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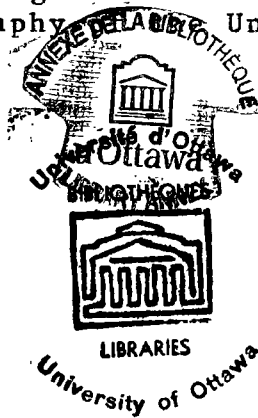
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THE PROCESS OF SETTLEMENT AND LAND
CLEARANCE IN PAPINEAU COUNTY
QUEBEC (1800-1967).

By

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Dissertation submitted in partial
fulfillment of the requirements
for the degree of Master of Arts
in Geography, University of
Ottawa.



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Preface and Acknowledgements

The West Laurentian area of the Province of Quebec has been of relatively little interest to researchers. Dr. Peter Clibbon has called it a terra incognita. It would be pretentious to attempt an exhaustive study of such an area within the short time at my disposal.

This study is basically a preparation for further investigation of the progress of settlement and land clearance in similar areas for which little or no data of geographical interest exist. It incorporates the contributions of several workers in search of a reasonable explanation of the progress of settlement and land clearing in Papineau County, Quebec.

I am most grateful to my thesis director, Dr. Rolf Wesche, for his sound criticisms and encouragement at times when hopes of presenting this study seemed dim. The thesis could not have reached this stage without him.

I am indebted to Dr. Hugues Morrissette who introduced me to practically all possible sources of data. His criticisms of the draft were a major contribution to the present form of the thesis.

Dr. Peter Clibbon of Laval University helped me through the early stages of data collection. His original maps on patented lands and land-use maps of Quebec were most useful, and to him I am also grateful.

Some of the maps were drawn by Mr. G. A. Lester, I wish to thank him for sparing me his time and energy in this attempt to map data culled from old maps.

The expenditure for the thesis was met basically from the assistantship offered me by the Department of Geography and by a grant from the African Students' Foundation. I wish to thank the Graduate Students' Committee of the Department of Geography and the Foreign Students' Adviser who sponsored me for a grant from the African Students' Foundation.

Mrs. Jeannine Desjardins, Miss Willie Kruikemeijer and Miss Lirlyn Elliott spent sleepless nights typing one draft after the other. I am thankful to them for their services. While much of the credit for this study goes to all those who helped in various ways, the author is responsible for all statements in it.

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INTRODUCTION

THE PROGRESS OF SETTLEMENT AND LAND CLEARANCE
IN PAPINEAU COUNTY

Papineau County was established in 1923, but the major subdivisions of the area had already been made before this time. Settlement and land clearance started in 1810; however, a considerable number of pioneer settlers left the County by 1855. Land acquisition reached its peak around 1930. From the mid-1930's, farm land area has been declining even though the area cleared for cultivation has increased.

The use of machines and electricity in lumbering and farm work has tended to reduce the volume of manual labour required in farming and lumbering. Specialized mixed farming and a capital-intensive system of exploitation gave birth to co-operatives and tended to eliminate less productive farmers.

In post-war times, tourism started taking its toll of good farm land. Land abandonment has become the current norm while the afforestation of such abandoned areas has not progressed enough to balance with the rate of abandonment. The interaction of the complex factors of land capability, the movement of farm operators, tourism and state policies concerning economic activities has produced a landscape, the

evolution of which presents an interesting case study.

The cultural landscape is the end-product of the interaction of environmental characteristics of an area, the distribution of population, the pattern of land exploitation, the transportation network, and, in the highly organized community, the administrative policy on settlement and land exploitation.

Such a landscape changes with time in conformity with changes in population distribution, transportation and systems of land use. Given a time scale, an analysis of these elements of change can be used to develop a changing pattern of land clearing. This study is an attempt to appraise some factors that have contributed to the progress of settlement and land clearance in Papineau County, Quebec.

The attempt to trace the process of land clearing in the County has encountered the problem of paucity of data, but the 'scraps' left by early surveyors, historians, geographers, and churchmen have been the base of this study. In the section dealing with the Post-Colonization stage, air photograph interpretation, together with field work, offered first-hand information on the direction of settlement and land clearing.

The main body of this study is incorporated in three stages which are the pioneer stage, the colonization stage and post colonization stage. The pioneer stage ends in 1860, seven years before the formation of Confederation. This

stage saw no planned development, and the main trend involved land acquisition for the exploitation of timber resources. The infrastructure had not yet taken shape and settlement was extremely dispersed, to the extent that the Surveyor-general mapped houses and inserted names of householders.

The Colonization stage starts in 1861 and ends in 1920. This stage is marked by a cautious planning of townships. There was an extensive development in communications, mining and agriculture. It is characterised by the settlement of French colons in areas abandoned by landed immigrants who left following the end of road works in the upper valley of the Ottawa River.

The Post Colonization stage starts from 1921 and extends to the present. It is a stage of rational economic development which has resulted in large-scale mechanisation, rapid urban growth and the formation of large farm cooperatives and specialised agricultural enterprises which in turn have influenced the pattern of land clearance.

These stages are not by any means a sharp break of a process which has been continuous. Rather, they represent major characteristics influencing the process at given periods of time. An attempt was made to interpret maps of surveys on roads, mining sites and town plans. In maps of the earlier stages of land clearance, scales were distorted, but by a careful correlation of historical records and relevant geographical description of places and physical features

to these old maps, it was possible to delimit the approximate extent of settlement and cleared land. For example, maps showing boundaries of forest concessions can be assessed to indicate the limits of areas that were available for settlement.

A large part of the County is still unsettled. One major problem encountered was the search for a method of eliminating areas which have been least affected by settlement and land clearing. The arbitrary choice of areas is very subjective, and random sampling incorporates some of these unsettled areas.

This problem was resolved by making a comparative analysis of the agricultural system at the municipal level, and by relating the distribution pattern of certain agricultural characteristics to physiographic regions. By this type of analysis it was possible to determine areas of concentrated agricultural activity, from which a random sample was carried out.

The agricultural characteristics studied were the distribution of soil potential for agriculture, farm incomes and farm operators. The assessment of soil capabilities in the municipalities was necessary because farming partly depends on soil fertility. Soil potential for the respective municipalities was calculated by the Henry Noble weighting system.¹ Planimetric calculations were made of

¹ Henry F. Noble, Trends in Farm Abandonment, (Toronto: Ontario Department of Agriculture, 1967), pp. 1-12.

the soil capability types from map 31G of the Canada Land Inventory (see appendix 1).

Information on land valuation for a sample study of a tourist and agricultural area was acquired from mayoral offices of Chénéville and Notre-Dame-de-la-Paix. From this information an assessment was made on the methods used by the Provincial legislature in designating the type of economic activity in the townships. This assessment was further strengthened by views expressed at a meeting of a town council at a time when taxation on land concessions was discussed.

The map information on farm land areas and operators is based on census returns from the Dominion Bureau of Statistics. The average farmer's income as well as the dominant farm type data came from the "Inventaire des Ressources Naturelles du Comté de Papineau."² The use of percentage values for the various municipalities facilitated a comparison of the selected characteristics of the agricultural system, and provided a clear picture of variations within the County and the concentration of certain characteristics in particular physiographic regions.

2

Ministère de l'Industrie et du Commerce, Inventaire des Ressources Naturelles du Comté de Papineau, P.Q. (Québec: Ministère de l'Industrie et du Commerce, 1942).

Paul Lajoie's soil maps³ on Papineau County have forty-four local soil types and these are classified into five major groups relative to their potential for agricultural exploitation.

These maps differ from the Canada Land Inventory map, in that the classification here is based on a comparative evaluation of soils within the locality. The class 1 soil types in the Lajoie classification are of lower potential than class 1 soil types of the Inventory, which do not occur in Papineau County. Lajoie's soil maps are however valuable in that they offer a detailed evaluation of soils within the context of the area he studied. Map 5 was produced on the basis of Lajoie's five classes to show the distribution of soil types and to relate it to actual land use in the County.

³ Paul G. Lajoie, Etude Pédologique des Comtés de Hull, Labelle, et Papineau (Québec), (Ottawa: Queen's Printer, 1968), Cartes Nos. 1, 2, and 4.

CHAPTER I

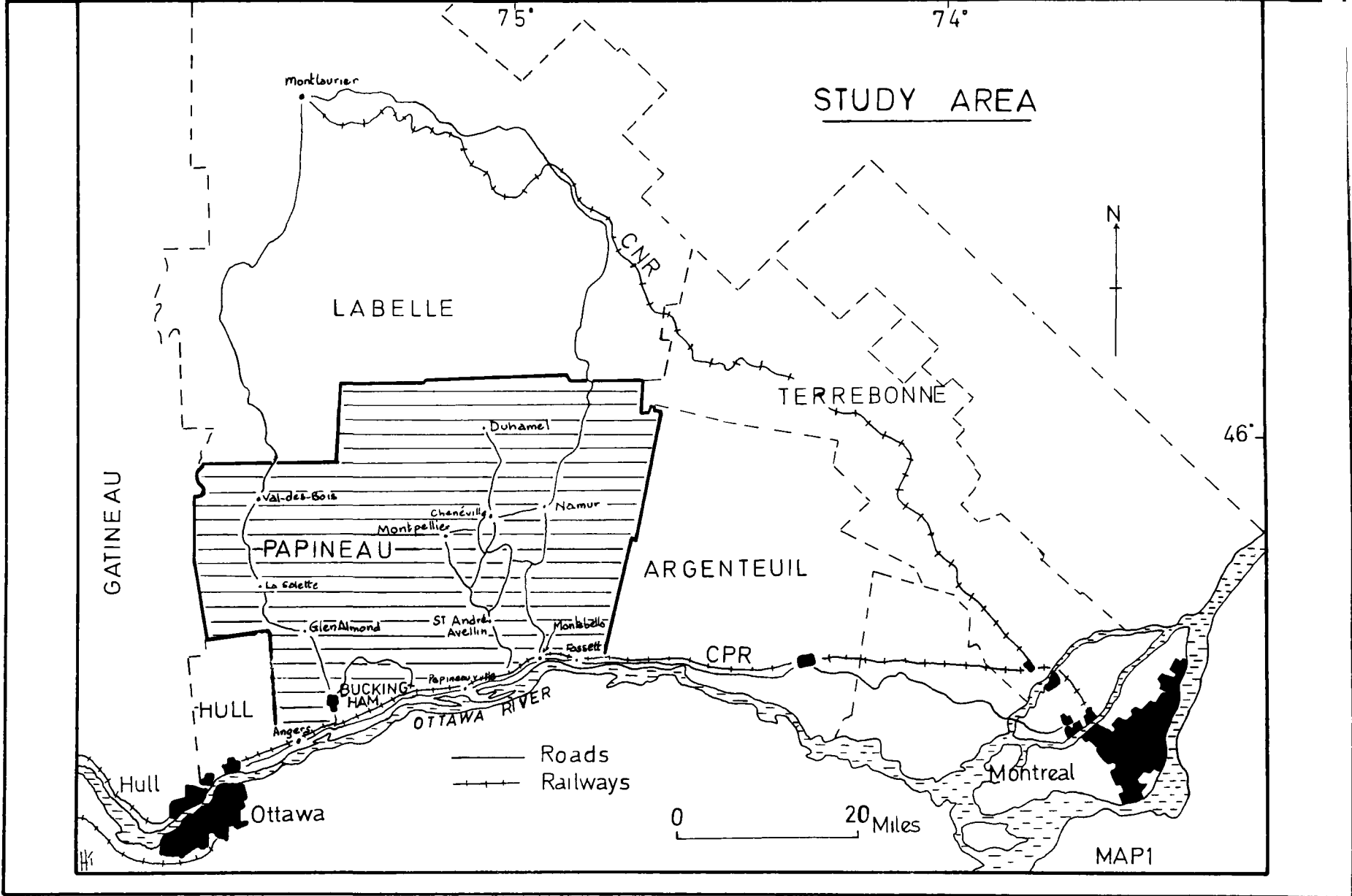
THE GEOGRAPHICAL LOCATION OF PAPINEAU COUNTY
AND ITS ENVIRONMENTLOCATION OF STUDY AREA

Papineau County forms one of the large administrative units situated along the northern shore of the Ottawa River. It is within latitudes $45^{\circ}30'$ and $46^{\circ}5'$ North; and longitudes $74^{\circ}4'$ and $75^{\circ}45'$ West (see map 1). The County is 1,581 square miles in area. It is bounded on the north by Labelle, on the east by Terrebonne and Argenteuil, on the west by Hull and Gatineau Counties, and on the south by the Ottawa River.

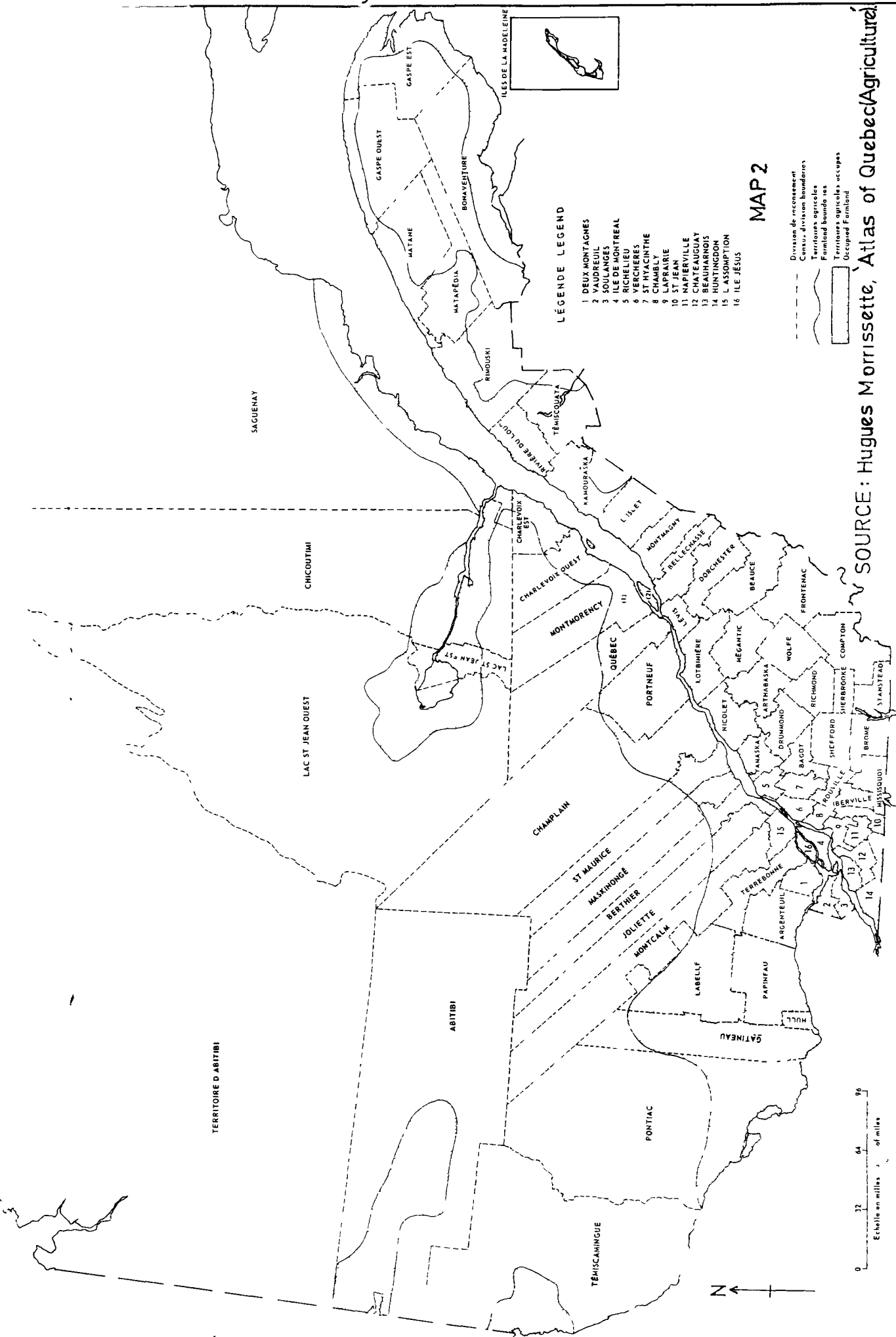
The County is flanked on either side of its southern portion by two large urban centres which are both less than eighty miles from Papineau. Thirty-five miles from Buckingham, the administrative centre of the County, is Ottawa; while sixty miles from Fassett is Montreal to the southeast.

Papineau County is wholly within the occupied farm land area in the Province of Quebec (see map 2). The "Atlas of Quebec (Agriculture)"¹ shows that the County is not a marginal agricultural area. Agricultural productivity is medium compared with other counties in Quebec, and concentrated to the south of the County. It is this concentration of

¹ Hugues Morrissette, Atlas of Quebec (Agriculture), Economic Research Bureau, Department of Industry and Commerce, Quebec, 1967.



OCCUPIED FARMLAND IN QUEBEC



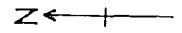
LÉGENDE

- 1 DEUX MONTAGNES
- 2 VAUDREUIL
- 3 SOULANGES
- 4 ILE DE MONTREAL
- 5 RICHELIEU
- 6 VERCHERES
- 7 ST HYACINTHE
- 8 CHAMBLY
- 9 LA PRAIRIE
- 10 MADEIRA
- 11 CHATEAUVILLE
- 12 CHATELAIN
- 13 BEAUPREUX
- 14 HUNTINGDON
- 15 L ASSUMPTION
- 16 ILE JÉSUS

MAP 2

- Division de recensement
- Census division boundaries
- Territoires agricoles
- Farm land boundaries
- Territoires agricoles occupés
- Occupied farmland

SOURCE: Hugues Morrissette, Atlas of Quebec(Agricultural)



0 32 64 96
Echelle en milles / of miles

agricultural activity to the south that offers the clue to the progress of land clearance in Papineau County. This is an area of early settlement and of fairly good soils and situated along the main northern transportation route between Ottawa and Montreal.

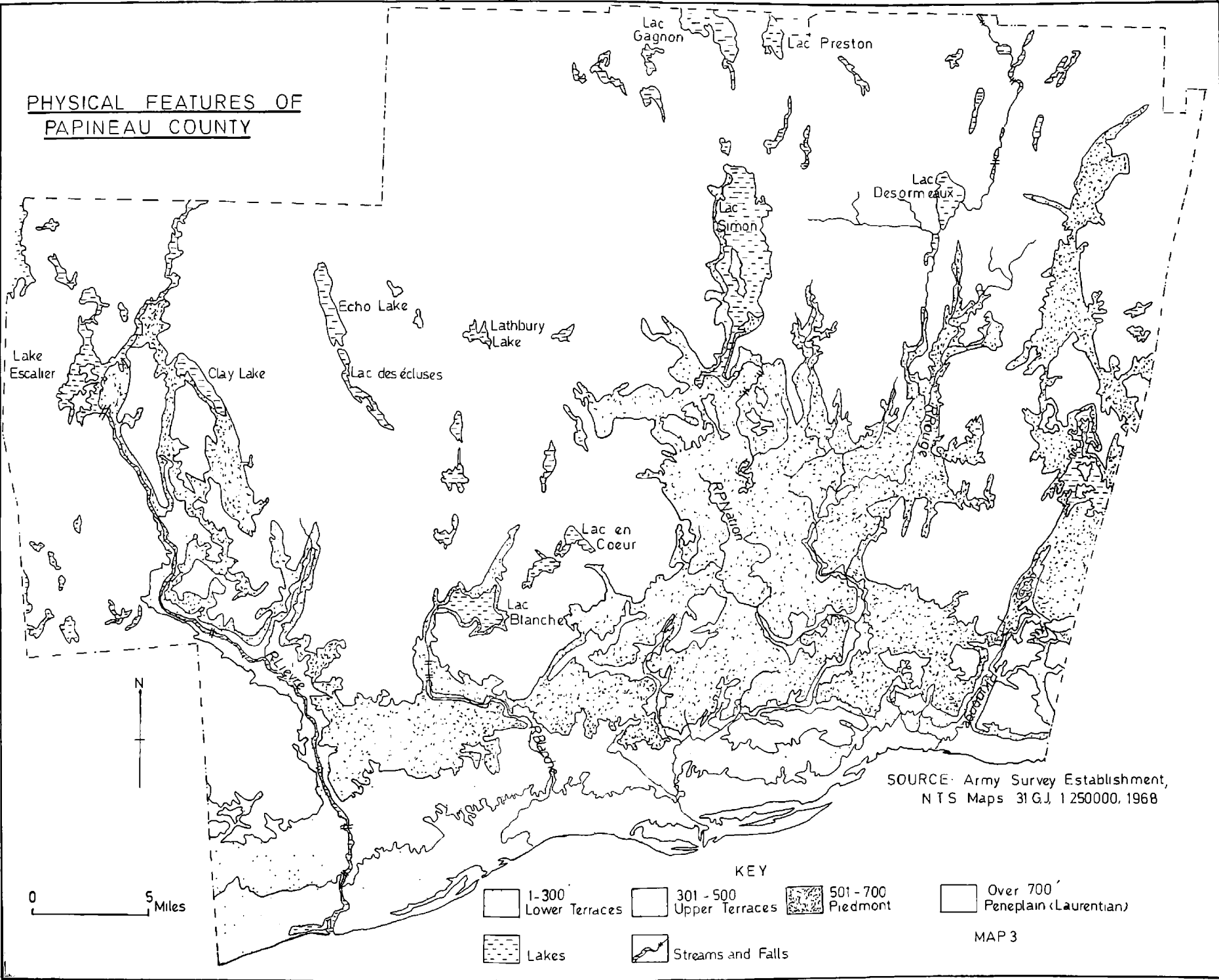
THE ENVIRONMENT

Relief

There are three distinct relief features in the County. To the south are the terraces of the Ottawa River; northward follow a Piedmont zone and the peneplain of the Laurentian Shield (see map 3). These three physiographic regions are a continuation of the general features which characterize the northern part of the Ottawa Valley.

The terraces of the Ottawa Valley can be subdivided into the lower terraces of the Ottawa plains and the upper terraces north of the plains. The lower terraces are generally at heights ranging between 150 and 350 feet above sea level. They form a narrow band of flat land which is widest in the southwestern part of the County where it stretches for six miles. Eastward, these lower terraces are narrow flat land which is less than two miles wide at Fassett. In several areas where the land is below 250 feet above sea level, rapid down-cutting of streams has resulted in the development of ravines. Most of the streams in the plains run in deep gorges and limit the extent of land usable for cultivation to the upper platforms of the valleys. The terraces of the

PHYSICAL FEATURES OF
PAPINEAU COUNTY



SOURCE: Army Survey Establishment,
NTS Maps 31 G.J, 1:250000, 1968

KEY

- | | | | |
|--------------------------|----------------------------|----------------------|-------------------------------------|
| 1-300'
Lower Terraces | 301-500'
Upper Terraces | 501-700'
Piedmont | Over 700'
Peneplain (Laurentian) |
| Lakes | Streams and Falls | | |

MAP 3

Ottawa Valley comprise a large portion of the southern municipalities (relate map 3 with map 4).

The Piedmont zone is generally 600 to 800 feet above sea level. The outer margins of this zone are highest, and enclose large deposition basins which are at 400 to 600 feet. These basins are largely filled with glacial moraines. In agricultural terms, these moraines of sand and gravel provide fairly good soils around municipalities like St-André-Avellin, Notre-Dame-de-la-Paix, Ripon, Vinoy, Chénéville, and in the upper Lievre Valley around Notre-Dame-de-la-Salette, where they are widespread.

The peneplain of the Laurentian Shield is between 1,000 and 1,200 feet above sea level. In Papineau County, the Laurentian peneplain is fragmented and it is only in the northern municipalities that one finds extensive areas of it. Here, fluvio-glacial erosion has left an imprint in the form of glacial lakes encrusted in old fiord channels. Some of these lakes are very deep, while the adjacent offshore land is of high scarpland. Lac Simon is at 652 feet above sea level while the level of the peneplain surrounding it reaches 1,200 feet. Aside from the wealth of forest reserves of the Laurentian Shield peneplain, the scenic beauty of the lakes and mountains have been a strong base for the development of a tourist industry in modern times.

The relief characteristics of the County have to some extent affected the direction of settlement and land clearing. The southern municipalities on the clay plains have

developed fastest, followed by those in the Piedmont zone where the sandy inland basins have been exploited for the production of special crops. The scarplands on the eastern margin of Ripon and Notre-Dame-de-Bonsecours limit this area of sandy basins which merge with the southern terraces of the Ottawa Valley. This wedge has been a major corridor of penetration to the eastern part of the County.

Drainage

The streams draining the County are tributaries of the Ottawa River. They rise well beyond the County limits and follow a north-to-south course which traverses the Laurentian Shield, the Piedmont and the Ottawa Plains. The breaks of slope which mark the descent of the stream courses from one stratigraphical layer to the other have developed falls, some of which have been exploited for the generation of hydroelectric power.

The Lièvre rises from the Counties of Berthier and Joliette, north of Papineau. Within the County, the river receives a few tributaries like the Petite Blanche, Blanche, Shaple, and Ross. The Lièvre and its tributaries drain the western part of the County. The Petite Nation River rises from Labelle County and is joined by its major tributary, the Petite Rouge, about four miles east of St-André-Avellin. Together with the Kinonge, the Petite Nation drains the eastern part of the County.

The flow pattern of these streams has been of economic interest. A number of falls have been developed to generate

hydroelectricity. The Petite Nation has three falls that have been exploited since the early 1940's. There is one such fall in Duhamel, one in the municipality of Ripon, and a third in Notre-Dame-de-Bonsecours North. The Petite Rouge has three hydroelectric stations; one at Saint-Emile-de-Suffolk, one at Namur, and another at Notre-Dame-de-la-Paix.

On the Lièvre one finds the hydroelectric stations at Buckingham, in Bowman, and at Poisson Blanc. The harnessing of water power from these streams has not only helped in the decentralization of industrial operations within the County, it has brought a cheap source of energy to the doorstep of the settler in highly dispersed settlement areas.

The Soils

The soils in Papineau County offer an interesting case study of the relationship between parent rocks, glacial deposition, and the present climatic characteristics.

In the County, the range of climatic conditions from north to south is so small that it does not cause major differences in climatic limitations to agriculture. The vegetative season lasts for six months throughout the County.

The "Etude Pédologique des Comtés de Hull, Labelle, et Papineau",² has a classification of soils based on their

2

Lajoie, Etude Pédologique des Comtés de Hull, Labelle et Papineau (Québec), pp. 96-99.

characteristics. This classification is most useful, as it characterizes the chemical constituents of the soil, its colour and texture, its porosity, and the slope of the area where a given soil type is found.

In the three counties he studied, Paul Lajoie found fifty-six soil types, forty-four of which occur in Papineau County. He grouped these fifty-six soil types into five major classes in terms of their adaptability to crop farming and market gardening.

Soils in Class 1 are very good for both large-scale crop farming and market gardening (see table 1). They respond very well to chemical fertilizers. This soil class sometimes needs artificial draining, but the terrain is level enough to allow mechanized cultivation. The soils are generally very finely textured loamy clays with pH values between 5.4 and 5.8. In Papineau County, only 5.5% of the land area has this type of soils.

Soils in Class 2 are good for crop farming. They are deficient in phosphates and require a large supplement of potash. The humus content is high but the texture is coarser than in class 1 soils. They are loamy, but with a greater content of sands. The pH value is generally between 5.3 and 5.5. This soil class accounts for 6.1% of the land in the County.

TABLE 1. AREA AND PERCENTAGE OF SOIL CLASSES ³
IN PAPINEAU COUNTY

<u>Class</u>	<u>Acres</u>	<u>Percentage</u>
1.	56,736	5.5
2.	63,248	6.1
3.	70,686	6.8
4.	145,299	14.1
5.	697,948	67.5

Soils in Class 3 are sandy loams with poor drainage. They are easy to cultivate but present some difficulties to mechanized cultivation. For, example, there are scattered ditches of old ox-bow lakes and marshes which are not easily ploughed by machines. The soil potential is limited to special crop cultivation or market gardening, and heavy fertilization is a requisite. The texture is generally granular with increasing coarseness in the lower horizons. The pH values are between 5.4 and 5.6. About 6.8% of the County has soils of this class.

Soils in Class 4 are very porous. Their organic content is low, and they present severe limitations for farming. They are exploited for the cultivation of special crops like potatoes, but they need heavy manuring and artificial fertilization. These brown sandy soils have a low pH value

³ Lajoie, Etude Pédologique des Comtés de Hull, Labelle, et Papineau (Québec), p. 100.

of between 4.5 and 5.0 and are very susceptible to wind erosion. Paul Lajoie suggested that afforestation is the best safeguard against their rapid depletion of these soils. About 14.1% of the County comes under this soil type, and it occurs most frequently in the deposition basins within the Piedmont and lake margins.

Soils in Class 5 account for 67.5% of the total area of the County. This soil class can hardly be cultivated because of the rocky nature of the soils and the relief. The terrain undulates between 600 and 1,300 feet above sea level. In a number of cases where this soil type merges with more productive soils, the forest cover is cleared for rough pasture (plate 1). A large portion of this soil class is composed of glacial till. The pH values are between 4.0 and 4.5.

The distribution of these soil classes is shown in map 5. Soils of high agricultural value are limited to the southern lowlands, the narrow valleys of the Lièvre and its tributaries, and the wedge between the Ripon and Petite Nation. The least productive soil class occurs in almost every physiographic region of the County, but its greatest extension is found in the centre of the County and northward beyond the County limits.

The only other area presenting a fairly continuous band of one soil class is to the south in the Ottawa Plain, where one finds the sandy loams of soil Class 2 (see also map 23). The best soils (Class 1) are least consolidated and generally

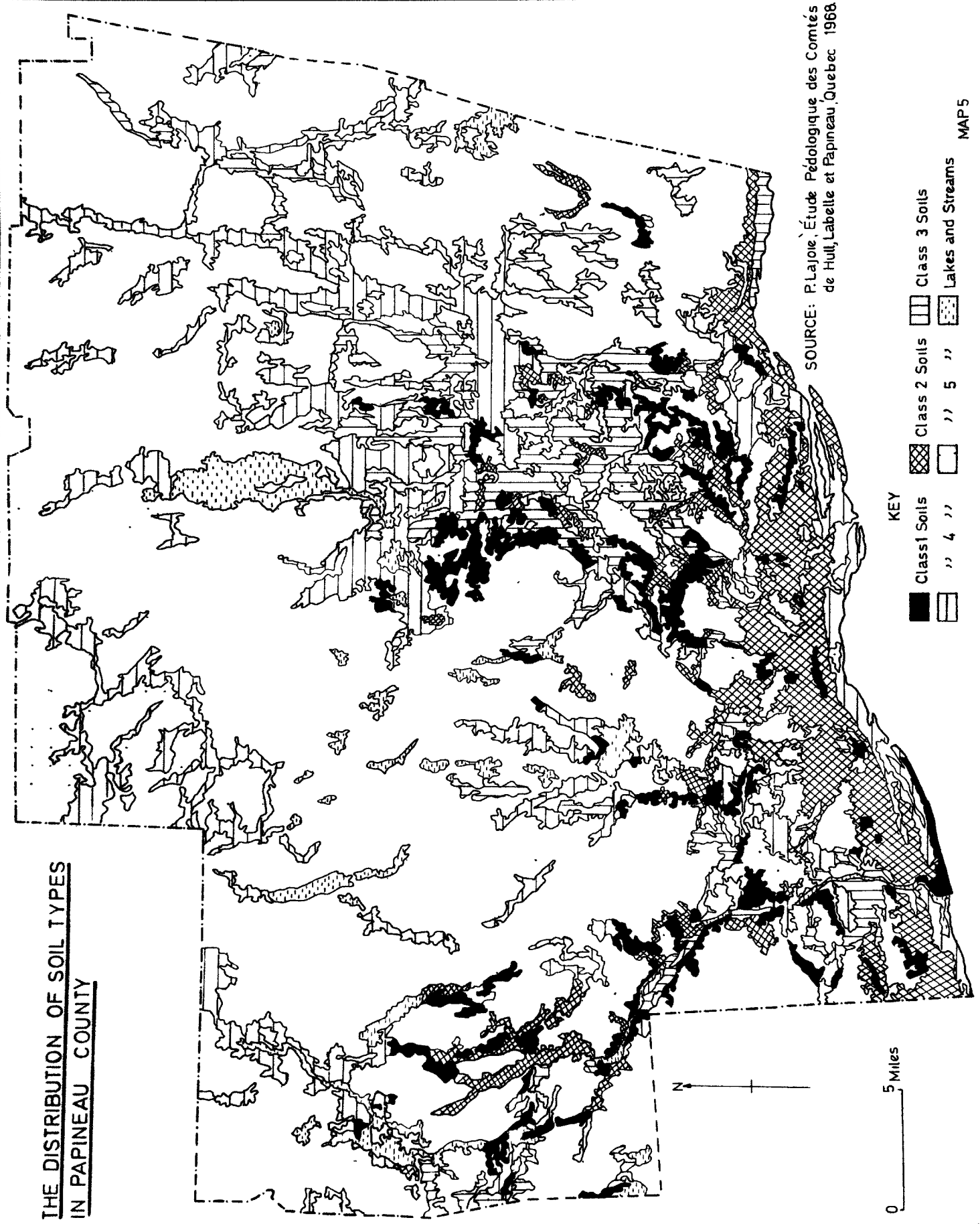


PLATE 1. PASTURES ON A ROCKY TERRAIN IN LOCHABER.

(Note the fence to the left, marking the limit to mechanized cultivation. Beyond this fence, outcrops of rock restrict land use to pasture).

30

THE DISTRIBUTION OF SOIL TYPES IN PAPINEAU COUNTY



- KEY
- Class 1 Soils
 - Class 2 Soils
 - Class 3 Soils
 - Class 4 Soils
 - Lakes and Streams

SOURCE: P. Lajoie, Étude Pédologique des Comtés de Hull, Labelle et Papineau, Québec, 1968.

occur in the central part of the County, adjacent to the poor Class 5 soils. The area of productive soils amounts to less than 40% of the total land area of the County.

More startling perhaps is the distribution of these potential agricultural soils, a patch-work of nature. Land ownership distribution further subdivides the patches of good soils in the County. The farms are usually rectangular, forming narrow bands of land which traverse the various soil classes, so divided that each farmer has some good and some poor farm land. Normally the rocky areas are cleared for rough pasture or exploited for lumber.

CHAPTER II

THE PROGRESS OF SETTLEMENT AND LAND CLEARANCE
IN THE PIONEER STAGE (1800 - 1860)

Land clearance in the County started during the early part of the nineteenth century. From 1797, concessions had been granted to a limited number of surveyed portions in the southern part of the County (see map 6). These portions included the townships of Buckingham, Lochaber and Gore, Malachie and Petite Nation. The first half of the Pioneer stage was one of land acquisition. In most areas, land acquisition was not followed by immediate settlement.

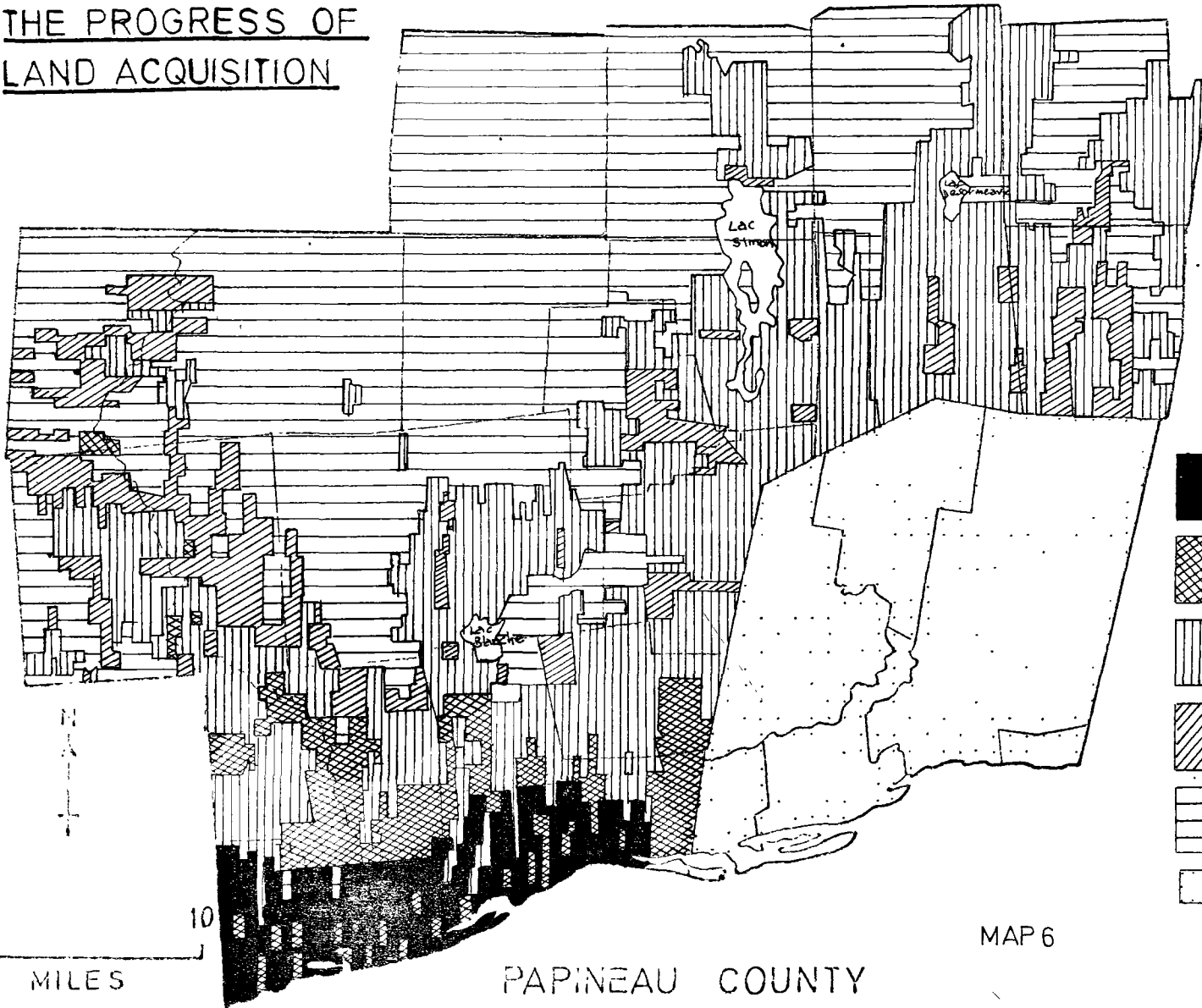
The progress of land clearance at this stage depended upon the system of communication, state policy concerning settlement, the distribution of pioneer settlers, the pattern of land concessions, and their exploitation through lumbering and agriculture.







THE SYSTEM OF COMMUNICATIONS, STATE POLICY CONCERNING
SETTLEMENT, AND THE DISTRIBUTION OF PIONEER SETTLERS

Towards the end of the Pioneer stage, the present pattern of communications had started to take shape (see map 7). Roads were constructed to connect the new townships, the Ottawa River was to become a seaway with the construction works at the Chaudière Falls, and the railway line from Montreal was just a few miles from the County's eastern limit near Grenville.

THE PROGRESS OF
LAND ACQUISITION

SOURCE: Clibbon;
"Carte des dates de
lettres patentées de
la Province de Québec"
(In preparation).



- KEY
-  Concessions by 1841
 -  1842-1861 Concessions
 -  1862-1920 "
 -  1921-1931 "
 -  1932 - Present "
 -  PETITE NATION
SEIGNEURY 1674.

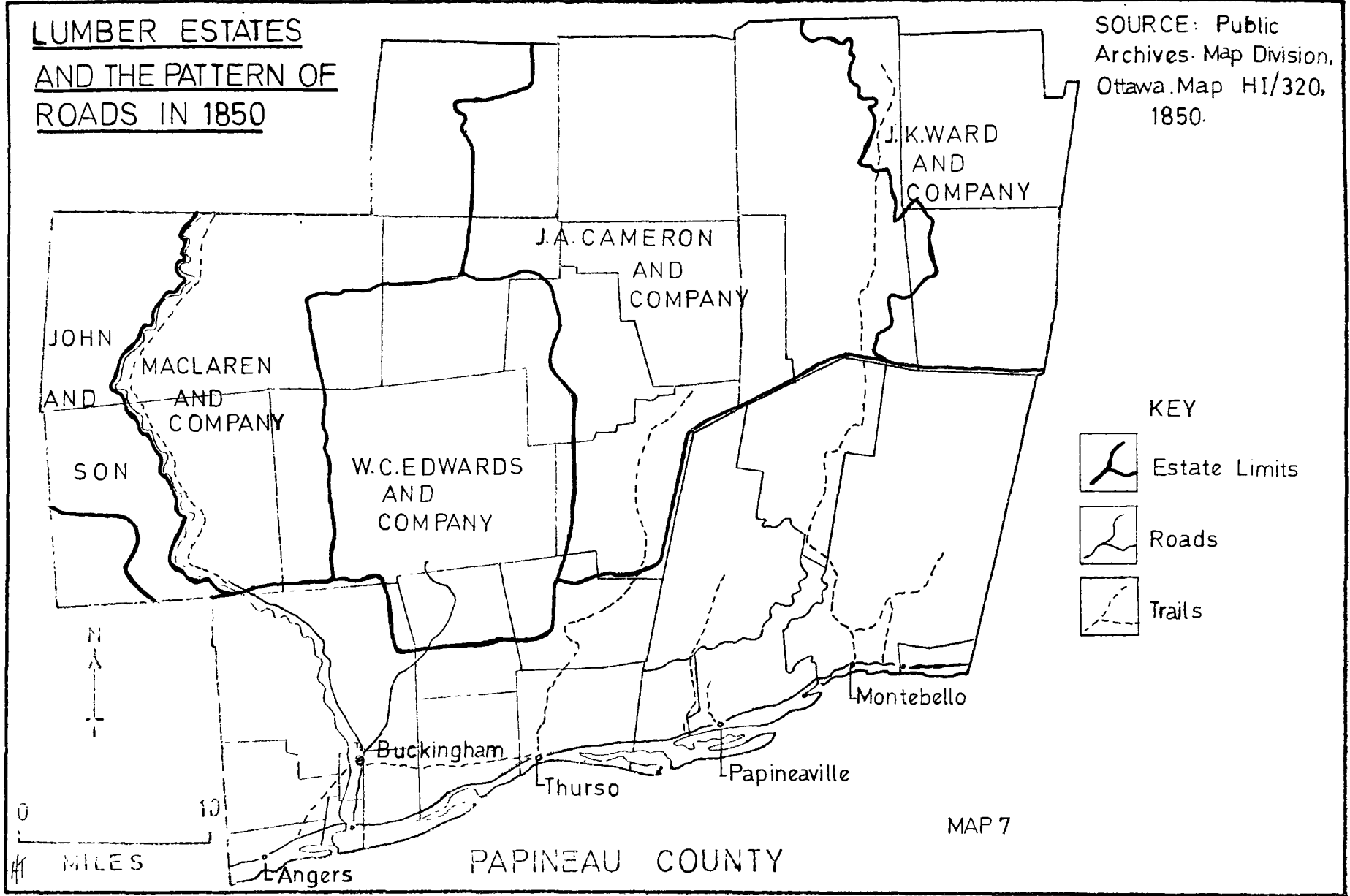
MAP 6




PAPINEAU COUNTY

UNIVERSITÉ D'OTTAWA / ÉCOLE DES GRADUÉS

LUMBER ESTATES
AND THE PATTERN OF
ROADS IN 1850

SOURCE: Public Archives·Map Division,
 Ottawa·Map HI/320,
 1850.



- KEY
-  Estate Limits
 -  Roads
 -  Trails

MAP 7

The construction of roads was a relatively slow process with the Ottawa River absorbing almost all the traffic from the County. The northern roads were trails of lumberjacks who travelled close to the river valleys and opened staging posts further toward the interior.

To the south, the movement of State troops and tradesmen necessitated a more rapid construction of roads. Most of the roads at this period skirted the northern valley of the Ottawa River. Beyond this, they connected the few settlement areas which were at a distance of less than nine miles from the Ottawa River. The availability of land routes in the southern lowlands enabled early settlers of different linguistic origins to settle separately and at the same time be linked with the food supply areas.

One of the problems encountered by early road works was that of marshes which involved the construction of a large number of bridges (see map 8). Occasional flooding created a problem both for settlement and road construction. In his description of Lochaber and Gore, Bouchette comments:

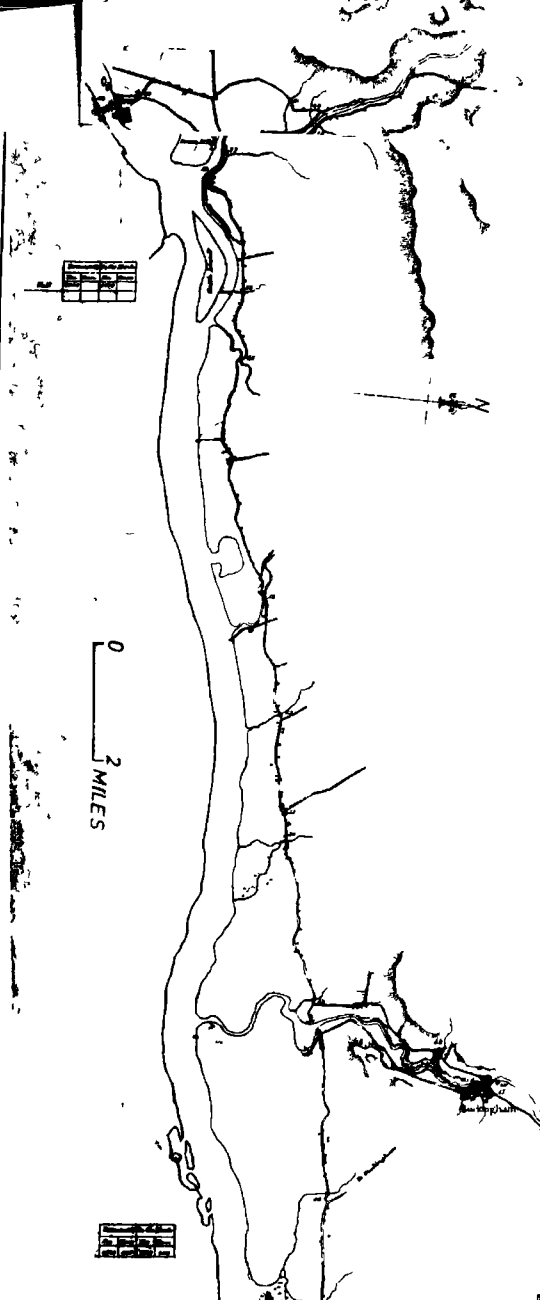
"The land is so low that it is frequently overflowed; but if the settlements should become more numerous, embankments might be raised to repress the incursion of the waters."¹

Waterways were the most important means of communication in

¹

J. A. Bouchette, A Topographical Dictionary of the Province of Lower Canada, (London: Longman, Rees, Brown, Green, 1832). Not paged.

SKETCH OF THE ROAD FROM CARILLON TO HULL on the North of the RIVER OTTAWA, 1866



1. The road from Carillon to Hull is a narrow one, and is in many places a mere path. It is in some places a good road, but in many places it is a mere path. It is in some places a good road, but in many places it is a mere path.

2. The road from Carillon to Hull is a narrow one, and is in many places a mere path. It is in some places a good road, but in many places it is a mere path.

3. The road from Carillon to Hull is a narrow one, and is in many places a mere path. It is in some places a good road, but in many places it is a mere path.

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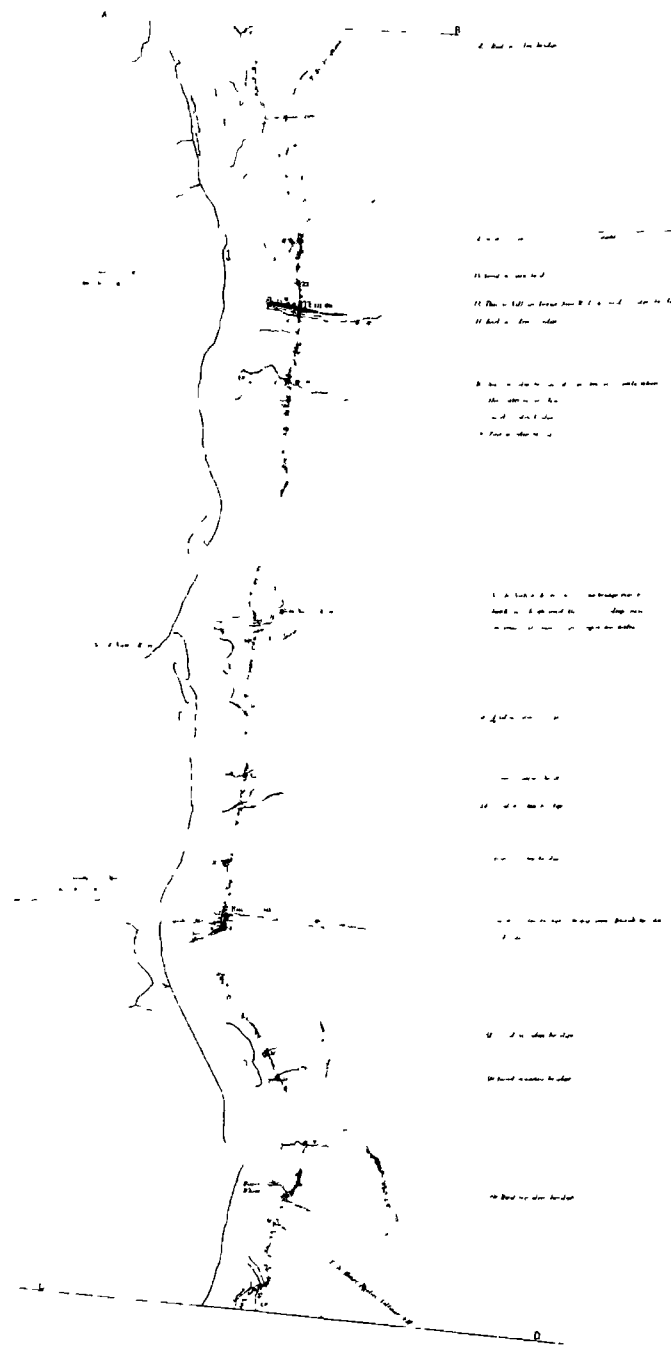
6. The road from Carillon to Hull is a narrow one, and is in many places a mere path. It is in some places a good road, but in many places it is a mere path.

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9. The road from Carillon to Hull is a narrow one, and is in many places a mere path. It is in some places a good road, but in many places it is a mere path.

10. The road from Carillon to Hull is a narrow one, and is in many places a mere path. It is in some places a good road, but in many places it is a mere path.



SOURCE - Public Archives, Ottawa, Map no vi/300 1866

MAP 8

2 - a copy of the Topographical Department of the War Office, Northampton
coloured by Messrs. L. & C. 1866

the Pioneer stage. Beside their function as transportation routes, the water courses provided fish and fresh water for the pioneer. Settlement thus was closely linked with them.

The improvement of the Ottawa River as a transportation artery was of special importance. The river was the main outlet for timber from this part of Quebec Province to United States and North West European markets. The river channel had to be improved to cope with its growing export traffic and it was thought that the improvement of the stream at the Chaudière Falls should solve the transport problems of the area.

Of greater importance, the Ottawa River provided for early strategists an alternate route farther removed from the United States border, and the plan to canalize it was of importance to the British Government. As R. Blanchard asserts:

"L'Ottawa inférieure semblait tout indiquée pour tenir ce rôle, en la couplant avec son affluent la rivière Rideau en direction du lac Ontario."²

Work on the Chaudière Falls was underway by 1819. The canalization needed a large labour supply which was filled mostly by Irish and Scottish immigrants who later settled in the southern townships of Lochaber and Gore and Malachie.

² R. Blanchard, L'Ouest du Canada Français, (Montréal: Beauchemin, 1954), p. 71.

The early stages of land clearing in this southern part of the County were thus an indirect result of construction work along the Ottawa River. Around 1860, some of these early settled areas were abandoned, but the clearings already in existence eased some of the difficulties in pioneer settlement and prepared the way for the French colonists.

By 1860, the Canadian Pacific Railway had not yet reached Papineau County. The County, however, benefited as a supplier of lumber for railroad construction in Argenteuil. The well-drained low terrain between Ripon and Notre-Dame-de-Bonsecours became the corridor through which wood supplies moved southward to the Ottawa River and then eastward along southern Argenteuil.

The southern staging posts of Papineauville, Montebello, Mayo, and Thurso became permanent settlement units with some limited service functions. There were food stores, post offices, saw and flourmills, leather-works, churches, and schools. The role of Ottawa, Hull, and Montreal as centres of basic services for the pioneer settler was gradually declining with the approach of the railroad, while the southern villages in the County became the new springboard from where settlement and land clearing progressed northward.

The impact of communications on settlement and land clearance was strongly felt in the Colonization stage during which the pattern of the infrastructure clearly showed a strong relationship between the two. During the

Pioneer stage the limitations imposed by lack of communications could hardly be challenged. Bouchette's quotation of John Neilson's evidence to a committee of the House of Assembly in Ottawa clearly indicates that the progress of settlement depended on the development of communications beyond areas that had already been settled.

"New settlements can only be successfully formed where there is a certain degree of facility in communications with the old - the wants of an agricultural population are so extensive and the means and support that they require from external sources, before they can derive them from the soil which they occupy, are so considerable, that no successful agricultural settlement has ever been made in America without such facility of communication." 3

Government policy concerning pioneer settlement in the western part of Quebec was restrictive in the seventeenth and eighteenth centuries. As Marcel Trudel states:

"The state policy opposed colonization along the Ottawa, fearing lest the people might not be able to resist the temptation to engage in the fur trade in competition with Montreal interests." 4

With the exception of Petite Nation, the land acquisition

3 Bouchette, A Topographical Dictionary of the Province of Lower Canada.

4 Marcel Trudel, A Note on the Seigneurial System of Canada, (Canadian Historical Society Publication No. 6, 1965), p. 15.

was effectively restricted in the Papineau area until the end of the eighteenth century.

With the abolition of the seigneurial system in 1854, the state policy of allowing "settlers to occupy as much land as possible"⁵ opened the road for large-scale ownership of farm land in the County. The role of state policy was clearly that of controlling the directions of land exploitation. It is strongly felt that, even though Papineau County did not offer much to the pioneer settler, land clearance could have started long before 1825 in the absence of restrictions on pioneer mobility.

The seigneurial system of land tenure had affected only a small part of the County. As an administrator, the Seigneur was expected to be "a promoter of colonization."⁶ The system itself was designed as "a means of settlement."⁷ It would therefore seem that areas where the system was allowed to thrive were more progressive than others. When Bouchette speaks of the early settlers in Petite Nation, he indicates the role of the Seigneur:

"Although improvements are progressive and will become more rapid from year to year, the settlers are as yet too poor to effect much without~~h~~ the assistance of the Seignior."⁸

5 Trudel, A Note on the Seigneurial System of Canada, p. 9.

6 Ibid.

7 Ibid.

8 Bouchette, A Topographical Dictionary of the Lower Province of Canada.

In the seigneurial system, the Seigneur was the administrative head of the community. He was responsible for the provision of land to settlers and, to some extent, the welfare of the community. The society was communal, with great dependence on the Seigneur who was the overlord. The settlers in the seigneurie were in a more organized community than those out of it, and it is this element of good organization that helped establish permanent settlement in the eastern part of Papineau County.

The abolition of the seigneurial system in the mid-nineteenth century apparently had its side effects. People who could not survive without the help of the Seigneur had to migrate in search of better jobs and living conditions. State support for settlement in the County had to wait till the second half of the nineteenth century.

The distribution of population was sporadic (see map 9). There were two areas of population concentration; one larger centre around Petite Nation, and another of lower densities to the southwestern flank in Buckingham. Towards the end of the Pioneer stage, around 1855 to 1860, people had started settling in the southcentral portion of the County. Northward, the distribution was more scattered. Table 2 shows the population estimates for some areas of the County.

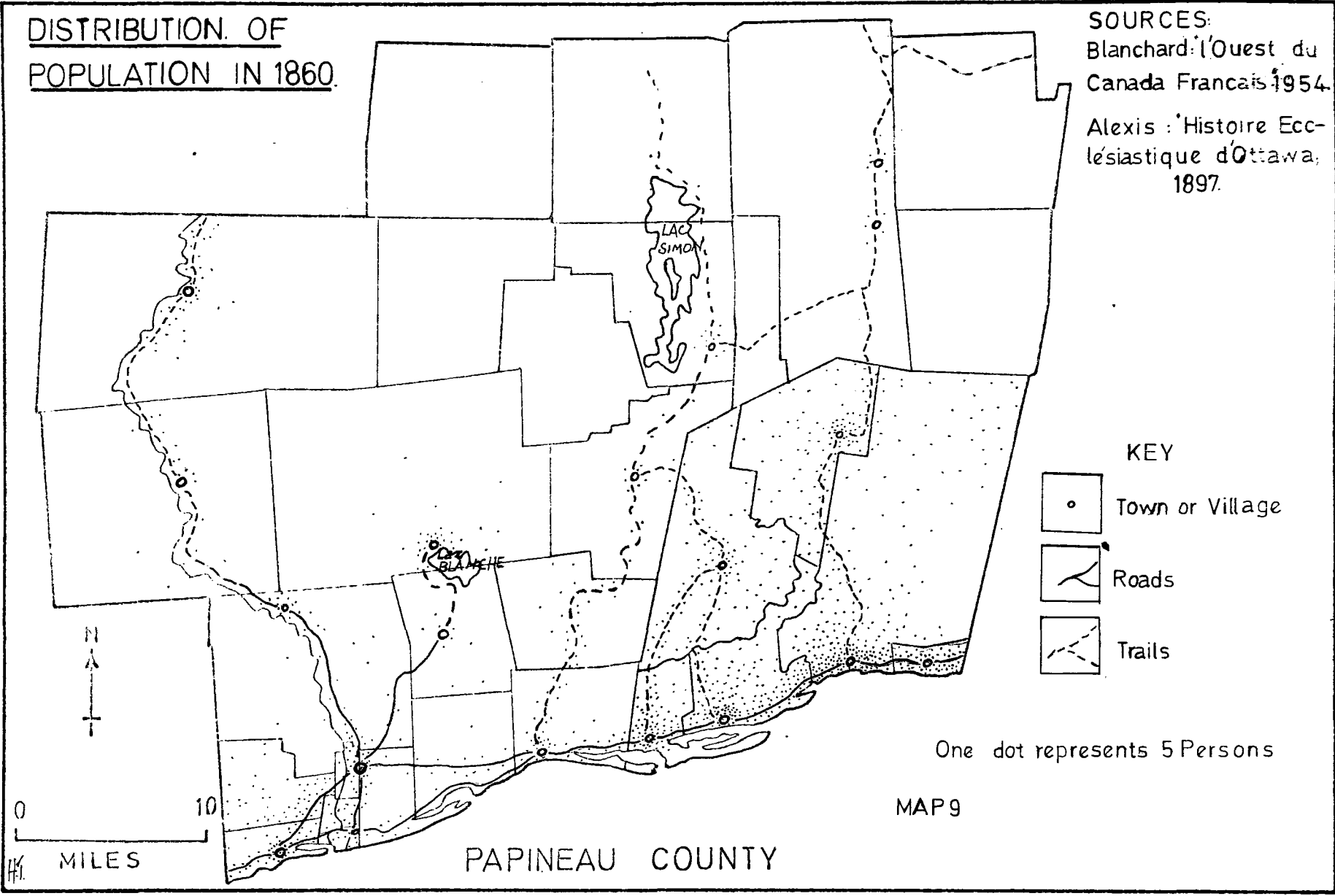
The total population of Papineau County was about 1,200 in 1830. Around this date, Buckingham had a population of 250, while Petite Nation had 600. There were 140 people in Mayo (St. Malachie) and 10 in St-André-Avellin.

DISTRIBUTION OF
POPULATION IN 1860.

SOURCES:
Blanchard: l'Ouest du
Canada Francais 1954.
Alexis: Histoire Ecc-
lésiastique d'Ottawa,
1897.

UNIVERSITY OF OTTAWA - COLLEGE OF GRADUATE STUDIES

UNIVERSITÉ D'OTTAWA - ÉCOLE DES GRADUÉS



One dot represents 5 Persons
MAP 9

TABLE 2. POPULATION ESTIMATES OF CANTONS

Canton	1800-1810	1811-1820	1821-1830	1831-1840	1841-1850	1851-1860	1861-1870
Lockington				266(1832)	700(1846)	1600(1851) ¹	
Villeuve			20(1835)				1400(1861) ²
Oriston & adjoining							130(1861)
Petite Nation	20(1810)	31(1817)		800(1832)		3356(1851)	5170(1861)
Payo		140(1830)	148(1832)				
St-André & Wellin	3(1804)		10(1832)			450(1851) ³	
Suffolk							440(1870)
Ripon					1(1846)	192(1857) ³	210(1864) ³
Hartwell						30(1857)	300(1864) ³
Elgin & Godwin						1254(1851)	
Derry						255(1857) ³	
Angers						375(1860) ³	

1 Including Lochaber and parts of Templeton.

2 Including Templeton.

3 Estimated figures for families where one family is estimated to represent three persons.

Sources: Blanchard, L'Ouest de Canada Français.

Ministère de l'Industrie et du Commerce, Inventaire des Ressources Naturelles du Comté de Papineau.

P. Alexis, "Histoire de la Province Ecclesiastique D'Ottawa et de la Colonisation dans la Vallée de l'Ottawa", (Ottawa: La Cie Imprimerie d'Ottawa, 1897), Vol. I, pp. 458-480 passim.

A rough estimate of Villeneuve was put at 20 persons.

Towards the close of the Pioneer stage the population had reached an estimated figure of 12,000. In other words, the population in Papineau County increased ten-fold within thirty years; a trend which was apparently due to immigration rather than natural population growth. The cantons of Lochaber, Gore and Templeton accounted for 1,600 people in 1851. The Petite Nation Seignury had grown up to 5,170 in 1861 while the townships of the Lièvre Valley had 1,400. From Petite Nation, internal migration was northbound between the Ripon and the Notre-Dame-de-Bonsecours scarplands.

The impact of population on land clearance was operative in two ways. First, the settlers had to clear the forest to build living quarters. Secondly, they cleared the immediate surroundings of the built-up area developed by the early settlers.

THE PATTERN OF LAND CONCESSIONS AND LAND EXPLOITATION
THROUGH LUMBERING AND AGRICULTURE

The pattern of land concessions in Papineau County was in some respects feudalistic. There was the Seignury of Petite Nation which was under the proprietorship of the Papineau family, whereas the rest of the County was a Crown land yet to be settled. In the seignury the land lord reserved the rights to apportion his land as he liked. On the other hand, the land already surveyed was divided and

conceded in relation to the social class of the proprietor.

As J. L. Gourlay states:

"Old soldiers of the ranks and other filled up the back country, whilst the Officers occupied the river front. One hundred acres was the smallest grant made at that time, and the settlements extended back by slow degrees on the good lands." 9

Bouchette gives the size of the concessions thus:

"Field Officers	1,200 acres
Majors	1,000 acres
Captains	800 acres
Subalterns	500 acres
Non-Commissioned Officers	200 acres
Privates	100 acres" 10

The rate of land clearance thus had to depend largely on the initiative of men of higher military rank who held the best and largest portions of land.

Land exploitation was delayed because of claims from people who had already acquired it. The Surveyor-general could suggest sites that were suitable for the establishment of settlement units; but private property was not affected. The township of Buckingham is good case in point. Of the twelve ranges in the township, Bouchette mentions that by 1802, four and a half were already surveyed. There is mention of one Captain Robertson to whom two thousand acres were conceded "which were laid on either side of the river au Lièvre two years antecedent to that

9

J.L. Gourlay, A History of the Ottawa Valley, p. 12.

10

Bouchette, A Topographical Dictionary of the Province of Lower Canada.

period."¹¹ At the confluence of the Lièvre and the Ottawa, the right bank of the former was deemed good for settlement but there was some delay because the lands granted to Captain Robertson were left "in an absolute state of nature."¹²

There was a second site where settlement could have developed earlier, had it not been for claims arising from earlier land concessions. Masson village is located on the site which Bouchette describes thus:

"The next eligible position for a village is the Crown reserve, no. 10, in the second range, in the proximity of the basin, half of which has recently been located to an individual who might probably surrender his claim if proposals were made and compensation tendered."¹³

From this evidence, it is clear that land possession before settlement and the differential pattern of land concession limited the progress of settlement and land clearance.

Lumbering was the major impetus for land acquisition in Papineau County. The prospective land owner sought the large concession which would yield very good returns of lumber. J. L. Gourlay comments:

¹¹ Bouchette, A Topographical Dictionary of the Province of Lower Canada.

¹² Ibid.

¹³ Ibid.

"Lumbering was in advance of settlements, and many farmers worked in winter cutting timber, whilst others drew with their teams when they got teams, and the grown-up boys were employed in this absorbing work." 14

Some of the early settlement units were a creation of lumbermen. On the Lièvre, for example, Buckingham and Notre-Dame-de-la-Salette were each staging posts for lumbermen. The road linking these two staging posts became the thoroughfare of early traders.

"Des voyageurs ou coureurs de bois employés au service de la compagnie de la Baie d'Hudson qui avait alors un poste au pied du lac des Sables et un autre à l'endroit même occupé aujourd'hui par la ville de Buckingham, soit des compagnies engagées dans le commerce des bois." 15

Lumbering thus affected land clearance in that it generated the sites for settlement, through which evolved avenues of penetration (see map 7).

The forest cover was not totally cleared. The main contribution of lumbering was to give the farmer faster access into areas that could not easily be cleared and cultivated. But while giving access to penetration, the lumber estates controlled the locations of settlement. By 1850 (see map 9) about two-thirds of the County were under forest estates, leaving only the southern municipalities

14 Gourlay, A History of the Ottawa Valley, p. 13.

15 Ministère de l'Industrie et du Commerce, Inventaire des Ressources Naturelles du Comté Municipal de Papineau, p. 5.

for the farmer settler. The pioneer settler had to wait for a gradual transfer of cleared portions of forest estates to the Provincial Government which was responsible for the sale of land to private hands.

Farming in the County started very late and at a slower pace than lumbering. The problems faced by the farmers justified this delay. The farmers could hardly justify the opening of new land because enough land in the Ottawa Valley was available and virgin soils of the Ottawa plain apparently showed no signs of depletion. Agriculture was a secondary occupation for the pioneer settler, and the need to maintain or improve soil fertility was not his immediate concern. In time of good harvests,

"the agriculture of the north shore was wrought up beyond the ordinary. They were contented with the fine crops that the new stumpy fields produced as supply for the lumber business that swallowed up all else."¹⁶

The distance factor made the rolling lands of the south the first areas to be cleared for farm land. Bouchette noted that for the purpose of agricultural settlements, it was not necessary at that time to explore a country to any great distance from the existing settlements or navigable waters.

The selection of land to cultivate was generally appropriate, but the limits of land potential based on soil types and farming systems were hardly known. In a description of the land in the township of Notre-Dame-de-

¹⁶ Gourlay, *A History of the Ottawa Valley*, p. 225.

Bonsecours, Bouchette states:

"The main ridge of mountains, that runs a westerly course from Quebec until it falls upon the Ottawa River, crosses La Petite Nation about the middle; beyond this intersection the remainder of the grant has been only partially explored, but the quality of the part that has been observed is much inferior to that of the south." 17

The methods of farming were crude. The farmer had to rely on his family unit for the labour required in tilling the land. This situation was normal for the nineteenth century pioneer settler in Papineau, where mechanization of farm work only started in the twentieth century.

At the beginning of the Pioneer stage, land appraisal was mainly a function of the farmer who observed the landscape during his hunting and fishing excursions. Towards the end of this period, religious and educational institutions were gradually becoming the mainsprings of instruction for the farmer.

The direction of land clearing has been discussed by a number of authorities and most of them concur that the first areas to be cleared were the river valleys. Marcel Trudel describes settlement in the St. Lawrence Valley in the following manner:

17

Bouchette, A Topographical Dictionary of the Province of Lower Canada.

"Civilization was spread along the banks of the St. Lawrence so that those descending the river gained the impression that they were passing through one continuous village." 18

This description fits the settlement pattern on the northern shore of the Ottawa River, especially in the southern part of the Petite Nation Seigneurie where the first stage of clearing involved the range closest to the river. While the close relationship between water courses and settlement sites appears as a natural law, there was an attempt by early planners to create a communal atmosphere amongst the settlers. A "Projected Plan of Four Townships" 19 (see map 10) shows that the built-up and cleared areas were designed to be close to each other, "so placed that the clearing of each settler may be connected." 20

APPROXIMATE AREA CLEARED TOWARDS THE END OF THE PIONEER STAGE

Many authorities have pointed out that little clearing took place between 1820 and 1860 in Papineau County. The Inventaire des Ressources Naturelles du Comté Municipal de Papineau states that the canton of Buckingham had had very little or no clearing before 1825.

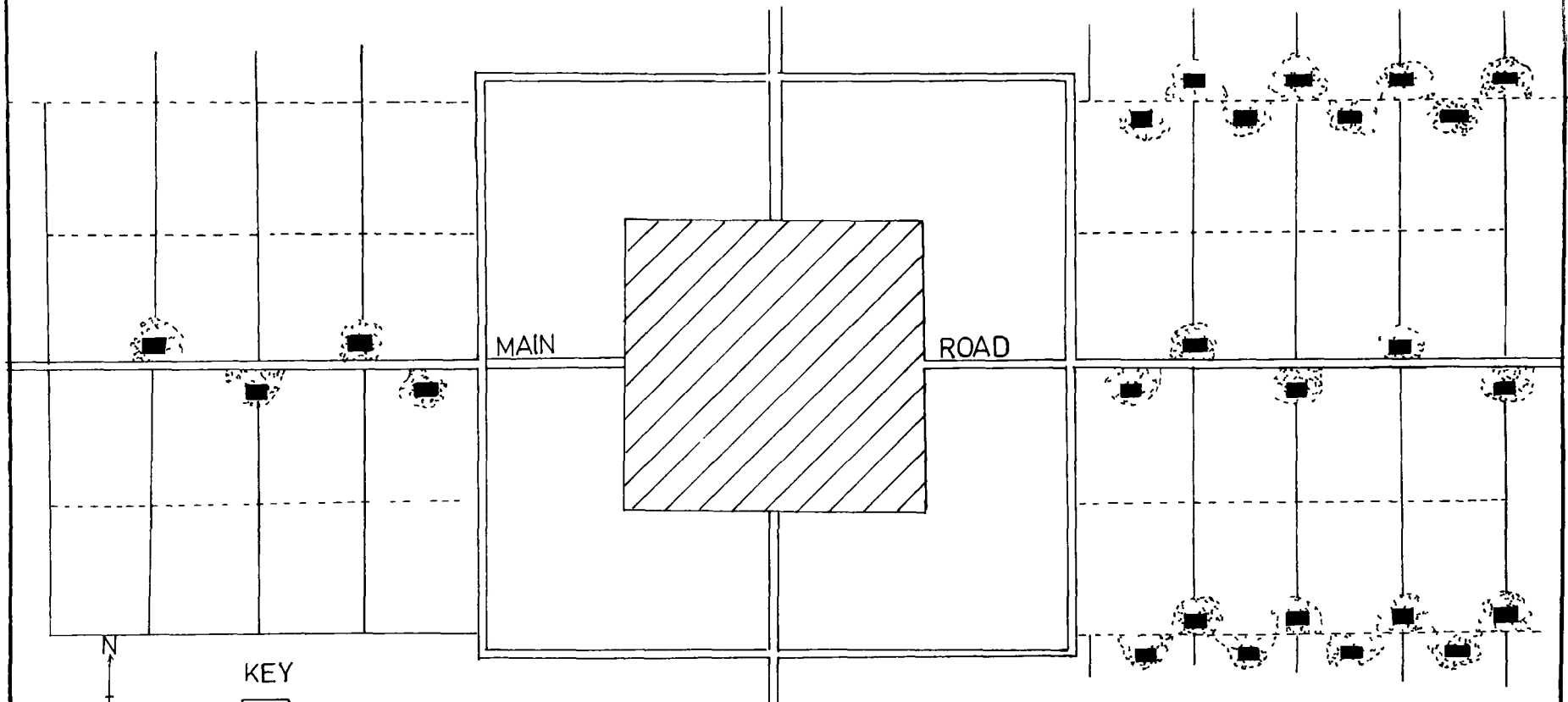
Blanchard, referring to clearing in the south-central

18 Trucel, A Note on the Seigneurial System of Canada, p. 15.




19 Bouchette, A Topographical Description of the Province of Lower Canada.

20 Ibid.

PLAN OF THE PIONEER VILLAGE



KEY

-  BUILT UP AREA
-  NEW CLEARINGS
-  VILLAGE COMMON

0 ————— 1 MILE

MAP 10

SOURCE J A Bouchette 'A Topographical Description of the Lower Province of Canada, 1832'

townships in the 1830's states that there were concessions granted to Scottish immigrants from Grenville to Petite Nation and Lochaber, but only small portions had been cleared. In Buckingham, out of 16,940 acres of land granted by 1803, only 400 were cleared towards the end of 1827. For Gore and Lochaber, Bouchette noted in 1832 that 13,261 acres had been granted in 1807, and of that portion very little had been cultivated.

The Inventaire des Ressources Naturelles du Comté Municipal de Papineau estimates that by 1850, 5,000 acres had been cleared. About 4,000 acres of cleared land were located in parts of the ranges close to streams and the remaining 1,000 acres in areas next to the stream ranges. The total area cleared by 1860 was somewhere around 6,500 acres and limited to small strips of land in the northern valley of the Ottawa River and in scattered nuclei of settled areas further north (see map 11).

CHAPTER III

THE PROGRESS OF SETTLEMENT AND LAND CLEARANCE IN THE
COLONIZATION STAGE (1861-1920)

The period from 1861 to 1920 is spectacular in the progress of land clearance in Papineau County for several reasons. The beginning of this era marked the departure of a considerable number of pioneer settlers and the infiltration of French 'colons'. Religion and the sense of nationalism encouraged these farmers to stay on the land. The Provincial legislature encouraged the development of intensive farming and the production of dairy products. The arrival of the Canadian Pacific Railway increased the influx of settlers and offered a strong foothold for agricultural activity.

By 1861, settlement was still sporadic, even though places like Buckingham, Thurso, and Papineauville had been established. In areas like the Petite Rouge Valley, the search for wood had led to the clearance of a considerable part of the valley. The farmer still had to depend on lumber sales. Where transportation facilities were poor and lumber could not be easily moved to the south, the wood was burnt and the ashes were transported to Montreal to be converted to potash. The colonist thus persistently moved further north after the development of villages in the south, in search for a means of livelihood.

Land concessions had been granted as far north as Hartwell, around Lac Simon. The roads of lumberjacks became

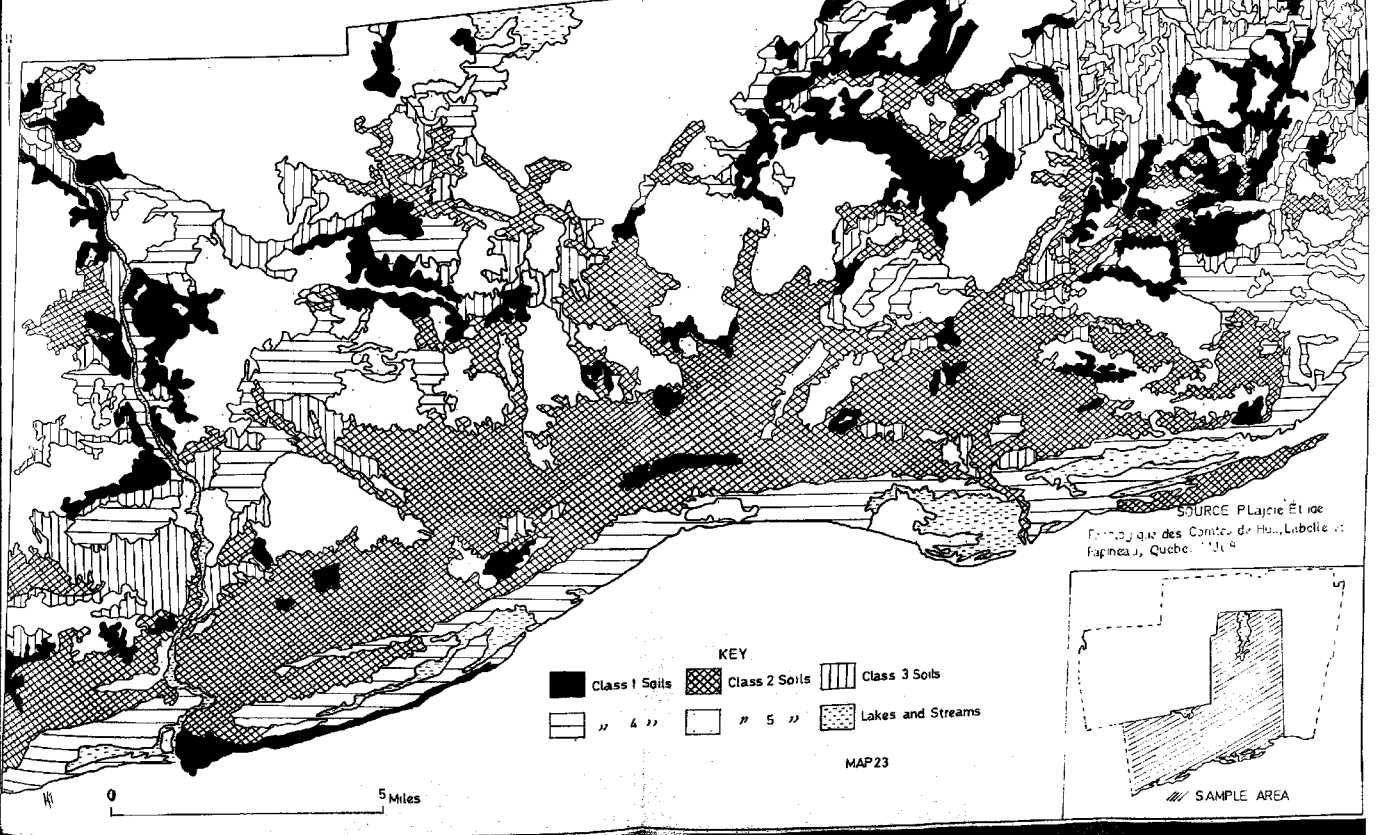
the footpaths which were later to be used by the farmers. De Montigny observed that man had left an imprint on the forest where there were no signs of settlement (see map 11).

The progress of land clearance and settlement in this stage has been assessed from a study of the growth and distribution of population and the impact of transportation and urbanization on this pattern; the attitude of the Provincial Government towards colonization; and developments in lumbering and agricultural industries.

THE GROWTH AND DISTRIBUTION OF POPULATION, THE IMPACT OF
TRANSPORTATION AND URBANIZATION ON THE PATTERN OF
POPULATION DISTRIBUTION

The growth of population in Papineau County reached a peak of 27,180 in 1911. Between 1871 and 1920 the population had risen from 14,521 to 26,558, an increase of 82.89%. As seen in table 3, the population within this period had steadily increased until 1921 when there was a decline of 2.28% over the figure for 1911.

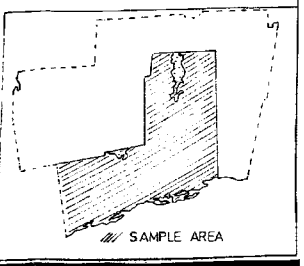
THE DISTRIBUTION OF SOIL TYPES IN SAMPLE AREA



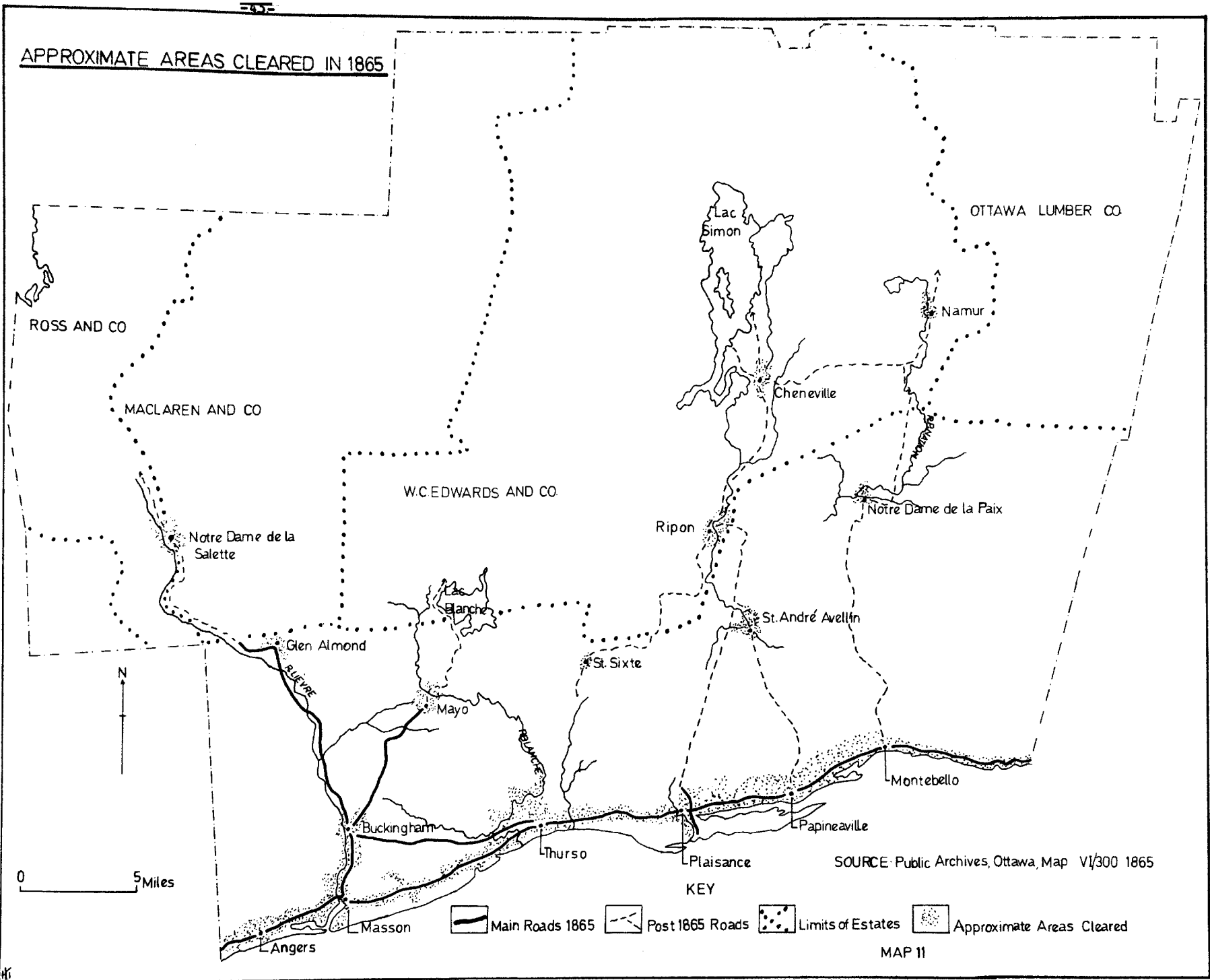
SOURCE: Plajic et al.
 Diagramme des Contes de Hu., Labelle et
 Lapineau, Quebec, 1969

- KEY
- Class 1 Soils
 - ▨ Class 2 Soils
 - ▤ Class 3 Soils
 - ▥ Class 4 Soils
 - Class 5 Soils
 - ◼ Lakes and Streams

MAP 23



APPROXIMATE AREAS CLEARED IN 1865



SOURCE: Public Archives, Ottawa, Map V1/300 1865

KEY

- Main Roads 1865
- Post 1865 Roads
- Limits of Estates
- Approximate Areas Cleared

MAP 11

TABLE 3. POPULATION GROWTH IN PAPINEAU COUNTY (1871-1921)¹

Year	Population	Numerical increase per decade	% Increase per decade	% Increase over 1871
1871	14,521			
1881	18,814	4,293	29.56	29.56
1891	22,972	4,158	22.10	58.20
1901	25,726	2,754	11.99	77.16
1911	27,180	1,454	5.65	87.18
1921	26,558	- 622	- 2.28	82.89

The railway was a major factor affecting population increase and movement in Papineau County. The construction of the Canadian Pacific Railway in Papineau County in 1877 was followed by the inauguration of the Société Générale de Colonisation in 1894.

As seen in table 3, the population tended to decrease as construction work on the railroad moved beyond Papineau County. The percentage increase rates gradually ebbed from 29.56 between 1871 and 1881 to 22.1 between 1881 and 1891; then from 11.99 between 1891 and 1901 to 5.65 between 1901 and 1911.

Colonists already assembled by the Société Générale de Colonisation at Montreal were easily sent to Papineau County

¹ Ministère de l'Industrie et du Commerce, Inventaire des Ressources Naturelles du Comté Municipal de Papineau, p. 15.

by rail. Between March 15 and October 15, 1894, 877 colons had occupied lands in the northern Ottawa Valley. Papineau County received 621 of these. Settlement was largely limited to the south where the emphasis was on owning the land that had been abandoned by earlier colons. Northward, the new settlers followed the communication routes that connected places like Papineauville, St-Sixte, Ripon and Chénéville.

Map 12 shows the distribution of population in Papineau County in 1900. The concentration of population along communication routes is evident, and the complex road pattern that developed within the next twenty years also meant a more complex pattern of population distribution (compare map 12 and map 14).

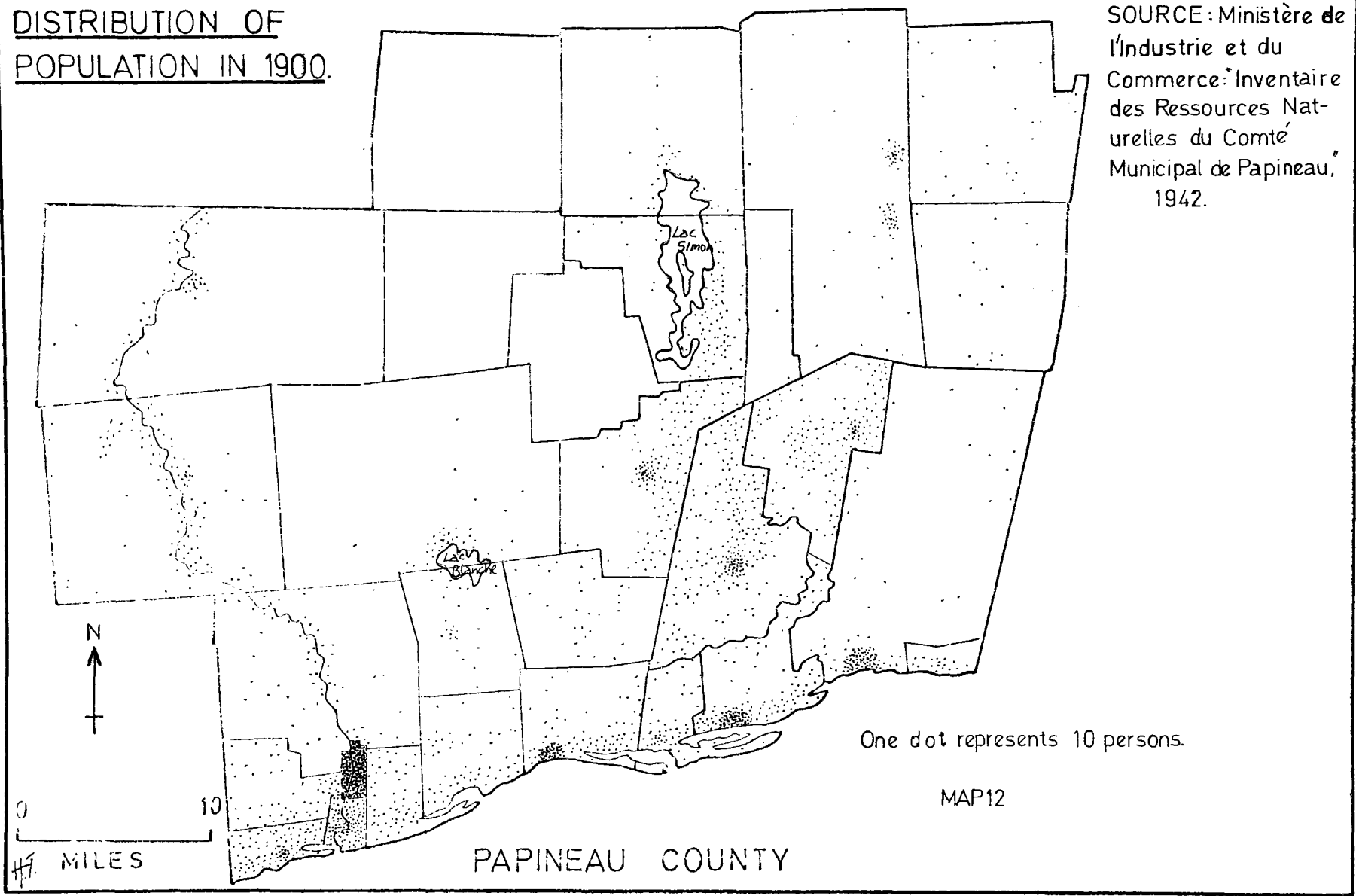
As the colons followed the main roads, they diversified the road network by constructing farm roads. Roads developed in this period were thus a connection of farm roads which ended abruptly at limits of municipalities. This abrupt end of farm roads is still characteristic of some roads in the County.

Map 12 shows the pattern of main roads in 1875 and 1883. From this map, one can see that the main roads of 1883 were not only those of 1875. A number of farm roads had been improved, especially in the south. The pattern of roads in 1920 is an interesting merging of farm roads constructed during the Colonization period (see map 13).

In the upper valley of the Lièvre, the opening of

DISTRIBUTION OF
POPULATION IN 1900.

SOURCE: Ministère de
l'Industrie et du
Commerce: Inventaire
des Ressources Nat-
urelles du Comté
Municipal de Papineau,
1942.



One dot represents 10 persons.

MAP12

PAPINEAU COUNTY

0 10
MILES



phosphate mines in Portland in the 1880's brought an upsurge of population. But the development of the area depended on the development of communications. Blanchard noted that this great centre of exploitation increased its population from 359 in 1881 to 772 in 1891. By 1901, the population had decreased to 718. Blanchard commented on this slight decline of population in the following manner: "Tout de même, il faut constater que la plus grande partie de l'accroissement² avait été conservée."

The fact is that the plan envisaged for the Upper Lièvre Valley was enticing enough. A railway was to be constructed to link the phosphate area with Buckingham; but this plan was not carried out. An examination of map 15 shows that the built-up areas were concentrated on the banks of the Lièvre and on mining sites operating tramways. The distribution of population in this area therefore depended upon the distance of the mining areas from the main roads.

Roads linked with the railway system were basically those which led to the north along the valleys of the Lièvre and the Rouge Rivers. Here, railway terminals became growing staging posts of the hinterland. The north-to-south road trend progressed beyond the County limits into Labelle County to link up with settlements along the Canadian National Railway.

²





Blanchard, L'Ouest du Canada Français, p. 87.

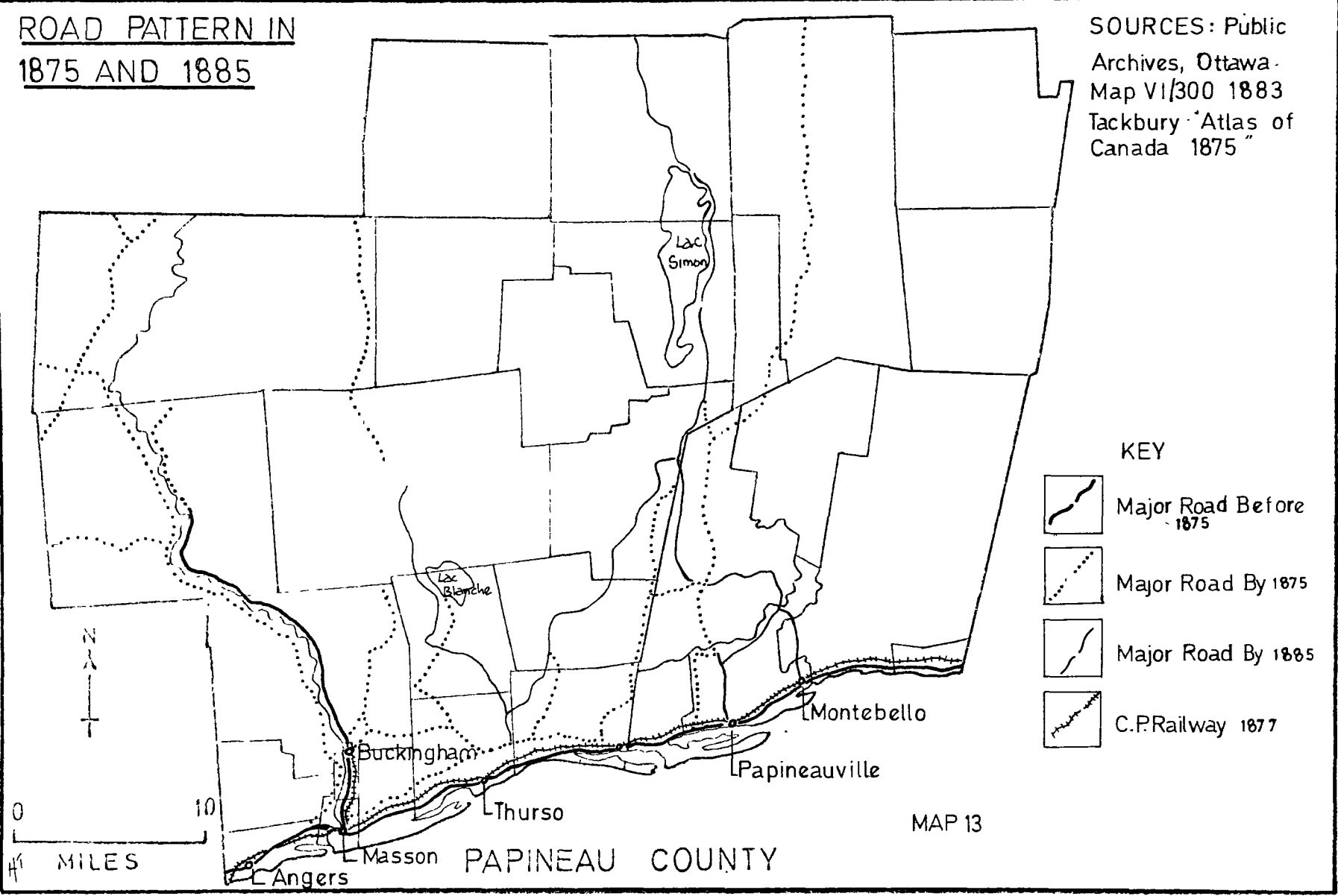
ROAD PATTERN IN
1875 AND 1885

SOURCES: Public
Archives, Ottawa -
Map VI/300 1883
Tackbury "Atlas of
Canada 1875"

UNIVERSITÉ D'OTTAWA / ÉCOLE DES GRADUÉS - 50 -

KEY

-  Major Road Before 1875
-  Major Road By 1875
-  Major Road By 1885
-  C.P. Railway 1877

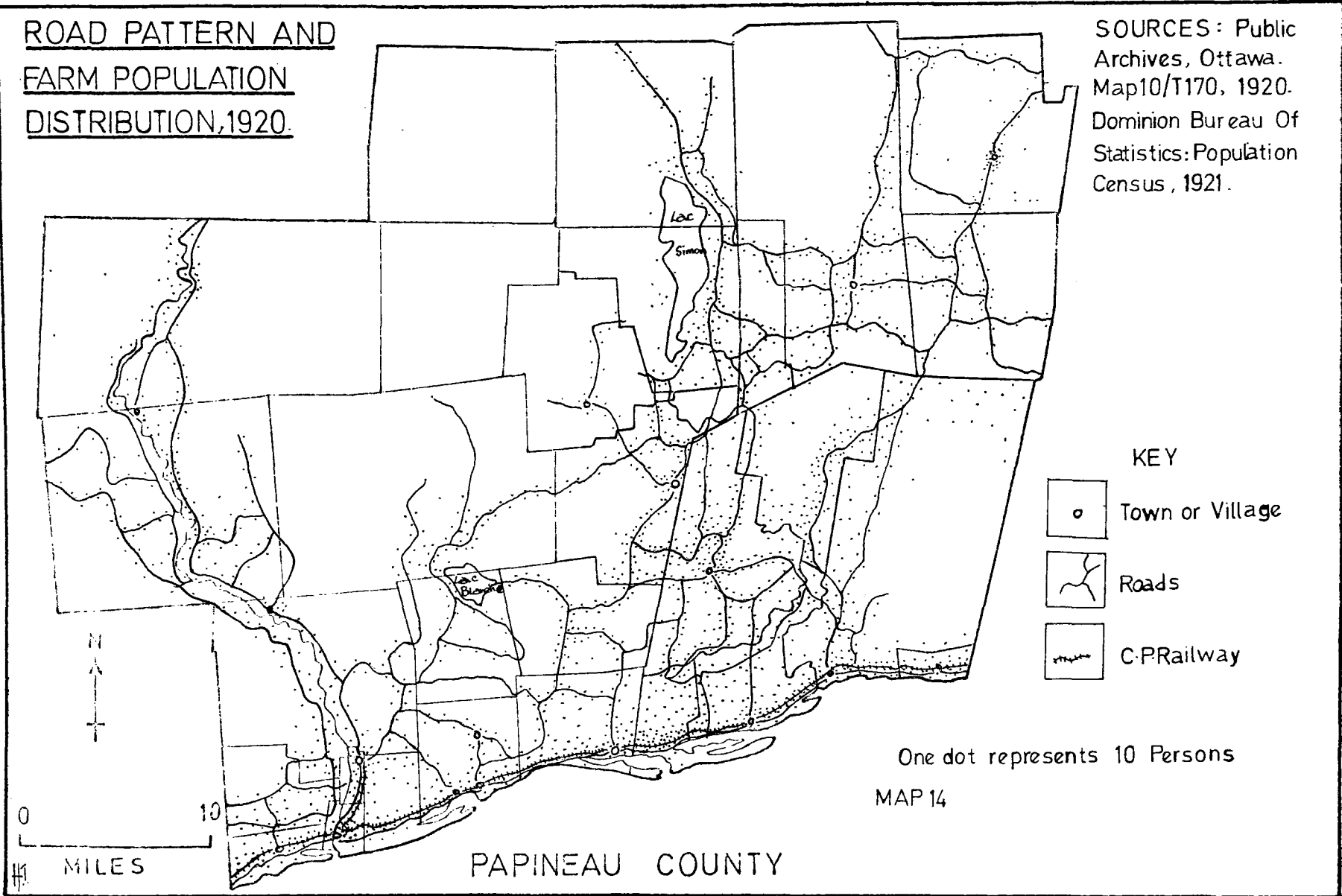


MAP 13

PAPINEAU COUNTY

ROAD PATTERN AND
FARM POPULATION
DISTRIBUTION, 1920.

SOURCES: Public
Archives, Ottawa.
Map 10/T170, 1920.
Dominion Bureau Of
Statistics: Population
Census, 1921.

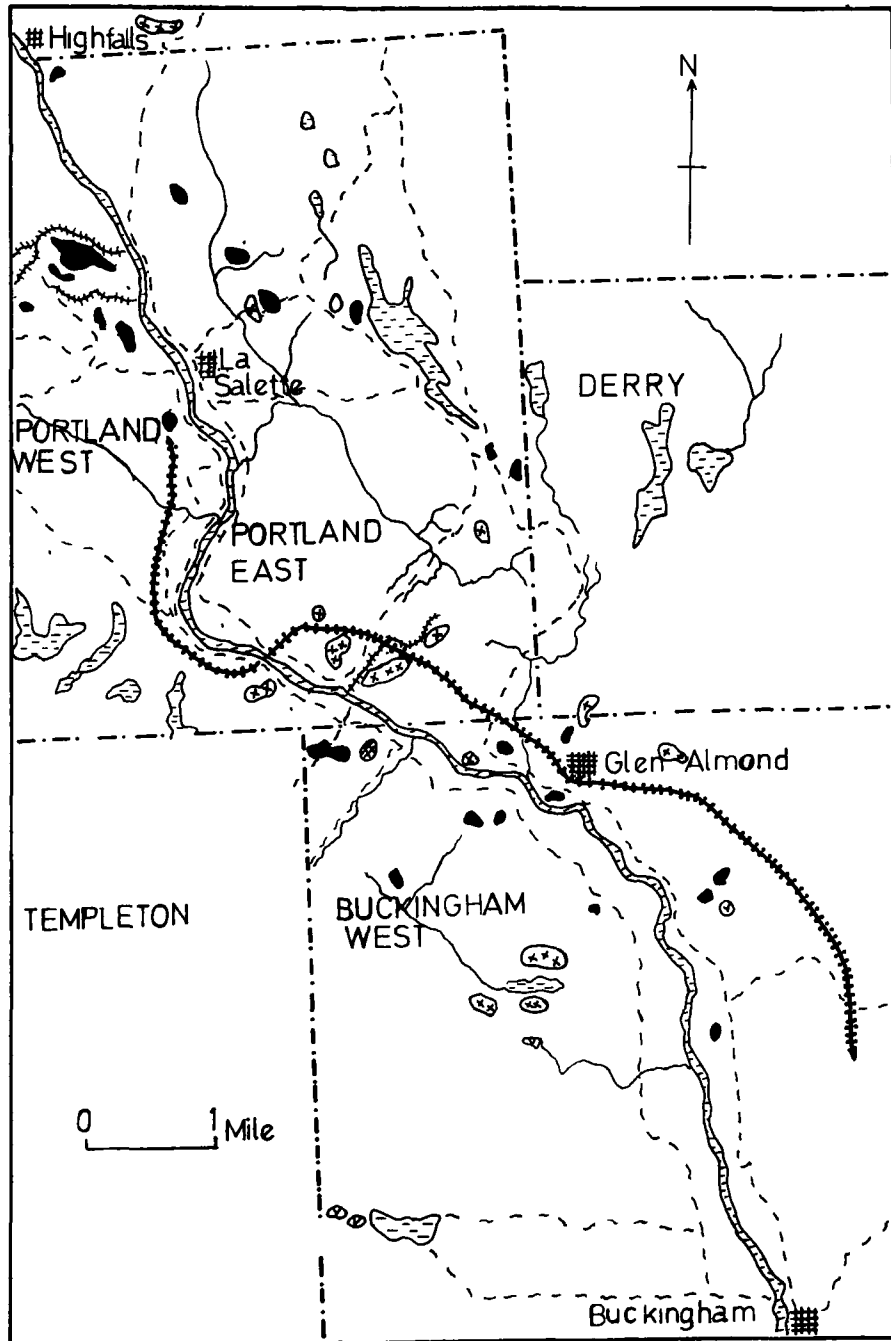


- KEY
- Town or Village
 - ⌵ Roads
 - ⌵ C-P Railway

One dot represents 10 Persons
MAP 14

THE PATTERN OF COMMUNICATIONS, POPULATION DISTRIBUTION IN THE PHOSPHATE AREA OF PORTLAND, 1891.

SOURCE Public Archives, Ottawa Map 1063 1891



KEY

- | | | |
|-----------|-------------------|-------------------|
| Phosphate | Mica | Plumbago |
| Iron | Roads | Projected Railway |
| Tramways | Streams and Lakes | |

ONE DOT REPRESENTS 5 PERSONS

MAP 15

By 1920, a number of settlements had assumed urban functions. Places like Buckingham, Thurso, Papineauville, Masson and Montebello were developing shopping centres, industries and educational institutions. As a factor affecting land clearance, urbanization consolidated settlement.

Further development of these urban centres depended on the productive capacity of their industries and their ability to withstand competition from the larger urban centres of Montreal, Hull, and Ottawa.

The industries that were therefore developed involved minimum production costs and were based on lumber and agricultural products of the hinterland. The manufacturing towns became the market centres for rural settlers as well as processing areas of goods like wood and paper for Montreal and Ottawa.

THE ATTITUDE OF THE PROVINCIAL GOVERNMENT
TOWARD COLONIZATION

As early as 1865, farming had started to occupy a strong position among the economic activities of the County. Government rightly viewed Papineau as an agricultural as well as a lumbering County. The Irish settlers who had come to work on the Chaudière Falls were migrating to Ontario and other parts of Canada. With the exception of the immigrant contingents in Lochaber and Gore, most of the land was

abandoned. The legislature was concerned about this and did all it could to fill up the vacant spaces.

For most of the new settlers, however, farming was not an attractive source of income. The long winter months proved unbearable. The new settlers, mostly French, needed both the moral support of Catholicism and of the Provincial Administration. Political and church officials were aware that the farmer settlers needed an appraisal of the land potential, and a conviction that in a unified cultural society farming was the most noble and patriotic occupation. The success and failure of the colonization period with regard to settlement and land clearing depended on how well these basic needs were satisfied.

The appraisal of land capability came from agricultural missionaries as well as government officials. Some of these appraisals were exaggerations, but it is interesting that a number of authorities emphasized the dependence of successful farming in Papineau County on the quality of the farmer. Bouchette's report on the Crown lands of the Petite Rouge Valley and the Lièvre goes thus:

"Les vallées de la rivière Rouge et de la Lièvre présentent une grande étendue de terres qui sont d'une qualité supérieure et ne sont surpassées par aucune autre du Haut ou du Bas Canada." 3

³ Bouchette, Rapport Sur Les Terres de la Couronne (Ottawa: Government of Canada, 1859), n.p.

The Abbey Proulx stated in 1881 that two-thirds of the northern Ottawa Valley could be cultivated. He agreed that some parts of the area were rocky but this, he thought, was characteristic of the distribution of soils anywhere.

"Le sol est excellent sans doute il y a des endroits rocheux, d'autres marécageux. Nommez-moi au monde le pays de Cacagne où la charrue peut mordre dans chaque bout de terre." ⁴

There was thus some assurance that the soils had something to offer to the settler; but the farmer who decided to go to Papineau County should not be the careless type. De Montigny asserts that farming in the northern Ottawa Valley seemed a privilege of French Canadians. Those who had never learnt how to farm, he suggests, were often those who failed to succeed.

"La cause en est, la plupart du temps, qu'ils n'ont pas su cultiver ou qu'ils ont échoué par négligence. Qu'on laisse plutôt aux étrangers la fabrication des produits mais qu'on garde pour les Canadiens-français le privilège de produire ce qui fait la matière première du commerce et de l'industrie." ⁵

The Abbey Dugas commented in similar terms, stating that soils could be poor, but that farm productivity depended upon the ability of the individual farmer.

⁴ De Montigny, La Colonisation, p.9.

⁵ Ibid., p. 6.

"Une terre quelque peu fertile qu'elle soit, produit toujours assez pour nourrir le colon intelligent, laborieux et économe." 6

Hence, even though there were the passionate who thought that soils were excellent, there were a few who realized that man had to develop the land. Human ingenuity was a necessary component.

The Provincial Government favoured colonization with subsequent permanent settlement. This could hardly have had much success without the help of religious elements in Quebec. Religious authorities believed that it was a matter of providence that the French should occupy this part of the country.

"Ces immenses espaces semblent donc être destinées à l'expansion des Canadiens-français, et c'est là le théâtre que la Providence paraît avoir réservé à leur action." 7

For land clearing to progress it was necessary to stabilize settlement and farming for the colons. The Provincial Government instituted schools and agricultural societies, cercles agricoles. The cercles agricoles were to operate in a communal system whereby the expensive farm tools bought by the society were to be used by members of the parish. Agricultural schools and missionaries were

6 De Montigny, La Colonisation, p. 19.

7 Ibid., p. 11.

urged to expand their range of activities to promote farming.

Government efforts to encourage settlers in Papineau County were constructive, but the move was late. In content, it had some nationalistic aspirations which seemed to be in place. Sir George Cartier exhorted French Canadians to move away from densely settled areas in the Montreal region and move outwards. De Montigny quoted Cartier in 1855:

"la population ne suffit pas à constituer une nationalité il faut encore l'élément territorial.....Canadiens-français, n'oublions pas que si nous voulons assurer notre existence nationale, il faut nous cramponner à la terre." 8

By the time the Canadian Pacific reached the County, the problem which faced the government was the peopling of both abandoned land in the south and the unorganized territories in the north (see map 6). It was, however, evident that the administration was more interested in solving one part of the problem, namely, that of resettling the south.

"Les cadres laissés vides par l'émigration et les retards apportés bien involontairement à la construction du chemin de fer sont à remplir." 9

What the Government looked for then was the farmer settler who would stay permanently. For this type, the Provincial Government had to rely on the French farmers: "se créer un¹⁰ patrimoine pour eux et leur postérité."

8

De Montigny, La Colonisation, p. 22.

9

Ibid., p. 161.

10

Ibid.

In the north of the County there were unorganized areas which were of secondary priority. The legislature catered to the wrong type of settler. The Notre Nord-Ouest Provincial lists a series of characteristics of the ideal prospective settler for the northern Ottawa Valley. He noted that the ideal colon was the farmer who was satisfied with a patch of land with low soil fertility; the poor labourer, the daily worker in the towns and country who depends on his daily wage to feed himself and his family; the farmer who does not have the means of raising his children and the son of the farmer who cannot establish himself within the family unit.¹¹ It is felt that the pioneer settler with these characteristics was not the ideal type. What the legislature aimed at doing was to find means of reducing redundant labour in the urban areas.

DEVELOPMENT IN LUMBERING AND AGRICULTURE

Lumbering played a major but indirect role in inducing land clearance during the colonization period. By providing routes of penetration, it allowed settlement to extend beyond the southern lowlands. The main road linking the northern townships of Preston and Hartwell with the Canadian Pacific Railway to the south was a conception of the Edwards Lumber Company. Lumbering engaged the farmer in some form of occupation in the winter months when he had

11

G. A. Nantel, Notre Nord-Ouest Provincial (Montreal: Eusèbe Sénécal, 1887).

little agricultural work to do. In a rather direct way, some lumber companies operated farm estates.

The pioneer farmer benefited from the lumber companies as the latter bought his wood products and supplied him with foodstuffs introduced from the urban centres or grown on the farm estates. The Edwards Company operated the farm "la Concerne" at the head of Lac Simon; and for the settler who could not produce enough to sustain himself for the season, there was a ready food market. Writing on the functions of the Edwards Company, De Montigny noted the company's role as an absorber of idle labour:

"Cette compagnie rend de véritables services aux colons qui peuvent lui vendre tous leurs produits et pour laquelle ils peuvent tous les hivers, être employés . . ." 12

By 1865, agriculture was becoming as important as lumbering in Papineau County. But the farmer had to engage in lumbering if he was to survive. He did not clear the whole acreage at his disposal. Rather, he preserved a wooded portion from which he collected maple syrup, or felled pines and spruce for sale to the lumber companies.

The growing interest in mixed farming in the second part of the nineteenth century led the farmer to adopt an intensive system of cultivation. Towards the end of the nineteenth century, it was also clear that, if farming

12

De Montigny, La Colonisation, p. 310.

was to be very profitable in Quebec Province, the farmer should concentrate on having good pastures to feed his cattle. De Montigny quotes the Honourable M. Beaubien as stating at a meeting of the cercle agricole at St. Marguerite

"Pourquoi vous ruiner, vous fatiguer à cultiver vos terrains rocheux, faites donc des pâturages permanents sur ces terres et ayez des vaches." 13

The rocky areas or portions that were not too good for cropping retained a forest cover which was gradually brushed in southern Papineau and converted to rough pasture.

THE AREA CLEARED AT THE CLOSE OF THE COLONIZATION STAGE

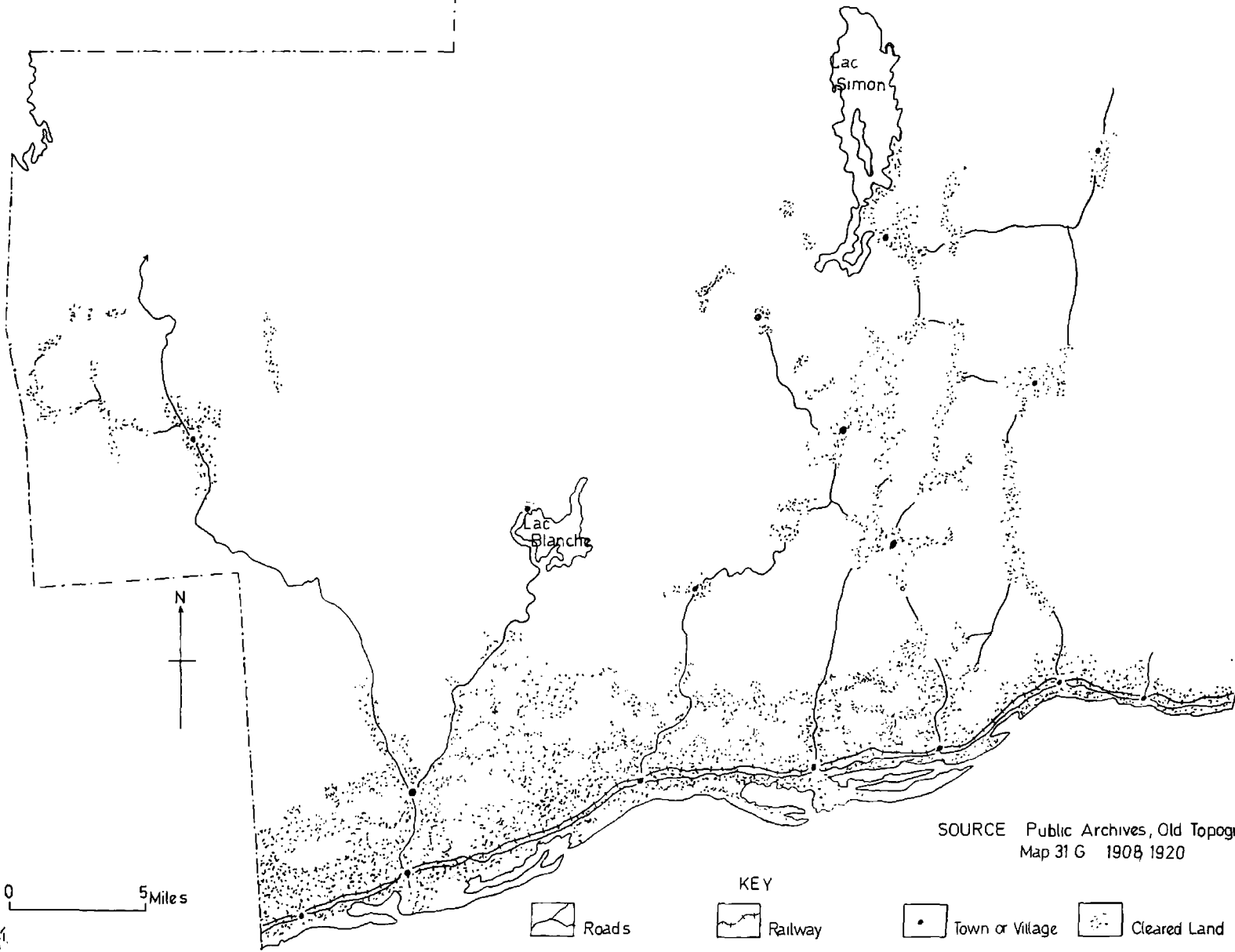
By the end of 1920, some 91,000 acres of farm land had been cleared and improved. This figure was nearly fifteen times the area cleared in 1860. Within a period of sixty years of farming, the settler had taken possession of most of those areas where farming was feasible (see map 16). Including the built-up areas, no less than 100,000 acres must have been cleared around 1920.

Possibilities for further clearing were strongly limited. The acquisition of land by forest companies towards the end of the nineteenth prevented the settler from owning land beyond Crown lands and abandoned areas. As the Inventaire des Ressources Naturelles du Comté Municipal de Papineau

13

De Montigny, La Colonisation, p. 310.

EXTENT OF CLEARED LAND IN 1920



SOURCE Public Archives, Old Topographical Series,
Map 31 G 1908, 1920

KEY



Roads



Railway



Town or Village



Cleared Land

states:

"Il semble qu'au début du présent siècle à peu près toutes les terres disponibles étaient déjà prises et que l'expansion du peuplement s'est heurtée aux superficies en réserves communément désignées sous le nom de "limites à bois" ou concédées à des compagnies d'exploitation forestière." 14

The area cleared formed a fairly continuous band in the southern part of the County. Northward, the pattern of clearings was rather spotty and limited to settlement sites, margins of lakes, and the immediate hinterland of the main roads.

LAND ABANDONMENT AND AFFORESTATION

As early as 1867, some cleared areas had been abandoned in the County. These areas were generally re-occupied and improved. Land which had little potential for agriculture was gradually converted to forest reserves.

The problem of abandonment has thus been a preoccupation of the State for more than a century. In 1882, the Quebec legislature passed an act which encouraged the planting of forest trees in abandoned farm lands. The Government of the day even decided to foster afforestation by rewarding those farmers who planted trees in lands no longer under cultivation.

14 Ministère de l'Industrie et du Commerce, Inventaire des Ressources Naturelles du Comté Municipal de Papineau, p. 15.

15 De Montigny, La Colonisation, p. 206.

The problem of abandonment had several attendant solutions. De Montigny suggested the making of a list of all abandoned land. Such a list was to be sent to the Société Générale de la Colonisation in Montreal to inform agents in charge of settlement on lands available for occupation.

"Ces informations seront répandues par les cercles et par le pays. Elles serviront à ceux qui désirent prendre des terres nouvelles et à ceux qui songent à revenir au pays." 16

The achievement of the colonization scheme in persuading settlers "d'aller occuper une de ces terres toutes défrichées et abandonnées dans nos vieilles paroisses"¹⁷ reached its peak ten years later in the post-colonization period. The abandoned areas to the south were resettled and colonization virtually ended in 1920.

The filling up of abandoned areas was only one aspect of the problem of land use in the County. From 1896 onwards, according to Provincial policy, agricultural activities were to be specialized and market-oriented.

16 De Montigny, La Colonisation, p. 59.

17 Ibid.

18 Ministère de l'Agriculture et la Colonisation, Rapport sur l'Industrie Laitière et l'Agriculture en Général (Quebec: Ministère de l'Agriculture et la Colonisation, 1894), p. 59.

"Il ne suffit pas de produire abondamment, il faut s'attacher avant tout à produire ce que l'on peut écouler facilement, et à des prix rémunérateurs." 18

Since the beginning of the colonization period, mixed farming was the main type of agricultural activity and this has continued to the present time.

18

Ministère de l'Agriculture et la Colonisation, Rapport sur l'Industrie Laitière et l'Agriculture en Général (Québec: Ministère de l'Agriculture et la Colonisation, 1894), p. 59.

CHAPTER IV

THE PROGRESS OF SETTLEMENT AND LAND CLEARANCE IN THE
POST-COLONIZATION STAGE (1921-1967)FACTORS INDUCING LAND CLEARANCE

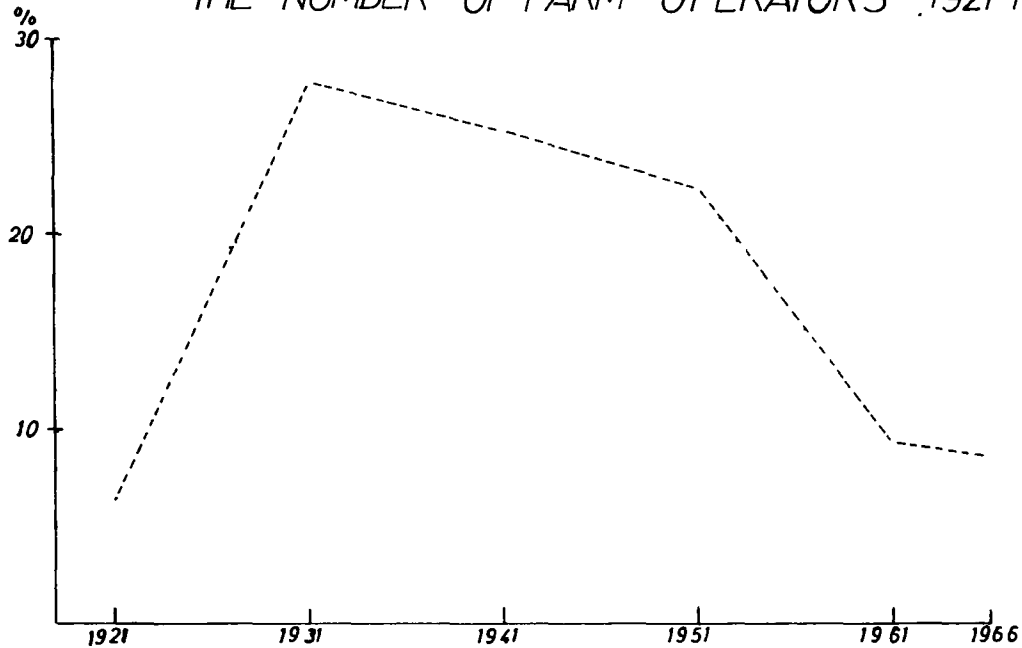
During the Post-Colonization stage, cleared land reached its maximum extent. Into this period falls the gradual decline of the acreage in farm land (see graph 1); a trend that has been continuous since 1932.

The lumber industries required less labour and so did mechanized farming. Agriculture gradually became a part-time occupation for many settlers who had to work elsewhere to survive. For those who could not find a secondary source of income the tendency was to migrate and this became the trend ten years after the Colonization period.

While encouraging the farmer to continue farming, the legislature has encouraged the development of a tourist industry and has guaranteed the continued operation of forest industries within the limits of forest concessions.

It is apparent that the economic activities which emerged in the Post-Colonization stage do not necessarily induce land clearing. Some of them are negative factors, and will be critically assessed in order to understand the nature of the decline in cleared land. The factors considered here are: the agricultural system; State policy toward agricultural development; tourism and State policy toward the tourist industry.

GRAPH OF TRENDS IN IMPROVED FARM LAND AREA AND
THE NUMBER OF FARM OPERATORS 1921-1966



--- IMPROVED LAND . FARM OPERATORS

DECENNIAL PERCENTAGES ARE CALCULATED OVER THE TOTAL NUMBER OF OPERATORS AND THE TOTAL AREA OF FARMLAND FROM 1921 - 1966.

SOURCE DOMINION BUREAU OF STATISTICS

GRAPH 1

THE AGRICULTURAL SYSTEM

In the Post-Colonization stage, the agricultural system in the Province of Quebec has involved heavy capital investment. Farming had to follow the suggestions of government-sponsored research reports on Farm Economics and Veterinary Services to be profitable. Heavy farm machinery has been introduced, as well as some expensive drainage systems, artificial fertilizers, and insecticides.

The modern agricultural system therefore has a strong scientific base. It has tended to eliminate the traditional farmer who cannot adapt himself to change, and to reduce the volume of manual labour. This process of reduction of manual labour has considerably affected the movement of farm operators in Papineau County, where farming is currently not very profitable for the farmer who cannot mechanize.

Changes in the agricultural system have a more subdued effect on areas of concentrated agricultural activity, especially in a case where land use continues to be agricultural. In cases where land utilization changes from agricultural to non-agricultural purposes, the impact of change on the landscape is easy to distinguish. For example, in the tourist areas of Northern Papineau abandoned farm land with no recreational value has been left to regrow a forest, and this is easily noticeable. But in areas where the change in land use has been influenced mainly by

a change in the agricultural system, abandoned land takes longer periods to regrow a forest cover, because the decision to adopt a new system is more gradual than that of transferring farm land to tourism.

The purpose of analyzing the agricultural system in the Post-Colonisation period is mainly to determine areas of concentrated agricultural activity and to examine the progress of land abandonment in such areas. For this purpose, it was decided to analyze the distribution pattern of soil values, farm operators, dominant farm types and the municipal variations of farm income. The analysis has been limited to these characteristics which are determinants of land-use types. The farm operator is the decision maker on the progress and pattern of land exploitation. His farm income is an index to the dominant farm type while the exploitation of the land itself has a strong relationship to soil capability.

This type of analysis has its value in that it reduces this study to areas that have been settled for long periods and have been essentially agricultural. Random sampling can be another effective means of selecting areas of concentrated agricultural activity, but there is a very strong possibility of including unsettled and permanently forested areas for which there is little to say.

In the "Atlas of Quebec (Agriculture)"¹ Morrissette used dots to represent units of fourteen agricultural

¹ Morrissette, Atlas of Quebec (Agriculture), Map 2-map 14.

characteristics in the Province of Quebec. The author noted the existence of inaccuracies in his maps, which were due to "the arbitrary distribution of points."² Morrissette's method could be used to analyze the four agricultural characteristics analyzed in this study because his dot method generally indicated the concentration of agricultural activity in Southern Papineau and along the Ripon wedge. The method used in this study was meant to find a comparative analysis of municipal values of the respective characteristics, which was not the basis of the mapping in the Atlas of Quebec.

A basic problem that was encountered was that of reducing values of various characteristics to common terms. This problem was resolved by using the County as a base for expressing municipal values of these characteristics. In other words, the municipal number of operators, adjusted acres, and farm incomes were expressed as percentages of the County totals. Municipal values were then grouped into the physiographic regions where they occur and this gave the basis of delimiting regions of concentration of agricultural activity. For example, the percentages of each agricultural activity. For example, the percentages of each agricultural characteristic in the municipalities within the Ottawa plains were summed and compared with the County total.

² Morrissette, Atlas of Quebec (Agriculture), Map 2 - map 14.

ANALYSIS OF THE MUNICIPAL SHARE OF ADJUSTED ACRES
AND FARM INCOME

The purpose of this analysis is to determine the distribution of agriculturally potential soils and farm incomes. Such an analysis should indicate a relationship between these two characteristics. It should also explain the affinity of areas of longer periods of settlement and farming to high municipal shares of these characteristics.

The assessment of soil potential by the adjusted acre analysis has been used by Henry Noble.³ Noble's basis of assessment is derived from the Agriculture and Rural Development Act which has classified Canadian soils into seven principal groups as follows:

- Class 1. Soils with no significant limitations in use for crops;
- Class 2. Soils with moderate limitations restricting the range of crops or requiring moderate conservation practice;
- Class 3. Soils with moderately severe limitations;
- Class 4. Soils with severe limitations requiring special conservation practices;
- Class 5. Soils with very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible;

³ Henry F. Noble, An Economic Classification of Farms in Eastern Ontario (Toronto: Farm Economics, Co-operatives and Statistics Branch, Ontario Department of Agriculture and Food, 1965), pp. 7-10.

- Class 6. Soils capable only of producing perennial forage crops, and improvement practices are feasible;
- Class 7. Soils with no capability for arable culture or permanent pasture.
- Class 8. Unclassified organic soils.

Only five of these soil capability classes occur in Papineau County and these are classes '2', '3', '4', '5', and '7'.

In estimating the soil values of the County, Henry Noble's weighting system has been used. In this system, one acre of soils in class 1 is equal to one unit or one adjusted acre. The lower soil groups have lower values as shown in table 4.

TABLE 4. SOIL CLASS VALUES OF NOBLE'S WEIGHTING SYSTEM

1	acre	of	class	1	soils	=	1	unit	or	adjusted	acre
1	"		'	class	2	"	=	.87	"	'	"
1	"		'	class	3	"	=	.75	"	'	"
1	"		'	class	4	"	=	.33	"	'	"
1	"		'	class	5	"	=	.25	"	'	"
1	"		'	class	6	"	=	.20	"	'	"
1	"		'	class	7	"	=	0	"	'	"

The number of adjusted acres for the various municipalities were calculated on this basis and the resulting values are listed in appendix 1. The total number of adjusted acres for each municipality was expressed as a

⁴

Noble, Trends in Farm Abandonment, pp-12.

percentage of the total number of adjusted acres in the County. Five out of twenty-eight municipalities accounted for 35.6% of the adjusted acres of the whole County.

Expressed as percentages of the total number of adjusted acres in the County, the twenty-eight municipalities had values ranging from .5 to 8.2% (see appendix 2 and map 17).

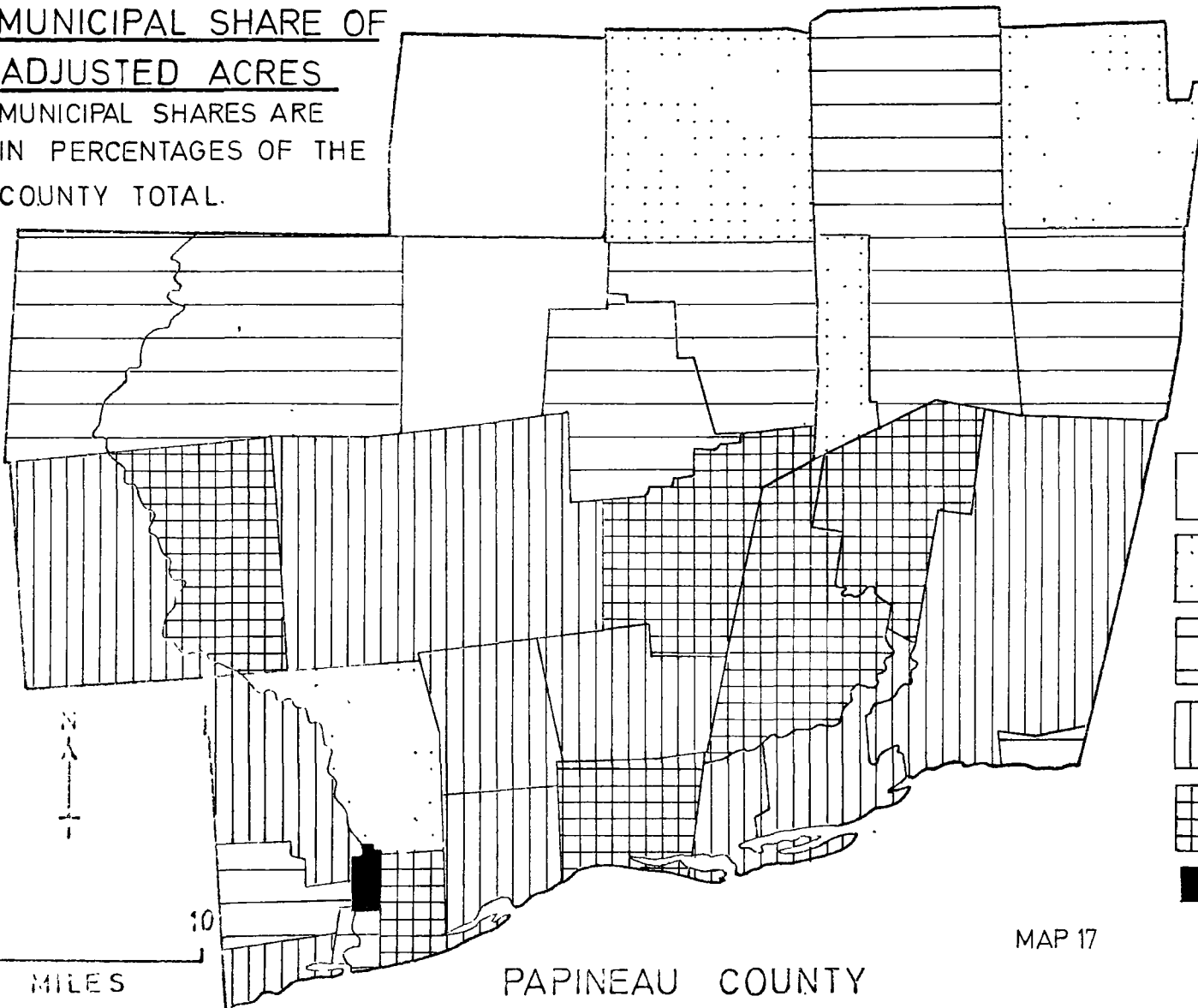
Four municipalities along the Ripon wedge accounted for 27.9% of the County's adjusted acres. The municipalities in the Ottawa Plains with those along the wedge accounted for 75.2% of all the adjusted acres in Papineau; and yet, this area forms about 17% of the entire County. The comparatively large extent of cultivable land in this area is a major reason for the concentration of settlement and land clearing in this part of the County.

The average income per farmer in 1942 was analyzed to assess the distribution of dominant farm types. The year 1942 was selected because it represents a time when the farmer was becoming more dependent on agriculture than on lumbering for his income. It therefore links the early part of the Post-Colonization stage when lumbering was as remunerative as farming, to the later part when farming alone contributed most of the income.







The farm incomes of operators in Papineau County were the basis of assessment of municipal variations of dominant farm types. It was decided that if the income from one product contributed 50 percent or more of the farm income,

MUNICIPAL SHARE OF
ADJUSTED ACRES
MUNICIPAL SHARES ARE
IN PERCENTAGES OF THE
COUNTY TOTAL.

SOURCE: Canada
Land Inventory, "Soil
Capability Map 31G,"
Ottawa.



KEY

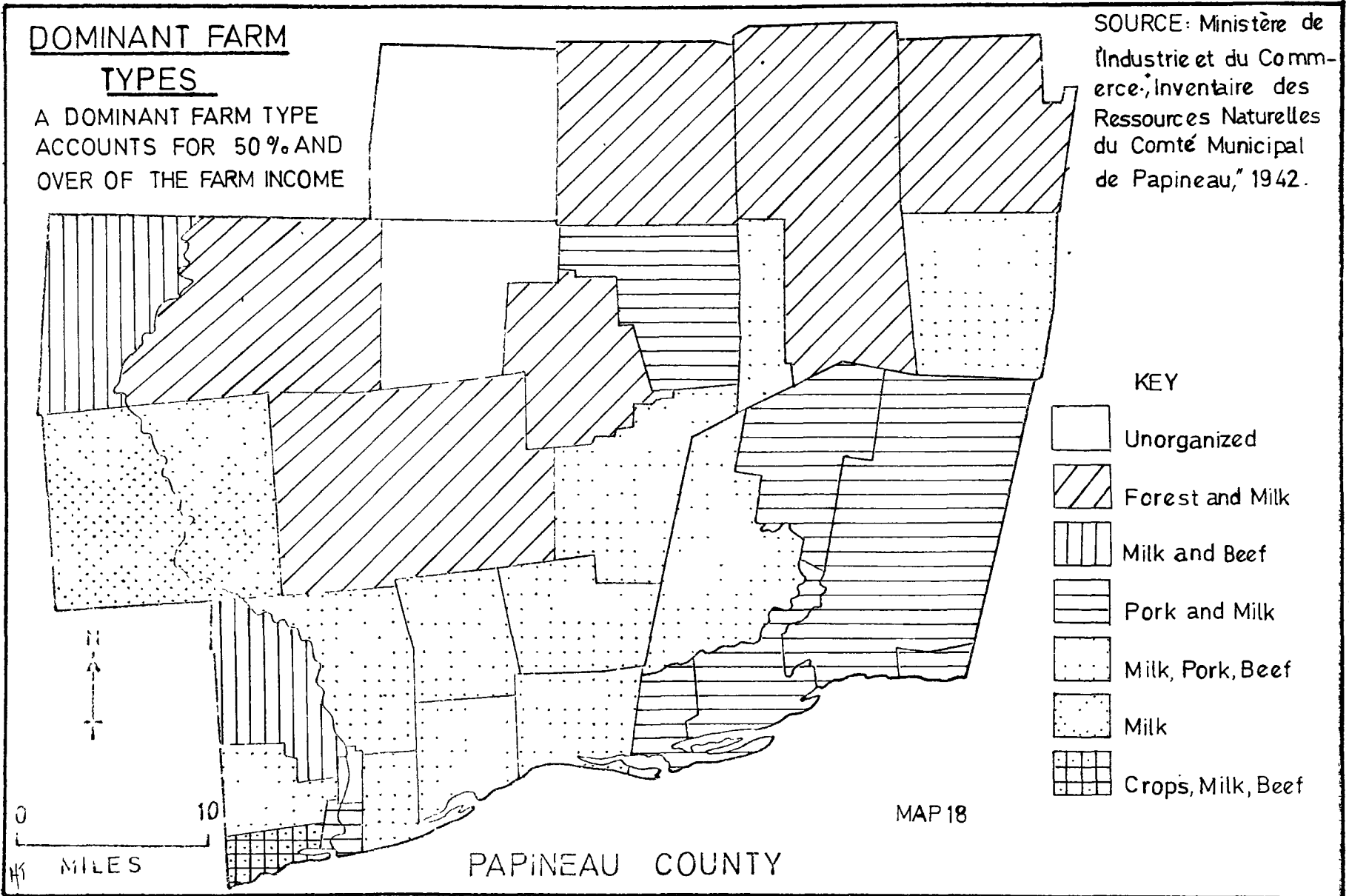
-  Unorganized
-  <1%
-  10 - 30
-  31 - 60
-  61 - 90
-  BUCKINGHAM

MAP 17

PAPINEAU COUNTY

that agricultural product characterized the dominant farm type in that particular municipality. In cases where no single product contributed 50 percent of the farm income, the first two or three products with the largest percentages were combined to characterize a dominant farm type. An analysis of the data in appendix 2 shows that most of the municipalities were engaged in mixed farming. Milk, beef, and pork contributed more than half of the farmer's income in most cases. Areas where forest exploitation contributed substantially to the farm income tended to coincide with those of low overall farmer income (compare map 18 with map 19). They also had low soil values.

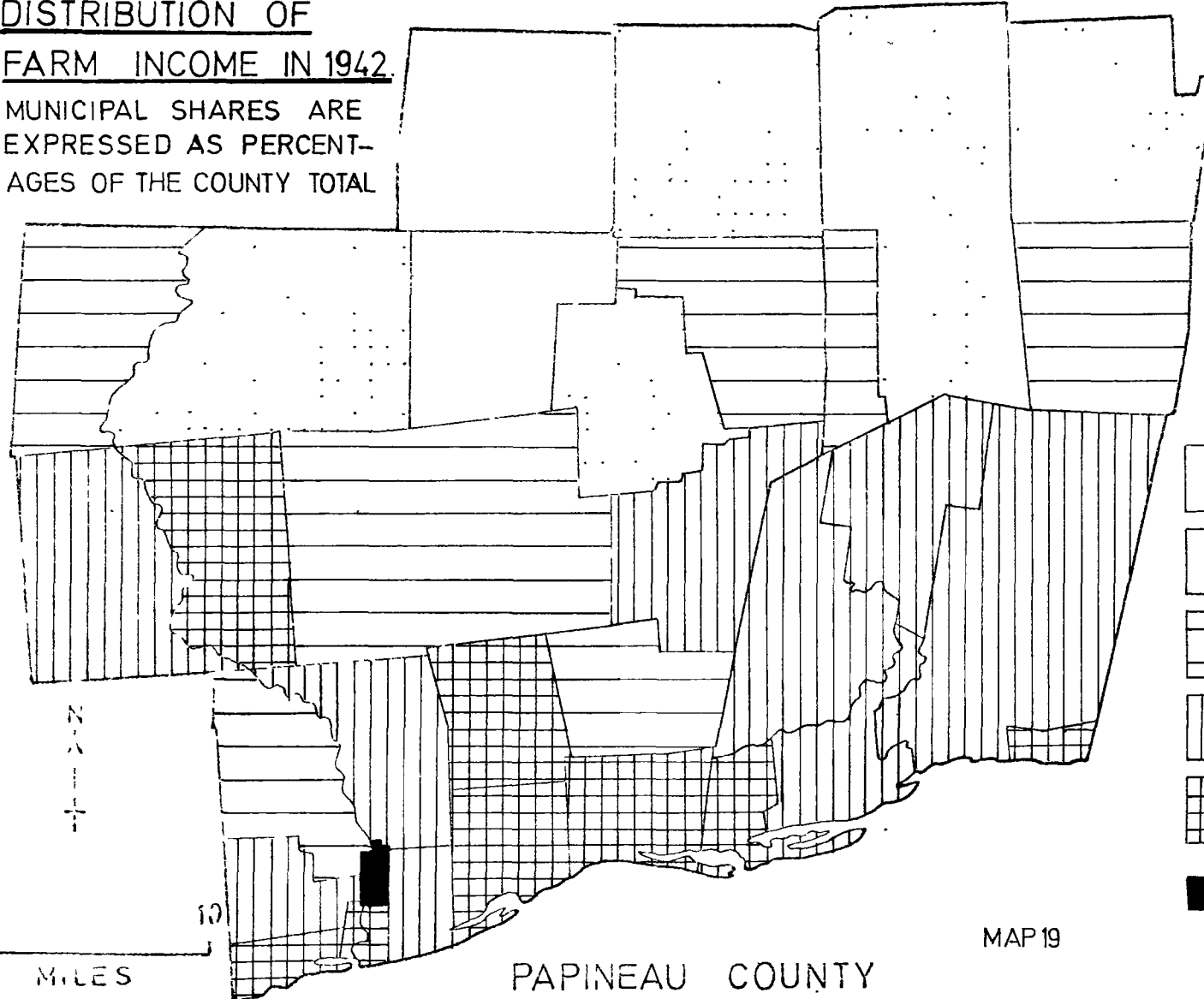
The importance of soils is most striking when one analyses the farm incomes. The municipalities of the Ottawa Plains with only 8% of the total land in the County accounted for 45.6% of the farm incomes in 1942. The municipalities of the Ripon wedge together with those of the Ottawa Plains contributed 60.2% of the farm incomes in 1942. It is interesting to note that while the municipalities along the Ripon wedge accounted for 27.9% of the County's adjusted acres, they only had 14.6% of the farm income. This difference denotes greater returns from more consolidated and fertile soils in the southern plains than those of the Piedmont which have greater limitations to cultivation. The permanence of settlement and land clearing









**DISTRIBUTION OF
FARM INCOME IN 1942.**

MUNICIPAL SHARES ARE
EXPRESSED AS PERCENT-
AGES OF THE COUNTY TOTAL

SOURCE: Ministère de
l'Industrie et du Comm-
erce, "Inventaire des
Ressources Naturelles
du Comté Municipal
de Papineau," 1942



KEY

-  Unorganized
-  1.0 — 2.1 %
-  2.2 — 3.2 %
-  3.3 — 4.3 %
-  4.4 — 5.4 %
-  BUCKINGHAM

0 10
MILES

PAPINEAU COUNTY

MAP 19

will therefore continue to be more marked in these southern Plains than in the Ripon wedge.

The farmer in the modern stage has tended to concentrate on high income earning agricultural activities which do not necessarily call for extensive clearing of land, but intensive farming wherein the farmer's preoccupation is in improving pastures that are already cleared. Notwithstanding this preoccupation, the soils are still a determinant of the income levels of the farmer.

ANALYSIS OF THE MUNICIPAL SHARE OF FARM LAND AREA
AND FARM OPERATORS (1931-1961)

The purpose of analyzing farm land area and operators between 1931 and 1961 is to find out whether the current decline in these two characteristics have had any substantial changes in their distribution pattern. Municipal shares of farm land and operators were calculated as percentages of the County totals for the four decennial censuses of 1931, 1941, 1951, and 1961. Averages of the respective municipal percentages were calculated (see table 5) and used in assessing changes in their distribution pattern.

The municipalities in the Ottawa Plain and the Ripon wedge accounted for 60.3% of the farm land and 66.7% of the operators in the County. The municipalities of the Ripon wedge accounted for 24.7% of the farm land and 24.8% of the operators. Even though the decline of farm land

TABLE 5 AVERAGE MUNICIPAL SHARE
OF FARMLAND AND OPERATORS (1931-1961) ⁵

<u>Municipality</u>	<u>% Farmland</u>	<u>% Operators</u>
St. André-Avellin	9.4	11.7
Suffolk and Addington	6.6	5.5
Ripon	6.2	7.0
Notre-Dame-de-la-Paix	6.0	6.1
Ponsonby	4.8	3.1
Portland E.	4.8	3.7
St. Angélique	4.6	5.6
Lochaber and Gore	4.5	4.5
Portland West	4.2	2.9
L'Ange Gardien	4.2	5.4
Lochaber North	4.0	3.3
Buckingham (Rural)	3.9	3.9
Mulgrave and Derry	3.9	3.0
Lochaber West	3.6	3.8
Hartwell and Preston	3.5	4.0
Notre-Dame-de-Bonsecours	3.1	3.8
Amherst	2.8	2.3
Buckingham West	2.8	3.0
Buckingham South East	2.7	2.9
Montpellier	2.6	3.4
Bowman	2.5	2.1
St. Malachie	2.4	1.8
Plaisance	2.2	2.9
Villeneuve	2.0	1.8
Duhamel	0.7	1.0

⁵ Dominion Bureau of Statistics, Census of Canada,
Agriculture 1931, 1941, 1951, 1961, (Ottawa,
Queen's Printer, 1931, 1941, 1951, 1961).

and operators affected all municipalities in the County, the Ottawa Plains and the Ripon wedge still have a pre-dominance in agricultural activity.

The current concentration on milk production has its effect on land use and on the direction of land exploitation. There have been changes in land use, more successful farmers have tended to improve the best farm lands now catering to cattle feed. Such changes are best seen in areas settled for long periods. Here one observes a decline of rough pasture land to forest. The study of the current process of land selection for farming has thus been limited to the Ottawa Plains and the Ripon wedge.

Incidentally, the Post-Colonization period has not been one of extensive clearing of land. Tourism poses a big challenge to the farmer who can be lured into getting rich by selling his land. Faced with the problem of deciding an efficient form of land exploitation, the farmer has had to depend on assistance from various government agencies which in turn have implemented a policy of concentration on dairy products especially milk. This policy has tended to restrict land improvement to areas of very good soils.

The effects of tourism and dairy production are all detrimental to cleared land. To the north of the Ripon wedge, the tourist industry has converted lake margins to recreational sites, and large-scale land abandonment is the current trend. In the Ottawa Plains there has been a

migration of poorer farmers who cannot compete with more progressive operators and who have been reluctant to sell their farms. Land abandonment here has been spotty and more complex in the southern plains especially with the recent development of pastures on fertile farm land. It would be appropriate to assess the role of government policy towards agricultural development and the tourist industry before examining recent land abandonment.

STATE POLICY TOWARD AGRICULTURAL DEVELOPMENT

In the Post-Colonization period, the Government has encouraged the development of mining, lumbering, farming, processing of farm products, and tourism. All of these have some potential in the County. Of these activities, farming has been most responsible for land clearance. Government policy towards farming during the Post-Colonization stage will therefore be assessed as a determinant of land clearance.

The main revolution in recent agricultural practice involves changes in agricultural techniques. In the search for higher productivity, the Quebec legislature saw mechanization and the use of electrical energy as the answer. Changes in agricultural techniques resulted in the institution of co-operatives from which farmers sought loans; the gradual elimination of less successful farmers who could not withstand the competition in agricultural productivity; and the steady increase of average acreage

per operator with the elimination of non-competitive elements in the farm industry.

Farm land acreage shows a gradual decline since 1931. The amount of cleared land as well as the number of operators has equally declined (see graph 1). On the whole, the cleared or improved acreage has not declined as rapidly as the number of operators. In the next decade a further consolidation of already cleared and partially developed land in the hands of fewer but more progressive farmers may be expected.

It is difficult to determine the effects of changing agricultural techniques on the clearance of new land. The clearance of new land in the Post-Colonization stage has been rather slow and there still remain unsettled municipalities which the Provincial Government calls unorganized. The Government has unsuccessfully attempted to lure people to settle in these unorganized areas by offering subsidies to prospective settlers.

More recently the Government has embarked on delimiting economic regions and has tried to solve their respective problems. For example, the counties in the north of the Ottawa Valley were incorporated into the Ottawa Region. This approach has met with considerable criticism. A more objective and systematic approach to rural development has been suggested. Morrissette has criticized inadequate delineation of agricultural regions in these terms:

"comme ces régions agronomiques groupent des comtés entiers; il arrive que deux régions géographiquement très différentes soient comprises à l'intérieur du même comté." 6

He made a more critical study of farming characteristics and developed a classification of agricultural regions; based on four principal criteria which were: the average acreage per farmer; the number of milk cows per farm; the average index of absenteeism; and the percentage of farms with sales over five thousand dollars. He further made sample studies of farmers' suggestions on ways of solving their agricultural problems.

Morrisette's pioneer work was an attempt to co-ordinate the operation of government policy and the farmers. His development of agricultural regions in the Province of Quebec is regarded as a first step and a broad basis from which the extent of a development area can be described.

ARDA (Agriculture and Rural Development Act) has brought a stronger awareness of the land use problems in Canada as a whole. The aim of the agency is "d'éviter de perpétuer un usage peu économique des terres en unités plus

6

Hugues Morrisette, Les Conditions du Développement Agricole au Québec (published Ph.D. thesis, University of Strasbourg, 1965), p. 63.

grandes."⁷

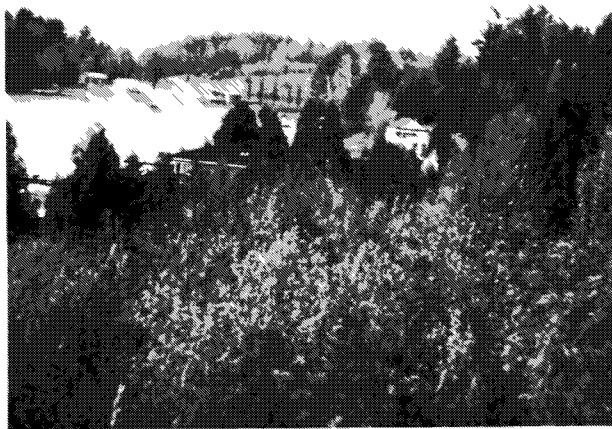
The policy trend in the Post-Colonization stage has therefore been an examination of the problems of land development in a period of rapid land abandonment and decline in the number of farm operators; and an attempt by State and Provincial legislatures to implement measures that will ensure the continued participation of the low-income farmer in the progress of economic productivity. Land clearing itself has been static and the present pre-occupation of the farmer and the policy maker is how to maintain those cleared farms which offer good possibilities for the progressive farmer.

TOURISM AND GOVERNMENT POLICY

The northern municipalities of Chénéville, Hartwell, and Val des Bois have a natural beauty that has attracted tourists since the Second World War. Tourism has replaced farming in most of these municipalities and this change of land use is evident in the landscape.

The lake shores are developing spotty patterns of built-up areas with numerous cottages (see plate 2). Near the lakes, forest trees are gradually replacing former

⁷ Ministry of Forestry and Rural Development, Rapport d'une Etude sur les Fermes de l'Est du Canada, Projet No. 14005 de l'ARDA, (Ottawa: Direction du Développement Rural, 1963), p. 39.



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pastures, and sandy patches of farm margins have been developed into good golf grounds. Presently, tourism in the County calls for landscape development on lake margins. Beyond this, farm land has not received much attention, and is left in a state of abandonment.

The ARDA report on rural development stresses the need to encourage progressive farmers in areas where soils are good, irrespective of the potential such lands may have for tourist industry:

"Il doit être tenu compte que ce genre d'adaptation de l'utilisation des terres se limite en grande partie à favoriser et à améliorer les perspectives économiques des cultivateurs potentiellement viables." 8

Such a measure could limit the rapid decline of cleared land, but at the rate the tourist boom is spreading into the northern municipalities, it is difficult to envisage any agency which could efficiently control the sale of farm land which has been responsible for the growing abandonment of land in the 'Laurentians'. Describing tourism in the Nord Valley, Clibbon uses the following

8

Ministry of Forestry and Rural Development, Rapport
d'une Etude sur les Fermes de l'Est du Canada, p. 35.

terms:

"tourist development in the 'Laurentian' area may have accelerated the process, but no more. However, in the Nord Valley the tourist industry has been directly responsible for the withdrawal from agricultural use of thousands of acres of good quality silts and sandy loams. The large profits derived from land sales, and increased employment opportunities resulting from the tourist boom, also help to explain the virtual disappearance of farming from the area." 9

THE AREA CLEARED IN THE POST-COLONIZATION STAGE

In the Post-Colonization stage, agriculture has been the best index for estimating the area of cleared land. Urban areas encroached on farm lands. The Post-Colonization stage saw a decline in farm land area, and similarly a decline in the area cleared.

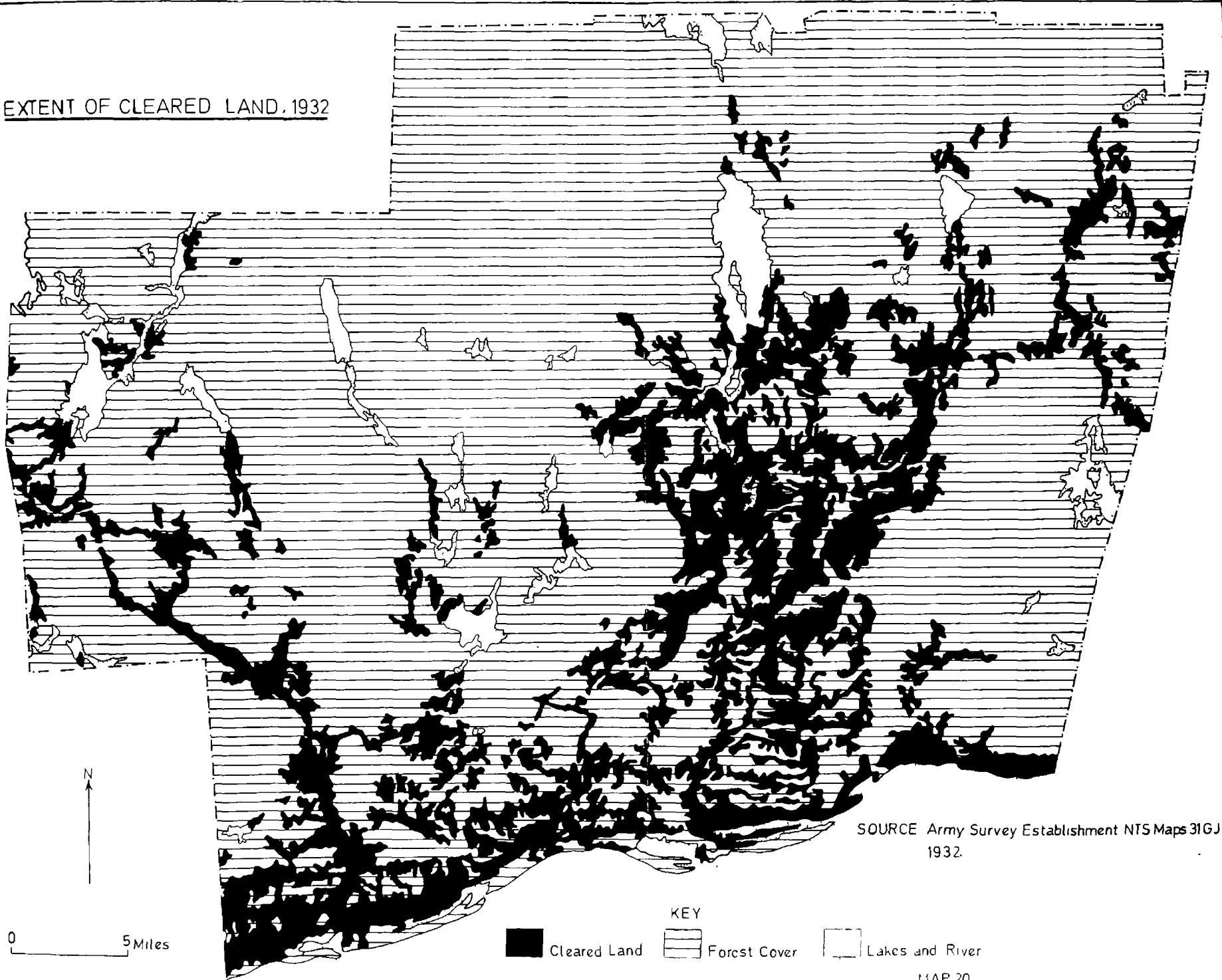
In 1965 about one-fifth of the County was cleared. The greatest phase of clearing occurred in the inter war years, a period when the County amounted to 220,844 acres in 1921. By 1931 the farm land area had reached a peak of 397,957 acres (see map 20). It dropped to 363,347 acres in 1941; 320,871 in 1951; 264,066 in 1961; and 232,418 in 1966. Presently, the cleared area continues to shrink and is likely to reach a level far below that of 1921.

As shown in map 21, land clearing has not progressed far beyond the lower valleys of streams in the northern

9




Clibbon, Land Use Patterns in the Laurentides, p. 278.

EXTENT OF CLEARED LAND, 1932



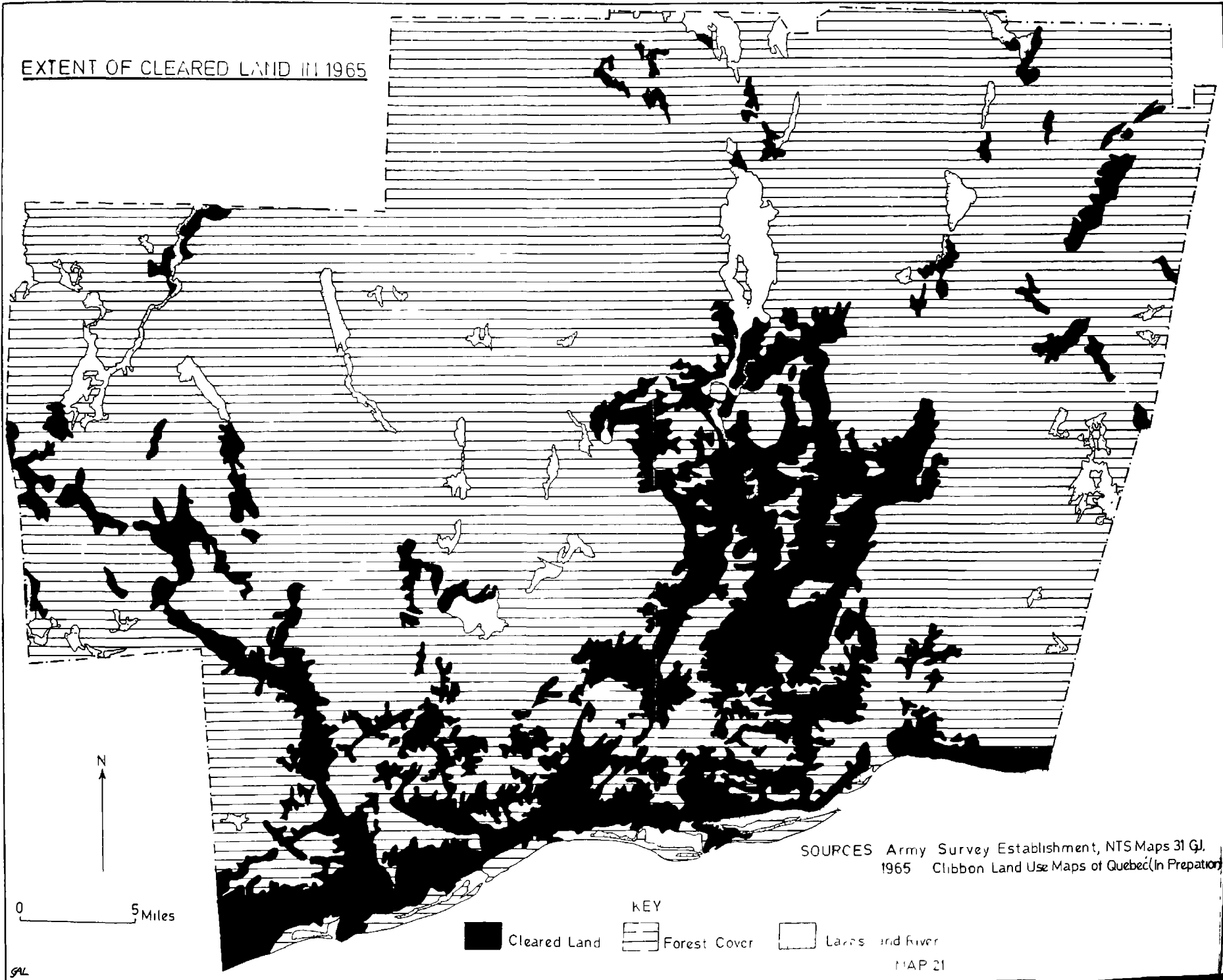
SOURCE Army Survey Establishment NTS Maps 31GJ
1932.

KEY

-  Cleared Land
-  Forest Cover
-  Lakes and River

MAP 20

EXTENT OF CLEARED LAND IN 1965



SOURCES Army Survey Establishment, NTS Maps 31 GJ,
1965 Clibbon Land Use Maps of Quebec (In Preparation)

KEY

- Cleared Land
- ▨ Forest Cover
- Lakes and River

MAP 21

SAL

part of the County. In the south, the ribbons of cleared land are interspersed and dotted with areas of persistent forest cover.

A comparison of map 20 and map 21 shows this aspect of decline in several places. Along the Lièvre Valley there has been a marked increase of forest area to the southwest in the municipality of L'Ange Gardien, where a considerable number of farms have been abandoned. In the Upper Lièvre Valley the area around High Falls to the north of Lake Escalier had regained a forest cover by 1965.

Southwest of Lac Blanche, in the municipality of Malachie, there has been a marked decline of cleared land. But the spotty distribution of forest areas along the Ripon wedge in 1932 had been largely reduced by 1965 as the process of land selection for clearing progressed, a characteristic that is also true of the Ottawa Plains to the south.

North of the Ripon wedge, to the southwest of Lac Désormeaux, most of the cleared land in 1932 had regained a forest cover by 1965. The area southwest of Montpellier has had a similar increase of forested land.

The decline of cleared land between 1932 and 1965 has been more marked in areas close to or within rocky terrain. Some of this land had been used for rough pastures which, abandoned, have quickly regained their forest growth. Remoteness from densely populated areas can be a reason for

this pattern of decline, but with the fairly good system of communications in the Post-Colonization period, it is difficult to limit the cause of decline to any single reason.

The declining tendency must be viewed as a process of adjustment. Assuming that the forest concessions and reservations in Crown lands remain unchanged, and that the tourist industry continues to boom, only farm lands of high agricultural potential will continue to be exploited. Farming will be a profitable economic venture if the decline of cleared or improved farm land is followed by a greater decline in farm operators. Under these conditions, an increase of acreage per farmer is probable; the goal towards which the Quebec legislature is gradually generating agricultural policies.

CHAPTER V

RECENT ABANDONMENT AND AFFORESTATION

During the Colonization stage, land abandonment in Papineau County went together with a permanent transfer of settlers from the County to other parts of Canada involving primarily landed immigrants engaged in construction work. It is to some measure the result of both temporary and permanent migration. Temporary migration ranges from short term absenteeism to periods which may embrace two or three growing seasons.

In Papineau County part-time work in some economic activity other than agriculture was an important reason for land abandonment. There were other reasons like the inability to provide capital for machinery, cattle, fertilizers; the scarcity and scattered distribution of fertile farm land which limits the amount of forage produced for cattle feed; the imbalance between taxes and land productivity; the tourist boom which has engendered the sale of considerable areas of good farm land; the size of the farm operator's family; and the occurrence of fire disasters which sometimes involve the destruction of expensive farm machinery and ultimately discourage the farmer.

RECENT LAND ABANDONMENT

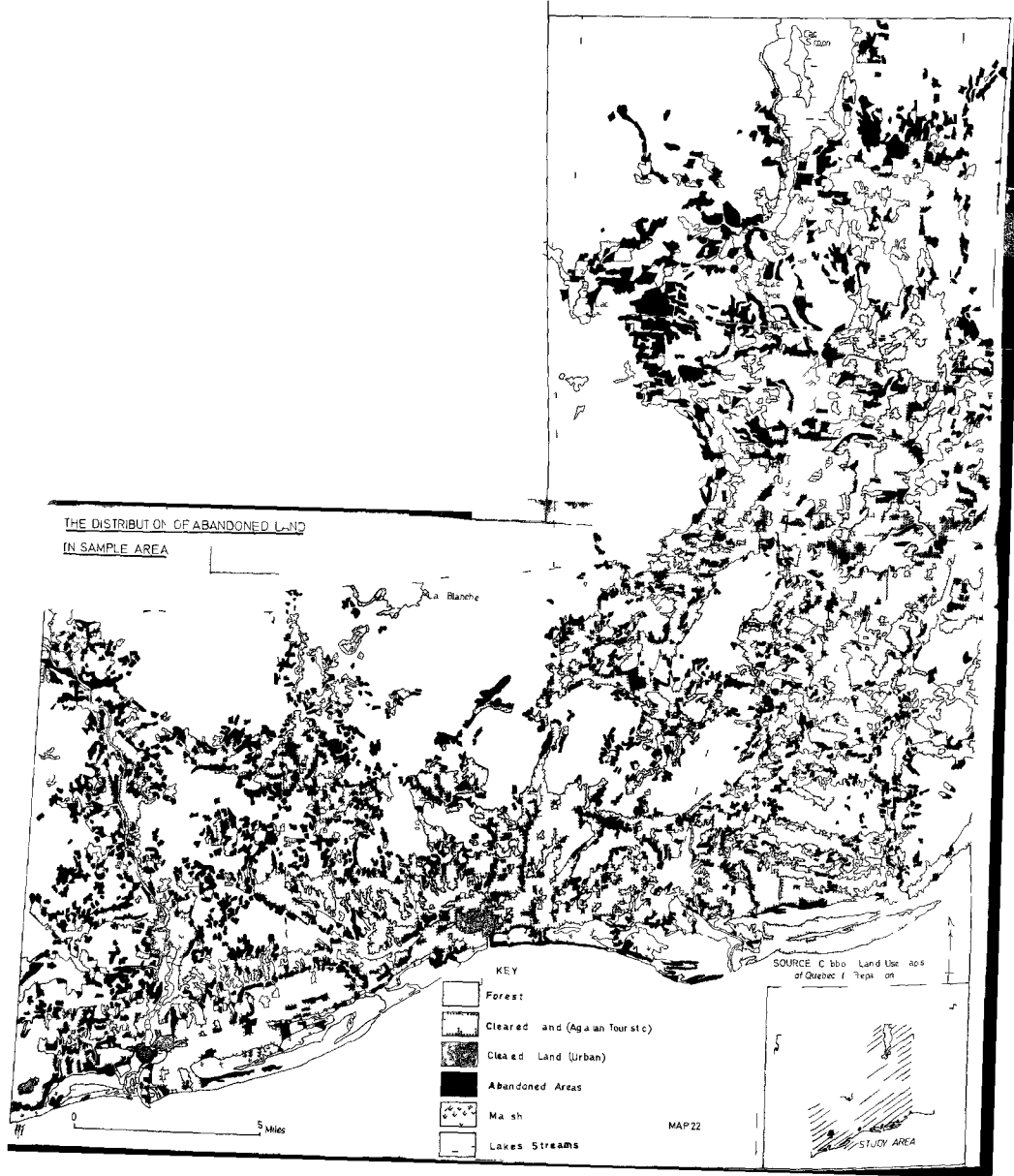
The study of recent land abandonment and afforestation has been limited to the municipalities within the Ottawa

Plains and the Ripon wedge. Municipalities in these two physiographic areas were chosen because they are predominantly agricultural areas that have undergone a relatively long period of land exploitation. Eleven municipalities were chosen at random for this study. The diversity in terrain and in reasons for leaving farm work in the County demand such a large sample to illustrate the distribution pattern of land that has been abandoned.

Map 22 shows the distribution of abandoned land and map 23, the distribution of soil classes in the sample area. From map 22 it is evident that there are fewer abandoned areas on the lower terraces of the Ottawa Plains and the Ripon wedge than other areas. A comparison of map 22 and map 23 shows that the pattern of abandoned land is not strictly governed by the distribution of soil types.

In the process of land selection for cultivation, fertile areas adjacent to rocky terrain have not been fully exploited. For example, there is an area of class 1 soils three miles north of Buckingham, which are under forest. There is a similar stretch of fertile land two miles to the northwest of Masson and this too has not been cleared. The largest area of class 1 soils still under forest, occurs in the Gore of Lochaber. This is an area of about eight square miles which extends to Lochaber North. Land selection has been carried out without a comprehensive knowledge of the location of fertile soil areas.

The result is that margins of these bands of class 1



soils have been cleared and some of them have already been abandoned (compare the distribution of soil types and abandoned land west of Malachie). It is the abandonment of such areas of fertile land not yet fully explored and exploited that should concern development workers, especially when they occur in municipalities of concentrated agricultural activity.

Areas of large-scale abandonment include southwest Lac Blanche, northern Ripon and northeast Chénéville. These are peripheral areas to resort centres, and it is believed that land sales to speculators involved in a booming tourist industry are mainly responsible for land abandonment here. Between northern Ripon and southwest Montpellier, about half of the abandoned land is of class 1 soils. It is evident that the present legislation has not been very effective in controlling the transfer of land from agricultural to non-agricultural uses. As a result, cleared land which still has some potential for cultivation has been left to regrow forest.

Lands on lake margins cater mainly to recreational pursuits of tourists. But beyond these margins there has been a great decline of farm land area (see the margins of Lac Scryer, Lac Viceroy, and Lac Simon in map 22).

Contrasting with other areas is the pattern of abandoned land in the southern municipalities which are less attractive to tourists. The farmers here are attracted by job opportunities in the neighbouring urban centres. Farm work for

the educated and more progressive farmer is thus coupled with work in the town where he earns the money to pay for farm machinery. But working in the urban area creates a conflict of interest which is usually at the expense of farm work. While reluctant to sell his land, the farmer is forced by his urban work to limit his cultivated acreage. The neglected areas decline to scrub and woodland and they are represented in map 22 by the horizontal bands of abandoned land along roads.

Another pattern of abandoned land appears in the Piedmont area of the Ripon wedge where it is adjacent to rocky terrain. The abandoned areas here form curves and tend to conform with the shape of rock margins (see the eastern side of the Ripon scarp in map 22).

The areas of largest land abandonment are in rural Buckingham, Chénéville, and southern Montpellier where forty percent of the farm land has been abandoned. In Malachie, about twenty-five percent of cleared land is now regrowing a forest cover while the municipalities on the Ripon wedge have lost fifteen percent of its cleared land.

The visual impression of abandoned land to the north of the sample area contrasts with that of the south. West of Chénéville, abandoned land presents a sombre effect on the landscape. The farmer has not built an expensive living house, and abandoning it does not amount to much loss. Here, more advanced signs of deterioration are visible.

Top soils have been drastically eroded (see plate 3), and sandy ditches punctuate former pastures. Shrubs appear in sporadic clusters in the early stages of land abandonment; gradually, scrub woodland develops (see plate 4).

In the southern lowlands, the abandoned farm land retains an aspect of rolling pastures for longer periods, but the result of neglect can be seen. Overgrazing has left bare some of these pastures (see plate 5), and even the erosive activity of a small stream brings to the surface the bedrock below the clayey beds of the Ottawa Plains.

Two basic problems are bound to emerge in any attempt to reduce the rates of land abandonment. In the northern municipalities, where land sales are increasing, it will be difficult for any legislature to control such a trend in the face of rising taxation on land. Secondly, it will be difficult to find any means of encouraging farmers working in urban areas to concentrate on farming, or to sell their land. The farmers interviewed in the southern municipalities are usually ready to sell their farms avec un prix; but such a price is usually so high that there is hardly anyone to buy the farms.

More detailed work on the consequences of part-time¹ farm work has been discussed by Hugues Morrissette who has expressed his observations on the current increase of

¹ Morrissette, Les Conditions du Développement Agricole au Québec, pp. 65, 169-172.



PLATE 3. EROSION ON A RECENTLY
ABANDONED FARM IN THURSO

(In areas of relatively steep slopes, soil creep accelerates the process of soil erosion. The loamy class 2 soils in the foreground are losing grounds faster than those in the fairly level area in the background).



PLATE 4. ABANDONED LAND ON THE NORTHERN
PART OF THE RIFC WEDGE.

(This picture was taken on a farm near
Chénéville. Note the flatness of this depo-
sition basin which contrasts with the high
land in the background. The sandy patches
and tall grass characterize this area that
has been abandoned four years ago).



PLATE 5. ABANDONED LAND IN THE OTTAWA PLAINS.

(This picture was taken three miles northwest of Thurso. The farm here has been abandoned three years ago. The stream in the foreground is gradually exposing the rocky substratum. The uneven growth of pasture suggests overgrazing while the scatter of wood indicates a decline in care for the farm).

farmers working in urban areas as follows:

"L'étroite relation entre le travail extérieur et la satisfaction des agriculteurs est illustrée par le fait que 70% des exploitants qui travaillent exclusivement sur leur fermes n'ont jamais pensé à la quitter pour une autre occupation. Par contre, cette proportion décroît au fur et à mesure que l'habitude du travail extérieur est mieux ancrée." ²

AFFORESTATION

In the Post-Colonization stage, the methodical afforestation of formerly cleared areas has been the responsibility of the farmer and government agencies like ARDA, and the Department of Lands and Forests. In the past, it has been the practice of the Forestry Department to supply farmers with forest tree seeds.

In the sample areas studied, the Hartwell and Chénéville municipalities progressed little with afforestation schemes. In Chénéville it was noted that only two people have started planting trees on old farm lands located on the southeastern shores of Lac Simon east of Chénéville. In Vinoy, however, there has been much progress in government afforestation schemes on Crown lands (see plate 6). In the rest of the municipalities visited, there has been little progress.

Two basic problems face the planting and conservation of forest trees in deteriorating farm lands. Firstly, it is very difficult for any form of administrative body to enforce the planting of forest trees on private estates.

² Morrissette, Les Conditions du Développement Agricole au Québec, p. 172.



PLATE 6. THE DEVELOPMENT OF FOREST-FREE
PLANTATION IN VINOY.

(The forest in the far background is part of an uncultivated hill. In the immediate background, a tree plantation is progressing toward the abandoned farm in the foreground. This plantation is about four years old).

Secondly, there is no medium by which the farmer's rate of felling his forest trees can be controlled.

One possible measure suggested by ARDA¹ is the purchase of abandoned farm land by a government agency which will study the land potential and decide the best use into which such areas can be put. This will put the land into the hands of experts who must consolidate the land to larger farms. The results will be an increase in farm productivity of a small number of operators with large farms.

CASE STUDIES OF RECENT LAND USE CHANGES IN THREE FARM AREAS

Case studies of three areas were carried out to assess the pattern of change in land use and land holdings in the sample area. It was decided to further examine areas that were close to large towns and adjacent to major transportation arteries. One area was selected along the Lièvre Valley, one in a centrally located area in the southern lowlands, and another in the Piedmont region.

1

Rapport d'une Etude sur les Fermes de l'Est du Canada, Projet No. 14005 de l'ARDA, 1963. ... "ce genre d'organisme pourrait constituer le marché nécessaire à l'acquisition de terres appelées à être abandonnées ou vendues . . . il pourrait prendre possession des terres qui ne peuvent pas constituer des fermes viables et les détiendrait jusqu'à ce que se présente une occasion de les remembrer pour constituer des unités viables." p. 39.

In selecting the case studies, it was decided to find locations involving respectively eight to fifteen farm holdings within an area of one and a half to three square miles. Farm holdings in the immediate hinterlands of towns were studied from 1969 air photos and areas closest to these conditions were Northwest Buckingham, with eleven holdings within 2.9 square miles, Northwest Thurso with eight holdings within 1.8 square miles, and Northwest St-André-Avellin with thirteen holdings within 2.6 square miles.

The form of land holdings in all these areas is rectangular, and the built-up areas are located close to the roads. The Northwest Buckingham area lies along the road on the right bank of the Lièvre. This road runs northward along the Upper Lièvre and branches westward to Templeton. The Northwest Thurso area is along the road to the northern municipalities of St-André-Avellin and Chénéville. The Northwest St-André-Avellin area is along the road which links Papineauville with the tourist centre of Chénéville.

These three farm land areas have been cultivated long before 1920, but lack of data on the actual pattern of land use has limited this study to the post-colonization period. For the analysis of land use patterns, 1929 and 1964 air photographs were used. Field work supplemented the information that was obtained. Table 6 shows the percentages of cleared land in the farm areas.

TABLE 6

PERCENTAGES OF CLEARED LAND IN THE THREE FARM AREAS (1964)

Area	% Cleared	% Forest	% Marshes
Northwest Buckingham	44.8	55.2	
Northwest Thurso	50.1	28.8	21.1
Northwest St-André-Avellin	64.9	25.7	9.4

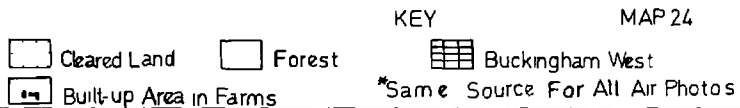
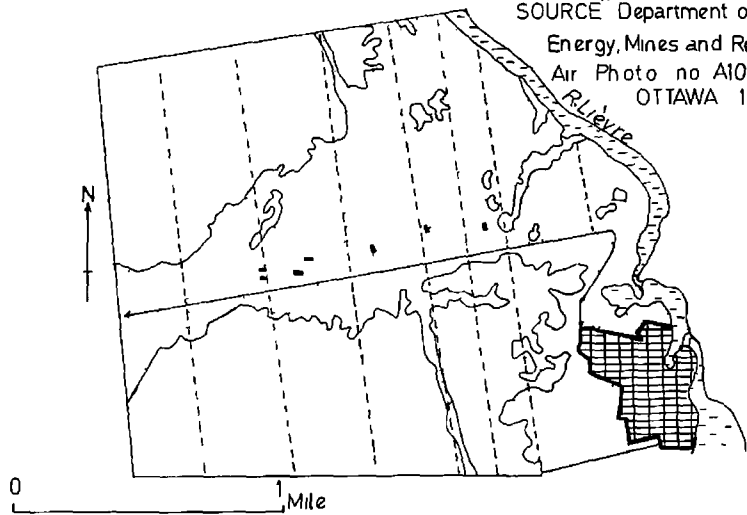
A comparison of map 24 and map 25 indicates that there has been little change in the areas cleared in Northwest Buckingham. The built-up area within the farm has increased considerably while the built-up area of Buckingham itself has extended northward along the right bank of the river. The rocky areas and marshes within the cleared portions of farms have been considerably improved and the only areas left at present are mounds of rocks which cannot be disposed of.

Map 26 shows the distribution of soil classes in Northwest Buckingham, which has a close relationship to the pattern of clearing. Class 5 soils are predominant. Clearing has been limited to the margins of these rocky areas, while the land in other soil classes is fully cleared. Only four of the thirteen farm operators in this area have fairly large areas of cultivable land. The others can neither extend their acreage, nor compete with those with larger areas of cultivable land.

In Northwest Thurso, areas which were rough pasture

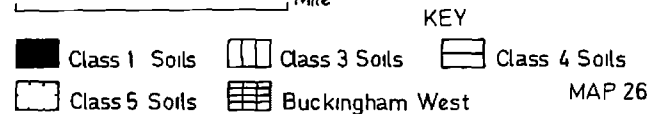
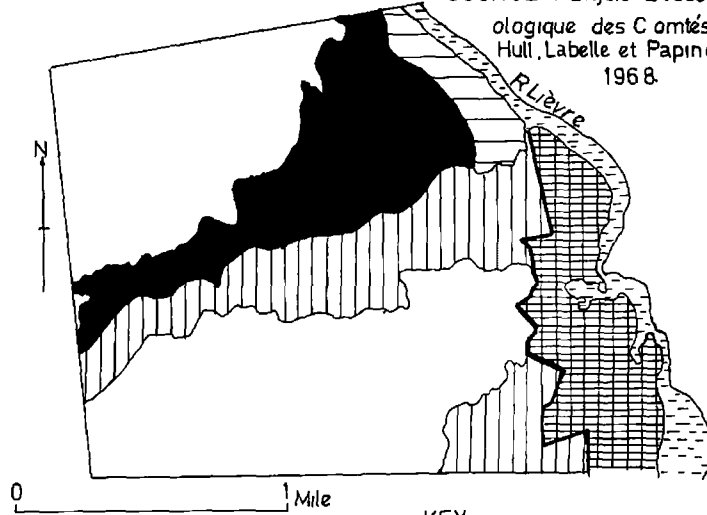
LAND PARTITION AND USE IN NORTH WEST BUCKINGHAM IN 1929

SOURCE * Department of Energy, Mines and Resources, Air Photo no A1018-76, OTTAWA 1929



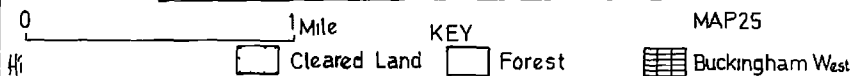
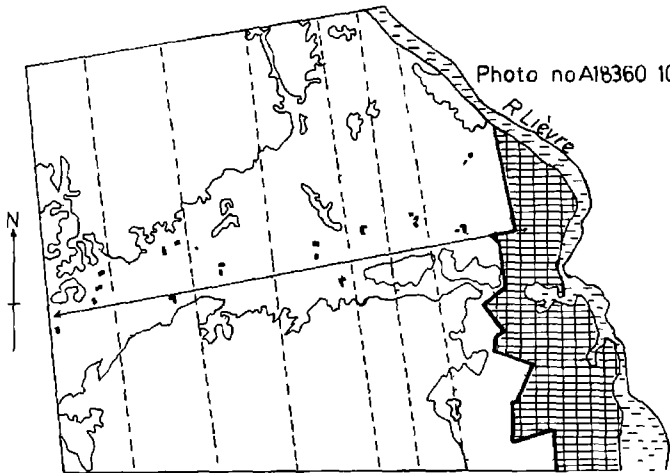
SOIL TYPES IN NORTH WEST BUCKINGHAM

SOURCE PLajore 'Étude Pédologique des Comtés de Hull, Labelle et Papineau,' 1968.

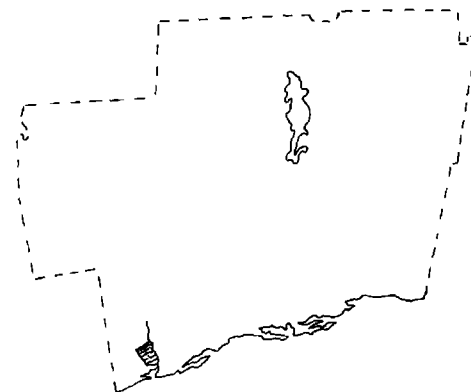


LAND USE PATTERN IN NORTH WEST BUCKINGHAM IN 1964

Photo no A18360 103 1964



LOCATION MAP



≡ STUDY AREA

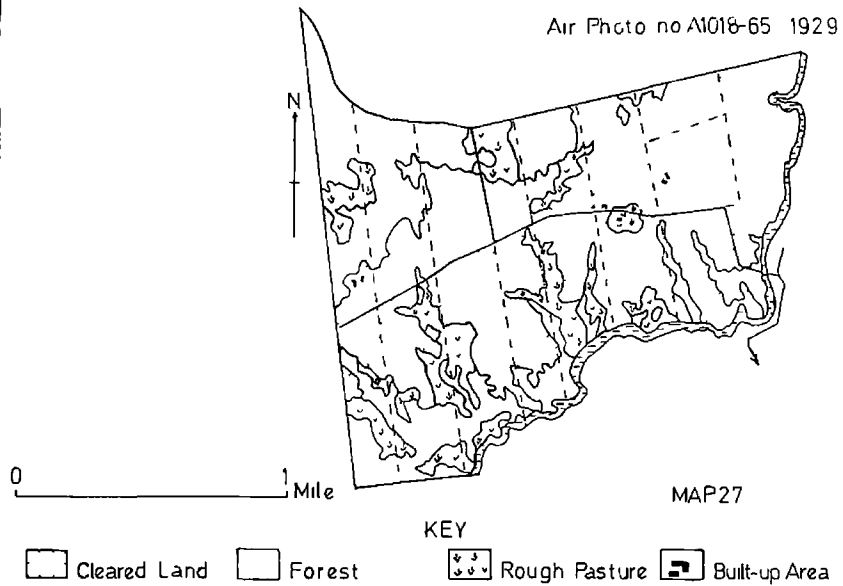
lands in 1929 had declined to forest by 1964 (compare map 27 and map 28). Cleared and cultivated land has extended to areas of class 5 soils (compare map 28 with map 29). Land improvement in the Thurso area has involved the use of underground drainage pipes, a measure that has been effective in reducing excess soil moisture in areas of thin layers of good top soils. This type of draining, however, is very expensive and only two of the eight operators in this area have been able to implement it.

Northwest St-André-Avellin is within the Piedmont area. This is a deposition basin which has developed marshes in poorly drained areas. Farming in this area has changed from mixed cropping to potato growing. The areas devoted to rough pasture in 1929 have developed a forest cover by 1964 (compare map 30 and map 31).

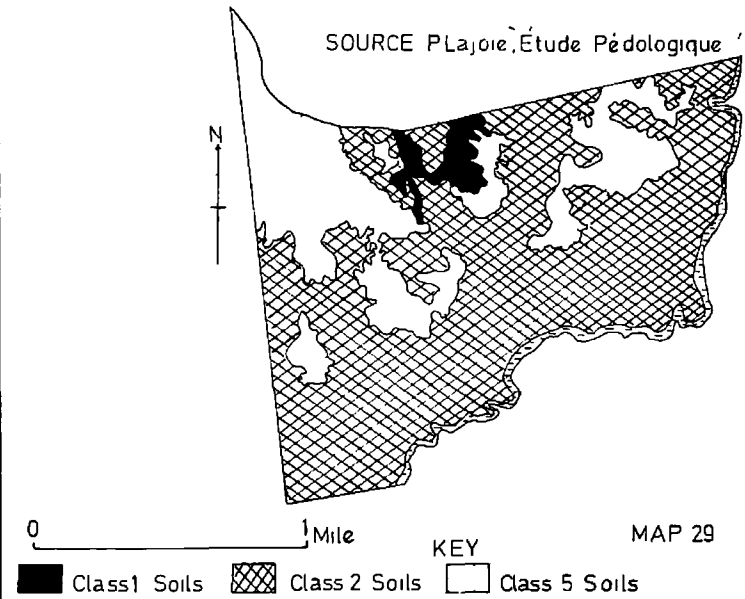
Interviews of farmers in this area indicate that the early clearings in this area were not thorough. The farmer in the Colonization period used shallow plough shares which did not uproot the stumps. The current use of machines in ploughing is therefore limited to areas involving minimum cost, and land improvement has progressed with a careful selection of cultivable areas (compare map 31 and map 32).

The development of tourism north of this area, in Chénéville and Hartwell, has been followed by the construction of a paved highway which now links the farm population

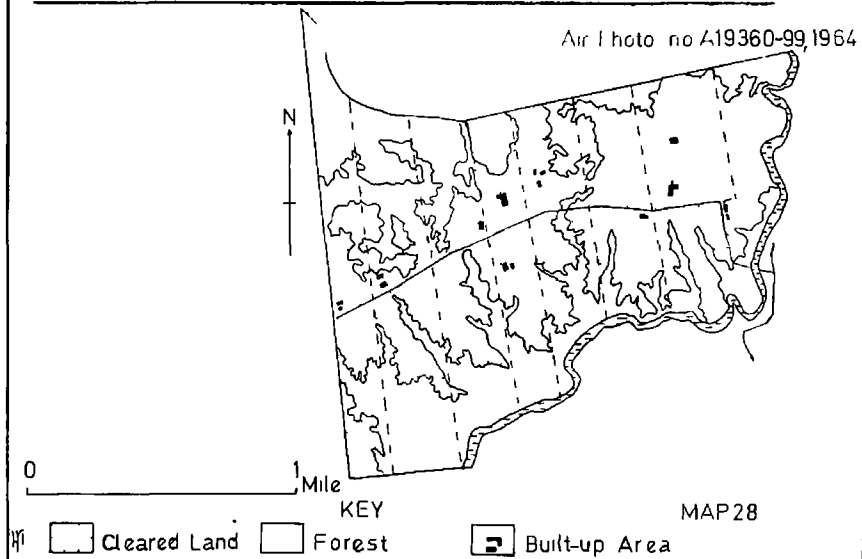
LAND PARTITION AND USE IN NORTH WEST THURSO IN 1929



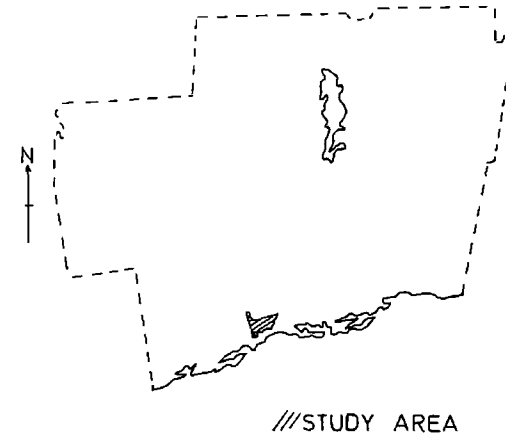
SOIL TYPES IN NORTH WEST THURSO



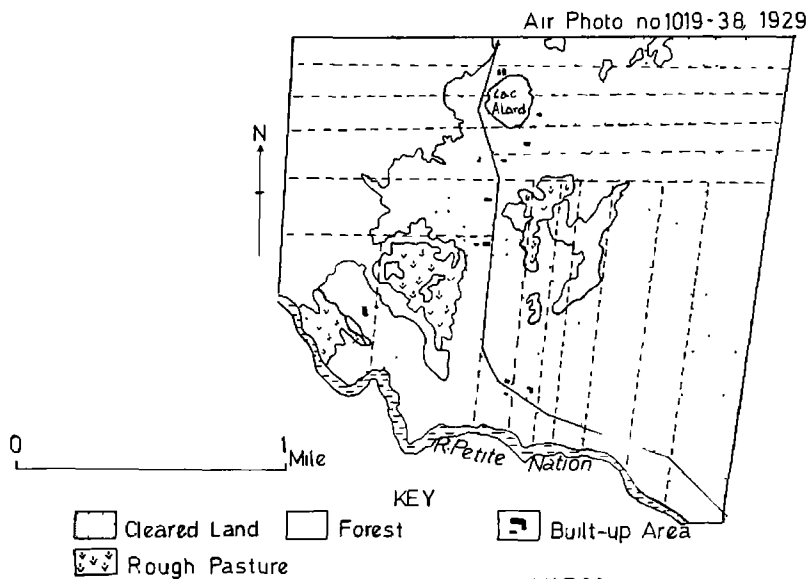
LAND USE PATTERN IN NORTH WEST THURSO IN 1964



LOCATION MAP

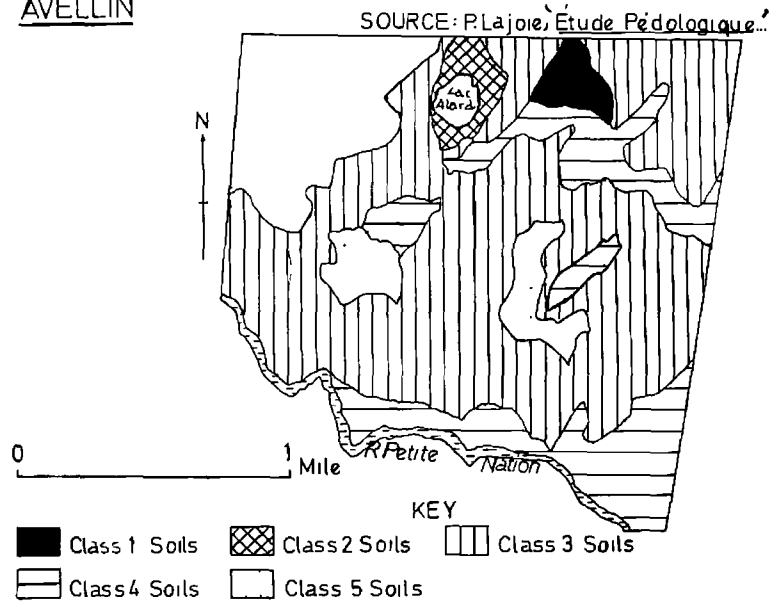


LAND PARTITION AND USE IN NORTH WEST ST ANDRÉ AVELLIN IN 1929



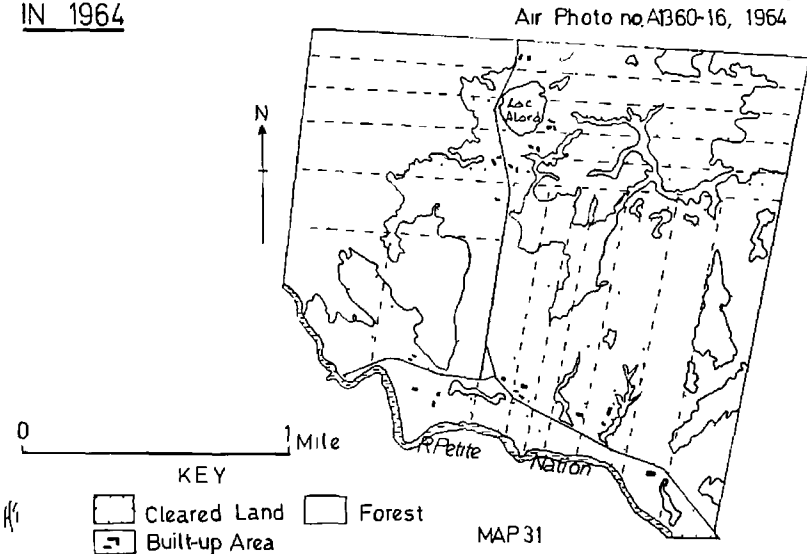
MAP 30

SOIL TYPES IN NORTH WEST ST. ANDRÉ AVELLIN



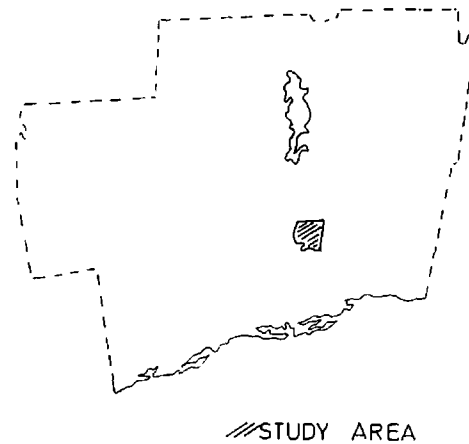
MAP 32

LAND USE PATTERN IN NORTH WEST ST ANDRÉ AVELLIN IN 1964



MAP 31

LOCATION MAP



here to the tourist centres and the towns in southern Papineau. A few farmers have virtually abandoned farming and are now engaged in road works.

The change from mixed farming to a concentration on milk production has been carried out at the expense of areas cleared in the early 1920's for rough pasture. Currently, areas that were under crops are devoted to pastures for cattle feed. A comparison of map 31 and map 32 indicates areas of good class 2 soil types under forest. These are marshy areas and the exploitation of such land involves expensive draining which cannot be easily done by the individual farmer.

The portions that have retained a forest cover in the three farm areas are the margins of streams and rocky areas. In both cases, slope is a determinant. Where the terrain is flat, marshes tend to develop. Steep slopes are usually associated with rocky terrain; and even where this rule is not applicable, for example in the loamy stream valleys, steep gradients cannot be cultivated mechanically.

Interviews were carried out to assess the system of transfer of property, and it was found out that there has not been a subdivision of land. In the Buckingham area the thirteen land holders were of English descent. Land ownership has tended to transfer from one generation of the family to the next. Farming in this area has become one man's concern, that of the farm operator. With the growth of Buckingham, the farmers are not inclined to sell their

land.

Land in Northwest Thurso has changed hands from English proprietors to French. This change has not by any means influenced the pattern of land use or the size of farms, because the partition of private property is permanent. Here, as in Buckingham, one finds a fairly large number of farmers who have to work in the neighbouring urban centres, to pay for farm machinery.

In Northwest St-André-Avellin, the farmers are predominantly French, and the transfer of property has involved a larger family circle which includes close friends of the respective farm operators. The current tendency is to sell the land, but the main concern here is that no one can pay the prices imposed. Obsessed by the realization that he has no other means of earning money, the farmer in this area has tended to operate for bare subsistence.

CONCLUSION

During the Pioneer stage, the main factors affecting the progress of land clearance were the system of land concessions; State restriction on land occupation in this part of the country; lumbering; and towards the end of this stage, communications and the distribution of pioneer settlers.

In the Colonization stage, the Quebec legislature, with the help of Church leaders carried out a land-occupation programme that resulted in the increase of settlers and farm land acquisition. The success of this programme was mainly due to the construction of the Canadian Pacific Railway which provided a cheap means of transportation. Mining opened the northern basin of the Lièvre to occupation while the farmer in the southern townships became less attached to the lumberman.

The Post-Colonization stage brought the use of electrical energy and mechanization in farming and lumbering. The legislature encouraged mechanization, mixed farming and an emphasis on dairy products. At this stage the farmer's interest was directed towards intensive farming. This involved a capital-intensive form of exploitation and has gradually eliminated less productive farmers who have been most inclined to migrate. The tourist industry with its attendant sources of employment can be a major source of

income for this type of farmer.

The future is not bleak as the current government policy has concentrated on encouraging farming in those areas where the land potential is promising. The limitations of such a policy cannot be appraised in this study. Mackintosh, in his review of the future of Canadian settlement, is doubtful as to the possible success of such a policy:

"It is not merely a matter of determining whether land is capable of yielding a livelihood, it is necessary, also, to see that there are sufficiently compact areas of land capable of sustaining not merely the individual farm family but the community overhead costs for transportation, and civil government." ¹

The current decline in farm land is the result of a necessary adjustment between rising standards of living, and low returns from small-scale farming. Given that present State policies toward agricultural and rural development remain unchanged, and given that the tourist boom continues, cleared land will further decline; however, at a slower rate than in the previous decades.

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W.A. Mackintosh, Limits of Land Settlement - A Report on Present-day Possibilities, ed. by Bowman, I, (Freeport: New York, 1937) reprinted 1967, p. 85.

APPENDIX 2. AVERAGE FARMER INCOME IN PAPINEAU COUNTY 1942 *

MUNICIPALITY	Average Farmer Income	Crop sales	Percentage of income	Beef sales	Percentage of income	Milk sales	Percentage of income	Pork sales	Percentage of income	Poultry sales	Percentage of income	Mutton sales	Percentage of income	Forest products	Percentage of income	Aviculture	Percentage of income	Maple products	Percentage of income	Animal pasture	Percentage of income
Amherst	\$ 511	\$ 3	.5	\$ 50	9.8	\$ 120	23.5	\$ 38	7.4	\$ 25	4.9	\$ 5	1.0	\$ 270	52.8	\$ -	-	\$ -	-	\$ -	-
Angers	902	150	16.6	140	15.5	390	43.2	90	10.0	-	-	7	0.8	-	-	95	10.5	30	3.3	-	-
Arthabaska	472	40	8.5	75	15.9	180	38.1	40	8.5	30	6.4	7	1.5	100	21.2	-	-	-	-	-	-
Beauceville	707	45	6.4	100	14.1	300	42.4	90	12.7	10	1.4	12	1.7	140	19.8	-	-	10	1.4	-	-
Beauceville S.E.	563	5	.9	116	20.6	275	48.8	100	17.8	-	-	10	1.8	40	7.1	17	3.0	3	-	-	-
Beauceville S.W.	816	40	4.9	130	15.9	300	36.8	200	24.5	-	-	3	0.4	90	11.0	50	6.1	3	0.4	-	-
Chapleau	355	30	8.5	25	7.0	125	35.2	86	24.2	30	8.5	9	2.5	15	4.2	-	-	5	1.4	30	8.5
Chapleau	78	8	10.3	5	6.4	20	25.6	3	3.8	5	6.4	-	-	35	44.9	-	-	2	2.6	-	-
Chapleau	438	25	5.7	67	15.3	160	36.5	120	27.4	16	3.7	12	2.7	8	1.8	-	-	30	6.8	-	-
Chapleau	783	35	4.5	125	15.9	368	47.0	120	15.3	-	-	15	1.9	43	5.5	60	7.7	17	2.2	-	-
Chapleau N.	656	-	-	118	18.0	290	44.2	170	25.9	-	-	3	0.5	30	4.6	20	3.0	25	3.8	-	-
Chapleau S.	1,010	42	4.1	170	16.8	448	44.4	176	17.4	-	-	10	1.0	94	9.3	55	5.4	15	1.5	-	-
Chapleau and Gore	1,103	-	-	180	16.3	560	50.8	265	24.0	-	-	3	0.3	20	1.8	60	5.4	15	1.4	-	-
Chapleau	927	55	5.9	115	12.4	400	43.1	140	19.4	-	-	3	0.3	120	12.9	50	5.4	4	0.4	-	-
Chapleau	204	-	-	20	9.8	80	39.2	20	14.7	12	5.9	8	3.9	50	24.5	-	-	4	2.0	-	-
Chapleau and Derry	628	10	1.6	90	14.3	260	41.4	0	14.3	22	3.5	13	2.0	140	22.3	-	-	3	0.5	-	-
Chapleau de Bonsecours	1,102	70	6.3	130	11.8	400	36.3	270	24.5	-	-	7	0.6	20	1.8	135	12.3	70	6.4	-	-
Chapleau de Bonsecours N.	823	12	1.5	130	15.8	400	48.6	160	19.4	-	-	15	1.8	20	2.4	65	7.9	21	2.6	-	-
Chapleau de la Paix	792	75	9.5	130	13.1	335	42.2	170	21.5	45	5.7	20	2.5	10	1.3	-	-	7	0.9	-	-
Chapleau	678	2	.3	80	11.8	250	36.9	100	21.4	-	-	6	0.9	45	6.6	95	14.0	55	8.1	-	-
Chapleau	969	15	1.5	170	17.5	475	49.0	200	21.2	-	-	3	0.3	14	1.4	80	8.3	7	0.7	-	-
Chapleau	535	3	.5	90	16.8	250	46.7	70	16.8	10	1.9	12	2.2	70	13.0	-	-	10	1.9	-	-
Chapleau	1,000	22	2.2	150	15.0	550	55.0	100	19.0	27	2.7	20	2.0	35	3.5	-	-	6	0.6	-	-
Chapleau W.	825	12	1.5	135	16.4	490	59.4	100	15.8	27	3.3	6	0.7	25	3.0	-	-	-	-	-	-
Chapleau	670	10	1.5	105	15.7	250	37.7	120	16.7	80	11.9	18	2.7	45	6.7	-	-	-	-	-	-
Chapleau	687	25	3.6	90	13.1	300	43.7	100	18.2	-	-	12	1.7	20	2.9	80	11.6	35	5.1	-	-
Chapleau	935	45	4.8	152	16.3	335	35.8	100	19.6	60	6.4	20	2.1	140	15.0	-	-	-	-	-	-
Chapleau and Addington	327	5	1.5	50	15.3	100	30.0	20	6.1	10	3.0	6	1.8	130	39.8	-	-	6	1.8	-	-
Chapleau	437	30	6.7	35	8.0	100	22.9	50	11.4	10	2.3	6	1.4	200	45.8	-	-	6	1.4	-	-
Chapleau	487	45	9.2	62	12.7	210	43.1	50	16.4	30	6.2	15	3.1	35	7.2	-	-	10	2.0	-	-

* Source: Ministère de l'Industrie et du Commerce, Québec, Inventaire des Ressources Naturelles du Comté de Papineau, P.Q., p. 30

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