EAST FLAMBORG TOWNSHIP

A SSUDY IN LAND UTILIZATION

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PREFACE

In the following geographical study of Upper East Flamboro township of the County of Wentworth, the regional method has been applied in the investigation of land utilization and sottlement patterns.

The study is divided into six chapters. The first chapter is concerned with the physical characteristics. History of Settlement and History of Agriculture are discussed in Chapters two and three respectively. Chapter four is an examination of the Present Agricultural Lond Use, while Chapter five is devoted to an examination of non-agricultural uses of land. The final chapter six is composed of a summary and conclusions.

CHAPTER ONE

GENERAL SETTING OF UNFER BAST PLAMBORG TO SHIP

East Flamboro is the easternmost of the eight townships which comprise Wentworth County. The setting of both the township and the county is shown on the location map. (Figure 1.) It may be noted here that the thesis area is only that part above the Niegara Escarpment and, in future the thesis area will be referred to as Upper East Flemboro.

The study area is not of great importance in the transportation network of Ontario. There are only two provincial highways in the area, one being the western boundary of the township (Highway #6) and, the other traversing the township just to the north of the escerpment brow (Highway #5). The former highway links Hamilton with Gualph, while the latter is a through route to Toronto from London, Ontario. The area is serviced by the Canadian Pacific Railway which has two brench lines in the township. One line crosses the northern boundary and connects Golt with Toronto. The other enters the township at the Waterdown re-ontrant.

Waterdown and Carlisle are the only centres of any importance entirely within the township, but the village of Freelton straddles the western boundary. Waterdown and Carliele can be located on the Key map. (Figure 2).



FIGURE 1

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Upper East Flamboro has a rectangular shape, being four miles in width and twelve miles in length giving an area of approximately 45 square miles. The total area of the township is somewhere in the vicinity of 35,000 acres of which 26,250 are in the thosis area.

Physiographic Setting

The Misgara Escarpment, which is the most prominent feature of the peninsula divides the area into two unequal parts. The area below the escarpment is approximately 10.1 square miles. It has been studied previously by an N. Gardner.

The area was glaciated during Ploistocone times and therefore many glacial landforms can be observed. Immediately behind the escarpment, two woraines are encountered. These are the Flamboro till woraines. They are compact moreines and follow quite closely the contour of the escarpment between West Flemboro and Flemboro Station. The moreine east of Waterdown is less suited for agriculture, being of a stony, marshy nature in places. The two moraines are coparated by a glacial spillway. The soil here is thin, moderately stony, overlying gravel.

Farther north is a sand plain with two or three drumling which are portially covered by morninic materials. One theory on this occurrence is that the drumling were laid down first by the ice and were later partially covered over by the mornings. The northern part of the township is a limestone plain which has very shallow soils. In the morth-eastern section of this limestone



Clappison's Cut through the Niegare Locarpment. The Lockport Dolomite forms the resistant cap of the escarpment and is underlain by the Medina and Clinton formations. plain is a rough, boulder strewn, imperfectly drained area. This is terminal moraine. Within the district are drugling which are related to the Guelph Field.

PHYSICAL GROGRAPHY

Geology

Upper East Planboro is entirely underlain by the Lockport Dolomite limestone formation. The Medina and Clinton formations which are reservoirs of natural gas in other townships of Wentworth County are almost non-existent in Upper East Flexboro. (see figure 3). The cherty nature of the Lockport Dolomite in this area makes it unsuitable for quarrying operations. This hard resistant dolomite has formed the protective cap of the cocarphont however, thus being responsible for one of Southern Onterio's most distinctive features.

The present physiography of the region is a result of the glaciation of the cross. The Wisconsin Lee Age has left the debris which can now be observed at the surface. The Flamboro moraines were deposited to the north of the escarpment brow as ise contact moraines. They occur as a compact mass parallel to the escarpment brow. The ice mass also scoured the limestone plain to the north leaving a relatively flat, boulder stream area.

1. Putnem and Chapman - Physic rephie Regions of Southern Ontario.



FIGURE 3

Olimate

The climate of the thesis area is described in the classification, "The South Slopes", by Chapman and Putnam. 1 This area lies to the north of Lake Onterio. It has a southern exposure and as a result climate is modified slightly by the lake. The altitude of the climatic region ranges from five hundred to one thousand foot, while that of the thesis area is between eight hundred and one thousand feet, placing it well within the altitude limitation. As the township is on the path of the cyclonic disturbances which cross the continent from west to east, the weather from day to day is variable, with a change taking place usually every two to five days. Thornthueite in his climatic classification places the study area in a Ber or humid microthernal climote which has an abundant rainfall in all seasons. In the Koppon system this area is classified as a DTb cliuate which is a humid continental climate with cool summers. Reinfall is generally adoquete in the area though during part of the summer a moisture deficiency may occur in the sections where soils are thin. The amount of rain and anow received, is more above, than below the escarpment.

The following climatic data is taken from Chapman and Putnam:

Olimptic Region	South Sloves
Altitude	600" - 1000"
Moon Annual Temperature	214
Mean Winter Temperature	21
Hean Spring Temperature	41
Noan Summer Temperature	55
Hean Fall Temporaturo	47
Extreme Low Temperature	-39 (cont'd)

1. Futnes and Chapman - Climate of Southern Untario.

Olimatic Region 9	outh Slopes
Extreme High Temperature	105
Daily Range of Temporaturo	19
Average Date of Last Frost in Spring	May 15
Averene Date of First Frost in Fall	Sept 28
Average Length of Frost Free period (days) 135
Beginning of Growing Season	Apr 15
End of Growing Season	Cct 28
Avorage Length of Growing Season (days)	196
Average Annual precipitation	32.6"
Average annual enoufall	60*
Average Rainfall Apr 1 - Sept 50	17.0 ⁿ
Average Summor rainfall (J.J.A.)	0.7"
P.E. Index (J.J.A.) 12.5	12.5
Frequency of Droughts	20
Percent possible sunshine in growing seas	ion 50.5

Setural Vegetation

The Ningara peninsula is included as a part of the Lower Lakes region by Halliday in his classification.¹ The natural forest cover here is the broad leaved deciduous tree which requires a growing season of at least 150 days. Upper East Flamboro is therefore within the limits of this classification, having a growing season of approximately 196 days. The northern part of the township is part of the Huron-Onterio forest type. Here there are more conifers than in the Lower Lakes classification. The dominant association throughout the erem is that of the maple and back with oak and basewood also common.

The original forest cover has been reduced greatly since the first white settlers arrived during and after the American Revolution. In 1051 there were 16,405 acres of forest. The 1941 census figures were 2,911 acres. Much of this is secondary or tertiary growth. In the thesis area most of the woodland occurs on the poorly drained areas which are not suitable for cultivation. In the north-eastern section of the study area the soils are thin. The forest cover there is quite extensive.

1 Halliday, D., A Forest Classification for Canada.



Soila

In the thesis area differences in climate do not account for the variations in the soil. It is the origin of the glacial debris, and the topographic features which are the important factors in soil formation.

The soils of this area belong to the Groy-brown Podzolic group. These soils have developed on parent material of lacial origin under a dominantly broadloaf forest growth which flourished in a cool humid climate. Leaching is less pronounced here than in the true Podzol soil and as a result the soil is a darker brown.

In a grey-brown soil there is usually a thin Ao horizon with a partially decomposed layer of organic matter overlying a deeper Al horizon where melanization is more advanced. The A2 horizon follows the Al. It is fairly deep, is yollowish brown in colour and often shows some evidences of leaching. The B. horizon is an accumulation area, a zone of enrichment found below the A2 horizon.

The soils of Upper East Flamboro have been mapped by the Soils Department of the Uniario Agricultural College. Their classification has been used as has their soil map. Figure 4 is a copy of this soil map. The soil types in the area number fifteen. They will be discussed where possible in catenas.

The Eunfrice setena consists of Eunfrice Loam, Gaerin Loam, and Lyons Loam. These are the well drained, imperfectly drained and poorly drained members respectively of the estens. On the soll map of Wentworth County (1926) much of what is now Eunfries Loam was classified as Farmington Loam. A reader familiar with Fermington will at once realize what type of soil Eunfries Loam is.

Bunfrice Loam is found almost entirely in the northern onethird of the area. It has developed on till moraine. Thus it is light textured containing much dolomitic limostone. This one third of the thesis area has been classified as limostone plain. Endrock here is close to the surface, often being exposed. Numerous weathered limostone boulders are scattered throughout the area.

Dumfries Loam is the well drained member of the catena and as such is the most suitable for agriculture. Even so, the stoniness of the soil and the close proximity to bedrock hamper agricultural practices. The soil is vory droughty and driesquickly in summer becoming hard and cracking into large blocks which render it useless for crop production. A generalized profile of Dumfries Leam can be seen in figure (5).

Where Duafries is cultivated, it is quite common to find the tops of drumling and hills eroded down to the parent material which shows as a light band or spot near the top. An accumulation of five or six feet of top soil at the foot of the slopes and between the drumling can sometimes be found. In Upper East Flambore there were fields where severe sheet erosion was observed. This was due to unwise clearing of the drumling for cultivation. Nothing apparently had been done to correct this situation. To combat this severe erosion problem, long term crop rotations would be a good policy to adopt. Much of the area needs to be put in permanent pasture or referented. Where the drift is deepest and multivaries can be rotained longer some crops can be grown with fair success. Ned clover and timethy are found throughout the area. These provide good posture fields as well as adding organic matter and nitrogen to the soil. Fortility is inherently low and the addition of commercial fertilizers and barnyard manure should be encouraged.



DUMFRIES LOAM

- Ao Thin layer of partially decomposed leaves and woody material 1" thick
- Al 0-4" thick, a dark brown loam, very friable crumb structure containing numerous stones and boulders. PH 6.6
- A2 14-16" thick, a moderately yellowbrown loam with little structural development and quite stony. PH 6.6
- B 11" thick, friable consistency, stony. PH 7.2
- C light yellowish brown sandy loam very stony and bouldery. PH 7.4 calcareous.

FOX SANDY LOAM

- Ao A thin layer of partially decomposed organic matter
- Al 5-7" thick, a light brown sandy loam with crumb structure, stonefree PH 6.2
- A2 18-20" thick. A yellowish brown sandy loam with platy structure. Stonefree. It has a leached zone. PH 6.0
- B greyer in colour, some accumulation of clay in it. Reddish brown loam in the lower part of B horizon. Stonefree. PH 6.8
- C light yellowish brown cand, stonefree calcareous in reaction. PH 7.8

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FIGURE 5

Cuerin Loam in the imperfectly drained member of the ectemn.¹ Like Dumfries loam, Cuerin has been developed on light textured limestone till. It is found between the ridges of Eunfries loam and in scopage areas formed by the surrounding slopes. Cuerin is a gently sloping soil, often irregular and is imperfectly drained. It often has an excess of water as evidenced by mottling and the work profile development. It developed under a natural vegetation of ash and elm, basewood and pino.

> The following is a description of typical Guerin loss. As - a thin layer of partially decomposed organic matter Al - a dark brown loss, very friable in structure, containing

lerge stones, 0-6" thick, having a P.H. 7.2

- A2 6-9" thick, a light brownish yellow loss friable, showing evidence of mottling, has a few stones. P.H. 7.2
- B brown loam, 9-15" thick, mottled, contains many stones F.H. 7.5
- C light brown yollow loam which may or may not be mottled at the top part of the horizon. It contains boulders and stones, is calcarcous in nature. P.H. 7.4

matter, phosphare and, potash. The irregular topography on which it develops results in a poor surface drainage and in poor internal drainage. The imperfect drainage, low fortility, and stony nature of the soil procludes it from being used for other than pasture and hey crops. Cultivation is possible on drained sections providing the stoniness is not too severe.

Querin Loss is low in netural fortility, in organic

1 The name of Querin has been changed to Killean and this latter name will be used in future soil reports. Querin will be used throughout this report.

Lyons Loam¹ is the poorly drained member of the catene. It has been placed in the Dark Grey Cleisolic Great Soils Group. Lyons Loam is found in areas of depression or in areas with no slope. Thus run-off is reduced to a minimum.

A typical Lyons Loss description:

- Ao thin partly decomposed layer of organic matter
- Al 1-8" thick, black loam, quite friable, stony, with a reaction of 7.2
- G 3-20" greyish brown sandy loar mottled at the top and increasing with the depth of the horizon. Stony, with a P.H. of 7.2

0 - light grey sandy loss, bouldery, P.R. 7.4

Natural fortility of Lyons is low. Potash and phosphate are absent from the soil in the greatest encounts. Stoniness is a great deterrent to any work being attempted on the drainage problem as the soil would still be extremely difficult to cultivate after being drained.

This soil is best suited for a forest cover or left in permanent pasture. In the study area the amount of Lyons is not great but a correlation between the woodlots plotted on the lend use map (rear cover) and the Lyons Loam is seen on the soil map (figure 4) is quite clear. The farms of the area have very little of this poorly drained soil. These that do have some find it best used by leaving it in woodlot, leaving better soils free for cultivation. Throughout the area, Lyons Loam is found in association with Bottomland and other poorly drained soils.

Duafries, Guerin and Lyons form the largest percentage of the soils in the northern one-third of the study area and this distribution

1 Will be known as hily Lose in future soil reports

is the most important factor in the recognition of this eres as a land type (the Flemboro Land Type).

<u>Guelnh Loam</u> This soil was developed on the highly celearoous till of the late Missensin Lee Age. The till is composed of Lockport Dolomite and Cuelph Loam. The Guelph Loam is the well-drained member of the eatens. It developed under a forest of sugar meple and birch. It is usually found on rolling to undulating topography with slopes ranging from five to ten percent. (In the study area, Guelph Loam is mapped in any area which has two or three large drumline). The external and internal drainage is good, with the former being excessive on the steeper slopes. Between the drusling in this soil group, scepage areas and inter-drumlin boge are sometimes found. The soil is mederately steny but not enough to interfore with farming practices. A few large boulders were noticed in the thesis area where Guelph loam is mapped.

<u>Materion</u> This is a well to excessively drained soil displaying all the cheracteristics of a podzol soil. It is composed of poorly sorted outwash materials, chiefly limestone, with a smaller proportion of shale and sandstone. The soil was deposited in the area as a result of fluvio-glaciation. It is an extremely stony coil and has a difficult texture to cultivate. Besides this, its natural fortility is low. It developed under a forest of maple, white spruce, Bosch and pine. The small Waterloo sections are forested. They are better adapted to this use than to any other.

The Fox Catena is developed on well sorted, andy materials of morabule origin. The eatena is composed of Fox Sandy Leam, Brady Sandy Leam and Granby Sandy Leam. These are the well drained, imperfectly drained and, poorly drained members.

Fox Sandy Loss is developed on sandy materials which are well drained. Reaction is usually slightly to moderately alkaline. The natural conditions under which it was formed was a forest of maple, beoch and conifers. The topography is nearly level to fairly rolling. Where soil is thin in depressional areas, tests show that the acidity increases.

A typical profile development can be seen on figure (5) along with a description.

This soil type comprises more than one-third of the thesis area and has been the first consideration in drawing up a Carlisle hand Type. This soil is being used more and more for truck farming as it is ideal for small vegetable and fruit cultivation. Potatocs, cabbages, and raspberries do exceptionally well. As long as fortility levels are maintained, fairly good yields are obtained.

The soil is easily worked. Its southern exposure and light texture mean that this is an early soil. Conscretel fortilizers and barnyard manure are needed. They can be added to this frieble soil with ease. Internal drainage is very good which allows an early start of cultivation in the spring. In the Fox send it was noticed that rye was grown during the fall then turned over as green manure. Other crops such as alfalfa and white clover were also planted which help to maintain fortility levels.

<u>Brady Santy Loss</u> This is the imperfectly drained member of the Fox estens. Throughout thit part of the area occupied by Fox sandy loss, Brady is quite extensive. Brady is found at the edge of depressional areas and on smooth or gently sloping to ography. Internal drainage is good. External drainage however, is often impeded by heavy elay materials which surround much of the Brady Sand. The soil developed under a forest cover of maple aspin and elm.

A typical profile may be described as:
Ao - partially decomposed leaves of deciduous trees
Al - 0-4ⁿ of dark grey sandy loam. Friable, stonefree
P.H. 6.5

- A2 4-9" dark brown send, stonefree, mottled in some places P.H. 6.4
- C = a heavy clay which is unweathered, dark grey, stonefree, calcarcous. P.H. 7.8

This soil is low in available megnesium, phosphate and potash. The reaction is slightly acid to noutral. Throughout the area it is cultivated being used mainly for general farming. Where drainage has been improved, apple orchards are often found.

Granby Sandy Loam This is a poorly drained soil. It is found in the worainal areas and to a small extent near the northern boundary of the township. The soil occurs on level or depressional sites. Mottling of this gray sand gives an indication of the poor drainage conditions. Reaction is neutral to alkeline. Nost of this soil is under forest cover which is a wise use for it.

<u>Compdon</u>. This soil is represented in the study area by one small deposit. It is poorly drained, occurring mainly in depressional areas. Run-off is almost non-existent while permeability is slow. One noticeable feature in this type was the supporting of the telephone and hydro poles by piles of stone, a good indication of proximity to bedrock. The small area of Campdon is not suitable for cultivation as it is practically a swamp. Some grazing was being carried on however, as cattle wandered

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LOSDI RODER WAND DOG SOLF

CHINQUACOUSY CLAY LOAM

- Al 4" thick, a dark grey brown clay loam with few stones
- A2 pale brown, slightly mottled clay loam, few stones PH 5.8
- B is brown to a dark brown clay overlying a calcareous C horizon which is a dark grey brown clay

ONEIDA CLAY LOAM

Al - $5-6$ " of grey to light brown clay lo	am	
---	----	--

- A2 5-7" thick. a greyish-brown clay loam
- B 6-8" in depth. Reddish brown clay
- C unweathered parent material is stony grey clay loam and silt loam.

Stones are common throughout this soil but rarely excessive



FIGURE 6

into the area from the surrounding fields. The natural vegetation was stunted willow bushes, long grass and some reads.

<u>Brantford Clay Loan</u> Brantford clay loan is of limited extent in the erea. It occurs in the centre of a large deposit of Chinquacousy Clay Loam. It is a brown loan overlying a heavy clay subsoil. Drainage is fairly good. The reaction is slight to medium acid while the organic content is fairly high. Chemically, the soil is deficient in phosphate.

Chinquacousy Clay Long Chinquacousy is found on the lower slopes of the moraine. Along the top of the moraine is Oneida Clay loam. One difference between the two is the shallower profile found in the Chinquacousy. It is the imperfectly drained member of the Oneida catena which helps explain the slight mottling found in the upper horizons. A profile and description can be found in figure (). Organic matter is needed generally, as is liming. The structure in cultivated fields is poor.

Onoida Clay Loga Oneida is found in association with the rolling morainal deposits. The soil is fairly well drained as it is found on the tops of these moraines. External drainage is excessive in many fields which makes the erosion problem severe. The soil is heavy but relatively percus so internal drainage is adequate. The reaction of the soil is soid is since it has a fairly high proportion of shale. (P.H. 5.5-6.3) Tree fruits, small fruits, and vegetables do well though the climate limits its use to truck crops. Intensive cultivation increases the erosion problem. The need for lime and phosphates is marked as is the addition of organic matter.



The thin stony Fermington loss which is found in the Scarp Face lend type.



The gently rolling moraine of the Waterdown land type. Motico the bouldery, stony nature of the pasture. <u>Farmington Clay Lonn</u> This is only a small deposit of this soil in the township. It occurs along the scarp brow and down the scarp slope. Farmington is a shallow soil, its depth being less than one for. In most instances it is a dark brown, 3-5 inches deep, having little or no structure development. It drive very rapidly, becoming uncleas for any crop cultivation. Woodland and scrubiand are found on Farmington Clay Lean.

<u>Caintor Clay Loam</u> The Caistor deposit is part of a morainal area but it is stonefree and flat-lying which suggests it was laid down by lacustrine action. The clay particles are close together which hampers percolation. This poor drainage condition results in a mottling of the grey brown B horizon.

<u>Muck</u> This azonal soil was quite common in early days but improved drainage methods have allowed many acros to be taken out of the muck classification. The heavy black soil which is rich in organic matter is used by truck gardeners in many sections.

<u>Bottomland</u> This is another azonal soil. It has been mapped along streams which are subject to annual flooding. The immature soil is developed from deposition of both fine and coarse materials, which are usually not thus making profile development slow. Permanent postures are found associated with Bottomland.

Lend Types

The land type provides for the geographer a very convenient basis for the correlation of economic data with physical factors. This correlation is possible because in a land type, soils, drainage, slope, and physiography are fairly uniform. Thus the agricultural pattern can be expected to have many similarities. Four land types have been mapped in Upper East Flamboro. (Figure 7)



Excerption Land Type This is the least extensive type. It includes the brow and face of the Misgara Escarption. The encarption was secured by glacistion, leaving the limestone cap of the escarption ewent clear of overburden. The elevation is 750¹ in the west rising gently to 800¹ in the east. Farmington Clay Lean is the only soil found. It is thin, being 3 to 5 inches doop, and has no structural development. The area has remained in woodlet.

Materdown Land Type This consists of two moraines which run parallel to the escarpment. It has been differentiated as a land type because of its rolling nature and deeper overlurden. The elevation here ranges from 800' to 900'. Most of the area is well drained, some exceptions being found in the eastern moraine which is more dissected. The soils are heavier than in other sections of the township. They are mainly Cheide and Chinquacousy Clay Loam.

Carliele Land Type The Carliele land type extends across the control section of Upper East Flemboro. The elevation ranges from 350' to 900'. It is essentially a sand plain which is interrupted along the western boundary by three drumlins and on the eastern by the Bronts Creek re-entrant. Fox Sandy Loam is the most common soil. It is early, well-drained and easily fortilized. Farms here are small but prosporous.

<u>Flamboro Land Type</u> This is the most extensive type. It is a limestone plain where most of its unconsolidated material was carried away during glacial times. The plain ranges in elevation from 900' to 1000' and has a few drumling which reach 1075' along the northern boundary. These drumling give a rolling appearance to the area. In the north eastern corner of the area is a section which can be called the bouldery phase. It is strown with weathered limestone boulders and has a few outcrops.



Specialized market gardening in the Carlisle lend type. The soil here is very sendy, the topography level to slightly undulating.



A farm in the Flamboro land type. The boulder strewn fields, and close proximity of the bedrock make cultivation difficult. Farms are usually larger here than in the other two land types. Drainage is not good because of the nearnose to the bedrock. In the spring ponding is a common sight. The bouldery section has a large marsh. The most important soil group is that of Dumfries Loam. It is a shallow, droughty soil and is generally unsuited for cultivation. The thin soil has helped to keep stream erosion to a minimum.

CHAPTER TVO

HISTORY OF SETTLEMENT

The first inhabitants of the region were the Neutral Indians. They were hunters and fishers who also cultivated some corn . and sunflowers.

Europeans cene to the area in 1669 when La Salle crossed the township on an exploratory journey. It was not until the turn of the ninetcenth century, however, that settlers came in numbers. The greatest flood came as United Empire Loyalists from Pennsylvenia, New York and Ohio about 1787. In 1892 the lead around Waterdown was purchased by an employee of the North West Fur Company. He sold his 800 acres to the Griffin family in 1832. This year saw the building of a tennery on the Grindstone Greek which provided power and lots of clean water. In 1837 a woollen factory and saw mill were built. They too, utilized the power of the creek. As settlers heard of the Grindstone Creek, more and more came to build mills or to supply the mills with raw materials. By 1849 there were seven or eight mills using the water and power. Sottlement was concentrated ground or near the stream. The banks of the creek also provided freestone which gave quarrying a start in 1314. The first buildings of Toronto University were built with freestone from the Waterdown quarry.

In Southern Catario the introduction of pure bred cattle and improved farm mothods was noticed about 1530. This trend was felt in Flamboro also, as is shown by the founding of the Untario Voterinary College at Guelph by a Waterdown resident. In 1846 this same man formed the Agricultural Association of Upper Canada which has evolved into the Canadian National Exhibition.

The importance of the Grindstone Creek as a power stream meant that settlement followed its course in search of industrial sites. The northward movement resulted in the town of Progeston being founded. This small town was as industrialized as Waterdown in its early history. It had three saw mills, two grist mills, a pog factory and a woollen mill. As lumber reserves shrunk and a shortage of water power resulted, the town deteriorated. Soon hydro-cleatric power became available in Southern Caterio which meant sites on the lake could be expanded as industrial centres as well as shipping centres. Progestion has one grist and flour mill now.

The building of roads did not have a great influence on the development of the area as the main roads were found along the southern and western boundaries of the tourship. Settlement therefore, remined close to Materdown as accessibility was an important factor in these days of foot travel and horse-drawn carriages. In 1655 a gravel road was constructed from Hamilton through Materdown to Carlisle. It was used for stage coach travel but served as an aid to settlement as it opened up the area. Flambore Centre was a stage step in these carly days which meant a hotel could be maintained. When buses came into use and used highway six, the hotel lost its patrons and was converted into a home. Thus Flambore Centre declined but Freelton which was on the road from Hamilton to Guelph expended. Freelton had eved much of its growth to the building of the read in 1655 and the new traffic on the highway holped increase its importance.



The ruins of a former house in the Flamboro lend type. Some farm abandonment has taken place in this section of the township.



This bern is no longer used as the farm is now occupied by computers. This is enother type of farm abandorment. The consus reports¹ give a good picture of population growth. The township grew slowly at first as settlement was confined to those parts which had power streams or reads. The population increased until 1561 when a docline set in which lasted until 1900. This decline can be attributed to the closing of mill sites on the Grindstone Creek, and to the exodus of many residents to the more prosperous areas of Dundas and Hamilton.

Cocupation of land came to its maximum in 1910 when the population was at a peak. The relation between occupation of land and the number of cettlers seems to be steady now being about 470 ferm occupants on 30,000 acres. This ratio has been the same for the last thirty years.

The thesis area has always had a majority of English and Irish settlers. In 1851 there were 2903 inhabitants, the asjority being Irish. Figure (X) shows the total population for each year and the origin of the settlers. The over increasing area occupied by suburban residents in Veterdown and district is responsible for the large increase in the population between 1941 and 1951.

Yoar	Total	English	Resteh	īrioh	Franch	German	Dutch	Agerican
1851	2505	402	253	539	15	3		139
1061	2933	477	243	571	7	107		157
1871	3894	1246	651	1258	31	574		-21
1881	3590	1018	607	1056	62	652	8	
1891	2661			~~ <i>_</i> /~		- 14		
1901	2552	1053	568	692	16	202	18	
1211	2646	1469	314	543	17	110	30	
1721	3008	1605	394	550	19	754	115	
1951	3686	1719	553	625	40	185	1=0	
1941	4034	1828	566	664	76	233	100	
1951	7045			301	10	- / /	L , ()	

X POPULATION AND ORIGIN

1 Consus of Canada Reports 1851-1951

Tear	Total	Uccupanta	Area (acres)
1851	2905	282	31,054
1861	2953	305	30,312
1071	3394	423	33,183
1881	3593	477	54,193
1091	2661	490	32,284
1901	2552		
1911	2646	552	37,1 25
1921	3003	467	31,952
1931	3686	460	30,002
1941	4034	471	50,752

CHAPTER THREE

HISTORY OF AGRICULTURE

Upper East Flamboro lies within the large region known as the St. Lawrence Lowland. Therefore it shares the same characteristic climate, transportation network, and farming economy.

Lend use has changed from the early 1800's. The transition has been from wheat farming to general ferming with some specialization in dairying or truck gardening. The soil, character of the relief and, presence of accessible markets are the factors responsible for this transition. Very little land is not being used in some profitable way. During the investigation of land use in the field no idle land was noticed.

Sottlement began in cornect when the Loyalists were given greate of free lend and supplies. The British overment was wise to adopt this policy as these men and women proved to be excellent pioneers. Booldos being used to the herdships of frontier life, they know how to clear a forest with comparative case, they know what type of agriculture was best suited to the virgin soil.

Irish, English and Scotch settlers came in to clear land soon after the koyalists. They tended to group themselves into clans and so certain characteristic proctices flourished in each little settlement. Of these settlers, the most thrifty, most industrious, was the farter from the lowland of Scotland. He kept a model farm with well ploughed fields, carefully tended woodlet, and next farmheuse. The Irish, on the other hand, were poor farmers who neglected their land and buildings.



The grist mill at Progression. Notice the dam and the water conduct to the mill. The mill still operates by water power from the Bronte Greek.

The first cash crop of the early fermer was timber cut during the process of clearing the land. This practice encouraged the building of saw mills on the Grindstone Greek and was responsible for this early industry. When the timber recorves were used, saw mills were forced to move to other sections. The cleared land was sown with a wheat crop. This crop was sold so that money to buy utensils and equipment could be obtained. The wheat crop was supplemented by fields of hay, cats and barley which the former used to make bread and corcal. The year 1861 had the largest wheat yield. In that year 4,557 acres were growing wheat and the yield was 80,093 bushels of winter wheat, and 553 bushels of spring wheat. The fermer in the early days tended to be a "wheat miner". He grew wheat until the soil was exhausted then he cleared more land. Graduelly wheat farming grew less important until a low of 843 acres was reached in 1931. This was due in part to the taking of all the arable land and to the realization by the farmer, that dairy farming could be more profitable. The census figures show how the suphasis on wheat become gradually loss while hay acreage increased proportionately. The correlation now can be drawn between hay coreage and the number of milk In 1851 hay occupied 2910 acres while the number of milk cows was 918. COVE By 1941 the acreage in hay had risen to 5162 and the number of cows to 2337. The general farming of Upper East Flamboro has tended to place this slight emphasis on dairying because the accessibility of markets for fluid milk is an encouragement.

Onto wore as important as wheat in the carly days because they were essential for horses. Each work on the farm required horses as did travel. The number of horses was greatest in 1911 and, as one might expect, the out acresse also reached a high of 4005 mores at this period.

As the number of horses decreased, the number of acres in oats decreased. Thus in 1941 there were only 979 horses in the township, while oat acreage had fallen to 2711. Cats, however, were grown because they did well on nearly any kind of soil and so, it was common to sow poorly drained soil with an oat orop rather than let it remain in pasture.

The first woollen mills were supplied with their raw anterials by the neighbouring farmers. The farmers also used their wool to make clothes for the family. Gradually, woollen mills in the cities were able to flood the market with goods which could be bought cheeper than they could be home made. The farmer therefore bought his clothes. Thus he needed less sheep, because the local woollen mills disappeared and less wool was required. Sheep declined in importance while dairy cattle increased. The pastures formerly hold by sheep were turned over to milk cows and beef cattle. The decline set in about 1861 and has continued over since. In 1861 there were 2960 sheep and 1941 there were 526. The sheep in the area now, are found on the poorest rocky pastures in the north where grazing is too peer for dairy cattle.

Swine are important in a general type farming arts. Thus, Upper Mast Flambore has always had a considerable number. The early farmer realized that industrial Masilton was a good market for swine. In 1951 there were 1550 pigs. In 1941 the number was 3,793. The present market in Hamilton and Torente is good and in the opinion of many farmers this will keep the number of swine high on farms.

The cerrying on of truck gerdening is usually found in close proximity to any large centre. As East Planboro has had a suitable climate and an early soil for this specialized production, the number of truck forms has been high. In 1891 there were 1606 acres of market gardens in the



A good field of cabbages in the Carlisle land type.



A field of turnips also in the Carlisle type.

whole of the township. It is possible that of this number 400 acres were above the escarpment. The markets at limilton and Toronto received most of the produce.

Potatoes have always been an important crop. In 1551 acreage was 221 and this rose to a maximum of 1609 acros in 1951. The Carlisle area grow many potatoes. Here the early soll was sandy, well drained and easily fortilized. The Irish origin of the settler may have been a factor in the production of the potato. The same area grows turnips but not in such great amounts as the potato.

Of the verious tree fruits grown, the apple is the only one which has enjoyed success. Orebards were not common in the 19th century but at the beginning of the 20th century this type of forming was tried above the escarpment. By 1911 there was 1629 screes under fruit trees. The former soon discovered that the lake plain below the escarpment was more suited to orchard then was the area above. The area above use subject to blights and discover and to earlier freets which meant prefits could be realized only if extensive screepe was in orchard. The screepe fell gradually and in 1941, it was 55).

Since 1911 the exphesis has been placed on market gardening. This type of farming has had a steady growth until it now ranks as a special part of general farming. The markets of humilton and Toronto are close by being within easy reach by highway and rail.

Throughout the history of agriculture in the area, farms have remained quite small. They are less than 100 acres in most places. The type of farming has determined the number of acres needed. These farms having between 10 and 100 acres are most numerous. Most of these are found

in the southern half of the area where a general type of farming with market gerdening is carried on. In the north, delrying is practiced which requires a largor acronue for pasture. Figure (γ) shows two comparable years. Notice the tendency towards the small farm.

Your	No. of Farms	Under 10 acres	10-50	<u>51-100</u>	101-200	over 200
1881	477	131	116	130	82	18
1941	471	85	172	125	78	11

The bistory of agriculture has been much the same as in the rest of Southern Onterio. The early Loyalist ors use one of clearing land, selling timber to the many saw mills on power streams and, the growing of subsistence grops. As land was cleared and barns were built, the wheat growing period was ushered in. Typical of this period was the exploitation of the land by the wheat former. The settler at this time was colf-sufficient. He kept sheep for wool, cowe for milk, and made his own clothes, cheese and butter. From his wheat crop he made bread and sold the surplus. Slowly the trend shifted to a more general type of forming. Of late some explasis has been given to market gardening. This has been in response to demend for truck crops in the cities of Hamilton and Toronto.

PIELD CROPS (in seros)

Yeer	Wheat	Barloy	Onts	Ryo	Hay	Corn	Pointoes	Tarnins
1851	3343	165	995		2910	252	221	64
1861	4497	350	1062	11	2557	139	551	254
1871	3002				4111		509	
1861	4657				5408		633	
1891	2974	2428	2775		7529		661	646
1991								
1911	2668	892	4065	85	3716	872	1016	219
1921	1077	490	4151	520	5070	566	1135	544
1931	848	484	3107	169	4469	1303	1609	332
1941	1622	347	2711	68	5162	745	1102	201

CHAPTER FOUR

PRESSIT AGRICULTURAL LALL USE

Upper Bast Flemboro is an area of general farming. Most grains are grown as feed for livestock which are then marketed as beef, pork, and dairy products. There is also an area of specialized farming, growing crops which need intensive cultivation and which are sold largely to urban markets.

Parms are generally more prosperous along the western boundary of the township. This is partly because of the close proximity of number six highway, which affords quick transportation of fluid milk and vegetables to the market and partly because of the better nature of the land. The north-enstern section is less prosperous and less populated because of thin, bouldery soils. Soils have been an important factor in controlling the land use.

Mixed farming, with an exphanis on deirying is practiced in the Waterdown lend type (map) and in the Flamboro land type. The former, serviced by number five highway is more specialized. The Carlisle land type is devoted to market gardening. The favourable market location of the township has given rise to these special activities. The cash income of the farmer is realized from the marketing of dairy and garden products.

Cattle raising and hay crops require larger acreeges than the more intensive cultivation of grain or vegetable crops. Thus the forms in the Flamboro land type are larger than those of the Carlisle and Materdown. Smaller forms averaging 40 to 50 acres in size have now become common where specialization in vegetable gardening and dairying has appeared as in the Carlisle and Materdown types.

The lend use map inside the rear cover will present a clear picture of the distribution of pasture, cultivated cropland, and woodlot.

Winter or fall wheat is an important crop, occupying about 10% of the area in field crops. It is grown as a cash crop and a cover crop, especially in the dairying areas. One problem encountered is that of heaving, which means the crop has to be replanted in the spring.

In 1941 hay occupied 5162 acres or 53% of the land in field crops. Glover, timothy, and elfalfs comprise much of the area in hay now and are grown in the northern section where soils are less suited for wheat and barley. Barley, oats and corn are important forage crops. Onts occupies about 16% of the area, barley 5%, and corn 5%. Some of the barley is used as hog feed. Buckwheat along with winter wheat is grown as feed for poultry. Poultry have increased in importance since 1931 and now are an important subsidiary source of income to the small fruit and vegetable gardeners. The sale of eggs and chickens often provides for most of the household expenses.

Rye is not important in the dairying areas where other crops have proved superior as livestock feed, but it is grown as a cover crop and for green manure in the potato fields of the gerdening areas.

Potatoes are the dominant cash crop in the market gardens. They are grown extensively in order to supply the demand of the large urban centers of Torento and Hamilton. Turnips are important as feed for livestock and for table use. In 1941 the 26,250 acres of Upper Fest Tlemboro were being used in the following way: (approx)

Arable land	14,500	acres
Veodland	2,250	8
Unisproved Land	5,500	Ħ
Marsh	1,000	t

Since 1941 the area in woodbad and march has decreased a little while the arable acreege has increased alightly.

Materdown Land Type This is an area of general farming with a slight exphasis on delrying. There are several reasons for this emphasis. The clay soils and moint climate produce good pasture and cultivated crops. There are good transport routes to Toronto and Hamilton, where there is a large demand for fluid milk.

Hey and pasture crops provide the most economical source of feed for the production of milk. They also add humus and nitrogen to the soil leaving it in an improved condition. The organic matter is needed in the clay well as it helps prevent baking and cracking. Evidence of baking was observed in the field this summer.

Alfalia is grown because of its value as a legume which has high yields, and which has a higher feed value per ten than other hay erope. Onto and barley were observed growing as spring grain erope. The cats are valuable as feed for growing animals as they are high in protein nutrients. They do well on the lighter solls and give average yields of 50-60 busheks per acro. Earley gives high yields on the heavier clay solls providing they are well-drained and limed. It is fed to the swine and livestock. A common combination in the fields was outs and clover. The cats shade the clover during the hot dry summer months.



A herd of dairy cows in the Waterdown type. Notice the well kept barn and the sile, good indications of a dairying area.



A thriving, well-kept epple orchard in the Carlisle type.

Most farmers keep Holstein cows because they are an allpurpose anisal. The size of the herds varied, with the average being 9 or 10 cows. The farmers are careful to save the manure and use it to build up the organic matter and fertility of soil.

The north-eastern section of the Materdown type has been left in woodlot to a great degree (see map (7) and land use map) because of the rugged relief and stoningss of the soil. More land has been cleared the erosion problem is severe. The physical character of the moraine in this section is the most significant fact in determining the succeptibility of the soil to prosion. Cover grops, such as winter wheat, are being used and are impeding erosion.

Market gardening has not been developed here since the cultivation of row crops intensifies the erosion problem. As corn also encourages erosion it is not grown very such. The clay soil and gorainal nature of the land type make it suitable for diversified agriculture with a slight emphasis on dairwing.

Carlinlo Lond Twoo The general farming pattern is replaced by specialized vegetable growing and market gardening. The Fox Sandy loss is the most common soil. Although it is deficient in potesh, nitrogen, potessium, and organic matter, it is easily fortilized, well-drained, and may be worked early in the spring. The slight alkaliality is cuitable for truck erops.

All the common vegetables such as potatoes, carrots, cabbages, onions, turnips, pees, tomatoes, are grown along, with small fruits, strawberries and raspborries.

The farms are chall in size, varying from 10 to 50 acros. Hairy cattle are kept on some of the forms and the menure is valued to as

organic matter. The milk is sold and supplements the income of the truck farmor.

About ton farmers are using irrigation. The Bronte Creck and Grindstone Creck supply the water. The regulated water supply has resulted in increased yields. It is likely there will be increased use of irrigation in the future.

Potatoes and the main cash crop, having the highest value per acro of all field crops. They require special care during the growing period. They must have lots of mater and plantfood, which means the addition of organic matter, either in the form of manure or green manure, is essential. This organic matter improves the infiltration of rainfell and the waterholding capacity of the sendy soil, which means the poteto is supplied with moisture over a longer period in dry meather. Many fields were planted in ryc or alfalfa after the potetoes were dug. This is a good practice as the soil is enriched especially in nitrogen from the alfalfa.

The track gardemens take their produce to markets at Weterdown, Hemilton, and Toronto. Any surplue fruit may be sold to the cannery in Weterdown.

There are some apple orchards in the western section, but very few cherry or pear trees. A few grapes are grown but no peaches. Celery and lettuce are not grown because they require too much care and space. Corn is grown as a forence erop for livestock and swine. It is kept in corn cribs during the winter. Some winter wheat, barley, and key is grown and sold to the dairy farmers. The Carlisle land type is becoming more and more specialized in response to the demand of near-by urban markets.

Flamboro Land Type This is the most extensive general farming ares. Often stones occur in sufficiently large numbers to interfere



This shows the extreme stoniness of the Dumfries soil in the Flamboro type. The cultivation of areas like this is very difficult.



A limestone outcrop in the North-castern section of the township. Land uso here is limited to rough pasture and forest growth. comprise most of the land use. (see map in rear cover) The poor comprise most of the land use. (see map in rear cover) The poor soil and stoniness necessitate larger fames for pasturing dairy cattle. The average farm is about 100 acros. Red clover and alfalls are the main hay crops. They have deep roots which can resist the droughty conditions of the thin soil in the summer. They also provide good pasture and add organic matter to the soil.

Corn is grown throughout but is more common in the western sections. The introduction of hybrid corn, which gives large yields and matures early, has meant an increase in acreage. Nost of the corn is cut before it matures and used for grain feed.

The pasture fields are boulder stream. In the northern and eastern sections they are usaless for cultivation being suited only for poor pasture. This section has been classed as scrub and rough pasture on the land use map.

Holstoine were the most numerous deiry cattle. Swine are kept as an additional source of income. They are sold to packers in Hemilton and Toronto. One or two herds of sheep and one hard of beef wettle were seen. They are gradually being replaced by dairy come.

Some farms are rented to farmers in other parts of the country and are used for pasturing. Two or three cases of farm abandonment were noticed. The farm assessments, based on lend and buildings, are the lowest in the township.

Because of the serious cresion hazard and the entreme stoniness of the soil the north-eastern section should be kept under forest or pasture. Farms are large in this section and these found ware in poor condition.

Summary

Soils have been a big factor in the land use of Upper East Flambore. The effect of urban centres on the localization of vegetable gerdening and milk production is also of decisive importance. The most productive land type is the Carlisle, with its easily-fortilized sendy loan. The Flambore type is bandicapped by thin soils, boulderstream fields and greater distance from the market.

Dairying is still the most important activity but vegetable growing is rapidly becoming a competitor. The climate is suited to both activities. The agricultural land use pattern of the township is determined by the soil distribution and by the presence of large centres of population.

CHAPTER FIVE

NON-AGRICULTUPAL LAND UNB

Upper East Flamboro is essentially an agricultural erea. Apart from the town of Waterdown, the village of Carlisle, the new rural subdivision for homes, and a few rural hamlets, no other non-agricultural land upp is found. This discussion, therefore, will be concerned mainly with Materdown and the important rural-urban fringe. developments.

WATERDOWN

Site

Materdown is situated six miles north of Hamilton on highway No. 5 where the Grindstone Greek traverses the Niagara Escarpment. The Ganadian Pacific Railway uses the stream re-entrent in according the escarpment. Highway No. 5 is a provincial route which connects bondon and Toronto. The location of Waterdown is shown on the Key map (2) as are the transportation facilities.

The village has a very sponic location on the escorpment. Mater is pumped from two wells and piped throughout the village. There are, however, no seware facilities. The village is the principal centre in the tograhip.

History of Settlement

The lend which is now Materdown was purchased in 1002 by Colonel Alexander Brown, an employee of the North-west Fur Trading Co. Settlement was facilitated by the old cordurey Dandas read and was encouraged by the availability of power in Crindstone creek. In 1631 a tennery was built which used both the water and the power from the creek. In the following year, 1832, Ebenezer C. Criffin of Seithville bou ht the whole village site and the mill rights. He erected a flour mill which was the largest in the district. The name Waterdown was given to the sottlement the same year.

After the Rebellion of 1837 the village experienced a boom. Within a year, seven or eight mills were in operation. The completion of the Resjarding canal gave Lundes a tremondous advantage over Materdown and softlement by-passed the village. The coming of the railway to Memilton in 1853 meant a further reduction in industrial advantages at Materdown because the easy transportation caused rural mills keen competition from the city.

In 1655 a gravel road was built between Hemilton and Carlislo. This gave some impotus to the growth of the community. By 1855 a public school and a town hall were built of local limestons. The population was about 175. The village contained six stores, twelve hotels or tavaras, five blac smith shops, a woollon mill, a tennery, three saw mills and a carpet factory.

Lumbering was important in the area and the building of a wherf at La Salle park started a slight been for business in Saterdown. One old timer can recall seeing "timber, cordwood, and ship's meats being hauled through Waterdown". Schooners took loads of lumber and hard winter wheat to American ports, where they were sold at a good profit.

The early years were marked by a steady growth which continued until 1945 when the population increased repidly. This increase is due to the influx of commuters who live in Waterdown and work in Hamilton. The following tables show the growth in population and their racial origin.

170
412
622
756
754
921
910
13/17
1390

Year	Epr.11.oh	Irion	Scot	Tranch	Cor ph	flutch
1901	226	180	96	9	92	7
1911	525	219	90	6	91	
1921	318	204	114	10	62	21
1951	599	254	136	12	75	
19-11	426	225	125	22	47	29

In general the whole area was sattled first by English, Irich, and Scotch immigrants and some of their descendants still live in Materdown. Much of the population of the village is made up of retired formers. Most of the foreign element in Materdown compute to Hemilton to work.

Funational Pattorn

The villegs has grown up along highway He. 5 and along the west bank of the Grindstone Grock. It begen as a mill site but its function now is mainly residential. Growth in the last few years has been north and west along the fringes of the older sections. The commercial



core has always been located on the main highway. The present street pattern and functional plan can be seen on map (8).

Hosidential

Waterdown has been divided into three pain types of houses. The classification has been made for Waterdown only and is as follows.

First Class - these are generally never homes. They are of brick or stone construction, usually of botter appearance, and are generally well Landscaped.

Second Class - homes in this category are smaller than the first class and are frame or brick.

Third Class - the houses are often in poor condition usually belonging to the lower income people. Some have no conveniences while most are of frame construction.

Almost all of the first class dualities are located on or mear the fourth concession which is the northern boundary of Materdown. Building lots are plentiful and the area is serviced by water-mains. The owners are generally commuters who can reach their place of employment in Hamilton in about 20 minutes by car. Other first class homes in Materdown are the more impressive of the older residences.

Gecond class districts are found on the western fringe of Waterdown, along the read leading to Carlinie. The inhabitents are mainly retired farmers who have purchased old homes.

Areas of third class houses are found on both sides of highway No. 5 and adjacent to the industrial section. The location is an historical occurrence, these homes being the first ones built in the village.

Because of their age and their ran-down condition, they have been classed as third-class houses.

Future Growth

Future residential growth for Materdown seems assured. The growing need for homes, coupled with the desire for lower taxes and the country atmosphere will bring more and more settlers to the villege. One new survey called Rockcliffe is located on the brow of the escarpment just west of Waterdown. Ten ranch-style homes, valued at \$ 25,000 each have been built and more are planned. The future growth will continue to be to the west and north, where the land is available and suitable. To the east the moraine is more rugged while to the south, meaness to bedrock is a handleep.

Commercial Zono

The commercial pattern is a recult of the influence of highway Ac. 9, along which all the commercial enterprises are found. These enterprises are limited on size since Hamilton attracts the bulk of the retail business. There are two process stores, a dairy, a drug store, restaurant, gift shop, two hardware stores, clothing store, a body repair shop, show remain store, timemith and plumbing shop, post office, printing and publishing office, cleaning establishment, fuel company and a radio-television centre. The meanness to Hamilton has restricted type of scamarcial enterprise. Lower prices and a wider range of goods are the features which attract the local and rural people. The trand at present seeves to be a further reduction of the commercial enterprises in Materdown. The gas stations and hotels, however, will probably continue to de a good business. Waterdown has a very limited umland. It is part of the trade area of Hamilton. The milk company delivers as far north as Freelton, but is in keen competition with Hamilton companies. The delivery of bread is entirely in the hands of Hamilton bakerles. The commercial area of the village is only used as a convenience by local residents.

Industry

The first mills were built along the western bank of the crock and the tendency for industry to remain here has remained. Some of the present industries are using the first buildings built on the site. One example is the jas factory which is located in the original mill built by E. C. Griffin. The industries centred in Materdown now, are a jam and jelly factory, a lumber yard, an oil service depot, two feed mills, and a dairy. These enterprises are all small, the largest being the jam factory which capleys about 30 people in the summer period. The regular employees muchor twelvo. Jano, jellion, and pie fillings are unde for bulk shipment to all Southern Ontario, being cold only to hotels and baberies. The industry is of importance to Materdown and the rural area as an employer of labour and a consumer of market crops. Host of the matorials used come from the Mingura fruit district. Next in size is the dairy which employs twelve men, most of whom reside in Metordown. The milk is obtained from Montworth, Helton, and Front Countles. The finished product is sold mainly in East Flamboro township and in sections of Halton county. The lumber nill has eight men working steadily. Logs of white and red oak, hard and soft menle, are obtained from East Flambore (20%), parts of Wentworth County (70%) and from Halton, Brant and Wallington counties (30,5) The lumber, plywood, and other finished products are shipped throughout Southern Onterio. The

feed mills serve the rural area by grinding local grain and selling commercial feeds. This is an important link for Waterdown with its rural area.

Relationship with Hamilton

Waterdown has been overshadowed by Hamilton to such an extent, that it no longer has a distinct economy of its own. It has become a dormitery town for city workers, with over 90% of its residents working in Hamilton. The commercial business in the village has declined because of the nearness to Hamilton.Stores in Waterdown are unable to compete with the low prices proveiling in the city. The read network has aided this situation by making it relatively easy for residents of Waterdown and the rural area to shop in Hamilton. As a result there is a complete absence of furniture stores, jewellry and luxury stores, women's clothing shops and shoe stores. The future relationship will be very similar to that in existence new, with a further decline in the business life of Waterdown quite possible.

Rolationohip with the Rural Aroa

There is quite a close relationship with the surrounding rural area. The most important factor in this relationship is the new market which was opened in 1952. It is located in the baseball park. (fig 8) and is open Friday evenings. Farmers from all over Wentworth and adjacent counties come to market their produce. The market grow as a result of the crowded condition of the Hamilton market and the restricted parking facilities. It is being expanded this winter and will cover about 10 acres. The farmers offer their goods in the village on Friday night end the goods not sold are taken to Hamilton on Saturday. The market serves the function of keeping

the farmers on the farms as it provides an extra opportunity for them to soll their produce directly to the consumer. Most of the customers are from Hamilton. The short drive is an enjoyable one in the summer, while the lower prices are an attraction. Parking facilities are good. The future of the market seems bright as it is desired by both Hamilton customers and the village of Waterdown. Developments in Hamilton concerning a new market site will determine whether the Waterdown market is to be permanent one or not.

CARLISLE

The village of Carlislo is five miles north of Waterdown. The present population is approximately 200. It is mainly a service centre for the surrounding rural area. There are two general stores, a branch office of the Bank of Toronto, two gas stations and garages, a community hall, a welding shop, and a depot for the Onterio Department of Highways. In 1896 the population was also about 200. There were two blackamith shops, three general stores, a hotel, a flour mill, a woollen mill, a chingle mill, and a bast and shoe store. The shift in the lest 50 years has been from light industry and norse-drawn vehicle traffic to work in garages and gas stations.

<u>Progrestion</u> is situated on the Bronte creek near the eastern boundary of the township. Once a prosperous mill-site, it now has only one grist mill which serves the local formers.

Flamboro Centre is two miles north of Materdown. It has one gas station, a grocery store, a repair shop and a church.



This rwo of new homes on the North-seat edge of Vaterdown is typical of the rapid growth of commuter's homes in and around Waterdown.



One of the specialized uses the land around Waterdown is being used for.

Montoberg le north of Carlisle and is of rural importance only, having two churches and a school.

Freelton straddles the western boundary of the temship and is important as a service village.

Rural-Urban Fringo

The most significant non-agricultural land use in the township is the growing rural-urban fringe. The trend started shortly after World War II and has continued because housing conditions in the city are becoming more conjected. The new house can be found as for north as the Carlisle cide road (Concession IX) The lower assessment, clean country sir, and freedom from the hot city, are inducing more and more people to build.

One ribbon development bogins at Clappison's Corners and extends east towards Waterdown. It has seven or eight third class homes, three restaurants, five gas stations, and two small industries. Another development is located around Flamboro Centre and on the Corlisle read which has about 50 homes, mainly second class. Hear Carlisle there are twonty new homes, of first and second class construction.

These developments have been placed in the second highest assessment group drawn up by the Wentworth County assessor. The everage cost for an acre of land is between \$ 800 and \$1000 while a home can be built for \$ 8000 or \$9000. The unter supply dense from wells and is adequate. The use of septic tanks is provalent.

This rural-urban growth will continue in the future as more people realize they can sell their city home, build a country none, buy a car with the profit, and still be within twenty minutes of the city. The advantages of the rural home are numerous but the most appealing one at present is the lower assessment. Growth has reached as far north as Carliele but may not extend much further in this direction as the distance from the city is a little too far.

CHAPTER SIX

SUMMARY AND CONCLUCION

Sumary

Upper East Flamboro is located above the Niegara Escarpment at the western end of Lake Ontario. The climatic conditions are ideal for growing grain and hay, vegetables and small fruits. Differences in land use cannot be ascribed to climate however, as it is uniform throughout. The major soil types are clay loams and sandy loams. The extreme stoniness and shallow nature of the soil in the northeast, has resulted in larger, less prosperous looking farms. Drainage is impeded in this section. The erosion problem is greatest on the moraines and drumling.

The early actilers were Loyalists who had invaluable experience as ploncer farmers. Settlement did not move north rapidly because of poor transportation facilities. The rural population reached a maximum of 5935 in 1861, but the maximum of occupied land, 37,125 acres did not come until 1911. The population in 1941 was 4,054, the increase over the 1951 figure of 3,686 being largely residential. The rapid rise to 7,045 inhabitants in 1951 can be almost entirally attributed to the growth of ribbon residential developments.

Agriculture has changed from a wheat growing economy to general farming with emphasis on dairying and market gardening. At the present time both milk and vagetables find a ready market and will likely continue to do so in the future. The better farms in the western section of the township are due to the close proximity of good transportation facilities. Variations in the land use are mainly because of differences in soil and meanness to the market. The growing of cultivated grops is directly related to the keeping of livestock. An examination of the land use map (rear cover) reveals the grain and hey coverages to be approximately equal. and the local

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There is only a small proportion of the land being used non-agriculturally. The village of Waterdown, which began as a mill-site, is now mainly residential. Its nearness to Hamilton has limited the connercial activity but has been responsible for the increased population. The other rural hashets are acruice controp for their immediate locality.

The rural-urban ribbon development of the last few years is the most significant feature of the changing landscape. The sharp rise in the population figure is because of this trend. The lower taxes, clear country atmosphere, and freedom from the rush of the city, are attractions bringing new people. Most of these people (90% or more) work in Hamilton, which is within 20 minutes drive by car or bus.

Conclusion

Upper East Flexboro is an area of general farming which has both oultable climate and favourable soils. Differences in land utilization are the result of physical and economic factors. The sandy soils, which are easily fortilized and cultivated, and which warm early in the spring, are the main factor in the concentration of fruit and vogetable farms in the Carlisle land type. In the north-constern part of the township, the nearness of bedrock to the surface is a handleap which limits production and necessitates a more mixed farming and larger holdings.

The main problems of the area are the crosional hazard on the moraines and drumline, and the depletion of the organic matter content in the sandy soils. The keeping of livertock is one of the best means of conserving the soil forvility and reducing the crosion besard as most of the land is continually in hay and pasture. The practice of keeping a few cows should be encouraged in the market gorden area as manure and hey crops are needed to help maintain the organic content. As itenition and Torento continue to grow, expansion of the truck gardens can be expected.

The function of the township as a rural-urban settlement area will increase in importance as the population of Hamilton continues to expand.

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LAND UTILIZATION EAST FLAMBORO TOWNSHIP

P BAILWAYS

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LEGEND

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PASTURE	
ОВСНАВР	
MOODLOT	
UNAJ NABAU	553
HAY CROPS	1.1.1.1
VEGETABLES	
STIURALL FRUITS	
CULTIVATED CROPS	
SCRUB AND ROUGH PA	1223