CALEDON TOWNSHIP:

A GEOGRAPHICAL APPRECIATION

A THESIS PRESENTED TO

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The author also acknowledges his debt to the citizens and officials of Caledon township for the information they provided.

A THOUGHT

Any failure to translate
the findings of field studies
into the most relevant form
possible is false economy of
the most blatant kind.

- H. A. Wood

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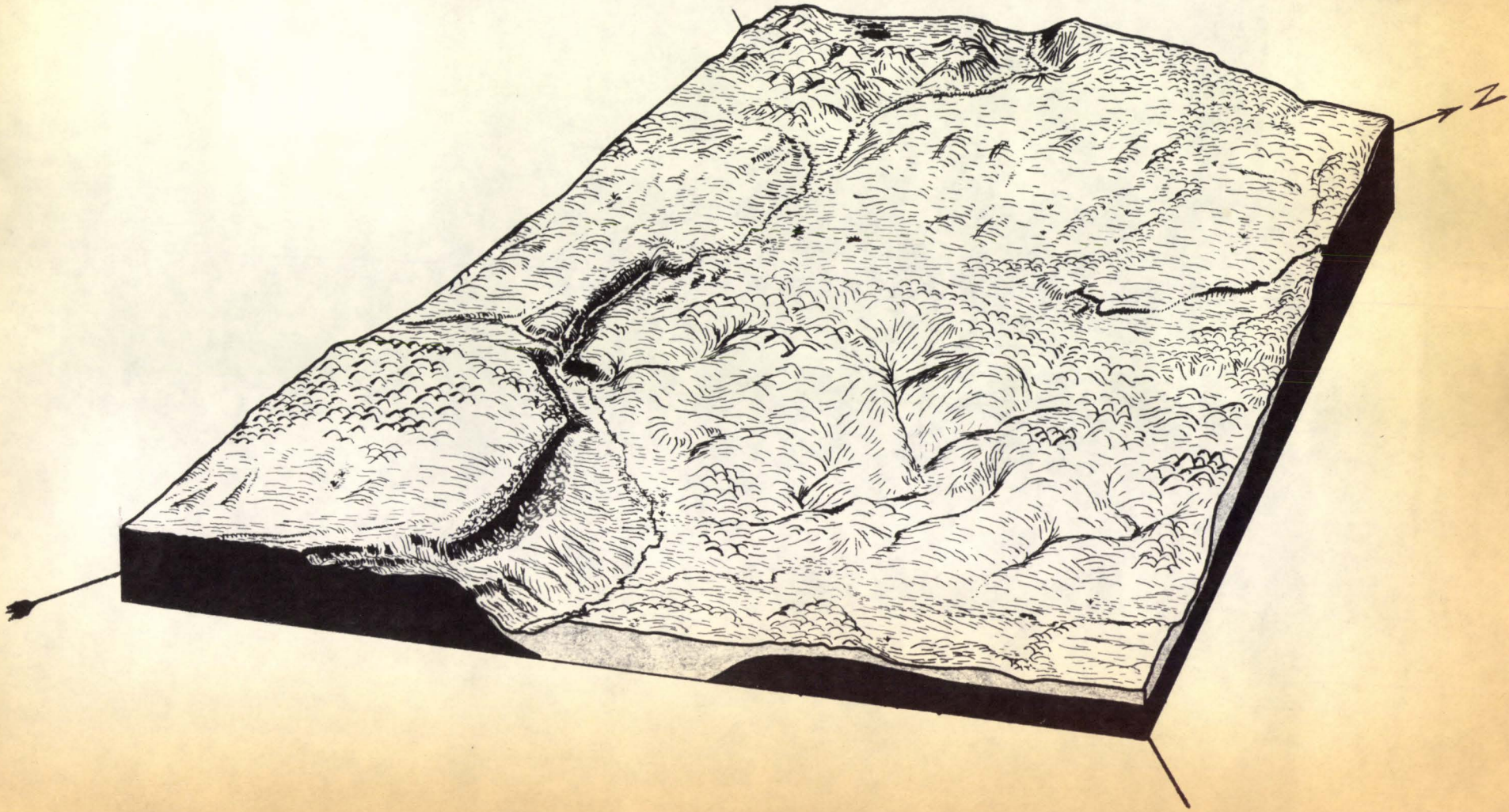


CHAPTER ONE

INTRODUCTION

Caledon township is an administrative unit, 112.5 square miles or 72,000 acres in area. It is situated just south of the geographical centre of the land bridge between Lake Ontario and Georgian Bay. At Orangeville, which is located on the west bank of the Credit River just to the north of Caledon township, Highway 10 from Brampton and Metropolitan Toronto meets Highway 24, which extends north to Collingwood. Paved highways also branch out from Orangeville towards Kincardine and Owen Sound. Besides Highway 10, two other recently improved roads pass through the township to connect Orangeville with Toronto and the Grand Valley cities; Highway 24 winds from Caledon village through Erin to Guelph, Galt and Brantford, whereas Peel county road 7 extends from Mono Mills and Caledon East to Malton and Metropolitan Toronto.

The Caledon hills are renowned for their magnificent scenery. The Oak-Ridges interlobate moraine, which stretches east from Caledon for over a hundred miles, combines with the Niagara escarpment to provide this township with more than seven hundred feet of relief. Small wonder that the local inhabitants speak of this terrain combination as their "mountain". Above the Cataract the Credit River is quietly beautiful, as are many rural streams in southern Ontario; down river from the Falls of the Credit, however, the valley displays a magnificence unrivaled by any other stream that close to Toronto. Therefore, it is not surprising that a large segment of the two and a half million urban dwellers living within fifty miles of Caledon village are intimately familiar with the Forks of the Credit area. For the chasm of the Credit presents to the cameraman and the painter alike a breath-taking panorama of beauty at every season of the year.

Because of the proximity of Caledon township to Toronto, several hundred urban residents have bought cheap land in the Caledon hills, since World War II, and built new homes or renovated the original farmsteads; under this new proprietorship the land more often lies idle than rented to neighbouring farm operators. Areas having high potential for agriculture have been more intensively used under the corporate ownership of Toronto businessmen, such as Mr. Conn Smythe, than they were beforehand by individual general farmers. The greatest concentration of urban escapists, lies above the escarpment between Inglewood and Belfountain and on the slopes of the Oak Ridges moraine east from the latter village. The more expensive of their houses have views overlooking either the Credit gorge or the southern slope leading to Toronto; the more modest homes are built back of the escarpment brow along paved or improved access roads.

The villages of Caledon township are undergoing conversion from the status of commercial and light industrial centres for the surrounding farm areas to that of dormitory centres for residents commuting to work in nearby villages, towns and cities. The few industries that remain in the township have been put under apparent pressure by the recently installed "planning development commission" to cease their operations. To prevent industrial expansion within Caledon, this body has zoned all the township as agricultural land. It is interesting to note that gravel pit operations, owned by members of the urban escapist set who control the decisions of the planning board, have been classed as agricultural activities. Hence excavation operations can continue to scar the landscape whereas new industries, which could provide increased local employment, seem to have been considered undesirable.

The purpose of this thesis is to seek explanations for the great variety to be found in the patterns of rural and non-rural land use through-

out Caledon township. This entails separate studies of the physical geography, the historical development of the township, the agricultural geography and the district settlements. Although each separate study digresses to investigate specific problems, the overall purpose always remains the major concern of this thesis. It is to be hoped that the man-land relationships in Caledon township become less enigmatic through this genetic study of its variegated geography.

The text of this thesis is divided into seven chapters. The first chapter introduces the reader to Caledon township and outlines the purpose and arrangement of the thesis. In the second chapter, the bedrock and Pleistocene geology are examined intensively, whereas the climate, flora, fauna and soils receive less detailed treatment. The historical development of the township is traced from its earliest white settlement until the present in chapter three. Chapter four entails a study of the variations in agricultural potential and in actual land use on Caledon's farms. The villages and their hinterlands and the non-farm rural settlement are examined in the fifth chapter. The reader is taken on a pictorial tour in chapter six to assist him in envisaging conditions previously described. The seventh and final chapter summarizes of the geography of Caledon township and states conclusions drawn and problems raised in light of the purpose of the thesis.

A series of eight folded maps on the scale of 1:80,000 and four pages of charts and diagrams accompany the text of this thesis. Since they integrate evidence gathered through field and library research, the maps, charts and diagrams form the basis of a proper understanding of the text. The reader is, therefore, advised to use the relevant maps in conjunction with his study of the textual material.

Six appendices follow chapter seven. Material presented in this section is of two types: tables of statistics used in the derivation of textual conclusions; and methods of field compilation and laboratory calculation originating, in part, with the author. Of special assistance to students contemplating future theses like this one is the detailed expense account included as Appendix six.

Investigations, on which this thesis is based, were carried out by the author during the summer and early autumn of 1962. The author personally observed terrain features and land uses during his eight days in the field; while in his study area, he conducted interviews carefully with selected farmers, businessmen and township officials. The author utilized the vertical air photo coverage of the Ontario Department of Lands and Forests in making a spectroscopic interpretation of terrain features and land use patterns of Caledon township. Records of oil, gas and water well drill cores, Canadian census statistics and specific works on the geology, physiography, soils and local history of Caledon were of great assistance to the author. Through these various field, laboratory and library studies, the author became sufficiently familiar with his area to write the following chapters on the geography of Caledon township.

CHAPTER TWO

The Physical Elements of Caledon Township

(a) Location and Size

Caledon township is an administrative unit in the north-west corner of Peel county, twenty-three miles from Metropolitan Toronto. On its south-east and north-east Caledon is bordered by Chinguacousy and Albion townships, both in Peel county; on its north and north-west by Mono and East Garafraxa townships, both part of Dufferin county; and on its south-west by Erin township, part of Wellington county. Because Caledon is over thirty miles from Lake Ontario, it escapes the faster gait of commercial and industrial activity that accompanies the land traffic funneled along the lakeshore. Caledon retains, instead, a relatively unhurried rural pace of existence which is accelerated each sunny week-end by thousands of touring Toronto motorists.

The township has a south-east to north-west "length" measuring fourteen miles along the western town line and the centre concession road, which is Highway 10; it measures, however, only ten and a half miles along its eastern town line. Caledon's "width" along its southern town line and its central sideroad is eleven miles; the Caledon-East Garafraxa line is five and a half miles long and the Caledon-Mono line six and a half. Ninety per cent of its 112.5 square miles are privately owned, the rest being in forest, swamp, road and rail rights-of-way and otherwise idle land.

(b) Bedrock Geology

Caledon township is underlain by various shale, sandstone and dolomite members of the Lockport, Medina, Queenston and possibly Dundas formations which are dated as Early Silurian in geologic age.[1] Outcrops are common in

that part of the township located along or above the Niagara escarpment. Over two dozen quarries have been established along the scarp base since the 1870's; five sandstone faces are presently being worked west of Inglewood for the Toronto building trade.

Queenston shale, the lowest formation exposed in stratigraphic section in Caledon township, is a brick-red, thinly bedded, unindurated but impermeable claystone which weathers rapidly upon exposure to a fine reddish clay soil. Since the shale weathers to such a fine and yet impermeable product, groundwater seeping along the Medina-Queenston contact creates a heavily dissected, almost "badland" apron along the base of the escarpment. The Manitoulen and Thorald members of the Medina formation almost pinch out in Caledon township and are hence of negligeable economic value relative to the other members of that formation. The Whirlpool and Grimsby members are both white to pink to chocolate, indurated and strong sandstones; in places the two measure up to a total thickness of forty feet in section. Many public and commercial buildings erected in Toronto between 1880 and 1910, the provincial parliament building, the city hall and the former Northways' Building to name a few, were constructed of these sandstones quarried either at Inglewood or the Forks of the Credit. The Lockport formation caps the stratigraphic section along the escarpment and on the average is over a hundred and fifty feet thick. It is almost entirely a thickly jointed, massive and often coarsely crystalline dolomite that has been quarried by local farmers for building stone, lime or road fill. The Lockport dolomite formation weathers deeply along jointings; often blocks along the scarp rim break along these joint lines and slump to form "caves". One such grassy hideaway, "Radical's Hole", is locally renowned for having sheltered William Lyon Mackenzie, the rebel, from Tory henchmen during the early months of 1838.

Bedrock formations to a very large extent control the terrain of Caledon township. The average depth of drift covering the bedrock is slightly more than a hundred feet, as is shown by map one. The overall relief in the township is more than seven hundred feet. Bedrock is therefore basic in appreciating the topographic features of Caledon township; it is the table on which the Pleistocene deposits are arrayed.

As is demonstrated by the bedrock contours on map one, the pre-glacial drainage system was oriented towards the ancestor of the Credit River much as the present system is towards the Credit. The former trunk stream cut a discernible channel in the dolomite and a gorge, much deeper than the present chasm of the Credit, into the underlying sandstone and shale formations. The Credit follows the bedrock valley of its ancestor to a point north of Cataract; highly compacted glacial drift seems to have plugged the pre-existant gorge thereby forcing the Credit to cut its own gorge since the last ice retreat. Tributary streams had a low gradient relative to their trunk stream; their depressions correspond remarkably well to the present valleys of Mill Creek, the West Branch of the Credit and the Little Credit River.

The exposed portion of the Niagara escarpment is largely a post-Wisconsin phenominon. Groundwater, seeping through dolomite jointings to the upper surface of the shale, emerges in springs along the exposed contact of the Medina and Queenston formations. As is seen on photograph five, this groundwater action undercuts the cap rock and eventually topples it. The free face thus formed retreats to the same extent as the weathered shale and scree is removed from the basal slopes by run-off. Under ice melt conditions, that would have been very rapid, indeed. That part of the escarpment east from Cataract is masked by glacial drift and therefore has not been

exposed to this post-Wisconsin groundwater action. As is seen on map two, the major ice movement over the pre-Wisconsin scarp face was from the south-east. It is uncertain what amount of rock was plucked from the escarpment and transported to the Orangeville moraine five miles to the north; it is, however, doubtful that this could be large because, being so near the terminus, the ice velocity would probably have been waning at the time of scouring action and because very few dolomite blocks are now exposed on the surface of the Orangeville moraine. The slopes of the ancestor re-entrant east of Cataract would have been protected to some degree by the headland to their south and the fact that they strike parallel to the direction of glacial movement. Therefore these slopes, which average five hundred feet per mile, probably approximate the declivity of the pre-Wisconsin escarpment. The present escarpment in Caledon township is likely the result of groundwater action since the last stage of glacial retreat.

(c) Pleistocene Geology

The most recent geological epoch, the Pleistocene, brought radical changes to the surficial features of Caledon township. Even though Caledon was fully glaciated and deglaciated five times during the Pleistocene, only those deposits of the last glacial stage, the Wisconsin, are widely distributed over the township. Only in the core of the Oak Ridges interlobate moraine has a compacted boulder clay deposit been dated as pre-Wisconsin in age.[2]

The Wisconsin stage of glaciation received its overall momentum from an ice dome hovering over Northern Quebec. This continental ice sheet split into three tongues or lobes when it advanced over Caledon township. The "Lake Ontario", the "Georgian Bay" and the "Lake Simcoe" lobes, named after

the local areas from which they came, appear to have advanced and retreated over the township independently of each other. The geologic history of the township between fifteen and ten thousand years ago can be told simply in terms of these independent lobate moments. Four types of Pleistocene formations were exposed or formed during this period:

(1) Till plains with associated drumlins, flutings and groovings.

(2) Interlobate, recessional and terminal moraines.

(3) Pitted and unpitted outwash plains.

(4) A lacustrine plain consisting of clay and marl deposits.

On the basis of lithological and textural variations, four sheets of till can be differentiated on map two. A very silty and yet stony till, associated with the Georgean Bay lobe, is found in the extreme western corner of the township; a drumlinized, compacted, buff brown, sandy, and somewhat stony till of the lake Ontario lobe is distributed west from Alton, north from Caledon and above the escarpment south of Belfountain; a buff-pink, very sandy, moderately stony and uncompacted till sheet west of Mono Mills is associated with a readvance of the Lake Simcoe lobe; and the silty to sandy, uncompacted and almost stonefree till along the southern town line east of the escarpment is associated with a readvance of the Lake Ontario lobe. These four till sheets have been described here in the chronological order of their exposure. The second till sheet, which is areally the most important in the township, corresponds in fabric texture and lithology to the "Wentworth" till, described by Karrow in the Hamilton, Galt and Guelph map-sheet areas[3]; the last till probably is Karrow's "Halton" till of the Hamilton area and his "Leaside" till of the Scarborough area[4].

Two interlobate, two recessional and two terminal moraines are shown on map two. Each of these shows the position of the glacial snout during periods in which melting matched forward ice movement. The interlobate moraines are elongated, extensive in area, and have great local relief relative to the recessional and terminal moraines, which are simply low hummocky ridges of contorted sands and gravels. The Orangeville interlobate moraine formed between the Georgian Bay and Lake Ontario ice tongues; the Oak Ridges interlobate moraine between the Lake Simcoe and Lake Ontario tongues. The Singhampton moraine marks the terminal line of a readvance of the Lake Simcoe lobe; the Gibraltar moraine was laid down during a hesitation in glacial recession from the Singhampton position. The Paris moraine is a recessional moraine; it marks the northernmost position maintained by the Lake Ontario lobe during the period of withdrawal and readvance of the Lake Simcoe lobe, which deposited the Singhampton moraine. The moraine denoting the terminal line of the most recent readvance of the Lake Ontario tongue has not been previously described and therefore named; since it skirts the village of Caledon East, it could be suitably called the "Caledon East moraine".

The level to gently rolling plains of outwash gravels are less conspicuous topographically but nevertheless cover larger areas in the township than do either the till plains or the various moraines. These sands and gravels were transported and deposited by glacial meltwaters and hence were laid down in areas not covered by ice at the time. Therefore the largest areal extent of outwash is in the part of the township longest exposed during the overall ice retreat, the north-western quadrant. High calcite counts recorded by Mr. L. J. Chapman near Orangeville and Cataract indicate a primary source in limestone areas, the closest of which is around Lake Simcoe[5].

The high silt content encountered in gravel pits in this area suggests a source area below the escarpment. Therefore, it seems probable that much of the tremendous vertical thicknesses of outwash, measuring for instance, over two hundred feet in depth west of Caledon, derives from sources outside the township and was originally transported in spillways flowing from the north towards the Guelph area to the south-west.

A small area around Caledon Lake was the site of lacustrine deposition during a brief period of ponding. The high calcite content in the melt-waters entering from the north accounts for marl formation in the lake bed. Fossils found in this marl indicate the cold, damp climate that seems to have existed during this period of deglaciation. The marl beds were trenched around the turn of the century and a branch line run from Orangeville to market the lime. Since then, the trenches have been dredged, filled with water and used by Orangeville residents during their summer vacations.

Although deglaciation is generally difficult to analyze without a detailed knowledge of the stratigraphic sequences, the distributional pattern of deposits presented in Caledon is ample evidence of several stages in ice withdrawal from the township. In early Cary times, more than fifteen thousand years ago, all of Caledon township was covered by glacial ice; five thousand years later, at the close of the Valders age, all of the township was exposed[6]. The ensuing paragraphs interpret these stages of overall retreat in the light of field evidence recorded on map two and in appendix one.

The first split in the Wisconsin ice cover across all of southern Ontario uncovered the hills of the Orangeville moraine in this township[7]. When the Georgian Bay lobe withdrew from the study area, glacial melt-waters flowed along the northern edge of the interlobate moraine. They deposited gravels south of Orangeville and a thin veneer of lacustrine deposits during a brief period of ponding near Caledon Lake.

In late Cary times, slightly less than fifteen thousand years ago, the Ontario lobe withdrew from a terminal position along the Orangeville moraine to one along the Paris and Oak Ridges moraines. The glacial spillway stream cut into the bedrock channel of the pre-glacial Credit ancestor instead of following the ice front; it did, however, flow along the Paris moraine eventually to join the Eramosa spillway west of Erin. In Port Huron times, fifteen hundred years later[8], the Lake Simcoe lobe readvanced and deposited its buff-pink, very sandy till over Wentworth till laid down during the earlier ice advance from Lake Ontario. Although there is evidence of a temporary discharge channel near the northern end of the Singhampton moraine, most of the meltwater followed the bedrock valley to the extension of the Eramosa spillway. Another temporary discharge channel also appears on the northern part of the Oak Ridges moraine; this suggests a partial withdrawal and the thin nature of the Lake Ontario ice lobe at that time. Thirteen thousand years ago, the Lake Simcoe lobe had withdrawn completely, leaving only the emaciated Ontario lobe intact behind the Paris-Oak Ridges moraine system[9].

Five hundred years later, the Lake Ontario lobe withdrew completely from the township. Meltwater, still supplied by waning lobes north of the township, had filled the depression in front of the Paris-Oak Ridges belt with great thicknesses of outwash material. The spillway stream, therefore, was able to cut through a low point in the morainic ridge and start to create the present gorge of the Credit River. The spillway stream cut through the glacial debris over the present site of the Forks of the Credit only to meet a partially buried escarpment headland. It therefore was forced to skirt the

edge of the escarpment and, in doing so, it removed much of the debris at the base of the scarp face; therefore a renewed period of rock face retreat was initiated along the northern part of the headland. The spillway probably flowed south-east from the township and eventually emptied into the Peel ponding; this is likely because at pebble count site eleven, as is seen in appendix one, eighteen per cent of the pebbles carried in the Valders till are dolomite; these must have been swept south from the escarpment by a strong stream such as a spillway, because the readvancing Valders ice sheet did not cross any dolomitic bedrock areas. This readvance from the direction of present Lake Ontario extended as far as the Caledon East moraine. The glacial spillway was forced to flow between the ice front and the escarpment; thus the present course of the Credit River through all the township came to be used by a spillway stream. The glacial ice retreated from this position about 10,300 years ago, never again to return to what was to become Caledon township[10].

Glacial deposits dating from the waning period of the Wisconsin stage provide most of the local relief features in Caledon whereas the bedrock surface accounts for the overall relief. The cliff faces of the exposed escarpment and the gorge of the Credit River are carved in bedrock but were not so formed until the latter part of the Pleistocene epoch. The areas of greater agricultural productivity, as is pointed out in chapter four, have developed on soils based on till and outwash parent materials; whereas the marginal farming regions largely coincide with the morainic belts. Therefore the processes and deposits described in this section are extremely important to an understanding of the present conditions in Caledon township.

(d) Climate

That part of Ontario surrounding Caledon township is included, according to the Thornthwaite system, in the humid microthermal climatic region. Monthly temperatures, shown by vertical bars on the climatic chart for Alton, vary between 66°F. in July and 15°F in February, an annual range of 41 F°. 34.5 inches of precipitation are fairly evenly distributed throughout the year[11]. Almost seventy inches of snow falls on the township during each average winter; since the winter temperatures average six degrees below those of the urban belt along Lake Ontario, the snow stays and hence skiing conditions are good for most of the winter in Caledon. The climatic chart indicates there to be no moisture deficiency on loam soils; on sandy soils the Thornthwaite system does not hold because of the greater infiltration capacities; therefore, farm ponds are often necessary on morainic lands, even though there is no soil moisture deficiency according to the chart. The growing season, averaging 190 days, is adequate for most mid-latitude crops.

Microclimates above and below the Niagara escarpment differ to some degree. Although precipitation and particularly snowfall is reputed to be heavier above than below the mountain, groundwater conditions make the land below the escarpment effectively better watered. Above the escarpment the water table does not rest on top of the dolomite but rather infilterates the jointings to the upper surface of the shale formations below; the groundwater below the mountain cannot infiltrate the impermeable shale bedrock base and hence the water table remains near the surface. During the growing season, the mountain walls decrease air circulation at their base and increase the sun's intensity. The slopes at the base of the escarpment are well-watered and insolated; therefore, a favorable microclimate permits successful market gardening and apple growing in this but in no other part of the township.

(e) Vegetation, Animal Life and Soils

One feature common to the vegetation, the animal life and the soils of Caledon township is that the present varieties bear little resemblance to the original ones. Nearly all the original vegetal cover has been removed from the township and replaced by new vegetation types. Only prolific and herbivorous browsers such as deer, and rodents, such as rabbits, racoons, skunks and groundhogs have prospered since the coming of settlement; carnivores, reported to have molested many of the early settlers and their livestock, have largely been killed off. Most of the topsoil on the deforested township slopes has long since been washed away through indiscriminate farming methods; on the better lands, soil improvements in recent years have changed their original character. In short, Caledon township is no longer covered by virgin forest, populated by forest animals or farming forest soils.

Caledon township was originally covered by mixed forest, in which sugar maple, beech and spruce trees collectively predominated[12]. The only patch of this virgin bush now standing is along the brow of the escarpment east of Belfountain. The second-growth tree grouping most common on Caledon's woodlots, as demonstrated by photograph thirty-five, is the maple, beech and hemlock association. On poorly drained bottomlands, elm and white cedar are commonly associated. Aspen provides a special type of second-growth tree cover on grazed woodlots throughout the township. Abandoned fields, fence rows and road sides are, as often as not, veritable jungles of hardy, tawny-coloured weeds, the downfall of hay-fever sufferers. A start has been made on several reforestation projects by the Credit Valley Conservation Authority; photograph thirty-nine shows one such lot recently reforested south of Belfountain. A private farmer began a conifer tree farm on the riverine lands

below Alton during the 1930's; he now markets his product to nurseries all across the southern part of the province. Much of the drought-ridden, soil-free, stony and steeply sloping land in the moraines should be planted in hardy conifers to retain some of the soil moisture so badly needed on the cultivable slopes below.

Animals that have replaced the larger forest dwellers, such as the wolf and the cougar, are of two types; those which have been artificially introduced and maintained by sportsmen and those which forage on Caledon township farms. Non-farming rural residents have abandoned their land to rodents who in turn ravage the crops on the neighbouring operating farms. Toronto hunters, anglers and fowlers frequent the Caledon area in such great numbers as to warrant club formation within the township. Pheasant runs and trout ponds are even maintained on an exclusive basis. The banks of the Credit, along which the Mississaugas fished for salmon two centuries ago, are now crowded by trout enthusiasts at the first of each fishing season. To facilitate these sportsmen, several thousand rainbow trout fingerlings are released in the headwaters of the Credit each spring by provincial fisherymen.

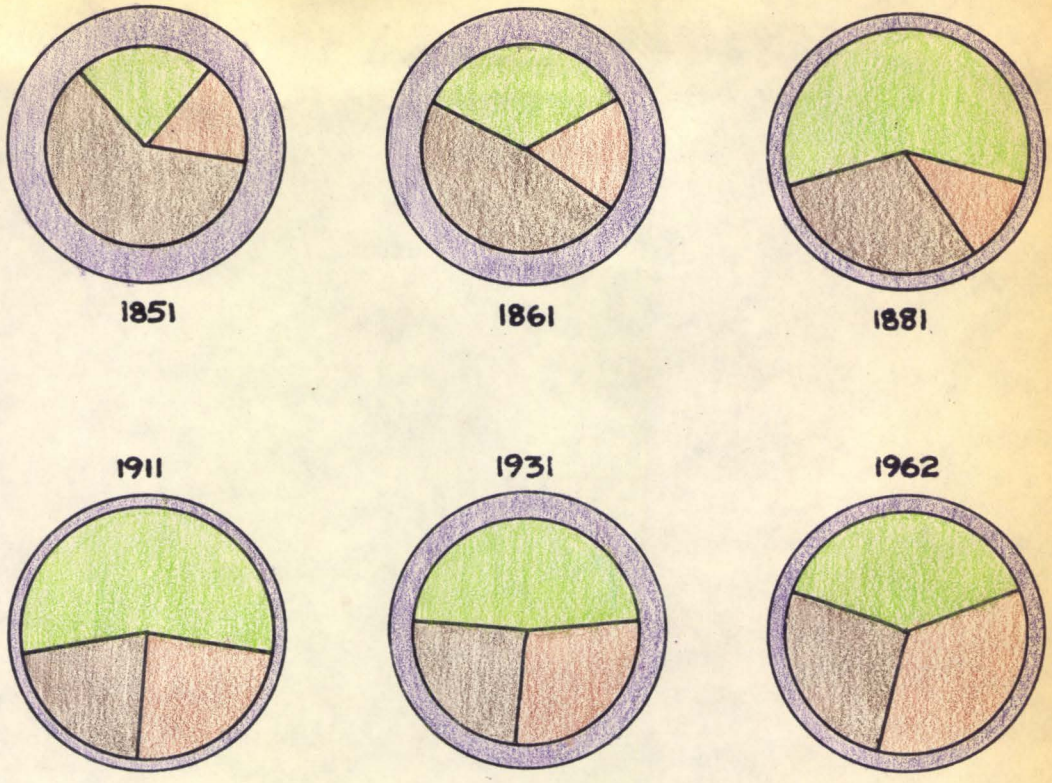
Map three outlines the soil types distributed throughout Caledon township, as mapped by soil scientists of the federal department of agriculture. These soil types derive from a combination of drainage conditions and soil catenas. Soil catenas are supposedly based directly on soil parent materials. Although there is a general agreement between the distribution of soil catenas on map three and that of Pleistocene deposits on map two, sufficient differences exist to cast doubt on the accuracy of the mapping methods used to produce map three. Great variations exist within one soil type area, as can be seen by a quick comparison of maps three and four; since map four is based on more than internal drainage conditions and soil parent materials,

it is a better field guide to agricultural land capabilities than is the soil map. Because of inaccuracies in mapping the catenas and variations not shown within the soil types, map three is of peripheral importance as a guide to land potentials for agriculture.

Because the county soil map, from which map three is reproduced, has wide usage among Caledon farmers, the following description of the good, fair and poor soils and their distribution in the township must, however, be included in this study. The best soils of the township have proved to be the well-drained members of the Harriston, Oneida, Woburn and Caledon catenas; their profile developments are sufficiently deep and mature, as is shown on photographs ten, eleven and twelve, to expect high and consistent yields. Similar members of the Brighton, Dumfries and Pontypool catenas have profiles as shallow as a foot in depth and grave deficiencies in organic matter and phosphates; these soils require expensive fertilization and extreme care to produce yields at all comparable to those expected on the good soils. Soils belonging to the Lockport and Farmington catenas have such incomplete profile development that they should not rightly be called "soils"; obviously, they have neglibeable agricultural potential. The largest area of good soils lies between Belfountain and Alton from the western town line to the first line east of the Highway 10; four smaller areas are located south of Orangeville, south of Mono Mills, south from Caledon East and surrounding Inglewood. Two broad bands of fair soils stretch across the width of the township on either side of the centre block of good soils. The poor soils are to be found just above or just below the Niagara escarpment west of Inglewood. Good soils occupy forty per cent of the township, fair soils another fifty per cent.

The bedrock and Pleistocene geology, the climate, the vegetal and animal life and the soils of Caledon township provide a variegated platform on which to reveal the drama of human settlement and activity during the past one and a half centuries.

THE DEVELOPMENT OF AGRICULTURE IN CALEDON TOWNSHIP : 1851 - 1962

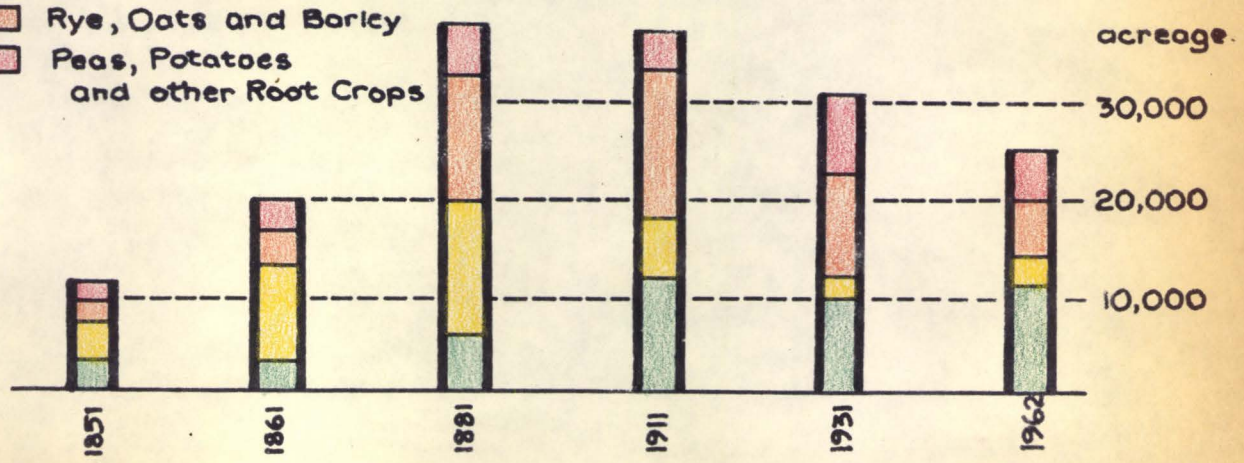


AREAL VARIATIONS in LAND USE

- Unused and Unowned
- Cropland
- Pasture
- Woodland

AREAL VARIATIONS in CROPS GROWN

- Hay and Alfalfa
- Fall and Spring Wheat
- Rye, Oats and Barley
- Peas, Potatoes and other Root Crops



Prepared with the Assistance of Canadian Census Statistics.

DAVIES

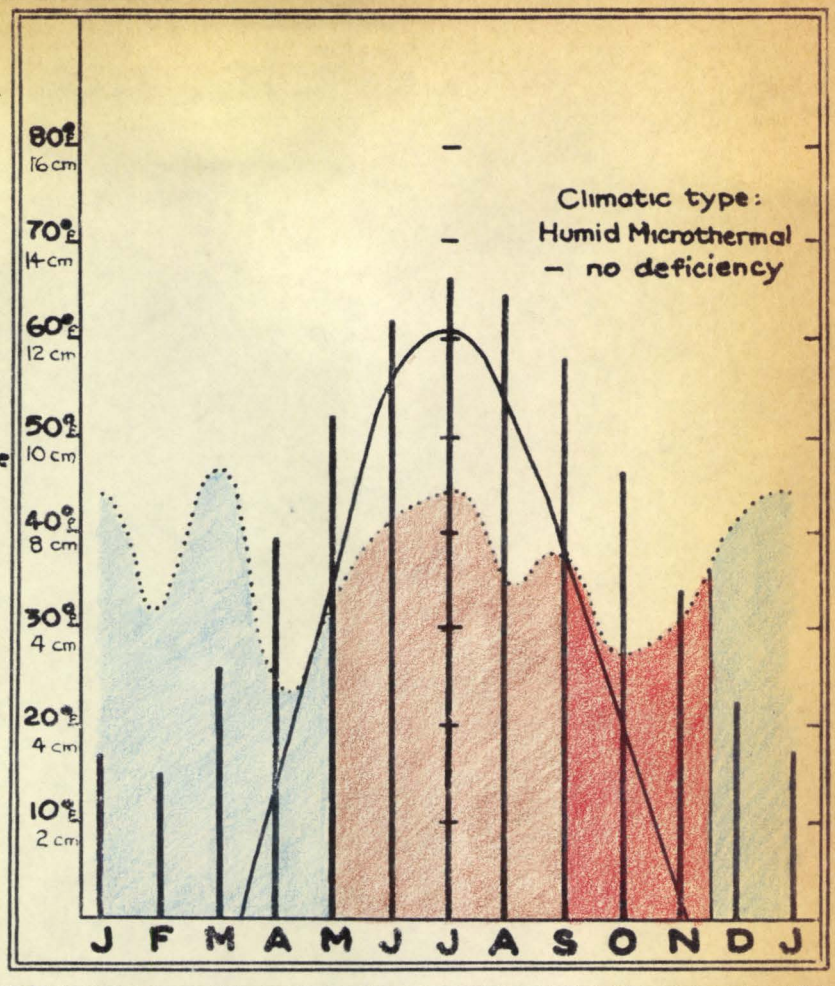
CLIMATIC CHART - ALTON, ONTARIO

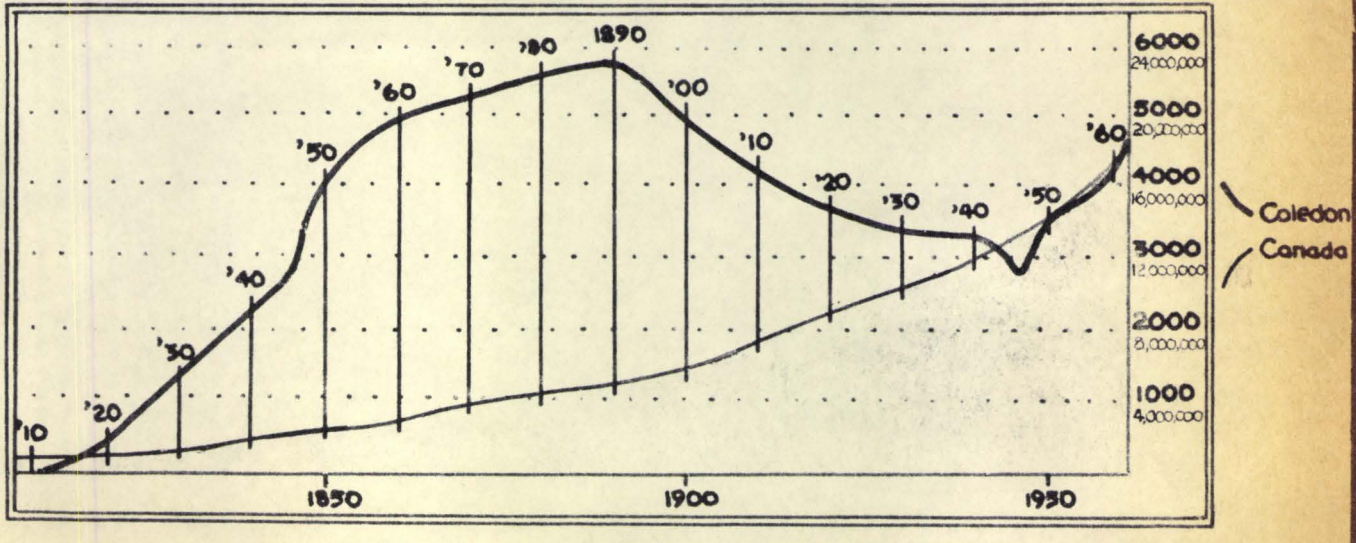
Using Thornthwaite's System

Mean Monthly Temperature
Precipitation
Potential Evapotranspiration

Water Surplus
Soil Moisture Utilization
Soil Moisture Recharge

Compiled Using "Climatic Summaries" Vol I, Canadian Dept. Transport





POPULATION GROWTH of CALEDON TOWNSHIP relative to that of CANADA

DAVIES

CHAPTER THREE

The History of Settlement, Agriculture and Industry in Caledon Township

As is demonstrated by the accompanying graph of population growth within the township, there have been three stages of development over the past century and a half. The population increased until it reached a peak of 5,800 in 1891, then it declined to 2,800 in 1945 and since then it has grown to nearly 4,800 at present. Before 1891 the wheat fields of the West, the mines of the North and the huge industries of the cities were not sufficiently developed to attract immigrants from settlement in rural Ontario townships such as Caledon. The abundance of well-drained land and good water power sites in the township was especially conducive to settlement in Caledon during this period. Around the turn of the century soils became seriously depleted by continuous cropping and water power was largely replaced by electricity. Therefore township residents became increasingly interested in new opportunities in the West, the North and the cities and Caledon underwent half a century of depopulation and depression. During the past two decades, however, suburban settlers, overflowing from Metropolitan Toronto into the Caledon hills, have brought new prosperity to the township. If the present trend continues, the population of Caledon township will probably exceed its previous peak of 5,800 by 1975.

Caledon township was first settled by Scots who had emigrated to Ulster and then to the seaboard colonies before being attracted to Upper Canada. All of the Upper Credit Valley was included in the hunting and fishing grounds of the nomadic Mississauga indians. The first known permanent settlers were the McColl brothers who moved from their North

Carolina homes to squat near the site of Inglewood a few years before the War of 1812-14. Immediately after that war other Scots-Irish families were attracted to the Caledon Hills by cheap land and ready staples. When Caledon township was surveyed in 1819, over eighty families were found to be located on clearings scattered around the now non-existent communities of Rockside, Star and Silver Creek (see map 8 for location). Over a third of the 670 lots surveyed were granted to loyalists and war veterans who usually lived in the older surveys along Lake Ontario. Therefore they retained their land in Caledon in an unimproved condition until needed by their children or grandchildren. The disjointed settlement pattern resulting from such absentee ownership and the difficulty and expense of road construction in the sparsely populated hills retarded settlement in Caledon during the 1820's relative to that in Albion and Chinguacousy townships at that time.

Land auctioning and settlement picked up after 1824 as a partial result of the 'Wild Lands Tax' imposed upon absentee owners that year[1]. During the 1830's the three older communities expanded and new ones, such as Mono Mills, Alton, Belfountain and Orangeville came into existence. The establishment of grist mills at Silver Creek in 1828 and at Belfountain and Mono Mills in 1835 indicated that by this time the clearing and meagre subsistence farming stage in pioneer life had been superceded to some degree by the advent of cash grain farming. Discontent among the farmers unable to get their surplus wheat and flour to market because of the poor condition of roads to Toronto accounts for much of the township support given to Mackenzie and his insurgents in 1837. Hurontario Street and the Mono Road (see map 8 for location) were sufficiently improved by the 1840's to permit Caledon millers to process American wheat shipped to England via Canada to take advantage of the colonial preference.

The late 1840's and early 1850's were times of economic prosperity and optimism in all of Canada West. The township population in 1860 had grown to 5,000, more than double that in 1840. Settlers held over seventy per cent of the land in 1851 as compared with less than a third of it twenty years earlier. Caledon township shared in the good times that accompanied reciprocal trade with the United States, the building of railroads, the establishment of responsible government and the advent of a million and a half immigrants. After the "Road Companies' Act" was enacted in 1849, Hurontario Street was planked and graveled as far as Orangeville[2]. Settlement, which was nearly complete below the mountain, then began in earnest in the central and northern parts of the township. The demand for squared timber and for potash and the high price to be paid for grain on the New York market prompted settlers to clear as much of their land as possible and to plant it in wheat. It was probably during this period of indiscriminate clearing and grain farming that the steeper slopes, which now lie sterile and unusable, lost their top-soils. Since timber was being shipped by road rather than downriver, mills could be built along the main stream of the Credit as well as on its tributaries. A very large and modern grist mill at Alton, for example, is recorded to have ground over fifty thousand barrels of flour for export to the United States during each year of its civil war.

In the 1860's villages along the Credit or its larger tributaries flourished because of the activity of their mills and workshops. Turneries and tanneries, wagon works and woolen mills as well as grist, flour and saw mills could be found in such presently dormant hamlets as Melville, Alton, Cataract, Belfountain and Credit Forks.

The advent of railways in the following decade brought the township to its fullest development. With the prospect of getting the business of bustling valley villages, the Credit Valley Railway was built in 1870 along

the steep and tortuous wall of the Credit gorge en route from Toronto to Orangeville. Three years later the Toronto, Grey and Bruce Railway was built through Mono Road Station, Caledon, Melville and Orangeville on its way to the then recently colonized townships of the Bruce peninsula. Another railway, the Hamilton and Northeastern, was built through Inglewood and Caledon East in 1880 to connect Hamilton with the trunk line of the Canadian Pacific Railway. The three railways increased the potential market for goods from Caledon's farms and small factories; new sandstone and shale quarries opened along the Credit Valley Railway and bricks and building blocks were shipped to Toronto from Credit Forks and Inglewood. At the same time, decreasing grain yields and severe economic depression in the mid-1870's decelerated activity on Caledon's farms. Therefore, it is to the village industries based on local water power and revitalized by the railways that credit goes for keeping the farm boys in their township until the 1890's. As an indication of the importance of railways in village economies, it is worth noting that, with one exception, only those villages served by railways survived the 1870's; Mono Mills, which had a population exceeding five hundred in 1850, was probably too large and too well serviced by improved roads to decay into nothingness. The older residents of the township are often unsure of the precise location of the vanished villages of Slégo, Silver Creek, Kilmanagh, Star and Sleswick (see map 8 for location).

During the first four decades of this century, wars, depressions, loss of agricultural markets, continued industrialization, rapid transportation and urban growth drew population from the rural centres and surrounding farms in all of southern Ontario. The balance of emigrants over immigrants reduced Caledon's population from a high of 5,800 in 1891 to a low of 2,800 at the end of World War II. The soils of the township had been exhausted by

many decades of non-rotation grain growing, commonly known as "wheat mining". Mass-produced factory goods began to undercut and outsell those of the village workshops. Since most of the virgin hardwood forest had been cut, sawn and shipped by 1880, most of the wood-based workshops had ceased operations by the turn of the century. Credit Valley stone was being replaced by crystalline frontings quarried north of Peterborough as early as 1910. The unemployed or underemployed workers of Caledon township were forced to seek work elsewhere. Most of them found work in the then newly developed farms in Western Canada, mines in Northern Ontario or factories in the Toronto area. The once bustling villages shriveled in size; for instance, no trace can now be found of two streets of frame houses mapped in Cataract in 1881[3]. Farmstead abandonment and farm consolidation accompanied this depopulation trend. On the better land the abandoned buildings have since been removed and their sites put to productive use; on the poorer and usually morainic lands, orchards, foundations and barns were often left by the new land holders. Agriculture was so depressed in the 1920's and 1930's that the fraction of unheld land doubled and, as illustrated by the graphs of areal variations in land use, much of the held land reverted to bush. In short, Caledon township was a very depressed area between 1891 and 1945.

Since 1945 Caledon township has come into the economic and social orbit of Toronto. The villages have become retirement and commuter centres for some of its businessmen; the more progressive farms have been economically realigned to serve its meat and milk demands. The independent farmers, however, have been beset by many problems; low cash returns for their staples, the apparent inability to attract farm hands and the inherent drabness of farm life relative to "big city" life are just a few of them. Despite these

problems, three factors have improved conditions on Caledon's farms:

(1) Members of farm families commuting to outside industries have been able to supplement farm income.

(2) Wealthy Torontonians have bought cheap but nevertheless potentially good land and have invested much capital in improvements to the soil and the buildings.

(3) To meet market demands for meat, fluid milk and tree fruits, specialization and related capital investment has occured in several sections of the township.

Nevertheless, since agriculture has been a buyer's market during the past two decades, Caledon township farmers have no control over marketing their products and hence they walk an economic tightrope. Caledon's villages, in their post-industrial environment, have become commercial and retirement centres for farmers in the surrounding areas and dormitory centres for workers commuting to their daily work in nearby cities and towns.

The story of the development of Caledon township provides a very necessary frame of reference in which to study the present-day patterns of rural and urban land utilization. Although it can be said that the recent influx of well-to-do Torontonians has breathed new life into Caledon township, the fact remains that Caledon was economically prosperous for just as long a period as it was stagnant. Long-time residents can be as justifiably proud of the "golden era" of bustling industrial and agricultural activity before the turn of the century as can the newcomer scorn the backwater atmosphere that permeated the ensuing half century. The present relatively densely distributed villages and farms are hangovers from the past era of prosperity. Therefore it seems fair to say that Caledon's history contributes as much to the character of the township as does its magnificent scenery.

CHAPTER FOUR

The Agricultural Geography of Caledon Township

The present agricultural land use pattern in Caledon township is a function of three interelated factors: inherent capabilities of the land, market demands and ingrown preferences among township farmers. Three maps are presented in conjunction with this chapter to show, first, the agricultural potentialities of the land and then the actual use made of the land. Map four divides the township among eight agricultural land capability classes, which are graded according to the degree to which agricultural use is limited by characteristics of the land itself. Land use emphases on every operating farm unit are shown by map five. Map six outlines farming regions in Caledon township and as such is a statistical interpretation of map five. Appendix three and four describe the methods used in preparing these three maps.

As is shown on map four, about half of the township is capable of productive crop cultivation and intensive grazing, four tenths of the land is less suited to crops than to permanent pasture or woodlots, and the remaining tenth is incapable of agricultural use.

All lands in Caledon township show deficiencies in one or more of the following soil fertility factors: texture, stoniness and parent material of the soil, slope and internal drainage of the land, and the apparent degree of soil erosion. Since near optimum conditions for each factor occur collectively in no part of the township, none of the land can be considered first class. Second and third class lands are of two types: those which are gently rolling and therefore subject to sheet erosion or droughty patches, and those which are so nearly level that they are imperfectly drained. Provided that these lands are well-managed, they are adapted to the production

of a wide range of crops. Class four land is too susceptible to erosion, too stony or too poorly drained to warrant frequent cultivation; this part of the township is more suited to hay and pasture in occasional rotation with closely-sown crops. Of the cultivable lands, third class land accounts for more than half, fourth-class for almost a third ~~and second-class for almost a third~~ and second-class to a mere fifth. Second class land is generally found only in areas of till whereas third-class land is widely distributed throughout both till and outwash plains. Some fourth class land is located on the less stony and steeply sloping morainic slopes as well as on the more imperfectly drained sections of the till and outwash plains. Generally speaking, these three classes of lands capable of crop cultivation and intensive grazing are distributed in two bands across the township: a major one between the Orangeville-Singhampton moraine to the north and the Paris-Oak Ridges moraine to the south, and a minor one extending from the latter morainic belt south to the town line. The Niagara escarpment and the Credit bottomlands project a ribbon of little potential productivity through both these bands of cultivable land. A pocket of better land is to be found on the well-drained outwash gravels around Orangeville.

The remaining half of Caledon township is either too steeply sloping and droughty or too poorly drained to be suitable to crop production. Capability class five consists of wetlands that cannot be economically drained and protected from periodic flooding. These lands are to be found along parts of the Credit River and its tributaries and in depressions among groups of kames and drumlins. Because of steepness of slope, eroded topsoil, droughtiness, boulders or other features that make modern cultivation impracticable, lands graded under classes six and seven are adapted to moderate to restricted use as permanent pasture and woodland. Over half of these areas have been indiscriminately deforested in the past and now lie

under a sterile and useless cover of tough grasses. The Credit River Conservation Authority has rightly recommended that these slopes be reforested. Sixth and seventh class lands coincide with the most uneven parts of the Orangeville-Singhampton morainic band in the north and the Paris-Oak Ridges band to the south. Land class eight consists of rock outcrops and bog lands completely unsuited to commercial forestry or general agricultural use. They are to be found along the Niagara escarpment and the Credit River Gorge, and in the depression surrounding Caledon Lake.

During the past decade, the combined effect of a general trend to farm specialization and stock-raising predilections among the new set of land owners has caused a quiet revolution in the agricultural land use pattern of the township. On the better lands, specialized grass farming, with the raising of beef and dairy cattle and, in special instances, pure-bred racing horses, has replaced general farming. For example, since 1931 land devoted to pasture is estimated to have increased over forty per cent, at the expense of crop land. At present, hay, clover, alfalfa and rape account for half the land planted in crops as compared with a mere third in 1931. As is demonstrated by the triangular graph on map five, hay is the one crop emphasized on forty per cent of Caledons farms; and when combined with pasture, it is a specialty on sixty per cent of the farms.

Map six indicates three large and six small pockets of intensively cultivated farm land, occupying about a fifth of the area of Caledon township. The three large patches correspond roughly to the three areas of till plain, shown on map two, between the Orangeville-Singhampton and Paris-Oak Ridges moraines. Four of the six smaller pockets are found on till near the southern town line and the remaining two on outwash and till near Orangeville. The three major areas in the central part of the township account for ninety per

cent of the land under intensive cultivation. In each of these major areas, dairying, beef raising and mixed farming are carried out; but beef raising predominates in all three. The pockets of intensive cultivation supply nearly all of the produce going from Caledon township to the outside market; they also absorb most of the capital spent on improvements to the soil, machinery and farm buildings. The largest capital improvements made in the dairying sub-regions have been to farms near the highways along which the bulk milk collection trucks travel. All of the dairymen in these sub-regions have increased the size of their Holstein herds and have installed bulk milk coolers in order to ship to the Toronto market. Beef raisers in the pocket around Caledon village breed most of their own stock whereas those in the other two major pockets import feeders from Western Canada to fatten for the Toronto slaughter-houses. Acreage expansion through farm consolidation is most prevalent in the beef-raising sub-regions. "Conn Smythe Farms", centred around Green Lake near Caledon, has a spread of over two thousand acres on which a thousand Hereford steers are presently bred; it is by far the largest farm in the township and has undergone more capital improvements per acre than any other farm in the intensively cultivated areas; the 1963 International Plowing Match is to be held on one of Smythe's farms. The mixed farmers included in the areas of intensive cultivation have specialized in field crops, such as peas, potatoes, turnips and sugar beets, rather than in cattle or in grain crops. In a small area north of Inglewood, apple orchards occupy up to half the farm acreages. The south-easterly facing basal slopes of the escarpment are protected from the harshness of winter and benefit from more intense insolation and fewer late frosts in the spring. Only one grower picks, packs and ships his own product; the other orchard owners deal with a Toronto marketing agent.

Farms outside the pockets of intensive cultivation show areal emphases in pasture and in woodland and scrub. Almost three quarters of the township, as is seen on map six, is devoted to extensive crop cultivation and grazing. This is still the domain of the general farmer who does not specialize in field crops but rather maintains a herd of about two dozen mixed dairy cattle and harvests approximately thirty acres of feed grain each year. Instead of investing in a larger herd and extra dairying equipment, to ship milk bulk to Toronto, he prefers to ship a few cans of cream each week to creameries in Orangeville, Erin or Caledon East. Hen houses are rare in the more intensively cultivated areas but they are ubiquitous on these more marginal mixed farms. Pastures are, as often as not, unimproved; and woodlots are often openly grazed. Farm consolidation is less frequent than in the beef raising sub-regions; but complete farm abandonment is relatively common. Foundations of abandoned farm buildings are not removed because the land has too low a value to warrant the necessary expenditure. These marginal areas benefit greatly from the supplemented income system. Often wages earned by farm children in the nearby villages and towns make their home farm economically viable; should the children marry and build a home in a village like Caledon East, as many have in the past five years, the home farm suffers and often fails financially; and should the farm not be in a scenic locale and therefore be saleable to an urban escapist, abandonment may, and frequently does, follow bankruptcy.

As seen by comparing map six with map four, most of the marginal farms are to be found on land incapable of cultivation and intensive grazing. Therefore, such farms have no basis on which to reorient their economies to meet the market demand for field and orchard crops, milk and meat. Their soils, for instance, are incapable of growing the corn crops necessary to enrich the butterfat content in bulk-shipped milk. Therefore farmers on these

lands have little hope of gearing their economies to modern market demands; in light of decreasing farm incomes and the seeming impossibility to change from an outdated dairying-grain economy, these marginal farms will pose a real problem in the future.

Nearly all of the land in Caledon township that is capable of intensive cultivation and grazing is being so used at present. The regions of intensive dairying, beef raising and mixed farming correspond to lands suited to carefully managed cultivation; these areas in turn relate to those of till and outwash soil parent materials. The regions of extensive crop combination and grazing, that is, the marginal mixed farming areas, are largely found on morainic slopes classed as capable of moderate grazing, at best. Those areas unused for agricultural purposes are incapable of agricultural use because they are either rock ridges or bog lands.

Inherently good land capable of economic realignment in a fifth of its area has permitted Caledon township some share in the hungry Toronto market. New land owners from Toronto provided most of the financial impetus to turn farm economies on the better lands in from mixed farming toward specialization in livestock. Within fifteen years, farms on the productive lands have become symbols of agricultural recovery and progress. To this the coming of the 1963 International Plowing Match bears relevant testimony.

CHAPTER FIVE

Non-Farm Settlement in Caledon Township

Because Caledon township is but an hour's drive from downtown Toronto, rural residents are now outnumbered by urban and suburban residents. Only four out of every ten permanent residents farm the land on which they live; five of the other six reside in the nucleated settlements within the township and the remaining resident lives in the country but earns his living elsewhere. Since the number of farm dwellers has actually declined slightly over the last ten years, the sharp twenty-five per cent population increase, traced on the population growth graph, is the result of incoming non-agricultural village and rural settlers.

The nucleated settlements of Caledon township are dependent upon and reflect the nature and size of their socioeconomic hinterlands. Three classes of social and economic spheres of influence, the basis of which is outlined in appendix five, are shown by map seven and the associated pie graphs. All township residents gravitate to Toronto when in need of goods and services unavailable in nearby villages and towns; Toronto dominates sphere class one. Sphere class two is centred upon the towns of Orangeville, Erin and Brampton, all outside the township; and sphere class three is divided among the following ten district towns and villages:

Orangeville, Alton, Hillsburgh, Erin,
Belfountain, Cheltenham, Inglewood, Caledon East,
Mono Mills and Caledon.

The multiplicity of third class centres competing for the 4,800 township residents is a hangover from the pre-1900 period of greater activity and prosperity. Since the motorized residents, especially newcomers whose roots be outside the township, tend to spend their money in first and second class centres, Caledon's villages are caught up in a commercial struggle for an increasingly reduced buying market. As seen by the size

of their slices in socioeconomic sphere class three, Alton, Inglewood, Caledon East and Caledon are the only township villages holding their own commercially. It should be noted that three of these four villages have local industries that employ a dozen or more men. Other villages such as Mono Mills, Melville, Cataract, Brimstone, Belfountain and Mono Road Station lack this economic foundation; should they fail to attract urban escapist settlement they probably will cease to exist within a few decades.

In map seven the settlement types (urban, farming rural, non-farm rural and vacationers) are applied to a map of the socioeconomic spheres of the township. ~~As seen by the accompanying pie graphs,~~ Orangeville attracts inhabitants of that part of the township north of the mountain brow and east of Caledon Lake and the Credit River; Alton, Caledon and Mono Mills have branch banks and churches operating from Orangeville and hence are social and economic subsidiaries to that town. Farmers, villagers and suburban country dwellers below the mountain rim tend to gravitate downslope to Brampton; branch banks are operated in Caledon East and Inglewood from Brampton. That part of the population residing west of Caledon Lake, the Credit valley and the exposed escarpment is attracted to Erin; that village offers enticements such as a public house and late shopping hours that offset the multiplicity of services found in the larger settlements of Orangeville and Brampton. Caledon mountain is a real socioeconomic divide especially in the winter months; school buses from Brampton, for instance, do not venture above the brow to pick up high school students.

The commercial development of the four most progressive villages of the township bears a direct relationship to the number of farmers in their hinterlands. Alton, Inglewood, Caledon East and Caledon have about the same size social and economic slices of the class three pie so that direct

comparison is possible. Out of every ten permanent residents in their hinterlands, farmers account for two in Alton, three in Inglewood, three in Caledon East and five in Caledon. One general store is now in operation in Alton, two in Inglewood, three in Caledon and five in Caledon East; it should be noted that Caledon East gathers much of its trade from Albion township whereas the other three attract residents almost entirely from Caledon township. Village residents and non-farm rural settlers are inclined, moreso than are farmers, to gravitate to class two towns for their everyday needs. Therefore, less of Cheltenham's and Inglewood's hinterland population would trade with village merchants than would residents in Caledon's hinterland.

Alton, originally a mill village, has shown a healthy shift to modernized manufacturing as its economic base in recent years. Its two former woollen mills now make rubberware and carpet yarns which are trucked to Toronto and the Grand River valley cities for finishing and distribution. The availability of adequate floor space, clear water for auxiliary power and fabric washing, and a large supply of non-union factory hands attracted these industries to Alton. At present, over a hundred and fifty residents of the village and the neighbouring hill lands are steadily employed therein. Alton merchants have not shared in the prosperity that accompanied the opening of factory operations during World War II. As soon as the villagers could afford automobiles, they began trading with Orangeville and Erin merchants instead of their own. Because Highway 24 has been rerouted through Caledon village en route from Guelph to Orangeville, travellers no longer frequent Alton stores. Therefore it is not surprising that the only chop mill, the hotel, three of the four general stores open in 1951 and a service station have ceased operations within the last decade. A large part of the village's 450 residents are retired farmers or city-dwellers who find the quietness that reigns over most of Alton an attractive

feature.

Settlement on the site of the village of Inglewood did not commence until it became a rail junction and a stone loading station in the 1880's. Since then it has outstripped now non-existent or decadent hamlets, such as Credit Forks, Slègo and Kilmanagh, to become the regional centre for the area below the mountain that is drained by the Credit and Little Credit Rivers. About seventy local men find employment in the small quarries to the west of the village and in the fibre-glass factory operating in a former woollen mill. Those supporting the rest of the 360 residents maintain their homes in Inglewood and commute to work in Brampton each day.

By the time of Mackenzie's abortive rebellion in 1837, Caledon village had become the seat of the township council, the agricultural society and the Orange Lodge[1]. But, since it lacked a water power base for industry, it was not able to take advantage of its central location and early political prominence to overshadow the other township villages. To-day it serves the most highly developed farming and gravel excavating region of the township. Improvements to Highway 10 and the fifteenth sideroad and the rerouting of Highway 24 have given Caledon an opportunity to assert itself as a residence centre for commuting workmen. Over forty of the 250 residents assist in the gravel pits; and should a new steel-fabricating factory succeed in its litigations against the planning board, and commence operations, several dozen additional job openings should be available to village men.

Since Mono Road Station lost its functional base when the Toronto, Grey and Bruce Railway was torn up in 1915, Caledon East has had no real competitor for trade in the south-eastern quadrant of the township. Its main streets are lined by several clean looking stores, a very busy creamery, a new post office,

a prosperous appearing grist and feed mill and three solidly built churches. Within the last five years more than eighty new homes have been constructed in a neat subdivision on the slopes of the Caledon East moraine, south of the village proper. Like Bolton and Nobleton to the east, Caledon East has become a prosperous commuter village for former farm boys who work in the industries that fringe Metropolitan Toronto and at the same time prefer to reside in their home district. The sixth line east, commonly known as the Mono Road, is a shorter, less hilly and much less frequented route between Toronto and points north from Orangeville than either Highways 10 or 51. Caledon East can expect greater prosperity because this road has just been widened and repaved to handle increased transport and recreational traffic from Toronto. Therefore its present population of 650 may well increase to 1,000 by 1975.

About three hundred of the four thousand residents of Orangeville live within Caledon township. In the 1870's the terminals, yards and round house of the Credit Valley and the Toronto, Grey and Bruce Railways were located in this area. Around them centred the early growth that permitted the town to outstrip economically its competitor village of Mono Mills. When Orangeville became a milling and market centre after 1900, this section of town became virtually deserted. Only a red-brick Roman Catholic Church and a handful of decrepit houses remain to attest to the former economic prominence of this area. At present this part of Orangeville contains the Canadian Pacific Railway station, five fuel oil distributors, two factories that have employed up to 150 men within the past five years and several dozen homes.

The smaller hamlets of the township, the largest of which is Belfountain with a population of 200, have all but lost their commercial function; there is

not even a general store in Melville, Cataract, Brimstone or Mono Road Station. Mono Mills is, today, a mere shadow of its former self; it serves a local population of just over one hundred and a limited rural hinterland. Melville and Mono Road Station grew where the Toronto, Grey and Bruce Railway crossed the Credit Valley Railway and the important Mono Road; since the T. B. and G. was abandoned, Melville has become a retirement centre for Orangeville golf enthusiasts and Mono Road Station a slum outlier of Caledon East. Because Belfountain is on the paved road from Highway 10 to Erin which carries almost all the week-end visitors, it is prosperous relative to Cataract and Brimstone. Most of these tourists visit the little conservation park at Belfountain, pictured in photograph sixty-eight, buy their gasoline and ice cream cones at the local service station and then drive on without seeing either of the other two hamlets. A conscientious effort is being made by both the old and the new township residents to preserve Brimstone as a museum village; its quaintly out-of-plumb, vertically framed buildings appear to have stepped out of the 1880's directly into the 1960's. Only a pink brick former hotel and the ruins of a hydro-electric generating station above the falls of the Credit remain at Cataract to testify to its economic importance at the turn of the century.

Even though Caledon's residents have been shopping from Toronto through mail order houses for years, not until the actual settlement of several hundred relatively wealthy urban escapists in the township after World War II did Caledon actually enter the socioeconomic orbit of Toronto. Through the recently created township planning board, this small group of outsiders has gained control over the future development of the township. Perhaps this is justified because collectively they contribute in taxes over twice the total

of all the home and factory owners in Alton, Inglewood and Caledon East. Their influence has been noted in the changing patterns of agricultural land use, in part, to satisfy their predilection towards stock rearing. In recreational development their influence has been even stronger. The Credit Valley Conservation Authority cannot develop the Credit Forks region as a public conservation area because of their holdings. For instance, the Caledon Mountain Trout Club, a new skiing resort and a planned group of seclusive palatial residences along the escarpment rim (see map 8 for locations) have their "raison d'etre" in preserving the magnificent scenery and sporting resources for the fashionable set. A country club, two riding and hunt clubs and a game farm have been established just above or below the escarpment near Inglewood. A dude ranch and a golf course near Melville (see map 8 for locations) serve the recreational needs of the more plebeian week-end visitors and township residents. Perhaps the best indication of the nature of the new residents is the recently opened Caledon airport from which several local businessmen commute to Toronto.

Under the influence of urban escapists, the man-land relationships are undergoing a quiet revolution in Caledon township. Only two-thirds of the land in Caledon is now owned by native-born township residents. Sixty per cent of the inhabitants no longer live on farms. Land planning is now in the hands of the new settlers. The general trend to settlement in such outlying but nevertheless nearby townships as Caledon rather than in the crowded subdivisions of Metropolitan Toronto has changed the township's character. Within fifteen years, Caledon has reverted from an agricultural "backwater" with fond memories of a much more prosperous past to a suburban area tending towards exclusive private estates and subdivisions.

CHAPTER SIX

A Scenic Tour Through Caledon Township

The sage that first recognized the fact that a picture is worth a thousand words of description could well have been a geographer. And yet, carefully culled photographs that seek to illustrate the "mean" or "typical" situation in order to vindicate a textual generalization do an injustice to the great diversity that exists in the works of man and nature. It seems just as desirable, if not more so, to show those parts of the township that are uniquely different, inexplicably so at times. Therefore the following photographs have been chosen to demonstrate both the mean and the extreme in every part of the township. It is to be hoped that, through such a documented pictoral travelogue as this, new sidelights will be thrown on the other chapters to bring them to life.

Photographs are numbered and these numbers plotted on location map 8. Most of the photographs were taken in the field by the author; those that are larger and more professional in appearance, however, originated with the Credit Valley Conservation Authority and have been used with the permission of the Ontario Department of Lands and Forests. This pictoral chapter has been subdivided under the following headings:

(1) Introductory

(2) Landform features

(3) Soil characteristics

(4) Agricultural land use

(5) Forest types

(6) Points of historical interest

(7) Features in urban development

(8) Recreation

(1) Introductory

1. The Credit River gorge at Brimstone. Both the professional painter and the tyro are fond of attempting to capture on canvas the magnificence and the delicacy of autumn scenes along the Credit.

2. A winter scene near Alton. Since winters are somewhat colder and thaws less frequent in Caledon than in Toronto, winter visitors find Caledon fresh and white relative to their slush-ridden city.

3. A View of the escarpment across the Credit Valley from the Caledon East moraine. Orchards on the lower slopes of the escarpment benefit from more protection in the winter, more intense solar warming and copious ground water from springs at the base of the scarp. (C.V.C.A. 11583)

4. The railway station at Credit Forks. The Canadian Pacific Railway gives "dayliner" passenger service to residents of Caledon. This train is bound from Toronto to Orangeville and stops at Inglewood, Credit Forks and Alton. (C.V.C.A. 11333)

(2) Landform Features

5. The Credit River gorge between Cataract and Brimstone. Groundwater seeping along the upper surface of the impermeable Queenston shale is under-cutting and will eventually topple the overlying sandstone and dolomite cap rock.
(C.V.C.A. 11000)

6. A Kettle lake on Lot 22, concession 3 east. Kettles are common among such recessional moraines.
(C.V.C.A. 11404)

7. A meltout depression of unknown origin in the outwash plain east of Cataract. Since the top of the left slope is higher than the right, this could be a remnant spillway bank along which ice blocks were deposited, covered and then melted out leaving this depression.

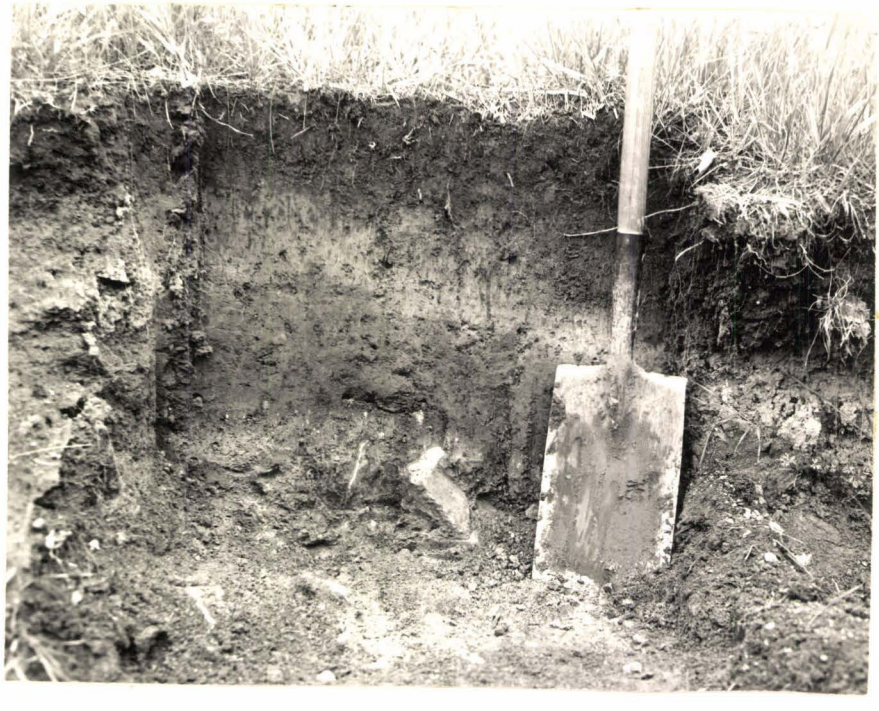
8. Caledon Creek spillway east of the third line east. Outwash gravel, in some places over a hundred feet deep, was laid down by glacial meltwaters between the almost buried escarpment on the right and the Oak Ridges interlobate moraine on the left.
(C.V.C.A. 11617)

9. Erosian on Queenston shale west of Inglewood. When the original vegetal cover was removed, a dense network of runoff channels quickly established itself and badland conditions set in. (C.V.C.A. 11120)

(3) Soil Characteristics

10. Oneida day loam profile along the fifth sideroad. Fine shale and locus trine particles from its till parent material has produced the thickest A or topsoil horizon in the township. (C.V.C.A. 10800)

11. Caledon sandy loam profile south of Caledon village. A relatively thin profile development and a stony subsoil make deep ploughing hazardous. When well managed it produces fine hay and orchard crops. (C.V.C.A. 11512)



12. Harriston silty loam profile near the junction of the twentieth sideroad and the fifth line west. The well drained soils of this catena are probably the best to have a sizeable distribution in the township. (C.V.C.A. 11516)

13. A poorly drained area in the Harriston catena south of Mono Mills. Even though they are based on potentially rich soils, areas such as this are a "dead loss" agriculturally because they lack drainage outlets. (C. V. C. A. 11505)

14. An imperfectly drained area in the Harriston catena east of Caledon along the fifteenth sideroad. Where outlets are available, such land as this are tiled and produce good hay crops. (C. V. C. A. 11504)

15. Another imperfectly drained area in the Harriston catena near the site of photograph 14. Although outlets are available, land such as this can be no more productively used than in permanent pasture unless systematic tiling is undertaken. (C.V.C.A. 11506)

16. Soil conservation practices on Harriston loam near the site of photograph 14. A grassed waterway and contour ploughing reduce gullying and sheet erosion and conserve the topsoil. (C.V.C.A. 10636)

17. Soil conservation practices on Harriston loam north of Caledon village. To prevent serious soil loss through sheet erosion such slight slopes as this need to be kept in grass or closely growing grain crops. (C.V.C.A. 11513)

18. Lack of soil conservation practices of Harriston loam near the site of photograph 17. On this gentle slope sheet erosion has removed all the topsoil and now the subsoil is being tilled with poor resulting yields. (C.V.C.A. 10761)

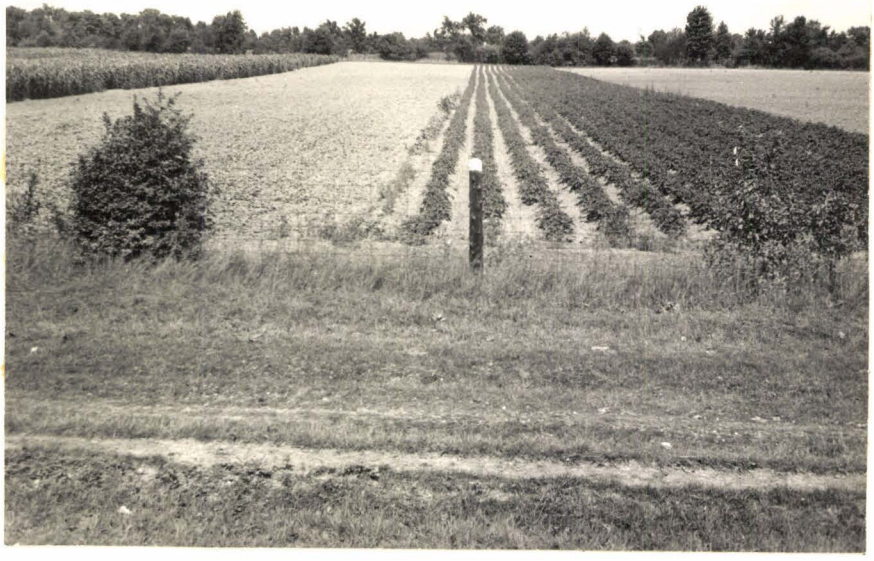
(4) Agricultural Land Use.

19. Mixed grain field north of Caledon village. Oats and barley make the most common grain combination found in rotation with hay and pasture. The grain is both a feed crop and a nurse crop for clover barely visible at the base of the grain stalks.
(C.V.C.A. 11620)

20. Oat field west of Belfountain. Soils formed on spillway gravels are usually in one of the rotation crops but those on spillway banks often remain in rough pasture.
(C.V.C.A. 10733)

21. Contour strip cropping east of Orangeville. Hay and grain crops have been planted here in strips parallel with the contours of the land so as to conserve the topsoil and maintain good crop yields. (C. V. C. A. 10724)

22. Corn and root crops west of Belfountain. Although they can be successfully grown in the township, corn, rutabagas, potatoes and field peas occupy less than fifteen percent of its cultivated land. (C. V. C. A. 10750)



23. Cornfield west of Cataract. On dairy farms which ship bulk-cooled milk, ensilage corn shows a crop emphasis not otherwise seen in the township.

24. Farming conditions back of the escarpment brow south from Belfountain. Rockside, one of Caledon's founding settlements, was aptly named considering that this farm in on part of its village site. It is not surprising that it should fail as a farming community.

25. Horse breeding on Conn Smythe Farms south of Caledon village. The racing horse and starting gate indicate the function of this part of the Smythe holdings.

26. Herefords fattening on a Smythe farm south of Green Lake. This two thousand acre farming enterprise, whose white barns dot as much of the landscape as can be clearly seen, keeps a herd of over a thousand steers.

27. A Hereford bull west of Cataract. Western stock is imported to upgrade the quality of Caledon's beef cattle.

28. Loading pen in the C. P. R. yards at Orangeville. Feeder cattle from western Canada are unloaded here to be fattened in Caledon's fields for the Toronto market.

29. Idle land in the interlobate moraine along the tenth side-road. Slopes too steep for mechanized farming, droughtiness because of the porous nature of the kame, very little topsoil, and stone piles collectively make cultivation impossible and grazing unprofitable. (C.V.C.A. 11549)

30. Grazing on till soils along the twentieth side road north of Caledon. Smoother slopes, good soils having no tendency to droughtiness and only moderate stoniness make this land excellent for improved pasture. (C.V.C.A. 11510)

31. A mixed dairy herd south-east of Caledon village. Farm economics based on cream production from these cattle are marginal because of the additives necessary to compensate for unnutritive pasturage such as this.
(C. V. C. A. 11611)

32. Grazing on the lower slopes of the escarpment north of Inglewood. Beef cattle do not need expensive additives to thrive on even as poor grazing land as this.
(C. V. C. A. 11174)

33. An abandoned barn south-west from Cataract. Since this land is capable of only infrequent cultivation, it was not considered equal the cost of demolition when this farm was incorporated in the neighbouring one.
(C.V.C.A. 10712)

34. A stone fence above the escarpment west of Inglewood. Stone blocks strewn across the land by the last glacial advance were commonly used in field fences near the escarpment.
(C.V.C.A. 11397)

35. A woodlot near the centre of the concession block west of Cataract. Maple, beech and hemlock trees are a frequent second-growth association on well drained land. (C.V.C.A. 10876)

36. A woodlot near the run of the escarpment east of Belfountain. Well-cleaned and pure stands of sugar maple, such as this one, are rare in the township today. (C.V.C.A. 11258)

37. The forest-covered escarpment near Credit Forks, seen here, is the only part of the township to have retained its original beech-sugar maple combination. (C.V.C.A. 11540)

38. An area of willow scrubland east along the fifteenth sideroad from Caledon. Much of the wetland involved in farm consolidation has grown up in hydrophytic second growth forest cover. (C.V.C.A. 11502)

39. Reforestation along the sixth line west near Belfountain. The Credit Valley conservation Authority is trying to reclaim several hundred acres of wasteland in the Paris moraine.
(C.V.C.A. 11377)

40. Reforestration on the sandy river flats near Alton. The owner of this private tree farm ships conifers to nurseries all across southern Ontario.
(C.V.C.A. 11376)

(6) Points of Historical Interest

41. A pioneer home south of Orangeville. In the early 1850's when this home was built the Orangeville-Alton farming area was prospering; hence the ornateness of woodwork. (C.V.C.A. 11558)

42. A log cabin north of Inglewood. This served as the inn for Sligo, a little Ulster settlement at the point where Hurontario Street forded and later bridged the Little Credit River.
(C.V.C.A. 11583)

43. The Grange. This castle-like structure, built atop the escarpment near Belfountain in the 1870's, was planned to be the cultural focus for the transplanted part of the clan Maclaren. It is now owned by a commuting Toronto businessman.

44. Ruins of the hotel at Mono Mills. This quiet village was, from 1830 to 1870 the leading pioneer milling centre north of the "old survey" along Lake Ontario. As traffic began following the railways instead of the Mono Road, seen here, Mono Mills had declined.

45. Ruins of a brickyard across the Credit from Brimstone. The brickovens, racks and piles of broken bricks, discernible among this jungle of older undergrowth, are all that remain since the yard closed sixty years ago.

46. Stone barn at Hart House, the University of Toronto farm on the rim of the escarpment above Inglewood. Stone was the cheapest durable building material in this area during the pioneer days.

47. The falls and gorge of the Credit and the ruins of a former private hydro-electric generation station at Cataract. Many different grist and saw mills, breweries and factories were powered here by the Credit during the nineteenth century.

48. At the site of the Credit Forks quarries that supplied the stone for the provincial parliament buildings. Sandstone slabs were swung by cable a quarter mile across the chasm to the Credit valley Railway station.

49. Homes at Brimstone. This frame village was built to house quarrymen and later brickyard workers in the early 1880's. Had an effort not been made to preserve it, Brimstone would have vanished as quickly as did most of Cataract. (C.V.C.A. 11270)

50. Roman Catholic Church on the site of Silver Creek. This brick church, which still serves the decendents of the early Irish settlers, was built in 1884 to replace an earlier frame one built in the 1830's. (C.V.C.A. 11528)

51. A farmer grist mill at Alton. The wheel box and water race are still visible but the big wheel has long since disappeared. This is one of six mills that crowded the banks of Mill Creed in the 1860's.
(C.V.C.A. 11563)

52. The octagon barn visible from Highway 24 west of Cataract. This architectural curiosity was built during the 1850's, a decade of prosperity and agricultural optimism.
(C.V.C.A. 11047)

53. C.P.R. yards in that part of Orangeville within Caledon township. The roundhouse has been inactive since the advent of the diesel ten years ago. Fuel oil stored by nearby distributors is tanked in by rail from Western Canada.

54. Factories bordering the rail yards at Orangeville. Despite their locations these industries are making metal shelving and structures, and the other laundromat equipment, ordinarily do not ship by rail.

55. The main street and commercial section of Orangeville. Because it is so well served by main highways, Orangeville has become a regional centre for much more than that part of Caledon Township west of the Credit and north of the mountain.

56. The licensed hotel in Erin. This is the closest public house to every part of Caledon township except the Caledon East district. This fact helps to explain how Erin can compete with Orangeville and Brampton for the trade of the western half of the township.

57. A rubberware factory on the western edge of Alton. This factory still functions as a mill because it uses the water power potential in its reservoir at peak periods.

58. A part of the commercial section of Alton. These three general stores have all closed since the villagers bought cars and began shopping in Orangeville and since the highway from Guelph was rerouted through Caledon

59. The junction of the C.N.R. and C.P.R. at Inglewood. This village, because it is the only one served by both national railways, has come to handle any rail shipments destined to or from most of the of the township's industries.

60. The commercial section of Caledon village. Because highways passing through the township focus upon this village, it has been able to maintain the only hotel and modern service station in the township.

61. The steel fabricating plant under construction in Caledon village. This factory will build light building structures and employ up to thirty men if it wins its court battle against the newly enacted township zoning by-laws.

62 & 63. The Con Smythe sand and gravel operations south of Caledon. This huge pit has been excavated within the last five years; and, since gravel pits are zoned as agricultural land by the Township planning board, excavating activities can continue. Some gravel is washed and sorted here and trucked down highway 10 to Metropolitan Toronto. Most is used in asphalt paving or as road fill in which the high silt content is not such an important drawback to require washing prior to use. These pits employ a few dozen local men but most of the employees are from Toronto and board in Smythe's farmhouses which are scattered around his excavating sites.

64. The Mono Road and the commercial section of Caledon East. The white building in the centre of the photograph is a creamery which draws shippers from the area Caledon below the mountain and from all parts of Albion Township.

65. Rabbit hunting along the Oak Ridges interlobate moraine. The population of deer and rodents has increased since urban escapists began buying out farmers and leaving the marginal land untended.

66. Construction of the Caledon Ski Club near Credit Forks railway station. The four hundred foot drop along the Credit gorge permits both slalom and novice runs to be constructed. Initially, at least, the club will be open to the public.

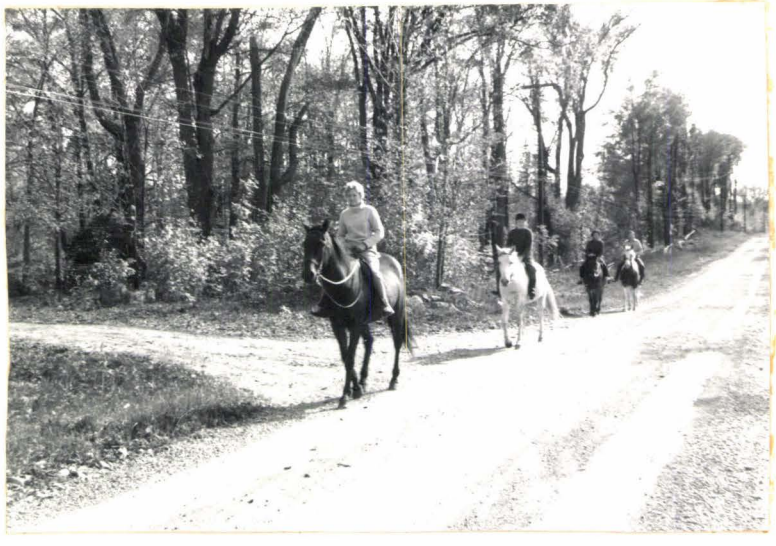
67. A short ski run at the Chinquacousy Country Club near Inglewood. This exclusive club includes several dozen new residents to Caledon on its membership roles. It offers golf and saddle riding as well as skiing to its members.

68. Fishing on the west branch of the Credit downstream from Belfountain. The banks of the Credit and its tributaries are lined by fishing enthusiasts from Toronto on the opening day of each trout season.
(C.V.C.A. 11590)

69. The Conservation Area at Belfountain. The pond and dam were once part of a large and profitable milling operation. Now, over five thousand paying visitors enjoy strolls through the park each summer.
(C.V.C.A. 11051)

70. The Caledon Mountain Trout Club two miles north of Inglewood. It maintains this club house and four artificially stocked trout ponds. Ever since its founding in 1902 it has been closely connected with Toronto business magnates.

71. A riding stable along Highway 10 near Melville. Since it is along the busiest traffic artery in the township, this stable does a booming business each summer week-end.

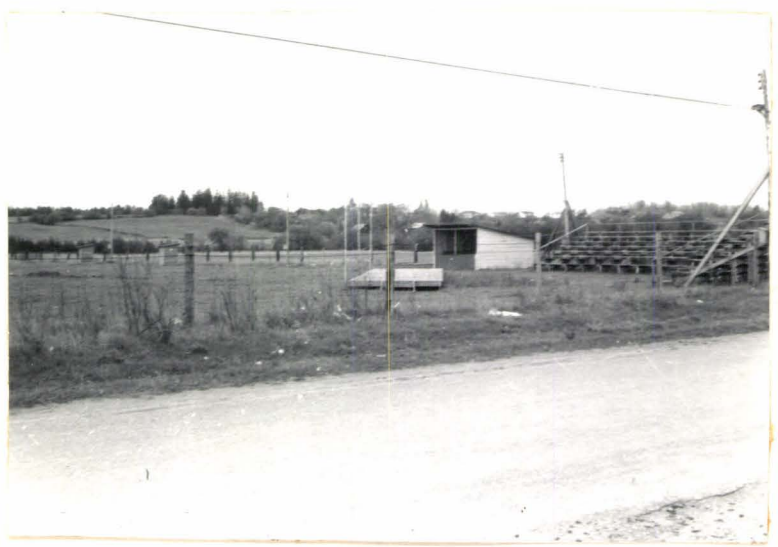


72. A family of equestrians trotting along the third line west near Inglewood. Three marginal farms above the escarpment have been converted into "riding clubs" which board their members mounts for use on the week-ends.

73. Caledon Airport along the first line east north of Caledon village. Its runway is built on a tiled depression in the till plain. From the airport some businessmen commute daily from their Caledon homes to their Toronto offices.

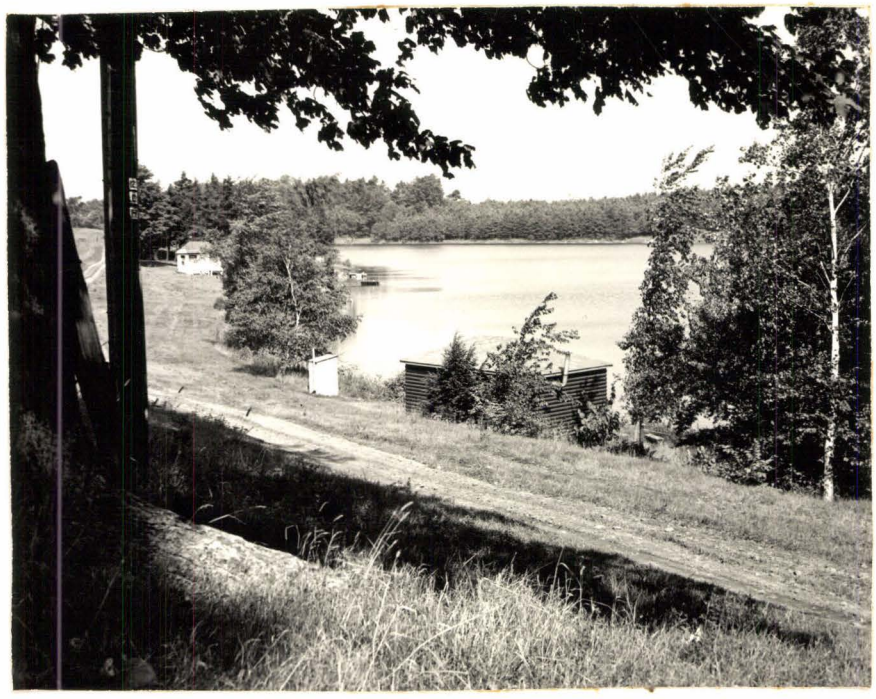
74. The Orangeville Golf at Melville. As a rule this nine-hole course caters to townsfolk and visitors rather than to township residents.

75. Caledon East "highland games" grounds. Once each July, Scotsmen and their kin descent in thousands upon the village. Since it has no hotel or service station and only one poor quality restaurant, the village does not reap any real economic gains.



76. A group of cottages along the shore of Caledon Lake. Ponds, such as this, and having a surface area smaller than most farms, are pressed into recreation use by Torontonians who bought up all the property as early as 1920. (C.V.C.A. 11044)

77. Cottages among the man made Crestview Lakes. These lagoons were trenched for marl in the early 1900's and the refuse heaped up where the cottages are now. The summer homes have been built by Orangeville families since World War II. (C.V.C.A. 11046)



78. Green Lake near Caledon. Unlike other meltout depressions in the outwash plain, this one is filled by a spring-fed lake which local landowners have developed for their private use. (C.V.C.A. 11111)

79. An artificial ten acre pond built north of Alton as part of a summer retreat developed by a Toronto businessman. (C.V.C.A. 11394)

CHAPTER SEVEN

Summary, Conclusions and Problems

Variety is the keynote in the geography of Caledon township. Economic and social activities in the township are synthetical reactions to external conditions and a varying physical and human resource base. Rural and urban land use patterns reflect both this base and the outside influences, particularly from Toronto.

The physical elements provide a multiform foundation for the development of cultural forms. Two major features dominate the physiography of the township: the valley of the Credit River and the Niagara escarpment. Continental glaciers covered the bedrock tableau with about a hundred feet of till, outwash and morainic material. These three glacial deposits are equally distributed in discontinuous patches throughout the township. Soil types formed on till and outwash fabric prove more agricultural productive than those formed on morainic material. The native vegetal and animal life has been replaced, since settlement began, by strains able to thrive through co-existence with man. Soils have been so eroded through continuous abuse and so altered by chemical additives that the original forest types are at present not easily recognized. The entire township is part of the humid microthermal climatic region and hence has no significant moisture deficiency; the land below the escarpment has, however, a microclimate more adaptable to a wide range of crops than that above the scarp. Variety in the physical elements within the township is important in understanding its historical development and present land use patterns.

Caledon township has had three stages in its development: heavy settlement and prosperity from 1810 to 1890; depopulation and depression between 1890 and 1945; and suburban settlement since 1945. During the first period of

expansion, even the steepest morainic slopes were cleared and tilled; the extensive erosion, which has rendered these slopes sterile and useless, dates from this period of expansive agriculture. Since villages were established at the many mill sites along the Credit system, the township developed a denser network of villages than are to be found in neighbouring townships. Soil depletion, industrial mass production elsewhere and new settlement opportunities in the West, the North and the expanding cities to the South collectively caused the ensuing period of economic decline. The population peak in 1891 was 5,800 and its low point in 1945 was 2,800. Since 1945 Caledon has undergone a renewed period of growth, as transportation improvements brought the township within commuting range of Toronto. Therefore, historical development left the township with depleted soils, an overly dense network of small settlements and the memory of both economic health and stagnation.

The agricultural land potential and the actual farming regions developed thereon bore a close inter-relationship. Land, based on till and outwash materials, is capable of intensive cultivation and grazing; morainic slopes are capable of moderate grazing at best. Since 1945 the good land has been sufficiently improved to be utilized in specialized meat and milk production; the marginal land remains in general farms. Therefore the patchwork pattern of agricultural land use conforms to the variable distribution of Pleistocene materials.

At present half the population of the township lives in the six nucleations having populations ranging from two hundred to seven hundred people. Those villages based on local industries or extensive and dependable commercial hinterlands have survived the period of depopulation and depression; others have either completely vanished or have shriveled to an insignificant

size. Orangeville, Alton and Inglewood have local industries employing more than seventy men. Caledon and Caledon East have socioeconomic hinterlands sufficiently large to contribute to commercial prosperity. Since 1945 the villages in the southern part of the township have become commuter residence centres. The more wealthy urban escapists have built along the Credit gorge or the escarpment, whereas the less wealthy ones live in the villages or along paved access roads. Since the last war Caledon township has become a commuter ~~and~~ township associated with the suburban expansion from Toronto.

Interrelationships and trends provide the most meaningful conclusions in a thesis such as this. The following three conclusions are of this type.

(1) The distributional pattern of Pleistocene deposits coincides with that of agricultural land capability classes. Intensive farming methods are practicable only on land based on till and outwash materials. Therefore Pleistocene geology controls the present pattern of farming in Caledon township.

(2) The pattern of small towns and the large extent of marginal agricultural land are both hangovers from the settlement stage of township development. Unless local industries or commercial hinterlands provide a minimum economic foundation, only commuter residential settlement can save the various villages from eventual eclipse. Past soil impoverishment, most common on morainic slopes, has made their present use uneconomic. Therefore historic development is traceable in present land use and settlement patterns.

(3) Caledon township is sufficiently accessible to Toronto to have become involved in the suburban settlement explosion during the past fifteen years. The township seems destined to a future as a recreational,

residential and agricultural "green belt" ~~part of~~ outgrowth of Toronto.

Problems confront the recently established township planning commission. The following three will probably prove most vexatious in future years:

(1) The marginal agricultural land based on morainic material or on bedrock is incapable of sufficient improvement to enable its farmers to indulge in intensive farming practices necessary to economic viability. This has led to extensive farm abandonment and should lead to reforestation of the sterile slopes. Speculators, however, are taking options on this land for potential commuter settlement, as quickly as it is abandoned. Unless these sites are in scenic locations or along paved access roads, they are unlikely to be sold and probably will be idle for many years. Therefore, it seems that uneconomical general farming of marginal land is its best possible present use.

(2) Many of Caledon's villages have disappeared; and the fifty years of depopulation have depressed others to relative insignificance. Mono Mills, Cataract and perhaps Belfountain quite possibly will follow this trend, unless a conscientious effort at preserving them is made within a decade. These communities have no industrial or commercial foundations to buoy up their economies. Suburban settlement tends either to centre on the larger villages of Inglewood, Caledon and Caledon East or to be dispersed along access roads or scenic locales. Therefore the future of the smaller villages poses a difficult problem.

(3) A basic problem existing today in Caledon township is the underlying conflict between the new and old sets of residents. The recently enacted zoning by-law signifies a successful bid for power by the landed suburbanites. Township planning now lies out of the range of the farmers and villagers who have lived their lives in Caledon and still outnumber the urban escapist residents. Litigation proceedings have already been brought against this by-law and more are likely. Control over economic planning will be a very real factor in the future land use developments in Caledon township. Therefore, the result of this conflict between resident groupings is fundamental and yet difficult to foresee.

All of Caledon township is now in the socioeconomic orbit of Toronto. Those farming regions based on till and outwash soils, those villages having an industrial or commercial foundations and those areas prone to suburban settlement will benefit most from their associations with Toronto. The smaller, unbuoyed settlements and the marginal farming regions are likely to profit least and, therefore, to fall behind the more progressive sections of the township. Variety in the present pattern of land use and in probable future developments in the township derive from multiform physical elements and historical trends.

APPENDICES

Material presented in this section is of two types: tables of statistics fundamental to explanations and conclusions made in the text; and descriptions of original methods used and expenses incurred in producing this thesis.

The following subjects are treated in appendices:

(1) Till pebble analysis.

(2) Thornthwaite climatic chart for Alton.

(3) Agricultural land capability classes.

(4) Agricultural land use and associated farming regions.

(5) Economic and social spheres of district towns and villages.

(6) Thesis expenses.

(1) Till Pebble Analysis

At each of the thirteen sites plotted on map eight, one hundred pebbles were randomly extracted from the various tills of Caledon township. The following table records lithological percentages in each fabric sample:

	Site	1	2	3	4	5	6	7	8	9	10	11	12	13
	Rock Type	%	%	%	%	%	%	%	%	%	%	%	%	%
(a)	Dolomites	86	83	74	87	73	57	33	46	78	13	18	0	0
(b)	Limestones	6	13	22	3	22	35	52	41	3	18	20	34	29
(c)	Siltstones	0	1	2	1	4	4	12	9	15	64	47	58	65
(d)	Precambrian	8	3	2	9	1	3	3	4	4	5	5	8	6

The following rock types were included in these four general categories:

(a) Dolomites: light dolomite
petroliferous dolomite
dark dolomite

(b) Limestones: earthy limestone
crystalline limestone
fossiliferous limestone
lithographic limestone

(c) Siltstones: brown siltstone
black siltstone
green siltstone
mudstone
sandstone
chert

(a), (b) and (c) samples are all paleozoic in geologic age.

(c) Precambrian: granitic igneous
basicigneous
gneiss
arkose
quartzite

Since the lithologic content of till sheets is generally over ninety per cent local in origin, the pebble counts give a good indication of the direction of glacial movement. Ice depositing till samples 1 and 4 seems likely to have advanced from the north because of the relatively low percentage of limestones compared with the very high counts of dolomitic and precambrian pebbles. Till samples 2, 3, 5, 6 and 9 were likely deposited from the south because of their low precambrian content. Ice advancing from the east probably deposited pebble samples 7 and 8; their limestone content is very high relative to that of their dolomite. Samples 10, 11, 12 and 13 were likely deposited by an advance from the south separate from that which laid down samples 2, 3, 5, 6 and 9; the siltstone content in the former samples is much greater than that found in the latter ones. From this till pebble analysis it seems likely that four separate till sheets are exposed in Caledon township.

(2) Thornthwaite Climatic Chart for Alton

Station: Alton Climatic Type: B_3 C'_2 rb'_2

Factors	j	f	m	a	m	j	j	a	s	o	n	d	year
Mean Monthly Temp. (^{o}C.)	-0	-0	-0	4.6	10.3	17.0	18.2	17.6	14.9	7.8	0.5	-0	--
Monthly Heat Index	--	--	--	0.9	3.0	6.4	7.1	6.7	5.2	1.6	0.1	--	30.9
Unadjusted Potential Evapotranspiration (cm.)	--	--	--	2.4	5.3	8.6	9.2	8.9	7.5	4.0	0.2	--	--
Latitude & Month Correction Factor	0.81	0.82	1.02	1.13	1.27	1.29	1.30	1.20	1.04	0.95	0.80	0.76	--
Potential Evapotranspiration (cm.)	--	--	--	2.7	6.7	11.1	12.0	10.7	7.8	3.8	0.2	--	55.0
Precipitation (cm.)	8.6	6.5	9.3	5.0	6.6	8.2	8.9	7.0	7.5	5.5	6.2	8.3	87.6
Precipitation minus potential evapotranspiration (cm.)	8.6	6.5	9.3	2.5	-0.1	-2.9	-3.1	-3.3	-0.3	1.7	6.0	8.3	--
Soil moisture in storage (cm.)	10	10	10	10	9.9	7.0	3.9	0.6	0.3	2.0	8.0	10	--
Storage Change (cm.)	0	0	0	0	-0.1	-2.9	-3.1	-3.3	-0.3	1.7	6.0	2.0	--
Actual evapo-transpiration (cm.)	--	--	--	2.7	6.7	11.1	12.0	10.7	7.8	3.8	0.2	--	55.0
Moisture deficit (cm.)	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Moisture surplus (cm.)	8.6	6.5	9.3	2.3	0	0	0	0	0	1.7	6.0	2.0	42.7
Runoff (cm.)	8.4	7.6	7.8	5.8	1.2	0	0	0	0	0.8	3.8	7.2	--

Moisture index	:	77.5	Thermal efficiency index	:	55.0
Climatic type	:	B_3	Climatic type	:	C'_2
Index of Aridity	:	0	Annual P.E.	:	55.0 cm.
Type	:	r	Summer concentration	:	61.0%
			Type	:	b'_2

The climatic chart for Alton is based on the foregoing table. Caledon township is included in the $B_3C'_2\ rb'_2$ or humid microthermal climatic region, according to the Thornthwaite system. Since there is still stored soil moisture in the early autumn months, Caledon township generally has no moisture deficiency throughout its growing season.

(3) Agricultural Land Capability Classes

Agricultural land capability ratings express the potential of the land for agricultural use. The higher the capability grade, the smaller the range of uses to which the land can be put and the greater the hazards of crop farming. Map four shows the distribution of agricultural land capability classes in Caledon township; this appendix has the purpose of enlarging upon the system, outlined at the base of map four, which serves as the foundation for that map.

The system used is a modified form of the farm soil rating scheme developed by the farm management branch of the Department of Soil Science of the Ontario Agricultural College, Guelph. This system, until now however, has been applied to no larger unit than the individual farm; therefore, this study is an innovation more in the scope of its use than in the system itself.

The following soil fertility factors were plotted from aerial photographs and checked in the field: slopes, water and wind erosion, internal drainage, soil texture, soil stoniness and soil parent materials. The township was mapped in the field at quarter mile intervals along the concession and sideroads; stations near the centre of concession blocks were mapped from aerial photographs. At every station, each of the six factors was judged as to its degree of limitation to agricultural use. Limitations were classed and recorded as "nil", "slight", "moderate", "severe" and "very severe". A numerical value was affixed to each limitation class. Therefore, at each station the collective limitations of the land could be added. This total was then subtracted from a hundred and the difference applied to the following grading scale:

I	95 - 100	V	Wetlands
II	80 - 90	VI	40 - 50
III	65 - 75	VII	20 - 35
IV	55 - 60	VIII	15 or less

Map four derives from the application of this system to a dense network of recording stations throughout the township.

To demonstrate the use of this system, five recording stations were selected at random; the steps to grading their agricultural capabilities are outlined in the following tables:

Stations chosen: (a) Con. VI W., Lot 6, West Half
(b) Con. VI W., Lot 17, West Half
(c) Con. II W., Lot 15, East Half
(d) Con. VI W., Lot 1, East Half
(e) Con. I E., Lot 21, East Half

	Texture	a	b	c	d	e
20	Sand					
5	Sandy Loam	*	*	*		
0	Silty Loam				*	*
5	Clay Loam					
10	Clay					

	Drainage	a	b	c	d	e
0	Good	*	*		*	*
10	Imperfect			*		
25	Poor					
40	Very poor					

	Topography	a	b	c	d	e
0	Level			*		
5	Gently Rolling		*			
10	Rolling				*	*
20	Hilly	*				
40	Steep					

	Erosion	a	b	c	d	e
0	None			*		
5	Slight		*			
10	Moderate	*			*	*
20	Severe					
30	Very severe					

Stoniness		a	b	c	d	e
0	Stonefree					*
5	Slightly stony		*			
10	Mod. Stony			*		
20	Very Stony	*				
40	Bouldery				*	

Parent Material		a	b	c	d	e
0	Silty till					*
5	Sandy till		*			
10	Outwash			*		
20	Kame	*				
30	Bedrock				*	

	Station	Total	Difference	Grade
(a)	VI W., 6, w.h.	75	25	VII
(b)	VI W., 17, w.h.	25	75	III
(c)	II W., 15, e.h.	35	65	III
(d)	VI W., 1, e.h.	100	0	VIII
(e)	I E., 21, e.h.	20	80	II

The agricultural land capability ratings for the five stations selected vary between second and eighth class. The second class land is well adapted to the production of a wide range of crops provided soil conservation practices are followed; the eighth class land is rock outcrop not suited to general agricultural use. The third class land requires more careful management than does the second class; the seventh class land, on the other hand, is little better than the eight class land and should be restricted to very limited grazing.

This system of classifying land according to its agricultural potential has many advantages over the standard soil type map. A comparison of map four with map three points out the great variability that exists within areas previously considered to be uniform in soils. The greater detail possible with the land capability system enables farmers to align their methods to the potential of the land. The system set forth here integrates not one, not two, but six soil fertility factors; the soil type map interrelates only two, soil catenas and internal drainage

conditions. The larger the number of relevant variables considered, the closer the more detailed findings are to being accurate. Therefore, the map of agricultural land capability ratings is likely more accurate, as well as being more detailed. When the system is carefully and vigorously applied to an area as large as Caledon township, the result is an objective assessment of the overall potential of the township's agriculture. Much as this system was previously used in planning individual farm operations, it could be used to farm planning on a township bases in the future. This system of agricultural land capability classes is a quantitative, systematic and reliable method worthy of wide geographical application.

(4) Agricultural Land Use and Associated Farming Regions

Maps five and six show the distribution of types of agricultural areal emphases on farm units and then to integrate these findings into farming regions. The methods on which these maps are based were largely derived by the author and therefore require enlargement and explanation.

The agricultural land use was originally mapped from aerial photographs taken in 1956. To ensure that the areas of operating farms in the different agricultural uses had not proportionately changed to a significant degree, the results were partially field checked. During the past six years, the pattern of agricultural land use has changed within the farm units but the proportional division of land used has not altered significantly.

The farm unit was taken as the mapping base for this study. Since the photos were taken in July, harvesting machinery tracks combined with cattle trails to indicate the farm unit operating the land in question. The 436 farms operating in the township were plotted by circles on map five and by dots on the triangular graph at the base of that map. Each farm unit was plotted according to the areal proportion of its land in the following categories: small grains, field crops, orchards and legumes; hay and pasture; and woodlots and scrub. On the graph, the farms appeared to be distributed in six natural groups of clusters; each of the six groupings indicated a definite but different emphasis in areal use apportionment of land uses. The farms were then mapped in terms of these six emphasis groupings. Map five, therefore, shows a circle for each farm, coloured according to its areal land use emphasis.

As can be seen on map five, no consistent pattern is discernible among the farms of the township. The author then took recourse to comparing the ratio of land uses among the ten or less operating units on each concession block with the norm, which is recorded at the base of map six. Deviations from the norm took five distinct patterns of emphasis groupings. These groupings were in-

vestigated further and boundaries drawn in order to include areas having the widest possible deviation from the norm. These essentially are the farming regions of Caledon township. The differences in areal land use emphasis among the five types of regions can be seen by comparing their aggregate land use ratios. Upon further field investigation, it was found that each aggregate land use ratio coincided with a different activity emphasis. For instance, a three-fold emphasis on corn and small grains indicates an intensive dairying economy, from which milk is shipped bulk to urban markets. The farming regions map is, therefore, a combination of field investigations and of statistical research into variations in land use patterns.

Agricultural crop combinations are the best indicators of patterns among individual farm operations. A quantitative combination method, such as this, permits the researcher to see quickly to the root of agricultural land use throughout an area the size of Caledon township. As long as the aerial photo-analysis is accurate and adequately field checked, such a systematic, quantative approach as this is probably less biased and therefore generally more meaningful than one based on field by field mapping and extensive interviews with farm operators.

(5) Economic and Social Spheres of District Towns and Villages

The size and nature of village hinterlands is a factor in understanding the geography of Caledon's settlements. Map seven relates the limits of the socio-economic spheres of influence of district settlements to their population bases. In putting forth three spheres of economic and social influence, the author recognizes that in this automobile age settlers are not tied to one centre. For different commodities and services, residents of Caledon township go to different centres. For example, a resident of Belfountain would shop in Toronto for furniture, in Erin for his weekly groceries and in his village for gasoline.

In order to locate the boundaries of the various second and third class commodity and service spheres, the author supplied village businessmen with maps on which they indicated the extent of their influence in Caledon township. The author then drew the mean of these lines and noted the following: the most reliable indicators of the limits of sphere class two were town supermarket operators, weekly newspaper editors, district high school principals and Anglican clergymen; the most reliable indicators of sphere class three limits were village general store operators, branch bankers and United Church ministers.

In order to give meaning to these hinterlands, the rural and urban settlement pattern was superimposed upon the sphere boundaries. Since different types of settlers vary in their buying habits, the township population was broken down into four groups: farming rural, non-farming rural, urban and seasonal residents. On the pie graphs at the base of map seven, the size and nature of each village's share in the township's buying public has been shown. Toronto dominates sphere class one; Orangeville, Erin and Brampton split class two; and ten district villages and towns share the township's population for sphere class three.

This type of study provides a systematic and consistent base for a comparitive analysis of the settlements of Caledon township, as is found in chapter five.

(6) Thesis Expenses

For most undergraduate geography students a thesis is an expensive investment. A financial outlay of around $350 was necessary to produce this thesis. In order to assist geography students, who will attempt thesis much like this one in the future, the following expense account has been included:

Wages lost for two working days	$ 35.00	variable
Meals while in the field	20.00	20.00
Accommodation while in the field	20.00	20.00
Automobile fuel while in the field	30.00	30.00
Map reproduction	5.00	5.00
Photographs	50.00	35.00
Typing paper and typist	40.00	40.00
Binding	10.00	4.50
Fees for the thesis course	90.00	
Total	$ 350.00	154.50

Corrected. May 10/63 W. Davies

The satisfaction that evolves from proving one's metal as a geographer by producing a scholarly thesis, however, far outweighs even that great a financial sacrifice.

NOTES

CHAPTER TWO

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6. R. W. Fairbridge, "Eustatic Changes in Sea Level", Physics and Chemistry of the Earth, Vol. 4, Pergamon Press, 1961, 144.
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9. Ibid., 143.
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1. V.B. Blake, Credit Valley Conservation Report, Department of Planning and Development, Toronto, 1956, 77
2. Ibid., 142.
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CHAPTER FIVE

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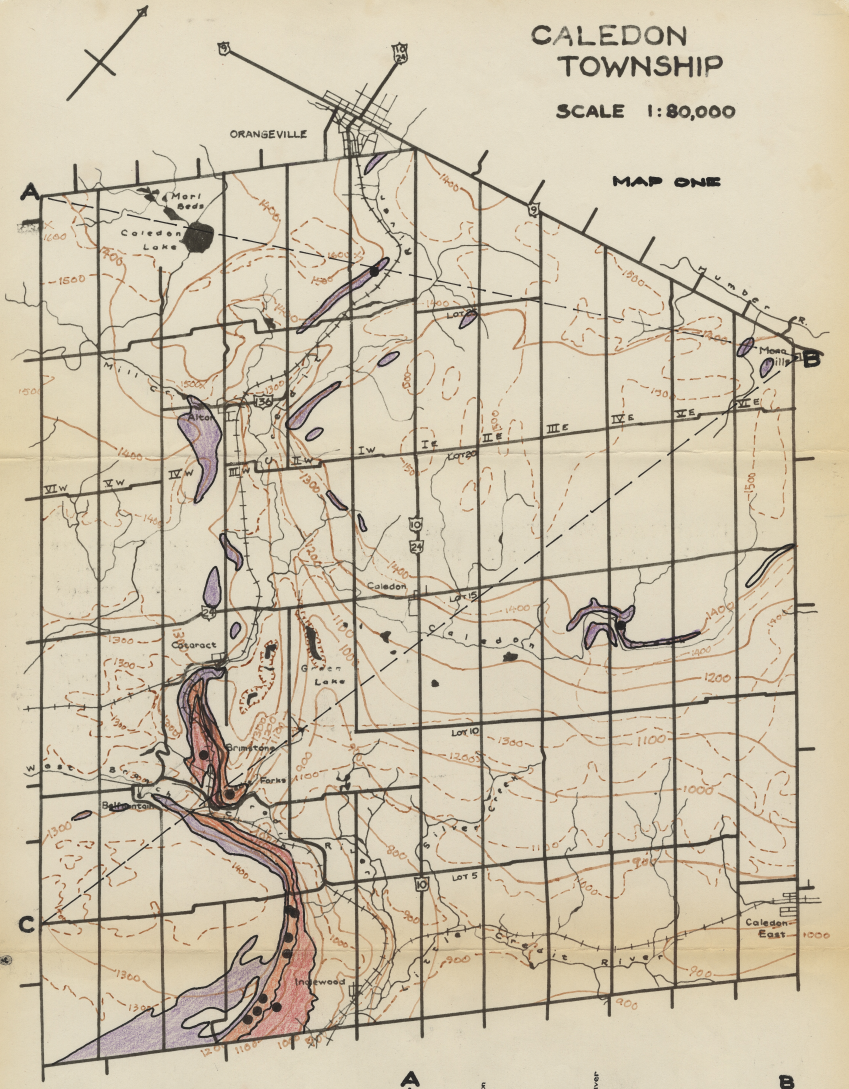
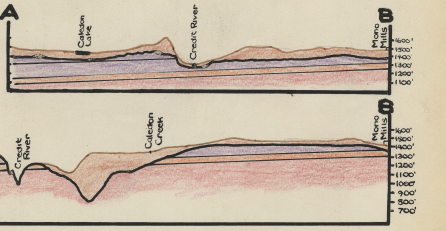
CALEDON TOWNSHIP

SCALE 1:80,000

MAP ONE





CROSS PROFILES of BEDROCK and SURFACE TOPOGRAPHY

SILURIAN OUTCROPS

- Lockport Dolomite
- Whirlpool Sandstone
- Queenston Shale
- Quarry
- Pleistocene Drift
- Surface Contour
- Bedrock Contour

contour interval 100 feet

AVIES

BEDROCK and SURFACE TOPOGRAPHY & OUTCROP GEOLOGIC FORMATIONS

CALEDON TOWNSHIP

2

SCALE 1:80,000

MAP TWO

DISTRIBUTION of PLEISTOCENE DEPOSITS

LEGEND

- Till Plain
- Drumlin
- Lake Clays & Marls
- Outwash Gravels
- Recessional & Interlobate Moraines
- Bedrock Outcrop

SYMBOLS

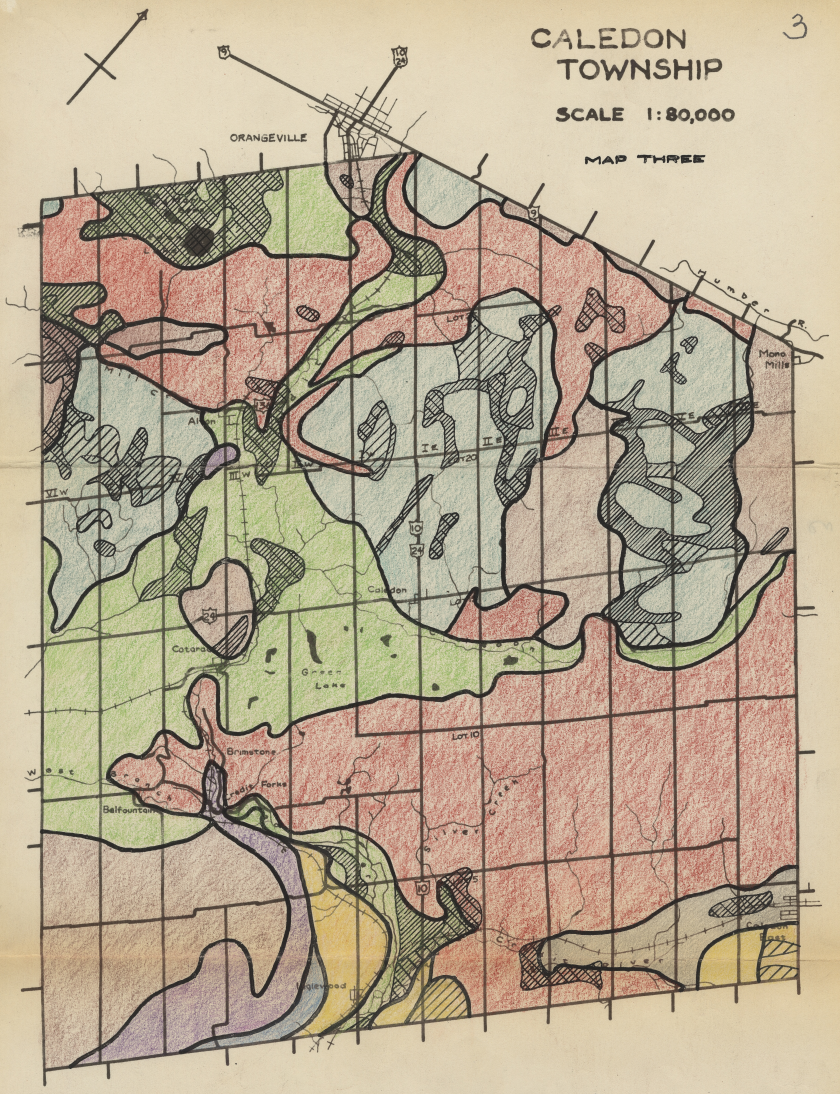
- Gravel Pit
- Channel Marking
- Temporary Discharge Channel
- Fluting or Grooving
- Striation
- Strike & Dip of Rock Strata

DAVIES

CALEDON TOWNSHIP

SCALE 1:80,000

MAP THREE



DISTRIBUTION of SOIL CATENAS

Drainage Conditions:	WELL-DRAINED MEMBER	IMPERFECTLY DRAINED MEMBER	POORLY DRAINED MEMBER	BOG/MARSH/SWAMP
Soil Catenas:				
DUMFRIES	Dumfries SaLm	—	Lily Loam	Muck
HARRISTON	Harriston Lm	Listowel Loam	Parkhill Loam	
ONEIDA/WOBURN	Oneida CyLm/Woburn Lm	Chinguacousy CyLm	—	
PONTYPOOL	Pontypool SaLm	—	—	
BRIGHTON	Brighton SaLm	—	—	
CALEDON	Caledon Loam	—	Gilford Loam	
LOCKPORT	Lockport CyLm	—	—	
FARMINGTON	Farmington Lm	—	—	

Soil Types

CALEDON TOWNSHIP

4

SCALE 1:80,000

MAP FOUR

AGRICULTURAL LAND CAPABILITY CLASSES

(A modified farm soil rating of the Dept. of Soil Science, Ontario Agricultural College, which combines the effects of the following soil fertility factors: slopes, erosion, internal drainage, and texture, stoniness and parent material of the topsoil)

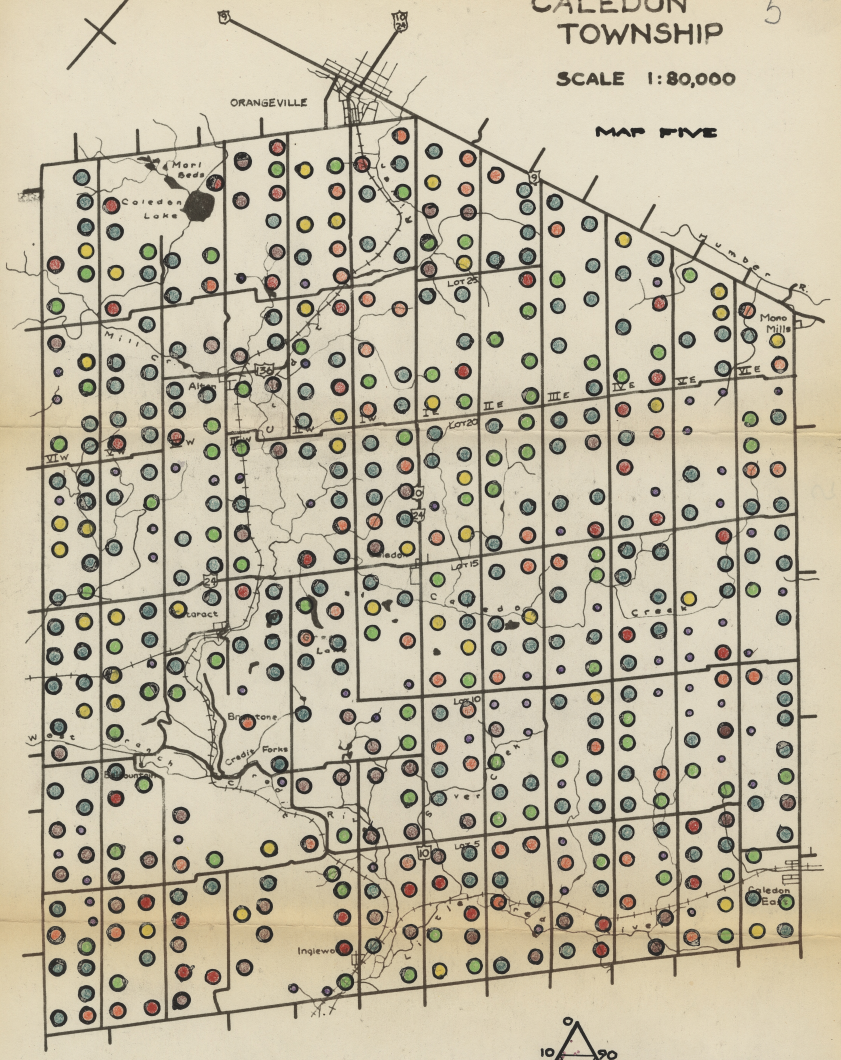
Land Grade	Severity of Limitation: Suitability Summary	TEXTURE	SLOPES	STONINESS	DRAINAGE	EROSION	P.M.
2	moderate limit'ns for cultiv'n consery. practices	nil	slight	nil	nil	slight	slight
3	recommended for cultiv'n consery. practices	nil	slight	moderate	nil	moderate	slight
4	required for cultivation	nil	moderate	moderate	moderate	moderate	slight
5	wetland not economically capable of drainage	moderate	nil	nil	very severe	nil	unimportant
6	limitations still allow moderate grazing	slight	moderate	severe	nil	moderate	moderate
7	severity of limt'ns suggest reservation to forestry	moderate	severe	severe	nil	severe	severe
8	non-agricultural land.	variable	variable	variable	variable	variable	variable

CALEDON TOWNSHIP

5

SCALE 1:80,000

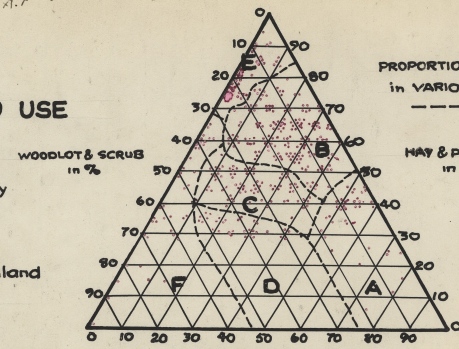
MAP FIVE



AGRICULTURAL LAND USE

by farm units

- A — Small Grain Specialty
- B — Hay Specialty
- C — Hay & Pasture
- D — Grain, Pasture & Woodland
- E — Pasture & Woodland
- F — Woodland & Pasture
- Abandoned Farmstead

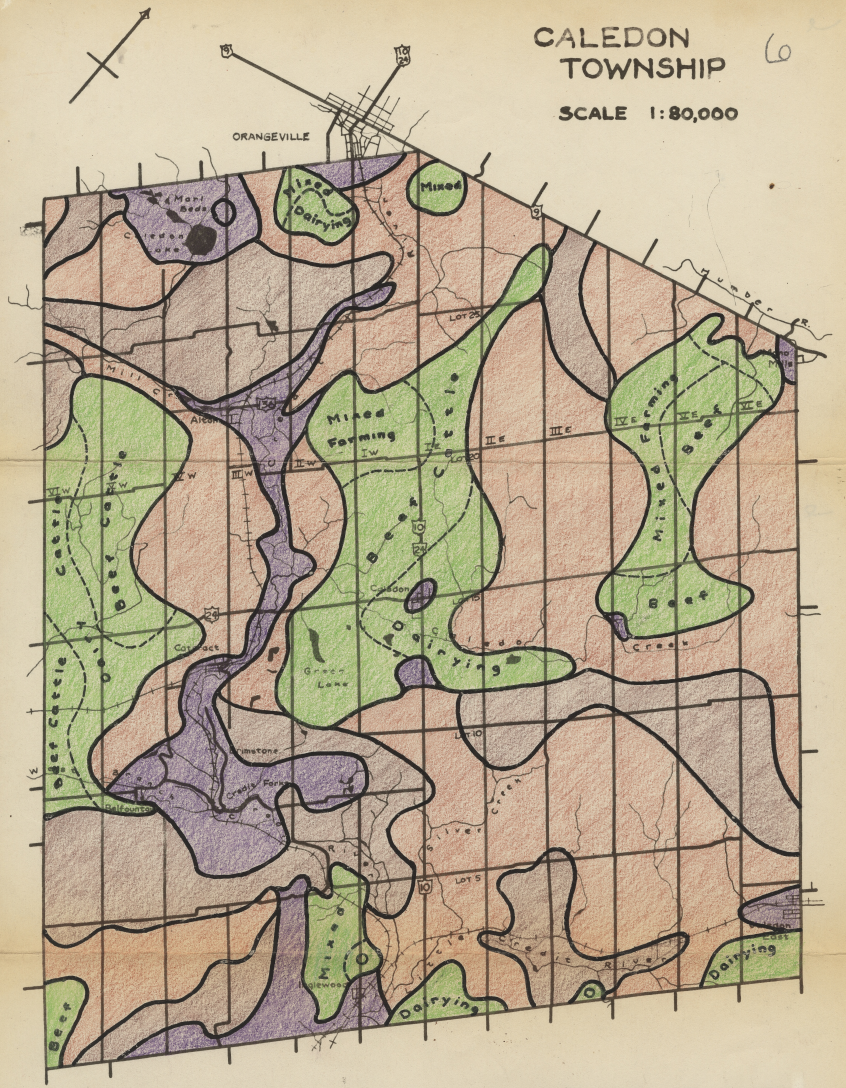


DAV

CALEDON TOWNSHIP

6

SCALE 1:80,000



MAP SIX
FARMING REGIONS

Overall Proportional Relationship of Agricultural Land Use Types:

$$\frac{A}{B}\,\frac{C}{D}\,\frac{E}{F} = \frac{1}{4}\,\frac{2}{1}\,\frac{1}{1}$$

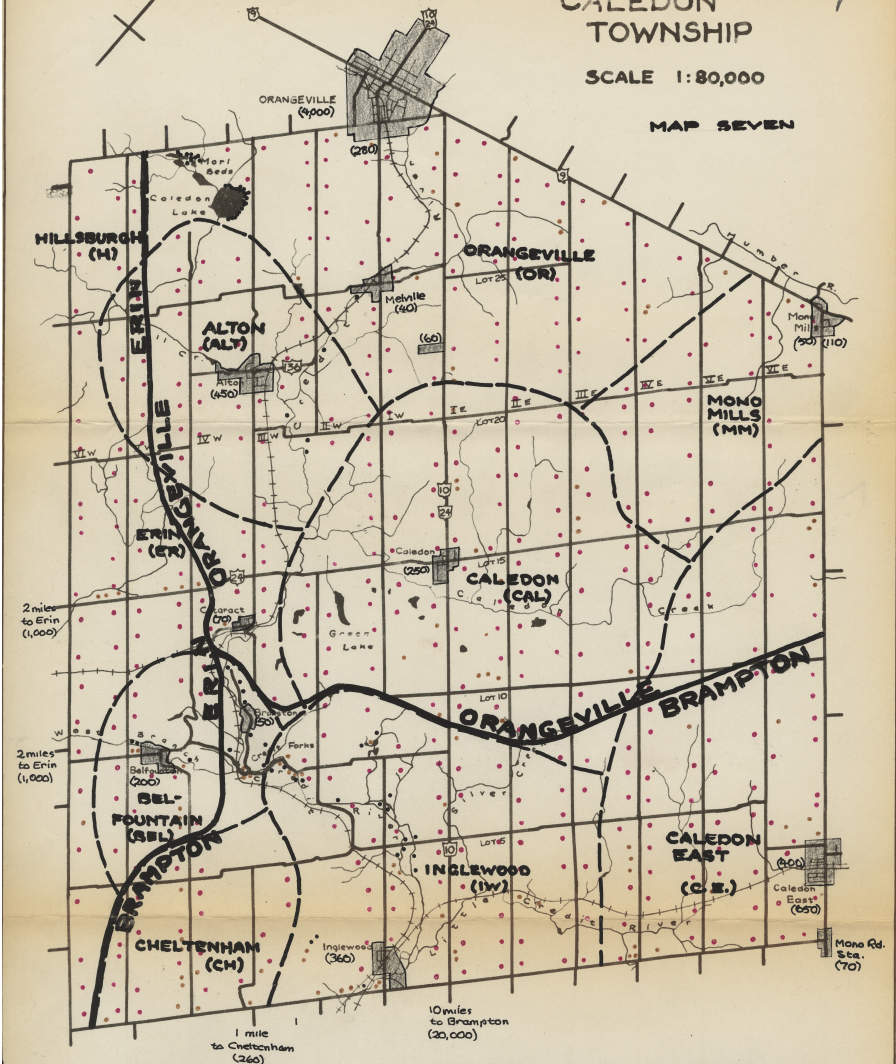
REGION	DESCRIPTION	AGGREGATE LAND USE RATIO
	Intensive Cultivation of Cereals, Rotation Hay & Improved Pasture:	
	(a) Dairying : Emphasis on Corn, Small Grains & Improved Pasture:	$\frac{3}{4}\,\frac{2}{1}\,\frac{0}{1}$
	(b) Beef Raising: Emphasis on Rotation Hay & Improved Pasture:	$\frac{1}{8}\,\frac{5}{1}\,\frac{1}{1}\,\frac{1}{0}$
	(c) Mixed Farming: Emphasis on Small Grains, Hay & Imp. Pasture :	$\frac{3}{3}\,\frac{2}{3}\,\frac{1}{1}\,\frac{0}{0}$
	(d) Orchard : Sprayed Apple Trees	
	Extensive Crop Cultivation & Unimproved Permanent Pasture :	$\frac{0}{4}\,\frac{1}{1}\,\frac{2}{2}$
	Extensive Grazing using Rough Pasture & Woodlots :	$\frac{0}{1}\,\frac{1}{1}\,\frac{2}{5}$
	Unused for Agricultural Purposes	

DAVIES

CALEDON TOWNSHIP

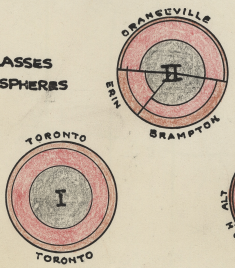
SCALE 1:80,000

MAP SEVEN



ECONOMIC and SOCIAL SPHERES of DISTRICT TOWNS and VILLAGES

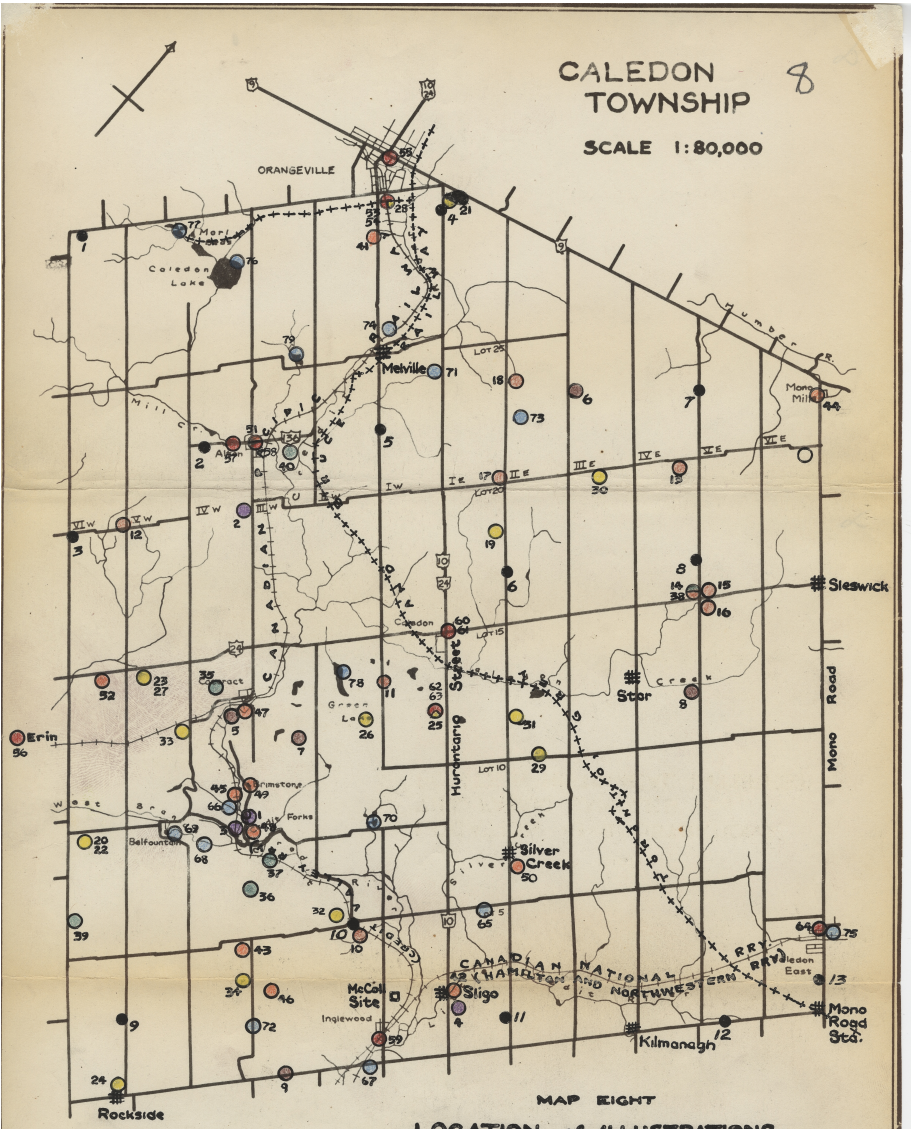
CLASSES of SPHERES



SETTLEMENT TYPES

- Nucleated (Urban)
- Farming Rural
- Non-farm Rural
- Seasonal Residence

DAVIES



MAP EIGHT

LOCATION of ILLUSTRATIONS, TILL FABRIC SAMPLES and POINTS of HISTORICAL INTEREST

ILLUSTRATION TYPES

- Introductory
- Landform features
- Soil characteristics
- Agricultural land use
- Forest Types
- Points of historical interest
- Features in urban development
- Recreation

● Till Fabric Sample Site

Former Villages

DAVIES