,[26] in choosing morainic land that was easier to clear and cultivate, but not as suitable for farming by 20th century standards.

While most immigrants were free to choose their lots,[27] others may have been lead to settle on land they had never seen before, as Kelly (1975, 76) also remarks.[28] In Godmanchester, as was the case in Upper-Canada (Brunger 1975; MacLean 1991), some settlers were probably directed to certain sites by local land agents, thus being prevented from consciously choosing a location with features that suited them. Although some of these European immigrants were able to make informed decisions about the lots they wanted to settle,[29] most of them, such as the settlers studied by Brunger (1972) and McLean (1991), had difficulty appraising the features of the land.[30] Although unfamiliar with the North American landscape, they attempted to cope with their new environment.[31] Whether the soil was good or poor was of little concern, for there were very few experienced farmers among them. These settlers were often more interested in the trees that covered the ground, which "were their admiration and they did not know enough to be aware that the location was hardly one that an agriculturist would have chosen." (Sellar 1963, 178)

The ethnic clustering (1831-1842)

After 1831, the soil influences decreased, although settlers still avoided the Teafield, with its large deposits of organic matter and extreme drainage conditions. For the newcomers of 1825 to 1831, or for those who settled between 1831 and 1842, the preference for morainic lands was not significant. However, in 1831, on a much larger scale than in 1825, settlers of the same ethnic background tended to cluster together, even if attractive morainic lands were still available elsewhere in the township. Progressively, a lot's proximity to compatriots gained importance over its geomorphological deposits. While the earlier pioneers may have considered these soil features, the immigrants who followed seemed more concerned with grouping together by ethnic origin and kinship ties.[32]

As other scholars point out (Elliot 1988a; Lockwood 1988; MacLean 1991), the identity of one's neighbours seems a determining site factor, especially after 1831, when ethnic clusters were well established.[33] The proximity of compatriots who knew how to deal with the local landscape provided the newcomers with a network of mutual support, and this proved to be as important, if not more important, than geomorphological deposits. Successive newcomers traded off more easily cultivated morainic land for the advantages of familiar social milieu.

Frontier settlement from the pioneer's standpoint

What can we say about the pioneers' underlying decision-making processes? Did the first settlers of the township appropriate the best farmland available, leaving land of inferior quality for less fortunate latecomers? As witnessed, Godmanchester's colonists did not find it beneficial to systematically settle the lands with the best long-term cash-crop potential. While today's agronomists might question the locations chosen by these settlers, their choices seem rational in the context of a 19th century peasant economy, where farming technology and implements

were limited.[34] In the 1820s, it was a reasonable short-term decision for most immigrant farmers to settle on the morainic ridge, since it was relatively easy to establish a homestead there and to produce foodstuffs. In judging the land, they considered the amount of time and money required to bring the site into cultivation, not the risk of rapid soil exhaustion.[35] For the average frontier colonist, the most important characteristic of these sites was that they could be easily, quickly and cheaply cleared. Anticipated high yields and long term productivity were not necessarily the main concern of most settlers: "They did not know then of the stones, but looked at the fine cut of timber for ashes and the dry soil" (Sellar 1963, 236). As noted elsewhere (Kelly 1975), the wet, heavy lands, despite having the richest soils, were avoided by many newcomers who probably lacked the ability to farm clay soils.

Between 1820 and 1842, the attraction of morainic deposits gave way to a growing interest in ethnic proximity. The fact that those immigrants seemed to consider the proximity of their own people as more important than a specific type of deposit, suggests that their main goal was to settle land where households would succeed (i.e. to reach a subsistence level of production). To this end, the help of well-established relatives and friends became more attractive than unoccupied, easily cultivated land, or soil suited for cash-crop farming. "The privations of those years [...] in no way broke the spirit of the immigrants, for those who survived [...] declared they were happier when they shared their loaf with their neighbour than when the time came their granaries were filled with wheat" (Sellar 1963, 432).[36]

It is crucial to approach the problem from the pioneers' standpoint to understand why many newcomers in Godmanchester and elsewhere (Bitterman 1988; Lockwood 1988; Lehr 1994) overlooked good land for long-term grain farming. Godmanchester's early settlers did not necessarily want to produce large yields and surpluses to supply the grain market. The evidence shows that it is misleading to think of early 19th century settlers as profit maximizers when their main objective was an adequate level of subsistence for their families. They were not market-oriented farmers but *residential producers*.[37] From 1795 to 1842, their primary goal was to secure the immediate survival of their family. For these farmers, it would have been irrational to settle on the most promising local cash-crop lands, namely those located on clay soils, since they may not have been accessible, were arduous to clear, or were not in proximity to friendly neighbours.

Like Lehr (1994), this study reveals that most settlers prized aspects of the physical environment that facilitated self-sufficiency. In their settlement process, they were attracted by a mixed set of site factors capable of helping them succeed: environmental features, such as nearby waterways, easy-to-clear, dry land; or social and economical influences, such as recently opened pathways and well-established ethnic clusters, all of which could change over time. Thus, we must conclude that Godmanchester's pioneers mostly avoided isolated lots and hard-to-cultivate land, especially if they had little capital or labour support from their families. In the 1840s, latecomers were sometimes forced to settle less desirable land or live in areas removed from relatives. These settlements were not necessarily on soils of inferior quality, as many scholars would expect, since lots with good farming potential still remained available.[38] Moreover, it is interesting to note, as Belden (1881, 7) did, that "though the ridges attracted the pioneer to a location on their elevated surface, yet in process of time the lower land (at that time considered too wet for husbandry) became much the more highly prized, and the 'ridge' locations of many settlers were entirely abandoned, owing to a great frequency of boulders."

Conclusion

Immigrants considering land for settlement chose sites that they felt would provide the best opportunity of success. For most of them, there was a need to evaluate three main factors that could affect their eventual success: physical access, the soil features and the presence of supportive neighbours. The trade-off within these three site factors largely determined where they would settle within a specific locality. This study of Godmanchester's settlement pattern and process suggests that most of the factors mentioned in earlier writings were influential on settlers, even if many of them could hardly assess the value of the available farm sites. Among the predominant factors were the hydrographical network, the forest cover, the road network, geomorphological deposits and ethnic proximity. If this conclusion seems obvious, the chronological sequence of their respective impacts had not been clarified previously. It is essential to understand that such a conclusion can only be formulated using a detailed reconstruc-

tion of the successive phases of settlement. Instead of pointing to a single factor, our findings show that during Godmanchester's colonization process, the influences of these related phenomena fluctuated. Depending on their time of arrival, frontier immigrants would appraise site factors differently.

From 1795 to the end of the 1810s, the layout of the local waterways dictated the direction taken by most of the first settlers. After 1820, some of the early pioneers moved toward the trees and the dry lands of the morainic ridge, distancing themselves from the rich, but hard-to-cultivate clay-based soil of the riverbank lots, which nonetheless remained mostly occupied. If some British newcomers settled on the lowland clay plain, many followed the Americans who first opened pathways on the hilly inlands. After 1830, pioneer settlement tended to consolidate in small ethnic clusters connected to each other by a network of pathways. Although people continued to stay away from the Teafield, as time progressed, the desire to live in a friendly neighbourhood became a more dominant factor than the geomorphological deposits of the available lots.

Given the methodological framework of this study, the results contribute to a new interpretation of frontier settlement issues. Even if our conclusions are based on local occurrences, and it is premature to generalize, they nevertheless encourage us to make several proposals. First, scholars should clarify the criteria used to assess the quality of the land that is supposed to attract settlers. Second, it would be insightful to question the notion that all immigrants were market-oriented farmers and, as a result, sought to occupy lands that were judged to be the best for cash-crop farming. Third, the role of the forest cover must be reconsidered because of the opportunities it offered to the settlers. In Godmanchester, the presence of 'rich' woodlands may have been attractive to settlers given the profitability of potash and timber.[39] At one point, many immigrants with the opportunity to select their lots were as much, if not more, influenced by the trees as by the gemorphological deposits present. Fourth, to understand the behaviour of the settlers and explain some of their choices, one must consider that some of these immigrants could not adequately assess the farming potential of the soil. Finally, it would be interesting to know why settlers avoided certain lots, rather than only considering their desire for specific geomorphological deposits. In Godmanchester, the colonization patterns may result more from an avoidance of isolated, poorly drained, difficult-to-build-on land than from an attraction to a particular type of soil. Consequently, *attractive land* to settle seems more appropriate than *good land* to farm.[40]

A future study of colonists' production would be useful in order to verify the widely accepted hypothesis that latecomers were often less successful settlers (Bitterman 1988; McNabb 1988; Hornsby 1990; Bitterman *et al.* 1993). It would be interesting to see whether Godmanchester's most productive colonists happened to settle on clay-based soils, as did Castéran's farmers (Castéran 1987), despite the fact that land with this type of soil was neither immediately appealing to pioneer farmers nor easy to cultivate in the 19th century. Such an analysis would permit an evaluation of the so-called 'hierarchy of the soil' and determine how the settlement process affects rural economic stratification.[41]

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Notes

1 For a useful assessment of the influence of Turner's ideas on Canadian history see Cross (1970).

2 See for example: Bogue (1963); Hudson (1976); Rice (1977); Worster (1994) and Brooks (1996).

3 See for example: Clark (1959); Kelly (1970, 1975); Hesselink (1972); Brunger (1972, 1975); Courville (1975); Harris *et al.* (1975); Lehr (1985) and Richtik (1985).

4 See for example: Séguin (1977); Hardy and Séguin (1984); Norris (1984); Craig (1986, 1993); Gaffield (1987); Bitterman (1988); McNabb (1988); Hornsby (1990); Little (1991); Bitterman *et al.* (1993) and Bouchard (1996).

5 See for example: Brunger (1972); Gaffield (1987); Lockwood (1988) and Acheson (1993).

6 As Kelly (1970, 63) remarked, "although wet, heavy clays were considered good for wheat cultivation by some of the early 19th century writers, very few settlers heeded this evaluation and knowingly bought and tried to develop such sites."

7 As stated by Williams (1994), Whitney (1994) and Worster (1994), much of the existing lack of clarity may result from the fact that while it is often used, the environmental argument has rarely been fully developed.

8 As Brunger (1972, 400) suggested, site factors are defined as those whose influence was located and closely associated with the land undergoing settlement.

9 In Upper Canada until 1850, according to Kelly (1975, 64-65): "the initial settlers' evaluation of land, was in terms of its capacity for wheat production and the costs of development... Settlers believed that the very worst soils for wheat were those under pure stands of pine... a

mixed hardwood cover indicated a prime soil for wheat."

10 The recommendations made by settlers' guides are revealing, even though they were not always consistent or often read by immigrants. For example, many English-language guides warned pioneers to avoid swampy land. They "emphasized the importance of limiting the initial time and effort needed for cultivation and consequently discouraged settlers from acquiring land which needed drainage. Anglophone advisers felt that the required fertilizing of sandy soil, though not desirable, was far less time-consuming and laborious than the digging of trenches in marshy fields." (Gaffield 1987; 68)

11 According to Brooks (1996, 54), "Particular types and stands of trees were associated with the three respective qualities of land. Bottomland and upland of the first quality were covered by stands of mixed hardwoods, including beech, sugar maple, elm, butternut, birch, and basswood... Hemlock trees often-signified second- or third- quality lands. Hemlocks growing on steep hill-sides and in low-lying areas of standing water marked terrain less suited for agriculture." For more details on this practice see Kelly (1970) and Whitney (1994).

12 "Depending on the pace of settlement and the details of local geography, those who arrived slightly later might find land... suitable to their needs; but those who followed were pressed to the margins. Remote locations, inferior soils... were their characteristic lot." (Bitterman *et al.* 1993, 37)

13 For the Irish settlers, see Brunger (1982), Lockwood (1988) and Mannion (1974) and for the Scottish see Little (1991), McLean (1991) and Ommer (1986).

14 According to Kelly (1970), those settlers with the least capital and the most pressing need for immediate profit from agriculture frequently chose to locate on the light upland soils under an open forest cover or on plains. The settler of average means regarded the mixed hardwood lands as the best sites. A few wealthier settlers who had a relatively large supply of capital and who could afford to hire labour chose the wet, heavy lands under a cover of softwoods. See also Bitterman (1988).

15 See for example Lehr (1985), Lockwood (1988) and Mannion (1974).

16 For Russel (1983) and Kelly (1970), the clearing rates of these best lands suggest a strategy whose primary goal was to rapidly supply the Canadian grain market. See also Bitterman (1988), Bitterman *et al.* (1993).

17 The scholars who adhere to a neoclassical economic approach do not have the choice. Within this theoretical framework, the market dictates the rules and the choices made by the producers. Under such conditions, it is obvious that pioneer farmers will first settle on the lands offering the greatest potential for cash-crop production, such as wheat. If a market for such a staple existed, it would seem irrational for settlers to select any other kind of site.

18 When the colonists were able to choose where to settle, the linguistic identity and the agrarian traditions of each group tended to be important factors. In Ontario, Francophones and Anglophones tended to select lots with distinct soil features. While Anglophones preferred lands that were high and dry, French-Canadians were more attracted to low, moist lands (Gaffield 1987).

19 By coupling, we mean the practice of following an individual and his family from one census to another. In many cases, we found the same surname on same locations in different censuses. Occasionally, we had to use Seller's chart to locate the few settlers who left Godmanchester between 1825 and 1831.

20 It is important to note that we are interested in the actual occupation of the lots, not simply when they were granted or bought, thus supporting Latouche's (1980) distinction between real and fictitious occupancy. As Brunger and Selwood (1997) remarked, colonization and alienation are not synonymous. Since land registration records do not provide a definitive record of actual occupancy, we based our study on nominal censuses. This methodological choice had an important consequence: it did not permit documenting the price of the available lots in order to determine whether the amount of capital at an immigrant's disposal affected their initial place of settlement.

21 From an agricultural standpoint, clay soils are generally more fertile and appropriate for cultivation than sandy soils. However, their high water retention and tendency towards compaction poses a considerable challenge as they are heavy and difficult to till, making them much more arduous to work than their sandy counterparts. Nevertheless, if one is prepared to invest the time and energy in labour, clay soils are capable of sustaining a flourishing crop (Castéran 1987).

22 These Irish and Scottish immigrants did not arrive in organized groups like their Scottish predecessors in St.-Anicet earlier in the 19th century (Sellar 1963). However, in the 1820's, some of them instituted chain migration, "a process by which an emigrant is joined by relatives and friends, who are in turn joined by their relatives and friend, led both to the concentration in certain localities of clusters of people." (Elliot 1988b, 310)

23 According to Sellar (1963, 413), "Where they settled the land was good and dry, but on every side they were surrounded by marsh and soon found the mistake they had made in choosing so inaccessible a spot. The bush was favorable for potash making and they were not careful in discriminating where they felled their planned heaps, for, as McNarland remarked. It was all God's land', and there was no one to dispute them."

24 The testimony of Mrs. Cooper is characteristic of this situation. "There was a small clearing by the river, which had been made by a squatter named Dewey, and my husband enlarged it, we making potash of the logs. In the spring we planted every bit of it with corn, which grew fine and we looked for a large crop... One afternoon in July it began to rain, and poured down so that next day the river was so high... Everything was swept away... Our corn was ruined." (Sellar 1963, 430)

25 Brunger (1975) also noticed the importance of these Indian portage routes.

26 As Swierenga (1980, 324) noticed, "the Scotch-Irish spied out the 'loose-dirt' bottom lands and sandy uplands with which they were familiar. Unfortunately, such hilly terrain often contained inferior soils." See also Brooks (1996), Elliot (1988) and Gaffield (1987).

27 "My father and I proceed to Port Lewis to see J. Brown, who was agent. He gave us all the information... and told us to pick out what lots we saw fit, and to notify him of our choice... We did not think much of the land from Huntingdon to Murray Bridge, it being covered largely by hemlocks... Having chosen our lots, we returned to Port Lewis." (Sellar 1963, 424)

28 On this matter, the testimony of Mrs. Ford is interesting. "When we came to our lot, which was all under bush except a bit by the river strewn with decaying pine-logs left by lumbermen, oh, but we were disappointed; it was so different from the description of the bush we had believed while in Scotland." (Sellar 1963, 427)

29 Sellar (1963, 420) has little to say on this subject. Alex Lunan, however, suggests that his father had some basic knowledge, which proved to be useful for a settler. "In 1824 my father visited Huntingdon, and bought 25 from Ellice for $3 an acre. He thought the land good, for the stone did not show, being covered with forest litter, and was nice and dry."

30 According to Brunger (1972, 401), "the settler's knowledge of the information in the guides may have been... poor, and consequently, he may have been incapable of exercising a judgment on land quality even if faced with a free choice situation."

31 Sellar (1963, 434-35) tells many stories about this phenomenon. "Father knew nothing about fitness of land for settlement, and like all new-comers thought it was a great thing to be owner of a farm of any kind. Traveling back of the settlement on Trout River, he saw a nice hill on lot 57 of the 5th range and once concluded it was desirable, and drew it. The shanty was not quite finished when we moved in, and to reach it we had to walk through the woods. The roof was so open that daylight came trough... Father was very strong and hard-working and to earn a little money... worked for the farmer, who were long settled and better off... Our crops were good, but we soon found that it was impossible to clear much of our lot, which was mostly under water."

32 The stories collected by Sellar (1963) are revealing of this process. In 1825, William Cunningham left Ireland for Lower-Canada. Once in Godmanchester, he found the homestead of his three cousins and agreed to work with them for the next six months. He wrote to his father, who then decided to join him.

33 Previously, ethnic clusters may have been less attractive than morainic land. This situation can be explained by the fact that before the mid 1820's, most pioneers were at the same stage in their settlement process. The existing colonists were not able to help the new-comers, being themselves occupied with their own land clearing efforts. Later, established pioneers would be in a position to contribute to the establishment of their newly arrived British neighbours.

34 While the clay-based soils of the lowlands are today used for the cultivation of grain, morainic deposits are no longer in use and lie fallow (Pan *et al.* 1999).

35 According to Kelly (1970, 62), light upland soils, such as those covering Godmanchester's morainic ridge, would loose their fertility over the course of a few years of wheat farming.

36 In our opinion, happier, given these circumstances, means that these farmers were essentially satisfied once they reached a subsistence level of production, rather than producing surpluses to be sold on the market. Between 1800 and 1842, settlers in Godmanchester who needed cash did not necessarily have to rely on the grain market. The testimonies collected by Sellar made it clear that it was more rational to trade potash and timber. In fact, in the early 1830's, settlers traded corn for wheat with the French-Canadians of nearby parishes (Sellar 1963, 427).

37 Instead of assuming that the colonists' natural tendency towards commercialization was hampered by the imperfections of the market; from a given organization of property, we deduced that most settlers could not primarily focus their production on the demands of the market under such circumstances (Verdon 1987; Verdon and Roy 1994).

38 To the best of our knowledge, there is no reason to believe that these lots remained available due to a higher price. In fact, the Ellice family's agents showed considerable tolerance when dealing with tenants who were unable to pay for their lots, suggesting that certain settlers nevertheless bought lots that were well beyond their means.

39 As Lehr (1994, 187) suggested, "capital could be generated by exploiting the non-agricultural resources. By cutting and marketing cord-wood new settlers could raise sufficient capital to establish themselves..."

40 With this expression, we mean land with interesting features from an immigrant's point of view rather than from a purely agronomic standpoint. Those who arrived in Godmanchester in order to fish, hunt and log the forest were looking for features different from those who took a homestead in order to cultivate the soil. The goals of these farming settlers might also be quite different from one another, given their unequal knowledge and ability to cope with the North American landscape. The features of these attractive lands thus changed over time. Affordability is another site factor one must consider, even if it seems of little consequence in this specific context. We nevertheless believe that an immigrant's disposable capital was an important factor to consider, in that it may have permitted some colonists to buy larger plots of land from the onset of colonization.

41 The term 'hierarchy of the soil' is taken from Bitterman 1988. On this matter, Darroch (1998) recently concluded that in Ontario, "there is little sign of an advantage conferred by early entrance to this agricultural region."

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