FENELON TOWNSHIP

A STUDY OF THE EVOLUTION

OF THE

PHYSICAL AND CULTURAL LANDSCAPES

A THESIS PRESENTED TO THE FACULTY OF THE DEPARTMENT OF GEOGRAPHY MCMASTER UNIVERSITY HAMILTON, ONTARIO

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INTRODUCTION

Fenelon Township is located in the middle of Victoria County, Ontario, in the Kawartha Lakes Region. It is about 75 miles north-east of Toronto (fig. 1). Fenelon's rectangular boundary encloses an area of 108 square miles, approximately one-sixth of which is water surface.

It is the purpose of this thesis to examine the various landscapes which have characterized Fenelon Township from the earliest time for which evidence is available to the present, and to explain the evolution of each successive landscape. Emphasis is placed in explaining the present land use pattern.

Chapter I deals with the landscape from Precambrian times to the end of the Pleistocene glaciation, and Chapter II explains the subsequent evolution of the climate, soils and vegetation. Chapter III discusses the development of the landscape since the arrival of man, from Indian times to the present. Chapters I to III provide an introduction to Chapter IV, which gives an account of the 1961 land use pattern. Finally, a summary and several important conclusions are stated in Chapter V.

Field work for the thesis was done by car, boat and on foot in July, August and early September of 1961. Extensive use was made of the soil report for Victoria County, several

(i)

publications by the Geological Survey of Canada, and aerial photographs.

Personal interviews were an important part of the field work.



CHAPTER I

FROM PRECAMBRIAN TIMES TO THE END OF THE PLEISTOCENE GLACIATION

The landscapes of Fenelon Township before the Pleistocene period can be described only in very general terms since evidence of the detail of those landscapes has been obliterated or hidden. In the long Precambrian era (perhaps the interval from 520 to 2700 million years ago¹) the land probably experienced every known physiographic and climatic condition. By the beginning of the Paleozoic era Fenelon had a rough surface of metamorphosed and igneous rocks like the present Precambrian Shield farther north. Local relief was at least 100 feet.²

In the Ordovician period (360 to 440 million years ago³) the sea invaded Southern Ontario, and limestone of the Black River and then the Trenton formations was deposited over the Precambrian rock in Fenelon Township. Following the retreat of the sea the flat-lying limestone plain was gradually tilted about 20 degrees towards the south-west.⁴

¹Hough, J.L. <u>Geology of the Great Lakes</u>, 1958 (p.78).
²Geological Survey of Canada : paper 52-31, 1952 (p.6).
³Hough, <u>Geology</u>, (p.78).

⁴<u>Geological Survey</u>, (p.7).

A long period of erosion followed during which an integrated drainage pattern developed, and consequent streams cut broad valleys. These valleys were carved in the present locations of Sturgeon, Cameron, and Balsam Lakes, and in the flat, poorly-drained sections bordering McLaren, Martin, and Perrin Creeks, and the Staples River. Subsequent drainage, which flowed along the north-west-trending strike of the rock, cut escarpments at least 20 feet in height, generally facing north-east. Many interruptions in the escarpments were formed by the preglacial consequent and obsequent streams. Figure 2 indicates the present remnants of the escarpments formed during this ancient period, as well as the present bedrock of Fenelon Township.

Just before the Pleistocene glaciation, Fenelon was a well-matured, flat-lying area where escarpments were the most outstanding relief features.

The Pleistocene Glaciation

During the Pleistocene epoque, which began perhaps 300,000 years ago,¹ there were four major periods during which a continental ice sheet advanced southwards over Southern Ontario. In Fenelon Township evidence dating from only the last of these periods, the Wisconsin, is now visible. Glacial deposits formed earlier were eroded away or made unrecognizable during the Wisconsin period. Most of the

¹Flint, R.F. <u>Glacial and Pleistocene Geology</u>,1957, (p. 301).

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detail of Fenelon's physical topography, therefore, was created during the last 30,000 years, at most.

There were two ice lobes in South-Central Ontario in Wisconsin times. One advanced from the north-east, and the other advanced into the Lake Ontario basin from the east and then spread north (the Ontario ice lobe). The ice from the north-east advanced and retreated over Fenelon Township two times¹. For the first advance the ice is named the Northern ice lobe; for the second, the Lake Simcoe ice lobe. The Northern ice lobe descended until it met the Ontario ice lobe, forming the Oak Ridges interlobate moraine, located 25 miles south of Fenelon. The Lake Simcoe ice lobe reached a point south of the interlobate moraine, probably at the site of the present Lake Ontario shoreline.

The present glacial deposits in Fenelon Township were formed during the advance and retreat of the Lake Simcoe (last) ice lobe. Earlier ice advances, however, probably contributed to the bedrock erosion, of which much evidence exists.

The most striking result of glacial erosion was the scouring of the shallow basins of Balsam, Cameron, and Sturgeon Lakes. These basins were formed in part of the preglacial valleys mentioned above. The relatively soft Trenton limestone bedrock and the proximity of the Canadian

¹Gravenor, C.P. <u>Surficial Geology of the Lindsay</u>-<u>Peterborough Areas</u>, 1957, (p.49).

Shield, located only ten miles north of Fenelon, account for the large amount of glacial erosion in the area. The amount of erosion on the Shield was relatively small, due to the hardness of the rock, so that as the glaciers left the Shield they were unloaded and energetic. Nevertheless, they contained some Precambrian blocks of granite and gneiss, and armed with these powerful tools, they cut into the Paleozoic rock with relative ease. The ice first advanced in tongues up the low-lying preglacial valleys. As the rest of the ice sheet followed the depth of ice in the valleys became greater. Since a constant elevation was maintained over the top of the ice sheet, the ice was deeper in the valleys than on the surrounding uplands. This condition accelerated erosion in the valleys so that they were deepened and widened. The erosion of the present lake basins was probably the result of more than one of the ice advances.

The limestone escarpments were greatly altered in shape by glacial erosion. Figure 2 illustrates how they strongly reflect the flow of ice from the north-east. The ice carved the escarpments into a series of "U" shapes, the apices of the "U's" pointing in the direction from which the ice came.¹ As glacial erosion continued the "U's" tended to become separated and eventually developed into rock drumlins.

¹Gravenor, C.P. <u>Surficial Geology of the Lindsay</u>-<u>Peterborough District</u>, 1957, (p. 19).

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BEDROCK AND ESCARPMENTS OF FENELON TOWNSHIP

LEGEND

Black River limestone bedrock

Precambrian bedrock

escorpment

All unshaded portions have Trenton limestone bedrock.

Ice movements lasted long enough to produce one such drumlin in Fenelon, located three-quarters of a mile north-west of Cameron (map 1). It does not display the ideal drumlin shape since it has a flat top; therefore, Lee did not include it as a drumlin on his map of the Pleistocene geology of the region (map 1). The stoss slope of the drumlin is indicated as an escarpment in figure 2.

Advance of the Lake Simcoe Ice Lobe

As was stated above, the existing glacial landforms and, therefore, most of the detail of Fenelon's physiography were constructed during the advance and retreat of the Lake Simcoe ice lobe.

Alignment of the drumlins indicates that in the south the ice came from a direction 25 degrees east of north; in the northern part of the township the angle increased to 55 degrees. It is possible that the direction of the ice flow was partly determined by the alignment of the preglacial valleys since the ice would flow most easily if it travelled parallel to the valleys.

The thin layer of drift and the glacial erosion of the bedrock described above indicate that erosion was dominant over deposition during the advance of the ice. Various combinations of erosion and deposition under the ice produced a streamlined topographic pattern. In the zones of lowest pressure small drumlins were formed. Between the drumlins the land was smeared with ground moraine, often fluted; occasionally the bedrock was left exposed. The preglacial valleys south of the lake basins were partially filled with drift.

¹he till of which the drumlins and ground moraine were constructed is easily observed today. It is a heterogeneous mixture of pebbles, sand, and clay. The till is of local origin and strongly reflects the calcareous character of the bedrock. Erratics from the Precambrian Shield are often incorporated in the till, particularly in the northern part of the township. The till contains over 50 percent sand and gravel and is, therefore, classified as stony.¹ The drumlins do not have a higher clay content than the ground moraine; occasionally they contain a pocket of stratified sand and gravel near the lee end, indicating that they may have formed during temporary halts in the ice movement, mainly in the summer.

The ground moraine and drumlins, deposited by the advancing ice, formed the base on which different types of deposite were placed during the ice stagnation.

¹Gravenor, C.P. <u>Surficial Geology of the Lindsay</u>-<u>Peterborough Area</u>, 1957 (p. 23).

Retreat of the Lake Simcoe Ice Lobe

Evidence in Fenelon Township indicates that the main method of ice retreat was downwasting. The deposition of lacustrine clay only on higher ground, in some places (explained below), suggests that the ice layer was diminishing vertically as well as horizontally. Eskers follow low ground, suggesting that they were formed when the ice was stationary and stagnant.

Figures 3a, 3b, and 3c indicate the probable condition in Fenelon at three different times during the retreat of the ice front. These conditions have been postulated after the completion of a study of contour, soil and physiographic maps and field observations.

As the ice front retreated, meltwater was ponded between the ice and the Oak Ridges moraine to the south. Chapman and Rutnam¹ have named this series of ponded lakes the Schomberg pondings. The lakes were small, shallow and often short lived. Consequently, small and often thin lacustrine plains are the only evidence of their existence. The water level varied greatly at different times as new outlet channels were developed and newly-exposed basins were filled.

¹Chapman and Putnam, <u>Physiography of Southern</u> <u>Ontario</u>, 1951 (p. 24).





RETREAT OF THE LAST ICE SHEET IN FENELON TOWNSHIP

LEGEND

Dry land, formerly flooded during deglaciation

Lake Algonquin outlet at site of Fenelon Falls

Retreating ice front

Tunninnin



Stage 2



Stage 3

The uncovering of the ice from Fenelon Township began in the south-west. As the melting glacier shrunk vertically, the highest ground, such as the tops of the escarpments, was exposed first; and the lower areas remained filled with tongues of ice. Water was ponded beyond the ice front, and a thin layer of clay was deposited over the ground moraine. In figure 3a, stage 1 of the deglaciation is shown. The elevation of the ponded water surface is about 925 feet on a modern topographic map.¹ At stage 1 most of the ice-free land was flooded. A large block of ice was detached from the main sheet and rested just outside the irregularity in the western boundary of Fenelon, two and one-half miles north-west of Cambray.² The boundaries of the ice indicated in figures 3a and 3b are generalized since, during stagnant ice conditions, they would be irregular, possibly with ice sections detached from the glacier. The shallow deposits in the flooded areas suggest that stage 1 lasted only a few years.

After stage 1 the water level in the Schomberg ponding fell rapidly over 50 feet so that, as the ice front continued to retreat, only the lower land was flooded. The

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¹At the time of ice retreat the elevation was about 250 feet lower than now due to isotatic rebound since deglaciation.

²Gravenor, C.P. <u>Surficial Geology of the Lindsay</u>-<u>Peterborough Area</u>, 1957 (p. 28).

high land flooded at stage 1 was now exposed. Deposition of silt and clay continued in the ponded sections. These included the partially drift-filled preglacial valley now occupied by McLaren Creek, and a spillway joining the present Martin Creek swampy lowland to the similar McLaren Creek lowland. This spillway and a similar one located one-half mile west of Sturgeon Lake were probably formed during the retreat of an earlier ice sheet, most likely the Northern ice lobe.

When the ice front reached the middle and northern parts of the township, melting was rapid and the ice was relatively stationary, as evidenced by many ice-contact deposits here. Eskers formed on low ground (e.g. in the areas adjacent to Perrin and Martin Creeks) in tunnels in the glacier. When the ice melted down to the tunnels the esker channels became open re-entrants into the stagnant ice. Kame materials were then deposited from the ice surface into these re-entrants, becoming closely associated with the eskers. Two and one-half miles north of Cameron an ice-block ridge was formed, probably by the slumping of pebbly till from a stagnant ice block. Meanwhile, the large ice block just west of Fenelon melted to form Goose Lake, depositing kame materials around its northern boundary, and producing the extensive deposit two miles north of Cambray.

West of Fenelon Township, Lake Algonquin had been growing adjacent to the retreating glacier. As the ice

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front retreated north and east, Algonquin waters flooded into the north-west corner of Fenelon, eventually joining the Schomberg ponds. Figure 3b illustrates this relationship at stage 2. More land was flooded at stage 2 than at any other time. Ice blocked drainage out of Sturgeon Lake and through the Fenelon Falls outlet at the present location of Fenelon Falls. The water was elevated to about 870 feet (uncorrected for isotatic rebound). Thin lacustrine deposits over the higher flooded land indicate that stage 2 was of very short duration.

Stage 2 ended when eastward drainage was effected through Sturgeon Lake due to melting of the ice there. This immediately ended the Schomberg ponding in Fenelon Township and Sturgeon Lake fell to approximately its present level. Outwash deposits three and one-half miles south of Cameron suggest that ice blocked the Fenelon Falls outlet for a short time after wastward drainage began, and that Lake Algonquin, dropping to an elevation of about 855 feet, drained into Sturgeon Lake via the old spillway two miles west of Cameron. The opening of the outlet between Cameron and Sturgeon Lake initiated stage 3 of deglaciation. Lake Algonquin's level fell to about 850 feet, and southward drainage through the spillway ceased. Deane has proposed¹ that

¹Deane, R.E. <u>Pleistocene Geology of the Lake Simcoe</u> <u>District, Ontario</u>, 1950 (p.90 and figs. 9c and 9d).

the Fenelon Falls outlet was first achieved during the retreat of the Northern ice lobe, then closed with the advance of the Lake Simcoe lobe. This event and the others stated above are not incompatible with the fluctuation in the level of Lake Algonquin described by Hough¹.

During stage 3, referred to as the Kirkfield stage by some, Lake Algonquin drained through the Fenelon Falls outlet into Lake Iroquois (fig.4). The sill at Fenelon Falls determined the elevation of Lake Algonquin. Channels 20 feet deep and 30 feet wide were cut through limestone at Fenelon Falls, and at times the outlet was flooded for a width of three-quarters of a mile (fig.5).

Beach deposits and the large amount of river erosion at Fenelon Falls indicate that stage 3 persisted for a considerable length of time. The beach ridge formed along the west side of Balsam Lake (map 1) is nine feet high, and the gravel beach west of Cameron Lake is 12 feet high. Other ridges are lower and often difficult to find. The writer observed that limestone boulders along the east shore of the South Bay of Balsam Lake exhibit solution features up to an elevation of about 850 feet. Shells of fresh-water shellfish were found buried with the boulders.

Lake Algonquin gradually shrank to its present size (i.e. Lakes Michigan and Huron), and the sill at Fenelon

¹Hough, J.L. <u>Geology of the Great Lakes, 1958</u> (pp. 211-228).



VIA FENELON FALLS OUTLET



VIA FENELON FALLS OUTLET

Falls was cut to its present elevation of 837 feet. Isotatic rebound following deglaciation raised Fenelon Township about 250 feet, and helped to divert Algonquin flooding from the area.

Immediately following removal of the ice, before vegetaion was well established, the land was very susceptible to erosion and certain types of mass movement, such as mudflow associated with solifluction. Consequently, depressions were further filled with mud, and thin lacustrine deposits were stripped from the steeper slopes.

Physiography of Fenelon Township

Map 1, prepared by H.A. Lee, indicates the main features of Fenelon's physiography.

The township is relatively flat, attaining a maximum elevation of 1000 feet on a drumlin near the southeast corner; the minimum elevation is 813 feet, at the level of Sturgeon Lake. Local relief of 75 to 100 feet occasionally occurs along the ice-contact deposits. Almost unmodified glacial forms testify to the youthful character of the surficial deposits.

Since glacial erosion was dominant over deposition the drift is thin; about ten percent of the land surface has overburden less than three feet deep. Bedrock is exposed in a few locations. Drumlins are usually small, about one-third of a mile long, and seldom more than 30 feet high. In most cases the stoss and lee ends have the same slopes. The eskers, 15 to 30 feet high, are interrupted by gaps. They are closely associated with kames, large heaps of gravel, quite variable in texture and structure. Fine sand, spread out from the kame deposits, does not appear on the physiographic map. This corresponds with the outer edges of the pockets of Brighton and Dundonald sandy loams in central Fenelon, indicated on the soil map (map 2). Similarly, shallow lacustrine clays in the southwest, deposited during stage 1 of deglaciation, are indicated only on the soil map.

All of the creeks, which are about three feet deep, drain very extensive, flat, swampy sections that were flooded for long periods of time during deglaciation. Perrin and Martin Creeks and the Staples River follow meandering courses to the north, and the McLaren Creek flows into the west end of Sturgeon Lake. The lakes are very shallow in many places, and their depth does not exceed 30 feet (figs. 6a, 6b, and 6c). Water flowing from Cameron to Sturgeon Lake occupies only a small portion of the channel created at Fenelon Falls during stage 3 of deglaciation.

Although the physiography is predominantly the creation of deglaciation, remnants of preglacial escarpments are significant features of the natural landscape. The most outstanding escarpment rises along the south-eastern shore of Sturgeon Lake.







Photo. 1.

An outcrop of the soft Trenton limestone which underlies Fenelon Township, located one mile south-east of Cambray.



Photo. 2.

Part of the limestone escarpment southeast of Sturgeon Lake. This is the most outstanding escarpment in Fenelon Township.



Photo. 3. These glacial striae, exposed at Snug Harbour, indicate that the ice came from a direction about 30 degrees east of north.



Photo 4.

This drumlin, located two miles north of Sturgeon Point, is one of the largest in Fenelon Township. Note that the stoss (right side of picture) and lee ends have approximately the same slope.



Photo. 5.

An esker in the central part of Fenelon Township.



Photo. 6.

An area of kame deposits, one mile north-east of Glenarm.



Photo. 7.

The raised ground is a beach ridge nine feet high, located west of Balsam'Lake.

CHAPTER II

CLIMATE, VEGETATION, AND SOILS

The drop in temperature which brought about the Pleistocene glaciation was a climatic "freak". Throughout geologic time glacial periods have been exceedingly rare and short. The mean temperature between 40° and 90° north latitude in the Pleistocene period was 27°F.¹ The corresponding temperature throughout the other major periods since the Precambrian was usually about 50°F. The present value is 37°F, a result of the fact that much of the earth, including all of Canada, is still experiencing a somewhat mild stage of the rare glacial climate. Whether the glacial period is ending or whether this is merely a period between major ice advances, can not be known.

The climate of a region is never constant when viewed over a long period of time. Ever since the retreat of the last ice sheet eastern North America has experienced considerable climatic fluctuations. Temperatures rose following the ice retreat, and by 5000 B.C. the climate was warm and moist. Following a warm dry period from 3000 to 1000 B.C. the climate became cooler and more moist. Since 1000 B.C. the distribution and elevation of land has

¹Brooks, C.E.P. <u>Climate Through the Ages, 1949</u> (p. 204). remained practically constant. Consequently, the climate has been stable, fluctuating almost only in association with changes in solar activity.

Following the ice retreat a vegetative cover characteristic of the climate and, to a lesser extent, the regolith (soils as we know them had not yet developed) appeared. South-facing slopes were the first to be icefree and to support vegetaion during the growing season. Lichens and mosses appeared first, and grasses and other herbaceous plants soon followed. Within ten to twenty years of the ice retreat seedlings of coniferous trees probably appeared, and within one hundred years the region was probably completely forest covered. It is possible, therefore, that the land in the southern part of Fenelon Township was forested while that in the northern part was still under ice. Spruce (picea) in association with fir (abies) or hemlock (tsuga) was the most abundant member of the ancient forest fringing the retreating glacier. The first trees to appear would have been stunted. As the temperature gradually became warmer more deciduous trees appeared until the mixed forest now found in Fenelon Township had developed.

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THE PRESENT CLIMATE OF FENELON TOWNSHIP

Located at about 44° north latitude¹, Fenelon has a humid microthermal climate with warm summers and cold winters (Dfb according to Köppen's classification). Cyclonic storms developing along the boundary between the cold, dry Polar air masses to the north and the warm, moist Tropical air masses to the south are carried in all seasons by the prevailing westerlies along a more or less permanent path through the St. Lawrence valley. Consequently, Fenelon Township has exceedingly variable and changeable weather conditions. The passage of cyclones and anti-cyclones produces weather which fluctuates in cycles of from two to five days. Precipitation is of cyclonic and convectional (in summer) origin. Fenelon's position within a large land mass accounts for a continental climatic influence, although this is moderated somewhat by the Great Lakes.

An examination of various climatic charts² indicates that the climate is practically homogeneous over Fenelon Township. This is a result of rather homogeneous relief, a position mid-way between Lake Ontario and Georgian

¹The mid points of the sides of the township are situated between latitudes 44° 24' and 44° 34', and longitudes 78° 42' and 78° 52'.

²e.g. the maps in <u>The Climate of Southern Ontario</u>, Chapman and Putnam, 1938. Bay, and the existence of lakes in all parts of the township except the southwest. When the lakes are not frozen over, land along the shorelines may experience very marked temperature moderation, depending on wind direction. The writer has observed the lakeshore temperature to be ten degrees cooler than that one mile inland on hot summer days with an onshore breeze. Climatic isopleths, particularly monthly isotherms, which cross Fenelon generally trend in a north-west, south-east direction. This indicates some conflict between a moderating influence from the Great Lakes to the south and west and a continental influence from the land mass to the north-east. The continental influence is strongest in winter. Monthly isohyets are less regular in direction, reflecting the variable relief of the region surrounding Fenelon Township and the relative insignificance of the Great Lakes in determining precipitation compared with temperature.

The following climatic statistics give a more accurate impression of the climate of Fenelon Township. Statistics for Toronto, Ontario are also listed for comparison. The figures, chosen to represent average conditions for the whole township, have been determined from the charts appearing in <u>The Climate of Southern Ontario</u> (Chapman and Putnam, 1938), and from statistical tables appearing in Circular 3208 published by the Meteorological Branch of the Department of Transport, Canada, on June 3, 1959.

and Tor	onto, Ontario	
	Fenelon Township	Toronto
Mean annual temp.	42°F	47°F
Mean spring temp.(0,3,4) Mean summer temp.(0,3,4)	40°F 65°F	41.5°F
Mean autumn temp.(S,O,N) Mean temp.of coldest	45.5°F	48°F
month Mean temp.of warmest	16°F(Jan &	Feb) 24°F(Feb)
month Annual mean daily range	67°F(July)	70-8°F(July)
of temp. Lowest recorded temp. Highest recorded temp.	-40°F 104°F	17F° -25°F 104°F
Average date of begin- ning of growing season (above 40°F mean daily		10+.
temp.) Average date of end of	April 19	April 13
growing season Average length of	Oct. 22	Oct. 31
growing season Average date of last	186 days	2 <mark>0</mark> 0 days
frost in spring Average date of first	May 20	May 8
frost in fall Average length of	Sept. 26	Oct. 8
frost free season Mean annual precip-	127 days	151 days
itation Month with lowest mean	32 in.	31 in.
precipitation	Feb.(2.0 in	.) Oct. & Dec. (2.3 in.)
Mean annual snowfall	Sept.(3.3 in 90 in.	n.) July(3.2 in.) 60 in.
rainy days	125	125

Climatic Statistics for Fenelon Township

(Mean monthly temperature for Fenelon Township is indicated in fig. 7)

TABLE 1

The most striking differences between the climate of Fenelon Township and the areas to the south and west (e.g. Toronto) are Fenelon's lower temperatures in winter and shorter growing season. This is a result of Fenelon's greater distance from the Great Lakes.

Figure 7 is a "Thornthwaite" climatic graph, showing the relation between the water requirements of plants and the water supply in Fenelon Township. Mean monthly temperatures, used to calculate the potential evapotranspiration, are not available for Fenelon Falls; therefore, values for Lindsay, located 12 miles due south of Fenelon Falls, have been used for this purpose. The temperatures at Fenelon Falls are probably only slightly lower than those at Lindsay. Although the graph does not illustrate exact conditions, it does indicate a general trend in moisture supply-utilization relations on soils with normal drainage in Fenelon Township. It is apparent that, except for a period of "hidden drought"¹ during August and September, Fenelon receives sufficient precipitation for agricultural purposes. Even during August and September the water shortage is slight (2.0 inches on the graph). Drought is seldom a serious problem since precipitation is

¹The condition existing when no water is stored in the soil and plants do not receive enough moisture for optimum growth, yet they survive.



precipitation

soil moisture recharge

Fig.7

usually reliable from year to year. The yearly distribution is quite even with a July maximum related to convectional activity.

Temperatures, as well as precipitation, are conducive to the successful cultivation of agricultural plants in Fenelon Township. Summer temperatures are sufficiently long for growing good hay crops, cereals, and even corn for ensilage. Low winter temperatures make year-round grazing impossible, and winter food for man and beast must be grown in the warmer months and stored.

Relatively low summer temperatures along the lake shorelines and cooler summer nights than areas to the south (e.g. Toronto) help account for the recreational land use in Fenelon Township, which will be discussed in detail in later chapters.

NATURAL VEGETATION

Climate, soil materials, and drainage are the main factors determining the natural vegetation of a region. Of these, climate has been the dominant factor in Fenelon Township. The combination of temperature and precipitation has led to the development of a forest cover composed of a mixture of deciduous and coniferous trees, deciduous varieties predominating, as well as numerous grasses, herbs, etc. Halliday¹ places Fenelon Township in the Huron -Ontario section of the Great Lakes - St. Lawrence forest region. Since Fenelon is located along the northern edge of that section, there is a greater proportion of coniferous trees than is common for most of the section. This was particularly true in the past before most of the pine was cleared for the lumber industry. Large areas of swamp and areas of thin overburden have produced a rather heterogeneous pattern of natural vegetation.

On well-drained sites with thick overburden sugar maple and beech are dominant in association with white elm, basswood, yellow birch, red maple, white ash, and red, white, and burr oak. One finds a scattered distribution of large-toothed aspen, ironwood, bitternut hickory (rare), and butternut (rare). Eastern white cedar and groups of hemlock and balsam fir are fairly common. These tolerant varieties are usually found in areas of poor drainage and on limestone outcrops. Swampy areas also support silver maple, blue beech, black ash, and slippery and rock elm. Willows and alders are found in the swampiest depressions. White and red pines are scattered, usually preferring lighter textured overburden. Red juniper grows on the extensive limestone plain near Fenelon Falls, stripped of

¹Halliday, W.E.D. <u>A Forest Classification for Can-</u> ada, 1937. its overburden during the time of the Fenelon Falls outlet (fig. 4). In general, coniferous trees are found on land with inferior conditions for growth, and deciduous varieties thrive on good land and in the most swampy sections.

The tree associations have changed somewhat since the settlement by the European, and most of the forest has been cleared. These changes will be discussed more fully in the following chapters.

SOILS

Soils develop when unconsolidated surface material is exposed to chemical and physical weathering by biological organisms, air, and water. Minerals may be oxidized by the air, may be dissolved and carried away by percolating water, or may form new compounds as a result of biological interference. Temperature determines the rate of weathering, and the water supply largely controls the amount of leaching, which produces the various horizons characteristic of any soil. Climate is, therefore, the most important soil-forming factor. Vegetation is also significant since it regulates runoff and often forms a mat of decaying litter which becomes incorporated in the upper horizons of the soil. Also, acids from this decaying layer are adsorbed by the percolating water and modify the effectiveness of leaching. Soils also reflect the inorganic parent material from which they are constructed.

Of the other, usually less significant soil-forming factors, drainage and slope are most important.

The vegetation and climate of Fenelon Township are conducive to the development of soils in the grey-brown podzolic great soil group . Since the climate and vegetation are relatively homogeneous throughout the township, the parent material and drainage usually account for the major differences in the soil profiles. Time is another important factor. Since a relatively short period of time has elapsed since the surface of Fenelon was first exposed to soil forming processes (i.e. since the retreat of the ice), the soils are immature. In some places distinctive horizons have not yet developed, and here, if drainage is good, soils belong to the brown forest great soil group. These soils are found where leaching has been somewhat ineffective because of the highly calcareous nature of the parent materials. Soils of the dark grey gleisolic great soil group and bog soils occur in areas of poor drainage. Along some streams, recent alluvial deposits not yet developed into recognizable soils, are found.

In 1957 a soil report for Victoria County was published, prepared jointly by the Experimental Farm Service, Canada Department of Agriculture, and the Ontario Agricultural College. The soil map for Fenelon Township, taken from that report, is included (map 2.) The legend which accompanies the map, indicating the 23 different soil series appearing in the township, lists several important features of each series--parent material, drainage, topography, surface stoniness, surface reaction, and great soil group . Profiles characteristic of the most common soils in Fenelon Township are illustrated in fig. 8.

The soil map can be better understood by relating it to the physiographic map (map 1). Since these maps were prepared from two quite different points of view, the surface deposit indicated for a particular location on map 1 often does not correspond with the parent material listed for the soil appearing in the same location on map 2. The Pleistocene geologist classified the deposits in terms of the dominant event determining their appearance, whereas the pedologist was interested primarily in the upper few inches of the overburden, which affect agriculture so greatly. For example, two miles north of Cambray there is an area classified as Smithfield clay loam. The legend indicates that this soil developed from lacustrine clay. Map l, however, classifies this as an area of ground moraine. In fact, there is a layer of clay a few inches thick in this location. But the ground is gently rolling, and on some slopes the clay has been removed by erosion, revealing the ground moraine beneath. Therefore, this looks like a till plain.

The soil map is not without error. For example, the soil on the esker just south of Cameron Lake has the characteristics of Cramahe gravel rather than Otonabee sandy loam,

as is indicated on the soil map.

Following is a discussion of the individual soils in Fenelon Township.

Soils Developed from Till

These soils are extensive and variable. The Otonabee is by far the most common series, occurring on half of the land in Fenelon Township. Otonabee loam occurs throughout the whole area, particularly in the north; and the sandy loam type is found mainly in a broad area between the north-west shore of Sturgeon Lake and Martin Creek. The shallow phase of Otonabee loam has developed in a hilly region surrounding Islay, as well as in other, smaller localities. Otonabee soils, except the shallow phase, are fair to good for agriculture. There are many variations, however, too detailed to map. Since the till plain is often fluted, bands of relatively thick overburden, supporting fertile soil, alternate with bands of thin overburden, yielding poorer soils. Zones of much inferior Otonabee soils are located adjacent to Farmington loams, which develop where the till is less than one foot thick over the bedrock. Ameliasburg clay loam occurs in two small patches in the south-west corner of Fenelon Township where the clay loam till is less than two feet thick over the bedrock.

Emily soils, the imperfectly drained members of the Otonabee catena, are scattered throughout the township in association with the Otonabee series. Both the loam and its shallow phase occur.

Bondhead sandy loam is found in the north-east corner of Fenelon, and Guerin loam, its imperfectly drained counterpart, occurs above McLaren Creek near Sturgeon Lake. Both are fairly good for agriculture.

Lyons loam, a poorly drained soil associated with the Bondhead and Otonabee series, is scattered throughout the township. It is not extensive or useful for cultivation.

Dummer loam has developed on very stony till north of Fenelon Falls and Sturgeon Point. It is poor for cultivation.

Soils Developed from Lacustrine Clay Deposits.

Fenelon Township has five soils in this category: Waupoos clay loam, Solmesville clay loam, Lindsay clay loam, Smithfield clay loam, and Simcoe clay. Located almost entirely in the south-west corner of the township, these soils have developed on clay deposited in Schomberg ponds. The clay on which the Solmesville, Lindsay, and Smithfield soils have formed is only a few inches thick. All of the clay soils except the Waupoos clay loam are imperfectly or poorly drained. If good drainage is brought about artificially, all of these soils are good to excellent for cultivation.

0 A, very dark grey loam B1 8 brown loam B_z very dark grey-brown clay loam B316 dark grey-brown loam pale brown loam, С calcareous and stony OTONABEE SERIES

(Brown forest)

A, black loam B, very dark grey-brown loam B₂ dark brown clay loam grey-brown calcareous stony till

DUMMER LOAM

(Brown Forest)





0 very dark brown loam A Β, very dark grey-brown loam B₂ very dark grey-brown clay loam Ci greyish brown loam C_2 grey clay loam; stony; calcareous

EMILY LOAM (Brown forest)

A, very dark grey clay loam A2 grey-brown clay loam B2 brown clay B2 brown clay 16 D pale brown loam or clay loam

WAUPOOS CLAY LOAM (Grey-brown podzolic)

A₁ very dark brown gravelly sondy loam B₁ dark yellowish brown gravelly sandy loam B₂ reddish brown gravelly sandy loam C₂ calcareous, poorly-sorted gravel

CRAMAHE GRAVEL (Brown forest)

PROFILES OF SOILS COMMON

IN FENELON TOWNSHIP

(The Great Soil Group of each soil is indicated in brackets)

Scale: I in. = Ift.

Soils Developed from Sand and Gravel associated with Kames and Eskers

Cramahe gravel has developed on all of the eskers in Fenelon Township, although the soil map does not indicate this fact in every case. It also occurs on the very rugged kame deposits south-west of Cameron Lake. Pontypool sandy loam has formed on the steep-sloped kame two miles north of Cambray. Neither of these soils is suitable for agriculture. The Brighton sandy loam found on the more gentle kame deposits west of Zion provides fair cropland. A poorly drained member of the Brighton catena -- the Granby sandy loam -- occurs in a small pocket one mile west of Zion.

Mallard and Kenabek sandy loams have developed on non-calcareous sand associated with the kame deposits west of South Bay, Balsam Lake. These are the imperfect and poorly drained members of the same catena, and both are poor for agriculture. Mallard sandy loam is the only podzol in Fenelon Township.

A large area of Dundonald sandy loam is located in central Fenelon Township, west of Cameron Lake. Sandy deposits from the local kame, east of Perrin Creek, and esker, west of the creek, have been washed out over the surrounding till, probably while the ice front was retreating from the area. The fertile Dundonald sandy loam has formed on the gently rolling outwash plain, while Cramahe gravel has developed on part of the esker and on the core of the kame

(the Cramahe gravel portions are not indicated on the maps).

Large areas of muck, where there is at least 18 inches of organic material overlying the mineral soil, have formed in the extensive preglacial valleys and glacial spillways flooded during deglaciation. Extensive marsh land is found around the southern arm of Sturgeon Lake where the land is under water but where the shallow water depth permits a dense growth of cattails, reeds, and other water plants. Bottom land, composed of recent alluvial deposits, occurs in narrow bands along portions of McLaren and Perrin Creeks.

For more details on the agricultural capabilities of the soils, see Appendix I.



Photo. 8. A soil profile of Otonabee loam. The parent material is rather stony till. It is difficult to distinguish an A horizon because the calcareous nature of the till has made leaching somewhat ineffective.



Photo. 9. A soil profile of Pontypool sandy loam, a member of the Grey-Brown Podzolic group. This light textured soil is subject to severe wind and water erosion. It is not suitable for cultivation.

CHAPTER III

MAN AND THE LANDSCAPE OF FENELON TOWNSHIP

Man has brought about very profound and fast changes in the landscape of Fenelon Township. It is the purpose of this chapter to describe and explain these changes.

The landscape evolution during five major periods of history will be discussed. Each of these periods, to be considered in chronological order from the time of aboriginal occupation up to the present, is characterized by somewhat unique and homogeneous population and economic trends. Such trends have been determined from census statistics supplied by the Dominion Bureau of Statistics. Since these figures have been usually available for only every tenth year, the date quoted for the beginning of a particular trend, and, consequently, a particular period in history, may be innacurate by a few years.

The emphasis in this chapter will be on the physical appearance of the land, which is in keeping with the theme of the dissertation. Historical occurrences will be described for the sole purpose of explaining the land's appearance at a particular point in time. A history of Fenelon Township <u>per se</u> would probably be quite different in emphasis and would include many significant points not made in this report.

FENELON TOWNSHIP DURING THE ERA OF INDIAN SETTLEMENT

Man first entered Fenelon Township sometime after the retreat of the last glacier. The earliest evidence of habitation dates from a time of Huron occupance, which began by the sixteenth century A.D. at latest. Little is known about human activity in the Fenelon region before that period. It seems most probable that settlement in the township would have been sporadic, temporary, very often nonexistent, and not involving any significant changes in the natural landscape.

Evidence dating from the period of Huron habitation is abundant in Fenelon Township. The sites of several small villages, an ossuary, and a flint workshop have been identified¹, (fig. 9). The distribution of these sites, which can be related to physical conditions, and the remains found at them enable one to understand much about the nature of the Huron occupance.

The encampments were nearly always located near water, either lake or stream, or on very light, infertile soil. Four of the sixteen villages were built on Cramahe gravel. The most important area of settlement was located two and a half miles north of Cambray on Pontypool sandy

¹The location of these sites are listed in <u>Victoria</u> <u>County Centennial History</u>, 1921, by W. Kirkconnell.



LOCATIONS OF

INDIAN SETTLEMENT IN FENELON TOWNSHIP BASED ON INVESTIGATIONS BY COLONEL G.E. LAIDLAW

LEGEND

	Mississ	saga	village	M
	Huron	flint	workshop	F

Huron village H Huron ossuary O loam, just east of Goose Lake. Herein the light soil, the Hurons buried all of their dead in the region in an ossuary.

In the buried remnants of the villages one finds numerous shells from fresh-water shellfish, bone fish hooks, flint arrow-heads, clay pipes, and pottery. The pottery is not completely characteristic of the Huron craft as found west in Huronia, but displays a strong Algonquin influence. The Algonquins, who lived to the north, were nomadic hunters and fishermen, and were engaged in little agriculture.

From the evidence presented above it seems probable that the Huron in Fenelon Township was mainly engaged in a hunting and fishing economy. No evidence exists to suggest that very much of the land was cleared for cultivation, as was the case in Huronia, located about 50 miles to the west on the side of Lake Simcoe (present Simcoe County). Temporary encampments were located at prominent points with some strategic significance that were easy to dig in, high, dry, and near water (e.g. on kames or on points jutting into the lake, as at Birch Point and Sturgeon Point). Fenelon Township was near the periphery of the territory effectively dominated by the Huron, and, perhaps for this reason, it did not have a culture as advanced as that found in Huronia. The land, occupied at intervals of time on a temporary basis, was deserted when Champlain, the first white man to explore the region, passed through the Kawartha Lakes in 1615.

The Iroquois came north from New York State in 1649-

50 and practically exterminated the Huron race. They took over the Huron lands, but usually settled them very sparsely. There is no known evidence of Iroquois habitation in Fenelon Township.

Beginning in 1740, the Mississagas, an Algonquin tribe from near Sault Ste. Marie, moved south-east and conquered the Iroquois. The sites of four Mississagan villages have been identified in Fenelon Township. Their distribution and the remains found at the sites are very similar to the distribution and remains of Huron villages. The only major change that man has reported that the Mississagas made in the landscape was the construction of a "deer fence", which ran for five miles from Goose Lake (just outside the Fenelon Township boundary north of Cambray) to Sturgeon Lake. Trees were felled in a long row, and brush was piled on them. Beaters would drive the deer along the fence, forcing the animals to run through the occasional gaps. Archers, hidden in the gaps, would then despatch the deer at short range.

In view of what has been stated in this section, it is apparent that the Indians did relatively little to change the appearance of Fenelon's landscape. The only way that evidence of their existence can now be discerned is by digging at the sites of their former habitation.

INITIAL STAGES IN THE SETTLEMENT OF FENELON TOWNSHIP BY THE WHITE MAN (1818-1850)

Following the war of 1812-14, fear of an invasion of Canada from the U.S.A., which had formerly discouraged settlement in Upper Canada, largely disappeared, and a wave of immigration to Upper Canada ensued. In order to obtain new land for settlement the British government purchased a large tract of land from the Mississaga Indians. Known as the Newcastle District, this tract contained 4000 square miles of territory, comprising the modern counties of Victoria and Peterborough as well as a fringe of 28 adjoining townships. The land was divided into townships, and the townships subdivided into lots and concessions.

The initial survey of Fenelon Township was completed in 1824. To the north were Bexley and Sommerville Townships; to the east, Verulam; to the south, Ops, and to the west, Eldon and Mariposa Townships. Fenelon was a rectangle, divided east and west (actually about 20 degrees south of west and north of east) into 11 concessions, and north and south (20 degrees west of north) into 32 lots. Allowance was made for a road along each concession line and along every fifth lot line. There was no consideration given to physical features of the land, and roads were projected through swamps and good land alike. The township measured approximately 12 miles long and nine miles wide. The survey was very significant in Fenelon's development since most of the roads and farms later developed along the pattern of the original plan.

The prime desire of the first settlers in Fenelon Township was to obtain land for farming. Early in the 1820's a "squatter",¹ who settled just north of MaLaren Creek, became the first white inhabitant of Fenelon Township. Others gravitated to this southern region about 15 years later. In 1833 a second nucleus of settlement began to develop on the east shore of Sturgeon Point.² In 1840 settlement was begun in a third district -- the centre of Fenelon Township, around Zion -- by two Scotsmen who had moved east from Eldon Township (settled prior to Fenelon).³ More Scottish settlers soon came to the Zion area.

The early settlement pattern of Fenelon Township was not related to soil fertility. The Sturgeon Point and Zion settlements particularly occurred in areas of relatively poor soils. The location of the former settlement was undoubtedly related to its position on the lake, which provided the easiest means of communication.

The waterfalls located between Cameron and Sturgeon Lakes was an inevitable mill site. In 1841 a grist mill was

¹Angus McLaren.

²The first settler in this region was John Langton.

³The writer suggests that fig. 13 be used for general reference to the location of the places mentioned throughout the remainder of the thesis. built there on the north side of the river. This was the beginning of the village of Cameron's Falls, later known as Fenelon Falls. The construction of the grist mill, which became adapted to saw-milling within a year, helped lead to the rapid settlement of the area around Fenelon Falls.

By 1842 Fenelon Township had a population of 180 persons, and there were 49 different landowners. Originally some members of the "family compact"¹ had obtained the title to large tracts of land. By 1842, however, new land was distributed fairly to the settlers in units about 100 acres in area. The shape of the farm, determined by the original township plan, was rectilinear.

Throughout the early period of settlement growth was very rapid. By 1851 the population was 590, the number of farms was 105, and the area of distributed land was 9,374 acres. But in spite of the optimistic growth this was a period of serious hardship for the pioneer, as the following description of the landscape indicates.

Before 1850 the monotonous forest cover of Fenelon Township was broken by only an occasional clearing. In 1842 the average area cleared per homestead was eight acres, acarcely enough to support a man's family. The farmer's chief occupation was clearing the land. The stumps of the felled trees were left in the ground, and seed for the crops

¹The political aristocracy of Upper Canada.

was scattered between the stumps. The fallen trees supplied almost the only building materials available. Small cabins were constructed from the logs, white pine being the most popular. The barns, also of log construction, were fairly small, but usually a farmer would construct a new barn periodically, thus forming a small collection of attached buildings. Corrals were constructed of logs to protect the livestock from wolves and other wild animals.

In each clearing at least half of the land was planted in wheat or oats, the former being predominant. Potatoes, turnips, and peas were grown in smaller sections. Perhaps two acres were fenced in and used as pasture for a few cattle, sheep, and swine. Cattle were used mainly for milk, and sheep for food and wool; hogs supplied most of the meat for the settler's diet. The woods surrounding the clearing were used as a source of maple sugar, and as a place to hunt wild animals.

In the early period of settlement the lakes provided the main means of communication, and most of the settlers entered Fenelon Township by way of Sturgeon Lake. Roads, many of which were just trails in the woods, were not abundant. A "wagon road", which steadily became more important as a colonization road, linked Fenelon Falls with Lindsay. It did not follow the township plan but assumed a direction similar to the present route connecting those two centres formed by Highways 35 and 121. The other important road came from Eldon Township to the west, passing

through the present location of Cambray, and thence going south to join the old Fenelon Falls-Lindsay route.

By 1850 the initial steps had been taken in settling Fenelon Township, and patterns which were to continue until the present time were established. The early settlers were involved in a struggle for survival, and their homesteads were very much subsistent in nature.

THE PERIOD OF RAPID GROWTH IN FENELON TOWNSHIP (1850-1881)

In this period Fenelon Township underwent a very rapid population growth and a considerable diversification of its economy. No longer did every new pioneer set out to clear a farm. Men now had the opportunity of entering the lumber trade, opening a store in a village, promoting the recreational industry, or engaging in some other specialized activity. The most significant landscape changes were the rapid clearing of the land, the development of Fenelon Falls, the appearance of other villages, the development of the road system, and the advent of the railway. Fenelon Township reached its maximum population of 4,249 in 1881. The graphs in figure 10 illustrate the population and agricultural trends from 1851 to the present.

During the period of rapid growth the pursuit of agriculture remained the dominant activity for most of the population. By 1881 all of the land suitable for cultivation had been distributed, and about 59% of this had been



cleared for agriculture. Figure 11 indicates those areas of Fenelon Township partially cleared for agriculture in 1867. Usually only about 30% of each farm was cleared at this time, and no farm was completely cleared. It is apparent from figure 11 that most of the land not yet distributed in 1867 was located in very wet areas or in areas of relatively poor soil where the overburden was thin.Consequently, the areas of unsettled land followed the trend of glaciation. It is also apparent, however, that much of the land partially cleared was unsuitable for cultivation. For example, large portions of the swampy forest along Martin Creek and the land with infertile Farmington loam soil were partially cleared. In 1867 some of the unsettled land was superior to some of the land already under cultivation.

The farm landscape was somewhat different in the latter part of the period of rapid growth from that described in the preceding section. In addition to the increased size and distribution of clearings, the fields were larger, often cleared of large stones and stumps, and sometimes surrounded by fences constructed of split rails, stones (in areas of stony overburden), or stumps. The German-type barns were much larger than the earlier type, and larger frame houses appeared among the log habitations.

The farm landscapes varied, however, with the age and the physical conditions. Recently cleared areas on poor soil had an appearance somewhat similar to that of the



OWNED FARMLAND ON WHICH FOREST CLEARING FOR AGRICULTURAL PURPOSES HAD BEGUN BY 1867

farms of an earlier period. For example, the land just east of Camp Kagawong, located on the south shore of Balsam Lake, was cleared about 1870. The stumps were left in the ground and fences were constructed with the logs of the fallen trees and with large limestone rocks which lay strewn on the land surface. Rock piles were formed with the stones cleared from the fields. Since the land, located on Farmington loam, proved to be very poor for cultivation, it was soon abandoned for that purpose, and the stumps were never removed. Therefore, the land maintained the appearance of recently cleared land while the surrounding landscape, located on better soils, changed with the development of agriculture. Photographs 10 and 11 illustrate the appearance of this land, which has changed little since its cultivation was abandoned.

From 1851 to 1881 wheat remained the most common field crop, and it is probable that farmers were able to produce a surplus for the market. Oats gradually became more popular as livestock (approximately equal numbers of cattle, sheep, and swine) increased, the wheat market fell, oats were sold for horse and human consumption at nearby lumber camps, and horses, rather than oxen, became the common draught animals on the farms. The cultivation of hay crops first became important during this period. In 1881 the wheat-growing area was 5800 acres; oats, 5000 acres; and hay, 3050 acres. 1851 to 1881 was definitely a period of mixed agriculture.

To service the rapidly growing farm population, roads, churches, schools, post offices, stores, and mills appeared. Figure 12 is a map made in 1881, indicating the location of these features at that time. The roads, often constructed of planks or gravel, developed according to the original township plan. Surveying errors in that plan caused a number of small jogs in the roads to appear. The road net was interrupted by only the most impenetrable swamps and surface obstructions.

Schools and churches were constructed at regular intervals throughout the township. Post offices, stores, and residential buildings for people providing various services appeared at Rosedale, Islay, Cameron, and Cambray (Fenelon Falls will be discussed separately below). A cheese factory at Powles Corners, and a grist mill at Cambray were built on streams. Cambray, located on the old road linking Eldon Township and Lindsay, was the first of the small villages to appear, and it remained the most important centre except Fenelon Falls. In 1881 Cambray had a population of 250.

Sturgeon Point was the one village which did not develop to serve the local farm population. Sturgeon Point, occupying a dominating position between the two arms of Sturgeon Lake, was long regarded as a natural meeting place for travellers on water. Since its shores were not congested



with swampy vegetation, as was the case with many of the smaller points on the lake, it provided a good landing place. The tall trees, growing down to the water's edge, gave the area a park-like appearance. Consequently, Sturgeon Point was the site for the early settlers' social gatherings. The first regatta was held in 1838. By 1843 locks had been constructed at Bobcaygeon, located at the east end of Sturgeon Lake, and at Lindsay, located on the Scugog River, which runs into Sturgeon Lake from the south. By 1853 several steamboats were in operation between those two sites. Fenelon Falls, and Port Perry. Sturgeon Point was in the midst of relatively heavy lake traffic. Realizing the possibility of this location, Captain G. Crandell, the chief promoter of navigation on local waters, purchased a site on Sturgeon Point, and constructed a large hotel there in 1876. The venture was a success, and soon a small village of summer homes surrounded the hotel.

The potential of the lumbering industry for Fenelon Township had long been appreciated, but rapid development did not begin until 1850. In 1851 a new sawmill was constructed at Fenelon Falls, and in the 1850-81 period several other temporary mills were built at various locations throughout the township. In 1852 a contingent of lumbermen cleared out McLaren Creek and its banks so that the largest squared timber could be floated down to Sturgeon Lake. By 1872 there were three large sawmills at Fenelon Falls, whose

annual cut of pine alone was 18 million board feet. A lock built at Rosedale in 1873 facilitated the movement of logs from the north to Fenelon Falls. Most of the timber was hauled by steamboat southwards through the Scugog River to Port Perry, located on Lake Scugog. It was then shipped overland to Whitby, on Lake Ontario, and floated to the market in Quebec City. Much of the lumber was shipped out by railway when it came to Fenelon Falls in 1873.

The two important effects of the lumber industry on the landscape of Fenelon Township were the almost complete disappearance of the white pine, which had been a dominant species, and the development of the village of Fenelon Falls.

The first village plan of Fenelon Falls was drawn in 1854. In addition to separate grist and lumber mills, a church, tavern, and store, also serving as a post office, were plotted on the plan. Settlement had only occurred on the north side of the river; this trend was maintained for almost 20 years. A hotel was constructed in 1854 to serve travellers and sportsmen who came to hunt and fish. Fenelon had already gained a reputation as an area of abundant wildlife. On the 1854 plan of Fenelon Falls the following notation was inscribed: "The fishing and shooting on these lakes are unequalled in America".

The village grew steadily with the arrival of tradesmen, etc., and the construction of the Victoria Railway in 1873, linking Fenelon Falls with Lindsay, was an added stimulus to settlement. Fenelon Falls, incorporated as a village in 1875, had a population of 1,155 in 1881, and reached its maximum population of 1,312 in 1886.

THE PERIOD OF DECLINE IN FENELON TOWNSHIP (1881-1931)

During this period the population of Fenelon Township, including Fenelon Falls, fell steadily to 2,712 in 1931. Although most of the decline was due to rural depopulation, Fenelon Falls also lost population after 1886, declining to 963 in 1931.

There were three main reasons for the rural depopulation : there was increased industrialization and urbanization in Canada throughout the period; after the completion of the Canadian Pacific Railway in 1885 several Fenelon farmers sought new land in Canada's western provinces; improved techniques permitted greater agricultural production by a smaller labour force. In addition, it was found that some of the areas that were being cultivated were unsuitable for economical production.

Changes in the rural landscape accompanied the population decline. The clearing of land continued until 1891, but after that the cultivation of inferior land was steadily abandoned, and the land was left as permanent pasture or was allowed to return to forest. The farmers who remained were sometimes able to increase the size of their holdings so that the number of 150 and 200-acre farms increased. Most of the farms were still the 100-acre variety, however. With the amalgamation of farms and abandonment of land several farm buildings were abandoned.

There were significant changes in agriculture during the period of decline. There was a great decline in the production of wheat. The wheat acreage declined from 5750 in 1891 to 1650 in 1911. In the same period the oats acreage increased from 5850 to 8950. This trend was a result of a drop in the wheat market due to increased wheat production in western Canada, and increased specialization in cattle raising. After 1911 the acreage of oats decreased steadily, but this was compensated for by the constant increase in the acreage of mixed grains. It was found that yields from fields of mixed grains, usually including oats with rye or barley, were higher than those from fields producing one cereal crop.

Between 1881 and 1931 there was a significant increase in Fenelon's cattle population, and there were decreases in the swine and sheep population. Like former periods, this was an era of mixed farming, but there was a pronounced increase in beef cattle raising. Milk cattle also increased to serve the growing urban market to the south with fluid milk. Beef cattle raising was the easiest and a profitable way of utilizing the cleared land no longer considered suitable for cultivation. Beef cattle were generally more profitable to raise than sheep or hogs. Also, sheep
were much more susceptible to injury from wild dogs.

As a result of rural depopulation and man's ability to travel farther distances easily in automobiles, roads in some of the more remote regions of Fenelon Township disappeared. For similar reasons Glenarm declined, and Islay disappeared as a functioning hamlet. Rosedale, Cameron, and Cambray, located in good agricultural areas on importand roads, maintained their populations, although they lost some of their functions and trade to Fenelon Falls or Lindsay. Cambray's population, part of which was composed of retired farmers, was 250 in 1921. Cameron benefitted somewhat by its location on the Victoria Railway, but it still remained inferior to Cambray. Following the introduction of the cream separator around 1900, most Fenelon farmers sent their cream to the creamery in Fenelon Falls or Lindsay, and the cheese factory at Powles Corners closed.

There was a great decline in the lumber industry during the 1881-1931 period, and this accounts for the decline in the population of Fenelon Falls. In 1886 a navigation channel, complete with two locks, was dug just north of the waterfalls at Fenelon Falls. With the decline of lumbering and water traffic, however, it became apparent that the locks at Fenelon Falls had been constructed too late to be much of a stimulus to the village's population. Fortunately, the railway and a fairly large agricultural hinterland tended to stabilize the population. The development of hydro-electric power at the waterfalls, a woodturning mill, and a woollen mill also helped to prevent the population from undergoing great decline.

In the 1881-1931 period, industry, commerce, and leisure time all became more common in Ontario. Consequently, there was an increase in the use of land for recreation in Fenelon Township. The most outstanding development was at Sturgeon Point. In 1884 the land was subdivided, and a building "boom" followed. Within 15 years there were 76 high-class cottages, mainly owned by people from Lindsay. The summer population reached 400. Four steamboat trips were made between Sturgeon Point and Lindsay every summer day. In 1899 a special act passed by the Provincial Government granted Sturgeon Point incorporation as a village, in spite of the very low permanent population. Sturgeon Point thus became the only incorporated village in Fenelon Township outside of Fenelon Falls. After 1899 the residents of the new village, enjoying the challenge of independence, took measures to preserve the park-like beauty of the village and to improve its facilities.

Around 1900, Pleasant Point, across the lake from Sturgeon Point, began to emerge as a summer village. Cottages were more modest here than across the lake. In 1910 Camp Kagawong, a private camp for boys, was established on the south-east shore of Balsam Lake. Several factors favoured

this location : Toronto, where most of the clients lived, was relatively near; Fenelon Falls, still prospering from lumbering, had dependable train service; Balsam Lake and its shorelines were practically deserted; the site of the camp was high and dry, and the trees on the site had never been cleared; the lake was of appropriate size for sailing; the prevailing west wind was favourable for blowing loose boats abhore or mosquitoes inland.

The period 1881-1931 saw some stagnation in the extent and intensity of agricultural and village land use in Fenelon Township, but also witnessed an important advancement in recreational land use, which was to become so important in the future.

THE PERIOD OF RESURGENCE IN FENELON TOWNSHIP (1931-61)

During the period 1931-61 Fenelon Township has undergone very important changes which have caused corresponding changes in the landscape. The population has grown in village and country throughout most of the period.

In agriculture, trends established towards the end of the period of decline have continued, and Fenelon's farming population has not increased. The abandonment of land for cultivation has continued at an increasing rate, and the raising of beef cattle has increased at a similar rate. By 1956 the number of milk cows was only about one-half the number in 1931. The increase in improved land has not been due to agricultural development but to the construction of summer cottages on farmland along the lakeshores. Total grain production has fallen; by 1956 hay crops accounted for more acreage than all the cereals combined. The marked increase in swine population between 1931 and 1941 was due to unusually good hog marketing conditions created by a special trade agreement between Canada and Britain in 1932. Since 1941, however, swine, like other livestock except beef cattle, have experienced an overall decrease in numbers.

The reasons for the decrease in the area of cultivated land and the increase in beef cattle raising are interesting and complex. In order to farm profitably, a farmer in Fenelon Township is usually forced to specialize to some extent. Early in this century mixed farming was carried on successfully in the area. Now the high cost of mechanization compared to the relatively low prices obtained for the products of mixed farming (small quantities of cream, fluid milk, hogs, eggs, etc.) make mixed agriculture a poor-paying economy, particularly if the soil is poor. Mechanization is essential for this type of agriculture due to the high cost of labour. Machinery can be rented, but it is often unavailable when needed, and is expensive. Consequently, the farmer is faced with two alternatives. (1) He can invest in mechanization to produce intensively a large quantity of one product which can be sold at a good price, often to a con-

tracted buyer. For example, in Fenelon there are four well mechanized farms producing pure-bred beef cattle. The cattle are sold for breeding purposes or as high-quality stock for slaughtering. The most intensive and highly commercial farm (most of the feed is bought) in the area is a new mink farm at Cambray, raising 5,500 mink in 1961. A few farmers have obtained fluid milk contracts with dairies at Lindsay, Toronto, or Fenelon Falls. Two of the larger Holstein herds are registered. Howver, without milk contracts, which are difficult to obtain in the Fenelon area, dairying is not very profitable. (2) Many farmers in Fenelon Township whose farms are located on soils too poor for economical intensive use have followed a second alternative. They have specialized in extensive beef cattle raising, allowing the cattle to graze on unimproved pasture. This type of farming can be carried on with little mechanization or human effort. Therefore, some beef cattle farmers have sufficient time to work in Lindsay or Fenelon Falls in order to supplement their income. More of them have purchased or rent other farms on which to graze their cattle. A few farmers in Fenelon Township own well over 500 acres for this purpose. The common practice is to buy cattle from western Canada in the spring, fatten them until fall, and then sell them in Toronto or Montreal. Usually a few young cattle and bulls are wintered and fed commercial feed, perhaps supplemented with hay grown at home.

Many, perhaps most Fenelon farmers are still engaged in some form of mixed agriculture. Some of them, located on the best soils, are prospering. But the trend towards specialization, either intensive or extensive, definitely exists; and land is constantly being abandoned for cultivation.

The farm landscape during the 1931-61 period has changed somewhat from that of the preceding period. The amalgamation of farms has led to the further abandonment of many farm buildings. Often a few foundation stones, a couple of lilac trees, a cluster of hollyhocks, a vigorous growth of rhubarb amid a taller growth of weeds, and a line of trees which shaded the former lane to the road are the only remnants of a former proud rural home. In contrast to this change has been the rapid appearance of new houses, often built in clusters, in fields bordering the main highways. These have been built by commuters who work in Fenelon Falls or Lindsay who believe that it is more economical to live in the country and pay rural taxes than to live in town. A number of these people have also settled in Cameron and Cambray. This development accounts for the rise in rural population since 1941.

By far the most outstanding change in the 1931-61 period has been the rapid construction of summer cottages and lodges on the shorelines of Balsam, Cameron, and Sturgeon Lakes. Since 1931 an increasing proportion of Ontario residents have been able to afford a separate summer dwell-

ing. At present almost all of the available lakeshore in Fenelon Township has been developed for recreation, and the price of such land has increased ten-fold in the last fifteen years. Since 1941 much land formerly considered useless has been purchased by speculators who hope to use it for recreational development. At present Fenelon Township has about 5,000 summer cottage residents. To service the new cottage areas many new roads have been developed around the perimeter of the lakes.

The reasons for recreational development in Fenelon Township are straightforward. The Toronto area, where most of the cottage owners live, is only two hours distant by car. The roads to Toronto are excellent. Fenelon's summer temperatures, particularly along the lakeshores and at night, are lower than those at Toronto, as the statistics in Table 1 indicate. The lakes are sufficiently large for sailing and heavy pleasure-boat traffic, yet sufficiently small to be calm enough for water skiing, bathing for children, and boating in the smallest craft. The shorelines, and Fenelon Township in general, are picturesque, unblighted by urban or industrial development. The fishing in the relatively clean water of the lakes is excellent. In 1959 the Department of Lands and Forests decided that the further stocking of game fish in Balsam, Cameron, and Sturgeon Lakes, which had begun early in the century, was unnecessary. The population of maskinong, wall-eyed pike, large-mouthed bass,

and yellow pickerel is large enough to prevent, by natural increase, depletion resulting from fishing. Duck hunting in the fall also attracts sportsmen to Fenelon Township.

The explosive development of the Fenelon shorelines for recreational purposes has produced a resurgence in the economy and population of Fenelon Falls and all of the smaller villages. The construction industries have enjoyed great prosperity. An increasing number of pleasure craft pass through the locks, since the Trent-Severn waterway has become a favourite vacation route for boatmen. Tourists following Highway 121 have also stimulated the economy of Fenelon Falls, and snack bars and servicestations have appeared elsewhere along Highways 35 and 121 to serve summer traffic.

By 1961 the cultural landscape of Fenelon Township had become quite complex. Nevertheless, a strong relationship to the physical landscape existed, as a study of the 1961 land use pattern indicates.





Photo. 11

The land shown in these photographs, located east of Camp Kagawong, was cleared for cultivation about 1870. The Farmington loam soils proved to be so infertile that the land was abandoned for cultivation at an early period. The landscape has changed little since then; therefore one can observe the features of newly cleared land in the 1850-81 period. Note the log and stone fences, the rock piles, and the stumps remaining in part of the field. The land is now used as permanent pasture.

CHAPTER IV

LAND UTILIZATION IN FENELON TOWNSHIP-1961

Map 3 is a land use map of Fenelon Township, prepared in the field in the summer of 1961. The base map was produced from aerial photographs. The land use has been classed in 13 categories, a sufficient number for the detail required in this study. The land utilization in Fenelon Falls has been mapped on a larger scale so that more details Can. be presented.

Following is a description and explanation of the distribution of each of the 13 land uses in Fenelon Township. The analysis of the historical development of the cultural landscape given in the preceding chapter need not be repeated in the following sections.

WOODLAND

Of the 55,134 acres of land in Fenelon Township,¹ approximately 20 percent is classed as woodland. The tree associations are described in chapter two. Woodland occurs in four main locations : on land too wet for agriculture; on

¹According to the "Report to the Minister's Advisory Committee on Land Use - Lindsay District, 1961"; by the Dept. of Lands and Forests, Lindsay District (semi-confidential report).

land where the soils are excessively drained and sterile; in small farm woodlots; and on the slopes of escarpments too steep for other use. Woodland surrounding summer cottages is included in many of the areas indicated on map 3 as recreational land.

The wet areas include the large sections of woodland adjacent to Martin and Perrin Creeks, the Staples River, and much of the other land flooded during stage two of deglaciation (fig. 3b). These woodland areas coincide very closely with the muck soil regions (map 2). The areas flooded are often increased by the construction of beaver dams, which must be dynamited frequently (photo. 12). A large number of trees which thrive under poor conditions of drainage is found; cedars are particularly abundant.

The woodland in wet areas is often divided into geometric sections, each of which contains trees of a particular age. This is because some portions of the woodland were cleared and divided into fields in the 1850-81 period, but have now returned to forest. In other regions the mature trees have been cut periodically for lumber. The result of this activity is that the woodland is seldom homogeneous in age or, sometimes, composition over large areas. Aerial photographs indicate this irregular pattern(photo. 13). The woodland in wet areas is not used extensively. There is some cutting of firewood, trapping of beaver, and use of the

woodland for pasture.

Woodlands on sterile and excessively drained soils in Fenelon Township occur in such areas as the region of very thin overburden south of Camp Kagawong, the esker just north of Fenelon Falls, and the region of sterile, hilly ground moraine along the north-east shore of Sturgeon Lake, south of Fenelon Falls. None of the woodland in this category was ever cleared for agriculture since cleared areas with excessively drained soils have been preserved invariably as permanent pasture (unless reforestation or quarrying has occurred). Most of this woodland is used as pasture for beef cattle. The acreage of wooded pasture in Fenelon Township, including wet woodland, is 3,468.¹ In some parts of the wooded pasture all of the saplings have been trampled down. Consequently, the present trees will not be replaced naturally when they die.

Almost every farm has at least a small woodlot for firewood, lumber, and perhaps, maple syrup. Therefore, small patches of woodland about the size of a field appear scattered throughout the township. Some are located on good soils. Some may now be used for pasture.

The land use pattern in the south of Fenelon Township is occasionally interrupted by a U-shaped patch of woodland

¹"Report to the Minister's Advisory Committee on Land Use -- Lindsay District, 1961."

where trees grow on the steep slope of an escarpment. One example is the escarpment slope of the rock drumlin located three-quarters of a mile north-west of Cameron (photo. 14).

ALDER SWAMP

Alder swamp has been mapped in order to indicate that much of the woodland in Fenelon Township occurs in very wet areas. Were it not included one might receive a wrong impression concerning the drainage of the large woodland tracts. Alder swamp is found in the wettest parts of the woodland. The dominant species is the speckled alder, a low crooked shrub six to fifteen feet high and three or four inches in diameter. It is abundant in the wettest areas of muck soil, particularly east of Goose Lake (north-west of Cambray). Alder swamp is not used by man. It is difficult to walk through these wet areas, thickly congested with shrubs (photo. 15).

MARSH

March areas occur where the land is submerged under water which is shallow enough to permit the growth of cattails and reeds (photo. 16). Marsh is abundant at the west end of Balsam Lake, the north end of Cameron Lake, and along parts of the periphery of Sturgeon Lake, particularly in the southern extension. The construction of locks at Bobcaygeon has caused the water level of Sturgeon Lake to rise. Extensive flooding of land around the south arm has resulted (compare map 3 with fig. 12, a map made before flooding occurred). In this area the remains of trees which were killed when flooding occurred lie a few inches below the water surface, and are a threat to safe bpating. Where marsh occurs along the water routeways of the Trent-Severn system, pavigation channels have been dredged.

REFORESTATION

Reforestation is not widespread in Fenelon Township, nor is it usually necessary since serious soil erosion is rarely a problem. One might argue, however, that some cleared areas where the soil is extremely unproductive would be better used if reforested. A portion of the Pontypool sandy loam north of Cambray and a small section on sandy soil in the north-east corner of the township have been reforested with red pine (photo. 17). Other very small patches of ornamental reforestation sometimes occur at the intersections between township roads and the main highways.

PERMANENT PASTURE

Half of the cleared land in Fenelon Township has been classed as permanent pasture. An area was mapped in this category if it appeared that the ground had not been

worked for at least six years. In some cases it was impossible for the writer to determine by observation whether the land was being used for any purpose. Permanent pasture, therefore, includes some idle land. All of the permanent pasture could be used for grazing, however, and most of it is.

Permanent pasture occurs on most of the land originally cleared for cultivation but now considered unsuitable for that purpose. It is closely related to areas of poor soil. Most of the areas of ground moraine where the drift is less than three feet thick, and practically all of the Farmington loam sections are permanent pasture (photo. 18). The areas of kame and esker usually fall in this category. In these regions the soil can seldom retain enough water for successful cultivation during rainless periods. In the flat areas of thin drift, flooding may occur if rainfall is exces-In lowland pockets flooding is usually a problem, and sive. reeds or cattails thrive (photo. 19). Permanent pasture also occurs on some clays in the south-west corner of the township, on much of the Emily loam, and on other soils adjacent to the areas of wet woodland. Each of these is poorly drained.

HAY OR PASTURE IN ROTATION, GRAIN, and CORN

Since there has long been a trend in Fenelon Township towards the abandonment of inferior land for cultivation, the remaining areas of cultivated land are closely related to soil

conditions. One may note a fairly close relation between the sections of cultivated land and the better soils indicated on the soil map. Inconsistencies in this correlation occur however. One finds locations where soils considered to be inferior by the soil report are cultivated (e.g. Lyons loam north of Powles Corners). And there are extensive uncultivated areas where the soils have been classed as generally good in the soil report (e.g. Otonabee loam south of Camp Kagawong). It is most probable that such occurrences are not the result of poor judgment by the farmers. The writer comes to this conclusion because the cultivated land is observed on the land use map to form very pronounced patterns that must be due to careful planning rather than acci-Cultivated land occurs in elongated bands which trend dent. in the direction of glaciation. The relation is particularly well established north-east of Glenarm, north of Cambray, and south-east of Sturgeon Lake. This is a result of the fluting created by glaciation. The well-drained land on broad ridges is cultivated; but the lower swales, where the overburden is thinner and the drainage is imperfect, are left as permanent pasture. Drumlins are nearly always cultivated. The bands of cultivated land often cross the boundaries between different varieties of soil. The cultivated land use pattern is a much more intricate adjustment to the trend of glaciation than the patterns of the soil map, and indicates conditions of slope and drainage that even a topographic map does not reveal. It is

obvious that in Fenelon Township drainage is sometimes a more vital factor than the other factors which determine the soil type.

One finds concentrated areas of cultivated land where soil conditions are particularly good. The concentrations east of Glenarm, west of Balsam Lake, south-east of Rosedale, and around Cameron occur in areas of adequate drainage on the best Otonabee loam in the township. A very productive area occurs north and south of Cambray, particularly concentrated on Waupoos clay and Simcoe clay loam. Gently sloping topography and tiling have assured adequate drainage here. By far the largest concentrated area of cultivated land is a broad zone along Highway 35 from Cameron to Peace Valley. Most of this area, and the most productive part, occurs on Otonabee sandy loam. Although less fertile inherently than Otonabee loam, this soil is easier to work and is better drained. It dries out more quickly after heavy rains and in the spring, and, therefore, requires less exact "timing" for planting and harvesting.

The writer could find no differences among the various farming areas due to the racial origins of the farmers.

The development of the section along Highway 35 is probably related to location as well as soil. It is along the main road leading to the creameries in Fenelon Falls and Lindsay and to the livestock yards at Lindsay. This is the most expensive farmland in Fenelon Township, especially because of the opportunity of subdivision of land along the highway. A combination of good soil and location has led farmers to invest in considerable land improvement.

Fields of hay or pasture in rotation, and fields of grain usually occur together, the former being predominant. An exception to this pattern occurs in the large tract of cultivated land between Cameron and Peace Valley. Here the acreage in grain is about the same as that in hay or pasture in rotation. This is related to a more intensive use of the land for the production of livestock. Registered herds of Durham, Hereford, and Holstein cattle are found, although these are exceptions even here.

Corn is uncommon in Fenelon Township; in 1956 there were only 413 acres of corn, all of which was used as ensilage for dairy cattle. Most of the cornfields occur within two miles of Powles Corners. Of the 25 corn fields, most are found on rather light soil; ten of the largest are on Otonabee sandy loam.

The land use map often shows large areas of interconnected fields producing the same crop. This may be an adaptation to mechanization or it may indicate an attempt to utilize all the land of a particular quality for producing one type of crop. The recent amalgamation of fields is indicated by a comparison of photograph 20 and the corresponding portion of map 3. In some places, particularly the areas of permanent pasture, the fences between older, smaller fields are not used or have been removed. Most field boundaries

parallel the grid lines of the original survey, but a few trend in a north-east, south-west direction. In some cases this trend is necessary because the field borders a lake (e.g. north of Snug Harbour) or one of the highways. In other cases this appears to be an adjustment to topographic conditions created by glaciation (e.g. north of Sturgeon Point). The land would be more efficiently used if more fields underwent this adjustment.

GRAVEL PITS

Several gravel pits are found scattered throughout Fenelon Township. They invariably occur in association with eskers or kame deposits. The most important pit is found just south of Sackett Bay, Cameron Lake. Except for a small cement block factory opposite this pit, gravel pits are the only industrial land in the township outside of Fenelon Falls.

RECREATIONAL LAND

Recreational land refers to all the land, commercial or private, used for recreational purposes. Except for a flying club's small landing strip one mile east of Cameron, and for a golf course, (photo. 22) located on kame deposits south of Cameron Lake, all of the recreational land is situated along the water's edge. Recreational land is far more important to the economy of Fenelon Township than its area indicates. The following assessment figures indicate this importance.

1961 Assessment for Buildings and Land in Fenelon Township, not including Fenelon Falls

Non-commercial	recreational	部	1,160,875.00
Farms			1,084,475.00
Commercial and	industrial		
(mainly hote]	ls and Lodges)		168,532.00
Residential			50,200.00

TABLE II

Summer cottages have been constructed on most of the suitable lakeshore. Practically all of them are good or excellent in quality. Very few are more than 30 years old. There appear to be only minor differences among the cottages when they are viewed from the water. Docks and substantial boathouses project into the water in almost endless procession. The differences among the various recreational areas are not usually in quality but in accessibility by land, and in local services offered. The main distinction is between those areas developed within the last 10 or 15 years and the areas developed earlier.

The older areas, including Sturgeon Point, Pleasant Point, Long Beach, the Rosedale area, Romany Ranch, Killarney Bay, and Deihl Point, are connected to the regular township roads with good, well travelled roads that are easy to find. Broad, sometimes hard-surfaced roads parallel the lakeshore through the cottage areas. Usually cottages have been constructed on the inland side of these roads some time after the cottage development along the lakeshore. The cottagers are served by a local store which remains open about five months a year. Usually the store supplies them with at least canned goods, milk, and bread. The trade area does not extend beyond the local cottages.

Commercial recreational land is uncommon in Fenelon Township. It occurs exclusively in the older recreational areas. Lodges, hotels, or cabins are found at Pleasant Point, Long Beach, Rosedale, Romany Ranch, the area one mile west of Fenelon Falls, and Glenvale Beach, located just south of Datonia Beach. Most of the accomodations are large and self-sufficient, but at Long Beach and Rosedale small restaurants have appeared to serve the tourists. Many of the lodges, particularly the one at Romany Ranch, depend heavily on fishing as an attraction to guests. Boat servicing centres occur at Rosedale and Romany Ranch (photo. 23).

The more recently developed recreational areas, including most of the shoreline of Cameron Lake, the south and west shores of Balsam Lake, and much of the east, west, and south shores of Sturgeon Lake are somewhat different from the older areas. The roads built to serve them are narrow, of gravel or dirt construction, difficult to find, and sometimes closed by gates. There is no commercial recreational land. The cottagers in these areas generally try to avoid contact with outsiders, who might disrupt the solitude of a pleasant vacation.

Sturgeon Point is an exception to the general quality of the recreational areas in Fenelon Township. The cottages, many of which are 70 years old, are large, stately, well preserved, and beautifully located. Some of the summer houses could be called "lavish". Paved roads wind through the park-like development, and spacious boathouses contain the pride of the local sailing club. With its shaded lawns and well-kept golf course (just east of the Fenelon Township boundary), Sturgeon Point provides a rare atmosphere for graceful living (photos. 25 and 26).

Since all of the best available lakeshore property in Fenelon Township had been developed for recreation a few years ago, much of the recent cottage construction has involved the artificial filling of swampy land. Land filling has been required particularly along the shore of Cameron Lake, around Birch Point, and around Snug Harbour. The most extensive modification of natural conditions is being effected at Pleasant Point. A band of muck soil separates the cottage area from the drier soils inland. Through the band of muck a canal, which will cause the Pleasant Point settlement to become an island, is being dug (photo. 27). The land on either side of the canal will be developed for recreational purposes. The centre of the development will be a large commercial "marina". Other modifications of the lakeshores throughout the township include the creation of artificial sand beaches and wading areas.

A small amount of lakeshore suitable for recreational development remains untouched. This occurs where the farmers owning the land have refused to permit its development. Unfortunately, the relations between cottager and farmer are not always the best. On Balsam Lake at least two excellent sand beaches, rare formations in Fenelon Township, remain undeveloped.

SUBURBAN¹ DEVELOPMENT

This category includes all permanent non-farm residences and commercial buildings which remain open all year (mainly general stores and service stations) outside of Fenelon Falls.

The largest village in the township (Fenelon Falls is not considered in this discussion) is Cameron. Of its 250 residents, most provide local services, work in Fenelon Falls or Lindsay, run nearby farms, or are retired. As do all the villages in the township, Cambray serves the local farm population. Its facilities include a general store, a snack bar, two churches, a grist mill, two service stations, and the Fenelon Township Memorial Arena. Cameron is growing; new houses are still being built. Just outside the village a large mink farm has been developed recently.

Cameron, with a population of 200, is similar to

¹In its context throughout this dissertation, "suburban" does not imply the proximity of a city.

Cambray in function and setting. In addition, it serves cottagers from the west shore of Sturgeon Lake and traffic following Highway 35. The summer trade at Cameron is about one and one-half times the winter trade. A general store, service station and snack bar, public hall, school, three churches, railway station, and the Fenelon Township municipal office and road machinery garage are located at Cameron.

Rosedale has developed mainly to serve tourists following Highway 35 or the Trent waterway, local cottagers, and farmers. Boat servicing centres are located along the river connecting Balsam and Cameron Lakes between the road bridge and the lock's (photo. 28). Here the water is calm even when the lakes may be very rough. Other facilities at Rosedale, part of which is north of Fenelon Township, include five service stations, two snack bars, two general stores, and tourist accommodations. The trade area includes many of the cottage areas on Balsam and Cameron Lakes. A number of the cottagers do their shopping by boat. The permanent population of the Rosedale area is about 50, but the summer population is near 500.

Glenarm, located on the main east-west route in the township, has a population of about 30. Its trade is heaviest in summer since it serves several of the cottagers on Balsam Lake. It has a general store, service station and snack bar, and a church (photo. 29).

Islay and Powles Corners each have one or two residences. Except for a school at Powles Corners they are not functioning suburban areas. Zion has only a church.

Only combined service stations and general stores are found at Cedar Grove and Peace Valley. They serve tourists, nearby cottagers, and farmers.

The trade area of each of the general stores in Fenelon Township is indicated in figure 13. The boundary of each trade area joins the farthest points from which the store receives regular customers. The trade areas were determined by interviewing the store owners. An examination of these trade areas indicates clearly the local commercial function of each suburban centre.

Along Highway 35 two miles north and south of Cameron, and along the highway one mile west of Fenelon Falls occur a few recently constructed residences. The owners work in Fenelon Falls or Lindsay, and location along the highway has been an important reason for the houses' construction.

In addition to the facilities listed above, combined service stations and snack bars occur on the highway just west of Peace Valley and on either side of Fenelon Falls. Tourists account for a large proportion of the trade at these locations.

TRADE AREAS IN FENELON TOWNSHIP



Scale: linch = | mile

THE VILLAGE OF FENELON FALLS

Fenelon Falls, built around the waterfalls in the river connecting Cameron and Sturgeon Lakes, stretches between those lakes, having frontage on each. The village is built on three separate sections of land -- the land southwest of the river; that north-east of the river; and the island in the river, created when the navigation channel and locks were constructed north of the waterfalls. The land is usually well-drained, and it is flat except for terraces in the north-east section, formed during deglaciation at the time of the Fenelon Falls outlet (fig. 4). Throughout much of the area the overburden is thin, three feet or less thick. Consequently, the excavation of foundations or ditches involves the difficult task of digging through the limestone bedrock.

Fenelon Falls is important for its industries, particularly construction industries. It is also an important commercial centre for a large rural and recreational hinterland, including all of Fenelon Township almost as far south as Cameron, and large areas north and east of the township. In the summer it serves tourists travelling by land or water. Those travelling by boat usually must stop before going through the locks, and many use the opportunity to shop in the village. Since the days of lumbering, the railway has been relatively unimportant to the village's economy. Trains are now unscheduled, and usually reach Fenelon Falls only twice a week.

Figure 14 is a land use map of Fenelon Falls prepared in the summer of 1961. An examination of the map indicates that the original industrial and commercial core around the waterfalls has been maintained. The business district is found just north of the navigation canal along each side of the main street.

Most of the land north-east of the river and navigation canal has been developed, although fairly large areas of woodland and vacant land are found around the north and east periphery. The road plan follows the trends of the river, the river terraces, and the Cameron Lake shoreline. The oldest houses are located nearest to the business district, and progressively newer houses occur moving away from this core. The houses are generally of good quality, deteriorating somewhat near the railway. All of the village's churches and the public school are located in a broad, pleasant residential area north of the business district.

All four of the parks in Fenelon Falls are situated in the area north-east of the river. A public beach has been developed along the lakeshore of Cameron Lake. Near the locks is a picnic park for tourists, located on a gorge wall which is too steep for most other uses. In the extreme north is a large gravel pit on kame deposits. Other industrial land in the area includes a construction yard in the east



VILLAGE OF FENELON FALLS

near the river, and a machine shop near the canal. Just west of the railway on Cameron Lake is a new waterworks where water is taken from the lake and purified.

The business section contains the usual collection of stores (drug, grocery, hardware, variety, etc.), a post office, a motion picture theatre (open only during the tourist season), a dairy, a service station, a library, and an exceptionally large number of barbershops and gift or specialty shops, catering mainly to tourists and cottagers (photo. 31).

The island between the river and the canal contains many different types of buildings closely packed together, (photo. 32). At the west end is a tourist court. Adjacent is a creamery, and next to the road are a service station and an automatic laundry (built mainly to serve cottagers). Just east of the road is an imposing woollen mill, originally water powered; and east of that are a number of public buildings including the fire department, clerk's office, jail, court, and hydro-electric generating station, which supplies the village with all of its electricity.

Only about one-third of the area south-west of the river has been developed. This area includes three important industries, all of which deal with lumber or wood products (photo. 34). The raw materials are shipped in by truck or train. Lumber is distributed locally, but wooden toys, an important product of the region, are shipped away for distribution. Much vacant land is available in the area which could be used for industry.

The houses in this district, which developed mainly as a worker's residential area, are inferior in size and quality to those across the river. The only institutional building is the high school. The commercial buildings are either service stations, small groceterias, or motels. A generating plant of the Ontario Hydro- Electric Power Commission is located by the waterfalls. This is now unused since the generating plant across the river uses most of the water power.

Recreational land is abundant throughout much of Fenelon Falls. The "recreational" category on the map includes private and commercial holdings. There are approximately 100 summer cottages in the village, occupying most of the land which fronts on water. The inland recreational land is commercial, and includes motels, cabins, and a large, well-kept hotel just south-east of the business section (photo. 35).

No description and explanation of the land use pattern or economy, no matter how detailed, is sufficient to explain the character of Fenelon Falls in the summer. In the afternoon the broad main street is filled with slowly-moving traffic; parking space is often scarce. Cottagers wait in line at the automatic laundry or browse lazily with the tourists through the shops. The river is an almost perpet-

ual scene of water traffic, and the regular passage of boats through the locks is eagerly anticipated by numerous spectators. In spite of the crowded streets the atmosphere is relaxed -- very informal. People are on vacation; there is no rush. The whine of an outboard motor,, the "Welcome to Fenelon Falls" sign, the informal summer attire, or the sunburned face are as much a part of the personality of Fenelon Falls as the buildings or the waterfalls.



Photo. 12 Beaver dams like this one increase the flooding of land in the wet woodlands. Such dams are dynamited frequently.



Geometric patterns in the areas of wet woodland reveal former field boundaries (particularly in the lower right section of the photograph). Other, more regular boundaries in the woodland indicate that different sections have been cut for lumber at different times. Note the esker running from right to lower left, indicated by the arrow. (scale : 1.9 in. = 1 mi.)



Photo. 14

A U-shaped pattern is created by trees growing on the steep escarpment slope of the rock drumlin near Cameron.



Photo. 15 An area of alder swamps. The poplars, often found in the areas of alder swamp, are second growth stands.



An area of marsh at the west end of Balsam Lake. This is typical of the marsh found in shallow water along the periphery of parts of all three lakes in Fenelon Township. Marsh has usually prevented the development of the shoreline for recreation.



Photo. 17 Reforestation with red pine on Pontypool sandy loam.



Photo. 18

This stony grazing land with corral and stone pile (in the background) is typical of areas with Farmington loam soil.



An area of thin overburden where the land has been abandoned for cultivation and left as permanent pasture. The soil on the upland is stony, and can not retain sufficient moisture for good crop production; the lower land in the foreground is poorly drained. This pattern is common throughout Fenelon Township.



Photo. 20

This photograph indicates the boundaries of each field. Comparison with the corresponding areas on map 3 reveals, however, that a number of these fields have been amalgamated for cultivation or pasture. This susually a result of increased mechanization. (scale : 1.9 in. = 1 mi.)


Photo. 21 This farm, located on Otonabee loam, is typical of Fenelon Township. Note the stones in the soil.



Photo. 22 A golf course just west of Fenelon Falls, located in an area of kame deposits.



Photo. 23 An important boat servicing centre at Romany Ranch, Balsam Lake. Increased water traffic, largely a result of good fishing, has led to the increasing prosperity of this facility.



Photo. 24

Part of the dock at Camp Kagawong, located on the south shore of Balsam Lake.



Photo. 25 Sturgeon Point: the winding hard-surfaced roads and fine cottages, beautifully located in the groves of trees, are characteristic of this recreational area.



Photo. 26 One of the large summer homes at Sturgeon Point.



Photo. 27

Part of the canal under construction which will turn Pleasant Point into an island, and lead to extensive commercial recreational development along the canal.



Photo. 28

The boat-servicing centres along the river at Rosedale, just west of the locks.



Photo. 29 Glenarm -- a general store, a service station and snack bar, a church, and a few houses.



Photo. 30 The waterfalls area at Fenelon Falls, showing a hydro-electric generating station on each side of the waterfalls, the navigation canal and locks, and the island between the river and the canal.



Photo. 31

The busy main street of Fenelon Falls on a summer day.



Photo. 32

A view of the south-east part of the artificially created island in the centre of Fenelon Falls. The large building on the left is a woollen mill, and beside it is a hydro-electric generating station. The imposing structure in the background is the fire-bell tower. Behind the island is the navigation canal.



Photo. 33 One of the locks at Fenelon Falls, just west of the road bridge.



Photo. 34

One of several Fenelon Falls industries connected with construction. The rapid development of recreational land has stimulated the construction industries.



Photo. 35 The Alpine Inn -- an old and well preserved summer hotel in Fenelon Falls.

CHAPTER V

SUMMARY AND CONCLUSIONS

(1) SUMMARY

Fenelon Township's physical landscape is characterized by low relief, practically unmodified glacial deposits, and large areas of lake and swamp. Except for the limestone escarpment in the south, the detail of the physical topography has been mainly created by the last ice advance and retreat in the Wisconsin period. Fenelon's shallow glacial deposits and scoured lake basins indicate that glacial erosion was dominant over depositon.

Following glaciation a humid microthermal climate and a mixed forest cover evolved. Soils of fair fertility, which strongly reflected their parent material and drainage, developed. Many were poorly or excessively drained.

Aboriginal occupation of the land was not intensive, nor did it involve significant changes in the landscape. European settlement began in the 1820's. By 1881 Fenelon Township had reached its maximum population, and most of the suitable land was under cultivation. In the period before 1881 mixed farming and lumbering were the important pursuits. Fenelon Falls became an important lumbering centre, and roads, institutions, and small villages appeared

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throughout the countryside.

Between 1881 and 1931 the population decreased steadily, poorer land was abandoned for cultivation, livestock raising became more important, and the lumber industry practically stopped. Since 1931 abandonment of land for cultivation has continued, and beef cattle raising has become important. Increased mechanization has stimulated a trend towards specialization in agriculture. The rapid appearance of summer cottages along the lakeshore has been the outstanding change since 1931.

At present almost all of the suitable land which is available has been developed for recreation, and half of the township's taxes are derived from cottagers. The agricultural land use pattern reflects physical conditions very closely. Summer residents and tourists add greatly to the commerce of the area.

Fenelon Township can be divided into five geographical regions. A brief description of each, in order of size, follows.

(i) <u>The Area North of Martin Creek</u> and <u>West of Cameron Lake</u>

This region is broken up by a number of wet woodland sections. In the cleared areas the soil is sometimes good, but usually poor. The larger sections of cultivated land occur north-east of Glenarm, west of Balsam Lake, and west of Cameron Lake. No very important villages exist, and practically the whole region is included in the Fenelon Falls trade area. Since shorelines are extensive, recreational land is abundant.

(ii) <u>The Area South of Martin Creek</u> and <u>West of Sturgeon Lake</u>

Considerably less wet land occurs here than in the first region. The soils are generally good, providing Fenelon's most productive agricultural land. Cultivated land is found in concentrated areas north of Cambray, and along Highway 35 from Cameron to Peace Valley. Highways help to unify the region, which has two important villages -- Cambray and Cameron. The southern half of the region is outside of the Fenelon Falls trade area and is part of that of Lindsay. Much of the shoreline is too marshy for recreational development. Recreational land is less abundant than in region (i).

(iii) The Area South-East of Sturgeon Lake

Cut off from the rest of the township by water, this region is not included in the trade area of any Fenelon village. The region is closely associated with the Lindsay sphere of influence. The soils are quite poor, and most of the land is used for pasture. The shorelines are developed intensively for recreation, particularly at Pleasant Point.

(iv) <u>The Area East of Fenelon Falls, from</u> <u>Sturgeon Point to the Township's Northern</u> <u>Boundary</u>

This region is characterized by poor, stony soils and complete trade dominance by Fenelon Falls (except the village of Sturgeon Point). It is cut off from the rest of the township by water. Non-commercial recreational land is extensive, and a unique settlement has developed at Sturgeon Point.

(v) <u>The Village of Fenelon Falls</u>

Fenelon Falls serves a large agricultural and recreational area. The construction industry is important to this picturesque village.

(2) CONCLUSIONS

The evolution of Fenelon's landscape has been traced from the earliest times for which evidence is available to the present. From this study several important conclusions can be drawn.

Glaciation has had a very strong influence on the development of the natural and cultural landscapes of Fenelon Township. The nature of the glacial deposits has been the dominant factor determining the distribution of cultivated land. Without the lakes created by glacial scouring, little recreational land use would exist. In short, almost every feature observed in the landscape is related to glaciation to some extent.

The appearance of Fenelon Township during several periods of history has been outlined. It does not follow, however, that knowledge of all former landscapes is necessary to explain the present appearance of the township. For example, the landscape changes effected by the Indians seem to have had no influence on the appearance of the land in 1961.

The physical control over the land use pattern has probably never been so strong as it is now. During the period of rapid growth much land was cleared and cultivated indiscriminately. Since that period there has been a gradual and increasingly fine adjustment of the agricultural land use pattern to physical conditions, brought out by farming experience and changing economic conditions.

Although the land use pattern has been largely controlled by the physical conditions of the township, the economy of the area is very much dependent on Toronto. Toronto is the market for most of the beef cattle raised in the district, and most of the cottagers come from the Toronto area. Given the same physical setting without the influence of Toronto, Fenelon Township would have a somewhat different type of land use.

The study has revealed a need for research if two particular problems are to be solved, one involving the pre-

historic landscape, and the other involving the present land use pattern.

(i) It was suggested in Chapter I that at one time during the retreat of the last ice sheet Lake Algonquin and the Schomberg ponds in Fenelon Township were connected to form one continuous lake. This is an idea not expressed previously. More research is needed in order to solve the problem satisfactorily.

(ii) The 1961 land use pattern is closely related to physical conditions. It is impossible to state, however, exactly to what extent human attitude rather than physical control accounts for the pattern of agricultural land use, because no map is available which indicates the land's agricultural suitability in sufficient detail. Before the problem can be solved a better map is essential. Fenelon Township, where a close relationship between agricultural land use and physical conditions is apparent, would be an excellent place to carry on research to produce such a map.

Another problem encountered in studying the agricultural land use has been the inadequacy of the statistics available (see Appendix II).

If economic conditions remain unchanged, one can expect a continuation of the trends characteristic of the last several years in Fenelon Township. As agricultural methods and crop yields improve, more land will be abandoned for cultivation. The agricultural land use pattern will make an even finer adjustment to physical conditions, and farm specialization will continue. In contrast, one can expect amazing modifications along the lakeshores so that eventually all land with lake frontage will be used for recreation.

In Fenelon Township glaciation has been the dominant factor determining the physical landscape and the land use pattern.

APPENDIX I

LAND USE RATINGS FOR THE SOILS IN FENELON TOWNSHIP

(From the soil report for Victoria County)

	F <u>al</u> Bu.	Fall_Wheat Bu./ac.		<u>Dats</u> Bu./ac.		<u>Alfalfa</u> Tons/ac.		Improved Pasture (l=one 1000 lb. steer/ac.		<u>Ensilage</u> <u>Corn</u> Tons/ac.	
	ND	TD	ND	TD	ND	TD	ND	TD	ND	TD	
Good Cropland											
Waupoos clay loam	40		50		3		1		12		
Bondhead loam	40	B -	50		3		3/4		12		
Otonabee loam	35		50		3	-	3/4		11		
Smithfield clay loam	25	60	30	60	1/2	21/2	1		9	14	
Solmesville clay loam											
<u>Good to Fair Cropland</u>											
Dundonald sandy loam	35		40		2		1/2		11		
Bondhead sandy loam	35		40	-	2		1/2		11		
Otonabee sandy loam	30		35		2		1/2		10	-	
Emily loam	20	40	30	50	1	3	1/2		8	12	
Guerin loam	20	40	30	50	1	3	1/2		8	12	
Ameliasburg clay loam	20		40	-	2		1/2		8		

	ND	TD	ND	TD	ND	TD	ND	TD	ND	TD	
				terre analy titled state him	all access sociel course within insper sailor course	and and one the are	a dalahir anyak fililik yanga timin angat sa		the same fifth man little man	NUM card INNE-state of	
Fair Cropland											
Brighton Sandy loam	20		30		1						
Otonabee loam - shallow phase	20		30	-	11/2						
Simcoe clay		40	20	60		21/2	1/2	1	12	-	
Lindsay clay loam		40	20	60		21/2	1/2	1	12		
Poor Cropland											
Emily loam - shallow phase			20	-	11/2		1/2			-	
Lyons loam			20		11/2		1/2				
Dummer loam							1/2	-		-	
Granby sandy loam			20				1/8				
Mallard sandy loam			20		-	-	1/8				
Pontypool sandy loam							1/8				
Kenebeek sandy loam							1/8	-			
Non-Agricultural Lang											
Bottom land							1				
Gramahe gravel							1/16				
Farmington loam						-	1/16				
Muck											
Marsh		-			-	-				-	

ND -- normal drainage TD -- tile drainage

APPENDIX II

Following are statistics for Fenelon Township obtained from two different sources.

Figures from the Dominion Bureau of Statistics --1956

Area of farm land	60,094A.
Unimproved land	29,333A.
Woodland	9,622A.
Other	19,711A.
Improved land	30,761A.
Under crops	14,933A.
Pasture	14,325A.

Figures from the Ontario Dep't. of Lands and Forests --1961

Total land area	55,134A.
Productive land	11,098A.
Non-productive land	3,914A.
Developed agricultural land Grass and meadow	25,466A. 9,474A.
Wood <mark>e</mark> d pastu <mark>re</mark>	3,468A.
Other areas	1,714A.

It is very difficult to correlate these two sets of figures; one might suspect that each had been compiled for a different area. There is a need for one set of comprehensive land use statistics common to various government departments.

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CANADA DEPARTMENT OF MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA





CENOZOIC

××××× ×××× ×××××

Precambrian; mainly granite

Abandoned shoreline (Upper Lake Algonquin)	
Boulder strewn terrace	
Glacial striæ	·e
Gravel pit	O G.

Geology by H. A. Lee, 1949

Approximate magnetic declination, 9°30' West

PRELIMINARY MAP 50-36A

PLEISTOCENE GEOLOGY OF

FENELON TOWNSHIP

VICTORIA COUNTY

ONTARIO Scale 1 Inch to 1 Mile = $\frac{1}{63,360}$

0

MAP I

Soil Survey by the Department of Soils, Ontario Agricultural College, Guelph, and the Experimental Farms Service, Dominion Department of Agriculture, Ottawa.

Bay

IV L

DSI

South



Good.

SOIL MAP OF FENELON TOWNSHIP



Scale: | inch = | mile

Compiled, drawn and published by the Experimental Farms Service, Ottawa, 1956, from base maps supplied by the Department of Mines and Technical Surveys, Ottawa.

MAP 2





400



Scale: linch = | mile