A Geographical Study of Mono Township Karen Louise Edwards

A THESIS

Submitted to the Department of Geography
in partial fulfillment of requirements
for the Degree
Bachelor of Arts

McMASTER UNIVERSITY
APRIL, 1964

ACKNOWLEDGEMENTS

I would like to express my appreciation to the Geography Department of McMaster University for their consideration and encouragement to me throughout my work on this thesis. I would like to thank, especially, Dr. A. F. Burghardt for his patience and help in correcting the text. In addition I would like to thank my family for their indulgence and help to me not only throughout this thesis, but throughout my years at McMaster. I would also like to thank the residents of Mono Township and of Orange-ville who so willingly gave their co-operation during the research for this thesis. And, last, but not least, I would like to thank my typist, Mrs. Arnold Patterson, for her patience with my spelling and writing.

Karen Louise Edwards.



The Nottawasaga and The Escarpment

Introduction

Chapter 1

Physical Geography

Bedrock Geology
Glacial History
Physiography
Climate
Slope
Drainage
Soils
Vegetation

Chapter 2

History of Settlement

Early Settlement Agricultural Developments

Chapter 3

Regional Agricultural Land Use

Chapter 4

Rural Non-Agricultural Land Use

Industrial Recreation Cultural Residential

Chapter 5

Urban Land Use Orangeville

Chapter 6

Summary and Conclusions

Bibliography

List of Maps

Мар		Page
1.	Location Map - Southern Ontario	1(a)
2.	Location Map - Mono Township	1(b)
3.	Bedrock Geology	6(a)
4.	Physiography. X	Back cover
5.	Slope	ıı .
6.	Drainage	18(a)
7.	Soils	Back cover
8.	Land Patents	32 (a)
9.	Historical Landmarks	39(a)
10.	Geographic Regions	45(a)
/ 11.	Non-Agricultural Land	45(b)
12.	Land Use - Mono Township	46 (b)
13.	Non-Resident Land Ownership	49(a)
14.	Assessed Land Values	59 (a)
15.	Land Use - Orangeville	Back cover

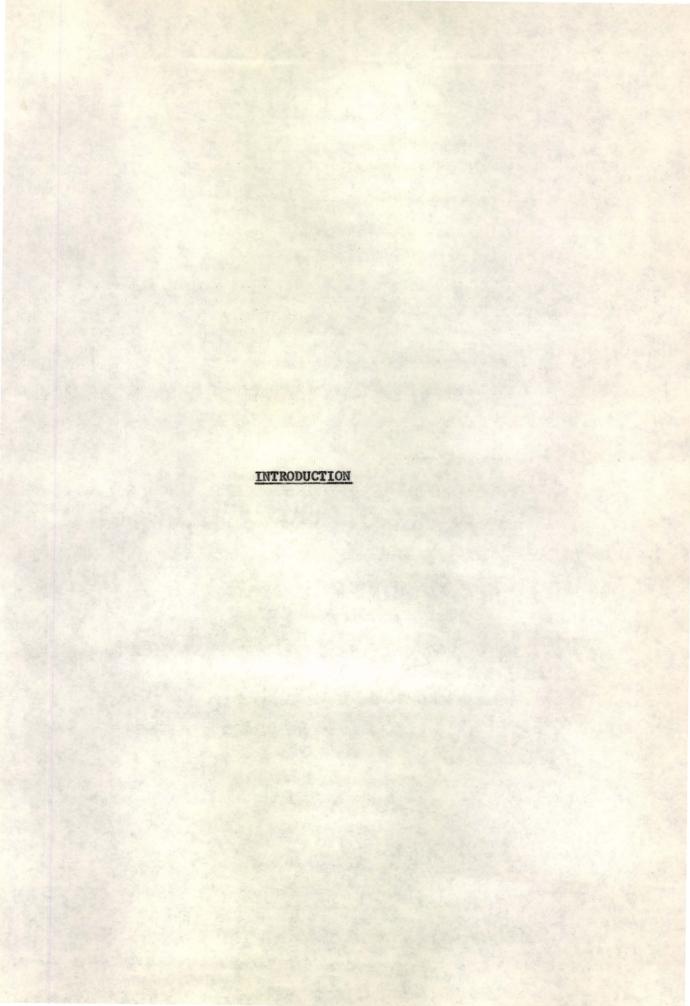
List of Tables

Table		Page
1.	Climatic Statistics for Guelph and Camp Borden	15(a)
2.	Snowfall Statistics ·····	16(a)
3.	Temperature Statistics	"(b)
4.	Precipitation Statistics	"(c)
5.	Profile of Gradients - Nottawasaga River	19 (a)
6.	Acreage of Soil Catenas - Mono Township	21(a)
7.	Woodlot Reproduction Conditions	27(a)
8.	Density of Woodlots	11
9.	Natural Woodlot Conditions	27(b)
10.	Conditions on Present Area of Plantations	н
11.	Types of Forest Cover	27(c)
12.	Use and Conditions of Woodlots	11
13.	Population of Mono Township	31(a)
14.	Settlement Patterns	32(b)
15.	Historical Agricultural Land Use	42 (a)
16.	Historical Crop Acreages	"(b)
17.	Historical Records of Farm Animals	"(c)

List of Figures

Figure		Page
A.	The Nottawasaga and the Escarpment	
1.	Queenston Shale	6(b)
2.	Lockport Dolomite	.11
3.	Limestone fence	7(a)
4.	Western Spillway	н
5.	Interlobate kames	10(a)
6.	Kame structure	11
7.	Meltwater Sands	10(b)
8.	Singhampton Moraine	n
9.	Violet Hill Spillway	12(a)
10.	Southern Till Moraine	11
11.	Escarpment and Spillway Terrace	13(a)
12.	Spillway Gravels	n
13.	The Nottawasaga and The Niagara Escarpment	14(a)
14.	The Hockley Valley Spillway	п.
15.	Sugar Maple-Beech forest	26(a)
16.	Reforestation	"
17.	Reforestation	27(d)
18.	Old mill site	"
19.	Log cabin	31 (b)
20.	Stone house	11
21.	St. John's Church	34(a)
22.	Master Feeds - Orangeville	"
23.	Old Orange Hall	38(a)
24.	Extensive grazing	"
25.	Western Spillway	46(a)

Figure		Page
26.	Muck	46(a)
27.	Shorthorns	47(a)
28.	Mixed farming	
29.	Water Cress farm	48(a)
30.	Trout farm	11
31.	Non-resident development	49 (b)
32.	Remodelled log cabin	11
33.	Limestone field	49(c)
34.	Spillway Plateau	
35.	Dissected Hockley Valley Spillway	51(a)
36.	Cottage development	11
37.	Village of Hockley	52(a)
38.	Village of Hockley	11
39.	Beef cattle	53(a)
40.	Testing for gravel	11
41.	Ski Resort	57(a)
42.	Skiing in the Hockley Valley	11
43.	Skiing in the Hockley Valley	57(b)
44.	Orangeville, - Central Business District	
45.	Orangeville, - Central Business District	62(a)
46.	First Class home	н
47.	Second Class housing	64(a)
48.	Second Class home	11
49.	Third Class housing	64(b)
50.	Industry in Orangeville	11
51.	Industry in Orangeville	65(a)
B.	The Hockley Valley	



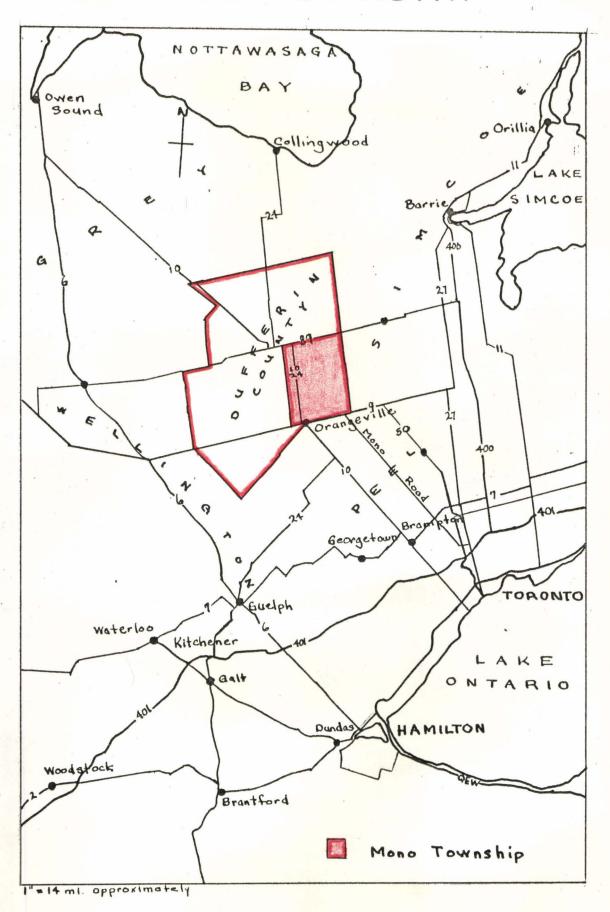
Introduction

Dufferin County is situated in the northern half of the peninsula of Southern Ontario and is surrounded by the Counties of Simcoe, Grey, Wellington, and Peel. Mono Township, one of six townships in the County, is located in the south-east corner of the County. (see map 1) The adjoining Townships are Mulmur to the north and Amaranth to the west. The others in the County are East Luther, Melancthon, and East Garafraxa. To the east, Mono is bordered by Adjala Township in Simcoe County, to the south by Caledon Township in Peel County. East of Caledon and south of Adjala is Albion Township which just touches Mono along Highway 9 between Concessions Seven and Eight.

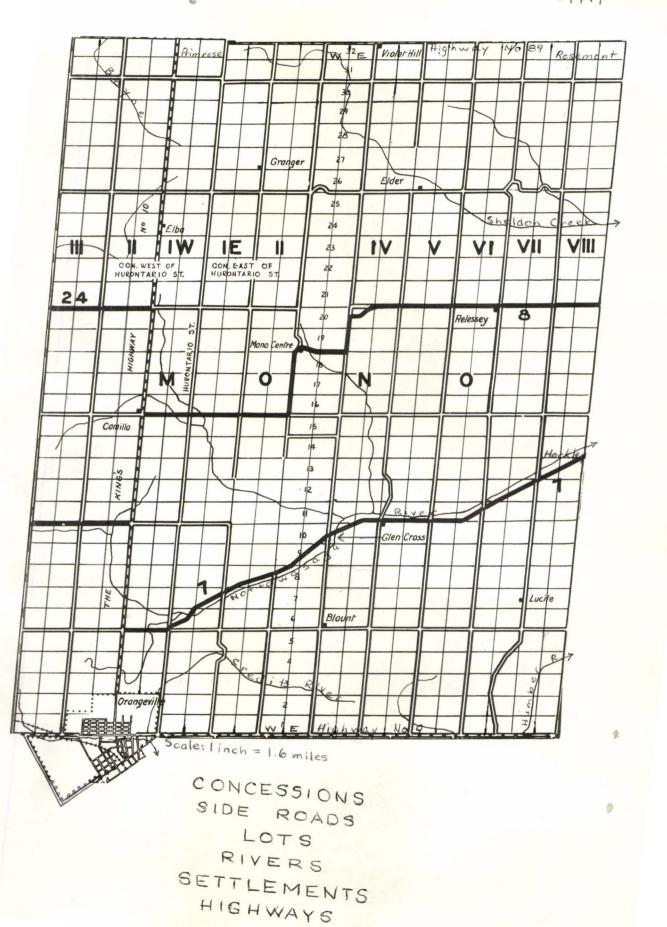
The Township was laid out as of the survey of 1823, in lots and concessions. (see map 2) The concessions were numbered both east and west of the Centre Line, a road also known as Hurontario Street. Thus, there are eight concession lines east of the Centre Line and three concessions west of the Centre Line. There are thirty-two two hundred acre lots between concessions, and each lot is divided into east and west one hundred acre lots. After every five lots there is a side road which runs from east to west across the Township. These are numbered according to the lot which they follow. The side roads, then, are numbered by fives from 5 to 30. There are two additional lots above number 30 Side Road.

Highway 10, which links Port Credit to Owen Sound, enters the Town-ship through Orangeville and follows the survey line of the first line west of Hurontario Street. This Highway also forms part of Highway 24 which joins the Town of Simcoe near Lake Erie to Collingwood on Nottawasaga Bay. Highway 89 forms the northern boundary of the Township and runs east north-east from Mount Forest to Highway 400 near Cookstown. Highway 9 forms the southern boundary of the Township, running from the junction of Highway 50, about 6 miles

MONO TOWNSHIP



LOCATION MAP-MONO TOWNSHIP



east of Mono Mills, through Orangeville and westward to Arthur, about 23 miles west of Orangeville. In addition to Highways 10 and 24, 9 and 89, there is one other paved road in the Township. This is the Dufferin County Road 7, also known as the Hockley Valley Road. This road begins at 5 Side Road east of Highway 10 and angles north-eastward towards 10 Side Road. It leaves the Township at Hockley and is only paved within the Township. The eastern and western Township boundaries are unpaved concession lines, the 8th line east of Hurontario Street (E.H.S.) and the 3rd line west of Hurontario Street (W.H.S.). The Village of Camilla on Highway 10 and 15 Side Road is exactly 44° North Latitude and the 80° Parallel passes exactly through the Village of Rosemont at the north-east corner of the Township.

Orangeville, the County Seat and an incorporated town of about 5000 people, straddles the County boundary at the southern end of Mono Township. Although the Town is now a separate municipality, its occupied area was once part of the Townships of Mono and East Garafraxa in Dufferin County and of Caledon Township in Peel County. Orangeville is approximately 65 road miles north of Hamilton and 45 road miles north-west of the intersection of Highway 401 and Yonge Street in Toronto. Orangeville is the largest town in the Township and in the County as well. The next largest town in the County is Shelburne with a population of approximately 1300. Within Mono Township there are no other significantly large centres of urban development. The cross roads settlements of Camilla, Elba, Glen Cross, Granger, Hockley, Mono Centre, Mono Mills, Primrose, Rosemont, and Sheldon, contain only a few houses each.

The physiography of the Township is rather complex. There is a difference in elevation of 850 feet. The highest elevation, 1700 feet, is found above the escarpment on top of the Singhampton Moraine just north of Mono Centre. The lowest point, 850 feet, is found just north of the Village

of Hockley where the Nottawasaga River leaves the Township. The Niagara Escarpment runs north and south through the Township although in most places it is mantled by glacial till and is not always visible. Glacial deposits form the most significant base for the physical conditions found in the Township. Over half of the Township's area of 105 square miles is covered by rugged morainic deposits. Spillway channels occupy most of the remaining area. In some places these channels are flat and swampy; at other times they are flat sandy terraces and sometimes too, where the water flowed high on the sides of the moraines, dissection has been severe and the land is rugged. Because of the variable nature of the topography in the Township, there are only two concessions east of Highway 10 which are completely passable from Highway 9 to Highway 89. Most of the flat land is confined to the area of the Township west of the Escarpment and is composed of small areas of till plain and spill-way channels.

The soils of the Township vary somewhat with the land east and west of the Escarpment line. To the west there is some clay in the soils making them heavier and sometimes poorly drained. To the east of the Escarpment and on the morainic areas there are usually sandy and well drained soils over a gravelly base. In the hillier sections much of the land appears as rough unimproved pasture consisting of poor grass, weeds, and mullens. This is a result of the loss of top soil on slopes which were cultivated early in the Township's history and were poorly used. Many of these hills reveal large sandy blowouts or clay gullies as a result of wind erosion on top of poor cultivation practices on land which should never have been ploughed.

The types of farms in the township vary greatly. In some areas there are large well kept beef farms while in some areas the farms are small and poorly kept. There is no set rule for the location of the best farms.

Much of the poor sandy land can be quite productive for beef cattle if kept

in permanent grass. However, the cut-over, hilly land on either side of the Hockley Valley has generally been abandoned as farm land to the city dweller seeking a country home. Several large farms on this hilly land have also been taken over as recreation areas for ski resorts. The enlargement of farm holdings by the more prosperous farmer, the reforestation of unproductive, hilly land, and the purchase of farms by non residents or "gentlemen farmers" are all phenomena of the present land use picture.

This thesis in intended to be a thorough look at aspects of Mono Township which are pertinent to a regional geographical study. In this kind of a study it is necessary to examine the many different facets of both the physical and cultural scene. It is intended that this study be of interest and value, not only to those academically concerned with understanding the various conditions and problems in such an area, but also to laymen and interested residents of the Township. It is realized that the author cannot produce a study which will completely satisfy all those who read it, but is is hoped that the information and deductions set down are as accurate as it is possible to be.

The study will begin with a description of the present physical features of the Township, including such things as soil, climate and vegetation. An attempt has been made to give the reader an idea of the development of the physical landscape through brief descriptions of the geological and glacial history of the area, because it is, more than anything else, these two physical conditions, which are responsible for the unique beauty, character, and ultimately, the cultural patterns of the Township.

A short look at the geographical aspects of the historical development is followed by a description of the present human activities in the area.

This latter section tries to relate the physical and human aspects as much as possible.

The text is not, however, devoted to description alone. Attempts will be made to co-ordinate relevant pieces of information in order to produce a comprehensive picture of all the important geographical phenomena in the Township. The final chapter includes a short summary of the thesis, and an attempt to draw conclusions about the nature of the various geographical aspects of the Township.

It is hoped, too, that a study of an area such as this may make a small contribution to a better understanding and love of our land by its people.

CHAPTER 1

PHYSICAL GEOGRAPHY

Bedrock Geology

The Niagara Escarpment is the most significant feature of the bedrock geology of the Township. The upper edge of the Escarpment runs north and south in the northern two thirds of the Township and east and west in the southern one third. It is evident from the configuration of the rock outlines on the map (see map 3) that this particular part of the Escarpment was cut by a prominent preglacial river, which flowed eastward. The Hockley Valley is similar to, but smaller than the preglacial Dundas Valley. This valley, and others along the Escarpment edge similar to it, such as the Dundas Valley or Devil's Glen at Singhampton, are the only deep preglacial valleys in Southern Ontario. It is not surprising then that one of the major spill-ways should have occupied part of this valley during the Pleistocene.

The Niagara Escarpment represents the contact between rocks of
Late Ordovician and lower Middle Silurian time. Early Silurian time is represented by a disconformity between these two extant rock ages. The Ordovician rocks in the Township are younger than the Silurian and they lie in the east of the Township below the Silurian rocks. In the extreme east of the Township the bedrock is the Meaford-Dundas, Blue Mountain Formation consisting of medium and dark grey shales. There does not appear to be any Meaford Formation exposed in the Township. Westward from the Meaford Formation to the base of the Silurian rocks are the red shales of the Queenston Formation. This Formation is visible in several areas of the Township and usually appears as soft badly eroded red clay. (see fig. 1)

The rocks forming the face and cap of the Niagara Escarpment are mid Silurian and two formations are visible in the Township. The face of the Escarpment is formed by the Medina Formation of white and grey sandstones, grey shales and buff dolomite. The cap rock on the Escarpment face is the Lockport Formation of buff and grey dolomite. This bedrock continues to the western side of the Township, and where exposed it presents an abrupt, almost

BEDROCK GEOLOGY

Lockport Formation-buff and grey dolomite

Medina Formation-white, grey sandstone, grey shale, buff dolomite

Queenston Formation - redshale

Blue Mountain Formation - mediam-dark grey shale

ORANGEVILLE

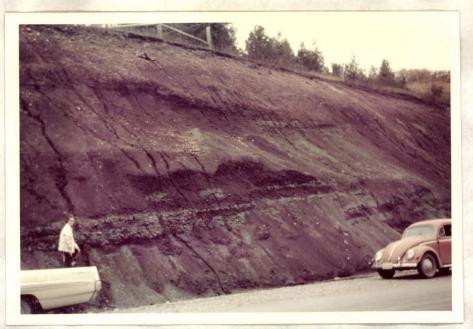


Fig. 1 Exposure of Queenston Shale along the Hockley Road. The thin vegetation cover was stripped away when the road was widened and the

rock is now eroding very quickly.

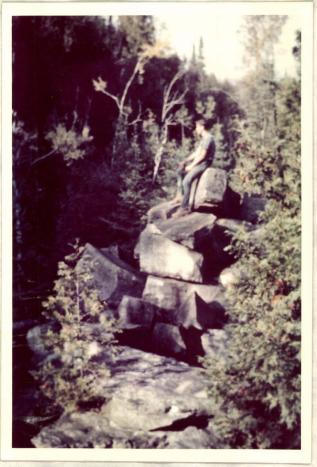


Fig. 2 Rocks of the dolomite cap which were once quarried in the Township. Hockley Road and Centre Line.

Port dolomite occur a few hundred feet from the main face of the Escarpment. In many other places where the dolomite is not completely covered by till deposits, large verticle fissures which resemble caves can be found by close inspection. Although the bedrock formations are interesting in their configuration and structure, their exposures are small and scattered. Because the entire Township is mantled by glacial material of one kind or another, the topography, soil, and vegetation are almost entirely influenced by these deposits. Nevertheless, the Niagara Escarpment is the largest and most prominent exposure of sedimentary bedrock in Southern Ontario, and its presence in the Township of Mono has a significant bearing on physical and cultural patterns. The effects of these influences will be brought out in relative parts of this thesis.

The proximity of bedrock on the top of the Escarpment to the surface of the till is in many places evidenced by the large number of limestone boulders and stones in some fields. In many cases these boulders were cleared to form the first fences around the newly settled land, and many remain today. (see fig. 3) The proximity of this bedrock in some cases accounts for the stoniness of the surface materials, but in other areas the stoniness is more easily accounted for by the nature of the glacial material. Below the Escarpment, as was noted earlier, the Queenston shale is exposed in some areas. These exposures are usually small and are seen only where the top soil of some hills has been removed by erosion, by cultivation or excavation for roads. Where these red clay beds are exposed, however, erosion is strong and dangerous, and vegetation is almost entirely lacking.



Fig. 3 Stone fence in the southern part of the Township. Cedar rails were added when the land was timbered.



Fig. 4 The extremely flat, fertile, spillway just east of Highway 10.

Glacial History

The most recent geological history of Southern Ontario belongs to the period of Pleistocene glaciation. This Ice Age may be divided into four distinct periods of the ice cover, namely the Nebraskan, Kansan, Illinoisn, and Wisconsin. The Wisconsin being the most recent, has in most cases, obliterated the work of the earlier ice ages. Hence, the present land forms of Southern Ontario are largely a result of the movement of the Wisconsin ice sheet.

The first land in Southern Ontario to be uncovered by the receding glacier some 20,000 years ago, was probably the Orangeville Moraine or another of the sandy moraines to the south-west of Orangeville, in the direction of London. This resulted from the partition of the solide ice lobe previously covering Ontario into three lobes which receded into their relative basins.

These lobes are generally known as the Lake Huron lobe, the Lake Ontario-Erie lobe, and the Lake Simcoe lobe. In some cases, however, it is apparent that the Georgian Bay section of the Lake Huron lobe acted separately from the main tongue in the Lake Huron basin.

It appears that during the early stages of recession, the Lake Simcoe lobe was the most stable, while the Huron lobe continually advanced and retreated to build and obliterate morainic deposits in western and southwestern Cotario. The sporadic frontal movements of the Simcoe lobe seem to have been confined to a much narrower belt, as will be seen in the discussion of the physiography of Mono Township. The area now occupied by the Township appears to have been very close to the front of the Lake Simcoe lobe and to have been largely influenced by this portion of the ice.

The influence of the Ontario lobe in this area, is difficult to determine, but it appears from the configuration of morainic deposits in Southern
Ontario that the area around Orangeville was one of transition between the

work of the Lake Huron ice lobe and the work of the Lake Ontario and Lake
Simcoe ise lobes. But, for this study, it will be assumed, as Chapman and
Putnam do, that most of the terrain is a result of the movement of the Simcoe
lobe and that the contact between the Ontario and Simcoe lobes was probably
somewhere along Highway 9 the south-east boundary of the Township.

As was noted before, the glacial history begins with the divisions of the last large ice mass of the Wisconsin glacier into separate lobes. A small area of the Orangeville Moraine is evident in the south-west corner of the Township and appears as humocky kame. (see map 4) Two rounded knobs to the east of Orangeville, the most westerly known locally as Purple Hill, and small sections north of Orangeville are probably remnants of the same moraine. This was probably some of the first land in Southern Ontario to be exposed as the glaciers waned.

The Georgian Bay section retreated from the north side of the Orangeville moraine and then readvanced to build a faint moraine between Grand

Valley and Shelburne. (see map 4) A small section of this morain intrudes
into Mono Township from the west and crosses Highway 10 just north of Elba.

Between the Orangeville moraine and the Grand Valley-Shelburne Moraine is an
area of till plain probably left by the retreating Georgian Bay lobe.

Most of the remaining landforms in the Township are part of the Port Huron morainic system which resulted from one of the longest halts in the life of the Wisconsin Glacier. The Georgian Bay and Lake Simcoe sections of the glacier advanced onto the higher points of land above the Escarpment south of Collingwood and left a single-stranded moraine. From Singhampton the glacial drainage ran in both directions toward Walkerton and Caledon. It gathered volume and made progressively larger spillways as it moved southward. Some of the widest parts of this spillway are evident to the west of the Singhampton Moraine in Mono Township. (see fig. 4) Next, the Sincoe

lobe again advanced to push the Gibraltar Moraine close to the Escarpment.

Melt waters flowed in front of the moraine up against the Escarpment. South of the Hockley Valley the Gibraltar Moraine has climbed the Escarpment face and has overridden the Singhampton moraine producing one large morainic area.

By this time too, the Ontario lobe and the Simcoe section had parted along eh Oak Ridges interlobate moraine in Albion and King Townships to the south and east. A small portion of this kame moraine juts into the southeast corner of Mono Township. The meltwater from both of these lobes then piled sand on many parts of the morainic crest. (see figs. 5, 6, 7)

The Banks Moraine, similar in formation to the Singhampton and Gibraltar moraines, but less well developed, trails to an end in several knobby sandy hills on the eastern edge of Mono Township. Again in front of the moraine is a sandy spillway area which merges with the east-west trending spillway in the Hockley Valley. The Banks Moraine loses its identity just north of the Village of Hockley as it merges with the sandy complex of the Oak Ridges Moraine.

Thus, in summary, it can be seen that most of the Township area was influenced by morainic deposition. Small areas of the till plain on the extreme western edge of the Township are the eastern edge of the larger Dundalk Plain, a gently undulating area termed the "roof" of peninsular Ontario. The remainder of the Township area, however, is made up of two components; these are moraines and spillways restiting from frontal movements of the Lake Simcoe ice lobe. Thus the Township shows a fairly regular north-south pattern of spillways and moraines, the spillways being to the west of each associated moraine. During most of the recessional period, the diagonal northeast-south-west water route of the Hockley Valley was also a large spillway. The spillways are usually deep sandy terraces. In some areas they are as yet poorly trained and swampy and in others they are deeply dissected, and as a result, ery rough and sandy. For example, much of the northeast-southwest spillway



Fig. 5 View of the humocky interlobate kames. Some of this land is pastured, the rest is unused, in bush or reforested. Soil is extremely thin and sandy.



Fig. 6 Jumbled kames of the interlobate moraine in the south-east corner of the Township. Some is sorted, some is not.



Fig. 7 Fine sand which was piled by melt waters on top of the kame. Height is approximately 30 feet.



Fig. 8 Rolling hills of the Singhampton Moraine. Most of the land is grazed. Some is planted pasture.

area on the physiographic map has a very steep slope category. The north-south spillways are often very level areas of good soil, but close to the river these flat terraces have been severely dissected and very hilly sandy areas are now the result.

Physiography

As was noted earlier, the physiographic map produced by L. J. Chapman and D. F. Putnam has been used as a base map for the physiography of Mono Township. However, because of its generalized nature, it has been necessary to make a number of slight revisions. These changes are based on personal observations of topographic features, soil types, and on the topographic maps of the area. The map in this thesis is more accurate in detail but it still uses the same physical categories used by Chapman and Putnam as it is not within the scope of this paper to do major research into the physiography.

Interlobate Moraines: The Orangeville moraine may be considered an interlobate moraine because it resulted from the separation of the three main ice lobes in Southern Ontario. The Town of Orangeville lies between two strands of this sandy kame moraine, and these strands unite south of the Township and project separately into the Township to the north and east of Orangeville as disjointed low knobs of kame. These strands fade out where they are crossed by the stronger Singhampton moraine, a later product of the Simcoe ice lobe. Although this was the first land to appear as the glaciers receded, it is not the highest. The elevation of these kame areas ranges from 1400 feet to 1500 feet in Mono Township. It is to be stressed that the soil materials contain more fine sand than the typical kames.

Another small portion of interlobate moraine, the extreme northwestern corner of the Oak Ridges moraine, occupies the extreme south-eastern corner of Mono Township. This is one of the best known moraines in Ontario and is the one that forms the height of land north of Lake Ontario. The small area of this moraine in Mono Township has an average elevation of approximately 1100 feet and is generally composed of boulder clay. It also contains some regularly bedded gravels and some distorted kames of sand and gravel. The crest is often covered with coarse outwash and sand deposits. Fine sand and even silt appear in some of the depressions.

Horseshoe moraines: The Horseshoe Moraines of the Port Huron morainic system are well developed in Mono Township. The most westerly is the Singhampton moraine, a single strand which sits on the till plain on the top of the Escarpment. (see fig. 8) It is a single crested ridge and kames appear at frequent intervals. This moraine is well developed in Mono and it stands out distinctly to the east of Highway 10 above the flat spillway channel. It is broken only by the large east-west spillway channel which occupied the Hockley Valley; it continues south of the valley overridden by the next moraine to the east. The Gibraltar moraine runs north and south parallel to the Singhampton moraine and to the east of it. North of the Hockley Valley the Gibraltar moraine is separated from the Singhampton moraine by a fairly wide spillway channel. (see fig. 9) This spillway is intimately associated with the main terraces of sand and gravel on the face of the Escarpment. South of the Hockley Valley the Gibraltar and Singhampton Moraines are indistinct from one another. (see fig. 10) The Banks moraine, the third north-south member of the horseshoe system, is less continuous than the other two but nevertheless, it is fairly prominent along the north-eastern edge of he Township. This area is particularly sandy and is closely associated with utwash. However, it is notably better for agricultural use than most of the ther morainic areas. This will be discussed further in the chapter on gricultural land use.



Fig. 9 The Violet Hill Spillway looking North. Note the Gibraltar Moraine to the right and the spillway to the left. A large cedar swamp occupies some of the spillway.



Fig. 10 Rough rolling land of the till moraine area south of the Hockley Valley. The kettle-like depression in the centre contains a small lake. The field in the foreground is being prepared for reforestation.

Spillways: The glacial channels in Mono Township are very closely associated with the morainic deposits. Above the Escarpment the spillway associated with the Singhampton moraine winds across the till plain base and in the southern part of the Township it is unusually wide, where it merges with the Hockley Valley spillway. It is pronounced on the eastern outskirts of Orangeville where it provides level ground for the fair grounds and race track and also in the swampy section that holds the headwaters of the Credit River. The meltwater channel associated with the Gibraltar moraine had as its west bank the edge of the Escarpment. Here these streams left deep sandy terraces which are prominent on several of the sideroads in the Township. (see fig. 11) Another sandy spillway is associated with the Banks moraine and its remains are shown in the sandy areas that carry several small branches of the Sheldon Creek. Each of these spillways has different general elevations in their northern parts showing that they were associated with different moraines. The level of the most westerly channel ranges from 1575 feet above the Escarpment along Highway 10 to 1350 feet just east of Orangeville. The centre channel banked on one side by the Escarpment has a general level of 1400 feet throughout its length. The most easterly channel, below the Escarpment ranges from 1100 feet to 1050 feet. All of these north-south channels eventually meet the east-north-east trending spillway in the Hockley Valley. At the highest water stages, the glacial drainage was directed westward and southward via the large spillway just east of Orangeville. As the Simcoe lobe retreated and built progressively more easterly moraines, drainage presumably followed the lower and more easterly channels either south or north-east along the edges of the interlobate morine. There is a pronounced spillway channel between the Oak Ridges moraine nd the Gibraltar Moraine south of the Hockley Valley, which probably was a putherly outlet at the time of the 1400 foot spillway level.



Fig. 11 View of one of these flat terraces against the Escarpment (cliff face hidden by trees). The spillway in this area is almost completely planted in grain.



Fig. 12 A cross-section of the 1400 foot spill-way, showing the water-laid gravels. This has recently been quarried for gravel.

This channel has, however, been severely disected in its lower reaches close to the Hockley Valley. The 1400 foot level was probably a long standing one, because several large flat areas of this elevation have been noted in the study. (see fig. 12)

Till Plain: The Dundalk till plain occupies almost 1000 square miles of gently undulating land in the counties of Dufferin, Grey and Wellington. This was probably the base of the area of Mono Township before the glacial halts produced the morainic ridges. Hence, there are small areas of till in the extreme west-central area of the Township. In several places these have been overridden by moraines and cut through by spillways.

Escarpment: The Niagara Escarpment, although not a glacial phenomenon, is nevertheless one of the most important physiographic features of the Township. As was noted earlier the Escarpment runs generally north-south in the northern two thirds of the Township and roughly east-west in the southern third. In most of the southern part it is buried almost completely by glacial drift. In the north-south section the same is true but there are several places where the vertical cliffs of Sulurian dolomite and the gentler slopes of red Queenston shale are very prominent. There are, however, long stretches which are completely buried by drift. In several places in the Township there are some small outliers of the Escarpment, the most picturesque being just north-east of Mono Centre. Where drainage cuts across the brow of the Escarpment there are usually steep gradients and notable waterfalls. (see fig. 13)

Climate

There are no long range records of climatic data in Dufferin County.

Data for 1960 only was obtained for Orangeville but it was not significant



Fig. 13 The Nottawasaga River flowing over the Niagara Escarpment.



Fig. 14 View north-westward from the 1400 foot spillway level on the south side of the Hockley Valley.

enough to be used as a base for climatic description. As a result, long range data from near-by stations in neighbouring counties will also be used in the description of the climate. (see table 1)

Southern Ontario has a Humid Microthermal Climate. All except a small area bounded by Sarnia, Windsor and the North Shore of Lake Erie, is in Köppen's Dfb climate, defined as humid continental with cool summers, and no dry season. The climate of this small area in the extreme south west is a humid continental warm summer. In such a climate the warmest month has a mean temperature greater than 50°F, and the temperature of the coldest month is lower than 26.6°F. (Köppen's classification) At least four months have a mean temperature above 50°F, and precipitation is sufficient in all months. The humid continental warm summer type climate is distinguished by the mean temperature of it's hottest month being over 71.6°F. In the cool summer type, the warmest mean monthly temperature is below 71.6°F. Climatic statistics from Guelph, and Camp Borden will be used as examples of the climatic data in the region close to Mono Township.

According to the data the winters in the area are cold with a mean temperature of 19°F. to 21°F. (the average temperature from December to February) and the summers are warm with a mean temperature of 66°F. A comparison with Brantford in the hardwood region of Southern Ontario will show a difference in winter temperatures of approximately 3 F. degrees. Hence, the winters in this area tend to be a little more severe than farther south in Ontario.

The mean annual minimum temperature ranges from -20°F. to -30°F. and the extreme lowest recorded temperature is -40°F. In comparison,

Toronto has a mean minimum temperature ranging from -10°F. and -20°F. and an extreme low of -20 F. The area has about 60 mean annual days with measurable snowfall, while Toronto has about 50 days. The mean annual snowfall is

¹Climatic Atlas of Canada 1957

CLIMATIC STATISTICS FOR GUELPH AND CAMP BORDEN

	Temp. in degrees F.		Pptn. in In.	
	Guelph	Camp Borden	Guelph	Camp Borden
December	24	22	2.14	3.49
January	20	18	2.39	3.74
February	18	16	1.74	2.83
Winter	21	19	6.27	10.06
March	29	27	1.79	2.71
April	42	39	2.38	2.66
May	54	52	2.72	3.09
Spring	42	39	6.89	8.46
June	63	62	2.84	3.35
July	68	67	3.07	2.90
August	66	65	2.86	2.78
Summer	66	65	8.77	9.03
September	59	58	2.50	3.20
October	48	46	2.39	3.00
November	36	34	2.44	3.03
Fall	48	46	7.33	9.23
Annua1	44	42	(29.26)	(36.78)
May 1 Oct. 1	62	61	13.99	15.32

TABLE 1

about 70 inches while that of Toronto is from 50 inches to 60 inches and Hamilton from 40 inches to 50 inches. (see table 2)

The information on snow cover is of significance to one of the cultural aspects of the Township area, namely winter recreation because of the presence of several ski resorts in Hockley Valley. The influence of these relative statistics will be discussed in a later chapter under recreational land use.

The area, as was noted is in the cool summer type, climate which has the temperature of its warmest month over 50°F, but under 71.6°F. The mean summer temperature is about 66°F, while that of Toronto is 70°F. The mean annual frost free period is between 126 and 133 days and the mean annual length of growing season is between 180 and 200 days. (see table 3)

The mean date of the first frost is almost two weeks earlier in the Mono area than it is at Toronto. The mean date of the last frost varies from 1 to 15 days later than the lake shore area. Hence the length of the frost free period is decreased in the inland position and as a result, the growing season is reduced slightly.

In general, conditions are more severe in the inland area than they are close to the lake shores.

It can be seen from the above information that although Orangeville, for example is only 40 miles north of Toronto, the variation in climatic data is significant. The variability of the frost free period is at least 27 days and the difference in length of growing season is at least 20 days.

Precipitation includes both rain and snow with the latter recalculated to its rainfall equivalent in the ratio of ten inches of snow to one of rain. The average annual rainfall at Camp Borden is 27.68 and at Guelph 29.26 inches. Generally the precipitation is less in March and April than during the growing season. (see table 4) This has the advantage of permitting

SNOWFALL STATISTICS

	Orangeville Area - Mono Township	Toronto	Northern Ontario	Southern Ontario
Mean annual # days with snow cover 1 inch or more	120-140	80-120	North Bay 140-180	over 80
Mean annual max- imum depth of snow	20"-30"*	10"-20"	Owen Sound over 30"	Windsor under 10"
Mean date of last snow cover 1 inch or more	10		North Bay April 10- April 30	Windsor before March 21
Mean annual total snowfall	70"	50"-60"	North Bay 90"-100"	Hamilton 40"-50"

^{*} Collingwood and Barrie the same

TEMPERATURE STATISTICS

	Mono Town- ship	Toronto	Northern Ontario	Southern Ontario
Mean daily temp- erature - July	65°-70°	70°-75°		
Mean annual maximum temperature	90°-95°			
Extreme highest temperature	100°			
Mean date of first temperature of 32 F. in Fall	October 1 approx.	October 15	North Bay Septem- ber 1	Windsor* November 1
Mean date of last temperature of 32°F. in Spring	May 15 approx.	May 1-15	North Bay June 1-10 approx.	Windsor* May 1
Mean annual frost free period	126-133 days	Toronto- Hamilton 160-180	Sudbury 100-120 days	Windsor* 160-180 days
Mean annual length of growing season	180-200 days	200-220 days	North Bay 180 days	Windsor over 220 days

^{*}Humid Microthermal warm summer-(hottest month over 71.6°F.)

PRECIPITATION STATISTICS

				Mono Town- ship	Toronto	Northern Ontario
Mean Annu precipita				28"-30"	30"-32"	
	ual number surable pre	of days cipitation		140-160	140-160	
Mean annu precipita	nal growing	season		15"-17"	12"-15"	North Bay 12"-15"
	ty (in %) recipitatio	of growing		20-25	20-25	North Bay 20-25
	ity of mean			15-20	15-20	North Bay 0-15
Mean p	Spring Summer Fall Winter	on March-May June-August SeptNov. DecFeb.	s.	7"8" 8" -10" 8" -10" 6" - 8" 8" -10"		

^{*} Assuming the growing season to be that part of the year when the mean daily temperature is above 42°F.

the land to dry somewhat during the cultivating season and permitting easier work for the farmers than if the soil were wetter.

The mean annual total precipitation is from 28 inches to 30 inches while Toronto has from 30 inches to 32 inches. The annual growing season precipitation is from 15 inches to 17 inches while that of Toronto is from 12 inches to 15 inches. (see note at bottom of page) The precipitation is more than adequate for successful agriculture.

The precipitation availability and the length of the growing season have produced a climate well adaptable to agriculture. There is no pronounced dry season, precipitation is adequate and the maximum summer temperatures are moderate, as a result, drought is not a hazard. The functions of this climate on the agriculture of the area will be noted later.

Slope

It was noted from the beginning of the field work in the Township that there was a large amount of hilly land, especially in the eastern half of the Township. It was suggested that some representation of the steepness of the land be made in order to assess its relationship to the land uses. The preliminary map of the soils of the Township which was secured from Ontario Agricultural College, had each soil type classed separately as to topographic class or slope, and stoniness. These topographic classes were divided into two categories of smooth and irregular, both ranging from basin topography to very steeply sloping and hilly land. As a result of studying the distribution and nature of these classes in conjunction with topographic and physiographic controls as well as general knowledge of the Township, it was decided to combine the two main classes and then divide the whole class

Note The growing season of all of Canada is assumed to be the period from April 1 to August 31 inclusive. (from the Climatic Atlas of Canada 1957)

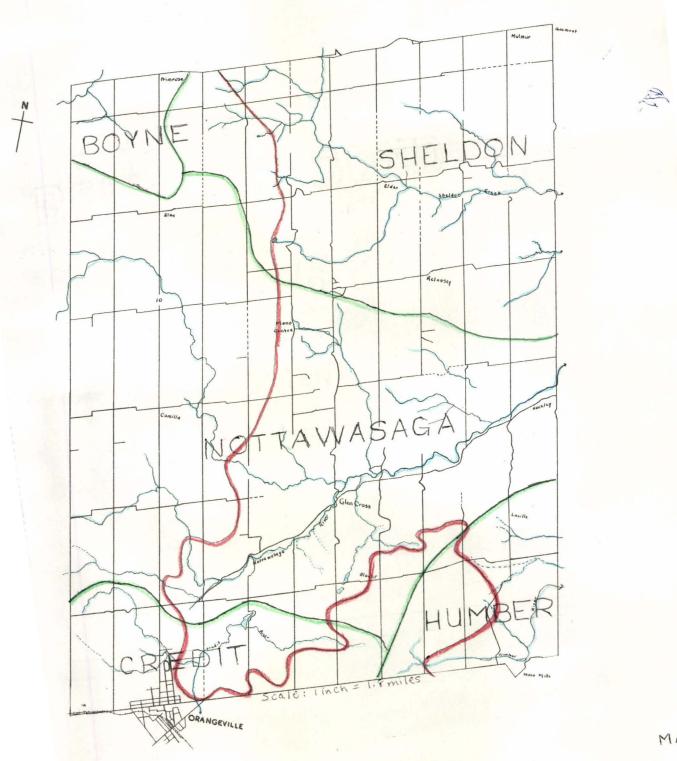
into three sections. As a result a map was produced which divides the land in the Township into (a) depression to very gently sloping topography, (b) gently sloping to moderately sloping land, and (c) steeply sloping to hilly land.

It is shown on the map that the roughest land is associated with the Singhampton, Gibraltar and Banks moraines north of the Hockley Valley, and with the other morainic areas south of the Hockley Valley. (see map 5) The land to the west above the dolomite is moderate to gently rolling; this is true even of the part of the Singhampton moraine, the intrusion of Grand Valley moraine, and the till and spillway areas. The spillways in their lower channels are usually gently sloping while some of the areas which were submerged during high melt water levels range from moderate to hilly because of later dissection of their sandy terraces. This is notable in the Hockley Valley, as was mentioned earlier, where the prominent 1400 foot level to the north and south of the Valley at its western end, becomes smaller and narrower farther east. Here severe dissection has produced steeply sloping land from the originally flat terraces. (see fig. 14)

Drainage

Mono Township is unusual in that it holds the headwaters of three of the major rivers of Sounthern Ontario. (see map 6) Two of these rivers flow southward to Lake Ontario and one flows east and north into Georgian Bay. Two of the small branch creeks which feed the Credit river begin in the south-west corner of the Township. One branch flows eastward out of the sandy kames and another flows westward from the centre of the moraine south of the Hockley Valley. To the east of this latter branch, across a narrow, swampy divide, are the headwaters of a small branch of the Humber River. This creek runs eastward along the southern boundary of the Township

DRAINAGE AREAS

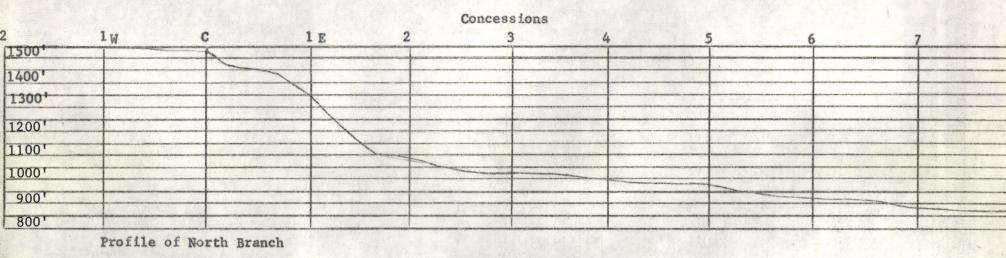


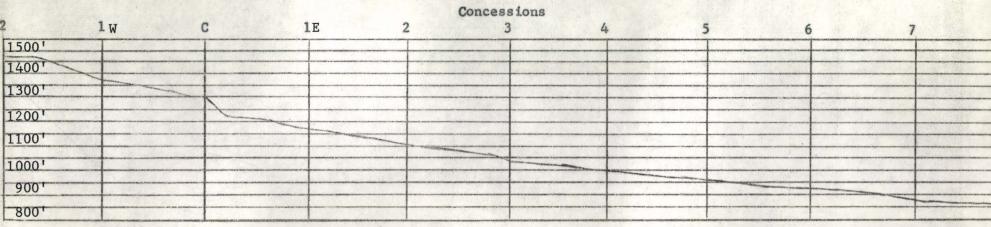
to Mono Mills and then swings north and east which descends the mantled Escarpment and into Adjala Township through a fairly steep valley. The divide between the Credit River flowing to Lake Ontario and the Nottawasaga River flowing to Georgian Bay is at one point as narrow as a third of a mile. The Nottawasaga has two main branches which begin above the Escarpment on the till plain and flow eastward across the edge of the dolomite. The most northerly branch which joins the southerly one at Glen Cross has a gradient of 325 feet in one mile as it falls over the Escarpment. (see table 5) The southern branch does not have such a steep gradient because the Escarpment is buried by till and the descent is modified greatly. North of 25 Sideroad and east of Highway 10 the Township is drained by the headwaters of Sheldon Creek which flow eastward and join the Nottawasaga about five miles east of the Township line in Adjala Township. Sheldon Creek begins in two small streams above the Escarpment which flow eastward across the wide spillway channel between the Singhampton and Gibraltar moraines. It becomes one creek just west of the Gibraltar moraine and crosses the moraine at a gradient of a little over 100 feet per mile. In the north-west corner of the Township west of Highway 10 there is a small creek draining in a north-westerly direction. This creek drains a swampy section of the most westerly spillway into the headwaters of the Boyne River which eventually joins the Nottawasaga a few miles east of Alliston. Except for this small creek, the Boyne River is entirely out of Mono Township.

Soils

Unfortunately, the newest map of the soils of Dufferin County is yet unpublished. As a result the soils map for this was obtained through the kind permission of the head of the Soils Department at Ontario Agricultural College. The author was given access to the preliminary map and to

PROFILE OF GRADIENT NOTTAWASAGA RIVER





Profile of South Branch - close to Hockley Valley Road

the field notes of the surveyor. Hence, although the soils report for the County has not been written it was possible to obtain most of the necessary information. The soil survey was conducted in 1958 and checked in 1961.

As has been noted earlier, the physiography of the Township is very complex. As a result, the soils follow much the same pattern. This has been substantiated by interviews with several successful farmers who attest to the unusual complexity of the soil pattern in the Township. Most of the soils in the Township require some improvement, such as fertilizers, drains, irrigation, practices to reduce erosion, or stone removal. Of these the first and last two are the most general. Of the 67,000 acres in the Township about 61,000 acres are occupied but only 40,000 are classed as improved. Thus about two-thirds of the land area is classed as improved land.

In general the soils in the Township have developed directly from the glacial drift deposits. (see map 7) It is difficult to assess the contribution of the bedrock to the composition of the soil although in many places through the Township the stoniness of the soil is determined by the presence of the Escarpment, close to the surface. The soils have been formed by the action of a moist cool temperate climate and a covering of mixed forest vegetation. As a result, podzolization has been the main soil forming process. Most of the soils belong to the Grey-Brown Podzolic group though some do differ particularly because of change in drainage.

Because of the differences in the glacial deposits, parent materials differ too. These differences in the deposits greatly influence the texture, relief and drainage of the soils. Most of the Township is under the influence of one or another parts of the Port Huron morainic system, whether this be moraine or spillway. These moraines are mainly very hilly, stony kame moraine made up largely of sand and gravel materials, and are very complex. Often they contain clay till, coarse stony, sandy loam till,

and they are often covered by two or three feet of silt or fine sandy loam which occurs in association with sand and gravel. These surficial sand deposits were probably the results of high melt waters which sometimes topped the moraines. There are various spillway valleys which are mainly gravel deposits covered often by three to four feet of fine sand.

There are some small patches of lacustrine material which represent areas of local ponding of meltwaters, but these are very small and occur only in low ground between hills. They are all silt loams with imperfect drainage.

Swamps occur in low lying areas where the water has been impounded and occupy only 600 acres altogether. In such places organic matter has accumulated. There are some scattered areas where soils are resting on surficial deposits of silt which are probably wind blown and comparable to the larger "loess" deposits associated with glaciation in the United States or Europe. They are classified as "loess or alluvium over loam till". Soils classified as such occupy 5040 acres and are either silt loams or fine sandy loams. 75% of these soils are well drained and the other 25% are poorly drained.

Of the 39 total soil catenas or catena combinations in the Township, only fourteen will be described in detail because only they occupy more than 1000 acres each. The remaining soil types occupy only small areas ranging in acreage from 40 to 480 acres. (see table 6)

Burford Loam: There are 2,200 acres of this soil in the Township.

It is a soil which has developed on outwash and is composed of loam material overlying gravel. It occurs in small deposits mainly in spillway areas.

There is a small area on the northeastern outskirts of Orangeville and a fairly extensive band along the Nottawasage River from the first line to the sixth line. Little of this land is used for agriculture. The area

ACREAGE OF SOIL CATENAS

IN MONO TOWNSHIP

SOIL TYPE	ACREAGE	SOIL TYPE	ACREAGE
Beverly Silt Loam	80	Gilford Loam	120
Bennington Silt Loam	760	Harriston Loam	2040
Bennington Fine Sandy	200	Hillsburgh Fine Sandy	2080
	440		
Bondhead Sandy Loam		Hillsburgh Sandy Loam	8440
Bookton Sandy Loam	120	Honeywood Fine Sandy	3160
Brady Sandy Loam	440	Honeywood Silt Loam	3800
Brantford Silt Loam	80		
Brisbane Loam	80	Huron Loam	280
Burford Loam	2200	Muck	5200
	3080	Parkhill Loam	80
Caledon Sandy Loam	3000	Tavistock Fine Sandy	想 在
Caledon Fine Sandy Loam	4400	Loam	40
Camilla Fine Sandy		Tioga Fine Sandy Loam	1640
Loam	160	Tuscola Silt Loam	40
Colwood Silt Loam	440	Toledo Silty Clay	400
Crombie Silt Loam	280	Loam	400
Donnybrook Silt Loam	880	Whitfield Fine Sandy Loam	520
Dumfries Silt Loam	2320	Wiarton Loam	40
Dunedin Clay	200	Dumfries Loam - Hillsburgh Fine Sandy	
Embro Fine Sandy Loam	280	Loam	4000
Embro Silt Loam	480	Dumfries Loam - Hillsburgh Sandy Loam	13040
Escarpment	680		
Fox Sandy Loam	200	Tioga Sandy Loam - Bondhead Loam	6780

just east of Orangeville is being taken up by urban growth and the area along the Nottawasaga River is in the moderately hilly phase. The strip too, is largely taken up with residential development. This soil, as most of the soil in the Township, is a member of the Grey Brown Podzolic Great Soil Group; it is generally well drained. The profile is of loam material resting on stratificed gravels.

Caledon sandy loam and Caledon fine sandy loam: Both these soils are formed on a parent material of outwash gravels. Consequently both soils are found in areas of old spillway channels. The sandy loam occupies over 3000 acres and the fine sandy loam 4400 acres. The sandy loam is concentrated in several moderately large areas in the south-west quarter of the Township. The fine sandy loam is more abundant in the north and north-east in the large spillways and on a large level terrace of the Gibraltar moraines, just east of Relessey. These soils are generally on gently sloping land. Drainage is good. The difference between the two soils is a slight difference in texture. The finer sand is associated with the Gibraltar spillway, while the heavier sand is associated with the junction of the Singhampton and Hockley Valley spillways. All areas of the Caledon soils in the Township are the largest remaining undissected areas of these large spillways and consequently range from gently sloping to moderately sloping.

These soils show up on the air photos as some of the best agricultural land in the Township. These soils are used for mixed grain and dairy farming. Just north of Orangeville there is a distinct change from mixed and dairy farming on the Caledon sandy loam to beef farming on the Hillsburg sandy loam. (see maps 7 and 11) Similarly the large area of fine sandy loam just west of Relessey shows a prominence of mixed farming in the middle of a general area of beef farming.

<u>Dumfries Loam:</u> This soil has developed on a coarse well drained stony loam till. It is generally associated with the morainic areas south

ot the Hockley Valley. Slope is rough, usually in the steepest class. The soils are generally quite stony so that frequent stone removal has to be carried out in order to plough more easily. The irregularity of the slopes prohibits such conservation practices as contour plowing so that long rotation should be used to prevent erosion. The steeper slopes should be and usually are, left in permanent cover. The steeper the slope, the more land there is in forest or permanent pasture. This soil type occurs in large quantities in combination with both Hillsburgh sandy loam and fine sandy loam. These will be discussed later.

Harriston Loam: This soil occupies just over 2,000 acres of the Township. The parent material is loam and silt loam till and the drainage is good. This soil occurs in three patches both east and west of Orangeville. The slopes are moderate on till to the west and kame to the east and the soil is only slightly stony as a result of its parent material. This soil, where farmed, supports a moderately successful type of mixed farming.

Hillsburgh sandy loam and Hillsburgh fine sandy loam: Together these soils occupy about 10,500 acres, the former being the most abundant with about 8,440 acres in the Township. Both are built on a parent material of fine outwash sand and are most prevalent on the kame and till moraine above the Escarpment in the western third of the Township and also on some till and spillway areas in the north-west. The slopes of this soil are most often moderately hilly, but sometimes they are steep. Drainage is good. In most cases these soils support a general mixed farming economy, as can be seen on the land use map. (see map 11)

Honeywood fine sandy loam and Honeywood silt loam: These soils re formed by parent materials of wind blown silt over loam till. Their real extent is quite large, for together they occupy close to 7,000 acres.

In the west of the Township these aeolian soils are found on the till deposits and on the edge of some of the kame. There is also a fairly large section in the east central area. Slopes vary from moderate to steeply sloping. These soils are good enough to be used for mixed and dairy farming.

Tioga fine sandy loam: This soil series is a Podzol compared to the rest of the Township which are overwhelmingly Grey-Brown Podzolic. The soil is formed on calcareous outwash sand. The areas of this soil alone amount to 1,600 acres but the soil is more often found in combination with Bondhead loam, in which condition it occupies almost 7,000 acres. By itself this fine sandy loam is found on gently undulating ground and is well drained. In this phase stones are non-existent. These soils have a low natural fertility and a low moisture holding capacity but they warm up early in the spring and are easily worked. They are, however, very susceptible to damage by wind erosion as are most of the sandy soils in the Township. It is necessary to use conservation practises to preserve them.

Combination Soils

Dumfries Loam-Hillsburgh Fine Sandy Loam and Dumfries Loam-Hills-burgh Sandy Loam: These soil types are treated together because they both contain members of the same catena. The first combination covers 4,000 acres of the Township while the second covers 13,000. These soils occupy most of the central section of the Township from Highway 89 to the edge of the spillway south of the Hockley Valley Road. They are found both in the spillways, and on the tops of the sandy moraines. The parent materials are sandy and fine sandy loam, probably superimposed over the stony loam till of the moraines and the outwash gravels of the spillways. Most of the land is steeply sloping though some is moderate. These soils are generally associated with rough hilly land which is used mainly for beef

farming. Some areas too, are unused and are left in rough pasture or are being reforested.

Tioga Fine Sandy Loam-Bondhead Loam: Although the Tioga series occurs alone in the Township, the Bondhead does not. This soil type occurs in large quantities in Adjala Township to the east and also in Albion Township to the south-east. It is mainly associated with the loam materials on the interlobate Oak Ridges moraine and the sandy surficial deposits over the loam. The terrain is very hilly, often too rough for modern farm impliments, although it was once cultivated by the animal drawn ploughs. Most of the complex produces weedy poor pasture unless fertilized with commercial fertilizer. Erosion is severe on the steeper slopes. These soils too support extensive beef farming and are left in rough unused pasture.

Muck: Muck occupies over 5,000 acres in the Township. There is one area which is fairly large. Attempts at farming have been made here but these have not been very successful. (see fig. 26) This is part of a spillway in the north-west of the Township between two low morainic areas. The soils are completely saturated with water during the year: as a result organic matter accumulates. The other areas of muck are along river and creek bottoms. They are usually only narrow and small in area.

Summary: As has been noted from the description of the major soil types in the Township, the majority of them are sandy in texture. They are usually found on gravelly or loamy bases except for a few heavier areas in the west of the Township. As a consequence almost all of the soils are well drained. The predominance of hilly and steeply sloping land in the Township in combination with light sandy soils has produced large scale erosion. In the early settlement of the Township, the timber was cut from the hilly slopes and these steep slopes were farmed intensively. Porr protective

measures contributed to the severe depletion of the soils. As a result, many of the hilly fields possess little or no top soil and are covered by coarse grasses and mullens. In many cases too, blowouts are common. The better soils occur in the western half of the Township above the Escarpment. They are generally heavier and less rugged. The lands of the most severe erosion and rough terrain are those on the Gibraltar moraine both north and south of the Hockley Valley, and on the dissected spillway of the Hockley Valley.

Vegetation:

Natural vegetation in any region is largely a product of the influence of the climate and soil. In turn the vegetation has a direct relationship to the type of soil produced in any region. A survey of vegetation shows that specific tree associations most commonly occur on some of the more important soils.

The present forest cover in Mono Township occupies 12,700 acres. This is a combination of natural woodlots, of which there are about 10,000 acres, and plantation softwoods. Mono Township, along with the main body of peninsular Ontario, belongs to the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region. This is predominately a hardwood forest cover with softwoods occupying special sites and soil conditions. The climax forest cover of this region is the Sugar Maple-Beech combination. In the Township roughly 10% of the natural forest cover is made up of this ombination. (see fig. 15) Originally the sandy areas of the moraines and pillways were covered by fine stands of white and red pine. According the survey made for the Nottawasaga Conservation Authority in 1962 there only one stand of natural white pine left in the Township and it occupies by 4 acres! Some small areas of Hemlock amounting to less than 2% of the



Fig. 15 A well thinned area of Sugar Maple-Beech forest.



Fig. 16 Reforestation where soil erosion has been very severe in the past. Some of the exposures are clay and some are sand.

cover now occupy old white pine stands on the moist sides of the hills.

Large areas that were originally covered with the large pines, now are covered by poplar trees which occupy about 30% of the natural forest cover. White cedar now occupies the largest percentage of the area cover. It is found in relatively pure stands in the swampy areas and occupies about 40% of the natural cover.

As was noted above, there are close to 3,000 acres of reforestation in the Township. A small amount of this area is in Christmas Trees and it is expected that more of the reforested land will be similarly planted in the next few years. (see figs. 16 and 17)

An interesting aspect of the present state of plantation forest occurs in Mono Township and is apparently unique to reforestation practices. The Planning Board of the Township, realizing the need to conserve much of the poor hilly land, has persuaded many landowners to take some of their land out of agricultural or idle use and to plant forests of their own. The landowners sign a statement saying that they will keep this land in a manner in which it will be conserved, either in forest or in permanent pasture. This is different from the reforested land owned either by the Township, County, or Conservation Authority.

of the 12,700 acres of woodlot under discussion approximately 5,600 are grazed by cattle. Unfortunately, such practices are not conducive to rapid or successful reproduction of young trees because the cattle enjoy the most succulent and the most valuable trees in their diet. As a result they generally eat the sprouts of the hard maples, basswoods and ashes, leaving the ironwoods, chokecherry and other trees of limited value. Such is another instance where conservation practices could be applied in order to improve the conditions of the existing woodlots. (see tables 7-12)

(a)

WOODLOT REPRODUCTION CONDITIONS

	ACRES	TYPE OF REPRODUCTION	COMMENTS
	178	extreme excellent	heavy seeding layer
	2195	good	
	6372	normal - slightly substandard	maybe too much shade
	3961	poor	
TOTAL	12,706		

TABLE 7

(b)

DENSITY OF WOODLOTS

	ACRES	DEGREE OF STOCKING
	501	overstocked
	4022	well stocked
	6612	slightly substandard
	1571	poorly stocked
TOTAL	12,716	

TABLE 8

⁽a) Forestry Survey 1961-62, Nottawasaga Valley Conservation Authority, Conservation Branch, Department of Lands and Forests.

⁽b) Ibid.

MIXED WOOD Diameter at HARDWOODS SOFTWOOD over 80% 3 - 3 over 80% Chest Height deciduous coniferous 67 acres over 18" 2515 acres 40 acres 10" - 18" 317 acres - one lot of 128 acres cutting feasible 4" - 10" 480 acres 3691-could be 2209 potential used for pulppulpwood wood 516 acres under 4" 52 woodlots only 41 acres

very li**ttl**e marketable timber little coniferous potential 1 block 108 acres-pulp and growth potential

(c) Ibid

TABLE 9

CONDITIONS ON PRESENT AREA OF PLANTATIONS (d) approximately 2000 acres (e)

ACRES	AGE	
796	0.5 years	
750	6-10 years	
290	11-15 years	probably Christmas
164	16-30 years	trees

TABLE 10

(d) Ibid

⁽e) Total area of plantations is approximately 3000 acres, but these 2000 are within the Nottawasaga River watershed and were surveyed by the Nottawasaga Conservation Authority, 1961-62. This survey does not include forest cover of any type within the Credit River watershed.

TYPES OF FOREST COVER (f)

FOREST COVER TYPE - location	ACREAGE
Poplar - second growth - even age	2295
Paper Birch	349
Hemlock - on old white pine stands - moist side of hills, uneven age	195
White Cedar - quite pure - swamps and high stands even age	3556
Sugar Maple-Beech - mostly beech - uneven age	1011
Pure Beach - after maple was cut	198
Pure White Elm - uneven or even	1548
Natural White Pine - only one block of 4 acres	4
Tamarac	7
Cottonwood	37
Wet Scrub - low growing sillow - once pasture bad on a large scale - needs rehabili-	
tation	914
Dry Scrub - hawthorns, sumac, wild apples	219
Silver Maple-White Elm - isolated pockets tend to flood	3
tend to 1100d	

TABLE 11

(f) Forestry Survey, 1961-62

USE AND CONDITIONS OF WOODLOTS (g) (approximately 12,900 acres) (h)

A	CRES	CONDITIONS
	5570	grazed
	7130	ungrazed
Total	12,700	
	4130	fenced
	8570	unfenced
Total	12,700	

TABLE 12

- (g) Ibid
- (h) Includes natural and plantation woodlots in the Nottawasaga River watershed.



Fig. 17 Area of experimental reforestation, planted by the Department of Lands and Forests. The Township also contains a large area of Dufferin County Forest.



Fig. 18 An old unused mill on the site of the first mill in Mono Township, lot 1 concession 7 east half. Valley is the headwaters of the Humber River.

Chapter 2

History of Settlement

Early Settlement

The settlement of Upper Canada at the beginning of the 19th century was carried out in several different ways. Prior to 1815 peninsular Southern Ontario had been settled primarily by people from the United States. By 1812 it was estimated that about eighty percent of the people living in the Province of Upper Canada were American by birth and only one quarter of these were Loyalists. This influx of Americans was a result of the westward movement in the United States between 1790 and 1815 of people seeking new and cheap lands. After 1815, however, movement into Upper Canada came heavily from Europe. Peace in Europe after a long period of war, unemployment problems and a natural increase in population in the British Isles were some of the reasons for this period of heavy migration to British North America. As a result, settlements in Upper Canada expanded rapidly after 1815. Before 1815 settlement in Southern Ontario stretched in a thin line along the St. Lawrence River and the shores of Lake Ontario. It also extended westward to the Grand and Thames River valleys to the area between Lake St. Clair and Lake Erie. After 1815 the north shore of Lake Ontario was filled in and important settlements were also made north of York (Toronto) around Lake Simcoe. area between Lake Ontario and Lake Huron was also filled in.

In some areas of Southern Ontario, settlement was carried out under the influence of a land company called the Canada Company. The Huron Tract was settled by the Canada Company. In other areas settlement was influenced by individual promoters of settlement such as Thomas Talbot. Talbot was instrumental in settling people in an area of approximately 130 miles long on the north western shore of Lake Erie. In addition to the regulated settlement of these controlled communities, many individual pioneer communities were established. Mono Township was settled by both

the Canada Company and by individuals.

Settlement in the area of Mono Township began about 1820. According to local tradition, small bands of Indians were still living in the area when the first white settlers arrived. These Indians were probably the Petun Indians, a branch of the large Huron group, which occupied the area around Lake Simcoe and Georgian Bay. These Indians were semi-agricultural and lived by growing such plants as pumpkins, squashes, beans and Indian corn around more or less permanent villages. There is no definite information as to the location of any permanent Indian settlements in the Township area and it is suspected that most of the area was too hilly for their type of farming, as they are known to have chosen usually flat sandy sites for their villages. However, there is record that the Indians had a portage from the Nottawasaga River to the Humber River and this could have been on the extreme eastern edge of the Township, where the two rivers are the closest together. The only reference to the activities of the Indians in the Township comes from the sketchy memoirs of some of the oldest residents. One man recalled his grandfather telling that the Indians sometimes came to beg for food from the new settlers. There is also a story that as late as 1838 several children from a family living near Mono Centre were kidnapped by the Indians. Two of the children were never seen again and it was presumed that they died, but one man is said to have returned after having lived with the Indians for approximately 15 years.

Mono Township was surveyed in 1823 and was first a part of the "Simcoe District" which dates to 1798, and then of Simcoe County which was formed in 1843. From about 1850 there was considerable agitation for the formation of a new county and much of the noise was centered around Orangeville. In 1874 the Ontario Legislature passed an act defining the County of Dufferin by which Mono and Mulmur Townships would be detached

from Simcoe County and added to Melancthon, Amaranth, and East Garafraxa to form the new County. Competition between Shelburne, Hornings Mills and Orangeville for the county seat was quite keen but Orangeville, having the largest population of the three, won the vote. The first meeting of the Provisional County Council was held in Orangeville in 1879, and when the county buildings were finally completed in 1881, the County of Dufferin became permanent.

Mono Township is one of the oldest townships in Dufferin County. It lay just to the north west of one of the early main roads leading north from Toronto. This is now the Mono Road which runs straight north from Malton to Mono Mills. Running through the western half of the Township was the Toronto-Collingwood road which was surveyed when Sir John Graves Simcoe was Governor of Upper Canada. Hurontario Street as this road was originally called served as the centre line for the survey of Mono Township in 1823. Thus, there were two early routes northward from Toronto and settlers probably first moved into the Township from the south. Settlers reached Mono Mills by 1820 and George McManus built the first mill on what is now the east half of lot 1 concession 7. (see map 2 and fig. 18) The first roads in the Township were probably nothing more than blazed trails for at least a decade after the first survey had been made. Hurontario Street, the centre line in the Township and the "road" to Collingwood was not improved at all until the late 1830's or early 1840's after much agitation on the part of the residents of Mono and Mulmur Townships. However, it does not appear that this road was widely used as it runs through extremely rough country in both townships and today is still just a trail in some places. In Mono Township it was supplanted in importance quite early by the Prince of Wales Road which lies one concession to the west of the Centre Line and runs through the much flatter land to

the west of the Singhampton moraine. This road is now Highway 10 and 24, the main route from Port Credit to Collingwood.

As was noted earlier, the first grist mill was built near Mono Mills in 1820. One of the first lots to be settled in the Township was the west half of lot 3 concession 3. This is in the extreme southern end of the centre of the Township. It does not appear that settlement followed an orderly movement from south to north as there were also settlers about the same time as far north as Mono Centre. In the first ten years after the survey of the Township, settlement consisted mainly of scattered pioneer farmsteads. After 1830, settlement increased rapidly so that by 1842 the population of the Township was 1020. (see table 13) By 1850 it had more than doubled to 2276. Most of the early settlers were Irish Protestants from Northern Ireland. In the census of 1851, 1906 people out of a total of 2689 were of Irish origin. Of the 17 townships in Simcoe County at this time, Mono had the third largest Irish population. The reasons for this Irish predominance are not clear but there must have been a number of Irish settlers in the early years which attracted relatives after the great "Potato Famine" which drove so many people from Ireland in 1846.

had the usual difficulties of clearing the land and building their first home on the new land. In 1851 the census reports listed the total number of dwellings as 401. Of these, 10 were frame, 10 were stone and 381 were (see figs. 19 and 20) log! In 1861 statistics showed a similar distribution. There were 497 log homes, 58 frame, 30 stone, and 5 brick. In 1851 shops and stores in the Township numbered 9, inns 6, schools 3, churches 5, and public buildings 1. The total population of the Township in 1851 was 2689, a population which is even larger than the present total population.

POPULATION OF MONO TOWNSHIP

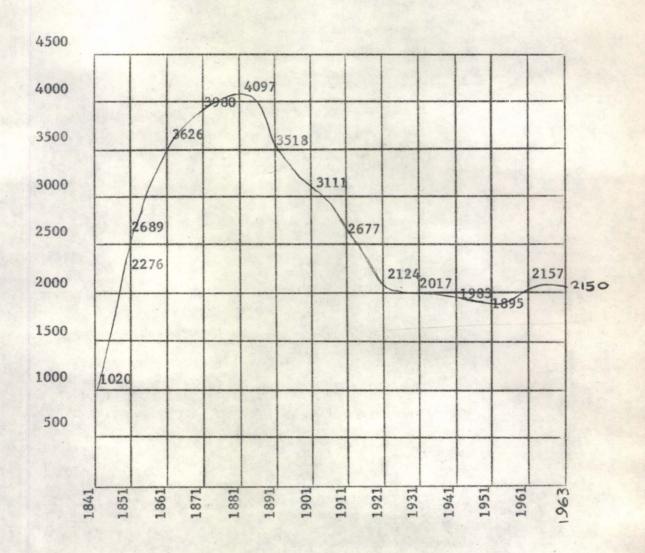


TABLE 13



Two story log cabin similar Fig. 19 to the pioneer homes.



Fig. 20 Stone home, on the Bagnold farm in the Bagnall southern part of the Township, built in 1866. The home still contains the original white pine windows and shutters.

The land was purchased by patents from the Crown. (see map 8)
This map was compiled on the basis of historical registry records. Each
lot is coloured according to the date when the original crown patent was
issued. In some cases this date coincided with first occupancy of the
land. But, in most cases, it appears that the people had squatters rights
to the land often for as many as 20 years before they secured the patent.
As a result, this map does not show the time that the land was originally
settled. There are no records except occasional family papers, which
give information as to the original date of settlement. (see table 14)

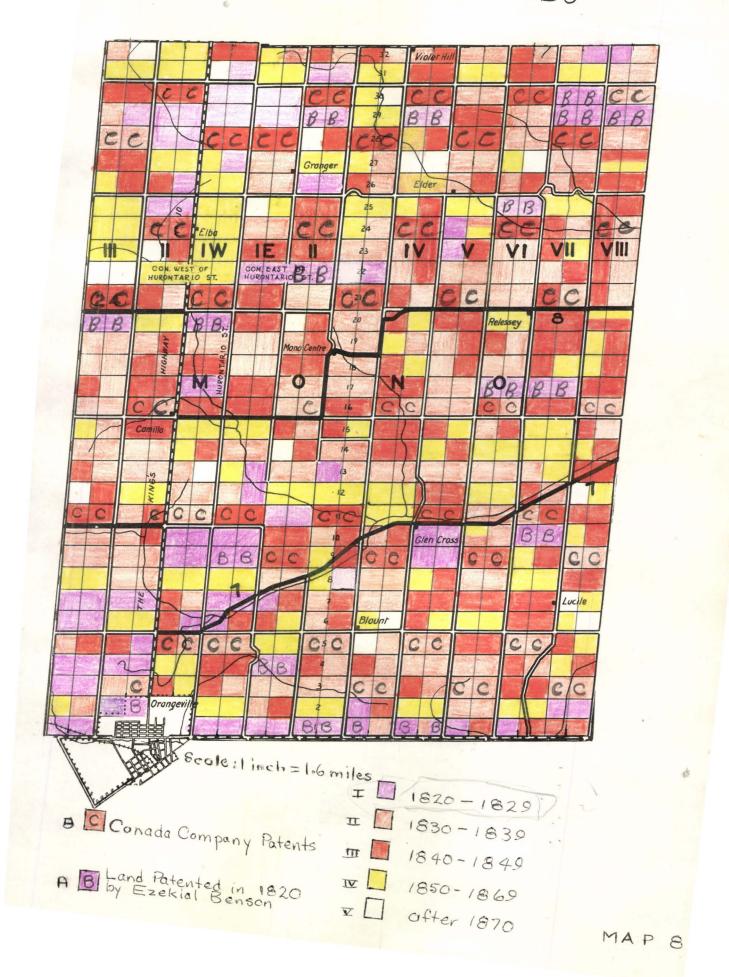
However, two quite significant phenomena show up on this map.

One is the amount of land (13% of the land area) that was acquired originally by the Canada Company. These are regularly located throughout the Township.

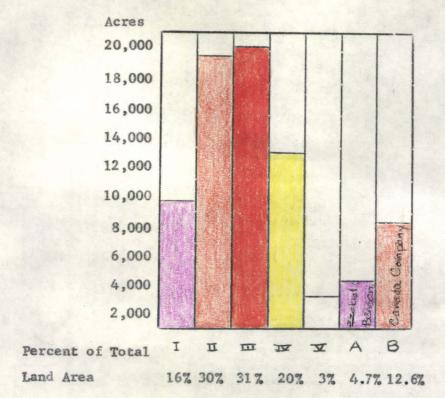
In most cases the Canada Company retained the land for 3 - 10 years after its purchase, then sold it to private individuals. Another interesting pattern is the amount of land, some 3,600 acres purchased by an individual, Ezekial Benson, in 1820! This land was all sold by 1822, indicating that Benson was probably a speculator or the head of a mortgage company. At any rate, he is the earliest person to register patents in the Township.

In the literature surveyed for this chapter, only one small reference to Clergy Reserves was found. There is no mention on them in material relating to the surveys. The fact that Clergy Reserves are little mentioned is probably due to the fact that the gradual sale of these reserves was authorized 1827, before too much of the land had been occupied. According to the diary of an Archdeacon visiting the area in 1850, "a Clergy Reserve of 200 acres has been purchased from the Government as a Glebe, upon which the Church Society has made some advance." The minister in the parish did

Allan J. Reed, History of the Parish of East Mono, 1952), p. 33.



SETTLEMENT PATTERNS



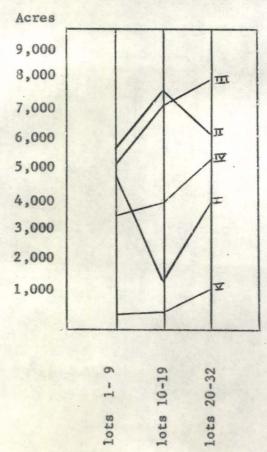


TABLE 14

not, however, think that he would settle on the Glebe because it would be too much trouble to clear the land and would bring him little profit. As a result he bought his own farm and cleared it. According to the history of the parish of East Mono, land secured for the building of a new church was usually a gift of one of the members of the parish. It appears, then, that the state of clergy reserves did not seriously hinder settlement in the Township as it did in other townships to the south.

In the early history of settlement Mono Mills was the most important community in the district. This was probably due to the fact that it was on the most used route northward from Toronto, the Mono Road. The Port Credit to Collingwood road was farther west and a longer distance from the centre of Toronto. It is also important to note that the Mono Road from Malton to Mono Mills is hilly only in its last 10 miles and this part is not even exteemely rugged. However, immediately north of the site of Mono Mills, the land drops steeply into the valley of the Humber River and the land becomes extremely rugged. Thus Mono Mills was located at the Northern end of the Mono Road on a fairly flat area of ground immediately south of some very rugged land. Until the early 1860's Mono Mills seems to have been a little more important than Orangeville. The first grist mill was built in Mono Mills in 1820 and a saw mill was built by a carpenter and builder in 1824. Mono Mills became a prosperous stop on the stage route to the north and with its mills also served the farmers in the neighbouring townships. It became a centre for horse trading fairs and was also the shopping centre for the first settlers from the "interior" of the township around Mono Centre. About 1870 Mono Mills had 800 inhabitants, 6 taverns, many industries and several churches.

Orangeville was located about 8 miles west of Mono Mills at the juction of the southern survey line of the Township and Hurontario Street.

Although it was less important than Mono Mills in the early years of settlement, it began to gain prominence probably in the early 1850's. The churches in the two communities were of great influence in the life of the early settlers and the size of hinterland of each church was important in determining the prominence of one settlement over another. Two churches were established in the early 1820's. One was St. John's at Mono Mills and the other was St. Mark's at Orangeville. George McManus bought land about 1820 near Mono Mills and he was instrumental in building the first St. John's Church there. (see fig. 21) Seneca Ketchum bought land near the site of Orangeville in 1823 and he helped to build the first church here. In 1837 he donated land for St. Mark's Church in Orangeville. Both of these men were ardent church workers in their respective communities but there were keen rivalries between the two churches and, as a result also between the two communities and their congregations. Until 1866 the two churches were in the same parish and were naturally competing for the dominant role in the parish. In 1866, however, when the parish was divided between them, St. John's appeared to be the more important church. In 1833, the first travelling missionary in the district preached to a congregation of 400 people at St. John's. From his writings we find that he estimated there to be about sixty families in Caledon, Albion and Mono Townships within approximately four or five miles from Mono Mills. The report of the next preacher gave some indication of the conditions in the country at that time. He reports that "after riding through a very wild country, I arrived at the house of a person named McManus in the afternoon. They heard that I proposed visiting them, but had no certain information when; there being no post within twenty miles, I had been unable to send any notice".4

⁴ Ibid, p. 50.



Fig. 21 The second building for St. John's Church, on the 7th Line, north of Mono Mills.



Fig. 22 The mill as it looks today.

Orangeville began its history with the issue of a land patent to Exekiel Benson, a land surveryor, on August 7, 1820. The second patent was the sale of lot 1 concession 1 west to Alan Robinette in 1822. This was the land which eventually became the north ward of the town. In 1823, however, Robinette sold this 200 acres to Seneca Ketchum. The other land which was to become part of the Town was south of the Mono Township line in East Garafraxa Township. In 1837 a Robert Dodds secured a 200 acre free grant on the south side of the Township line. He sold the east 100 acres to a Mr. Griggs and a man named Hamilton purchased the west 100 acres. In 1841 Mr. Griggs sold his land to a Mr. James who sold to Orange Lawrence in 1844. Orange Lawrence seems to have been the first permanent white settler in what is now the Town of Orangeville, although as can be seen, the area was not devoid of population at his coming. He was, however, the first person to think about organizing the community because he had a man prepare a plan for the village in the year 1851. This plan was for the area that is now the eastern part of the south side of the present town. Lawrence built a tavern, and a store and in 1857 he sold a piece of his land to two brothers who built the flour mill. The site of the mill is the south-east corner of Mill Street and Little York Street. The sturdy stone mill owned today by Mr. Stagg, is still used for its original purpose, although electricity has long since replaced the original water power. (see fig. 22) About the same time a carding mill was built a little farther west on Bythia Street, and a foundry was also erected. In 1852, a tannery was established beside the mill site to the west, on Little York Street. In 1856 Jesse Ketchum had a plan made for the north side of the town. This plan seems to have been very generous in its allotment of land as Orangeville is justly proud of its wide attractive streets.

Until the coming of the railways, both Orangeville and Mono Mills were important supply centres for the surrounding agricultural areas. How-

ever, when the railways were built northward from Toronto, Orangeville was on the rail line and Mono Mills was not. The reasons for this are due to both terrain and locational factors. The hills of the Horseshoe morainic system present very rough terrain in a wide belt of land which occupies the land almost continuously from the southern edge of Mono Township to Collingwood. Orangeville lies just to the west of these hills close to the flat areas of the Dundalk Plain. It would have been much more difficult and expensive to build a railway through this rugged country than to divert the line a little further west from Toronto. Besides, Brampton was an important commercial centre just north-west of Toronto on the Port Credit-Collingwood road and there were no important centres at all between Toronto and Mono Mills. Orangeville had also been an overnight stop on the stage line from Brampton to Owen Sound and to Collingwood. Mono Mills was, then, a little too far to the east of the main Toronto line to Collingwood and also too far west of the route directly north from Toronto to the Lake Simcoe area. Although the railway did not go directly north through Mono Township from Orangeville, it did go through Orangeville and then curved westward and northward to Owen Sound. Between 1869 and 1873 the track for the Toronto, Grey and Bruce Railway was laid from Toronto through Orangeville to Owen Sound. In 1875 another railway came to Orangeville. This was the Credit Valley Railway which was built from Toronto to Orangeville via Brampton and Alton, a small town to the south-west of Orangeville. The Credit Valley Railway continued northward into the Township to the junction of Hurontario Street and the Hockley Valley Road. For some years this small spur line was used to haul building stone from two small quarries beside the Nottewasaga River at the foot of the Escarpment. This spur was abandoned in 1883 when both the Toronto, Grey and Bruce and Credit Valley railways were absorbed by the Canadian Pacific Railway.

Because Orangeville was on the rail line, and Mono Mills was not, the former village continued to prosper while the latter declined. In 1871 the population of Orangeville was 1375 while that of Mono Mills was still about 800. Other factors such as agricultural depopulation and depleted soils contributed to the decline of Mono Mills, but most significant was the absence of the railway which the inhabitants had hoped would run through their village. Orangeville then became the hub of agricultural trade in the surrounding townships and of through traffic to towns on Georgian Bay. In addition to the influence of the railway on the growth of the Town, the decade after the railway brought the largest rural population to the Township and similarly to surrounding townships. The country side bustled with agricultural activity and Orangeville became the centre for cattle and horse fairs. The Sun newspaper was founded in Orangeville in 1860, and and some idea of the geographical extent of the community's influence may be gathered from the title of the paper. It read "The Sun (Orangeville) and Garafraxa, Erin, Caledon, Albion, Adjala, Mono, Amaranth and Melancthon Advertiser, published in Orangeville, a thriving village peculiarly well situated at the convergence of the Counties of Wellington. Peel and Simcoe. During this peak of rural agricultural population Orangeville boasted of no less than 15 taverns. The population of the Town continued to increase fairly steadily until shortly after 1900 when heavy migration to Western Canada took place. In 1910, Orangeville still had 11 "Wet" hotels. However, in the same year local option came into the area and these hotels and taverns declined rather rapidly. In 1901 the population of the town was over 3500 but it declined to around 2500 in 1910.6

⁵A.D. McKitrick, Orangeville in 1867, papers in the Ontario Archives, Toronto.

⁶J. Allen Rayburn, M.A. Thesis on Orangeville, University of Kentucky, 1956.

Several other small communities developed in the Township during its early history. Mono Centre, now containing the township offices and township hall, was the centre for the local farmers in the "interior". Around the turn of the century Mono Centre was described as "a stirring village situated in the centre of the Township and has a general store and post office, hotel, blacksmith shop, carpenter shop, etc." Camilla, another cross-roads hamlet located on the Prince of Wales Road and number 15 sideroad was founded about 1850. The first building was a cedar log general store. Soon the community gained a blacksmith's shop and in 1857 the founder built a new stone building housing a store, dance hall, stable, and the inevitable bar. The name of the hamlet was called Currie's Corners until an application for a post office was rejected because Ontario had another town of the same name. Hence, the name was changed to Camilla. In 1875 the first horseback mail service was inaugurated in the Township and Camilla was one of the villages which was served. Today Camilla consists of only a half a dozen buildings; Mono Centre has fifteen. The Village of Hockley is situated on the eastern edge of the Township where the Nottawasaga River leaves the Township. The church in the village was built in 1881. At that time the settlement boasted two taverns, an Orange Hall and a number of village shops. (see fig. 23) At the turn of the century there was a population of 200 and a general store, blacksmith shop, post office, sawmill, shoemaker, veterinary surgeon, and a hotel. Today the village has two general stores with gas pumps, a school, and St. James Church. It serves a few local residents and summer inhabitants of the Township. Other settlements in the Township which once served as post offices or retail centres are Glen Cross, Blount, Lucille, Elba, Elder, Granger, Relessey, and Sheldon. Of these only Glen Cross still contains a

⁷T. MacLean, Canada, Past, Present and Future, (Toronto: 1851), II, 61 & 62.



Fig. 23 An old Orange Hall on the 4th Line south of the Hockley Valley. The building now serves as a shelter for grazing cattle.



Fig. 24 Beef cattle grazing on very rough pasture.

post office but one contains more than a few houses.

Although today it is possible to see that the Township falls into two fairly distinct physical divisions, the hilly eastern half and the more gently rolling western half, it is difficult to say just how much these physical differences influenced the early pattern of settlement. It is probable that almost all of the settlement moved into the Township from the south either via the Mono Road or via the Toronto-Collingwood Road. The settlements of Mono Mills and Orangeville were begun in the early 1820's and both were located on important routes from the south. Yet, settlers moved into lots around Mono Centre in the very hilly and rather remote interior of the Township almost at the same time. The first settlers were two families which arrived in 1823. It would seem natural that the new settlers would choose the flatter land in the western part of the Township over the very rough land such as that around Mono Centre but this does not seem to be the case. For example, it was noted that Camilla, which is located on the road to Collingwood and in the flatter part of the Township was not founded until 1850. Mill sites were located fairly evenly throughout the Township in 1881, (see map 9) although the dates of the founding of individual mills are difficult to determine.

Before the railroads came into the area, travel into the Township was probably largely done by walking with the aid of horses and the stages when they became prominent. However, the only routes which could possibly be travelled by these stage coaches were the entry routes and the Collingwood Road to the north. It is probable that at some time stages used the southern boarder road from Mono Mills to Orangeville as this was the main route of travel between the two villages. The Hockley Valley Road which follows the low area along the Nottawasaga River was probably one of the earliest roads in the interior of the Township. This is the only river

HISTORICAL LAND MARKS

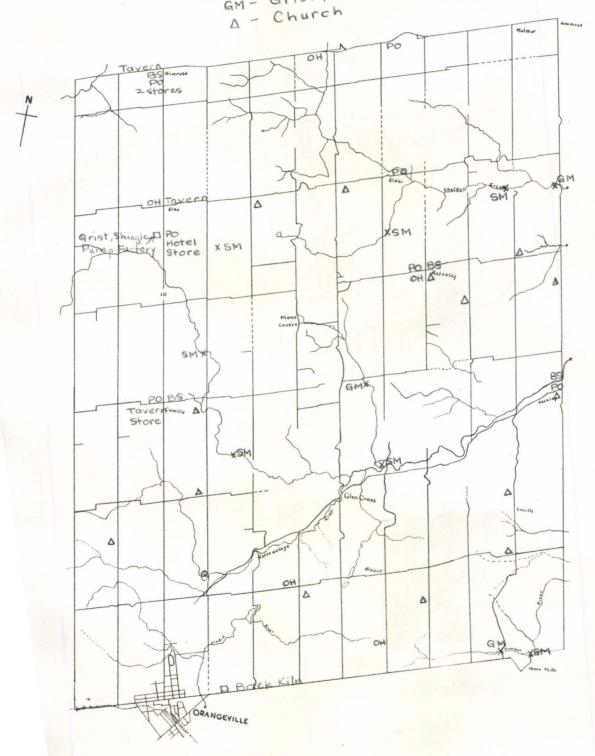
BS-Blacksmith

OH- Orange Hall

PO- Post Office

SM- Saw Mill

GM- Grist Mill



-m namada- IRRI

route which was not too hilly to be used for transportation. The importance of this route is shown by the fact that it is now the only paved road in the Township outside of the northern and southern boundaries and Highway 10. Although the railway line cuts through only the extreme south-west corner of the Township, its influence was clearly felt in the Town of Orangeville and as a result in the are which was dependent on the town. There are, however, no other influences in the Township as a result of the railroad. Of the six sideroads in the Township only three are passable completely from west to east and of the ten concessions (excluding in both cases the perimeter roads) only three can be driven completely from south to north. It is to be assumed then, that early travel within the Township was often slow and tedious because of the rugged nature of so much of the land.

Agricultural Development

Pioneer Agricultural development in Mono Township was not in many ways different from that of any of the first settlers who came to settle untouched forested land in many parts of North America. If there were any Indian clearings these would be utilized as rough gardens. Usually, though, the settler first cleared a small piece of ground and built a rough log shanty on the land. He then used the clearing to plant a small garden of potatoes, turnips and a little spring wheat. The crops were usually of good quality because of the newness of the soil. The hoe, the wooden plough and the "V drag" were the chief implements used in preparing the land and seeding between the stumps in the newly burned off "fallow". Harvesting was done with cradle and scythe; the binders followed with hand rakes gathering the swathe into bundles which were tied into sheaves. If a man cradled three acres a day it was considered a good day's work, because the grain was usually heavy from the new land. The grain was usually

was usually drawn in by oxen and cart and later by wagons. For the first two or three years the threshing was done with the flail and the fanning mill but as soon as a sufficient number of settlers had located in a district the old time horse-power threshing machine succeeded the flail.

Threshing did not usually start until the beginning of winter.

During the early years all the various crops grown in the district were scarcely sufficient for home consumption but as soon as the land was cleared and larger acreages came under crop some farmers had potatoes, grain and hay for sale. They were, however, at a great handicap because of the long distance over unfavourable roads to the nearest market, Brampton.

Timbering of the white pines from the forested land in the area was intimately associated with the pioneer system. In order to farm the land the timer had to be cleared. After the log house was built and perhaps a shed or two, the timber was just in the way. Hence much of the timer was only burned. In Mono Township one of the mistakes of the early pioneers was the timering of the very hilly land. To the settler, however, this was the natural thing to do because the logs could be easily disposed of by rolling them down the hills, and thinner soils made the clearing of the stumps easier. Also, it was not difficult to cultivate the hills with animal drawn equipment and it was not until mechanical means came into prominent use that this land had to be abandoned. The early farmers obviously did not pay much attention to land conservation as all of this hilly luced, especially north and south of the Hockley Valley, has lost all its top soil and now produces only mullens and stones.

Sawmills were soon erected in the small communities and the lumbering industry commenced. The lack of access to markets limited the demand
for the lumber so that most of it was only used locally. The census of the
Township in 1851 listed three grist mills and one saw mill, all run by

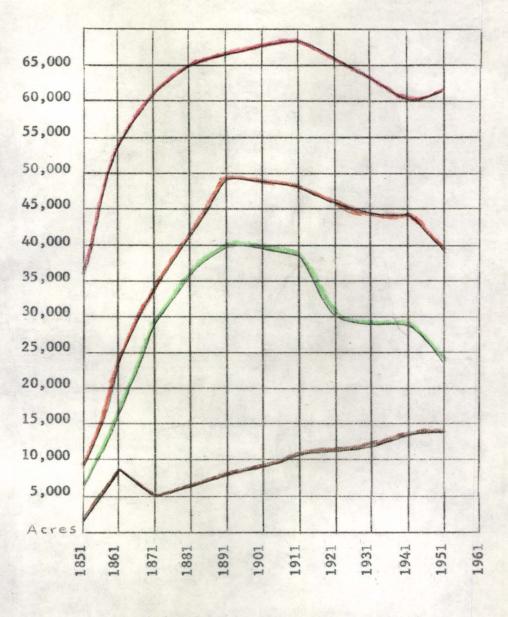
X

water power. The sawmill and one grist mill were located at Mono Mills.

By 1851, a little over 50% of the land in the Township had been occupied but only about 12% was improved. By 1871 almost 100% of the land had been occupied and almost 65% was improved. (see table 15) Hence the years from the middle of the century to the time just before the railways came was a period of large scale expansion. Wheat was the most important crop and it increased rapidly from 2409 acres in 1851 to its peak of 12,775 acres in 1881. Oats was the next largest grain crop after wheat, accounting for 1454 acres in 1851. (see table 16) Wheat reached its peak of 12,000 acres in 1881 and then declined rapidly because of the opening of the wheat country in Western Canada. Oats followed a similar pattern of increase and decrease but its peak of 13,597 acres came in 1911 after the wheat had lost its importance. By 1871, grain crops occupied almost 50% of the total Township acreage. Hay increased from 1000 tons in 1851 to 6000 tons in 1871. Dairying was important in a small way but in 1851 the average number of milk cows per occupier of land was about five. The number was roughly the same for calves and heifers together. There did not seem to be large scale expansion at any one time during this period but the total number of cattle continued to rise at the same rate until 1891. (see table 17)

The coming of the railway continued the general expansion in agricultural activity since the railway provided quick transporation to the larger markets to the south. Although wheat acreage reached its peak in 1881 the total area under field crops increased until 1891. Since 1891, however, the area under field crops has declined slowly. Barley and oats continued to increase during the last half of the century and until 1911 when they both started to decline. This general decrease in field crop acreages was accompanied by a gradual increase in pasture acreages. The amount of improved land increased until 1891, remained steady until 1911

HISTORICAL AGRICULTURAL LAND USE



Occupied Land

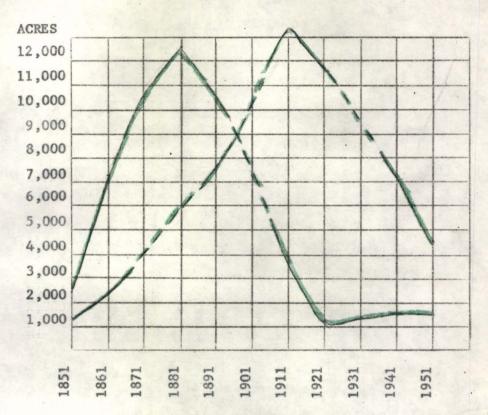
Crops (field crops, etc.)

Pasture

Improved Land (field crops, pastures, gardens, orchards)

HISTORICAL CROP ACREAGES

WHEAT



POTATOES

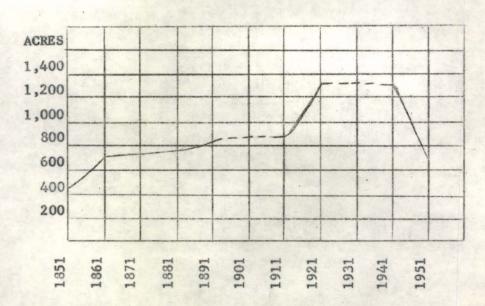
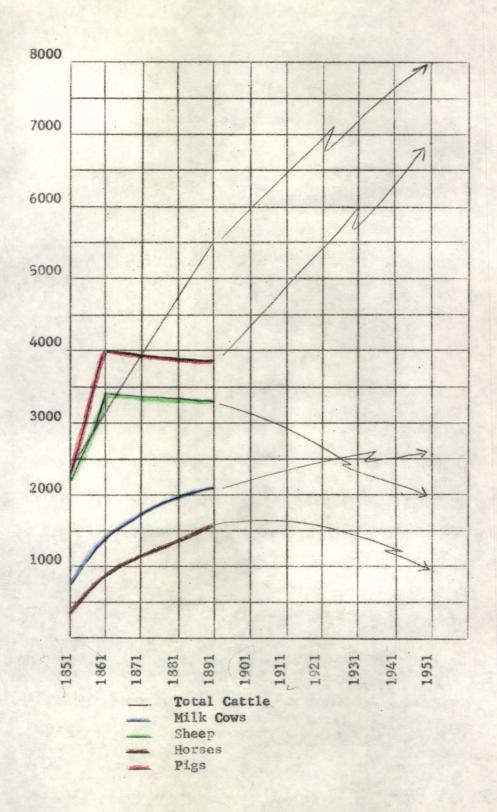


TABLE 16

HISTORICAL RECORD OF FARM ANIMALS



when they both started to decline. This general decrease in field crop acreages was accompanied by a gradual increase in pasture acreages. The amount of improved land increased until 1891, remained steady until 1911 and then declined until 1951. Unimproved land increased from its low of 19,000 acres in 1911 to 24,500 acres in 1941. The overall picture of farming in the Township was one without any particular specialization. Farmers raised small numbers of sheep and pigs along with their cattle. Horses were common until the 1940's and then their numbers declined. Home made butter was made during the 19th century increasing from 31,000 pounds in 1851 to 196,000 pounds in 1891. In 1916 an annual report from the Camilla Cheese Factory reported the previous years total to be 33,301½ pounds. At this date cheese was valued at 18.92 cents per pound.

Chapter 3

Regional Agricultural Land Use

Regional Agricultural Land Use

To begin the description of agricultural land use in the Township, it is pertinent to note that D. F. Putnam in Canadian Regions includes Mono Township in a "general farming" region of Southern Ontario as opposed to the western or eastern dairy belts, or the tobacco belt. L. G. Reeds classes this area as the middle zone of Western Ontario where "the productive soils of the middle zone and the accessible markets permit a greater emphasis on livestock production" as opposed to the more extensive land use in areas to the north and the specialization in cash crops in areas to the south. From the description of conditions in geographic regions of Southern Ontario in A Regional Geography of Canada by D. F. Putnam, Mono Township can be considered to lie on a line of transition between Western Ontario and South-Central Ontario, since it has characteristics of both regions. Western Ontario is said to have the Niagara Escarpment as its eastern boundary and the Town of Orangeville as one of its local market centres and supply points. It is also described as a high plain above the Escarpment with some morainic hills on its eastern boundary. However, the description of South-Central Ontario also contains a cultural feature which applies to the Township. This phenomenon is the occurance in the rural landscape of country estates belonging to business men from the Toronto region. This is one of the outstanding features of the recent settlement pattern in the Township and will be discussed later in the text. To summarize, Mono Township is in that agricultural area of Southern Ontario which is characterized by extensive land use devlopment with beef and dairy cattle, hogs, and sheep as the main source of income and which includes the second homes of many Toronto residents.

Three types of farming are most prominent in the Township.

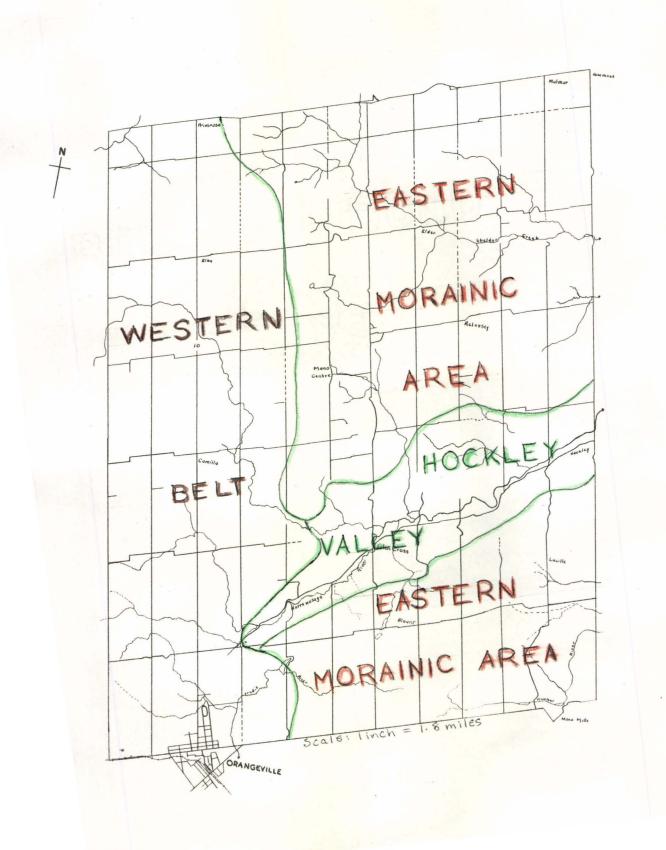
⁸L. G. Reeds, PhD. Thesis, University of Toronto.

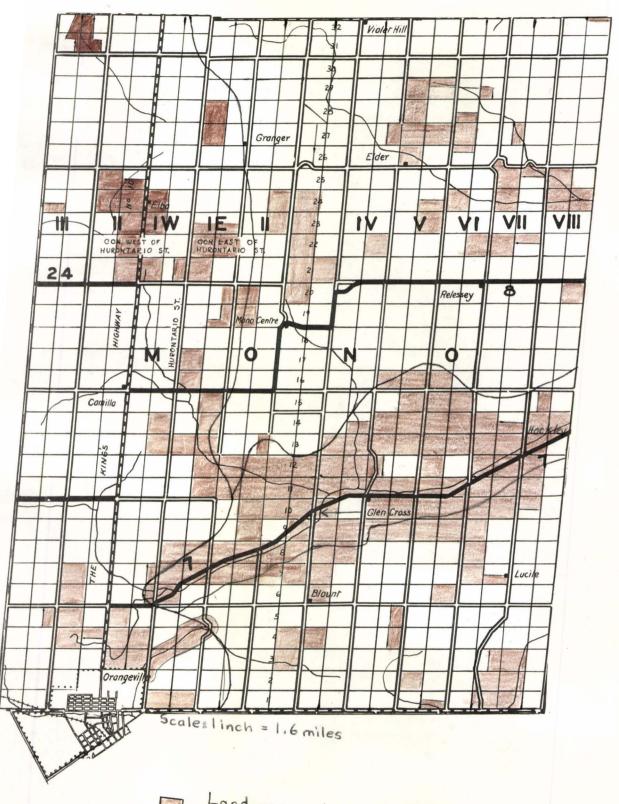
These are: farming strictly to produce beef, farming to produce dairy products, and a general mixed farming with no particular emphasis on any one type of production. In addition to these main types of farming there are several local specialties which will be noted in the regional descriptions. It was found also that there were some areas of the rougher land which could not really be considered entirely agricultural. (see map 11) Most of these areas were in rough pasture and usually had no farm buildings. They are very extensively grazed by beef cattle or sometimes sheep; in some cases they are not farmed at all. (see fig. 24) In addition to these semi-agricultural areas, there is non-agricultural land such as bush, swamp, forest or land used for recreation and areas where land has been either publically or privately reforested, or conserved in some other way.

It has been noted in studying the physical geography of the Township that there are several regional differences. In discussing the agriculture of the Township it will be shown that these differences have influenced the land use patterns. The slope map brings out the physical differences most clearly. (see map5) It was noted earlier that the Niagara Escarpment is an important part of the physical base. In most cases this influence is only local because the Escarpment is buried with till throughout most of the Township. Nevertheless, this ridge of rock was probably one of the main factors in determining the location of the terminal moraines of the Lake Simcoe ice lobes. Although the Singhampton Moraine was pushed up slightly above the Escarpment, the other two moraines lie to the east. The Escarpment also functioned as a wall containing meltwaters from the ice sheets. The fact, too, that the Escarpment face was cut by a large preglacial valley has also had a direct effect on the present geographical divisions of the Township.

On the basis of physical patterns and on the land use patterns it

GEOGRAPHIC REGIONS







Land very extensively farmed, forest, bush, swamp, recreation, reforestation, conservation, urban

Geographic Regions

is possible to divide the Township into three regions. (see map 10) The first is the area to the west of the First Line E.H.S. The second area is the Hockley Valley and the third region is the remaining morainic land east of the Centre Line to the north and south of the Hockley Valley.

Two of these regions are of a typically rural and agricultural character. The Hockley Valley, however, has certain cultural characteristics which make it very different from the other two.

The Western Belt: This is the region which coincides approximately with the area of flat to moderate slopes on the west side of the Township.

The physiography here is made up of small areas of till plain, low moraine, and spillway channels. (see fig. 25)

The agriculture in this region is predominately mixed farming.

(see map 12) There are less than 12 farmers wholly engaged in dairy farming in the Township and all but two of these are in the Western Belt. This is not to say that other farmers do not have dairy cattle. But, those who do often rotate their cattle with pigs, sheep or poultry. They usually milk cows only for the cream, feeding the milk to the pigs and selling the cattle eventually for beef. This is the general description of mixed farming throughout the Township. In summary, the Western Belt is predominately mixed farming with a small number of farmers raising either dairy cattle or beef cattle.

There are small areas where the land is only extensively pastured or not farmed, and these are in the hillier parts of the low morainic areas in the region. There is a low swampy area just east of Highway 10 and north of Orangeville which is part of a major channel and contains the headwaters of the Credit River. Much of this land has recently been acquired by the Credit Valley Conservation Authority with the intention of making an artificial lake and park. There is also a large swamp and bush area strad-



Fig. 25 The wide, flat spillway in the Western Belt. Note the cedar swamp in the right back-ground.



Fig. 26 Attempts to farm the black, wet, muck of the swampy area. Note the run down buildings and the cedar swamp in left background.

LAND USE - MONO TOWNSHIP

TIII Granger Elder IIII IIII 24 71111 11111 Lucile Blount scale: linoh = 1.6 miles NON-AGRICULTURAL AGRICULTURAL Limited Grazing or not farmed Residential Mixed Farming Beef Farming Forest, Bush, Swamp Commercial Public Conservation Industrial Dairy Farming Private Conservation Recreation Specialties

MAP 12

dling Highway 10 south of 30 Side Road. The soil here is largely muck and the attempts to farm it are not very successful. (see fig. 26) In general, the soils in this area are rather jumbled, especially in the central area between 10 and 25 Side Roads. They tend to have more clay content than the soils in the other two regions.

There are three cross roads settlements in the region, all on Highway 10. These are at Camilla at 15 Side Road, Elba at 25 Side Road and Primrose at Highway 89. All of these hamlets are remnants of those larger communities which thrived as tavern and stage coach stops. Their main function today is the service supplied by gas stations.

The Eastern Morainic Regions: Although this region is divided into two portions by the Hockley Valley, the characteristics north and south of the Valley are similar. The physiography consists of large morainic deposits separated by wide sandy spillway channels. The land is hillier than to the east, classed as steeply sloping land with small areas of moderately cloping or flat land in the spillways. The Niagara Escarpment is also exposed as a rough limestone cliff in several places in an area approximately between concessions 2 and 3.

In both parts of this region the land which is farmed is almost evenly divided between mixed and beef farming. In most cases the mixed farmers emphasize beef cattle but some also keep dairy cattle for cream, in addition to keeping pigs or chickens. Some years they may specialize entirely in either beef or pigs. (see fig. 27)

The beef farmer may be distinguished from the mixed farmer by the proportion and type of crops grown on his land. The beef farmer generally puts about one-third of his land area into oats and/or barley, which is used as feed. In most cases this is enough to feed the herd during the winter. A farmer who has a very large number of cattle may have to buy



Fig. 27 A mixed farm which emphasizes beef cattle.
The cattle are top quality Shorthorns bred at the farm.



Fig. 28 Some of the hilly, well kept land, in grain and planted pasture.

feed during the winter from a co-operative. The remaining two-thirds of the farm will be devoted to either planted pasture, hay, or grazing land.

(see fig. 28) Many of the large scale farmers grow the hay and grains on their own land and then rent another farm which is almost completely permanent grass for grazing. The mixed farmer will often grow some wheat or potatoes in addition to the oats and barley, depending on the quality of land he owns. In this morainic region the emphasis is, however, on cattle even for the mixed farmer. This is necessitated by the steepness and roughness of much of the land. For this reason the best way of using much of the land is to keep it in permanent pasture.

There is also some good flat land which lends itself to raising grains. And, the northern portion of the Eastern Morainic Region has a considerably lower average elevation than the Western Belt above the Escarpment to the west. (1200 feet - 1400 feet as opposed to 1400 feet - 1600 feet) For this reason, fall wheat is grown almost exclusively in the eastern regions. In this same area there is often a 7 to 10 day advance in planting time over the region to the west.

In addition to both the beef and mixed farms there are also several small specialty farms. A farmer on the 3rd Line has irrigated about 10 acres of land and devoted them to growing strawberries. Another farmer whose land contains a small spring creek of the Nottawasaga River, on the 4th Line has a small operation for growing water cress (see fig. 29) One large scale farmer devotes 400 acres to supporting only beef cattle and pigs. Another farmer on the southern boundary of the Township has 100 acres on the headwaters of the Humber River and raises trout. (see fig. 30) The fish are used largely for stocking at present, but the owner of the land has intentions of eventually selling the fish for food. Each of these

⁹ obtained in conversation from Mr. Shelly Anderson, 6th Line, Mono Township



Fig. 29 Initial planting of water cress in one of the new beds. Fresh spring water runs through the beds which have a gradient of one foot.



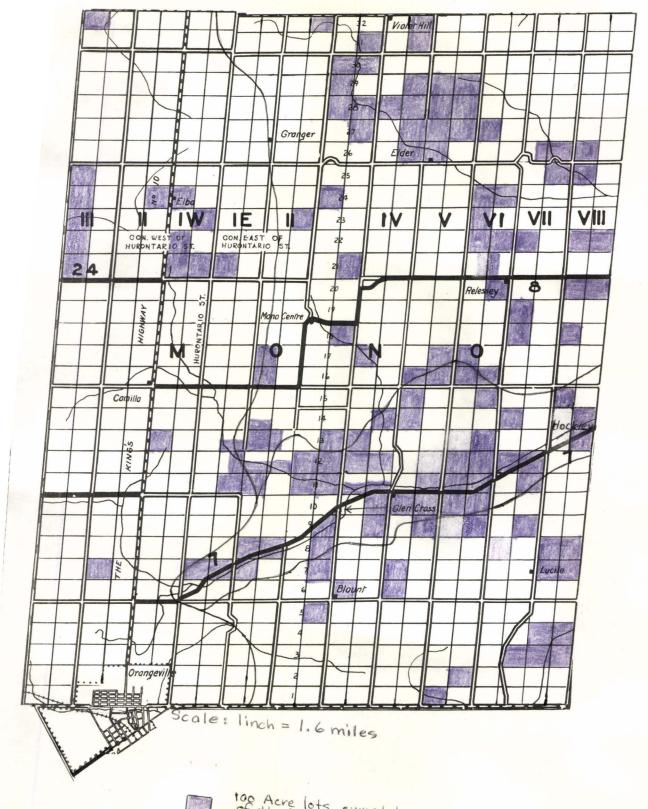
Fig. 30 Ponds for breeding trout. Fresh water is supplied by the Humber River.

specialties depends to a great extent on abundant supplies of fresh water.

Another type of land use has recently become prominent. Even thirty years ago small areas of the land had been put into reforestation. Today, however, most of the prosperous farmers are trying to improve the old worn out land by planting small pine trees. In addition to retaining the remaining soil and improving it somewhat, these trees are sometimes sold as christmas trees. It appears that the acreage in trees will continue to increase in the next few years. Present acreage is almost 3000.

Characteristic of this Eastern Morainic Region is the changing pattern of land holdings. Scattered sparsely throughout this area are abandoned farm houses. They are usually on the roughest land where farming exclusively for a living has been too difficult to continue. The land is either left idle, pastured by a neighbouring more prosperous farmer, or bought by a city dweller. The state of these abandoned farms is an interesting part of the land use picture in the Township. (see map 13) Many of these farms have recently been purchased by non-residents, chiefly by people from the Toronto area. In most cases these people are interested only in obtaining the old farm houses to remodel and use as a week-end or summer home. (see figs. 31 and 32) The farm land is usually rented to a neighbouring farmer. In some cases non-residents purchase only small acreages from some farms and build their own new homes.

The Niagara Escarpment has had only local effects on farming. But to individual farmers this is very important. If the Escarpment outcrops on a farm in a vertical face, it is usually left in forest. In other cases, the Escarpment face does not appear, but fields are often covered with large limestone boulders. Most of these fields have been cleared now and the stones used in fences. However, there are still some farms on which the soil is too stony to be used at all. (see fig. 33)





of the Township - excluding Orangeville residents - approximately 2007 of area

Geographie Regions



Fig. 31 Large area of unfarmed land, owned by Toronto residents. There are two large houses, and facilities for riding and swimming.



Fig. 32 An old board and batten farm house, now owned and remodelled by Toronto residents.



Fig. 33 Limestone boulders on this farm, indicate the presence of the Escarpment. The thin soil and the rocks make farming impossible.



Fig. 34 The Hockley Valley looking south from the 6th Line. The plateau surface is indicated by the arrow.

By looking at the map of non-agricultural land use (see map 10) it can be seen that, although this type of land is most prominent in the Hockley Valley, it is also quite extensive in the morainic regions. These areas represent land which is either very extensively grazed or not farmed at all, and land which remains in forest, bush, swamp, or in some form of conservation. It also includes recreation, residential, commercial and industrial sites which will be discussed in the next chapter.

The Hockley Valley: The Hockley Valley presents a very different picture of land use than the other two regions. The areal extent of "the Valley" is somewhat difficult to define. However, it has been found that above either side of the Valley there is a prominent plateau-like surface. (see fig. 34) It was noted earlier in the description of the physiography that this level area was originally a spillway channel which presumably occupied the area between the sides of the present valley. However, owing to the fact that the bedrock structure in this area shows a prominent preglacial valley, it seems natural that the post-glacial drainage should use this channel as an outlet. As a result, the post-glacial drainage has followed this valley and the post-glacial erosional processes have rapidly eaten at the loosely packed and easily eroded water land gravels and sands of the glacial deposits. This has resulted in the prominent plateau remnants of the spillway channel above the present valley and the steep, rugged slopes almost down to the Nottawasaga River. There are also two small but distinct flood plain channels occupying the floor of the valley, and these areas are the only flat areas within the valley. On the basis of these physiographic features, the Hockley Valley can be defined specifically as the steep sided but flat bottomed area on either side of the Nottawasaga River from the Centre Road and 5 Side Road to the 8th Line and the Hockley Road. (see map 9) In a number of places at the 1400 foot

level on the concession lines, magnificent views of the Valley can be seen.
(see fig. 35)

The present valley of the Nottawasaga River is just a small remnant of the much larger river of water which must at one time have flowed through this valley. The drop from the 1400 foot plateau at the western end of the Valley is 100 feet and at the eastern end 550 feet. However, the plateau surface is a little lower at the eastern end of the valley, averaging between 1000 feet and 1200 feet in height. Nevertheless, there is a consistently large difference in elevation between this plateau and the present river channel. The smaller flood plains in the bottom of the valley which were mentioned earlier are often occupied by cedar swamps. This is particularly true of the most recently abandoned level.

As a result of these particular physical conditions, the land use and settlement patterns in the Hockley Valley differ considerably from the other two regions. A map showing the areas of non-agricultural land in the Township is very revealing. In the case of the Western Belt, about 13% of the land area is not used for agriculture. In the Eastern Morainic Region this percentage rises almost to 20. But, in the Hockley Valley approximately 80% of the total land area is used for non-agricultural purposes! It is important, then, to study the present land use pattern and its causes. (see map 11)

In describing the physical conditions of this region it was emphasized that the valley sides had extremely hill slopes although the valley floor is flat. In the early history of the Township all of this hilly land was farmed. However, owing to poor conservation practices on the light sandy soil much of the top soil has disappeared. As a result, it is no longer possible to farm this land profitably.

The valley has been a convenient route way through the morainic



Fig. 35 The roughly dissected land of the Hockley Valley, looking north from Valley Schuss Ski Club. Note the blowouts on the far side of the Valley.



Fig. 36 Cottage beside the Nottawasaga River, just west of the 6th Line. Cottage owner has banked the river to prevent erosion.

hills since a Mississauga Indian trail followed the river. The comparatively low, flat land beside the river has made this a natural routeway and this route has developed settlement and cultural patterns of a special nature.

In contrast to both the rural farmsteads or the special country houses seen in the other two regions of the Township, most of the dwellings in the valley are of a different character. This is not to say that these two former types of dwelling do not exist. They do, but in smaller numbers than in either of the other regions. The majority of dwellings in the valley are very similar to normal urban homes. They are not arranged in surveys but are scattered at random on lots close to the Hockley Road. The majority of these homes belong either to people who work in Orangeville, or who commute to the Toronto area to work. They are second and third class homes valued generally from \$6,000 to \$15,000. The houses valued at over \$15,000 usually belong to retired city people or to the non-residents, but these houses number under a dozen within the valley region. In addition to this almost urban type of settlement, there are several areas of cottage development. (see fig. 36) These are always located close to the river. Some are very small and are valued around \$3,000. Others are larger and are worth up to \$10,000. These cottages are usually used only in the summer but may be used in the winter by people who ski.

Both Glen Cross at the 3rd Line and Hockley at the 8th Line are small villages. Glen Cross has a small rural post office, a gas station, and about 15 houses clustered close to the Valley Road, the 3rd Line north and south of the road, and the Nottawasaga River. Hockley is a little larger of the two. It has about twenty-five buildings including two general stores, a gas pump, two churches and a school. (see figs. 37 and 38) In fact, Hockley is the largest of any of the cross-roads settlements in the



Fig. 37 General store and gas pump in Hockley.



Fig. 38 One of the neat country homes in the Village of Hockley.

Township. It is about 10 miles from Orangeville and about 12 to 15 miles from Alliston or Beeton. As a result, its general stores serve as a source of emergency supply for a fairly large rural population within a radius of approximately six miles of the village. Glen Cross, on the other hand, is only about five miles from Orangeville and does not have a general store, school or church, as Orangeville supplies almost all the services for the community.

There are several small pieces of land in the Valley which are still farmed. These are on the small former flood plains. One well farmed piece of land in the Valley supports both cattle and sheep. A farm on the flat plain south of Hockley raises beef cattle. (see fig. 39) Another farmer near Glen Cross raises horses and has a riding stable. Parts of some of the lower slopes have been reforested although this is not as wide-spread as in the morainic areas. In many places the land is just left idle. Much of the rough land such as that along the branch creeks, is still in forest.

The most important use of land in the Hockley Valley is recreation. Because of the decline in the use of the land for farming, much has been idle for 15 to 20 years. Since the Second World War several individuals have realized that the southern slopes of the Valley are suitable for skiing and as a result there are now six recreation areas totalling 750 acres engaged in the skiing business. This business attracts large numbers of people to the Valley during the winter and although the slopes could not be considered suitable for experts because of the limited vertical drop, many intermediate and beginning skiers from the Toronto-Hamilton area find the Valley a convenient day's drive from home. As a result of the skiing "industry" in the Valley, several subsidiary services such as week-end lodges, motels, and restaurants are scattered along the Hockley Road. At present these facilities are somewhat limited; but it seems probable that



Fig. 39 Beef cattle grazing on one of the lowest spillway plains in the Hockley Valley just north-west of the Village of Hockley. Road cut through the sandy kames is in the distance.



Fig. 40 This farm land is some of the best in the Township. Yet, the piles of gravel beyond the pond indicate that the farmer has been testing for gravel.

they will continue to develop as the influx of capital and dwellers from Toronto continues to increase.

As evidenced from the land use map and from the above description, most of the land in the Hockley Valley is non-agricultural, and this must be described as a non-agricultural region. In character it is rural, but it lacks the agricultural aspects of a typical rural area. Yet, the pace of life is slow and the telephone, water, and mail systems are rural.

Many of the residents are descendants of the families who farmed the land until about 20 years ago. Most of these people work either in Orangeville, Brampton, or Toronto.

Chapter 4
Rural Non-Agricultural Land Use

Rural Non-Agricultural Land Use Industrial

The industrial development in the Township is very limited. In recent years there have only been four types of development which could be classed as industrial. These include concrete block, tile, and septic tanks, ready-mix concrete, the mining of gravel and the manufacture of cheese.

In the last year however, the concrete business has closed, so that now the other three are the only remaining activities of any industrial nature.

The mining of gravel is by far the most important. Gravel pits are located in about six locations of the Township but of these only one or two are extensively used today. The largest is located on the north-west corner of lot 10, concession 8. It is the only private concern which continually digs gravel in the Township. Several small quarries have recently been abandoned, probably as a result of competition from the bigger companies in the Township to the south. The Township owns one small pit which is still used for road maintenance. The ready-mix cement was manufactured at one of the pits but as was noted this operation has not been running for the past year.

The gravel in the area is abundant and several farmers have been testing their fields for gravel. (see fig. 40) However the competition in the area around Orangeville is severe and even the large gravel companies are not operating at full capacity at present. The only gravel pit in the Township which is operating full time is the largest in the Township and is located on lot 10 west, concession 8. The total property owned is 200 acres but only about 50 acres is mined at present. The pit has been in operation for 8 years under several different owners. The present owner has been operating the pit for two years and considers the pit profitable anough to ship gravel to Toronto throughout the year. The gravel is mined in the summer

and some is stockpiled for transport to Toronto during the winter. The owner runs six trailer trucks of his own and rents up to nine more on busy days. The gravel is all washed and is hauled to Toronto to a redi-mix concrete company, which is a constant buyer of the gravel. It is also sold to two part time companies. Although the deposits in this area contain a large amount of sand, this too is used by the cement company.

The manufacture of the concrete block and tile is a small operation which is carried on in the back yard of the owner, and occupies only an acre or two. The cheese factory is run by an Italian who makes Italian cheese especially for pizza. His intake amounts to about 150 cans of milk a day from 37 local farmers. These farmers do not all come from Mono Township as this factory is located on the west half of lot 13 on the Amaranth-Mono line. The owner, who manages the business, also hires up to 12 men to manufacture the cheese by hand.

All other industries of importance in the Township are within the boundaries of the Town of Orangeville and will be discussed later under the urban development. As can be seen, industrial activity accounts for very little of the non-agricultural land use in the Township.

Recreation

The recreation business cannot be considered industrial, although it does employ a considerable number of local people largely on a part-time basis. It is estimated that from 35 to 40 local people are employed by the three major resorts in the Valley on an average winter week end. The skiing season, is, obviously, dependent largely on the climatic conditions in any winter. However, on the average, skiing will begin not much earlier than the week-end before Christmas. And unless, the spring is unusually mild, there will be skiable snow until at least the middle of March. How-

ever, it is the period until about the end of February that attracts the most people. On an average week-end with good snow conditions, from 1500 to 2000 people will come into the Valley. The facilities provided for skiers in the Hockley Valley are adequate although not elaborate. Each individual area has a chalet of some type which provides shelter and food. In addition there are facilities for renting equipment, trained ski instructors, and first aid equipment available. (see figs. 41, 42 and 43) None of the resorts provides overnight accommodation, but there are three places in the Valley where accommodation is available. Two of these cater largely to organized groups from churches or schools. The other is a motel, of approximately 12 units located close to the 7th Line on the Hockley Road. There are also two motels on the north side of Orangeville which cater to skiers during the winter.

There are as yet, no publicly owned recreation areas in the Township. The Credit Valley Conservation Authority has purchased some land in the north-east corner of Orangeville, and the area along the Credit River just outside of the Town. The proposition is to dam the river and eventually build an artificial lake for boating and fishing, along with a park area. However, the final plans for this area are not completed. There is a Nottawasaga Conservation Authority but that organization is still partly in the survey stage. This Authority has acquired lands in Simcoe County but as yet have not acquired any land in Mono Township. There is little doubt, however, that this Authority will eventually purchase some of the scenic areas in the Township to preserve them for posterity.

Cultural

There is one additional use of land which has hardly been mentioned at all in this thesis. This is really a cultural aspect, but it is intimately



Fig. 41 Parking lot of one of the ski resorts, on a busy winter week-end.



Fig. 42 Small Chalet and skiers at the Cedar Springs Ski Club.



Fig. 43 Groomed trails and T-Bar ski tow at Cedar Springs Ski Club.



Fig. 44 Broadway Street, the Central Business District in Orangeville.

tied up with the rugged scenic beauty of Mono Township. During the fall and winter of 1962-63, a group of citizens, from both Orangeville, the Hockley Valley and Toronto, began preliminary work on establishing a small summer school of art and craft subjects to be called the Hockley Valley School of Fine Arts and Crafts. The first session was held in the summer of 1963 and used the facilities of almost all types of residents in the Valley. The facilities of one of the ski resorts were used as office and cafeteria space and private homes and public accommodations alike were used to house students. Artists, musicians, and dancers gathered for four weeks to enjoy the academic stimulation and the beautiful scenery of an uncommercialized countryside. Although the School is still in the experimental stage, it is hoped that it will grow into a successful cultural venture which will enhance the reputation of the Hockley Valley and enable more people to enjoy the country throughout the entire year.

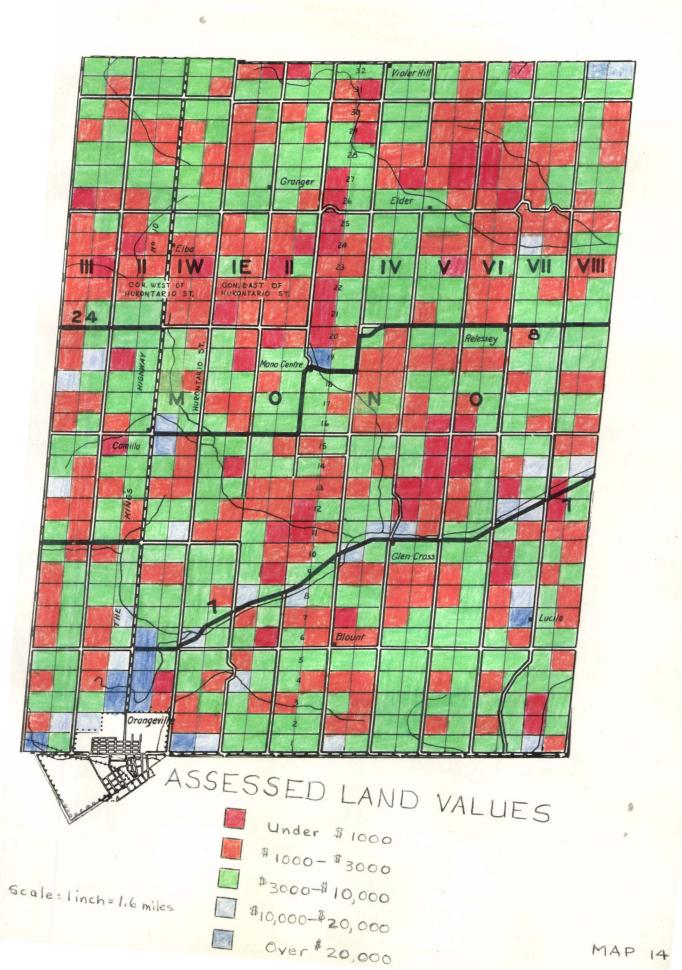
Residential

There is one other aspect of the land picture in the Township which should be described and discussed in a little more detail. This is the pattern of land ownership and land values. It was noted in connection with the regional land use that some part of a large proportion of the land in the Township, especially in the two eastern regions, was owned by none residents of the Township. (see map 13) This map shows each 100 acre lot which is entirely owned by a non-resident. In some cases 50 acre lots are also included. It will be noticed that these lots are concentrated in the rough morainic areas in the northern morainic region and in the Hockley Valley. As has been noted before, these lots are almost entirely owned by Toronto residents who are investing in picturesque land of low agricultural value, for rural retreats from the city. These lots now occupy some 20% of

of the land area of the Township. There are some areas especially those in the Western Belt along Highways 10 and 24, which are either commercial or industrial sites, usually for restaurants, gas stations or gravel pits. The particular absence of areas owned by non-residents in the north-west and north-east, centre-west and south-west, and the extreme south, are good indications that the land here is less scenic and can be profitably used for agriculture.

A map has been prepared from the 1963 assessment roles to show the relative assessed value of each lot in the Township. (see map 14) The value of the lots has been divided into five categories, represented by the five colours on the map. It must be remembered, however, that these are assessed values only, and not the real value. Nevertheless, it is felt that some of the patterns on this map are significant, especially when related to the area of land shaded in map 13. In some cases the correlation between the shaded areas on this latter map and the land of highest value is very close. In other cases valuable lots have other significant though different reasons for their value.

The valuable land along Highways 10 and 24 beginning just north of Orangeville is a combination of highway frontage and of the commercial and industrial development in this area. The land on both sides of the Hockley Road tends to be the most valuable. This is partly the result of the residential character of this land and partly because of the commercial and recreation areas along the road. The land of lowest value, coloured in red and orange, prevails in the northern part of the Eastern Morainic Area. This pattern is again a result of the physical nature of the land. The medium valued green coloured land areas are usually those areas of the best farm land, with well kept, large farm houses. It can be concluded that the land of highest value is used largely for recent urban-type development and for commercial purposes. The land of medium value is generally that land



MAP 14

which supports agriculture. The land of lowest value, is either the land which is very extensively farmed, or left in bush, and that which has been acquired by non-residents for the use of small buildings only. In general this class is not farmed.

Chapter 5 Urban Land Use

Urban Land Use

Orangeville

Orangeville is a town of approximately 5,000 located partially in the south-west corner of Mono Township and partially in the Townships of East Garafraxa and Caledon. Orangeville is a separate municipality and as a result is politically separated from Mono Township. The areas which are now the North Ward and West Ward of Orangeville were once lots 1 and 2, Et and Wt, concession 1 W.H.S., and lots 1 and 2 Et and 1 Wt, concession 2 W.H.S. (see map 2). Orangeville is the County Town for Dufferin County and as a result is the location of the various County offices such as those of the sheriff, assessor, clerk-treasurer, county engineer, and judge. In addition, the County Jail and the Registry Office are located in Orangeville, on Zina Street West. The offices of the Town of Orangeville are located on the main street, Broadway, at the corner of Second Street. Besides the Town and County offices in Orangeville, there are also some Ontario Government offices such as those of the agricultural representative, the Provincial Police, the public school inspector, the Highways Department and the Water Resources Commission.

Orangeville has been zoned by the Planning Board and these zoned areas will be used as a partial basis for the land use map of the Town. In some cases changes will be made but these will only be in the areas of residential development. The residential zoning by the Planning Board distinguishes only where single or double houses may be built. As a result, Orangeville will be divided into four residential classes on the basis of appearance and value of the homes. There are two areas of ribbon development outside the town limits and although these are not shown on the land use map, they will be described as to their particular type of use, and in their relation to the Town. In addition to a description of the land use of the Town, there will be a discussion of the various services supplied by the

Town and of the functions of the Town in relation not only to Mono Township, but to other surrounding areas.

The commercial district of the Town of Orangeville is located on both sides (north and south) of Broadway Street. (see map 15) It extends on the north side from the Credit River in the east to Faulkner St. in the west. On the south side, it extends from a block east of Wellington Street to John Street. There is also an extension of this south-side commercial area into several lots west of Centre Street. There is an area of commercial development both east and west of First Street northward from approximately Fifth Avenue. This area continues into Mono Township as a section of ribbon development. There are also small isolated commercial areas within the Town.

Each of these commercial areas differs slightly from the others. Hence, it is necessary to look at each one separately. The largest and most important is the Central Business District located as described, on both sides of Broadway. (see fig. 44 and 45) The north side of Broadway between Faulkner and Second Streets and the south side between John and Mill Streets are the areas with the standard commercial retail outlets. These businesses consist mainly of clothing stores, smallwares, furniture, hardware, drug, and food stores. In addition, there are three banks, lawyer and real estate offices, an automobile sales and service centre, the Liquor Control Board, the Post Office, Fire Station and movie theatre. The businesses farther east beyond Second Street are less retail in character and are not as concentrated. There are several more real estate offices, farm machinery sales and service, a creamery, dry cleaners, construction companies with commercial lumber outlets, car servicing gas stations, and agricultural feed companies. The areal extent of property occupied by this latter type of business is much larger, generally, than that of the average retail stores to the west.



Fig. 45 Mill Street, a newer section of the Central Business District.



Fig. 46 Isolated first class home in a predominately second class area.

In addition, there are still a number of old houses in lots between some of these businesses. It is especially noticable between Second and Third Streets on the north side that the commercial district has gradually enlarged and encroached upon areas which were originally residential. The western extension of the commercial area beyond Centre Street is an area occupied by a medium sized supermarket and a new Brewers Retail Store.

The area of ribbon development in the north end of the town begins just north of approximately four blocks of solid residential area. This ribbon development, as may be expected along a main highway, begins with the appearance of gas stations. From its beginning within the Town to its gradual extinction almost 2 miles north at 5 Side Road, this area contains no less than eight gas stations. There are also roadside snack bars, drive-in restaurants, and car sales lots. In addition there are two motels, a small housing subdivision, several individual homes, a tractor sales business and the Provincial Police Headquarcers. As most of this area is not within the Town, there are no sidewalks and most of the buildings are a considerable distance from the highway. They are not at all regularly spaced and the empty lots are left idle. As a result, this area is not at all attractive and does little to enhance the charming character of the rest of the Town.

The Town has been divided into four classes of residential land use. This division was based on building values obtained from the assessor and on the appearance and location of the particular building. The first class housing includes homes which are valued at over \$17,000, and the second class houses are those valued from \$10,000 to \$17,000. Third class houses are valued from \$6,000 to \$10,000 and fourth class houses are those under \$6,000. In many cases a street will contain houses of more than one class. But it is the value and appearance of the majority of the houses on the street which determine the classification.

There are only small areas of first class housing. The largest one is the area of homes just recently built at the north end of Sunset Drive, on Forest Park. Here the majority of the homes are valued at over \$17,000. There are also several isolated houses at this value but they are usually on streets containing a majority of second class houses. (see fig. 46)

Second class housing is the most prominent. The houses in this class are of two types. In some cases they are new homes in areas of recent development such as that north of Broadway and west of Clara Street. (see fig. 47) In other cases they are the well kept, large, old houses of Zina Street or York Street. In both cases these houses have approximately the same values although the old houses are seldom sold for over \$13,000, while the newer homes often retail for \$15,000 to \$17,000. However, most of the old homes contain improvements from \$2,000 to \$5,000. The older homes on First Street and on Broadway may be classed with the latter. (see fig. 48)

The third class housing is also of two types. There are a few new houses of very small size which have to be classed as third because of their size. Most of the remaining third class housing consists of old houses from 15 to 40 years old which are rather small and closely spaced. The largest area of these is south of the railway between Bythia and John Streets and east of Mill Street to Wellington Street. South of the Town Line the houses are largely third class buildings but the odd newer and more expensive house is being built here as a result of lower land values. (see fig. 49)

There are only small areas of fourth class houses and they usually are isolated units. One section on the east side of Third Street, however contains about a dozen houses. These are all very small and run down, and are often covered only with tar paper.

The industrial areas in the Town are of two types. They are either sites housing businesses which could be considered bulky, though not heavy, and small light industrial plants. There is little distinction as to the



Fig. 47 Second class homes on Sunset Drive.
These homes are less than 10 years old and range in price from \$12,000 to approximately \$17,000.



Fig. 48 One of the old, well-kept second class homes on Zina Street.



Fig. 49 Third class housing on John Street.
These houses are situated very close together and are generally not too well kept up.



Fig. 50 Concrete block manufacturer located just east of the railway line. The railway station is at the extreme right.

location of either of these types of factory, except that the two businesses located within the main residential area are a bit lighter than those on the edges of town. The heavier industry such as the concrete block manufacturers, are located in the industrial land south of the Town Line and just east of the railway. (see fig. 50) The land north and south of the Town Line and beside the railway is owned by the railway, and used for railway buildings. The land to the east of Third Street has several factories on it. The largest is Greening Metal Products, a company which manufactures heavy wire boxes, gravel screening equipment, and ski lifts. In addition, there is a company which manufactures drugs, and also the Ontario Hydro building. Directly within the residential area west of First Street, are two small businesses. One is located just west of First Street between Fead Street and McCarthy Street. This is Howard Chemicals, a manufacturer of insecticides. The other is a smallwares manufacturer located on the south-east corner of Faulkner and Elizabeth Streets. (see fig. 51)

Three new industries, initially employing 120 persons moved into Orangeville in 1963. Two of these companies, Filtro Electric and Temp-Rite Industries constructed new plants on the Town's 124 acre industrial site south of the railway and west of Dawson Road. The third company, Polyethelene Bag, Canada Limited, has ourchased an existing site on John Street south of the Town Line and will start production in the spring of 1964.

A large piece of land north of Broadway and east of the industrial area has been acquired by the Credit Valley Conservation Authority. The land is within the Town limits, but it has never been built upon because of its low, swampy nature. Within the Town on the south side there are two areas along the small branch of the Credit River, which have been designated as green belt. As yet they are still idle but may eventually be made into park land. There are two small park areas in the north side of the Town, one of which houses the arena. The Orangeville District High School occupies



Fig. 51 The Grigg Merchant Supply Company, which supplies chain stores from coast to coast. The neat warehouse is located within the residential district of the Town.

a large piece of land on the corner of Fead and Faulkner Streets. There are also two public elementary schools and one separate elementary school. The land remaining within the Town boundary not used for any of the above purposes is designated as rural. In some cases this land is farmed; in other cases it is left idle, or marked out in undeveloped surveys for either residential or industrial use.

In discussing the function of the Town of Orangeville, it is necessary to take note of both the location of the Town and of the nature of the surrounding area. It has been mentioned that Orangeville is on the main highway route from Toronto to both Collingwood and Owen Sound. It is also situated on a main east-west highway, number 9. There is always considerable traffic on both these highways, especially the route to the north. This highway is used heavily both summer and winter on week-ends by cottagers and skiers alike. It is also the main transport route to Toronto from any town west of a line from Collingwood to Orangeville. As a result, there is always considerable through traffic in the town. In addition to being on main busy highways Orangeville is also the largest Town within a twenty mile radius from the Town. Inside this approximate radius there are seven towns with populations over 1000 but less than 5010. that of Orangeville. These are: Shelburne, - 1295, Alliston - 2948, Bolton - 2074, Acton - 4205, Erin - 1021, Fergus - 3928, and Arthur - 1256. All other settlements are smaller.

Just outside this radius to the south are the municipalities of Georgetown and Brampton. Both these centres have populations over 10,000. In addition, the City of Guelph lies just to the south-west about thirty-five miles from Orangeville, It has a population of approximately 39,000. To the north, Collingwood with a population of 8,134, is an additional twenty miles

¹⁰ most recent population figure for Orangeville, Orangeville Banner, March 26, 1964
11 following population figures from Ontario Department of Highways 1963
official road map of Ontario.

outside of the radius. Barrie, with a population of just over 20,000 is 40 miles to the north-east.

To say that Orangeville controls the trade within this twenty mile radius is not quite true because the larger municipalities on the borders have much to do with this. Thus, the area from which Orangeville derives its trade to the south is shortened by Brampton, and Georgetown. Acton is equidistant from Guelph and Brampton, and Fergus comes under the influence of Guelph. Arthur is equidistant from both Guelph and Orangeville, but most of its trade is oriented to Guelph because of the larger size of Guelph. Shelburne is probably the only town which goes directly to Orangeville for goods not available there. Alliston is influenced by Barrie, largely because travel to Barrie is much less complicated by terrain than it is to Orangeville. As a result of different conflicting urban influences, the service area for Orangeville is cut short in the south and south-west by the Brampton, Georgetown and Guelph complexes, but it extends farther north to the full distance of some 20-25 miles in an arc from the west to the east. (see map 1)

The functions of Orangeville within this area are still numerous and important. The area and population served by the Dufferin Area Hospital in Orangeville is a fair indication of the influence of the Town.

The hospital has a service area of 22,000 people, and one third of these are from Peel County. The hospital is now in the process of adding a little over forty new beds to the existing 82 bed hospital. There are small hospitals in both Alliston and Shelburne, and larger ones in Guelph, Owen Sound, Collingwood, Barrie and Brampton. Orangeville's present population of 5010 is an increase of 6.3% over the 1962 figure of 4,713. The Town's present assessment breakdown is: residential - \$3,481,565 or 61%; industrial - \$2,159,300 or 39%.

13 Ibid.

¹² Orangeville Banner - March 26, 1964.

Until after the Second World War, Orangeville functioned only as a service centre for the farmers in the surrounding rural areas and as a residence for retired farmers in the same area. These are still important functions of the Town. But, since the War, there has been the slow but constant influx of light industry, to take advantage of the labour supplied by the exodus of the young people from the farms. The population has risen rapidly from a low ebb of approximately 2300 in 1942 to a little over 5000. The early 1950's saw rapid and widespread construction of new homes to accommodate the increasing population. The Town can no longer be considered just a farmer's town. There are four lawyer's offices, 10 churches, six insurance companies, 7 real estate offices and nine doctors in the Town. Nevertheless, the Town still supplies many services largely for the farmers. There are four dealers who sell and service farm equipment; there are five feed dealers and three fertilizer dealers, one a manufacturer. Orangeville is on a branch line of the Canadian Pacific Railway and this rail line is being used increasingly by the small manufacturers as well as by the farmers.

In relation to Mono Township only, it can be said that for some supplies Orangeville is the only service centre, and for others, Shelburne and Alliston affect part of the Township. Orangeville, is usually the town where weekly shopping is done and where services are sought. However, Shelburne and Alliston both serve as towns where immediate supplies, mainly food, are secured. Their influence, though, is limited to the two northern corners of the Township. As a result, Orangeville is considered the main service centre and marketing town for the farming population not only in Mono Township, but also in the relative areas of neighbouring townships. It is largely still a residential town and it attracts older retired people who want to be close enough to Toronto to do business there, but far enough away to enjoy the atmosphere of the country.

There is little doubt that Orangeville will continue to prosper, and expand. It is probable that several more light manufacturing companies will take advantage of the slightly lower wages before the wage rates compare with areas farther south. Industrial growth in the community has been impressive in 1963. Interested business minded men have formed an Industrial Committee to promote and attract industry; they are also in the process of organizing a Chamber of Commerce in Orangeville. The Town is located in a favourable position in Southern Ontario in relation to the expanding urban areas and it is probable that it will continue to increase in importance as a satellite of the large Metropolitan Centres.

Chapter 6

Summary and Conclusions

Summary and Conclusions

Summary

The purpose of this study has been to describe and assess the geographical patterns which occur in Mono Township. Fundamental to the study of these patterns have been detailed descriptions of the physical conditions in the Township and of some of the aspects of early settlement in the area.

The physical geography is largely based on the Miagara Escarpment which forms the bedrock geology through most of the area of the Township. In some places the Escarpment face is exposed as a rough cliff of grey dolomite; in other places it is buried by glacial till. In the south the Escarpment has been severely indented by a preglacial valley. The glacial debris which lies over the bedrock is varied. In the western third of the Township, the deposits consist of small patches of till plain, kame and till moraine, and spillway channels. The eastern two-thirds consists of larger areas of till and kame moraines and spillway channels. To the east there are three large north-south till moraines separated by wide, heavily discected spillway channels. The most rugged of these spillways, that in the Hockley Valley, now occupies approximately the same areal extent as the preglacial valley which cut the Escarpment face. In contrast, the spillways in the western third of the Township are very flat and generally more suitable for farm land than those to the east. The landscapes throughout the Township range from extremely flat, rich farm land to rugged kames, suitable only for growing scrub grass.

The pattern of historical development has resembled that of most areas of pioneer settlement in Southern Ontario. Settlement began around 1320, and population rose to a peak of a little over 4000 by 1831, then declined steadily to a low of 1895 in 1951. The peak population coincided with the period of maximum wheat production. After 1831 wheat production in

Southern Ontario declined with the opening of Western Canada. In addition to the exodus of people to the Prairies, other economic factors, principally the depletion of soil, caused a population decline in the Township. Since the Second World War, the emphasis in agriculture has shifted gradually from wheat and dairy cattle to extensive mixed farming and beef cattle.

A study of the present land use conditions reveals that the Township consists of three distinct geographical regions. Each of these regions shows an emphasis on a different type of land use. The Western Belt shows an emphasis on mixed farming while the Eastern Morainic Area shows an emphasis on beef farming. The Hockley Valley, however, is largely non-agricultural land. Much of the latter remains in bush or swamp; some is reforested and the remainder is used for either recreation, residential or commercial purposes. The recreation areas are largely involved with the skiing industry and are located on the highest hills on the south side of the Hockley Valley. The residential areas are either urban-like houses located along the Hockley Valley Road or summer cottages located close to the Nottawasaga River. The commercial establishments are located along the Valley Road and serve both the transient population attracted by the recreation areas and the permanent residents.

The Town of Orangeville straddles the west end of the southern

Township boundary. This is a service town of approximately 5000 residents.

Much of its retail structure caters to the surrounding farm population. To serve the surrounding rural population has been the main function of the

Town since it began. In addition, development since the World War II has brought in several light industries, and their number is increasing steadily.

These industries now depend on the labour supply which has resulted from the shift of young people from the farm to the Town.

Conclusions

There are two major factors which have produced the geographic patterns in Mono Township. These are the physical conditions and the influence of large urban areas.

As a result of the contrasting physical conditions throughout the Township, differences in the land use patterns are apparent. The flat western areas of good farm land but no particular beauty support a normal rural farm population. Most of the land, except for small rough or swampy areas, is farmed. The emphasis is on mixed farming of dairy or beef cattle, pigs, chickens, sheep and grains. In contrast, the Eastern Morainic Area has a slightly less concentrated type of farming. Here the land in many places is very hilly. Soil has been severely depleted in many areas and only poor, sandy pastures remain. There is an increased proportion of the land area which is not in use for agricultural purposes as intense as those in the Western Belt. More pronounced, however, is the amount of land in the Hockley Valley which is not used for agriculture. This is the extreme case of the influence of adverse physical conditions and of poor cultivation practices in the past. As a result, the patterns of land use in this region are almost completely different from those in the other two regions. In addition to the fact that most of the land is unsuited to agriculture, there are two other physical conditions which have contributed to the uniqueness of the Hockley Valley. This valley occupies an area which was formerly a preglacial valley, and the preglacial valley has been conveniently filled in with glacial till. In addition, there is also a prominent river flowing in the present valley. The fact that the old valley has been filled at its top end has made it easy for a route to climb the Escarpment, and the presence of the Nottawasaga River has enhanced the importance of this routeway since Indian days. As a result, this valley has developed as a route next in importance to Highway 10 through the Township, and also as the area

of most concentrated settlement.

The forces exerted on the Township by the expanding and diversified Toronto-Hamilton urban complex have resulted in rising land costs, increased non-resident land ownership and in an increase in the size of the industrial community in Orangeville. The first two phenomena are linked to the desire of the more welthy urban dweller for a second home. As a result, the last twenty years has seen a sharp rise in the cost and value of the land in the Township. This is true for the most part of the eastern two-thirds of the Township but does not apply to the western third because of its lack of scenery. It is largely the rolling hills, small valleys and magnificent views of the eastern part of the Township which have lured the urban dweller to the Township. These people have bought the old houses and sometimes whole farms for their leisure uses. In cases where the nonresident does not want to cultivate the land which he buys, he generally rents it to a neighbouring farmer to graze or cultivate. The fact, then, that many of the worn out farms are being acquired by the more prosperous farmers has resulted in increased care of the land. These farmers are extremely intelligent men who know the land and its capabilities better than any outsider. As a result they intend to improve the land which they work and to produce crops which will be competitive with any in the Province. These farmers are also interested in the condition of the land around them and want to conserve it and eventually improve the poorest land so that it can be cultivated again.

The "foreign" urban dwellers have acquired not only many farms but also many of the dwellings in the Hockley Valley along the River.

The fact that this land lends itself to skiing and is also a reasonably short distance from the large urban areas to the south has attracted the resort owners. Snow conditions in this area of Southern Ontario are extremely variable but this is almost offset by the Close proximity to the urban

centres.

Orangeville has also been affected by the growth of the urban centres. Since the Second World War there has been a general increase in prosperity in Canada which has been especially evident in the expansion of industries not only in the large urban centres but also into the smaller communities. Such has been the case with Orangeville, and since the War its function has changed to include a small industrial community in addition to its older function as a service centre for the rural population.

It is probable that the number of non-residents in the Township will continue to increase in the future. It is also probable that the condition of the land in the rougher parts of the Township will gradually be improved. In addition, the residents of Orangeville can expect to see a continued increase in the number of light industries in Orangeville and in the total population of the community. These improvements, however, will ultimately hinge on the rate of development and on the state of economic conditions in Southern Ontario and in Canada as a whole.

It is felt that Mono Township and the Town of Orangeville are in a favourable position in both the small urban and rural settings in Southern Ontario. The country is beautiful and the population and industry are increasing without undue commercialism, bringing new wealth to the area as a whole. It seems probable that the patterns which will appear in the future will be only slight modifications of the basic geographical patterns prevailing at the beginning of the 1960's.

BIBLIOGRAPHY

- Chapman, L. J., and D. F. Putnam, The Physiography of Southern Ontario, Toronto: University of Toronto Press, 1951, Ontario Research Foundation.
- Chapman, L. J., and D. F. Putnam, "Soils of South Central Ontario", Scientific Agriculture XVIII, (1937).
- Clark, Thomas H., and Colin W. Stearn, The Geological Evolution of North America, New York: The Ronald Press Co., 1960.
- Heyes, Ester, The Story of Albion, Bolton: The Bolton Enterprise, 1961.
- Hoffman, D. W., and R. E. Wicklund, Soil Survey of Dufferin County, unpublished, in preparation by the Research Branch, Canadian Department of Agriculture and the Ontaric Agricultural College.
- Hoffman, D. W., et al, Soil Survey of Simcoe County, Research Branch, Canadian Department of Agriculture and Ontario Agricultural College, 1962.
- Jones, R. L., History of Agriculture in Ontario, 1613-1880, Toronto: University of Toronto Press, 1946.
- Kerr, Donald P., A Regional Geography of Canada, Toronto: J. M. Dent & Sons, 1956.
- Kerr, D. G. G., A Historical Atlas of Canada, Toronto: Thomas Nelson & Sons.
- Leet, D., and S. Judson, Physical Geology, New Jersey: Prentice-Hall, Inc., 1959.
- MacLean, T., Canada, Past, Present and Future, II, Toronto, 1851.
- McKitrick, A. D., "Orangeville in 1867", papers in the Ontario Archives, Toronto.
- Putnam, Donald F., ed., Canadian Regions, Toronto: J. M. Dent & Sons, 1952
- Putnam, Donald F., and L. J. Chapman, "Climate of Southern Ontario", Scientific Agriculture, XVIII, 1938.
- Rayburn, J. Allen, M. A. Thesis on Orangeville, University of Kentucky, 1956.
- Reed, Allan J., "Unto the Hills, A History of the Parish of East Mono", Orangeville, 1952.
- Reeds, L. G., Agricultural Geography of Southern Ontario, Toronto, PhD. Thesis, University of Toronto.

Sawden, Stephen, A History of Dufferin County, Orangeville: The Orangeville Banner, 1949.

Slater, Patrick, The Yellow Briar, Toronto: Macmillan Co., 1945.

Assessment Rolls, Mono Township, 1962 records for 1963 taxation

Canadian Census Reports, Dominion Bureau of Statistics, Department of Trade and Commerce, Ottawa, 1851-1951.

Climatic Section, The Atlas of Canada ed., Geographical Branch, Department of Mines and Technical Surveys.

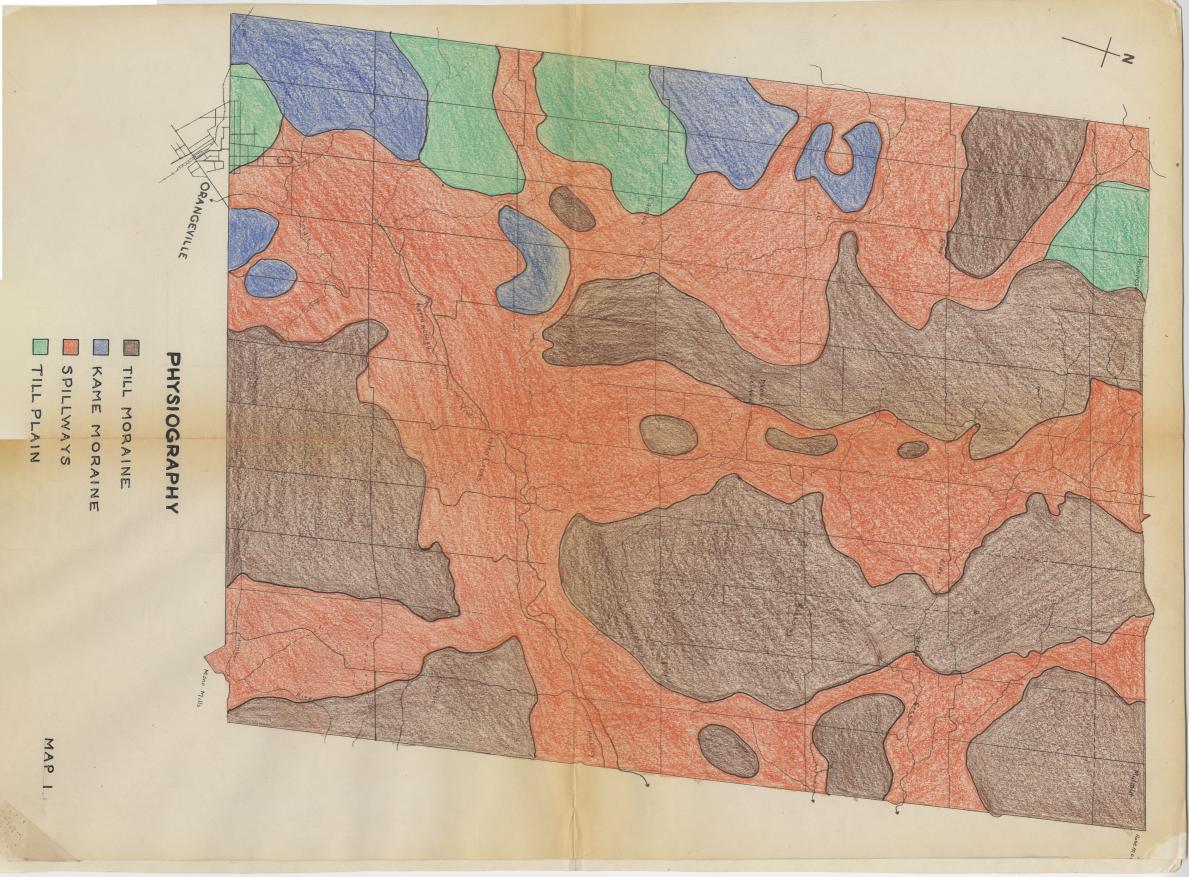
Official Plan, Mono Township Planning Area, 1958.

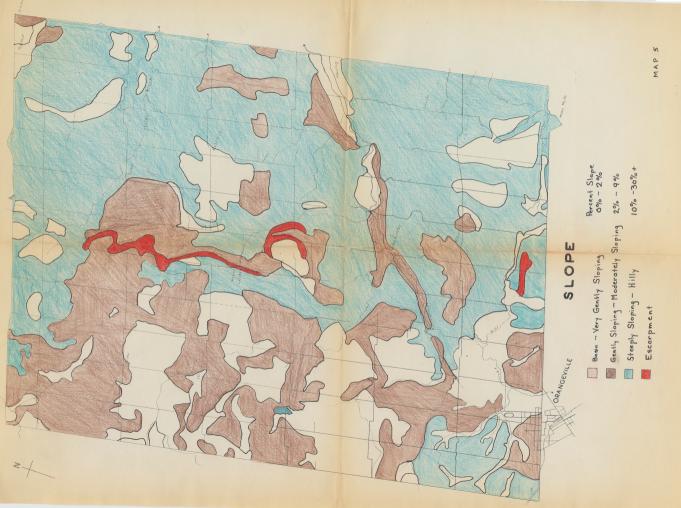
Illustrated Atlas of the Dominion of Canada, Toronto: 1880.



"Unto the hills around do

I lift up my longing eyes."







MAP 3

Toledo Silty Clay Loam

Hillsburgh Fine Sandy Loan

Colwood Silt Loam

