D A R L I N G T O N T O W N S H I P

By

Stewart B. Whitney

Presented to the Department of
Geography in partial fulfillment
of the requirements for the degree

Bachelor of Arts

Received and passed by the Department May 1955.

L. S. Reeds.

McMaster University

1955

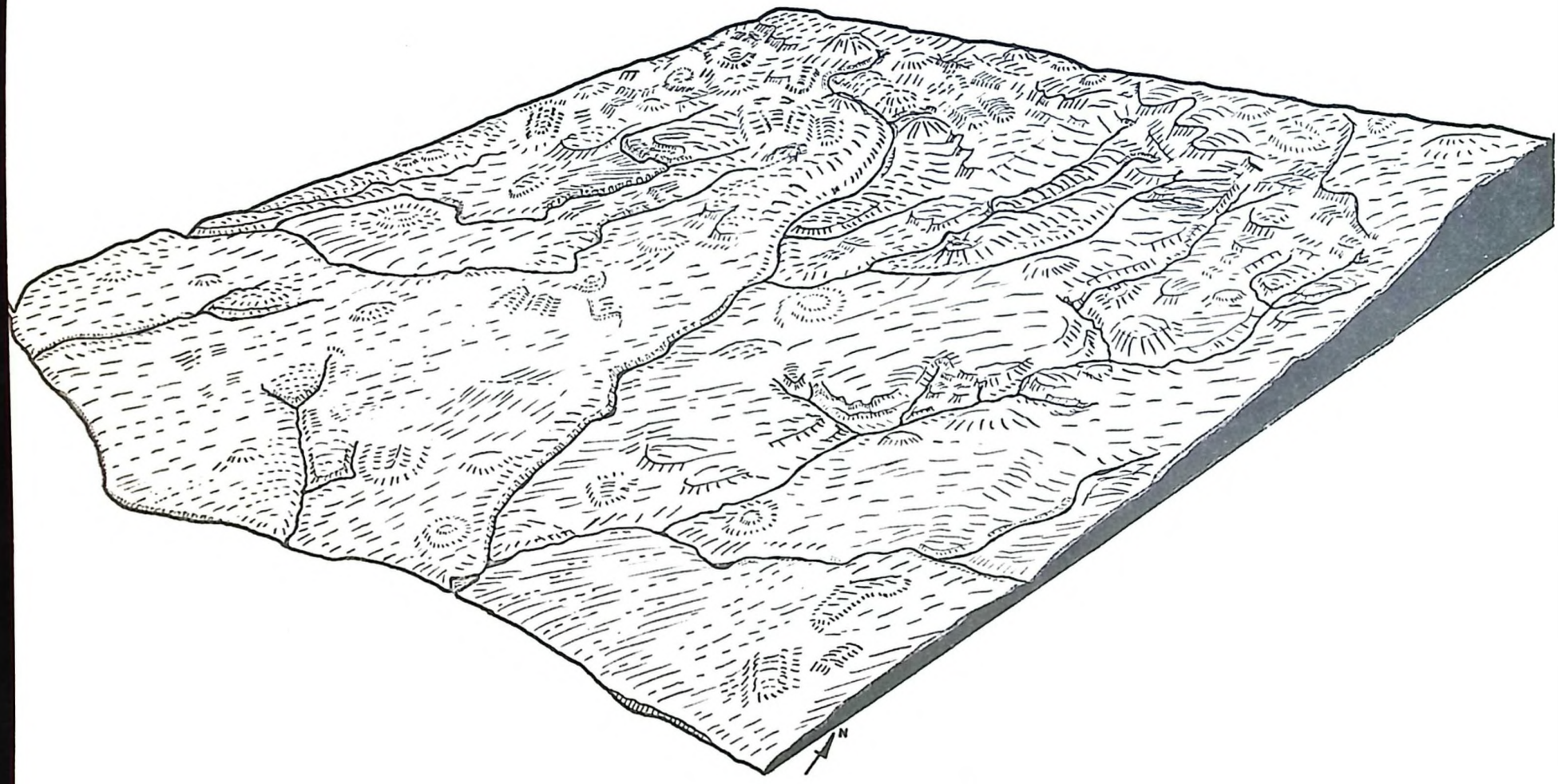
C O N T E N T S

LIST OF MAPS AND PLATES

LIST OF PHOTOGRAPHS

ACKNOWLEDGEMENTS

The writer takes this opportunity to express his sincere thanks to W. Parker and J. Wilkinson for assistance in the completion of this thesis.



S. White

BLOCK DIAGRAM OF DARLINGTON TOWNSHIP

I N T R O D U C T I O N

This thesis is an attempt to study geographically a township located in south-central Ontario. Prime concerns in the report are-

(1) To find the extent the distribution of people and the land use are affected by physical, economic, cultural and political factors relating to the study area.

(2) To assess the relative importance of the above factors in the geography of the township.

(3) To determine the relative importance of these factors in specific areas of the township.

APPROACH

To accomplish the purposes of this work, three steps were taken:

(1) The accumulation of knowledge pertaining to the geography of the region, from field work, undergraduate work, and available literature,

(2) the relating of human activities to the physical environment and

(3) the evaluating of the influences which govern the distribution of rural and urban activities.

Precisely then, the accumulation of the facts is followed by a description of the human activities in a particular physical environment.

Reasons for the distribution are then explained and evaluated according to their importance in the geography of an Ontario township. Thus in this study an explanation and correlation of physical and human activities is furnished providing the reader with more than a compendium of facts. This work is presented under three related sections -- Physical, Historical and Cultural geography. Maps, diagrams, photographs and statistics are included to explain and illustrate some of the conclusions formed.

PROCEDURE

After literature and aerial photographs of the area were examined, a reconnaissance and mapping of the township was made. At this time observations and notes concerning the physical and human geography were recorded. The township was then divided into natural regions, each having a distinct set of physical-cultural characteristics.

A second survey was completed in each of the regions. During this second trip more precise information was obtained through extensive interviewing of farmers and residents of the area. Considerable time was spent in the urban centre of Bowmanville and the smaller rural service centres in order to complete the study.

The field work described, was performed over a seven-week period in July and August. During September, other trips were made to examine several aspects of the geography which represented problems in the writing of the report.

C H A P T E R O N E

P H Y S I C A L G E O G R A P H Y

LOCATION

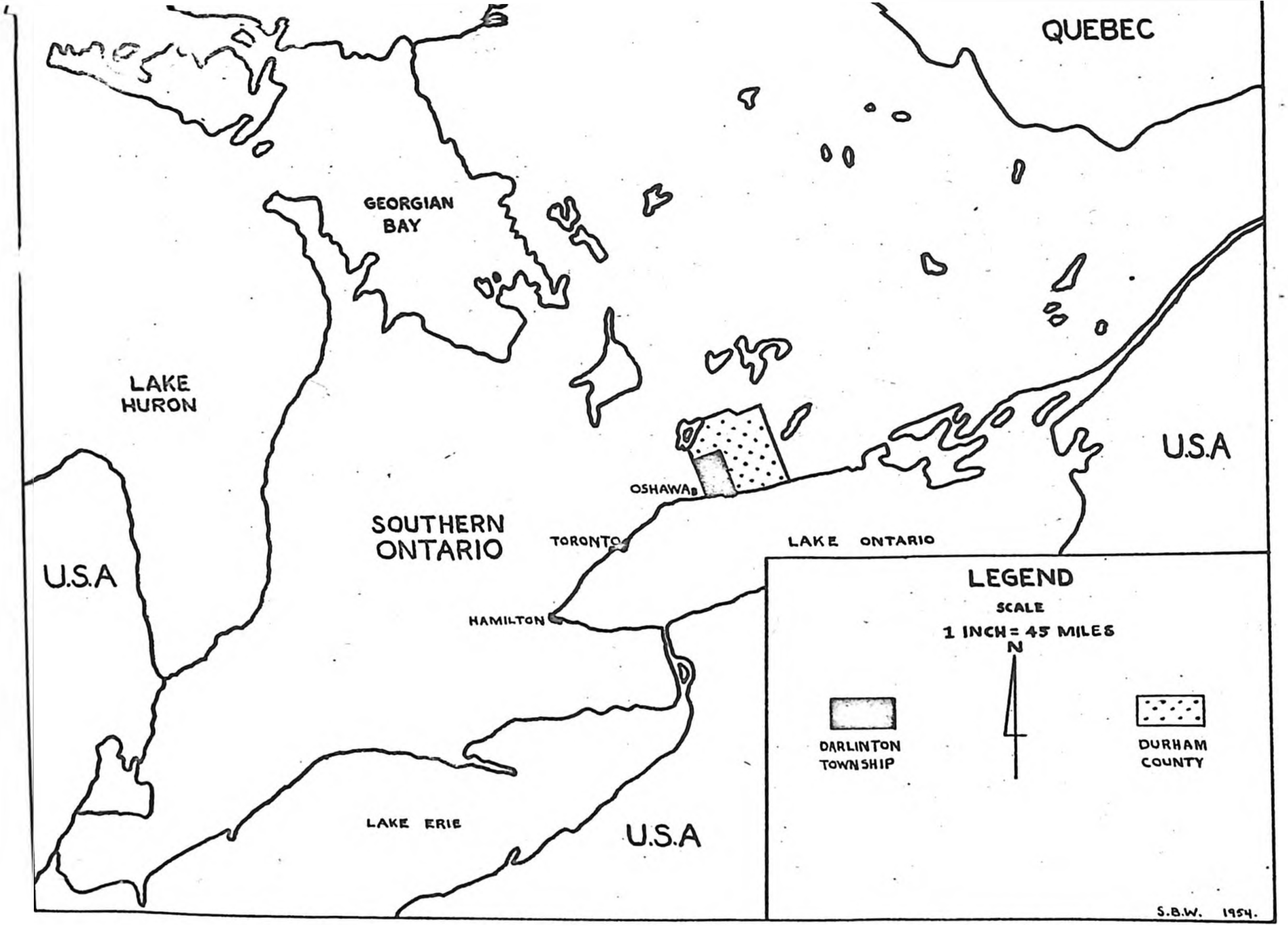
Darlington Township is located in south-central Ontario, in Durham county and fronting upon the north shore of Lake Ontario. The western extremity of the township is 77 miles east of Hamilton, the eastern limit 300 miles WSW of Ottawa. Whitby East, Cartwright, Manvers and Clarke townships all abut on Darlington.

SIZE

The township's perimeter encloses an area of approximately 75,400 acres in the SW of Durham county. The north-south length is 12 miles, while the east-west width is almost 9 miles.

SHAPE

The shape of the township is a compact rectangle. The only irregularities to be found along the borders, are those of the southern lake shore line. Even here the general appearance of the shore is straight.



LOCATION MAP
OF

DARLINGTON TOWNSHIP

3.A

by the deposition of sediments in swift flowing sub-glacial streams, and other ice contact forms of kames and kettles. The Darlington Township area, as part of Southern Ontario contains most of the above glacial land forms.

With only one exception, and that being near Bowmanville, where limestone bedrock appears, the whole of Darlington is covered by a moderately deep drift of glacial strewn material. Because this glacial drift covering was largely derived from underlying bedrock, the immediate rock below the soil is signifigant. Darlington Township contains two types of bedrock. The south-west section, west of a line from Collingwood through Oshawa to the lake, in Darlington, is based upon Utica shales, while the eastern area has underlying calcitic limestones of the Trenton series. Thus in Darlington, a transition from acid shales to alkaline limestone bedrock is present.

In detail, the township may be divided into distinct physiographic regions based on the glacial bedrock.

Physiographic Regions

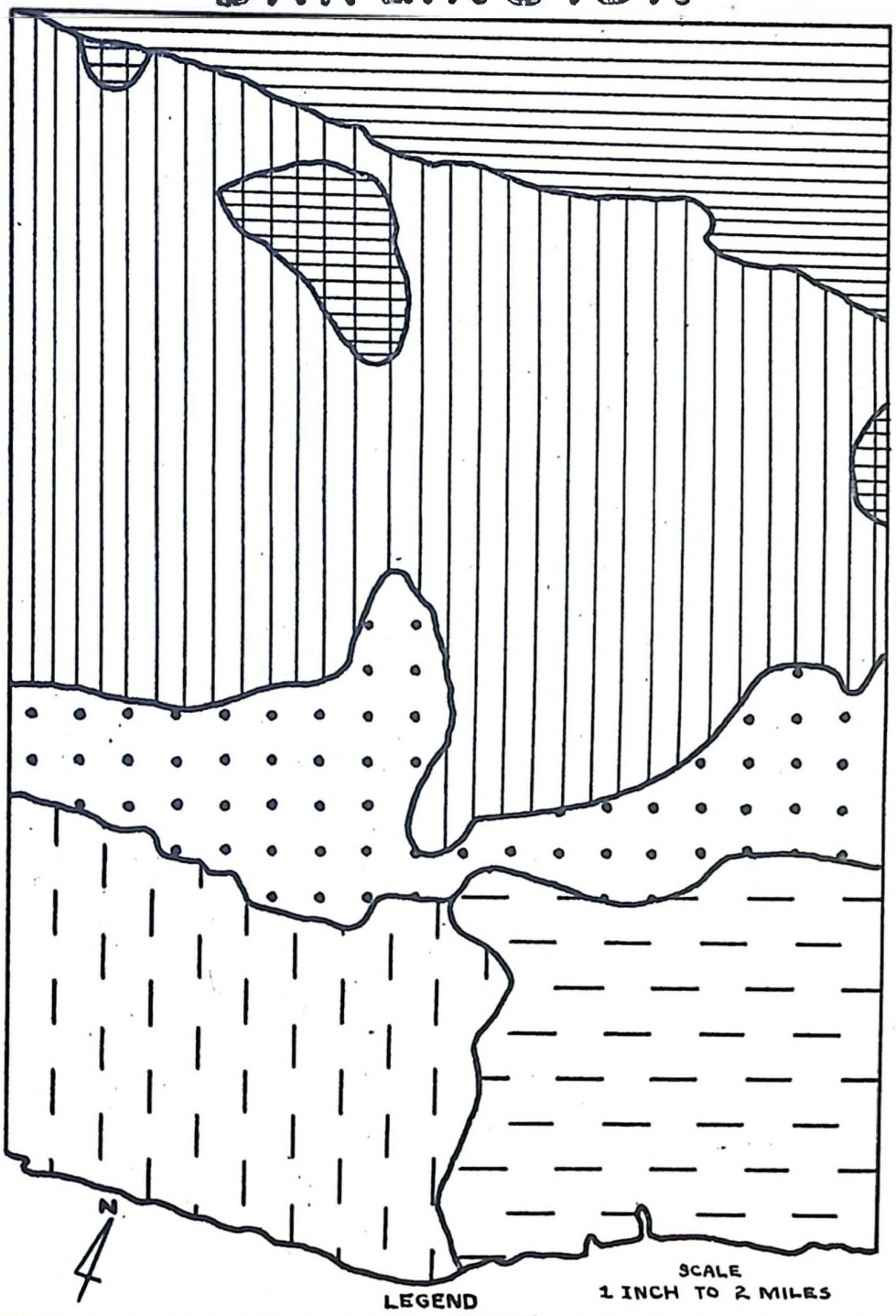
Three main Physiographic Regions are present in the township.

(1) The Oak Ridge Moraine -- This sandy ridge located in the northern area of Darlington, has elevations of 1,250 feet above sea level. It represents the highest land in the township.

(2) The South Slope -- This contiguous rolling land to the south of the Oak Ridge constitutes more than 50% of the total area of Darlington.

(3) The Iroquois Plain -- Southward from the Lake Iroquois beachlines in the third concession block is the gently undulating lacustrine and till plain.

PHYSIOGRAPHIC MAP
OF
DARLINGTON



Perhaps the most important formation is the old beach shoreline. This east-west extension separates the proglacial landforms of the southern 1/3 of the township from the northern 2/3 of ice contact landforms. The features noticeably different in the two sections are soils, topography and drainage. Because of these three varying factors, the land use and population distribution throughout the township, differ signifigantly.

Thus from a period of glaciation, a period of inundation by Lake Iroquois, and a continuing process of stream dissection, Darlington's varied topography, soils, and land use have developed.

LAND TYPES

1. Drumlinized Limestone Till Plain

One-half of the area in the township is in this category. The district is found on the central south slope. The composition of the till varies but consists mainly of limestone clay and both granite and limestone rock fragments.

The surface slopes of the drumlinized plain may be classified as undulating to rolling with hillier topography on the slope of the stoss end of the drumlins. The undulating to hilly nature of the centrally located drumlin fields has been emphasized by stream erosion in the southward flowing drainage system. This dendritic drainage pattern, originating in the kame and kettle moraine to the north, flows to the Lake Ontario water level.) This area is located between the 350 and 1,000 foot contour level.

2. The Oak Ridge Moraine

This sandy, hilly detritus, located in the extreme north of the township, is the highest elevated area in Darlington. The area is quite hilly but somewhat flattened in the north-east corner of the township. In the north-west section, the moraine veers northward about Burketon Station before crossing the entire northern boundary of the township.

The Oak Ridge consists of unassorted sands, gravels, and till, that have been heaped up between two slowly converging ice lobes. Elevations range from 1,000 to 1,250 feet above sea level.

3. Sandy Plains

In the south-central area and in a large section to the east is found the well sorted deltaic sand plains, bars, and beaches. These particular physiographic features were formed when melt waters of the retreating ice lobe flowed into the margin of glacial Lake Iroquois, and precipitated material on the lake floor. Today this exposed area remains level, except for small amounts of variation in topography caused by meteoric water. Areas of both poor and excessively drained sands are present.

4. Iroquois Lake Plain

A. Limestone Till Plains - South-west of the Lake Iroquois beaches is found the limestone till plain. The land surface has been modified by the waters of Lake Iroquois but except for the coastal area where lacustrine deposits are exposed, the plain is covered evenly with limestone till. The

surface relief is smooth to slightly undulating.

B. Clay Plains - Contiguous and to the east of the limestone till plain is the silty clayey lacustrine deposits of Lake Iroquois. The area is level to undulating.

Although still exhibiting a till surface, the area has received appreciable amounts of lacustrine and fluvial deposits from (1) the erosion by waves of the old shoreline, and (2) the load of the Bowmanville Creek. Offshore currents flowing east have apparently carried the sediments from the west of Bowmanville, depositing the material between the towns of Bowmanville and Newcastle. Coleman has mapped and described the ancient shore features of Lake Iroquois. The whole of the Lake Iroquois Plain has a low relief with elevations from 250 to 400 feet, increasing to the north. Although certain areas in this region have yet to develope good drainage, the majority of soils are used extensively for profitable farming.

Lake Iroquois Shoreline

This old shoreline lay once against drumlins and moraines. Wave action then produced high terraces and steep bluffs. With finer materials being carried away, a sandy gravelly pavement was left throughout the third concession, as the lake attained its present level.

The Lake Ontario Shoreline

The southern boundary of the township is formed by the shore line of Lake Ontario. Here wave eroded shore-cliffs and a few sandy gravelly beaches stretch along the width of the township.

Fig. A Typical Lake Ontario Shoreline

Fig. B Port Darlington - looking to the lake

Fig. C. Port Darlington - looking inland

At the mouth of the Bowmanville Creek, a marsh has formed from the silting up of the creek's mouth. Behind the marsh, a small lagoon has developed. But with only two small beaches, the shore line is typically one of 50 to 100 foot bluffs.

Two beach strips were located. East and west of the Creek's mouth, a total of 75 households and 50 summer cottages were counted. However, recreational development is hindered by the sudden shelving of the lake bottom. The area tends to have a residencial rather than recreational function.

DRAINAGE SYSTEMS

Darlington Township slopes from the Interlobate moraine in the north to Lake Ontario in the south. The land is drained in a dendritic pattern by the Bowmanville Creek and several small tributaries, all associated with the St. Lawrence River Watershed. In the north, kame and kettle topography is present with elevations varying from 1,000 to 1,200 feet. Here, in the sandy hills, the headwaters of the south slope drainage system are located. From this source, the rivulettes flow southward for 12 miles until a junction of the two main arteries forms the Bowmanville Creek. Hence through 12 miles of steadily sloping land, the streams flow and drain the township.

A stream gradient profile shows a 1 foot drop in elevation for every 64 feet of linear distance in the Bowmanville watershed. This gradient varies throughout the township. In the north the Oak Ridge provides a steep topography with severe erosion, while in the Iroquois Plain area

level topography reduces the rate of flow and induces widespread silting about the mouth of the river..

The drainage system of the Bowmanville River (both Barber and Soper Creek) forms a catchment basin which outlines the extent of the study area.

FOREST VEGETATION

History

One must realize that in a small area such as a township, variations in species and the pattern of tree distribution generally follow a form that presents little meaning to the geographer. However, the soils, topography, drainage, and climate do provide the student with a tree pattern and history which warrants a study of this type in Darlington Township.

Darlington is part of the Lake Forest Climax. It has been estimated that previous to the first logging adventures, the township was 60% to 70% forested. This percentage is reached when steeply sloping land and infertile unconsolidated areas of sand are excluded from tree growth.

Before the arrival of the settler, the clay loams had a natural vegetation cover of beech and silver maple with present indications of white pine and hemlock. On the well drained sandy soil grew hardwoods but with some pine, sumac, red oak and hemlock present. Wet sands and bottomlands were covered with white cedar, elm, birch, ash, basswood, and tamarack. Oak trees were found throughout the area but particularly on the more elevated land to the north.

At the beginning of settlement, trees were considered

a hindrance to farming, road making, and home building. Granted, the wood served many purposes for the early settler, but it was a general opinion that the supply of forest products was far in excess of the local demand. It was this attitude that accompanied the devestation of the forests.

Burning of log-heaps and excessive use of woodlots till 1850 accompanied by no plan of conservation or reforestation began to decrease the virgin stands. The natural balance between vegetation and soil had been disturbed, resulting in the loss of soil moisture, accelerated erosion, lowering of the natural fertility and the laying waste of thousands of acreas of land.

Unfortunately, only after too long a time, was there a growing anxiety expressed over the dwindling supply of trees through commercial logging. Up to 1900, when wood supplies for commercial purposes had been exhausted, no practical reforestation projects were undertaken. Some individuals amongst whom was Sir John A. Macdonald, began to pioneer the idea of forest preservation as early as 1850. But not until 1904, when the Forest College at Guelph began to distribute pines for planting to the conscientious people of Darlington, was there a systematic approach to the problem.

F. L. Squair and W. L. Smith were the first to undertake the planting of young trees obtained from the Ontario Government Nurseries.

Now it is well known that certain areas are unsuited for other use except reforestation. Particularly on the Oak Ridge Moraine where much idle land or improper land use exists, is the need for reforestation urgent.

The largest obstacle to reforestation observed in the field, was the unwillingness of private individuals to undertake a long term conservation plan that seemingly holds nothing for them. Part time cultivation of the semi-barren land promises more immediate returns.

Despite these inhibiting factors against tree planting, great advances are being made in this field. The only township woodlot located in the Darlington area, was found south of Hampton along the Scugog Road, but many other projects have been undertaken by individuals. These are present mainly in the rear or north of the township where extensive pineries are located both for wood and Christmas tree purposes.

Contemporary Forests

Since the early 1900's, Darlington's woodlots have been in general use only for domestic purposes. These include wood for (1) use on the farm, (2) wind barriers for crops and gardens, (3) shade for livestock, (4) shelter belts about the farms, (5) conservation of soil, and (6) to a limited degree, cash crops. More than ever, it is now being realized that woodlots and shelter belts add to the value of farm property.

Heavy loam soils, principally clay, are found in the southern sections of the township. They had, because of their high fertility and water holding capacity, fostered a climax forest of beech and maple. Now only elm, ash, and willow remain. On the sandier soils of the north, where hillier uplands, a more severe climate, and less fertile draughtier soils are present, the coniferous softwoods are most

numerous. Although the hardwoods still dominate the northern section of Darlington, pine, oak, and hemlock are found in large numbers on the interlobate moraine. In the lowlands, cedars, ash, birch, basswood, elm and tamarack are distributed within the beech-maple forests.

A more detailed study shows that the area south of a line in the third concession block, has been largely stripped of its natural vegetation due to the agriculturely productive soils. From the remaining stands of trees, the past forest can be reconstructed as a hardwood dominated by maple, walnut, elm, ash, and birch.

On the third concession block is found sandy poorly-drained soils that support dence, uncleared, tracts of white cedars, willows, elms, and soft maples. The area represents the southern limit of concentrated softwood tree growth. Tree growth in this sandy strip is being reduced by extensive urbanization found in the western part of this concession block.

In poorly-drained bottomland, are found cedars and associated softwoods following the stream patterns.

The Oak Ridge Moraine is the area of greatest softwood growth. Besides oak, the sandy-gravelly soils are frequently covered with white, red, scotch, and jack pines. Pine reforestation and Christmas tree farming (scotch pine) are activities common to this northern section.

As farming becomes less profitable on the sand soils, large areas are being returned to forestland. The remaining large drumlinized central area of the township has progressively lighter soils to the north. Here the southern township types of trees, as well as spruce and oak, are found.

CONTEMPORARY DISTRIBUTION OF TREE TYPES IN SOIL ZONES

LAKESHORE SOILS 1. Elm-Ash-Willow (10-15% woodlot and bush)

Trees are found in poorly drained areas, for good soil areas are heavily utilized in agriculture. No dominant species was seen in this section but rather mixed stands of lowland trees. Included are - sugar maple, elm, beech, ash, hard maple and basswood. Willows and cedars were common in the wettest areas.

BEACHLINE SOILS 2. Cedar-White Pine-Tamarack (50-60% woodlot or bush)

Vegetation covers large areas and reflects the infertile nature of the soil for cultivation. White cedar, tamarack, alder, and willow are most prominent on the poorly drained areas. The well drained sections of the belt, when not cultivated, support white pine.

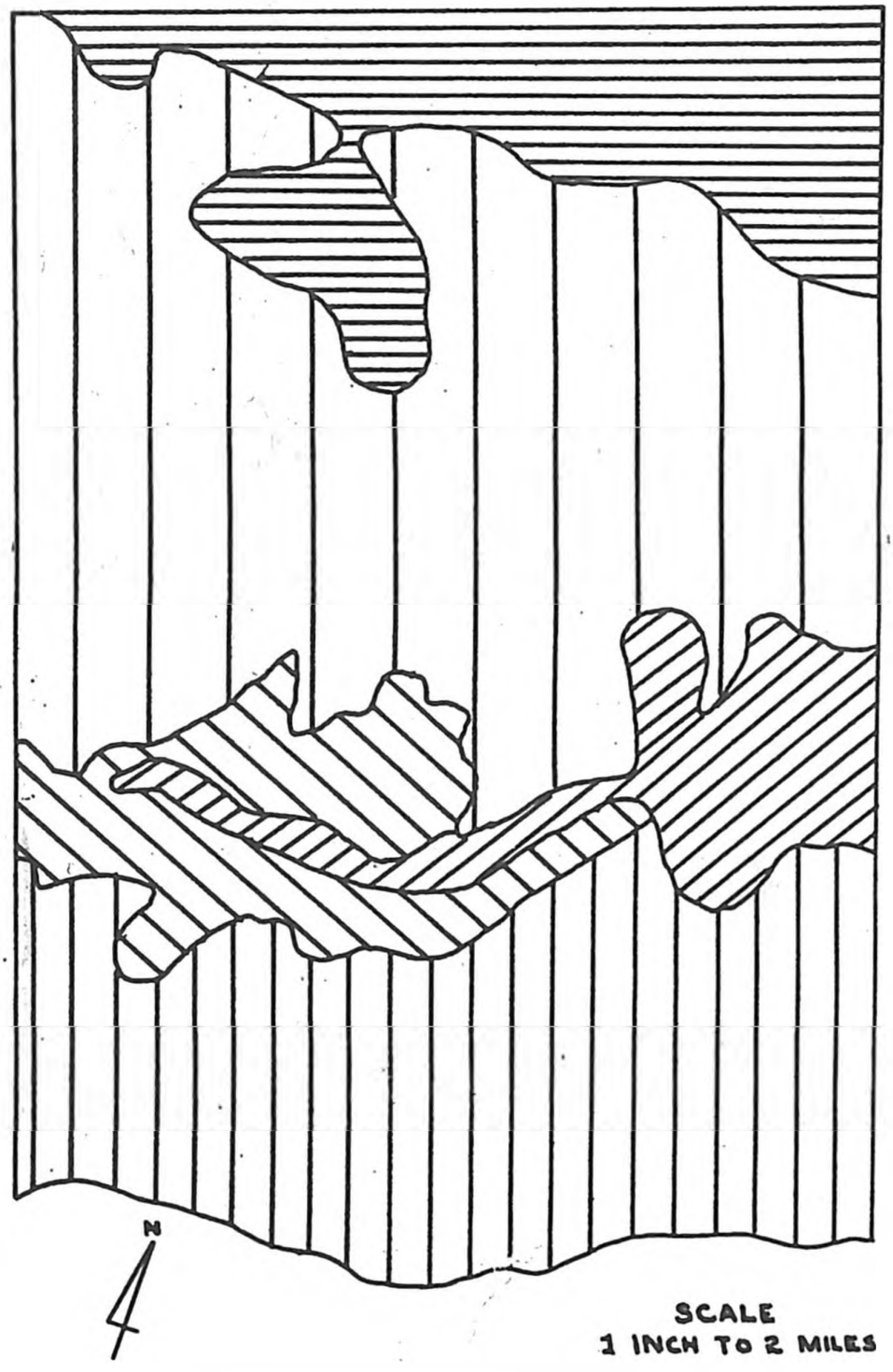
SOUTH SLOPE SOILS 3. Maple-Beech (15% woodlot or bush)

This is an area of good farmland. As a result, tree stands are located on ill-drained interdrumlin lands, stream bottomlands and the steep stoss ends of drumlins. Most of the trees present are of lowland mixed type. Sugar maple, silver maple, elm, beech, basswood, ash, and white cedar, are the most common with a few oak and spruce appearing in the northern areas.

INTERLOBATE SOILS 4. Pine-Oak-Hickory (30-35% woodlot or bush)

Most trees are of the upland variety. The drier sandy soils are favourable for white, red, scotch, and jack pine, red oak, and some sumac, beech, and hickory.

VEGETATION ZONES OF DARLINGTON



SCALE
1 INCH TO 2 MILES

WHITE PINE

MAPLE-BEECH

PINE OAK HICKORY

ELM ASH WILLOW

CEDAR TAMARACK

S.B.W 1954.

SOILS

The soils of Darlington vary with the influences exerted by the following agents; (1) the parent material, (2) the climate, (3) the vegetation, (4) the relief, (5) the drainage, and (6) the land use.

Parent Material of Soils

The soils of Darlington Township have developed on a covering of glacial materials laid down by the Wisconsin ice mass. Only in stream beds near Bowmanville, does the till thin to expose the limestone bedrock. Most soils in the study area are grey-brown podsols, and have developed on calcareous, siliceous or argillaceous materials. The Continental glacier advanced from north-east of the township. Through the central area of Durham County, in an east-west direction, was built up along the retreating margin of the glacier, a lobate formation. This moraine was emphasized by a northerly moving ice mass from the Lake Ontario region, thus forming in the north of Darlington, an interlobate moraine.

A great crevice developed in the glacier through which large volumes of meltwaters poured. As meltwaters continued to accumulate, they succeeded in flowing through the terminal moraine depositing fluvio-glacial sandy gravelly materials. Where ice blocks prohibited water movement, areas of standing water laid down stone-free lacustrine material. Glacial Lake Iroquois, larger than the remaining Lake Ontario, covered the southern area of the township and large lacustrine deposits were formed. Streams emptying into the lakes

created stratified sands of limestone origin in deltaic or outwash fashion. Sandy beach lines developed at the junction of the post-glacial lake and the land. In the central area of the township, the retreating ice lobe laid down extensive limestone till plains, many of the areas featuring drumlins.

Because the area is blanketed by a layer of glacial drift, the soils produced are formed directly or indirectly upon ice contact or meltwaters deposits.

Briefly the distribution of parent material then is this -

(1) In the north of the township is found the sandy-gravelly fluvio-glacial ridges.

(2) The central area is one of drumlinized limestone till plains.

(3) A belt of smooth sandy outwash plains and beach lines is present south of the drumlin fields.

(4) The remainder of the township south to the lake is covered with limestone till plains in the south-west and waterlaid sediment plains in the south-east.

Limestone Till Soils

The soils resulting from this material are found in the undulating topography of south-western Darlington and rolling topography of central Darlington. Limestone and small quantities of igneous rocks of the pre-cambrium shield are found in the matrix of the central area. The south-west part differentiates because although high in line, the parent material also contains proportionsof the more acid grey-black Utica shale. Both soils, especially the Darlington series in the Lakeshore

Plain, are well suited for general, dairy, and fruit farming.

Central Area--The central limestone till has a drumlinized rolling topography and well drained parent material. Soils are neutral to alkaline in reaction. Carbonates, potash, and phosphorous are available in moderate amounts.

Profile Development

A horizon - 4-6" grey-brown podsolic soil - loam texture - crumb structure - pH7.

A2 horizon - 8-12" grey-brown sandy loam - platy structure - leatched - pH7.

B horizon - 2-4" brown loam - blocky structure - pH7.

Parent Material - Limestone materials with frequent pre-cambrium rock, pH8.

South-West Area The south-western section has undulating relief with generally good to adequate drainage, a parent material high in limestone, organic matter and shale. A crumb structure is evident in well drained areas and all plant foods but phosphorous are plentiful.

Profile Development

A horizon - 4-6" moderately dark loam - crumb structure pH 7.5.

A2 horizon - 4-8" light brown loam - pH 7.5 - leatched.

B horizon - 1-4" light brown loam or clay loam - blocky structure - pH8.

Parent Material - Impervious calcareous till of limestone and shale.

Deep Lacustrine Loams

These soils are formed on fine sandy and silty textured materials. Deposition of river and shore sediments in lakes and deep quiet waters has resulted in a nearly level topography. When a soil profile was examined, it was found to contain stratified layers of varying texture, indicating well drained heavy soils. Some areas, however, have not yet attained naturally good water-soil-air relations.

The parent material is composed of fine sandy lacustrine sediments and often materials heavier than the surface layers. This necessitates tile drainage. The Calcium and potasium content is high but phosphorous is lacking in the soil. The Lake Plain soils are considered Darlington's most productive.

Profile Development

A horizon - 4-7" moderately dark loam or clay loam - crumb structure often friable - pH7

A2 horizon - 8-15" grey brown leatched loam - nutty structure - pH 6.5

B horizon - 4-10" brown sticky clay - pH7

Parent Material - Grey lacustrine silts and clays - often varved pH8

Deltaic Soils Excessively Drained

This material was carried by post glacial meltwaters from the moraine in the north of the township to the margin of Lake Iroquois. Today this belt of soil is found in the

third Concession. Soils having light testure and excessive drainage, reduce land cultivation greatly. Soils are best suited for grazing, tobacco farming, and use in road building. The topography is smooth to undulating. The parent material is course sands deposited in water.

Profile Development

A horizon - 3-4" sand or sandy loam - low in organic matter pH 6.5

A2 horizon - 15-20" course sands - single grain structure - pH 6.5

B horizon - 2-4" brownish loam - pH 6.5

Parent Material - Stratified sands and gravels - pH 7.5

Soils Developed on Fluvio-glacial Materials

This area is found in the sandy knob region of the interlobate moraine. The topography is one of steep slopes and kame features.

Soils are formed on course light textured sands having an unconsolidated nature and very susceptible to gully erosion. Poor drainage is a condition of this region.

Profile Development

A horizon - 2-3" grey-brown sand - low organic matter - single grain structure - pH7

A2 horizon - 10-30" greyish yellow sand - leached - pH 6.5

Parent Material - Grey calcareous sand and gravel - often exposed by blowouts - basic in reaction 7.5

Wet Poorly Drained Sands

The greatest percentage of this soil is found where the parent material is suffering from inadequate drainage. River bottomlands and certain beachlines constitute the majority of the area in this type. The high water table produces an acid reaction in the soil leaving the land unsuited for any activity except cattle grazing and woodlot.

Profile Development

A horizon - 6-8" dark sandy loam - high organic matter content- pH 7.5

A2 horizon - 6-10" grey course sand - pH7

C horizon - clayey sands with strata of silt and clay.

CLIMATE

Physiography, Soils and Climate are the major physical elements influencing man's use of the land. The third and last of these factors is now discussed.

Darlington has a humid continental long summer climate with 5-6 months of the year above a mean temperature of 43 degrees F. and rainfall amounting to 30 to 40 inches per year. Moderately high rainfall with equal distribution throughout the year is most characteristic of the climate. In winter, cold polar air masses dominate southern Ontario, while in the summer months, the warm Tropical Gulf air mass is present.

Climatic Controls

In Darlington Township, six factors in particular control the climate of the area. These are:

(1) The continental location of the Township

(2) The Westerley Winds

(3) Proximity to Lake Ontario

(4) Relief variations in the Township

(5) Relief variation outside the Township

(6) Latitude.

Temperature

Most important in the humid continental type climate of Darlington is the moderating influence Lake Ontario posesses on the temperature of the southern section of the township. Important also to the climate, is the barren shield areas to the north and east of the study area. This area of the shield and Frontenac Axis during the winter, radiates solar heat so readily, that cold polar air masses arriving in the township have been modified only to a very slight degree. In occasional years, this fact has had the effect of producing a late spring and early fall. These cold thrusts have limited agricultural and horticultural practices to the extent that short growing season crops are favoured in the northern areas of the township.

The Oak Ridge Moraine extending in an east-west direction in the north of the township reaches an elevation of 1,250 feet. This represents a 1,000 foot rise from the southern part of Darlington. This variation has the effect of lowering temperatures 1 F. degree per 300 feet and shorten-

ing the growing seasons. Precipitation, especially snowfall, is heavier in this region.

Mean Monthly Average Temperatures For Darlington

Winter	December	24 degrees		
	January	20 "	average	21 degrees F.
	February	19 "		
Spring	March	28 "		
	April	40 "	average	40 degrees F.
	May	52 "		
Summer	June	63 "		
	July	68 "	average	66 degrees F.
	August	66 "		
Autumn	September	59 "		
	October	46 "	average	47 degrees F.
	November	35 "		

The following monthly maximum and minimum temperatures were recorded at Orono, no closer weather station being present from which to obtain meteorological data.

	Maximum	Minimum
January	38	-15
February	59	-3
March	63	-12
April	78	19
May	74	28
June	93	40
July	86	44
August	89	45
September	83	32
October	64	9
November	55	12
December	48	-18

Precipitation

Precipitation in the township varies between 30 to 34 inches in the Lake Vicinity and 32 to 35 inches on the higher moranic slopes in the north of the township. A remarkably even distribution of precipitation occurs throughout the year. This is attributed to the reliable westerly winds that pass over, and control to a great extent, the amount of rainfall. Between the months of April and September, half of the total of rain falls, while the summer months of June, July, and August receive 7 to 10 inches.

Mean Monthly Precipitation in Inches

Winter	December	2.84	Seasonal Total
	January	3.58	8.3 inches
	February	2.56	
Spring	March	3.01	
	April	2.99	8.5 inches
	May	2.51	
Summer	June	3.02	
	July	2.47	8.0 inches
	August	2.47	
Autumn	September	2.83	
	October	2.29	8.8 inches
	November	3.65	

Sunshine

Like the Niagara Pennisula area, Darlington Township represents above average sunshine percentages for the Province of Ontario. Approximately 55% sunshine is experienced.

Growing Season

The frost free period ranges from 120 to 140 days with a growing season of 188 to 195 days. The last frost of

the year generally occurs in the early part of May, the first in late September or early October. April to October have daily minimum temperature above 32 degrees. January and February have daily minimum temperature below 32 degrees. July has the warmest average temperature of 80 degrees. February has the coldest average temperature of 14 degrees.

April the 15th is the beginning of the growing season. This month has a relatively low rainfall and average temperature resulting in a slow growth rate. This growth accelerates with an increase of temperature and rain through May and June. June receives the greatest monthly precipitation in the growing season, and July receives the highest monthly temperatures. This maximum of summer rain followed by the highest temperatures of the year produces a rapid growth of crops and vegetables. The remainder of August, September and part of October have a declining monthly temperature and a constant level of rainfall. During this period, crops mature.

The remainder of the year produces no further significant growth. Temperature and precipitation reach their lowest level in February. Beginning with March the climate moderates. During the non growing season, six of the sixteen inches of precipitation fall in the form of 60 inches of snow.

Climatic Region	Lake Ontario Shore	South Slope	Interlobate
Altitude	(250-400)-600	(4-600)-1000	1000-1250
Mean Annual Temperature	44	44	43
Mean Winter Temperature	21	21	18
Mean Spring Temperature	41	41	40
Mean Summer Temperature	66	66	65
Mean Fall Temperature	48	47	46
Extreme Low Temperature	-30	-39	-42
Extreme High Temperature	104	105	104
Daily Temperature Range	17	19	19
Date of Last Spring Frost (Av.)	May 11	May 15	May 19
Date of First Fall Frost (Av.)	Oct. 3	Sept. 28	Sept. 26
Number Frost-free Days (Av.)	145	135	130
Beginning of Growing Season	April 15	April 15	April 18
End of Growing Season	Oct. 29	Oct. 28	Oct. 25
Av. Length Growing Season	197	196	191
Av. Annual Precipitation	33.0"	32.6"	30.4"
Average Annual Snowfall	60"	60"	76"
Av. Rainfall, April 1 - Sept. 30	16.3"	17.0"	15.6"
Av. Summer Rainfall, (J.J.A.)	8.0"	8.7"	8.2"
Frequency of Droughts	25	20	19
% Sunshine in Growing Season	54	50	52

C H A P T E R T W O

H I S T O R I C A L G E O G R A P H Y

Pre-Settlement Period

The northern shore of Lake Ontario was first visited by transitory groups of Huron Indians. Although their livelihood was indigenous to the soil consisting of trapping, hunting, and fishing, they failed to cultivate the land. These Indians settled for brief periods along the streams and at the junctions of the waterways and Lake Ontario.

In the middle 1600's, the shore was populated by the dangerous Iroquois Indians. It was partly because of their menacing presence that Champlain avoided the area, postponing the day of permanent settlement.

Prior to 1793-94, the adventurous "coureur des bois" had pushed along the coast of Lake Ontario loosening the Indians' grip upon the land. However, these people did not settle the land but continued to exploit it for value in animal and fish resources.

Settlement

The first stable communities were not established until the American Revolution followed the Treaty of Paris and provided the British Colony with the United Empire Loyal-

ists.

About 1791, John Graves Simcoe, Upper Canada's first lieutenant governor, formed four counties. One county was called Durham and shortly afterwards subdivided into four townships, Darlington being one.

On February 7, 1792, Simcoe, authorized by the government, started systematic colonization.

John Burk, John Trull and Roger Conat, were the first settlers of the township. These men having left the Susquehannah River area to the south, landed on October 2, 1794, at a spot on the shore line now known as Port Darlington. With them, they brought the first horse and cows to the district. These men settled the south-western section of the township. Other early men can only be mentioned. These are Aeneas Shaw, the Annis's and Leonard Soper, who in 1805, built the first saw mill in the township.

Early agriculture was subsistence. Land was cleared for log homes, and woodlots cut during the winter for fuel. Hunting saw the settler through until spring when he would sow his first wheat seeds amongst the stumps of his cleared land.

The forests provided much of the early farm products. A sequence of forest products was (1) ship masts, (2) squared timber, (3) saw timber, (4) timber by-products (including maple syrup, potash and tanbark) and finally (5) manufactured wooden articles.

As the forests were cleared, the land was placed in grain farming.

Settlement was retarded by the war of 1812-14, and un-

occupied lands that remained in the hands of speculators and absentee landlords; also, factors connected with a faulty land distribution policy caused a rather slow development of the township.

But perhaps the main reason for a ponderous growth, was the geographical location of the township.

The area concerned is midway along the north shore of Lake Ontario. It was natural that the Detroit-Niagara and St. Lawrence-Bay of Quinte areas should be settled first, owing to their more accessible position to the populated areas in the northern states. Primarily for this reason, the land first occupied was to the west and east of Darlington and only slowly did men push along the lake coast to Darlington.

After 3 years of exhausting warfare, peace and progress was again restored. Important settlers arrived. In 1816 and 1819, the Wilmots and Wallbridges settled in the Darlington district, and between 1823-25 the Fairbairns, Simpsons, and McMurteys. John Burk, before 1824, had erected a saw and grist mill and a general store which was the origin of Bowmanville. This store was in 1824, bought by Charles Bowman of Montreal.

Totalled, there were three mills on Barbers Creek, two mills on Soper Creek, Elliotts' Mills at Hampton in 1840, the Tyrone mill in 1847, the Haydon mill in 1847 and sometime later Secord's mill located on lot 21, concession 7.

Only after 1830, were there enough settlers in Darlington to merit the opening of lots back of the Broken Front.

Darlington was surveyed in a strict rectangular

road system. The rolling relief and dense drainage pattern did not conduce to easy road building. As a result, frequently undeveloped areas of road allowances exist in the north where physical factors have disrupted the road pattern. The township is an excellent example of difficulties encountered when an inflexible geometric system is applied to an area without consideration being given to the contour of the land.

1830-50 was Darlington's most rapid period of development. By 1846, Darlington was extensively settled, containing first quality timber, 23,000 acres under cultivation, a population of 3,600 and several schools and churches. Bowmanville was a village of 500.

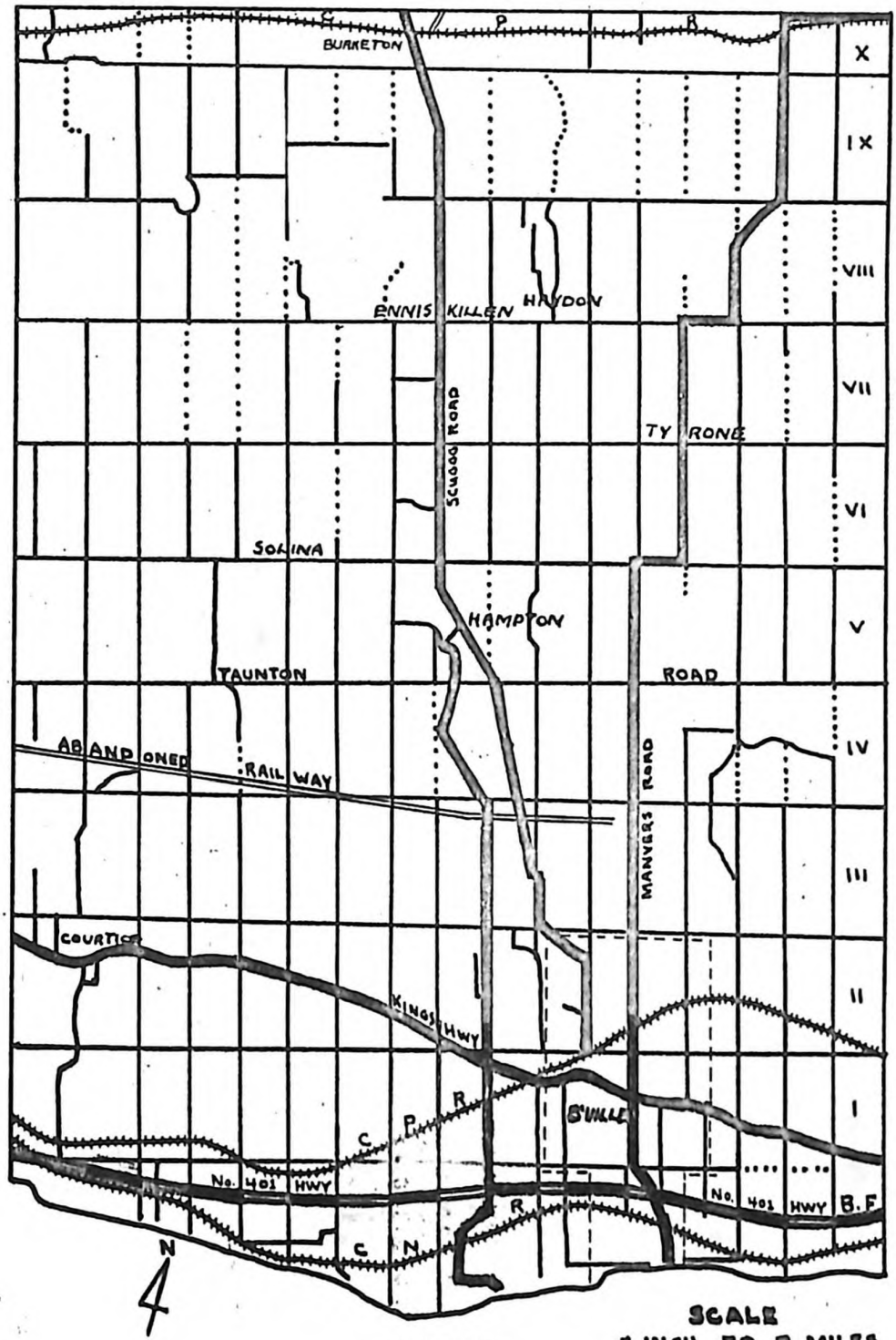
Because the land was wooded, the lake frontage and mouth of the Bowmanville Creek were first used for travel.

The natural harbour at the mouth of the Bowmanville River, attracted the first settlers, while the river itself, provided the first routeway into the interior of the township.

On the land, the easiest travelling was done on ancient Indian paths which had been "blazed" through the vast areas of forests. The first road built by white man followed an old Indian trail extending along the lakeshore. Today, shore erosion has caused the disappearance of this road.

As settlers pushed inland, roads were needed for the conveying of their agricultural goods to the lake front for shipment. To provide for this need, three main routes evolved northward. The Scugog Road paralleling the Bowmanville creek on the east, eventually extended to Lake Scugog. A second road on the west side of the creek reached Hampton.

TRANSPORTATION
FACILITIES
DARLINGTON



S.B.W. 1954.

The third road of importance was the Manvers Road projecting north into the township of the same name. During the war of 1812-14, the marching of British soldiers between Kingston and York over east-west extending Indian trails precipitated the necessity for better means of communications. Simcoe encouraged the building of the York Road (known as Highway No. 2).

The first regular mail stage began to run through Bowmanville on No. 2 about 1826.

With the advent of stage coach facilities, travel received a new impetus. By 1831, five trips a week were being made to Bowmanville from York.

With the completion of the Grand Trunk Railway (CNR) in 1856, the stage coach became a relic of the past.

Thus water transportation caused the coastal land to develop first. Only when Indian trails were turned into roads and population pressure increased, did the northern sections of the township open itself for settlement. By 1860, most of the land had been alienated from the Crown and fully settled.

Early grainfarming, largely wheat, proved successful in Darlington. The early settlers were able to harvest 30 to 50 bushels of wheat to the acre. Before the Scugog Road was opened in 1841, most of the wheat from the back of the township had to be brought out to the front during the winter months. Elevators at Port Darlington stored the grain until navigation opened. The opening of Port Darlington in 1837, signalled the beginning of a new way of life for the surrounding people. It was the heart of the commerce until the railway initiated

the decline of harbour trade.

Port Darlington, the shipping centre of the township, located 1-1/2 miles south of Bowmanville, exported in 1844 and 1850, the following commodities:

	1844	1850
Lumber	254,000 feet	700,000 feet
Flour	6,927 barrels	29,113 barrels
Oatmeal	203 barrels	910 barrels
Whiskey	102 barrels	188 barrels
Pork	16 barrels	80 barrels
Cornmeal	12 barrels	---------
Potash	11 barrels	---------
Ashes	143 barrels	23 barrels
Butter	21 barrels	185 barrels
Potatoes	102 bushels	5,830 bushels
Wheat	2,300 bushels	27,880 bushels
Barley	----------	300 bushels
Bran	----------	100 tons
Wood	----------	1,000 cords

Goods shipped from Port Darlington usually found their way to Montreal or American centres by batteaux down the St. Lawrence River.

By 1851, of the 38,494 acres being cultivated, 28,886 acres were in crops, 9,130 acres were in pasture, and 478 acres in gardens, 29,506 acres remained in woodlot. At the same time the township attained its highest population of 8,005 rural residence. 1851 was then the climax of the grain farming and wood cutting era. Previously, the area had passed through its first stage of agricultural development, i.e. subsistance and mow after the middle of the 19th century, a third phase of farming began and has continued to develope to the present day.

The following table illustrates the changes that have occurred in agriculture during the past 100 years.

Agricultural Products and Livestock

1851		1951
2,106	Horses	1,000
2,415	Milk Cows	4,906
1,867	Beef & Mixed Cattle	2,561
9,023	Sheep	1,924
5,291	Swine	5,613
-----	Fowl	100,098
8,057 acres	Wheat	3,411 acres
212 acres	Barley	233 acres
131 acres	Rye	321 acres
3,709 acres	Oats	3,906 acres
350 lbs.	Flax	-----
4,607 tons	Hay	10,965 acres
852 acres	Potash	142 acres
-----	Other Mixed Grains	7,633 acres
-----	Other Fodden Crops	1,766 acres
107 acres	Root Crops	72 acres
1925 acres Peas	Other Field Crops	218 acres
667 bushels Grasses		
57 bushels Beans		
24 lbs. Hops		
20 lbs. Tobacco		
22,721 lbs.	Wool	-----
42,373 lbs.	Maple Sugar	-----
250 gals.	Cider	-----
31	Mills	5

Population

Population figures prior to 1851, are unreliable. However, in 1851, 3,636 people were natives of Canada and of British descent, 3,415 of English origin, 1,220 of Irish origin, 418 of Scottish origin and 223 of United States origin. It might be added that this peak population of the township was largely the result of sudden immigration from the British Isles (due in part to the Irish Potato Failure of 1845), the canalization of Upper and Lower Canada and the general "opening up" of interior lands, and the English Enclosure Act of 1845.

Since 1851, English, Irish and Scottish peoples have continued to populate the township. The equally sudden decline in population between 1850 and 1900 was a result of (1) the settlement of lands in the Canadian West, (2) rural land abandonment on the Moraines, (3) mechanization of farming, and (4) urban growth in Bowmanville.

Thus, the township has since 1852 experienced a declining rural population. Conversely Bowmanville has steadily grown. In 1954, 2,700 people remain cultivating the soils, while Bowmanville, with a population of 5,300 is the sole site of manufacturing and industry in Darlington.

Main Origins of Settlers

Year	Eng.	Ireland	Scot.	Nat.Can.	Ger.-Holl.	Pol.Russ.Uk.	France	U.S.
1851	2,415	1,220	418	3,686	3	------	2	223
1861	1,962	615	281	3,350	8	------	-	96
1881	3,752	1,060	447	-----	176	------	40	---
1901	3,404	658	402	-----	72	------	3	---
1911	2,717	589	280	-----	56	------	5	---
1921	2,685	602	343	-----	69	42	7	---
1931	2,755	524	384	-----	100	101	14	---
1941	2,697	502	444	-----	64	155	45	---

Township Population

1818	160
1827	350
1841	1865
1851	8005
1861	6912
1871	5931
1881	5465
1891	4757
1901	4174
1911	3682
1921	5780
1931	3915
1941	4159
1951	2665

CHAPTER THREE

CULTURAL GEOGRAPHY

Present Day Rural Land Use

The early domestic economy based on timber trade and grain farming began to pass into a new phase of land use by the 1880's.

Major Factors Effecting the Change in Land Use

(1) Exhausted timber supplies

(2) "Partially" exhausted soils caused by the heavy demands of wheat

(3) Cheaper western wheat was beginning to enter the eastern markets

(4) Increased transportation facilities and development of new towns

(5) Rural depopulation of marginal grain producing land

The commonly held opinion of the late 1880's was that certain soils especially those of the interlobate moraine to the north were, because of diminishing returns, becoming exhausted.

On the whole, this supposition was incorrect. It was later discovered that with proper land use practices, most of the soils responded with increased productivity. But on the hilly, sandy, northern farms and the Iroquois beach lines in the third concession block, the soils being cleared of the forest cover, became wind blown and nearly useless for agriculture.

Not only wheat but other grains and field crops were grown in Darlington. Those most common were, oats, barley, rye, hay, flax, peas and carrots.(refer to statistics in previous chapter)

With the gradual fading out of grains as the basis for farming in Darlington, mixed types of agriculture with emphasis on beef and dairy livestock, grains for stock feeding and apple growing developed.

As early as 1828, reports of fruit farming, especially apple and pear orchards, were present. Production, however, was limited to a few trees whose fruit was used solely for home consumption. Only after cities in Canada and Britain provided a market, and large well-developed orchards came into existence, did fruit farming reach its present state of a commercial crop.

With the advent of conurbation in the Toronto vicinity, the southern portion of Darlington Township has become part of the southern Ontario Milk Shed.

Today, other specialized farming is concerned with the canning crops of peas, corn, potatoes, and tomatoes, reforestation and Christmas tree pineries and the increasing production of tobacco -- Darlington's newest in an already long list of farm crops.

Rural Population Study

Background--Presented here, is an interpretation of reasons most influencial in developing the pattern and classification of present day rural settlement in Darlington Township. The classification study was carried out by means of visual evaluation of every farm residence, non-urban residence, and business. Although this method of classification may be challenged, it is felt that farm value can be determined to a large degree of accuracy by the general outward appearance of the farm buildings. Confirmation of this theory was present in the similar pattern of farm assessment values found in the Township Office.

Population Distribution

The distribution of population, and the land use is dependent upon (1) soils (2) topography (3) drainage (4) proximity of Oshawa and Bowmanville (5) road networks and (6) history. Fertile productive soils attract a dense rural population. Steep or rolling land does not favour farming or settlement. Poor drainage reduces farming but may encourage the development of inferior type residences. The nearness to large urban centres and first rate road facilities develope linear patterns of residential commuters. The first roads attracted concentrated rural development. (Evidence of this historical factor may still be seen in the township.)

Upon investigation of the study area, one is immediately struck by the overall even distribution of man. However, "low pressure" areas or perhaps more appropriately termed E-W belts of sparce rural population are present.

Fig. R A first class farm in Darlington

Fig. S A second class farm in Darlington

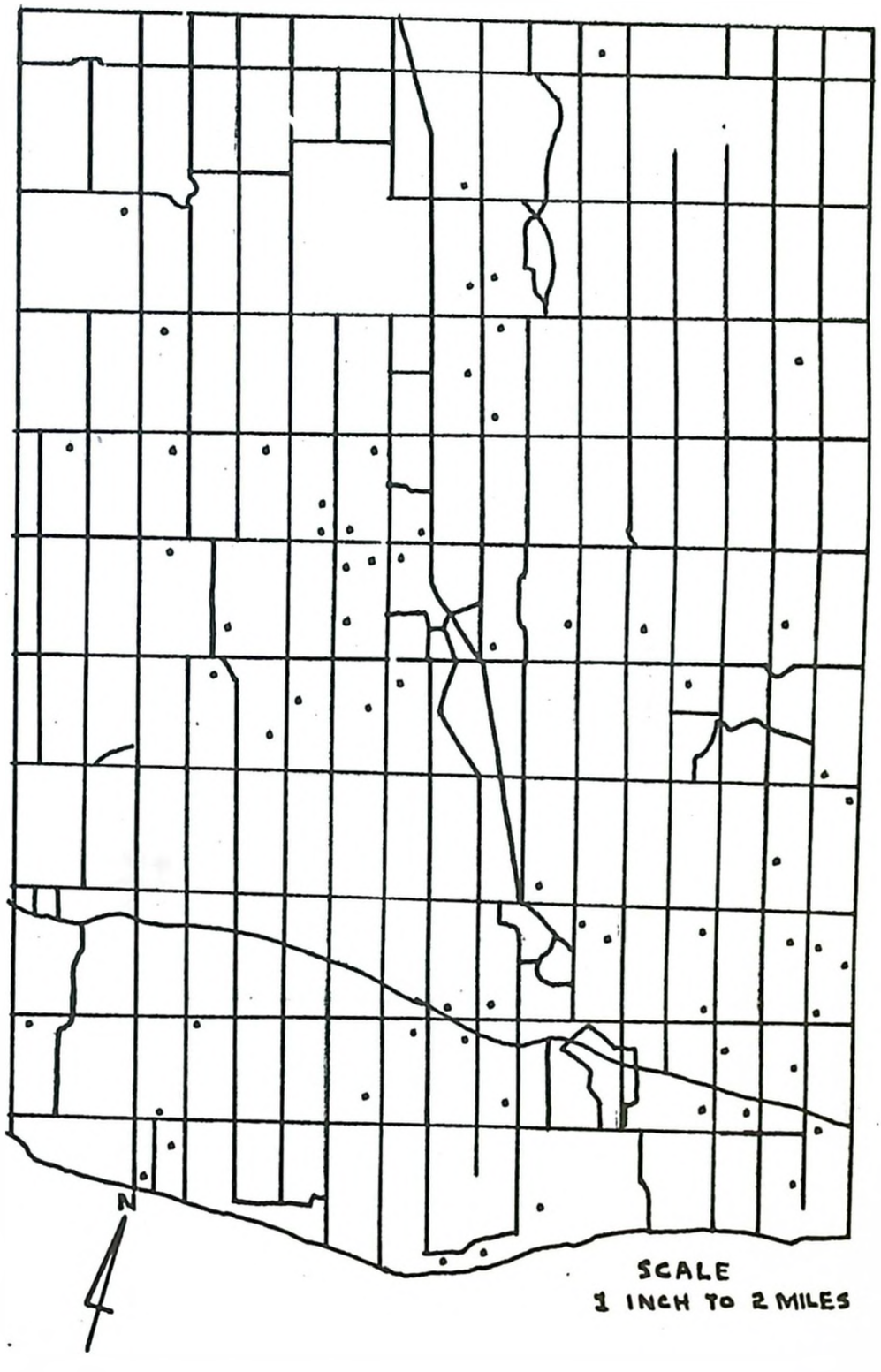
Fig. T A third class farm in Darlington

Fig. U A fourth class farm in Darlington

A general principle is the gradually thinning of population density from the lakefront to the rear or northern section of the township. Reasons for this are both physical and human. Productive soils in the lake plain induce a heavy rural population. Opposite the infertile unproductive beach line in the third concession discourages farming, but facilitate the growth of urban sites which are connected by a fine lakeshore road development. This development is most noticeable between Oshawa and Bowmanville on No. 2 highway. The small centre of Courtice is located between the two centres. East of Bowmanville lacks the same progressive development found to the west. Although still well populated, the third concession is here empty of urban homes, contains fewer less prosperous farms, and is largely covered by swamp cedars. North of the beachline is a large fine prosperous farming area. Population here, is equally distributed and dense. It is in this area that early roads and milling sites have continued to influence population distribution. The agricultural wealth of the region is reflected in the numerous service centres found about Scugog, Taunton and Manvers Roads. These are Hampton, Enniskillen, Tyrone, Haydon, Solina, and Taunton.

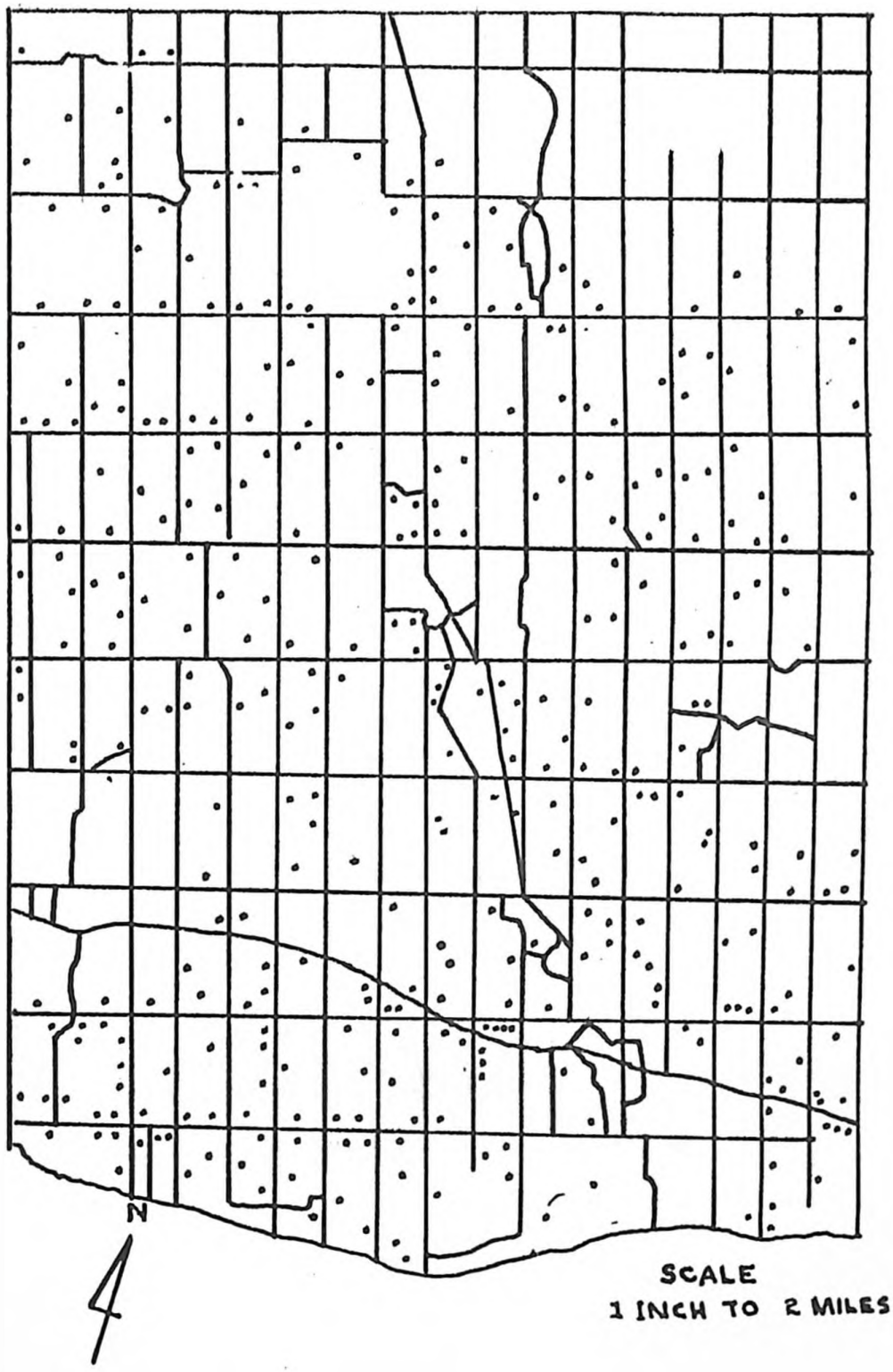
North of this heavily utilized and settled area, is the Oak Ridge Moraine. Here poor soils, steep slopes and excessive drainage, exclude a concentration of population. Most noticeable in this area is the number of abandoned farms. One service centre is present in the area. Its development is the result of rail and road intersections. This area is one of emptyness.

DISTRIBUTION OF FIRST CLASS FARMS



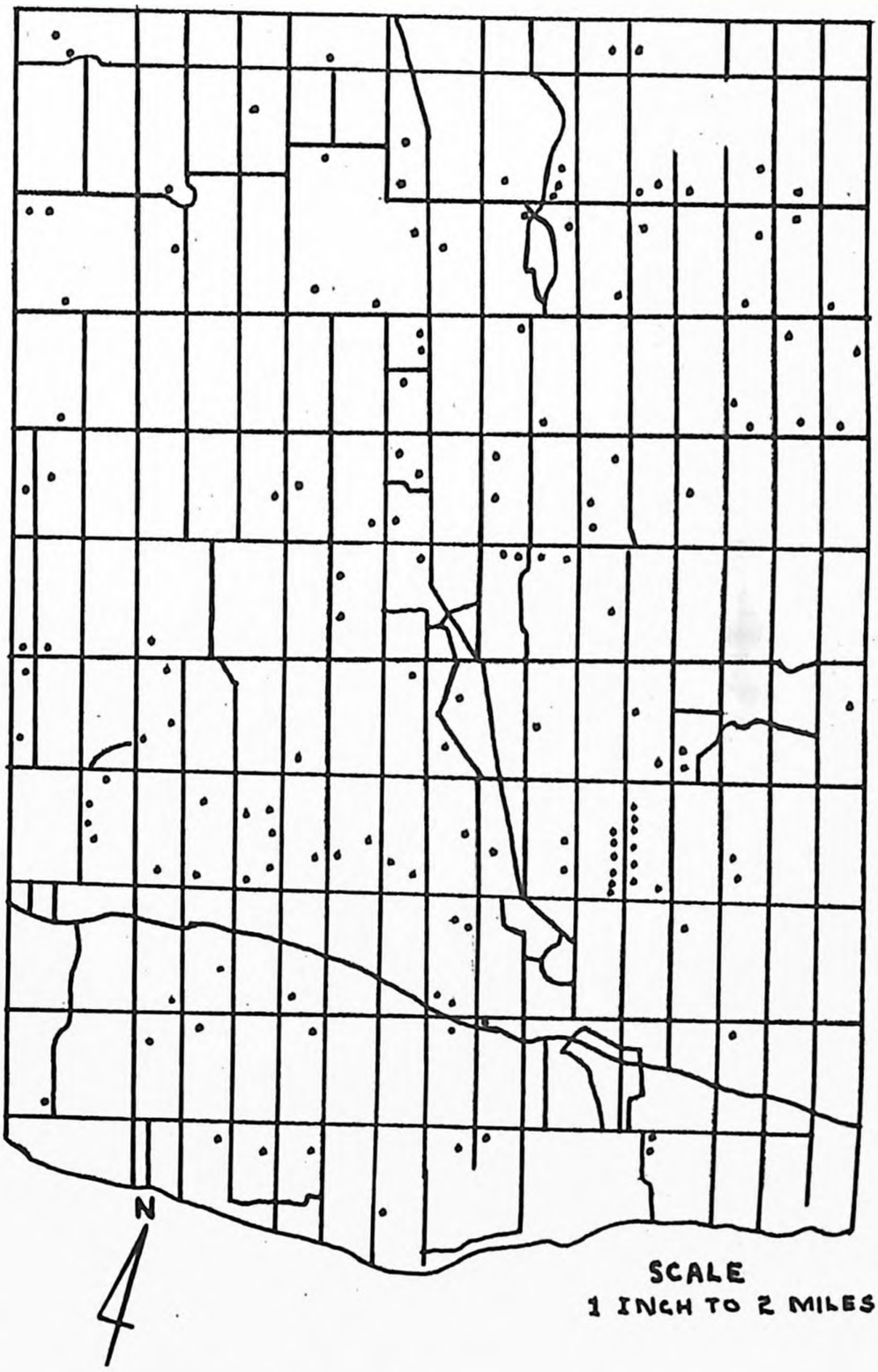
S.B.W 1954.

DISTRIBUTION OF SECOND CLASS FARMS



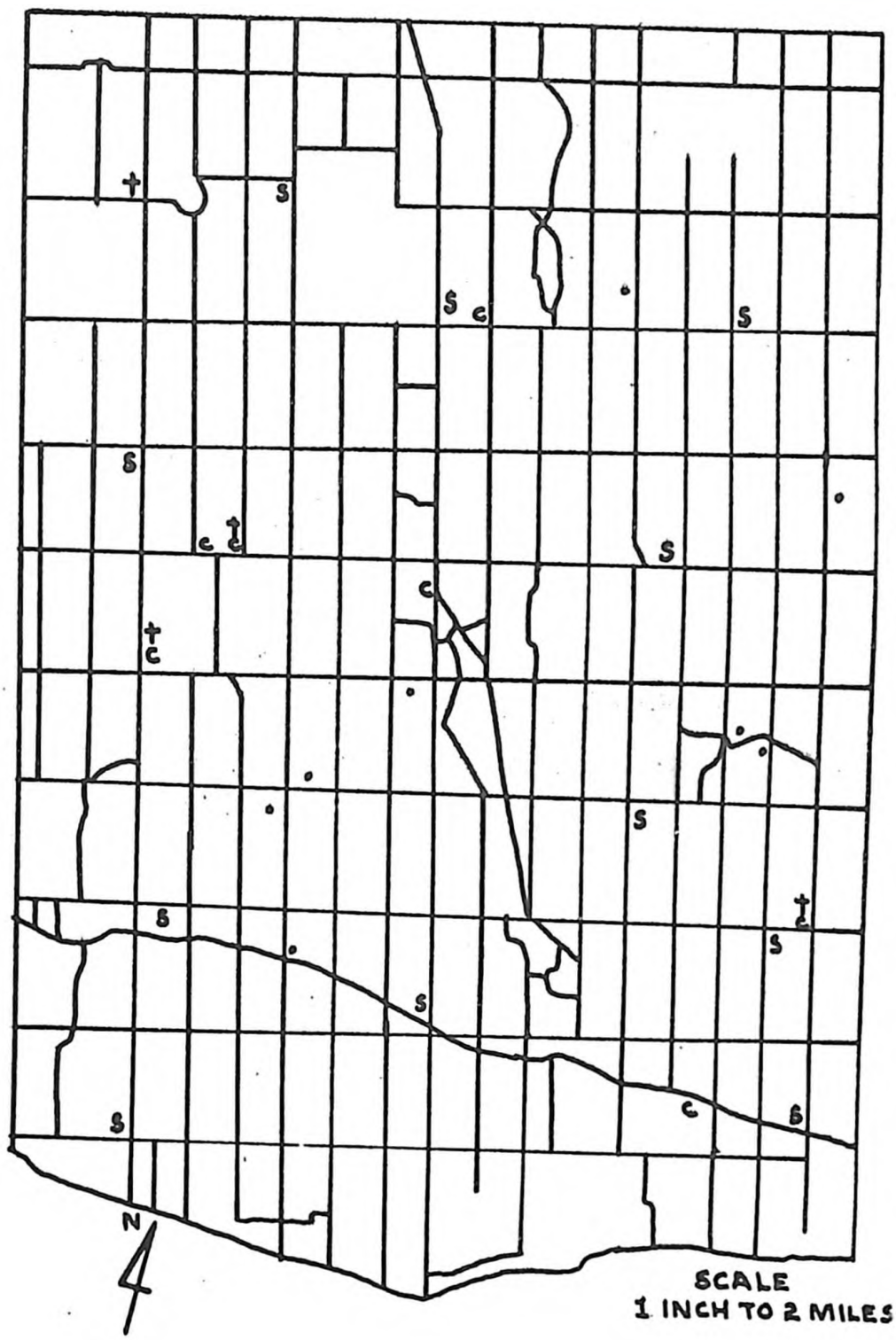
S.B.W 1954.

DISTRIBUTION OF THIRD CLASS FARMS



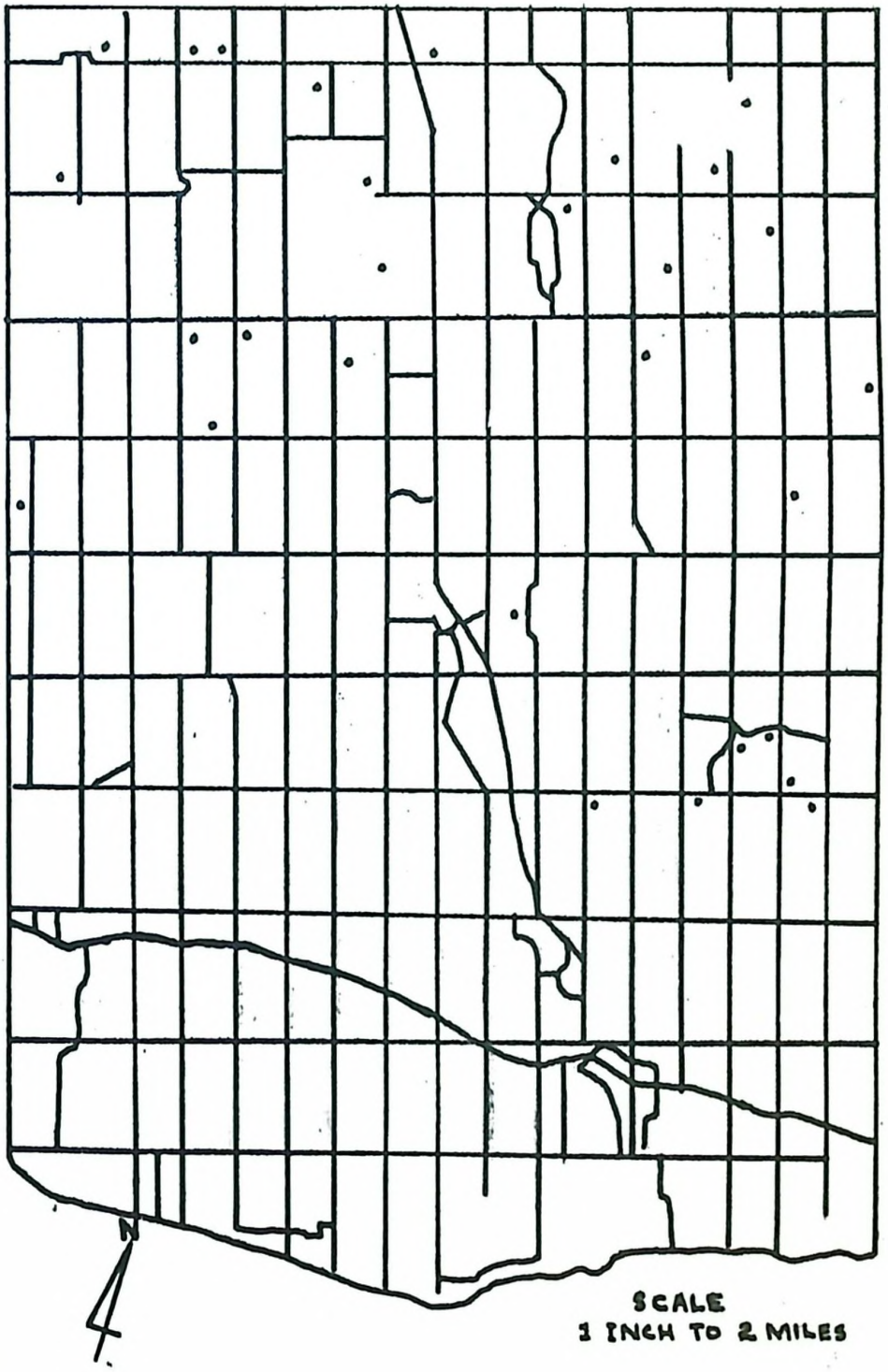
S.B.W 1954

DISTRIBUTION OF FOURTH CLASS FARMS - SCHOOLS - CHURCHES - CEMETERIES



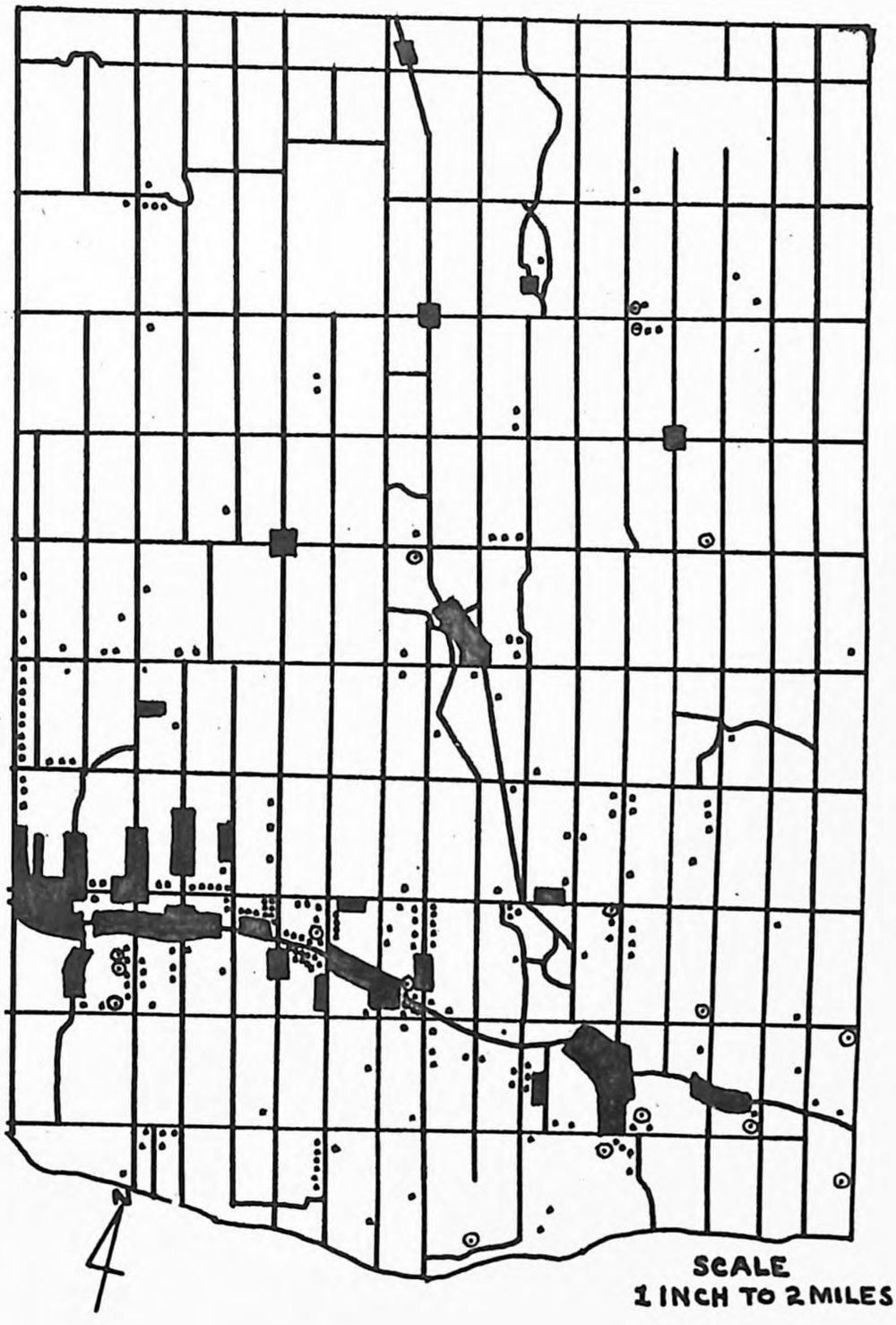
S.B.W 1954

THE DISTRIBUTION OF ABANDONED FARMS



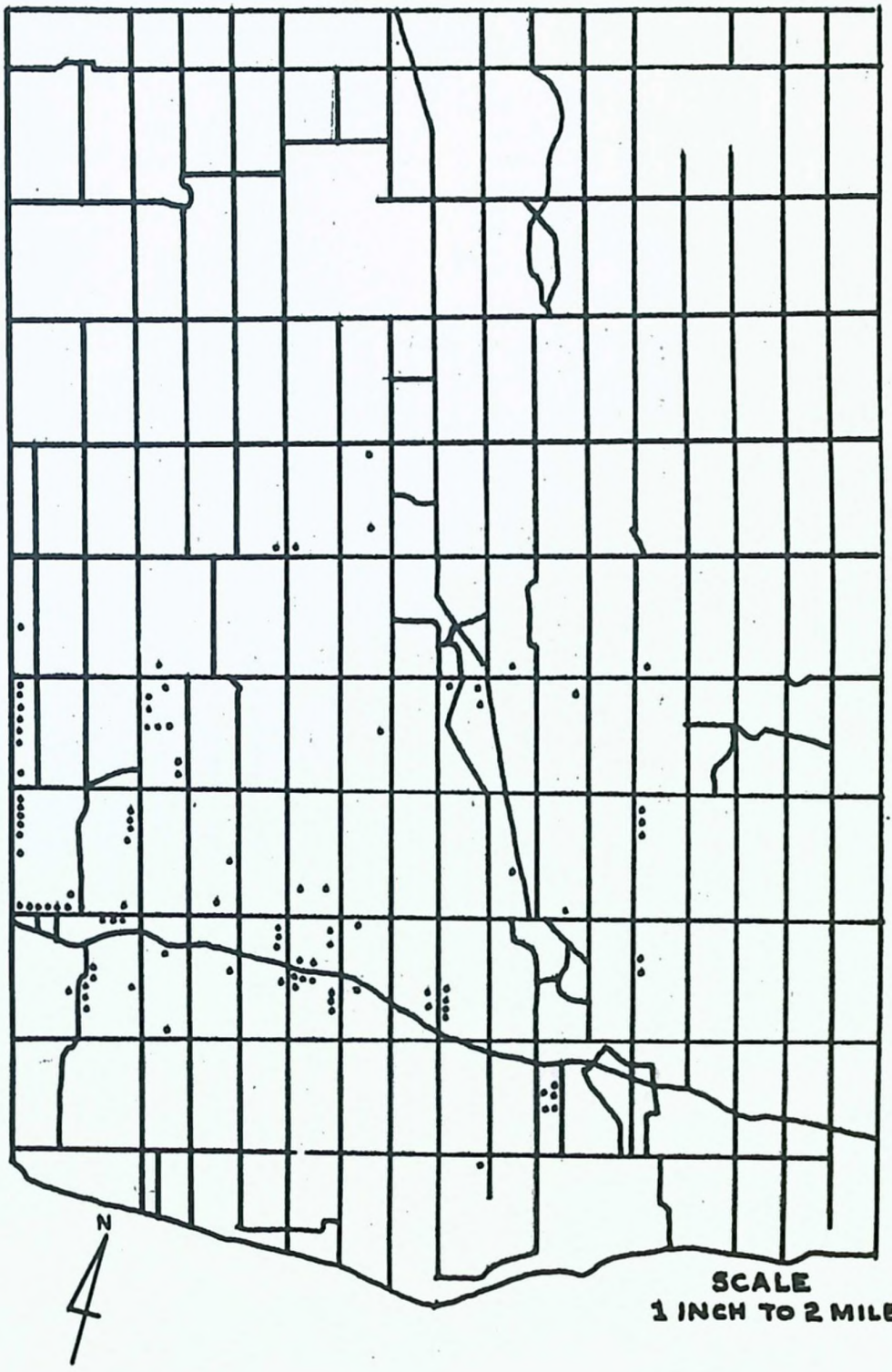
S.B.W. 1954

DISTRIBUTION OF RESIDENCES



S.B.W 1954

DISTRIBUTION OF RESIDENCES UNDER CONSTRUCTION



S.B.W 1954

Agricultural Land Use

Farming

Presented here is a regional study dealing with distributions of crops and livestock. Controlling this distribution are --

(1) The Physiological Environment

(2) Anthropeic Factors

(3) Economic Factcrs and

(4) Crop and Animal Diseases

Invariably a combination of physical and cultural factors locate and determine the extent of the present land use.

It is imporatant that any explanation of agricultural activities of a region be revised frequently in accord with the fluid conditions accompanying farming in a region.

The following areas have been outlined and based on topographical, pedafrial and present land use factors.

Introduction

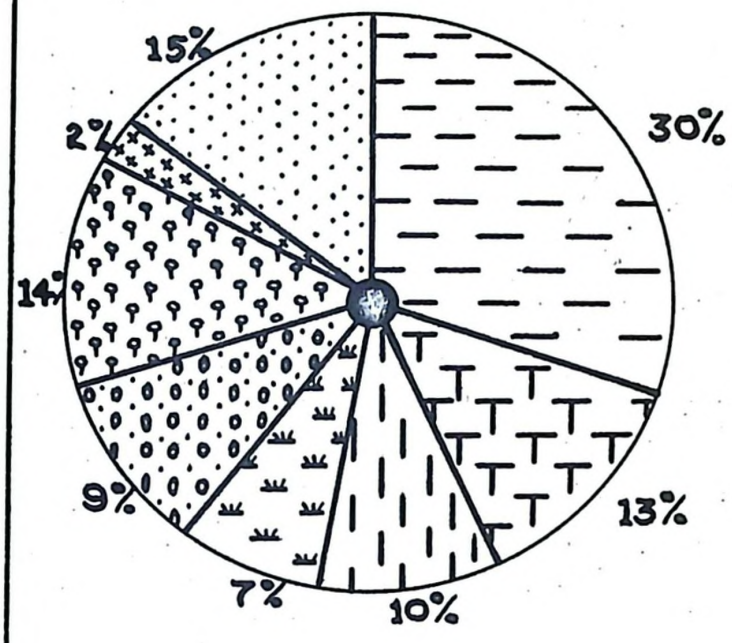
Types of Farming in Darlington Township

1. Mixed Farming on Heavy Textured Soils -- Farms of this type range in size from 100 to 150 acres. About 70% of the land is in mixed grains, sils, corn, spring wheat, hay, alfalfa, and small acreages of canning corn, potatoes, peas and tomatoes. About 25% of the land is pasture for dairy and beef cattle and sheep. Pigs and fowl are also quite common. The remaining land consists of woodlot and farmstead.

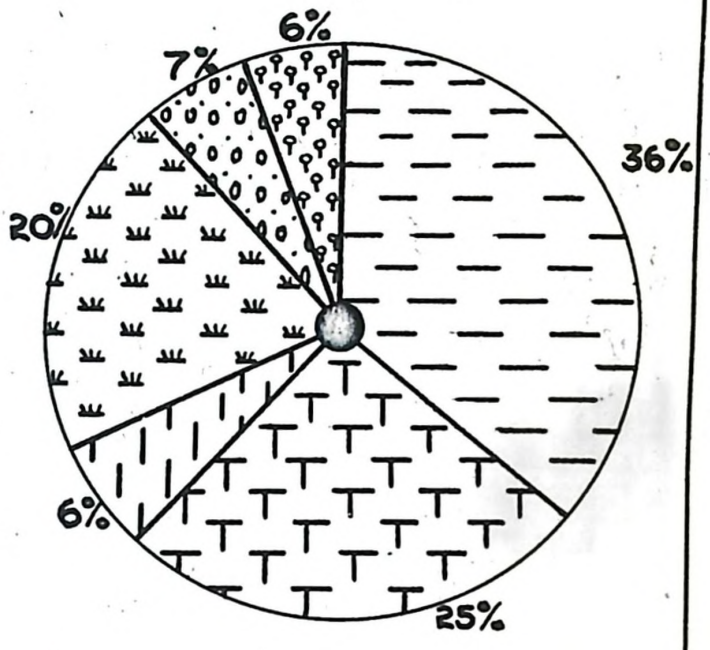
The majority of the grains are grown for livestock feed. Canning corn, peas and tomatoes are cash crops. Each

RURAL LAND USE

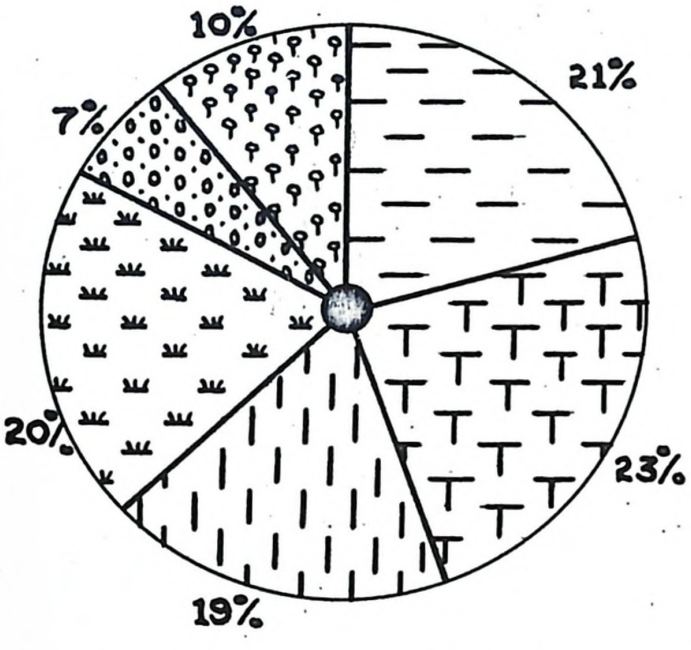
OAK RIDGE MORAINE



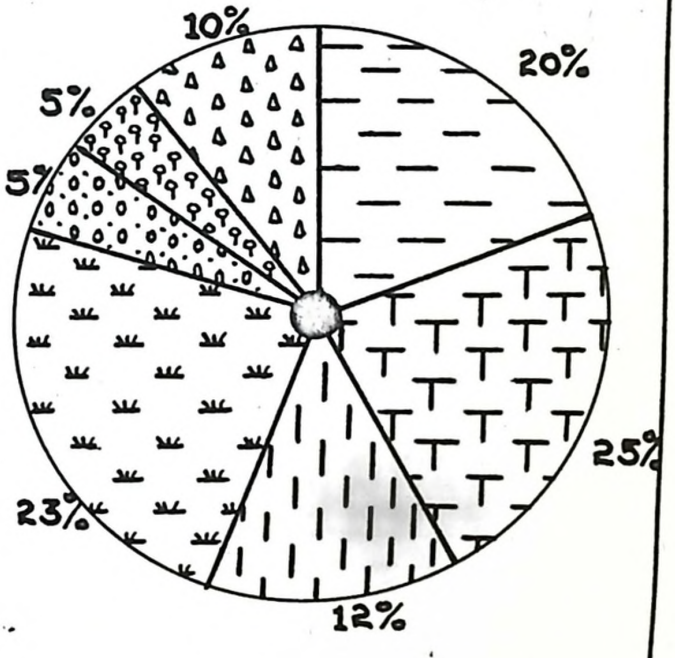
DRUMLINIZED TILL PLAIN



LAKESHORE LIMESTONE TILL



LAKESHORE LACUSTRINE PLAIN



HAY
IDLE
ORCHARD

PASTURE
POTATOES
CORN - PEAS

MIXED GRAINS
WOODLOT
FALL WHEAT

S.B.W 1954.

farm has a small vegetable garden. Animal products and crops and marketed in Toronto, Oshawa, Bowmanville and Whitby.

2. Livestock Farming on Light Textured Soils -- A larger farming unit of between 175-250 acres is devoted to 45% cultivated, 25% pasture, 20% woodlot and 10% idle land.

Field crops are mixed grains, buckwheat, clover, corn, hay and potatoes. Livestock is mainly mixed and beef cattle with large numbers of pigs, chickens and sheep.

Livestock markets are located in Toronto and Pickering Farms, Whitby. Livestock farms are the largest in Darlington, found mostly on the Oak moraine and less prosperous.

3. Dairy Farming on Medium and Heavy Textured Soils -- Farms of this type are 100-125 acres in size. 60% of the land is cultivated in mixed grains, wheat, corn, peas and hay. Holstein, Jersey and Guernsey dairy cattle, pigs, chickens and sheep are the main farm animals. Dairy herds range from 20-40 head. Frequently a dairy-livestock-apple farming combination is present along the lakefront.

Fruit Farming

Apple and some peach orchards are found on the heavy loams in the south-east of the township. Most farms contain several acres of orchards but only those in the Broken Front area are commercially worthwhile. Only three farms specialize wholly in fruit culture. Generally a mixed or dairy type farming is associated with the smaller orchards.

Markets are found in Toronto, Oshawa, Whitby, Bowman-

ville and the cold storage plant at Port Hope.

Tobacco Farming

Five farms (four on Brighton sands and one on the Interlobate Moraine), were investigated in Darlington. Farm sizes ranged from 300-400 acres. A three year rotation system of tobacco, fallow and rye is used throughout the area. Potato growing is frequently found with tobacco on sandy draughty soils.

Truck Farming

Several 5-10 acre farms located in the Bowmanville vicinity specialize in tomatoes, peas, corn and onions. Markets are found in all immediate urban centres and at the Campbell Soup Company's grading station at Courtice.

Nurseries

Two small farms east and west of Bowmanville on No. 2 Highway, specialize in shrubs and other home garden plants.

Agricultural Soil Types in Darlington Township

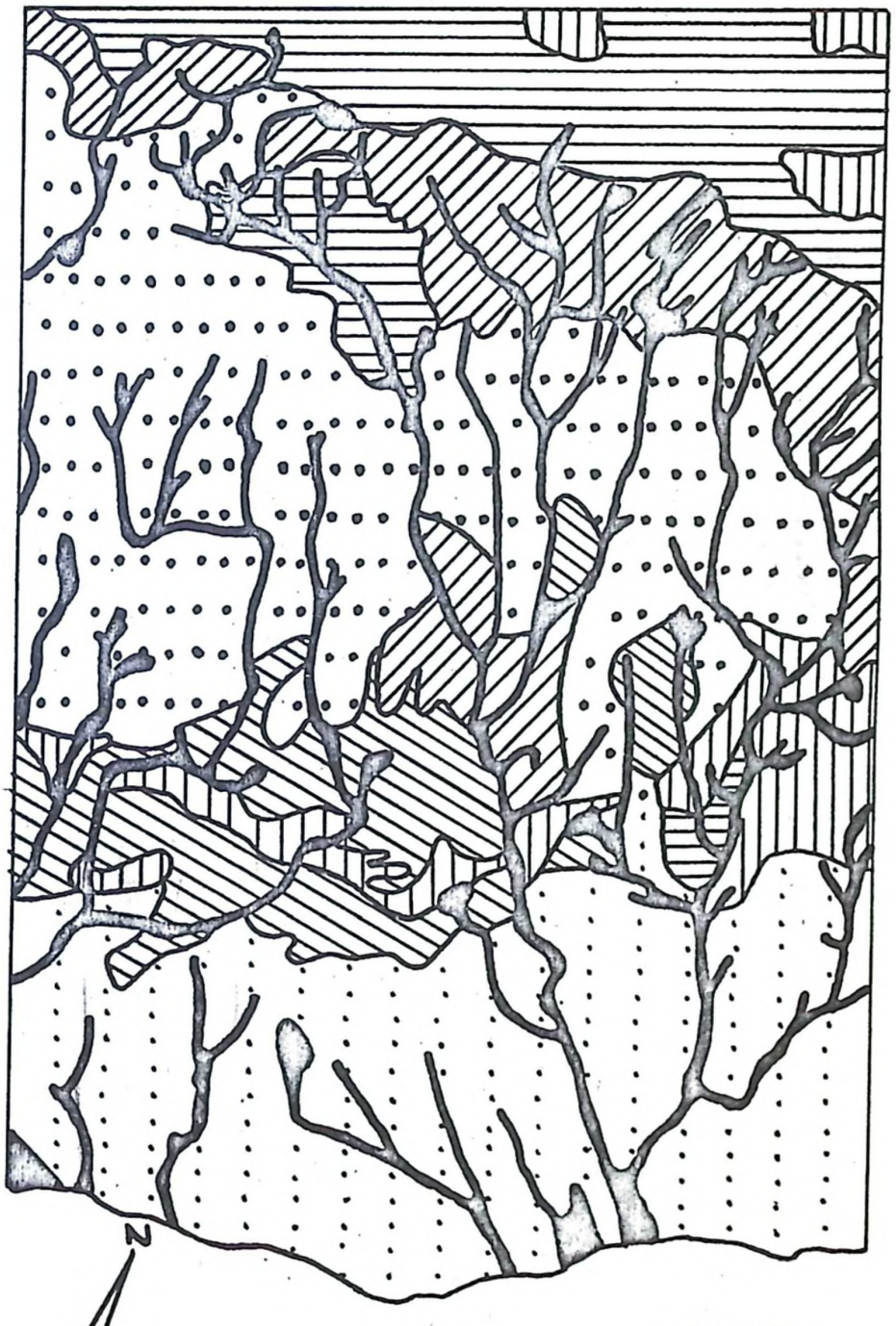
This brief study of the farming potential of the township's soils is based on a multiple of factors. The most important factors are (1) relief, (2) drainage, (3) soil reaction, (4) erosion and (5) land use.

Soil Groups

1. Level to Depressional Soils

These soils have been developed on a flat to depres-

SOIL CLASSIFICATION
OF
DARLINGTON TOWNSHIP



N

SCALE
1 INCH TO 2 MILES

SOIL TYPES

1 — UNDULATING - ROLLING

2 — LEVEL - DEPRESSIONAL

3 — LEVEL - UNDULATING

4 — ROLLING - HILLY

5 — HILLY - STEEP

6 — UNDULATING

7 — LEVEL

S.B.W. 1954.

sional topography. They are located mainly about rivers and streams. The soils may be classified as azonal, with little profile development, large quantities of organic matter, and poor drainage and soil structure.

The natural fertility of the soil is good and no erosion is present. Oat and buckwheat farming, permanent pasture, and wet woodlot are the main land uses of this area. Farming, however, is at all times hazardous.

2. Level to Undulating Topographical Soils

This area represents the heaviest, most fertile and utilized loam soils in the township. Located near the lake and having main transportation routeways extending east and west, this gently undulating area has a further advantage, therefore, of excellent communication to markets. As a result of the above factors, tree fruit farming (mainly apples), truck crops, dairying and chicken farms are found in this area of exceptionally fine general farming.

3. Gently Undulating Topographical Soils

In this type, the more varied topography due to morainic and outwash materials, has increased the erosion to the slight, often severe wind type. Some sleet erosion was noted. The soils appeared to be excessively drained. The fertility of those neutral reacting soils is rather low, especially in the Brighton series, but a more moderate topography and better moisture conditions have made the area a fair agricultural zone.

Heavy applications of manure and fertilizers are

needed for the optimum use of the land and to produce a favourable soil structure in the course sands. This classification is at present used for light, general farming with stress placed on fall grains and tobacco growing. In places, this light farming could be better placed in permanent pasture or reforested, and thus reduce the erosion and hazards of farming.

4. Undulating to Rolling Topographical Soils

This moderately drumlinized topography is ideal for good agriculture. The fertile loams are neutral to slightly alkaline in reaction, experience mild sleet erosion and have good structure and moisture relations. The problems of the area are no more than what good land practices can handle. Most soils are not entirely stone free. One exception is present. About Enniskillen and Tyrone, a lacustrine deposit of clays probably formed by ice daming, is present. In general, the type support good farming with cereals, hay, corn, livestock, and dairying dominant.

5. Rolling to Hilly Topographical Soils

The rolling nature of the land has produced good drainage but also moderate wind and rather severe sleet and gully erosion on the steep slopes. The steeper nature of the terrain has increased the soil erosion threat. The moisture relations are good but secondary to Type 3. Natural fertility is as good as in the previous groups.

In most cases where Type 3 could be classified as good in production, this type may be referred to as fair to good. The general farming includes stock raising, grain grow-

ing , attempts at dairying, canned fruits and potatoes. Slowly the cultivated steeper slopes are being left to pasture and woodlot use.

6. Hilly to Steep Topographical Soils

This group includes a series of sands. Naturally excessive drainage is present with moderate to severe wind and gully erosion in this type. Low fertility, course sandy nature, and low organic content, do not place the soils in a position to support agriculture. Most areas should be retired from cultivation and left to pasture and woodlot.

Little use can ever be made of this type due to the rapid removal of top soil and the subsequent bare sands. Any farming is subsistence and hazardous.

7. Miscellaneous (level, poorly drained sandy loams)

Common to this type is a nearly level topography and poor drainage. Because of the low lying land, little or no erosion is present but due to the wet soils, this class is second to type 1 in restricted land use and population.

Pasture and woodlot are dominant in this area, however, some better drained areas support limited light mixed farming.

This group has been separated from type 1 because of differing locations and greater improvement possibilities . Improved drainage would increase the use and productivity of this zone, whereas better drainage in type 1 is impractical.

These two regions found in association in the third Concession have placed a strip of land 1 mile wide in waste and of little value for general farming.

It is this area which is experiencing large scale home building, particularly in the western area of Darlington. Both proximity to Oshawa along No. 2 highway and poor agricultural land have incouraged this trend.

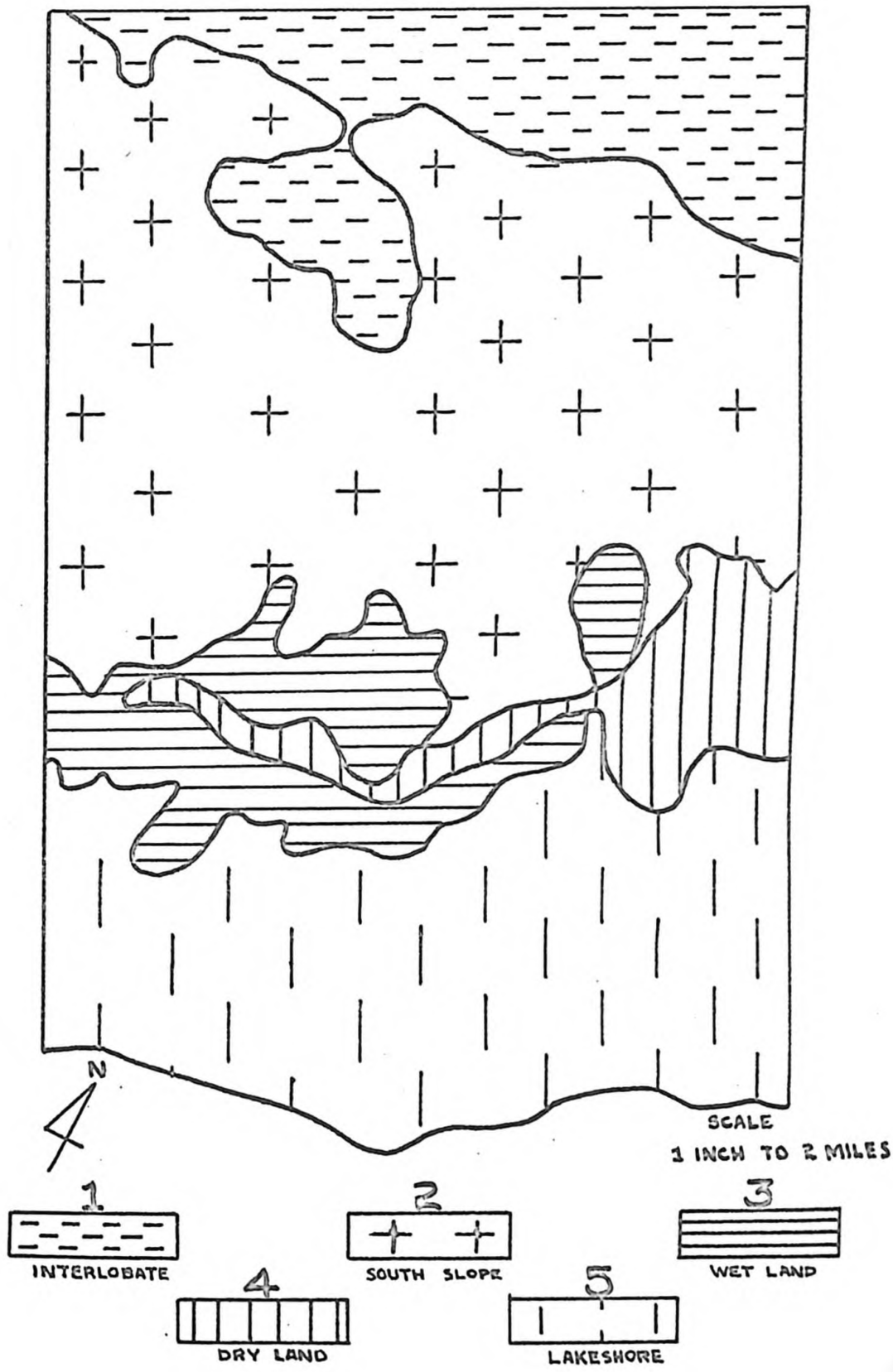
In forming the soil groups above, various factors have been combined with land use possibilities in an attempt to provide larger soil units with which cultural data may be related in Darlington Township.

Agricultural Regions

1. The Oak Ridge

Location -- Located at the northern end of the township, this region stretches east to west. Entering the northwest corner of the township, the southern border extends from Burketon Station south east to Haydon, then east between Concession VII and VIII for two miles. At this point the boundary follows southward the first road east of Tyrone until it passes out of the township in Concession VI. The southern extension of this region may best be outlined by the 1,000 foot contour. The remaining boundaries are found in the north and

AGRICULTURAL REGIONS OF DARLINGTON



S.B.W 1954.

east by Township lines.

Activities

Steep hilly topography, sandy soil, excessive drainage and aevere erosion ase responsible for the sparce farming population and large idle areas characteristic of this district. Common to areas of infertile soil, the farming units are comparatively large. Most farms are between 200 and 250 acres, but three were in excess of 400.

Refered to by the Darlington Residences as the Pine Ridge, this tract of land formerly had been valued for its woodlots of pine and cedar. The rapid exploitation of the forests, soon laid bare the hilly land and erosional elements stripped the top soil from the hills. The subsistance farming that followed the lumber cutting, soon proved too demanding for the soil and the Interlobate Moraine experienced wholesale depopulation. Today livestock and specialized farming are found here.

This region features livestock farming on light textured soils. Individual farms have about half of their land producing fodder crops to feed an average of 15-20 mixed cattle, and about 3 sows with 2 litters a year.

Other income is derived from the pasturing of sheep for meat products and from the sale of small quantities of peas, potatoes, cannong corn and wheat when favourable cash markets exist.

Specialized agriculture is slowly changing the landscape of this region. Reforestation is quite common in the tenth Concession including valuable areas of Scotch Pineries

Fig. M Landform and vegetation of the Interlobat Moraine

Fig. N The Pine Ridge - looking north

for sale as Christmas trees. It has been estimated that 1,100 trees per acre may be grown, of which 60% are of commercial value. The profits attained are $150.00 per acre or 25¢ a tree. Contracts for cuts every 5-7 years (the length of time for trees to nature) have been issued.

The soils being sandy and breaking down under grain cultivation have left the tobacco farmer with a soil stripped of many soil elements and ready for liberal fertilization to bring the soil to the required chemical content.

Farms are being bought 2 and 3 at a time by individuals in the area with the aim of converting them into highly profitable plantation. Perhaps more capitol is being invested in the northern area than any other. The value of the land is rising rapidly as one example will illustrate. Van Dam's plantation, east of Burketon Station, contains approximately 200 acres. As a subsistance general farm, 12 years ago the township taxes amounted to $40 a year. Since that time, 6 crops of tobacco have been harvested without one failure. Today taxes are over $200 a year for the same farm.

Some grain and general farming is attempted but it has proven dangerous on the moraine. Thus competition is forming from tobacco, reforestation, Christmas trees, and limited livestock farming, for the better land.

Tobacco, though providing better returns requires more capital to operate, but in its slow advancement in the area, it is pushing the other 3 types off the more suitable soils of the moraine and on to the steeper slopes.

Potatoes are farmed extensively in some of the sandy areas. The best crops are between Enniskillen and Burketon

Fig. O Abandoned farm and cleared orchard trees on the Pine Ridge

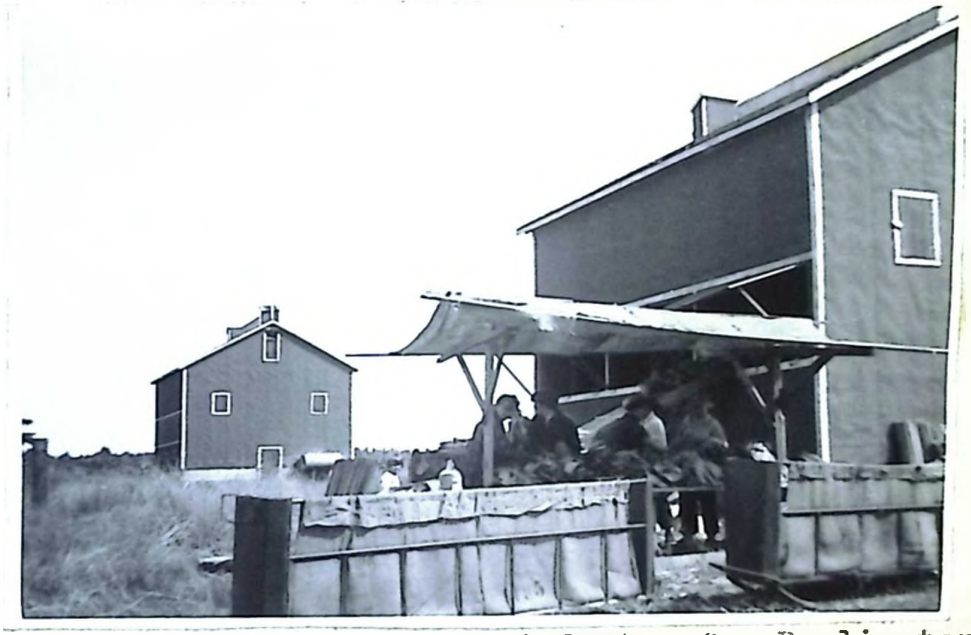


Fig. P Processing tobacco - a new industry for Darlington

Fig Q Gully erosion on the Pine Ridge

Station on the Scugog Road, Here, top grade potatoes are found thriving on the sandy well-drained soils.

Farming Problems

Aside from the obvious detrimental factors of low soil fertility, erosion and absence of level land suitable for cultivation, lack of farm labour has been the most common problem in the area. Other hindering factors are poor transportation facilities in the snowy winters, cost of building up the fertility of the soils and the need for larger, more economical farming units.

Transportation and Communications

Hilly, unconsolidated soils and frequent bottomland areas have limited the number of Concession roads. The difficulty in keeping them open during the winter is obvious. The paved Scugog road extending to the south, is the only good transportation route present.

The C. P. R. line to Peterborough passes through Burketon Station.

Trade Areas

The one paved road facilitates trade with the southern area. Most farmers visit Burketon Station, Enniskillen, Tyrone and Haydon for every-day perishable goods. Poor roads to Pontypool limits trade to that centre.

Oshawa and Bowmanville are looked to for the more substantial articles. The personal service, rural atmosphere and familiarity in Bowmanville tends to attract the farmers.

Only when the needs of large cities arise, is Oshawa or Toronto visited.

Industry and Manufacturing

Grist mills are located at Tyrone and Enniskillen

Mining

None.

Recreational Areas

None.

Cultural Features

Building	No.	Comments
First Class Farm Buildings	1	Tobacco Farm
Second Class Farm Buildings	5	Reflects good land use.
Third Class Farm Buildings	17	Typically third class area
Fourth Class Farm Buildings	0	———
Abondoned Farm Buildings	13	50% of township total
Rural Residences	0	0% of township total
Churches	1	United
Schools	3	———
Cemetery	1	———
Rural Businesses	0	———
Service Centre	1	Burketon Station

Comments

The physical handicaps of this region are the greatest in Darlington Township. It results in the district containing only 3% of the farms in Darlington. The sole first class farm produces tobacco. To the contrary, the region contains close to 50% of the abandoned farms and illustrate the economical depression of the area.

The area is one of third class farms, a few second class, but no fourth class. This last class would be totally impractical on the Oak Ridge Moraine.

2. The South Slope

Location -- To the south of the Oak Ridge and the 1,000 foot contour is the agricultural region of Darlington referred to as the South Slope. The southern boundary of the area is an irregular line extending in an east-west direction through the fourth Concession. At this point areas of wet and draughty sands are encountered.

Activities

This region has a general type of farming with emphasis on general livestock east of the Scugog Road and dairying west of it.

The topography is typically fluted to drumlinized till. Hillier areas are found near the Oak Ridge Moraine.

All the land is used intensively. The hilliest remain as pasture land while the more level tracts have been placed in field crop production. Wheat, mixed grains, hay

Fig. J Forage crops - typical of the South Slope area

Fig. K Dairy cattle - a common South Slope landscape

Fig. L Animal, machine and man at work during harvest

and corn are the main grains while potatoes, canning corn, peas and tomatoes are frequently planted as cash crops. Large numbers of mixed and beef cattle, purebred sheep and numerous poultry fields are common in the northern sections.

One mink fur farm is found near Haydon. A strong characteristic of the whole area was the large number of pigs and cows associated with and in a similar distribution pattern as corn and other insilage crops.

Even though this area may be considered agriculturally homogeneous, the excellent soils about Solina and Hampton where dairying is dominant, have given this vicinity more agriculture value than the remainder of the farms occupied largely in livestock farming. An average farm in the area contains 150 acres, largely devoted to pasturing and feeds for 25-35 head of dairy cattle, 4-6 sows, their 3 litters of about 8 each, a few sheep and perhaps 200 chickens.

Frequently in the more southern areas, orchards are present but only a small number in this region are of economic importance.

Markets

Milk is shipped daily in this region to Oshawa, Toronto, and Bowmanville.

Livestock is marketed mainly at Toronto and to a lesser degree at the Pickering Farms. Canning crops are sent to Canadian Canners in Bowmanville and Stokely at Whitby. Small quantities of apples are sent to Bowmanville.

Farming Problems

Problems concerned with the stony nature of some soils, inter-drumlin areas of poor drainage, harvest pests, and costs of mechanization (particularly those used in dairying) are among those more serious in restricting agriculture. Soil fertility and erosion are only small problems.

Transportation and Communication

Transportation is affected only to a slight degree by the relief of the area. Fine, well maintained concession roads are common to this area.

The Scugog Road paved and extending southward, is the main artery for traffic to Bowmanville. South of Hampton, the Taunton Road, paved and leading to Oshawa, extends east-west in the southern portion of the South Slope.

Trade Areas

By means of the two paved roads in the area, Bowmanville and Oshawa are the major buying centres. Selection of either centre is largely a personal matter. Bowmanville has the advantages of rural atmosphere and familiarity to attract farmers while Oshawa offers a much larger range of necessities, luxuries, and recreational needs.

Hampton, the second largest centre in Darlington, is located at the paved crossroads and is important for food stuffs for a considerable surrounding area.

Enniskillen, Tyrone, Haydon and Solina, are of local importance as meat and grocery centres.

Industry and Manufacturing

Hampton, Tyrone and Haydon are milling centres.

Mining

None.

Recreational Areas

Both Hampton and Enniskillen have small public parks.

Cultural Features

Building	No.	Comments
First Class Farm Building	29	Concentrated about Solina
Second Class Farm Building	177	Most dominant type
Third Class Farm Building	59	———
Fourth Class Farm Building	2	———
Abandoned Farms	10	———
Rural Residences	48	7% of township total
Residences Under Construction	22	———
Churches	3	United
Rural Schools	5	———
Cemeteries	5	———
Rural Businesses	4	———
Service Centres	5	Hampton, Enniskillen, Tyrone, Haydon, Solina

Comments

This area consists of 45% of the total acreage of the township. Similarly, the rural population of the area is also 45% of the township's total.

The high number of second class and first class farm buildings is indicative of the good farming in the region. Most of the farms about Solina are first class testifying to that area's fine soils and topography. A rather high number of abandoned farms are present. These are located in the more northern sections and represent unsuccessful farming on steeply sloping land or the buying out of farms to provide larger more economical units of land. No recent farm abandonments are present.

Rural residences and residences under construction are common especially in the south of this area. Proximity to Oshawa and Bowmanville is encouraging this urbanization. The pattern of development follows closely the route of Highway No. 2.

The area's large population is reflected in the five Service Centres of the South Slope.

3. The Tobacco Region

Location -- This region is located mainly in the third and fourth Concession blocks east of the Bowmanville Creek. However, some areas in the third Concession west of the Creek, have the same well-drained soils characteristic of the Tobacco Region.

Activities

This agricultural region was at one time Darlington's "poor land". The sandy soils formed by glacial lake beach lines represented a land use problem to the farmers. Drainage through the sand was excessive and soil fertility was low.

General farming was attempted, but resulted in complete failure and large scale farm abandonment. However, in recent years this section of land and particularly that west of the Bowmanville River, which has poorer drainage, has successfully been converted to permanent pasture for dairy cattle. The region, though not prosperous, is at least supporting farms where at one time idle land was present.

East of the River, the soils are undergoing a change in land use. As in the contiguous area to the west, some dairy and mixed grain farming is practiced, but of greater importance are the new tobacco plantations that extend from the southern half of Concession V to the northern half of Concession II (one block deep) and in Concession III and IV in the blocks to the west. It is this area that is experiencing the greatest prosperity on the beach sands. Tobacco proves to be the most profitable type of agriculture but large capital requirements are needed. As this holds back development, the land is being used presently for potato production. The excess drainage and sandy soils favour the cultivation of good grade potatoes.

The sandy soils have caused some people to reforest their lots in order to cut a yearly crop of pine and cedar trees. Most undertakings are by private individuals. However, one township reforestation centre is located on the sandy soils south of Hampton on the Scugog Road.

Thus this apparently useless land, is slowly being converted from poor mixed farming to specialized tobacco, potato, dairy and reforestation farming. The area should be

Fig. G Swamp cedars and urban development on the Lake Iroquois beachline

Fig. H Extraction of sand and gravel in the third concession

Fig. I Third concession - tobacco plantations

one of great future development.

The western section will continue to be agriculturally poor. However, the area is developing a residential function as a suburban district to Oshawa.

Darlington has two horizontal belts of specialized farming -- (1) the interlobate moraine and (2) the Iroquois beach lines. Though these areas vary widely in topography and soils, adjustment to proper use is being attained.

Markets

Except for tobacco which is sold at Delhi Ontario, the products of this region follow the same pattern of disposal as those of the lakeshore farming area.

Farming Problems

Sandy infertile and unconsolidated, excessively drained soil is the major problem of this farming area.

Transportation and Communication

Refer to Lakeshore area (eastern section)

Trade Areas

Refer to Lakeshore area (eastern section)

Industry and Manufacturing

None.

Mining

Limited extraction of sand and gravels along old

lake shoreline. Used for road maintenance in township.

Recreational Areas

None.

Cultural Features

Building	No.	Comments
First Class Farm Buildings	4	
Second Class Farm Buildings	12	
Third Class Farm Buildings	15	
Fourth Class Farm Buildings	3	
Abandoned Farms	6	
Rural Residences	9	2% of township total
Residences Under Construction	2	
Churches	0	
Schools	1	
Cemeteries	0	
Businesses	0	
Service Centres	0	

Comments

All first class farms are in tobacco production. The remainder of the farms are poor third class and average second class. The presence of dairy farms on the pasture land is responsible for the better farms. Also it should be noted that due to the narrow soil belt, some farms are not entirely on the sands but partly upon rich soils suitable for cultivation.

Of significance is the proportionally high numbers

of fourth class and abandoned farms on the beach line soils.

4. The Residential Area

Location -- As a continuation westward of the tobacco region, this area of ill-drained sands is oneof increasing importance. Mainly confined to the third Concession beach line, this district is found almost entirely west of Bowmanville Creek.

Activities

The area is of little agricultural value. Wet, sandy, soil is the main inhibiting factor in cultivation of the land. The farming present is restricted largely to pasturing of dairy cattle. Heavy, wet soils reduce the production of fodder crops. More common use of the land is for residential, permanent pasture, swamp woodlot and waste land.

Markets

Similar to western section of Lakeshore Region.

Farming Problems

The one factor restricting farming, is the poorly drained nature of the sandy soil.

Transportation and Communication

Refer to western section of Lakeshore region.

Trade Areas

Refer to western section of Lakeshore region.

Industry and Manufacturing

Refer to western section of Lakeshore region.

Mining

Refer to western section of Lakeshore region.

Recreational Areas

Refer to western section of Lakeshore region.

Cultural Features

Building	No.	Comments
First Class Farm Buildings	1	
Second Class Farm Buildings	14	
Third Class Farm Buildings	28	
Fourth Class Farm Buildings	4	
Abandoned Farms	1	
Rural Residences	294	46% of township total
Residences Under Construction	39	
Churches	1	United
Schools	2	
Cemeteries	0	
Businesses	15	Located along No. 2 highway
Service Centres	0	

Comments

This region consists of 1/12 the surface area of Darlington, yet contributes only 1/20 of the rural population. These figures plus the predominents of third class farms in-

dicates the low agriculture potential of the land. The better farms are devoted to pasturing of dairy livestock.

By far the most distinctive feature of this area, is the rapid advance of urban dwellings to the idle sandy land. Reasons for this development are threefold --

(1) The development eastward along No. 2 Highway by Oshawa suburbs

(2) Good road communication to Oshawa

(3) Presence of poor farming land and its cheap selling price for residential development.

5. Lakeshore Farming Region

Location -- Found bordering Lake Ontario's shore and extending about 2-1/2 miles north, is the Lakefront region of agricultural.

Activities

Although the district is one of the township's best agricultural regions, and may be differentiated from others in Darlington on the basis of soils, topography, types of farming etc., the region, neverthless, can be subdivided into an east and west part. The Bowmanville Creek may be used as the dividing line although no such distinct break exists, but rather a slow almost unperceptible trend is present. Differing soil fertility, texture and drainage, although slight, have acted to alter the western from the eastern section's land use.

A. Western Area

Farms are classified as "good" in this area. 100 to

Fig. D Dairy cattle, pasture, and apple orchards located on the lake plain

Fig. E Highway 401

Fig. F Undulating limestone plain

150 acres is considered an average size farm. The district has a varied soil pattern but in general, the plain is covered with fertile till loam. The texture is moderately heavy and soils support a general type of farming with some specialized crops. The most important activity is the raising of purebred dairy cattle. This section is in the Toronto-Oshawa Milk Shed but the majority of the farmers send only cream to Orono and Hampton were the two creameries produce butter. This shows well the zoning of dairy products in the Milk Shed. The area is on the margin of fluid milk production and as a result, the liquid is made into solid products. The remainder of the light milk on the farms, is fed to the pigs and calves. This area is also a well developed general farming district. A four year rotation system is used in the fields. If not in pasture or woodlot, the land follows a rotation of oats, barley, hay, wheat and fallow.

A considerable amount of wheat is produced, and shipped to Vanstone's Flour Mill at Bowmanville. However, mixed feed for the livestock is the primary reason for the grains of the area. In past years, the wheat prices have continued downwards until all incentive has been taken from wheat growing as a cash crop.

Peas and corn are grown extensively in the area. Corn is more prevalent as it is used about the farm as feed when its demand as a cash crop is low.

The Canadian Canneries located at Bowmanville, is the chief market for the farmers, but a diminishing market due to over production in some years, has caused the closing of the Cannery several times. It is because of this fact,

that many farmers have reduced production of the two crops. Through competition, this type of farming is rapidly developing into a specialized activity and many farmers are withdrawing from this market.

Another specialized type of agriculture found in the area, is apply growing. At one time, about 50 years ago, most of the farmers along the lakefront of Darlington had several apple trees about the farm. These apples originally were used exclusively on the farm but their high quality attracted much attention, particularly in England. A demand from England, for the fruit, caused most of the "frontal farms" of Darlington to increase their orchards for the new export market. As the number of trees increased, there followed an increase in harmful pests. To check the damage being done to the apples, spraying of insecticides began. When the market became crowded with more prefered apples, the revenue received, was not sufficient to compensate for the costs of growing, spraying and shipping the fruit.

Except for productive orchards east of the Bowmanville River and near the lake front, the commercial significance of the crop is falling. Now most of the fruit is eaten on the farm by humans and animals or even allowed to fall from the trees and rot.

The land is ideal for the production of apples. The terrain is flat but good drainage is present in the heavy loams of the area. The trees receive a moderation in the climate from the lake along the entire width of the township, but the heavier loams east of Bowmanville River have a higher water

holding capacity and nature fertility enabling this area to produce apples successfully.

The general feeling of the farmers is that the orchards are now too old to be good producers. Few new ones have been planted, but although the trees, climate, and soils all invite a renewal of production, the lack of a good reliable market is a major problem confronting the farmers.

Farms visited in the area utilize most land in the production of fodder crops for dairy and beef cattle, veal calves, pigs, sheep and poultry. Fields of peas, tomatoes, and corn were also dominant in the area.

Dairy herds average 25 heads, beef cattle 10 head, and pigs number about 15 to each farm. Sheep are common to the area. Flocks contain 35 to 40 and supply besides meat, 6 to 8 pounds of wool.

Markets

Beef markets are at Toronto and the Pickering Farms, fluid milk is sent to Oshawa and Bowmanville, cream to Orono and Hampton, feed grains to Vanstone's Mill, wool to Toronto, peas and corn to canneries at Bowmanville, Whitby and Courtice and apples to all the surrounding urban sites.

Problems

The main problem of the area appears to be a lack of good markets. Production is not at its peak on the farms and many crops such as peas, corn and apples, have been discarded in favour of livestock farming.

6. Eastern Area

Farms in this area are very similar to those west of the Bowmanville Creek. However, land use varies in the following respects:

(1) Heavy loam soils support concentrated apple orchards

(2) Farms are smaller (on the average 25 acres) in the eastern section

(3) Canning Crops occupy a larger acreage in the east of the township.

Markets

A direct and indirect market for apples is present. The direct market is located in Bowmanville, Oshawa and Toronto while indirect sales at the Newcastle cold storage plant and the Port Hope apple juice cannery are available.

Problems

Tile drainage is needed in many areas where layers of impervious clays prevent proper percolation of water.

Transportation and Communications in the Lakeshore Plain

The area is well supplied with road and rail facilities that parallel the shore of Lake Ontario. The paved four laned No. 401 Highway and the two laned No. 2 Highway provide excellent east-west travel. Following similar routes are lines of the C. P. R. and C. N. R.

A dense pattern of concession roads is present also. The terminals of the Scugog and Manvers Roads which lead inland from the lake, are also on the lake plain.

Trade Areas in the Lakeshore Plain

Located on the plain and supplied with east, west and north road connections is Bowmanville. This centre supplies most of the vital need of the people in the area. The town has a monopoly on the sale of perishable goods beyond the eastern border of the township and as far as Courtice in the west. At Courtice, the transition between Bowmanville's and Oshawa's sphere of dominance is present. Courtice supplies a small local market but the nearness of Oshawa and Bowmanville to the west and east respectively, attract people to those centres.

Oshawa is the cultural and recreational centre for the entire Lake plain and is the site of most purchases of goods not to be obtained in Bowmanville.

Industry and Manufacturing in the Lake Plain

Bowmanville is the sole seat of manufacturing. A full treatment of this topic may be found in the section dealing with "Urban Studies".

Mining

None.

Recreational Areas

Except within Bowmanville municipal limits, the area including the shoreline is void of recreational facilities.

Cultural Features

Buildings	No.	Comments
First Class Farm Buildings	35	Mainly found in south-east.
Second Class Farm Buildings	149	———
Third Class Farm Buildings	24	Western area
Fourth Class Farm Buildings	0	———
Abandoned Farms	0	———
Rural Residences	282	45% of township total
Residences under Construction	55	———
Churches	2	United
Schools	5	———
Cemeteries	2	———
Rural Businesses	20	———
Service Centres	2	Bowmanville, Courtice

Comments

This area covers 30% of the township upon which 47% of the farm population and 45% of the rural residences of Darlington are located. A predominance of second and first class farms, suburban residences, and rural businesses extends along No. 2 Highway, making the area the most productive and heavily utilized agricultural area.

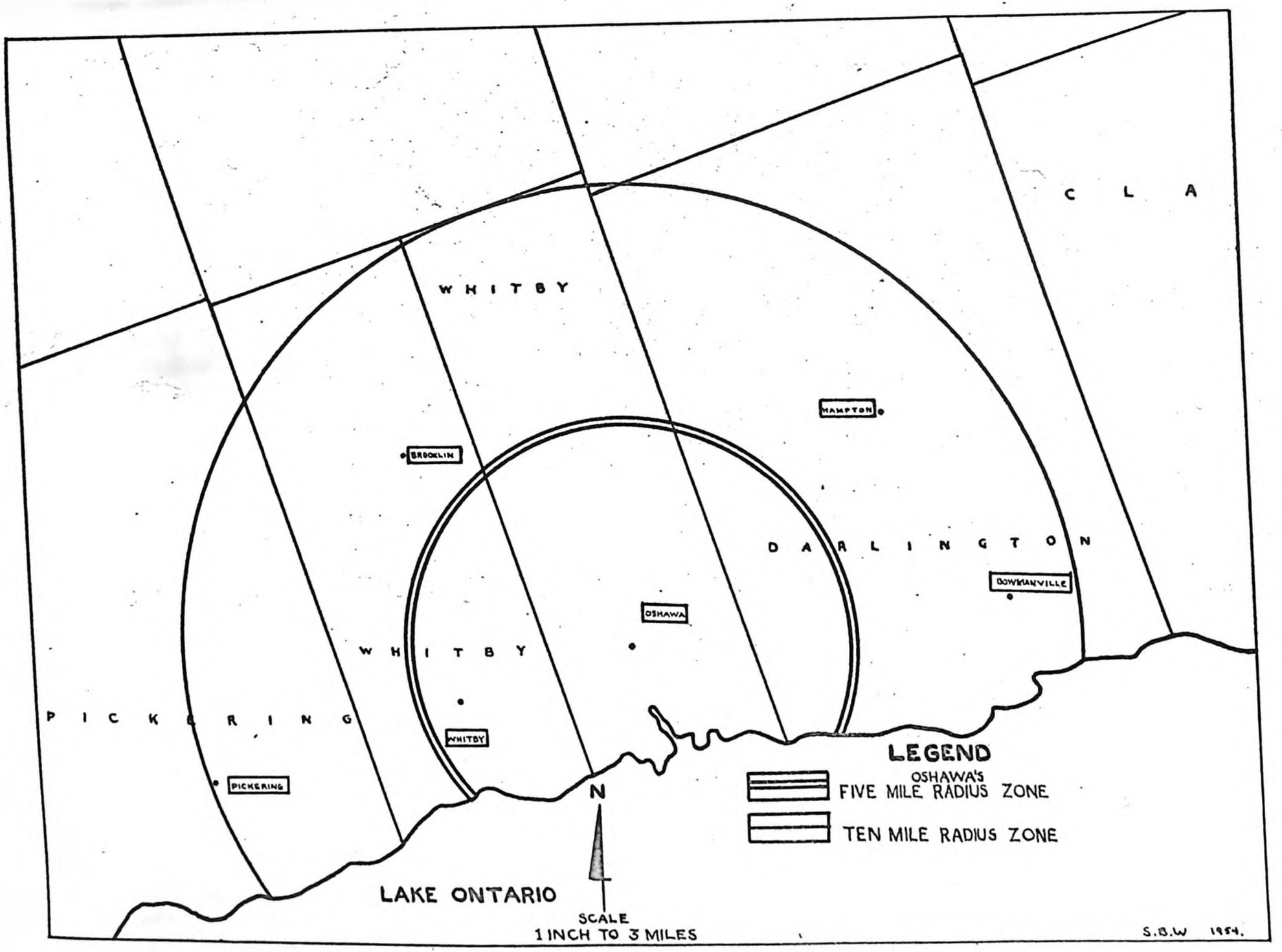
U R B A N G E O G R A P H Y

Method of Study

Before proceeding with the urban study, the leading citizens and interested people in the town were interviewed in an effort to obtain some idea of the town's history, its services rendered to the rural area, the rural areas' services to Bowmanville and possibilities for the town's future development. This information has been of valuable assistance in arriving at the best possible perspective of Bowmanville. It should be emphasized that the businessmen of the town are well organized and are developing plans that will be of advantage to the citizens. Chief of these, is the improvements of highways, in an effort to attract rural people to trade in the town. At present, it is evident that many rural customers take advantage of better highways to Oshawa.

Introduction

The geographer's study of towns, turns attention to many of their varied aspects; their sites, situations, and positions; their spatial growth and areal components; their population numbers; and not least, their manifold functions: industrial, commercial, administrative, residential and holiday-making,-- to cite only the chief ones.



OSHAWA AND ITS URBAN SATELLITES

The Town of Bowmanville

Location

The town is situated north of Lake Ontario, inland about two miles from the shoreline.

Site

Bowmanville's site is on the Lake Iroquois sand and clay plain, 41 miles east of Toronto on the Toronto-Montreal Highway. Immediately north of the town, is the glacial lake beach line. To the west and east are the Soper and Barber Creeks which form a confluence south of the town in the Broken Front and continue to the lake as the Bowmanville Creek. The town is, therefore, encased in an inverted tri-angular shaped arrangement of topographical features.

Though Bowmanville is located near the shore of the lake, the business centre is two miles inland, It must be said that its close proximity to the lake is of no special advantage to the town as harbour facilities are completely lacking. The two streams that border the town, converge on the "flats" south of the C.N.R. tracks and have pushed a course through to the lake -- a course that changes with time. This waterway is navigable only for pleasure yachts and for a few hundred yards from the lake. Because of silting, the harbour must be dredged before commerical use would be possible. East and west of the creek, beaches are being developed as a summer resort with about 125 cottages owned mostly by out-of-town people. As a residential summer resort, this area has possibilities.

History

Bowmanville has always been the centre of a good

agricultural district. The first flour mill was built about 1805. It was incorporated as a village in 1837 and as a town in 1853. It was named after Charles Bowman who, although not one of the first settlers, was then a leading citizen, having married a member of the Raimes family which owned the greater part of what is now the town site.

How the town was originally located, was largely accidental. The original road cut out of the forest between Toronto and Kingston (York Road), led people to settle in a linear pattern facing onto the road. The mill site became utilized at the junction of the road and Creek. This was about the beginning of the nineteenth century. Around this little nucleus formed by the mill, was the beginning of Bowmanville. All agricultural shipments from the north of the township passed through the town on the way to be shipped from the harbour. This constant traffic and terminal position of Bowmanville was responsible for much of the town's early prosperity. The Scugog and Manvers Roads were opened and became the highways to the lake. Thus Bowmanville's development was first based on water transportation, water power and the junction of the York Road, Scugog Road, Manvers Road and Bowmanville Creek.

Like most settlements of the district, the town had a tannery and carding mill by about 1824, its first school was built in 1825 and in 1825 Charles Bowman bought from Lewis, the first store, built four years previously. At this time, the town's population was 118.

By 1840, the centre had grown to quite an extent, keeping pace with Darlington's rapid rate of settlement. The

principal business centre at that time, was on a hill on the bank of the Soper Creek. Three or four stores, a large tavern, and several residences were present. The building of the Grand Trunk Railroad through Darlington about 1854, gave the town its first great impetus. The right of way went through the municipality from east to west about 3/4 of a mile north of the lake, and provided Bowmanville with excellent communications. Present in the town at that time, was a post office, one physician and surgeon, five churches, one grist mill, one oatmeal mill, one tannery, one distillery, one carding machine and cloth factory, one axe factory, one ashery, seven general stores, four taverns, one brewery, one druggist, one pottery, two wagon makers, three blacksmiths, one chain factory, two bakers, two watchmakers, six shoemakers and six tailors.

During the past century, the growth of Bowmanville has been related to

(1) The commercial importance of Port Darlington as the lakeport shipment centre for the surrounding farms.

(2) The passing of the C.P.R. through the town in the 1880's.

(3) The attraction of industry to the area by transportation facilities, power and water surpluses and proximity to large urban markets.

Although always predominately an agricultural centre, the past fifty years progress is due to industrial development both in and out of Bowmanville.

The growth of General Motors in Oshawa made Bowman-

ville a dormitory town for that and other industries. (At present, 500 Bowmanville men commute to work at the "Motors"). Other early industries that came to the town and supplied incentive for growth were --

(1) Jacob Mead's farm equipment foundry (1848)

(2) William Porter's general foundry (1855)

(3) The Upper Canada Furniture Company (1855)

(4) The Dominion Organ & Piano Company (about 1900)

(5) Durham Rubber Company (1906) later Goodyear Tire and Rubber Company (1910). (This was the Goodyear Company's first venture in Canada.)

Other industries were Rehder's Foundry, Durham Textile Company and the Ross Can Company.

Thus Bowmanville has evolved during the development of transportation from a local rural service centre to an industrial town of some significance. However, Bowmanville is still the home of many old families. While this may be true of any town similarly situated, it indicates the strong tendency here that the people are content to retire from the farm to the town and absorb the overflow of population and industry from Oshawa. A net increase in firms in Bowmanville of about 2.3 per year is estimated. This figure is attained on averages for the past few years.

A person-per-family factor of 3.95 when applied to school attendance appears to be sound. While apparently low, it is evident that the number of retired farmers, absence of institutions, and small families, generally have a tendancy to reduce the figure at present and for the future.

Census Population		
1901	-	2,731
1911	-	2,814
1921	-	3,233
1931	-	4,080
1941	-	4,113
1951	-	5,450
1954	-	5,890

Noteworth is the 847 population increase between 1921 and 1931. This was due largely to the expansion of Goodyear and the appearance of new industries. The 1,777 increase since 1941 is a result of post war prosperity and expansion largely in Oshawa and reflected by Bowmanville.

Urban Plan of Bowmanville

The plan comprises the network of streets and waterways within and around the town and includes also the administrative boundaries of the urban centre. All the land this occupies has been given over to public use for easy access to the town.

The privately owned land is divided into blocks of regular shape and possesses building restrictions and order. Roads, railroads and waterways are the major determinants in a town plan. The remaining land is contested for by retail, commercial, financial, industrial, public and quasi-public and residential land use. Each are valued for space and particular location.

The plan of Bowmanville has been governed by several topographical features of the site, and man's influence.

(1) The river induces a north-south development as early travel relied heavily on water transportation to the lake front and Port Darlington.

(2) Conversely, the east and west branches of the Bowmanville Creek inhibit development past their boundaries.

(3) A linear east-west development has occurred along No. 2 Highway. It is on this street, that the Bowmanville business section is found. Originally, the commercial core was linear but expansion has induced a rib pattern to evolve on many of the side streets. King, Temperance, Division and George are illustrations of the phenomena.

(4) Two paved roads, Scugog and Kenvers, parallel the stream northwards and elongate the northern limits of the town. New surveys are located on and off these streets.

(5) In a similar manner, the C.P.R. has influenced development of the town to the north-east. Although still evident, this trend has been greatly modified by road development.

(6) The C.N.R. located south of the C.P.R., travels along the lake front upon marshy ill-drained land, and therefore, promotes no urban development. However, a few hundred feet to thenorth, the new No. 401 Highway running west to Toronto, has initiated an effect on settlement.

As new light industry surveys are being planned along side it, residential development is extending northward to join the original townsite.

It is doubtful whether the St. Lawrence Seaway project will exert an influence on Bowmanville. The lake has declined in importance as a communication route while road and rail transportation from Toronto and Oshawa efficiently serve the town.

Presently only one business centre is found in the town. Residential development will continue to expand northward and east and westward to the Creeks. Industry is most likely to develope along the western branch of Bowmanville between No. 2 Highway and south to the C.N.R. At present, Goodyear and Canadian Canneries are located in this area. Advantages to be found here are-- (1) a plentiful water supply, (2) proximity to the power station and (3) transportation service from a C.N.R. spur line.

Functions of Bowmanville

A contemporary study of Bowmanville has two phases-- (A) the relationship between the town and the region, (B) the town as a unit.

Bowmanville provides the following services to the rural area: (1) distribution and manufacture of goods and food, (2) administrative and judicial, (3) banking and insurance, (4) medical and (5) recreational. In return, the region provides (1) a trade market (2) a labour force for the town and (3) agricultural produce. Most significant is the rural and urban

locations in which these services are utilized -- this is known as the trade area of a town.

The trade areas of particular urban commodities and services vary. However, as outlined in chapter 3, trade areas in Darlington township are vague and mobile in nature. This is particularly true in Southern Ontario, where dense urban development makes any clear and precise pattern obscure. Some remarks can nevertheless be presented. Three centres influence Darlington, These are Toronto, Oshawa, and Bowmanville. Toronto overshadows the whole township. For example, in daily sales of newspapers, Toronto distributes in Bowmanville and the entire township, 2,086. Compared to this, Oshawa circulates about 350 newspapers in the same area and the weekly Bowmanville Paper, The Canadian Statesman, is bought by 5,000 residents of the township.

Thus, if Toronto can be considered the source of light, it then covers the entire township, except where, a shadow is cast eastward into the township by a small sphere of dominance from Oshwaw. Bowmanville then dominates only a small and local area, but influences the entire township.

Finally, it might be said that no trade influence is exerted on the area from the east or north and therefore, it is to the west and Toronto, that these satellite centres Oshawa and Bowmanville are culturly and economically attached.

Bowmanville as a Unit

The Land Use Pattern

(1) Residential - This is the area of least finan-

cial return on land use. The distribution of better homes. indicates in Bowmanville the desirability of those sites for human occupancy. No evaluation of the homes was attempted, but rather a distribution of the various functional areas is presented.

(2) Retail Outlets - The commercial areas outlined for Bowmanville indicate the general circulation of the city and the list of businesses is indicative of the degree of self-sufficiency of the town. Two levels of circulation are present; A central business district along No. 2 Highway and the occasional corner store shopping centre. Special commercial outlets such as car garages and restaurants are located to obtain the maximum passage of trade.

(3) Financial and Office Uses - In this category, banks, insurance companies, doctors, lawyers, and real estate offices produce no goods, but only a transaction of business. These institutions are found in the downtown section of Bowmanville for the ease with which individuals are able to make contact. The banks can afford the 100% (degree of traffic) location in the town. It should be noted that both banks are found on adjacent corners of King and Division.

(4) Wholesale Outlets - Absent.

(5) Industries - Included here are service and light industries. In the first group are bakeries, beauty parlours, barbers, laundries, etc. These sell directly to the consumers and cater to every day needs of the people. These are located in the central business area. The second group produces consumer goods, in which labour costs are high but

raw material cost low, eg. furniture, rubber goods, chemical goods etc. Light industry makes intensive use of land, road and rail transportation therefore, it is found close to these facilities in Bowmanville and in the more peripheral areas where land costs are reasonable. (refer to map for location)

(6) Public and Quosi-public Uses - Included here, are government buildings, schools and parks. These are all found in relation to population distribution in Bowmanville. The one cemetery is located on the outskirts of town due to the little value in financial returns. Other than the natural location of the beach, most other recreational facilities are located along No. 2 Highway.

Functional Land Use Patterns (refer to map)

(1) Residential - (Better Class)

L 5, 6, 7, 8, 9, 10, 12.

K 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 16, 17, 18, 19.

A 2

C 4, 5, 6, 7, 8, 9, 10.

N off Scugog Road

(Working Class)

M 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

K 3, 4,

C 1 to 24.

C 11 to 16.

(2) Areas unlikely to develop in near future

D 1 to 7

F 1, 2, 3, 4, 5, 6, 7, 8. 9.

H 1

(3) Lake Development

E 1 to 7) front areas only
D 8)

(4) Areas available for high class development

B 1, 2, 3.

A 1

(5) New Residential Development along No. 2 Highway

H 1, 2.

J 4, 5, 6.

(6) Central business sections (Retail Outlets)

K 2, 3, 4, 5, 8, 9, 16, 17, 18, 19, 14, 15, (facing King)

(7) Public and quosi-public sites

E 1, 6, 16, 17, 12, 13.

J 1

(8) Leading Industries are located as follows

Goodyear Tire and Rubber Co. of Canada.....J 1

Durham Textile Company.....K 12

Bowmanville Foundry Company.....M 14

R. M. Hollingshead Company.....M

British Canadian Canners.....C 9

Dominion Organ & Piano Co. Limited.....K 13

Hospital.....C 9

Hotels.....K 10

Boys Training School.....A 1

Public Utilities

Power Supply

Electric power is distributed in Bowmanville by the Ontario Hydro Electric Power Commission from Trenton.

Water Supply

The water supply of Bowmanville was increased this year so that there is more than enough for the town's present needs. The lack of sufficient water for new industry has always been used as one reason why the town has not been successful in attracting new plants to the area. The new public utilities water line from the lake, should obliterate that excuse. It seems reasonable, therefore, that with fine rail and road communication, a site on the St. Lawrence Seaway, ample power, a stable civic government and a moderate climate, Bowmanville can look forward to industrial expansion. Bowmanville's previous supply of water was acquired through an eight mile pipe, extending to the north and tapping a natural spring of water on the higher land before it flowed into Sopers Creek.

Gas Service

A gas line from Oshawa, supplies Bowmanville throughout.

Industrial Development

Agriculture

Farming is, of course, the chief industry in the surrounding county. Mixed farming is the general rule. The soil is well adapted and there is no evidence of the industry

declining.

Goodyear Tire and Rubber Company of Canada

This firm employs from 300 to 400 hands in the manufacturing of hose of all kinds, rubber mats, packing, belting, rubber heels, auto accessories, etc. Some years ago, they also manufactured tires, but this part of the business was transferred to New Toronto, which meant a considerable loss to the people of Bowmanville at the time. Goodyear has its own power supply -- using the old Bowmanville station.

Durham Textile Company Limited

This firm employs from 37-50 employees, mostly female, in the manufacturing of hosiery.

Bowmanville Foundry Co.

This firm employs 75 hands in the manufacturing of stove fixtures, piano trimmings, paper dealers' hardware and miscellaneous castings. They are a well established plant.

R. M. Hollingshead Company

This firm specializes in wax and oil preparations for use on automobiles. The business has increased rapidly since the start of operations in 1927. They also have a large sale of wax and oil for household purposes which, according to the manager, has maintained a good sales performance to carry them over the slump periods in the automobile industry. They employ about 45 men. As a branch of an American concern,

they are quite enthusiastic about the future.

British Canadian Canners

This firm employs about 50 workers during the canning season for peas and corn.

Dominion Organ & Piano Company Ltd.

This firm is operating with a staff of about seven. They have a large, well equiped plant, but the demand for organs and pianos has declined with the increased demand for radio and television. Radio cabinet construction has been entered into by the management.

Hotels

There is one old hotel which cannot be considered first class. It is expected however, that it will continue to cater to the transient trade as it is well located on the main street.

Railways

Both the C.N. and C.P. have a staff for stations, freight and express offices, but the total number of railway men is not great.

Labour Supply

Labour is plentiful at most times of the year. Periodical shut-downs at the "Motors" in Oshawa creates an even larger supply in late summer and fall, but frequently mid-summer farm help is lacking due to manpower shortage and better

paying work in Oshawa.

LABOUR FORCE OF BOWMANVILLE

Occupation	Male	Female	Occupation	Male	Female
Managerial	163	16	Manufacturing	719	48
Professional	99	59	Construction	92	0
Clerical	168	125	Transportation	104	3
Agriculture	71	0	Commercial	90	58
Others	3	0	Service	67	92
			Labourers	125	8

All Occupations

Male 1705 Female 413

Educational Facilities

Present in Bowmanville are four public schools and a rapidly expanding district high school.

Hospital

A well equiped, modern, 125 bed, hospital serves the surrounding region of Darlington.

Boys Training School

The school is situated just outside the municipal limits. The surrounding farm consists of 300 acres. The institution is under the control and supervision of the Provincial Government. The boys are not of the convict class, although most of them have been before the courts where instead of being sentenced, they are handed over to the care of the "Big Brother

Movement" and are sent to Bowmanville for proper training and guidance.

Summary

In discussing the present and future prospects of the town with the clerk of the town and township, the following views were expressed:

(1) That the chain stores and mail order houses are detrimental to general business. There are two chain stores and branches of Eatons and Simpsons (Simpsons have a direct connection by telephone with their mail order department at Oshawa) in Bowmanville.

(2) That the extension of good roads north will encourage the farmers to trade in Bowmanville rather than going to Oshawa.

(3) That vacant houses and stores should receive the attention of business men and new businesses encouraged.

(4) That the welfare of independant merchants is essential to the town's welfare.

(5) It is not expected that there will be periods of abnormal prosperity -- neither will there be periods of marked depression, but the opinion is general that slow, steady and stable growth will be maintained during the present period.

Fig. V Bowmanville's main street and commercial area

Fig. W Original site of first trading post at intersection of Scugog Road and No. 2 highway

Fig. X The original mill - a locative factor for Bowmanville

DISTRIBUTION OF HOUSEHOLDS, BUSINESSES AND RESIDENCES UNDER CONSTRUCTION

Street or Avenue	Households	Businesses	Residences Under Construction
Liberty (Manvers Rd.)	177	12	5
Southway Drive	22		
Road "B"	28		
Simpson	16		
Jane	53		1
Road "A"	20		
Road "C"	7		
Brown	23		4
Albert			
Queen	72	6	1
St. George	5	1	
Church	92	10	1
Prince			5
Lambert	5		1
Wellington	61		
Temperance	27	16	
Silver	17	4	
Division	40	7	6
George	11		
Meadowview	4		1
Concession	56		1
Bradshaw	7		
Mann	2		
Lovers Lane	8		
Lowe	8		
Horsey	7		
Cross	12		

Street or Avenue	Households	Businesses	Residences Under Construction
Elgin	64	1	
Carlyle	45		
Alexander	6		
Centre	35	2	
Beach	15	1	
High	31		
Third	6		
Prospect	24		3
Veterans	12		
Lamb	21		2
Odell	13	1	
Rehder	3		1
Edsall	4		2
Second	13	1	
First	1		
Ontario	64	5	1
Jackman Rd.	17	2	
Dinsmans Lane	17	2	1
Scugog Road	63	6	
Hunt	30		
Pine	4		
Duke	64	3	
Anna	6		
Clinton	5		
Chapel	8		
Coleman	3		
Brown	7	2	
Durham	9		

Street or Avenue	Households	Businesses	Residences Under Construction
Albert	7	1	
Victoria	8		
Nelson	9	1	
Argyle	4		1
Park	3		
King	165	125	1

BUSINESSES LOCATED ON KING BETWEEN SCUGOG & LIBERTY STREETS

Mill.....1
Hardware.....4
Gas Station.....9
Dairy.....1
County Registry.....1
Paint Shop.....1
Hairdresser.....5
Storage.....1
Dry Cleaners.....2
Newspaper.....1
Frigid Locker.....1
Glove Manufacturer.....1
Electrical Apparatus.....5
Car Fixtures.....1
Dept. Store Order Office...2
Fabric Shop.....1
Women's Clothing.....4
Bathroom Fixtures.....1
Jewelry Shop.....2
Barber.....4
Dentist.....3
Shoe Store.....3
Barrister.....3
Candy Shop.....3
Flower Shop.....1
Theatre.....1
Children's Shop.....2
China Shop.....1
Grocery Store.....6
Funeral Home.....2
Bank.....2
Post Office.....1
Hydro Office.....1
Drug Store.....3

Dime Store.....1	Bowling.....1
Restaurant.....5	C.N.R. Office.....1
Ont. Dept. of Agriculture..1	Bake Shop.....1
Sports Store.....2	Hotel.....1
Doctor.....2	Bus Station.....1
Meat Shop.....2	Tobacco Shop.....1
Men's Wear.....4	Badminton Club.....1
Health Centre.....1	Lumber Company.....1
Insurance Company.....1	Real Estate Broker.....1
C.P.R. Telegraph Co.....1	Machine Shop.....1
Plumber.....1	Business Shop.....1

Taxi Company.....1

SOME BUSINESSES ADJACENT TO KING STREET

C.N.R. Station	Fire Department
C.P.R. Station	Bell Telephone Office
Cabinet Manufacturer	Furniture Manufacturer
Community Memorial Arena	Salvation Army
Goodyear Company	Seed Store
Pilliards	Knitting Mills
Laundry	Beverage Company
Taxi Company (5)	Public Library
Barrister (2)	Town Clerk
Lawn Bowling	Provincial Police Station
Watchmaker	Blacksmith (2)
Gas Station (4)	Churches (6)
Plumber	Dairy

Grand Totals: Households 1752, Businesses 209, Res. Under Const. 59.

Development of Nucleated Rural Settlements in Darlington

Most of the early towns and villages of Darlington were built on or near Lake Ontario, as the waterways were the great means of transportation. As the township becomes settled, industries began to develop and these were to be found along the creeks and rivers which could supply water power. Hence the fact that most of Darlington's towns have a stream passing through or near them.

Hampton had a similar origin. Beginning with a grist mill Henry Elliott built a saw mill to manufacture the necessary lumber for building the mill, his home and houses for workmen and families. A store was required to supply their needs and cooper shops to make barrels for shipping flour.

The grist mill at Hampton has been in continuous operation since 1851, when it replaced a smaller mill built on the west side of the Creek in 1840. The present mill has a history of 85 years and the beginning of the milling industry in Hampton dates back 96 years.

With no railroad to Bowmanville before 1854, and with navigation closed through the winter, local industries developed to supply local needs. Between 1840 and 1856, the increasing number of mills included one tannery, two saw mills, one grist mill, onemill for full cloth and one woolen mill. Along the Creek using water for industrial purposes, were also two cooper shops, two wagon shops, 2 blacksmith shops, a pump shop and a cheese factory. Totalled, a record of 35 mills, factories and shops were built on the Creek from its origin, west of Enniskillen, through Hampton and Bowmanville and out between the crib work of Port Darlington. once famous as be-

ing the longest pier on the north shore of Lake Ontario.

When Elliott sailed from Devon in 1831, there were practically no settlers in Darlington except along the front. As the centre and rear of the township opened up, Elliott saw his opportunity to build the mill. This small mill served its purpose until 1851. At times, corn and wheat were brought in by ox team from Darlington, Cartwright and Manvers, to be ground. Before the Scugog Road was built in 1841, most of the wheat from the back township had to be brought out to the lakefront during the winter months. Elevators at Port Darlington stored the grain until navigation opened. The winter too was the time for bringing out the pine from the Pine Ridge, in the neighbourhood of the present Burketon, for the sawmills in Hampton and elsewhere. Between 1840 and 1850, the township became well settled. By 1850, the population was 3,600 and 22,735 acres were under cultivation. There was need for a larger mill, and Elliott built the present mill in 1851. Hampton at this time, contained 200 inhabitants, a grist mill, saw mill, post office and church. Today the mill receives western wheat and is largely occupied with the production of mixed feeds of prescribed nutritional value. Most local wheat is now sent to Vanstone's Mill at Bowmanville. Similar in history and development, are the service centres of Enniskillen, Tyrone, Haydon and Burketon Station.

Hampton

This centre has a population of 400, consisting of 102 households, 5 residences under construction and 11 businesses. The businesses consist of a mill, an agent of a

medicine company, a township clerk's office, a United Church, a farm machinery agent, a township works department, two general merchants and three gas stations. Being in the past, a home for retired farmers with small families, Hampton is now developing into a bedroom town for young, large, families. Fifteen heads of families work in Oshawa at the "Motors." Six heads of families work in Bowmanville at "Goodyear". Four heads of families work in Bowmanville at the "Foundry".

Tyrone

This centre contains 48 households, 1 residence under construction and 8 businesses. The businesses are, a mill, a gas station, a school, a United Church, a community centre. and 2 grocery stores.

Enniskillen

Thirty-six households, two residences under construction and nine businesses are located here. Businesses in Enniskillen include a mill, a farm machinery agent, a school, a United Church, 2 gas stations and 3 general stores.

Haydon

Sixteen households, one residence under construction, a school, a United Church, a general store and a gas station compose this centre.

Burketon Station

This C.N.R. station has about it several general stores and farmhouses. Poor surrounding farmland, limits the development of this railway station.

S U M M A R Y

Three main physiographic regions are present in Darlington. The Oak Ridge Moraine is found north of the 1,000 foot contour, the South Slope north of the Iroquois beach lines and the Lake Plain, north of the Lake Ontario shore. In each region, particular topography, soils, vegetation, drainage and human activities are present. This differentiation is even more pronounced when smaller glacial land form regions, such as Drumlinized Limestone Till Plain, Oak Ridge Moraine, Sandy Plains and Iroquois Lake Plain are studied.

Encasing the Bowmanville Creek, Darlington township is drained to the south by many tributaries in a dendritic pattern. Although elevations are 1,000 feet less in the south than in the north, the land slope is not uniform. This facilitates areas of rapid erosion in the north and degrees of siltation in the southern part of the township.

As part of the Lake Forest Climax, 60-70% of Darlington was in tree vegetation at the time of the first settlers arrival. On the sandy soils of the Interlobate area, pines, oaks, maples and sumachs grew. Sugar maples, beech, basswood, ironwood, elm, some white pine and hemlock were characteristic for the limestone till. Poorly drained beechlines foster white and swamp cedar. Elm, silver maple, poplar, elm and yellow

birch, while the better drained sites featured white pine, lacustrine loam soils of the Lake Plain had a sugar maple, beech, elm and pine vegetation, while limestone loam areas were covered with black, rock and red maple, elm, ash and basswood. Throughout the township, one can find variations in the per cent compostiion of the hardwoods to conifers. The degree to which one takes predominance over the other, has a direct relationship to two main factors -- (1) soils and (2) drainage. In the kame moraine, most of the woodlot consists of those trees tolerant to dry conditions. Eighty percent of the vegetation in the remainder of the township was observed to be the swamp type. This reflects the fact, that only those areas whose drainage is too poor have escaped being cleared and cultivated.

According to Dr. D. F. Putnam, Darlington's climate can be classified as a modified human continental type, thus showing the effects of its proximity to Lake Ontario. By and large, the variations in climate are attributed to cyclonic activity, though locative and physiographic features do affect minor changes and set up the basis for division into two or possibly three regions. Rather cold winters, warm summers, a long growing season and well distributed rainfall are favourable to most common mid-latitude crops.

Darlington's grey-brown podsolic soils have developed upon glacial drift materials. Four distinct soil regions, the moranic ridge, south slope, sand belt and lake plain have fostered soil types with varying topography, texture, structure, drainage and agricultural potential.

There were four main phases of settlement in Darlington

(1) The establishment of nuclei settlements at vantage points along the lake shore (1790-1830)

(2) The drive northward through the forest (1830-1860)

(3) The period of commercial grain farming (1840-1890)

(4) The present period (1890-on)

Consolidation of settlement along the lake featured the first period. By 1830, there was one port in the south of the township out of which settlers could move in their push northward for land (ei. Bowmanville--its outlet being Port Darlington). Three factors precipitated the attack northward on the forests.

(1) Increased influx of settler (mainly from British Isles, especially Ireland).

(2) Building of the Dundas or Danforth road through the south part of the county about 1811.

(3) Withdrawal of the law in 1826, which prehibited people, other than contractors for the Royal Navy from cutting timber. (This facilitated private settlement to follow the commercial logging companies).

From Bowmanville, the settlers moved up Bowmanville and Soper Creeks. By 1836, farms were being cleared at various points along the fifth and sixth concessions. By 1860, therefore, the "rush for land" was about over and the process, from this decade on, was one of clearing and draining in preparation for the production of grains. During the period of commercial grain farming, the pursuit of forestry was beginning to take second place to agriculture in a gradual change. It was during this time, that the lake front town of Bowmanville really prospered from agricultural and raw material goods being shipped through Port Darlington to Montreal and the United States. During this

period, main railways were put through the township ie. 1856 the Grand Trunk and in 1904 the C.P.R. This signalled the decline for Port Darlington. By 1870, western grain decreased forest stands and the McKinley Tariff (1890) caused Darlington to slip past its zenith in grain production and population. By 1900 the land gradually began to assume the present pattern of farming, taking cognizance of soil drainage and other physical and cultural factors. About 1900, forage crops, beef and dairy cattle and general livestock were the basis of the new agriculture. Recently, specialized cash crops of apples, tobacco, canning crops and Christmas trees have developed in small, but valuable acreage. Both general and specialized farming are the result of urban growth beyond the western boundary of the township.

Bowmanville is functionally a diversified town. Although primarily based on the agricultural industry; manufacturing, trade and commerce and retired farmers have contributed to its signifigance. Locative factors for the town are varied. Bowmanville's harbour acted as a focal point in the land-water break while the establishment of a mill and the later intersection of the creek with the Danforth Road added incentive to its growth. Bowmanville grew rapidly up to 1881. The population of 3,500 was due to logging operations, milling (ie. local raw material), and the absence of a centralized system of communication in the southern part of Ontario.

Recent growth is the result of the manufacturing of imported materials and the distribution of these goods by rail and road transportation. Future growth will largely depend upon the quality and number of articles produced.

C O N C L U S I O N S

Physical geography is a prerequisite for the understanding of the cultural development of an area. Physiography, climate and geology are the major factors determining soil development and soils are the broadest basis on which human activities may be based.

Bedrock in Darlington is of minor signifigance to the surface configurations. Being for the most part horizontal, it facilitates a dendritic pattern of drainage but has no effect on the physiography, population distribution or land use. Continental glaciation was the means of producing the varied relief and soil development. The drift and its mode of deposition is responsible for the barren backward nature of the Oak Ridge Moraine. Besides the ice contact forms, meltwater of two lobes produced post glacial features south of the third concession in Darlington. Here the water of Lake Iroquois was effective in two ways. First it fostered the level nature of the Lake Plain which in turn is the site of five agricultural soils, transporation routes and most dense settlement in Darlington. Second, the junction of the post glacial water and the shore developed the beachlines, the second of Darlington's two belts of largely idle or areas of specialized agriculture. Glaciation therefore, is only res-

ponsible for the physiography but for soils and land use.

The most important factor limiting the growing period in Darlington is the temperature variation. The continental type of climate has encouraged a long and varied list of crops and activities to progress in south-central Ontario. It must be said therefore, that climate is signifigant because it has little inhibiting effect on human activities.

Soils, largely derived from fertile glacial drift, modified by mode of deposition, drainage, and vegetation, have a great influence on the human geography. Agriculture is particularly effected by the soil types. Population patterns and land use are closely allied to the soil fertility and physiography of the area. Darlington being largely an agricultural district, depends greatly on the soil, thus placing this one physical element above all others in geographical signifigance.

Today, Darlington Township can rightly be called a region of transitional agriculture. The fruit, canning crop, dairy and poultry farming belt of the north shore of Lake Ontario, extends inland to the third concession block. On the sandy well-drained soils of the third concession is found the rapidly expanding tobacco belt which extends eastward out of the township. The western dairy belt of southern Ontario, centred about the head of the lakes and Toronto, has its eastern limits in the western and south-west of Darlington. The remaining land to the north and north-east, is the southern extension of the central Ontario general crop and livestock belt. Varieties of soil, population distribution, nearness to transportation and the moderation of Lake Ontario, are the major factors contributing to the signifigant conclusion that

Darlington has a transitional nature in land use.

The evolution of present day rural land use was guided by

(1) Environmental resistance which dictated certain limits to farming on a physical basis eg. unsuccessful attempts at flax growing.

(2) Available markets - eg. wheat cultivation for export to Montreal and United State markets.

(3) Competing land use - eg. development of western wheat.

(4) Urban development based on increased manufacturing and transportation.

Although specialized agriculture predominates in physically qualified locations, usually determined by drainage and topography, the essence of agronomic types is concerned with supplying the fundamental needs of a growing urban population. To accomplish this, most farms are occupied in crop and livestock and/or dairy farming.

Invariably it is a combination of physical and cultural factors that locate and determine the land use. Physiography, climate and soils are the main physical determinants while history, available markets, transportation and rival crops further alter the agricultural pattern in Darlington. Most signifigant in determining the agriculture regions are soils and physiography -- a contrast to the 19th century tendency of ignoring physical factors in grain farming.

Bowmanville's development has stemed from the early lake-port functions of Port Darlington. Contemporary functions include (1) trade and service relations with the local hinterland and (2) the site of manufacturing establishments pro-

ducing nationally distributed goods. The remaining small concentrated settlements in Darlington's rural area are located on the Bowmanville Watershed and engaged in milling and farming.

BIBLIOGRAPHY

Chapman, L. J., Putnam D. F. The Physiography of Southern Ontario, 1951

Coleman, J. T., History of Early Settlement of Bowmanville and Vicinity, 1875

Durham - Northumberland Atlas

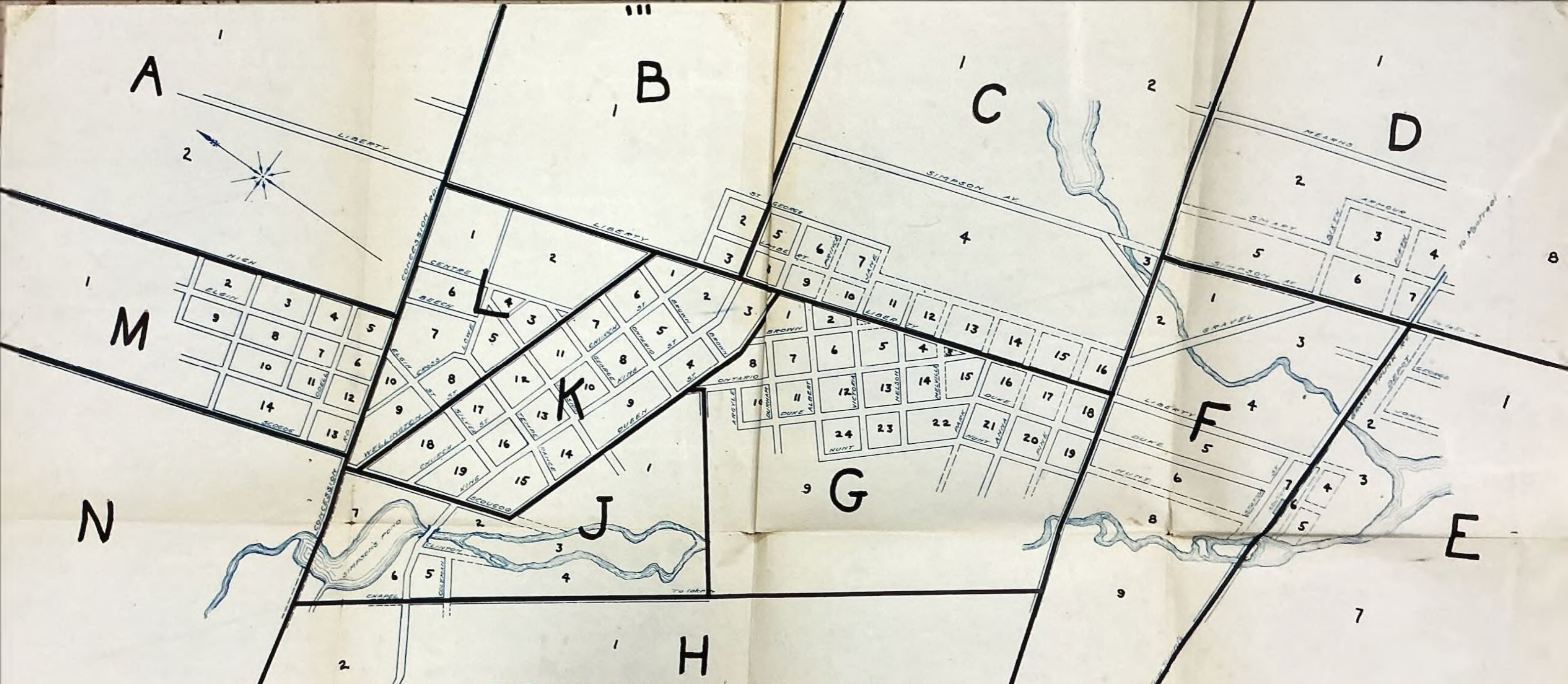
Ganaraska Watershed, 1944

Gunn, W. W. H., Report on Wildlife Survey Durham County, 1947

Squair, J. The Townships of Darlington and Clarke

Surveyors Reports - Archives

Webber, L. R., Soil Survey of Durham County, 1946



BOWMANVILLE, ONT.

Scale: 1"=500'