

**THE UMLAND OF HAMILTON, ONTARIO**

by

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## INTRODUCTION

Every city possesses an umland, an area adjacent to the city, within which economic, cultural, and social activities are focused on that city.

The size of the umland is determined chiefly by two factors, the size of the city, and its location. A large city usually will have a large umland, but if it is situated in an area of urban concentrations, the extent of the umland will be limited through competition.

Hamilton is a city such as this. Near it is Toronto, a large and influential city which restricts Hamilton's regional development. Closer are the smaller cities of Guelph, Galt, Brantford and St. Catharines, all of which have their own umlands, and all of which compete with Hamilton.

The term umland implies an interrelationship between the city and the region. The city performs services for the region, and distributes goods to it. In turn, the region supplies provisions for the urban market, and workers and buyers for its industrial and commercial enterprises.

This relationship may or may not be close. Hamilton is an industrial city, with little dependence on the region. However, the region looks to the city to supply some of its needs.

It is the purpose of this thesis to show the relationship between Hamilton and its umland, and to explain some of the factors which determine the extent of that umland.



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**THE UMLAND OF HAMILTON**



## CHAPTER I

### THE LOCATION OF HAMILTON

The city of Hamilton is strategically situated at the western tip of Lake Ontario, at the merger of the two main commercial axes of the North American Continent. To the north-east runs the Great Lakes-St. Lawrence River Waterway, on which have grown the great cities of Montreal, Toronto, and Windsor. To the south-east runs the Mohawk-Hudson Valley, the gap which provides an easy link between the Atlantic seaboard and the American Middle West. At one end is New York, at the other, on the Great Lakes, are the important cities of Cleveland, Detroit, and Chicago.

Hamilton benefits from its position on the lakes, and from the proximity of the centres of commerce and industry in the United States.

The Great Lakes are important in that heavy raw materials may be transported cheaply to Hamilton industries. To the north lies the Canadian Shield, with its rich mineral deposits, and to the south are the Appalachian Mountains. Iron ore is brought by water from Lake Superior, and coal by rail and water from the Appalachians. These form the basis of Hamilton's iron and steel industry.

Two trunk rail lines also serve Hamilton. The cheap and efficient transportation provided by water and rail mean a rapid and easy assembly of raw materials, and distribution of finished products. Goods flow easily to the Maritimes or the Prairies, to the north or to the United States.

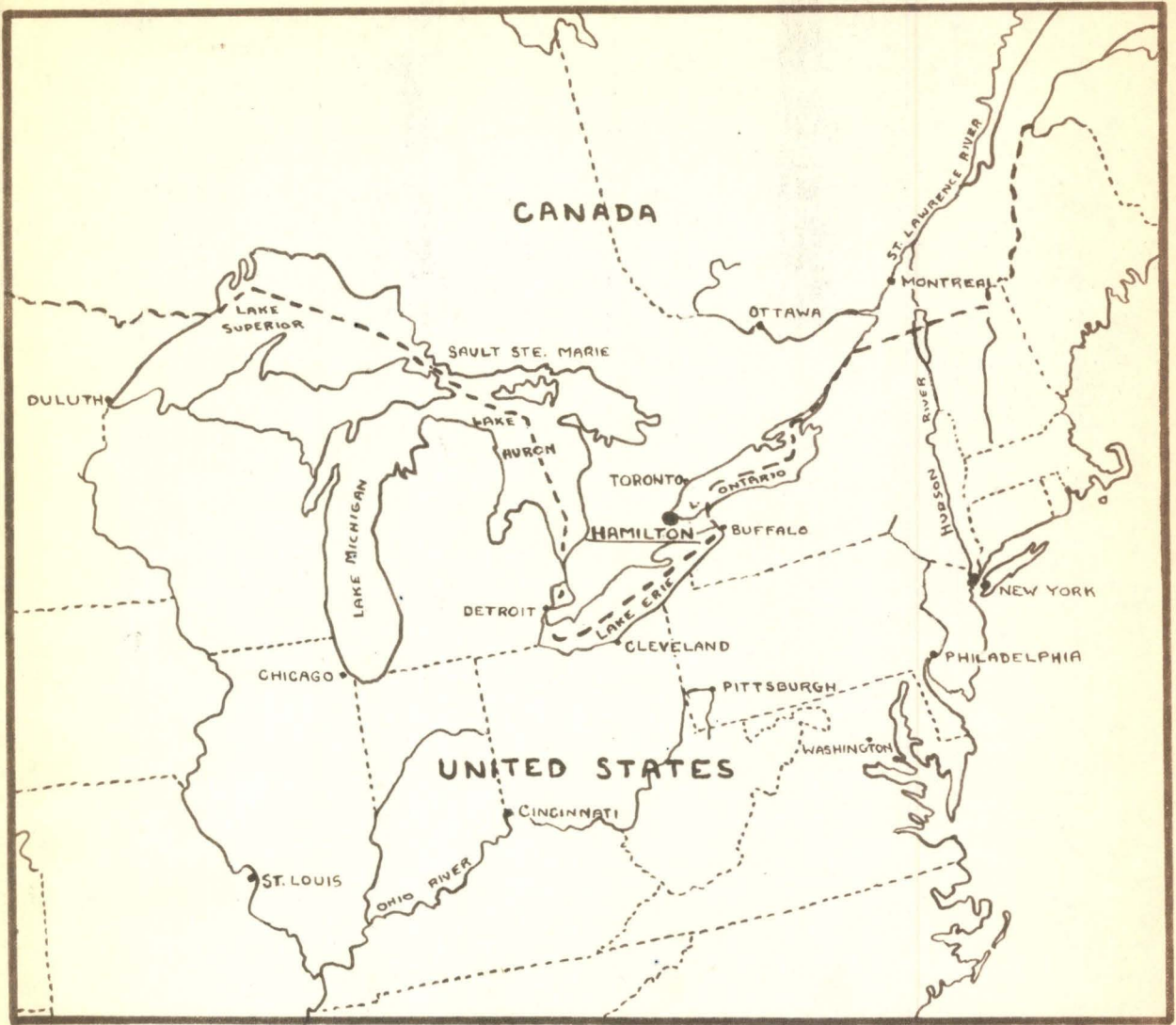


FIG. 1 CONTINENTAL LOCATION of HAMILTON



The position of southern Ontario, jutting as it does into the economic heart of the United States, brings Hamilton into close proximity with American industrial and commercial activity. This has led to an influx of American capital and industry, and has stimulated Canadian enterprise.

Thus the continental location of Hamilton is important.

## CHAPTER II

### THE HAMILTON REGION

Equally as important as the continental situation of Hamilton is its location in a prosperous agricultural region. Mixed farming, dairy farming and fruit and vegetable production, all are practiced near Hamilton.

Since it is the purpose of this thesis to determine the extent of the upland of Hamilton, it will be necessary to describe the area within which the upland falls. The area extends northward as far as Toronto, westward to Kitchener, and south-east to include the whole of the Niagara Peninsula.

The region may be divided, for description, on the basis of physiography. Fig. 3 shows the divisions made by Chapman and Putnam, in "The Physiographic Regions of Southern Ontario".

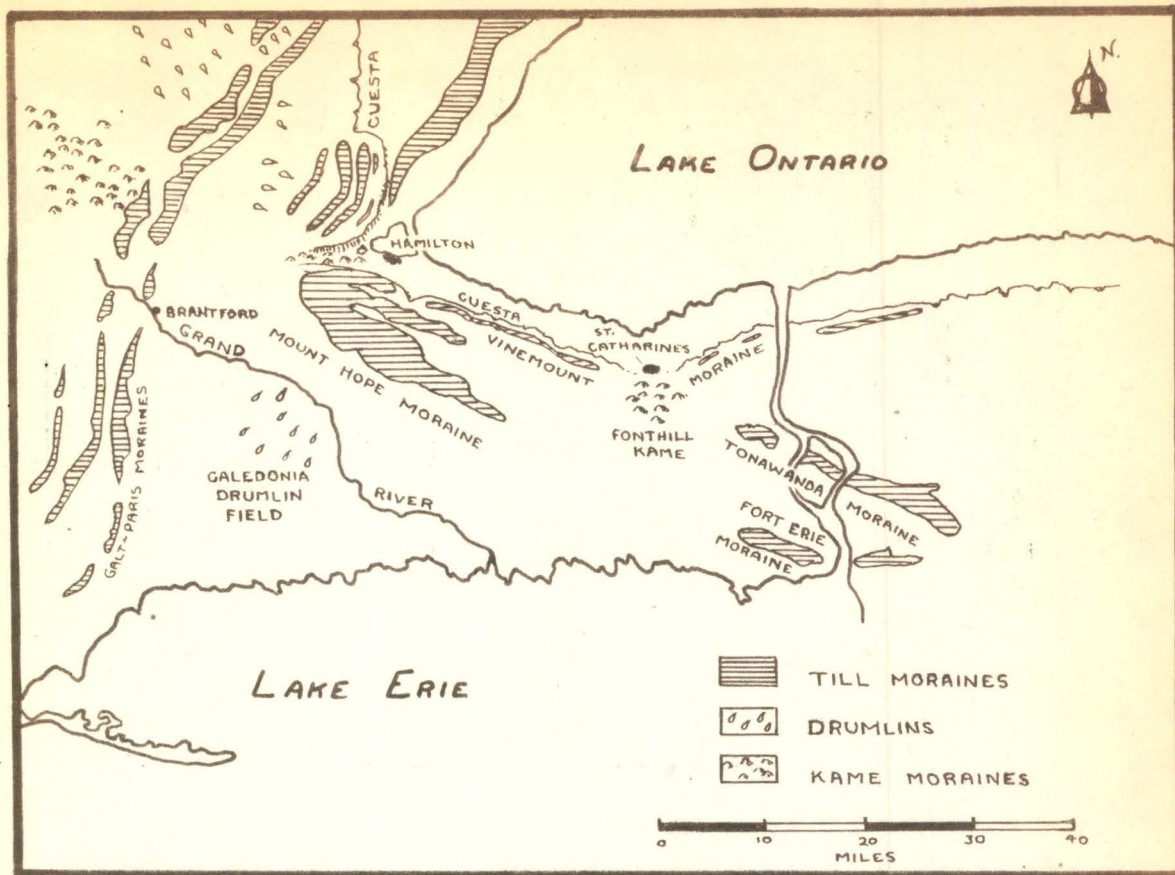
#### The Niagara Escarpment

The Niagara Escarpment dominates the region, its steep slopes, which are preglacial in origin, making a three hundred foot drop in the Niagara Peninsula from the Haldimand Clay Plain to the Iroquois Plain. North of Hamilton, the escarpment rises in elevation.

In places, these slopes are mantled in glacial debris. The Dundas Valley, which also is pre-glacial in origin, was partially filled in Pleistocene times with moraines and deltaic deposits. (Fig. 2)

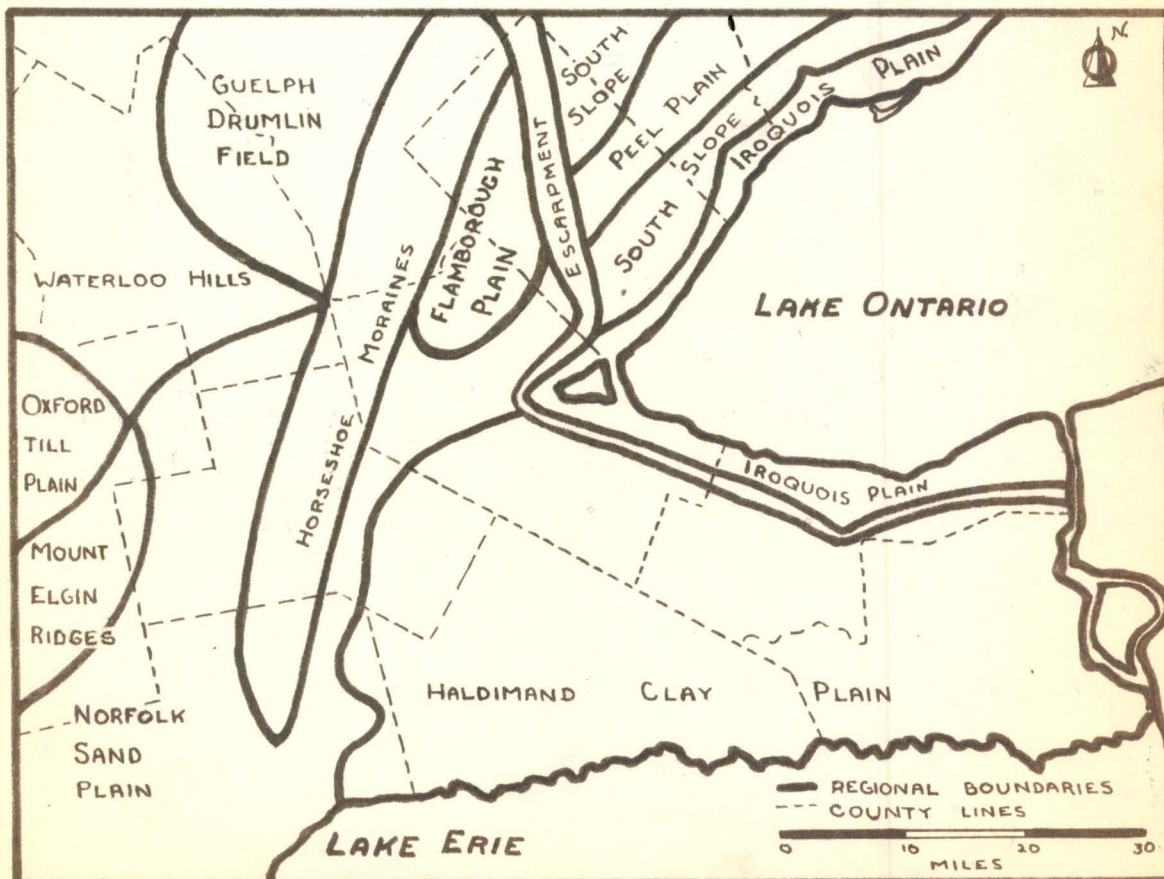
Agriculture is limited to the gentler slopes and terraces at the base of the escarpment. Because the hard





After Chapman and Putnam and J. W. Watson

FIG. 2 GLACIAL FEATURES in the HAMILTON REGION



After CHAPMAN and PUTNAM

FIG. 3 PHYSIOGRAPHIC REGIONS



red clay soils of the scarp face erode rapidly, permanent pasture and woodland are the most common type of land use here.

#### The Haldimand Clay Plain

On the dip slope of the escarpment is the Haldimand Clay Plain, which extends southward to Lake Erie. In the north of this region, the level relief is broken by a series of morainic hills left by the ice lobe which occupied the basin of Lake Ontario. Later, the whole area was submerged under glacial Lake Warren. Lacustrine clay and silt were deposited over the entire region. In the south, the relief is that of a typical level lake plain. To the north, the clay and silt were deposited between the moraines, but did not completely fill the depressions, and the relief is gently rolling.

Near Caledonia, there are other evidences of glaciation and submergence. The drumlins of the Caledonia Drumlin Field are partially buried in clay. In various sections of the plain there are also gravelly beaches and sandy deltas of the former Lake Warren, as at Ridgeway and Ridgemoor. The names of these villages reflect the origin of the materials found nearby.

Poor drainage characterizes the region. To the north there are patches of poorly drained soils in the high ground between the Twenty Mile Creek, the Forty Mile Creek, and the Welland River. Near the Grand River the drainage



is better, but toward the south-east, there are large undrained areas in which the Wainfleet and Humberstone peat bogs have developed. The soils of Welland County are nearly all heavy clays, and in Moulton and Canborough Townships there is a large area of poorly drained sand, silt, and clay. The better drained soils are found on the morainic material on the beach strips, and also near the Grand River.

Climatically, also, according to Chapman and Putnam, the Haldimand Clay Plain is a distinct region. It has a climate modified by the lakes, but to a lesser degree than the section below the escarpment from Hamilton to the Niagara River. The mean winter temperature is 23° to 24°, the mean summer temperature is 66° to 67°, and the average precipitation is 33.8 inches, of which over half falls in the growing season. The growing season is approximately two hundred days, the frost free period 160 to 135 days, becoming fewer as one goes inland from the lakes.

The factors of physiography, soils, and climate have a profound effect on agriculture, as has the proximity to urban markets. General farming, with concentration on livestock, is the usual type of agriculture, for the poorer soils may be utilized for pastureland when they can not be cultivated.

But specialization is developing in response to the demand of urban populations for milk, vegetables, and fruit. Near the brow of the escarpment, and along the highways close to Hamilton, dairying is becoming increasingly important, the farmers keeping Holstein, Jersey and Guernsey cows rather than



dual purpose or beef cattle. This trend also is evident on the better drained soils near Lake Erie. On the lighter textured and better drained soils of moraines and old beaches, fruit culture and market gardening have developed. Peach orchards and vineyards appear on the Vinemount Moraine, and the Fonthill kame moraine, though limited to a degree by severe winter temperatures. Near Niagara Falls, Welland, Ridgeway, and Fonthill truck crops are grown.

#### The Norfolk Sand Plain

To the west and north-west of the Haldimand Clay Plain is the Norfolk Sand Plain, the silts and sands of which were laid down as deltaic deposits in glacial Lakes Warren and Whittlesey. Near the streams the drainage of the plain is good, even excessive, but between the streams, and in the north between the moraines, there are areas of wet sand and bog.

The soils are sandy, and often coarse, infertile, subject to erosion, and poorly drained.

Climatically, the area is similar to that of the Haldimand Clay Plain, but there are significant differences in the north where the winters are more severe and a little longer in duration.

Agriculturally, the better drained soils are suitable for field crops such as fall wheat, oats, potatoes, and turnips. In the western part tobacco is becoming increasingly significant with rye as a rest crop. Climate is the limit-



ing factor on fruit production which is of little importance in the region. In the poorly drained areas, livestock raising and dairying are important.

#### The Horseshoe Moraines

Cutting through this sand plain from north to south is the area termed by Chapman and Putnam, the Horseshoe Moraines. The moraines are rough and stony, and contain much gravel and sand.

On some of the dry terraces there is fertile, loamy soil, but over much of the area the soils are thin, stony, infertile, and poorly drained. There are several areas of marsh and cedar swamp, and much of the land now cleared should be reforested.

The land is utilized chiefly for livestock production. Chickens, sheep, hogs, beef cattle, and to a lesser extent, dairy cattle are all important. Land use is limited by physical conditions.

#### The Flamborough Plain

Between the northern section of the Horseshoe Moraines and the Niagara Escarpment is the Flamborough Plain. This is a limestone plain, in areas of which the bed rock is exposed, and which is covered with boulders, clay, sand, and gravel, and dotted with drumlins.

Most of the soil is thin, wet, or stony, and the little which can be cultivated well is on the deeper gravel terraces or on the drumlins. There is much swamp, of which



Beverley swamp is an example.

Agriculture in this area is limited by the soil conditions. Livestock raising, including dairying, predominates.

### The Iroquois Plain

The most prosperous region to be considered is the Iroquois Plain, the narrow strip of land adjacent to Lake Ontario which was inundated by Lake Iroquois in late Pleistocene times. Much of the material in the area was reworked or deposited by this glacial lake.

Within the area, the soils differ appreciably because of the differing parent material on which they were formed. From Hamilton to Stoney Creek are well drained gravelly loams which developed on gravelly ridges. From Stoney Creek to Grimsby are red clay soils, which are heavy, rather impermeable, and hard to work, having developed on Queenston shale. East of Grimsby, the soils are sandy, but since these overlie clay, drainage is sometimes impeded. Between Hamilton and Toronto are sandy soils developed on deltaic material brought down by rivers to Lake Iroquois, and also alluvial soils in the lower valley of the Don, Credit, and Humber rivers.

Climatically, the section of the Iroquois Plain on the north shore of the lake differs from that on the south. Winds from the north are modified as they blow southward across Lake Ontario. The escarpment protects the south shore from any cold winter south winds. Therefore the southern shore of the



of the lake has a more moderate temperature than has the north shore. The climate of this latter section of the Iroquois Plain resembles that of the Haldimand Clay Plain.

There are significant differences in climate on the south shore of the lake below and above the escarpment. On the Iroquois Plain, the mean winter temperature is  $25^{\circ}$ , and the mean summer temperature  $68^{\circ}$ , only  $1^{\circ}$  to  $1\frac{1}{2}^{\circ}$  higher than that above the escarpment. The important difference lies in temperature extremes. Below the cuesta, the winter extremes are from  $-12^{\circ}$  to  $-16^{\circ}$ , while above they are  $-21^{\circ}$  to  $-35^{\circ}$ . The frost free period is 158 days below, as contrasted to 160 to 135 above, and the growing period is 212 days below, while it is 200 above.

The climatic difference is reflected in land use. Both areas have good soil, but between Hamilton and Niagara Falls stretch the famous peach orchards and vineyards of the Niagara Peninsula; while toward Toronto, emphasis is on vegetable crops, on small fruits and the apple, all of which are less sensitive to temperature extremes.

Sandy and well drained soils are most suitable for fruit and vegetable production, and the climate is favourable. However, these specialties have grown up because of the demand for them from this most populous section of Ontario. The produce is sold to local city markets and is shipped to all parts of Canada.



### The South Slope

To the north of the Hamilton-Toronto segment of the Iroquois Plain lie the South Slope and the Peel Plain.

The South Slope is an area of rolling topography. The southern section is dominated by the Trafalgar moraine, whereas the northern section is mostly ground moraine, and the relief more subdued.

The soils are mainly clay loams and shaley tills. Some areas are poorly drained and the soils tend to be infertile and hard to cultivate.

The climate is more rigorous than that of the Iroquois Plain or the Haldimand Clay Plain, the winter being a little longer and the temperature extremes greater.

Agriculture is greatly influenced by physical and economic conditions. General farming is still most important, but urban demand is causing an increase in dairying, and in vegetable and fruit production. The climate prohibits the growth of soft fruits, but apples thrive. Market gardening is practiced in the south in the areas where the soils are sandy and well drained. Toward the north, more hardy vegetables, such as potatoes or squash, are grown. Where drainage is poor, the land may be utilized for pasture. Dairy cattle now outnumber beef cattle because of the increased demand for milk from the cities.

### The Peel Plain

The Peel Plain is a level to undulating area of clay laid down in a short lived glacial lake, and is under-



lain by glacial deposits.

Most of the soils of this region are heavy, calcareous clays, some of which are imperfectly drained. There are also strips of sandy alluvial soils deposited by the rivers along their banks, and a patch of sandy material of deltaic origin in Trafalgar township.

The climate of the Peel Plain is the same as on the South Slope.

This area is utilized for agriculture; 87 per cent. of the land is improved and 70 per cent. of this is under field crops. The fertile clay soils are well suited to general mixed farming and dairying. Where the soil is sandy, a few orchards and market gardens have been established, for example at Unionville, but these are limited by heavy soils and by extreme winter temperatures.

To the west of the areas already described lie four which are on the fringe of Hamilton's sphere of influence and which therefore will be considered only briefly.

#### The Guelph Drumlin Field

The Guelph Drumlin field is predominantly an area of drumlins. The till is loamy, calcareous, and tends to be stony. Most of the soil is well drained and fertile, but there are marshy areas between the drumlins. The climate is similar to that described under the South Slope.

Mixed farming is predominant, with emphasis on hay, cereals, fodder corn, potatoes, and turnips, and on livestock. Dairying is important only near the city of Guelph.



### The Waterloo Hills

The Waterloo Hills get their name from the hilly nature of the kames and sandy ridges which cover the area. The relief is rough and there are several swamps and kettle lakes.

The soils are well drained fertile sandy loams, but some have been seriously eroded. The climate is similar to that of the South Slope.

Agriculture is concerned chiefly with cereal production, and hog and poultry raising. It reflects the tenacity and vigour of the descendants of the German and Pennsylvania Dutch settlers who predominate in the area, rather than natural factors.

### The Oxford Till Plain

The Oxford Till Plain is gently rolling and is dotted with drumlins. Most of the soil is well drained, fertile loam and contains few stones, although there are a few areas between the drumlins where drainage is poor. The climate again is more severe than that close to the lakes. Dairying predominates.

### The Mount Elgin Ridges

The Mount Elgin Ridges are clay or silty moraines between which are alluvial deposits of gravel and sand. The soils on the morainic ridges are well drained clay loams, while those of the hollows are poorly drained silt loams, loams, and sandy or gravelly loams. Climate is like that of the Haldimand Clay Plain.



The agricultural picture reflects the differences in relief and soils, for the ridges are cultivated and the valleys are left in woodland or in pasture. Dairying is important.

### TRANSPORTATION

Transportation routes perform the vital role of linking a region together. They provide the means by which people and produce come to the city, and by which goods and services are distributed from the city throughout the region.

The pattern of transportation routes radiating from Hamilton reflects the importance of this city as a focal point of the region. Railways link Hamilton with the other important cities of the region and with those beyond its borders. Highways join the main cities and towns, and country roads pass through the tiny villages. Thus Toronto, Guelph, Kitchener, Galt, Brantford, St. Catharines, Welland, and Niagara Falls seem tied together by the highway network.

The railroads and roads which carry the greatest volume of traffic join Hamilton to Toronto and to the cities near the American border. Of next significance are those to the west of Hamilton, while the roads and railways immediately south of the city are of least significance. This shows the relationship of urban centres and transportation routes. The roads joining the cities are busiest; those through rural areas carry less traffic.

The pattern of transportation routes also shows the influence of physiography. The Niagara escarpment is the



most controlling feature. Wherever possible, railroads and highways have taken advantage of breaks in the cuesta to climb the three hundred feet to the higher level. The Canadian National Railway runs east from Hamilton along the level Iroquois Plain as far as Merritton. There it joins the Lake Erie level by an easy grade because the scarp has been mantled in glacial debris and dissected by the Twenty Mile Creek.

In contrast, the Toronto, Hamilton and Buffalo Railway has to make a long sustained climb up the cuesta between Stoney Creek and Vinemount. Even steeper is the grade made by the Canadian National Railway at Dundas. A pusher locomotive is sometimes necessary to assist long trains to the top.

The highway pattern also shows the influence of the escarpment. From Hamilton toward St. Catharines run the Queen Elizabeth Way and Highway No. 8, taking advantage of the level Iroquois Plain below the escarpment. From Hamilton to Toronto run the Lakeshore Road and the Queen Elizabeth Way, which also follow the Iroquois Plain. To go west or south from Hamilton, however, it is necessary to climb the escarpment. Highway No. 20 occupies a break in the cuesta south of Stoney Creek. Other roads, notably Highway No. 6 to Guelph, ascend steeply because no point of dissection is available.

The re-entrant of the Dundas Valley would be more valuable for transportation routes were it not par-



tially filled with morainic material. Only Highway No. 99 (the old Governor's Road) and the T. H. & B. railway go directly through the kame hills, and both these are of secondary importance.

South of Hamilton the escarpment is especially steep because of the action of Lake Iroquois at its base. This means increased difficulties for the highways, and the scarp-face is criss-crossed by several diagonal roads.

Land use and minor physiographic features, such as marsh or bog, help to explain the distribution of secondary roads. However, main highways tend to follow the shortest route between cities.

The railways were formerly more important in the region than they are now. Improved highways and the increased use of motor trucks for local traffic mean that the railways are used almost entirely for long distance hauls. Railways have high terminal costs and low line costs, while truck transports have lower terminal costs and higher line costs. Therefore it is profitable for a firm to ship goods long distances by rail and short distances by trucks. Goods often are sent by rail to "route centres", points at which transportation routes are concentrated, for redistribution by truck. The gaps left by the railway network are being filled in by fleets of trucks.

The good highway network necessary for truck delivery throughout the region also means that rural dwellers are able to go to the city more easily to shop. No longer



is it uncommon for a farmer to own a car. He tends to go to the city for more and more of his shopping and therefore, the influence of the city in the region is growing at the expense of the small town.

In conclusion, it may be said again that transportation routes link the region together.

### POPULATION

The distribution of population within the region is significant because it emphasizes the importance of urban areas and reflects land use.

Fig. 4 shows the distribution of towns and cities, while Fig. 5 is a dot map of population distribution.

The distribution of cities and their relative size and importance helps to determine the extent of the unland of Hamilton. The larger the city and the closer it is to Hamilton, the more restrictive will be its influence through urban competition.

The largest city is Toronto, with a city population of 675,754 and a metropolitan population of 1,117,470. It is the second city in size in the Dominion, is the capital of Ontario, and the leading city of the province in industry, finance and commerce, and in social and cultural activities.

To a degree, all parts of Ontario fall into the sphere of influence of Toronto. Hamilton is only forty miles away, and for some services, especially social and cultural, Hamiltonians go to the larger city.



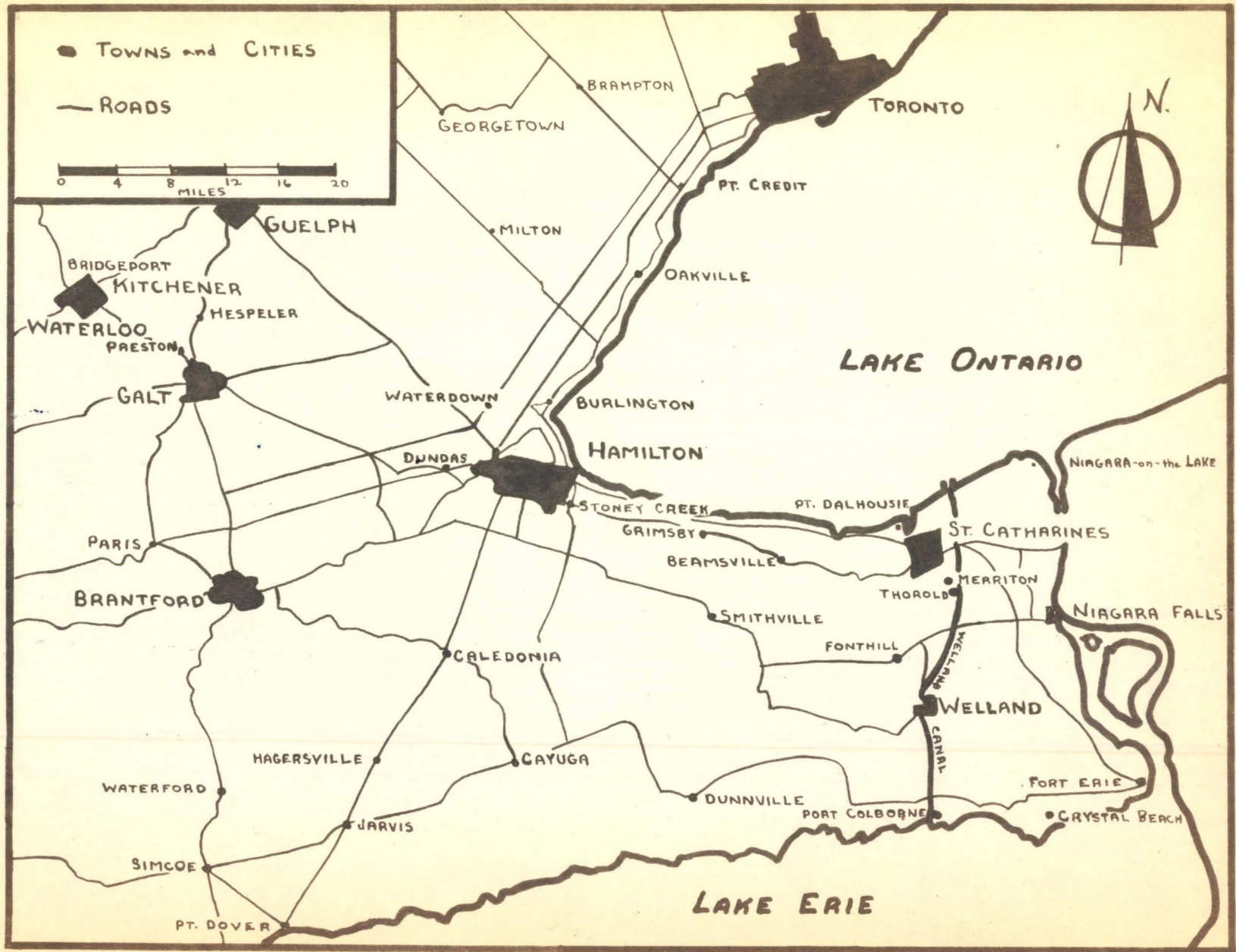


FIG. 4. DISTRIBUTION of TOWNS and CITIES



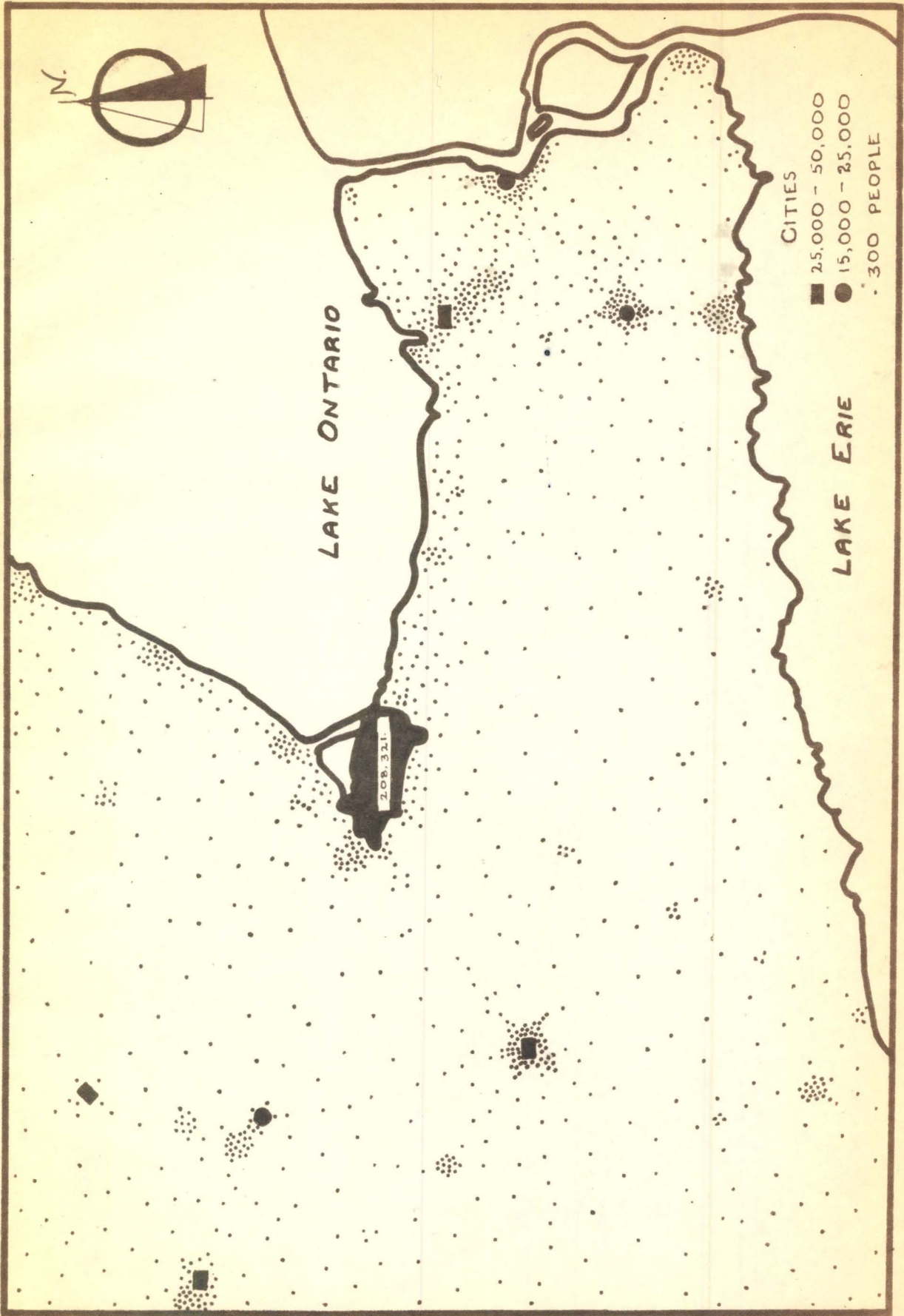


FIG. 5. POPULATION DISTRIBUTION



Twenty-eight miles to the north-west of Hamilton is Guelph. It is situated in the rich agricultural Guelph Drumlin Field and is a growing manufacturing centre. The population is 27,386 in the city and 30,387 in the urban area.

Kitchener-Waterloo is thirty-six miles from Hamilton and has a population of 64,000 in the conurbation. It is important for industry.

Galt is twelve miles closer to Hamilton on the Kitchener-Hamilton highway. It also is a manufacturing city with a population of 19,200. Because it lies on the road between Hamilton and Kitchener, its influence is often felt more than that of the larger city west of it.

Brantford is twenty-four miles west of Hamilton, in the northern extremity of the Norfolk Sand Plain. It is a centre for the manufacture of secondary iron and steel goods, textiles, flour and feed. The population is 36,727 within the city limits and 50,000 when the adjacent built-up areas are included.

St. Catharines' chief function is manufacturing. It is situated on the Iroquois Plain forty miles east of Hamilton and has a population of 37,984 in the city and 67,065 in the urban area.

Welland is a rapidly expanding manufacturing city with a population of 15,382 in the city and a population of about 27,500 in the urban area.

Niagara Falls has a population of 22,874 with 17,729 in the adjoining area. It is a manufacturing centre,



a tourist centre, and a United States port of entry. It is forty-eight miles east of Hamilton.

Thus there are several grades of cities in the region based on the population in the urban areas. Toronto is the largest in the hierarchy, followed by Hamilton with a population of 208,000 in the conurbation. St. Catharines, Kitchener and Brantford all are over 50,000, Niagara Falls and Guelph are between 30,000 and 50,000, while Galt and Welland are under 30,000.

In these figures are included the populations of suburban towns near each city from which workers commute daily. Much of the working population of Waterdown, Ancaster and Stoney Creek is employed in Hamilton, and many from Merritton and Thorold are employed in St. Catharines. These suburban towns are closely connected with the city. Also included are many commuters whose houses stretch in ribbon developments along the main highways near the cities (Fig. 5).

There are cities both to the north-east and to the south-east of Hamilton, to the north-west and the west. To the south, however, there are none. The towns which are scattered over the Haldimand Clay Plain act as service centres for their immediate areas, but are unable to compete with larger centres in all sphere of activity. Thus these towns and villages are dependent in some ways on the cities, and some may fall within the Hamilton umland.



No important centres are situated along the Lake Erie shore because of the lack of harbour facilities and because of the rather poor soils in that area. They are situated inland along the highways and the Grand River where they are able to serve almost circular areas. To the east, however, along the Welland Canal, larger centres have grown, notably Port Colborne at the southern end. In the north is St. Catharines, with its area of commuters shown well in Fig. 5.

To the west of Hamilton there are the commuters' towns of Dundas and Ancaster. Farther away from the city few villages have developed because of the proximity of the line of cities to the west. Rural dwellers are able to go to either the east or the west; there is no need of an intermediate service centre.

Urban competition also has restricted the growth of towns to the north of Hamilton. Only the villages of Freelon, Morriston and Aberfoyle are on Highway No. 6 to Guelph. Milton and Brampton have an industrial as well as a service function.

Along the Iroquois Plain, the number of towns and villages in a limited area reflects the greater population and also the greater prosperity of this region compared to those around it. The wealthier farmers are able to retire in these towns, and from many workers commute to the closest city. Many from Beamsville go to St. Catharines, and from Stoney Creek and Grimsby to Hamilton. The northern shore of Lake Ontario is becoming increasingly urbanized; Toronto



is extending westward, Hamilton eastward. The Ford plant at Oakville is an example of the new industries which are being located.

In addition to the concentrations of urban population, rural population is scattered over the whole region.

Rural population may be divided into two categories. The first of these is rural dwellers who live beyond the city limits but who are employed in the city. It is these areas of dense population which are most closely connected with the city. This situation is less obvious near Hamilton which has incorporated many of its suburbs, than near some cities such as Brantford. A large area of what is now the southern section of the city was annexed in 1952. As yet it has not been completely built up but is nevertheless shown in black in Fig. 5.

In the second category of rural dwellers falls the farmer. The distribution of farm population reflects land use directly.

The greatest concentration of rural population is on the Iroquois Plain. This is a result of the intensive cultivation required for fruit and vegetable production. Farms are small because of the high labour requirements per acre and also because of the large initial capital outlay necessary in horticulture. This is an area which is dependent on the city for its market, for its purchases and its amusements. It is an area through which run excellent highways which strengthen the link with the city.



The escarpment marks a sharp division in population density. Except where horticulture and dairy farming are practiced near the brow, the Haldimand Clay Plain is an area of mixed farming and the population is fairly evenly distributed. The farmer is not so directly dependent on the city for his market, and he is less interested in the amenities of city life.

To the west and north of Hamilton, population density and distribution is similar to that on the Haldimand Clay Plain. Mixed farming and dairying predominates, neither of which necessitates a large amount of labour. Where there are areas of marsh or swamp as in Beverley township, or rough terrain, as in the Horseshoe Moraine region, the population is less dense.

Throughout the region as a whole, the farmers who are near the cities and who produce for city markets are most closely connected with them. Farmers who live near main highways tend to go to the city more often than those who live on the less convenient side-roads. Thus the factors of market, distance, and transportation facilities are important in determining the extent to which rural dwellers will come to Hamilton.

This is the region in which Hamilton is situated, a region of rich agriculture and of good transportation facilities. It is a region in which rural population is well distributed and in which there are a number of cities and towns. These all influence the limits of Hamilton's umland.



## CHAPTER III

### THE CITY OF HAMILTON

#### The Site

The city of Hamilton is located at the western end of Lake Ontario on the south side of Hamilton harbour.

Two and one-half miles south of the harbour is the Niagara Escarpment. This cuesta is of pre-glacial age but during Pleistocene times, glacial Lake Iroquois lapped at its base and steepened the scarp-face. As the lake receded into the Ontario basin it left a sloping plain of lacustrine deposits.

To the west of the present city, Lake Iroquois built the Burlington Heights bar which separates Hamilton Bay from the marsh. To the east, Lake Ontario built the Ontario bar, which separates Hamilton Bay from Lake Ontario. Both of these carry important transportation routes.

The site has influenced the shape and development of the city. As it grew, Hamilton spread east and west along the plain and in recent years, population pressure has forced expansion over the brow of the cuesta. The elongated shape and the steep face of the cuesta have led to difficulties in transportation and in servicing.

#### History and Functional Development of Hamilton

The history and functional development of Hamilton have been greatly influenced by its location in the continent of North America and in this section of southern Ontario. Once the regional location was most important; now it has



been succeeded by the continental location.

At first there were few advantages to attract settlers to Hamilton. The steep wall of the escarpment cut off the settlement from the area to the south. The land at the bay shore was too swampy for agriculture and there was only a shallow stream cutting through the Ontario bar which separated the bay from the lake. No important stream ran through the settlement to provide the waterpower necessary to turn mill wheels.

Not even the main routes of communication ran through Hamilton. This city was south of the Governor's Road which ran through the break in the escarpment at Dundas and which joined York, now Toronto, with western Ontario. Trails toward Niagara were of little importance.

In 1826, however, a canal was cut in the Ontario bar in conjunction with the dredging of the Desjardins Canal to Dundas, and in 1829 the first Welland Canal was opened. Hamilton began to profit from a location on the lakes. Dock facilities were expanded and the south side of the bay was dredged.

Hamilton's function at this early date was that of a service centre for the immediate area. Dundas was then more important than Hamilton. Roads ran from Dundas to London, Waterloo and Guelph, which were trading centres in the interior and the Desjardins Canal joined Dundas to the lake. A stream running through the village provided water power for manufacturing. Even the villages of



Ancaster and Stoney Creek were more important manufacturing centres than Hamilton.

By 1845 Hamilton was gaining importance as a focal point of commerce for the larger area around. The city began to capitalize on the advantages of water transportation to export its own manufactures and agricultural products from the region.

Dundas, Hamilton's chief rival, was falling behind in commerce because of its cramped location between two arms of the escarpment and the inability of the Desjardins Canal to handle the larger boats coming through the Welland Canal and the Lakes. In 1845, Dundas had twenty industries, as opposed to Hamilton's nine, but Dundas exported only 63,926 barrels of produce while Hamilton exported 85,049.

In the 1850's came the railroads and with them, the real beginning of industrialization. Previously, Hamilton had suffered because through-transportation routes had bypassed her. But the Great Western Railway was routed through Hamilton. This line was intended as a link between Buffalo and Detroit and it was hoped that it would secure a part of the expanding traffic between the American Atlantic seaboard and the mid-west. This it did, with a resulting boom to Hamilton's commerce and industry.

The coming of the railroads meant that no longer was industrial location pinned to mill site. It was more efficient and economical to concentrate production at railway nodes with coal forming the basis of power. Hamilton



was in a strategic position because cheap transportation was available by water as well as by rail.

At first when manufacturing was on a small scale, raw materials came from the surrounding area. Thus, planing and grist mills were established early, along with woollen mills, breweries, tanneries, and a boot and shoe factory. Food processing, too, had at first an adequate local source of raw materials. But industrialization expanded and changed in character, becoming more and more dependent on distant sources of raw materials and, later, on distant markets. Hamilton turned from industry of a local nature to that which was more national and international in scope.

From the middle of the nineteenth century until the present, industry has continued to expand. A favourable governmental tariff policy encouraged home iron and steel production. Iron was brought from Lake Superior, coal from the Appalachians and limestone was obtained locally from the escarpment. The Toronto, Hamilton and Buffalo railway came to Hamilton and the city had a second link with the zone of industry and commerce in the United States. American capital was invested in industry in this city which was near the border and played an important role in Hamilton's industrial expansion.

Hydro electricity, brought from Decew Falls, became available at the lowest rates in Canada in 1898 and since then, more and more industries have been attracted by the advantages of this city.



The factors which attract industries may be quickly summarized.

The situation is excellent because of the convergence of land and water routes. Minerals may be transported from the Canadian Shield or from the Appalachians by rail and ship, and manufactured products may be easily distributed.

The harbour, with its access to the Great Lakes, is well protected and kept deep by dredging. Bulky goods may be transported cheaply by water; therefore a waterfront position is advantageous for heavy industry. Originally the land adjacent to the bay was marshy and thought undesirable for commercial or residential use. Therefore, it could be purchased relatively cheaply, an advantage to those industries requiring a large amount of land per employee. The bay also provides a convenient spot for the disposal of fluid wastes, and the prevailing westerlies blow obnoxious fumes over the water.

The city is served by two trunk rail lines. The Canadian National railway runs only one-quarter of a mile south of the bay and individual industries are served by spur lines.

Secondary engineering industries have been located to a large degree because of the presence of basic iron and steel mills. The textile industry came to take advantage of the unoccupied labour force of women whose husbands work in the heavy industries.



Sites for these lighter industries were available along the rail lines, where the land was not occupied until later. These plants required less land per employee and the companies could afford to buy land at a higher price.

Industry came to a location where raw materials were easily assembled; and to an area where the large population provided both a labour force and a market for manufactured goods.

Now, manufacturing is the chief function of Hamilton, employing 56 per cent. of the gainfully occupied. Primary iron and steel are most important, followed by heavy machinery and other secondary iron and steel goods, electrical equipment, textiles, chemicals, and a number of less important industries. Hamilton ranks third among Canadian manufacturing cities and has the largest industrial output, per capita, of any.

The functions of commerce and finance are of less importance, as are the social and cultural functions.



## CHAPTER IV

### THE RELATIONSHIP BETWEEN HAMILTON AND ITS REGION

#### 1. Introduction

The fact that Hamilton is an industrial city has meant that the relationship between city and region is not close, and that Hamilton is not dependent on the region to any great degree. The city grew, not because of the demands or because of the resources of the region, but because it was so well located for the development of industry.

The major industries are greatly specialized, and do not obtain many of their raw materials from the region. The local market for manufactured goods is important, but only in that it is part of a nation-wide market.

Nor is the surrounding region totally dependent upon this city in all spheres of activity. Agricultural produce does come to Hamilton to provide food for the urban population and raw materials for the canneries. It was the urban demand which caused specialization in dairying and in fruit and vegetable production. But the products of the area are not sold exclusively to Hamilton; they are shipped to all parts of Ontario.

Thus, in dealing with the problem of the city and region it has been necessary to select ways in which the city and region are interdependent.



Most of the industries which are of such importance to this city have been omitted because they have neither a local source of raw materials, nor an exclusively local market. Therefore, they are not of significance in a study of this scope.

The food processing industry does have a basis in the products of the area. The city is well located in one of the best fruit and vegetable producing regions of the province. Because of the perishable nature of these products, they have to be canned as close as possible to where they are grown.

The link here between city and region is close. The canneries provide an excellent market for many farmers and even direct the time of planting and of harvesting as much as possible. However, it has been impossible to obtain enough information about this industry to draw any but the most broad conclusions.

The ties between city and unland are more readily observed in the service industries. The rural dairy industry arises because of urban demand. City dairies buy raw milk from the farmers, pasteurize it, and re-sell it throughout the city and into the region. Door to door deliveries of milk and bread are made in the rural area, and newspapers are dropped in rural mailboxes. Bus lines traverse the area, linking city with city, and farm with city.



Medical services are provided by the city for the region. Throughout the area are scattered physicians who send their patients to Hamilton's clinics, specialists, and hospitals. The clinics, such as the cerebral palsy centre, are too specialized to consider here. Specialists, too, are omitted because of the personal factors often involved. Specialized hospitals, such as the Mountain Sanatorium for tuberculosis, or the Ontario Hospital for the mentally ill, are not included because their very nature and size mean that patients are drawn from a distance as well as from the local region. General hospitals prove the best criterion in determining the extent of medical services.

In the cultural sphere, McMaster University alone is considered. Other educational institutions are not discussed because public and secondary schools are scattered in towns throughout the area, and students come to Hamilton schools only from the city and the immediate suburban area. A university, however, draws from a larger section of the region.

Other cultural facilities, such as the art gallery, cannot be discussed because it is impossible to ascertain from what distance they draw their patrons. Similarly, the symphony concerts and the community concerts are well attended but cannot be included.

Recreational facilities have been omitted for similar reasons.

It is in the activities of trade and commerce



that the relationship between city and umland is closest. Not only do rural dwellers come to the city to shop for goods not available in the small country towns, but the larger stores make deliveries throughout the region. Sometimes, too, there are subsidiary stores or order offices which extend the sphere of influence of the store.

Wholesalers, as well as retailers, deliver throughout the region. In addition, wholesale fruit and vegetable dealers obtain much of their produce locally when it is in season.

It is in these spheres that it is possible to determine the extent of Hamilton's influence.

## 2. The Dependence of Hamilton on its Region

It has already been stated that the city of Hamilton is relatively independent of the region around it. However, it does depend on the region for agricultural products, such as milk, or fruit and vegetables.

### The Hamilton Milkshed

Milk is one of the most important products which comes from the local area to the city.

The Hamilton milkshed is shown in Fig. 6. Most of the milk used in Hamilton is produced within the area delineated. It is desirable to obtain this commodity as close to the market as possible because of its perishable nature and because transportation costs are great compared to retail prices. The greatest distance from which it is brought to Hamilton is 40 miles though most is brought less



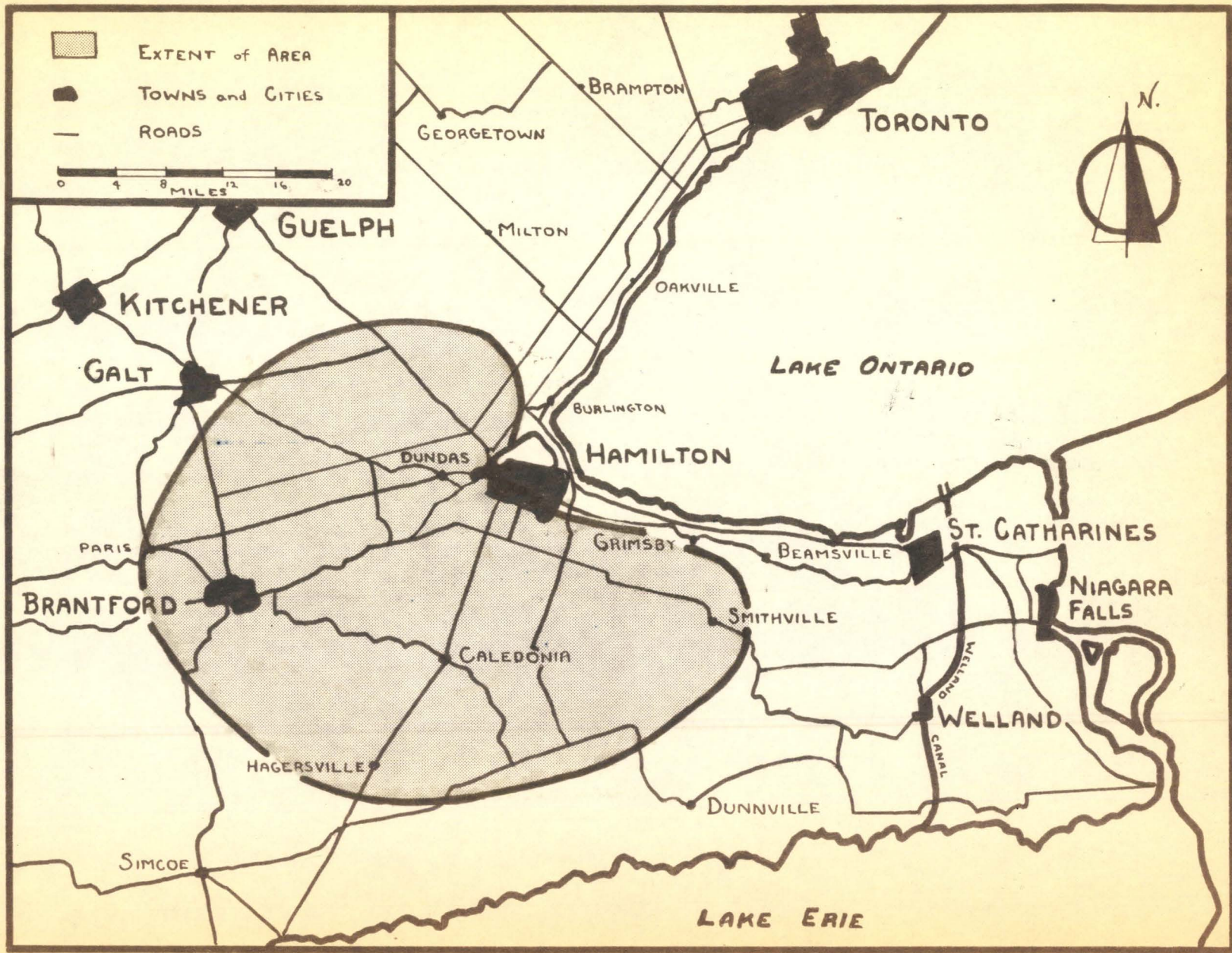


FIG. 6 The HAMILTON MILKSHED



than twenty.

Milk is one product for which all towns and cities compete. In some spheres urban competition is more selective because of a limited demand in small towns which limits facilities. But milk is required everywhere and has to meet certain standards of cleanliness and of content.

The dairies in the small towns such as Caledonia and Binbrook which lie within the area of the Hamilton milkshed, compete with Hamilton dairies for milk. Each town has its own limited milkshed which reflects its sphere of influence. However, their standards tend to be a little lower than those of Hamilton and they are able to accept milk from poorer producers. Therefore, competition for the best producers is more acute among Hamilton milk producers than it is from the nearby small towns. The cities all have higher standards and are able to compete on the same level as Hamilton.

The Hamilton milkshed extends over six of the regions shown in Fig. 3 and described in chapter II -- the Haldimand Clay Plain, the Norfolk Sand Plain, the Horseshoe Moraines, the Flamborough Plain, the South Slope and the Escarpment. It is the economic factor of urban demand which has led to the creation of specialized dairy farms within these areas.

In the counties of Wentworth and Brant, the average number of milch cows per hundred acre farm is 6 - 9, and in west Brant the average increases to 9 - 12. The physiography and soils here are favourable for production



to meet the large urban demand.

In the Niagara Peninsula, east of these counties, the number drops to 3 - 6. The soils are better suited in some areas to other uses, and in other areas urban demand is not sufficient to make it profitable to improve the poorer soils for dairying and to transport milk to urban centres.

The Hamilton milkshed is extremely well-defined. It has been delineated on the basis of the individual milksheds of three dairies in Hamilton: the Royal Oak Dairy, the Borden Company, and Silverwood Dairies Ltd.

The shape of the milkshed reflects the land use within the region as a whole and the factor of urban competition.

On the Iroquois Plain, extending from Hamilton toward St. Catharines and toward Toronto, fruit and vegetables are grown, and none of the land is devoted to pasture. Therefore, no milk can come from this region.

To the north of Hamilton, the area from which this city obtains milk is restricted by the influence of Toronto. Since Toronto is a larger city than Hamilton and has to draw its milk from a larger area because of the greater demand, the Toronto milkshed has pushed that of Hamilton south and west.

To the north-west, much milk goes to Toronto and Guelph. However, the distance from which it is brought into Hamilton increases as one continues farther west. The Hamilton milkshed has displaced the Galt milkshed westward so that Galt is forced to get most of its milk west of the



city.

The city of Brantford lies within the area of the Hamilton milkshed. Both cities obtain much of their milk from the same area, which shows a very high degree of production.

Both the physiography and soils of the Norfolk Sand Plain, the Horseshoe Moraines, and the Mount Elgin Ridges near Brantford favour dairying, and excellent transportation facilities mean milk can easily be brought the thirty miles daily to Hamilton. Because of these advantages, the areas acquired recently by Hamilton dairies have been to the west in the region of Brantford and Paris.

The distance from which milk is brought to Hamilton decreases slightly again to the south and east. In the south of the Haldimand clay plain, it is not profitable for a farmer to produce milk to be sold in Hamilton. The soils are heavy clays or infertile sands, both of which have to be improved before good milk can be produced. When costs of transportation are added, it seems more profitable to pasture beef herds which require less nutritious grasses and less work and expense.

To the east, it is competition from the cities of St. Catharines, Niagara Falls and Welland which limit the extent of Hamilton's milkshed. They go southward to Dunnville and westward to Smithville for milk.

The greatest percentage of milk comes to Hamilton from the Haldimand Clay Plain. The Royal Oak Dairy and Silverwood's Dairy each get 60 - 65 percent. of their milk



from the area as a whole and the Borden Company gets 70 per cent. of its supply from the three counties of Ancaster, Glanford, and Binbrook. Milk comes to the city from a few farms on Lake Erie, and west of Paris, but little of the total amount of milk sold in the city comes from beyond the boundary of the milkshed.

#### Wholesale Fruit and Vegetables

The city is dependent on the area around it for agricultural products other than milk. Wholesale fruit and vegetable dealers purchase much of their goods from this area.

Fruit dealers obtain peaches, plums, cherries and grapes from the Iroquois Plain between Hamilton and St. Catharines, and apples from the dip slope of the escarpment or the orchards between Hamilton and Toronto. Vegetable dealers obtain lettuce, celery, radishes, onions, beans, and a host of similar vegetables from the Bayview-Burlington area, and more hardy vegetables such as potatoes or turnips from the area of the Guelph Drumlin Field, or the Peel Plain.

But in these days of rapid transportation and of refrigeration, the distance from which fruits and vegetables may be brought to the urban market by wholesalers is great and is not really indicative of the area of city influence. When goods are transported from Florida and Texas, from Leamington and Georgian Bay, it is impossible to use this as a criterion to establish the unland of Hamilton.



### The Hamilton Market

A consideration of the city market is of much greater significance in delineating the area of city influence, for the producer brings his goods to the city to be sold directly to the consumer.

Fig. 8 shows by county the number of farmers in Ontario registered at the Hamilton market in the last twenty years. Fig. 7 shows diagrammatically the origin of products destined for the market. It does not show all of Ontario, but only the section from which most of the farmers come.

The distribution of products destined for the market reflects the conditions in the region, as described in Chapter II. From the Iroquois Plain come tree fruits such as plums, peaches, cherries, and apricots, small fruits such as strawberries and raspberries, and vegetables such as cabbage, lettuce, radishes, peas, beans, and tomatoes. From the Haldimand Clay Plain come the products of the dairy industry, such as butter and cheese, and from the mixed farms the products which can be sold in small quantities, such as eggs, chickens, and turkeys. From the Vinemount Moraine near the brow of the cuesta come fruits and vegetables. From the Norfolk Sand Plain come more products from the mixed farms: chickens, eggs, corn, and from the western section, even tobacco. Similar crops and products come from the Horseshoe Moraines and the Flamborough Plain. From the Guelph Drumlin Field and the Waterloo Hills come turnips and other root crops, squash, pumpkins, and headcheese and sausage brought in by the German Mennonites of the area. From the South



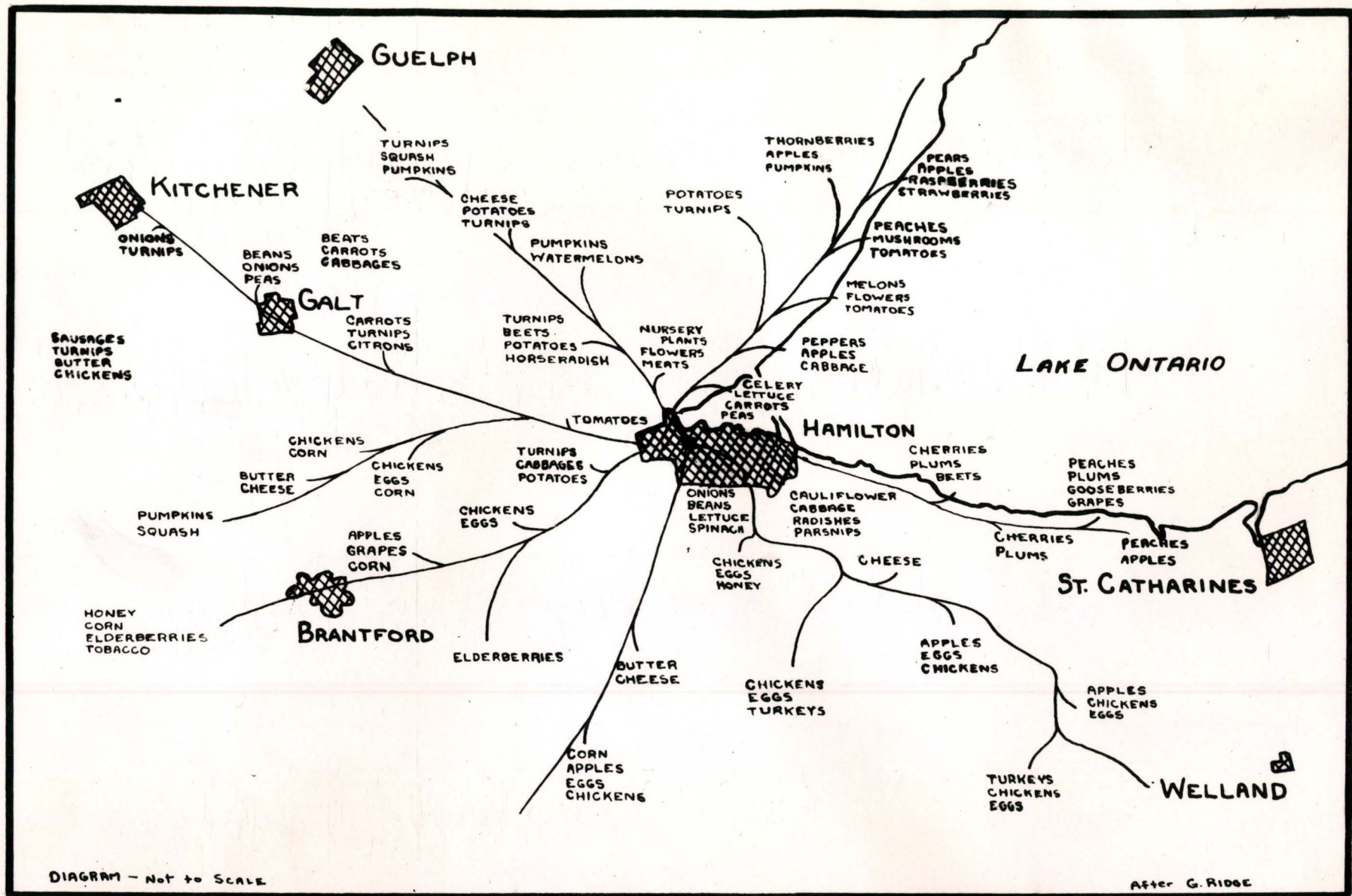
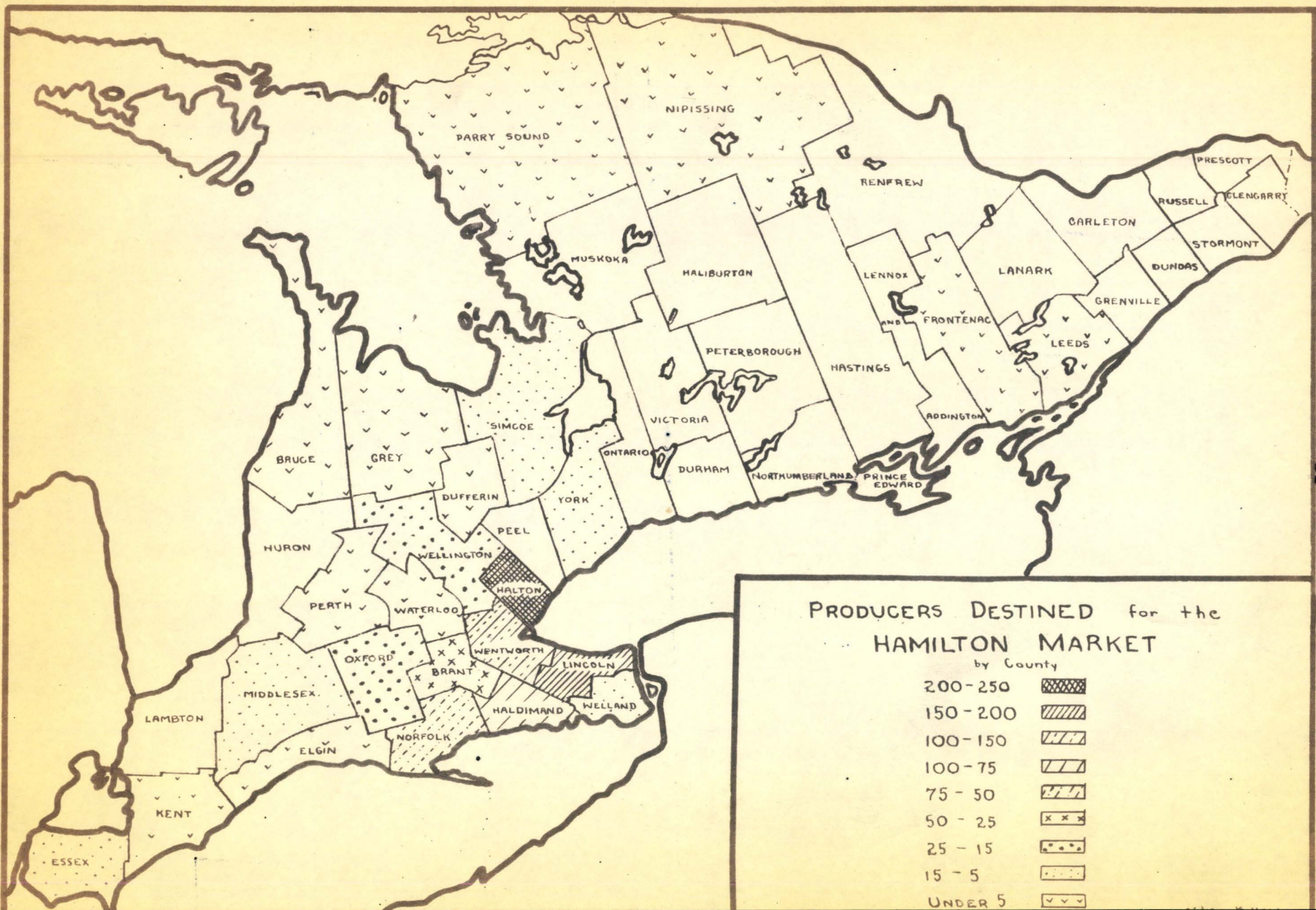


FIG. 7. PRODUCTS DESTINED for the HAMILTON MARKET







Slope and the Peel Plain come more potatoes and turnips, horseradish and apples.

The list could be continued almost indefinitely, but it is only necessary to illustrate that the farmers bring goods which are required by Hamilton housewives, and which may be carried easily from the market.

The majority of farmers come from the counties of Halton, Lincoln, Wentworth, Haldimand, Norfolk, and Brant. There are three important reasons which explain this. The factor of distance is significant. Most of the farmers have their own trucks, and if the volume of their sales is sufficient, they often make more than one trip a day into Hamilton with their produce. It is, therefore, an advantage to be close to the city.

The type of produce from the area also is significant. The volume of fruit and vegetables which is sold is greater than is the volume of goods produced on the mixed farms. More farmers come from the Iroquois Plain than from the area above the escarpment because of the greater demand for their produce.

The third reason of importance in explaining the area from which most farmers come to the Hamilton Market is the existence of markets in nearby towns and cities. These may be in operation once a week, or three times a week, as is the Hamilton Market. Often farmers will go to their local market one day, and to Hamilton the other two, for it is often more profitable to drive an extra few miles to Hamilton rather than go to one of the smaller



less well-patronized markets in a nearby town.

There are markets in Toronto, Guelph, Kitchener, Woodstock, Paris, Brantford, Dundas, Hagersville, St. Catharines, and Niagara Falls. Not all these have the same amount of influence. The Toronto market, for instance, is small and not well-patronized by Toronto housewives. This might explain why many of the farmers on the north shore of the lake come to Hamilton. Were Toronto's market larger, it no doubt would draw to it many who now come to Hamilton.

The very opposite is true of the Kitchener-Waterloo Market. Though not so large as the Hamilton Market, it is renowned for the variety of goods sold and draws both buyers and sellers from a large area. The importance of this market is reflected by the few farmers coming from that area to Hamilton. Only three come from Waterloo, whereas twenty-one come from Wellington, which is no closer and which produces similar crops.

None of the other markets is as significant in restricting the area from which producers come to Hamilton, although each is important to the town and country dwellers nearby.

In some instances, the factor of tradition is important, for a few families have had stalls on the market for the past ten or twenty years.

The fact that there are few markets throughout the area comparable to that of Hamilton means that their



influence is less significant than is the factor of distance in determining the area from which most producers come to the Hamilton Market.

### 3. The Dependence of the Region on the City

The reciprocal action implicit in the term unland has already been mentioned. One aspect of this action, the ways in which the city is dependent on the region, has been noted, and the areas delineated.

The other part of the two-way action is the dependence of the unland upon the city. Because the region is more dependent on the city for goods and services than is the city on the region, this aspect gives a truer picture of the extent of city influence.

#### Retail Trade

One of the most significant ties between city and unland lies in retail trade. Farmers who come to the city to sell their wares on the market patronize the local stores, and women seeking luxury items not available in country towns, shop for these in the city.

Many of the small towns and villages which are scattered throughout the area do not have large enough populations to support specialized stores such as those which sell shoes, or millinery, or jewelry. The stores in these towns are general stores or grocery stores. They supply everyday necessities to a limited trade area around each town. Since they do not carry all goods sold by the larger



city stores, they cannot compete with them on an equal basis. Therefore, these small towns may be included within the boundary of the city trade area.

Some towns in the region have specialized shopping facilities but many shoppers go from them to Hamilton because the city is close and because of the greater variety of goods offered in a larger centre. These towns also may be included within the city trade area.

The cities throughout the region all have similar shopping facilities and so compete on the same level to attract buyers from the rural areas and the small towns. The stores in the cities near Hamilton, therefore, restrict the Hamilton trade area.

Occasionally, shoppers will go to a larger city because of the greater variety of goods available. Hamiltonians will sometimes go to Toronto, and shoppers from St. Catharines to Hamilton, or to the American cities of Niagara Falls or Buffalo.

For regular shopping, however, this is not necessary because the stores in all the cities carry similar goods.

It is impossible to estimate directly the area from which shoppers come to Hamilton, but an accurate limit may be established by considering the extent of the area outside the city in which deliveries are made by the larger departmental stores. The T. Eaton Company and the G.W.



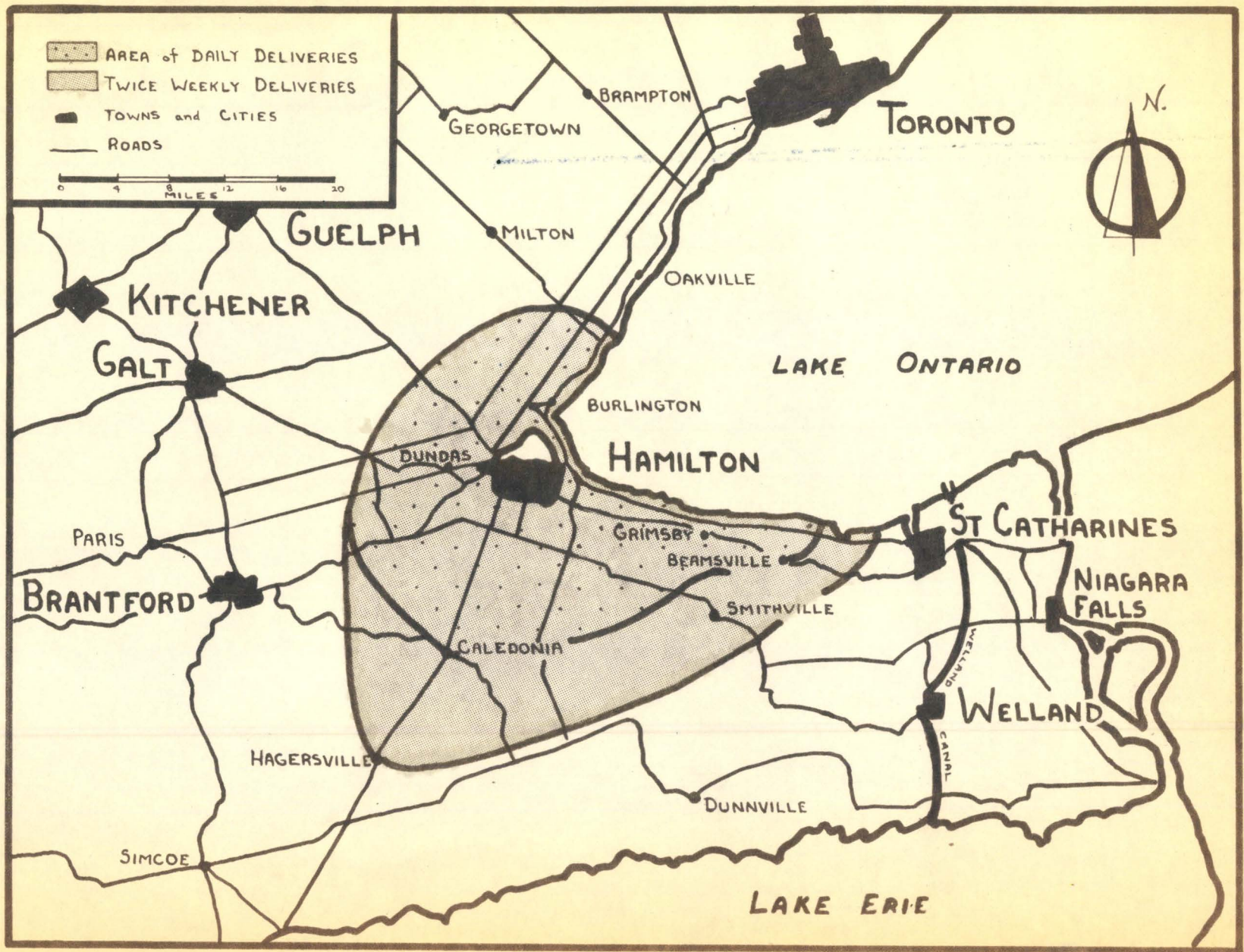


FIG. 9. DELIVERY AREA of the T. EATON Co.



Robinson Company have been taken as examples.

The delivery area of Eaton's Department Store is shown in Fig. 9 and distinction is made between the section receiving deliveries daily, and twice weekly.

The section of daily delivery shows the area of closest contact with the city. Included within it are the built-up areas adjacent to the city, and the satellite towns such as Waterdown and Ancaster, from which many commuters come daily to this city to work. Toward the periphery of this section there is less contact with Hamilton, and beyond it this trend is more obvious in that deliveries are made only twice a week.

This twice-a-week zone is only in the Haldimand Clay Plain to the south of Hamilton where there are no cities not to the west or north where there are cities whose stores compete with Hamilton.

To the north-east is Toronto where the main Eaton's store is located and where there are many other large and attractive shopping centres to draw customers. Eaton's Hamilton store sends delivery trucks just a small distance past Bronte, which is not quite half the distance between Hamilton and Toronto. This is because the Eaton's Toronto store makes deliveries in the area east of Bronte.

To the west of Hamilton are Guelph where there is an Eaton's Order Office, Kitchener and Brantford where there are Eaton's stores. Deliveries are not made farther toward Guelph and Galt because of competition from these cities



and because rural population is not very dense and there is not enough business to warrant sending trucks into the area.

Toward Brantford the delivery area of Eaton's of Hamilton is restricted by competition from Brantford stores. The boundary is approximately half way between the two cities which shows that the stores of both are equally attractive.

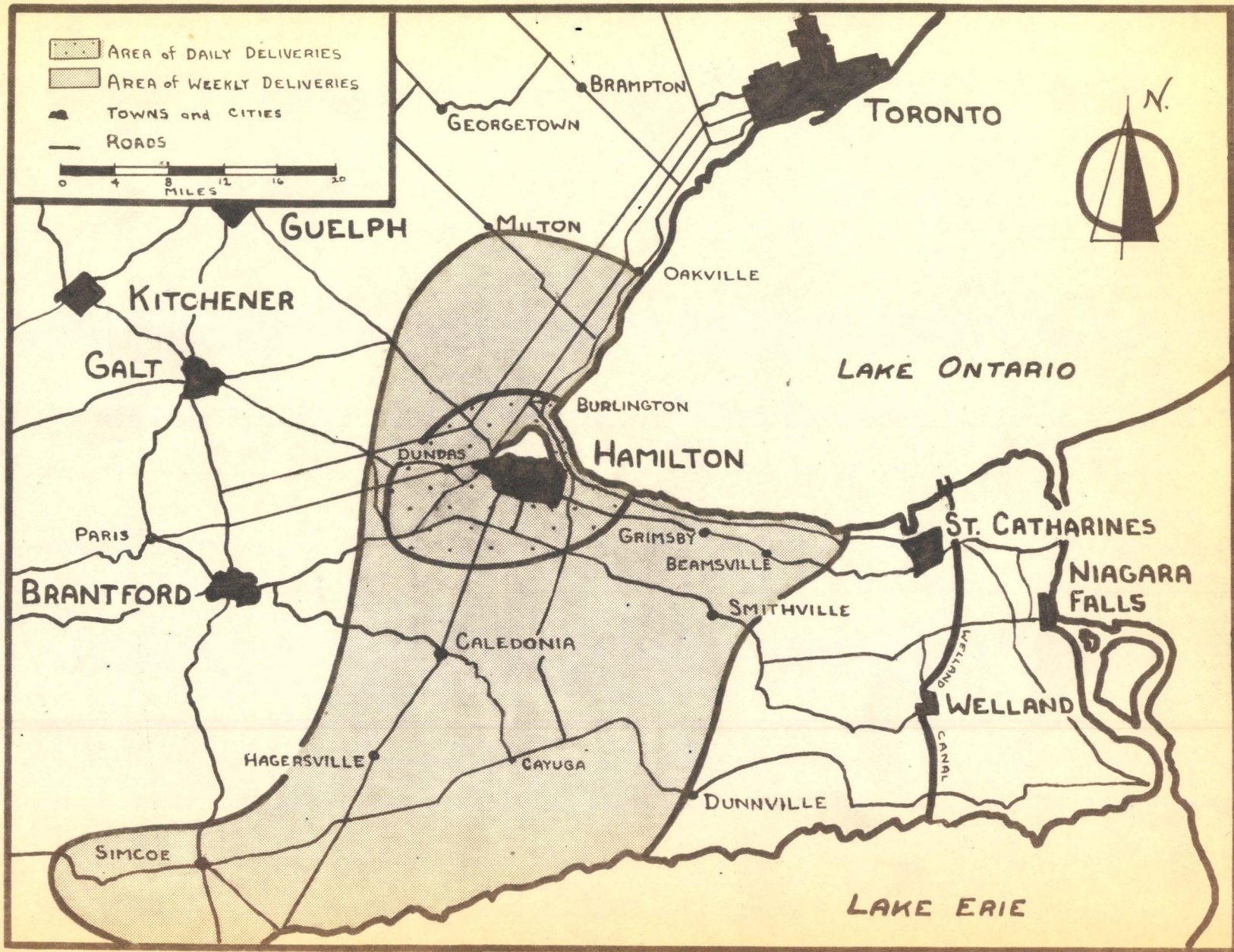
East of Hamilton daily deliveries are made past Beamsville and weekly deliveries past Vineland. Despite the large population of the Iroquois Plain, it seems surprising that it is profitable to send trucks so far east toward St. Catharines, which has an Eaton's store and many others of equally high calibre.

South of Hamilton there are no cities to offer competition. It is, therefore, profitable to send delivery trucks for some distance into the region of the Haldimand Clay Plain even though the population is not so dense as on the Iroquois Plain. Deliveries are not made as far south as the Lake Erie shore because there is not sufficient business.

Robinson's Department store makes deliveries throughout a more extensive area than does Eaton's. The delivery area of Robinson's is shown in Fig. 10, and distinction is made between daily and weekly deliveries. The section of daily deliveries coincides more closely with the area of densest suburban population than does that of Eaton's and the area of weekly deliveries is more extensive.

Eaton's go farther daily than do Robinson's, and send trucks twice weekly into the southern section. Robin-





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FIG. 10 DELIVERY AREA of the G.W. ROBINSON Co.



son's do not go as far daily, and make deliveries only once a week throughout the rest of the area. They are, therefore, able to cover a greater area with fewer trucks which means lower maintenance costs.

Weekly deliveries are made as far north as Oakville, Milton, and Freelon. Robinson's do not go north of these centres because of competition from stores in Toronto and Guelph. That the boundary is approximately half way between Hamilton and these other cities indicates that Toronto stores do not have a greater "pull" than those of Hamilton, and that Hamilton stores are not more attractive for regular shopping than those of Guelph.

In the south, Robinson's have extended their sphere of influence by establishing order offices in Simcoe and Cayuga. Orders are sent from these towns to the Hamilton store to be filled and then are returned to the order office for redistribution. These are the only two order offices and are located in the south where there are no cities whose stores compete with those of Hamilton. In the summer, when cottages along Lake Erie are occupied, Robinson's make deliveries as far south as the Lake shore.

To the west, the delivery area is limited by competition from Brantford, and in the east from St. Catharines. Even though stores are as attractive in St. Catharines as in Hamilton, Robinson's deliver to Vineland.

Throughout the areas served by these two stores, the transportation facilities are excellent, and the road



pattern seems to concentrate trade in Hamilton.

The trade areas of Robinson's and Eaton's is restricted chiefly through competition from stores in nearby cities.

Equally as important as the deliveries made by large retail stores are those of the smaller and more specialized shops. Furriers and florists, for instance, deliver into the area surrounding the city. Parke & Parke Ltd. (druggists) make deliveries to Stoney Creek and to Dundas, John Northway & Son (Ladies' and children's wear) to Ancaster, Burlington, Dundas, and Stoney Creek, but no farther. These stores are patronized by rural dwellers who come to the city, but they are often too specialized and too small to have enough trade with the area outside the city to warrant extended trips by delivery trucks. They show the very limited trade area of the city and emphasize the fact that the nearer one is to the city, the more closely one is associated with its economic life.

Henry Birks & Sons, jewellery store, is larger than many specialized shops and makes deliveries by truck outside the city when orders are large or when there are several orders for one area. The delivery truck goes as far as Beamsville, Smithville, Caledonia, Alberton, Milton, and Bronte, but most goods are delivered by mail.

The mail order area served by the Birks store in Hamilton includes the area to the east as far as Beamsville, Smithville, and Dunnville; to the west as far as Simcoe,



Brantford, and Paris; north as far as Freelon, Milton, and Bronte; and south as far as Lake Erie. The section of the Niagara Peninsula east of Beamsville is served from the St. Catharines store. To the west, orders are sent to London, and to the north, to Toronto. Galt and Kitchener are within the mail order area of Toronto because the railway connections are more direct to Toronto than to Hamilton.

Thus the areas which are served by mail order and express are influenced by the rail network, whereas the areas served by truck are influenced by the road network.

In addition to the areas served by departmental and specialized stores of Hamilton it is necessary to consider the areas dependent on Hamilton for milk and bread delivery.

The area dependent on Hamilton for milk deliveries is shown in Fig. 11. All dairies sell from 85 to 90 per cent. of their milk within the city, and all cover almost the same total area with their sales trucks.

Milk is a perishable product and since deliveries are made daily, it is impossible to send trucks very great distances from a distribution centre. The distance is not equal in all directions for several reasons. There are by-laws in the towns of Waterdown, Dundas, Mount Hope, and Grimsby which, to protect local dairies, prohibit sales by those of Hamilton. Hamilton dairies, therefore, cannot compete with the dairies in these towns. They are able to compete with those in Burlington, Bronte, and Oakville, and



it is this competition which limits the area to the north-east.

In the south and west deliveries are made only in to the areas of suburban development for it is not profitable to send trucks into areas where the houses are scattered, and where it is necessary to drive long distances for only a few steps. Beyond the area of suburban development, much of the land is devoted to dairying, and farmers who produce milk will use their own, not buy it from a dairy.

In the north-east and south-east, the extensions of the area along the Iroquois Plain reflect the difference in land use, horticulture rather than dairying being practiced. They also reflected the greater population of the Plain compared to the regions adjacent to it. The area is becoming increasingly urbanized and many people commute to Hamilton to work.

The dairies sell to only the limited area which is connected most closely with the city.

If the door to door sales of all dairies cover approximately the same area, the opposite is true for retail bread distribution.

Thus, Mammy's Bread Company delivers only as far north as Fort Nelson, but delivers east to Beasville, west more than half way to Galt and Brantford, and south as far as Hagersville. Jackson's Bread Company goes north as far as Clarkson, west to Langford, south to Hagersville, and east to Vineland. Brown's Bread Company and Hill's Bakery



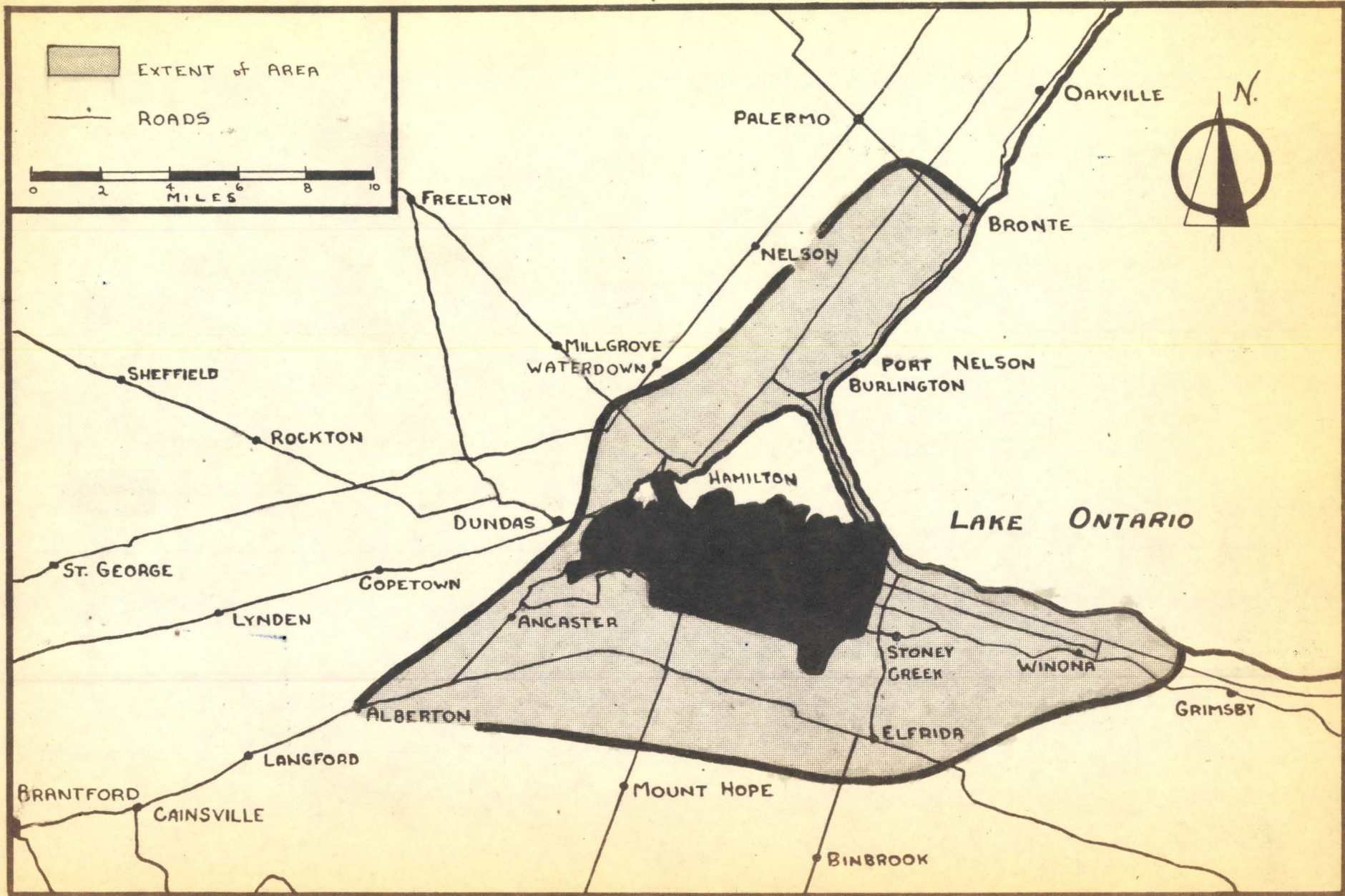


FIG. II AREA DEPENDENT ON HAMILTON DAIRIES for MILK



deliver to the suburban area around the city, and Hill's go south to Hagersville as well. The Canada Bread Company goes south only to Mount Hope, but east to Beamsville, and north to Milton and Oakville.

The delivery area of any one company is not very significant, and the great diversity has been generalized in Fig. 12, which shows the area dependent on Hamilton, rather than on any other centre, for bread delivery.

The regularity and shape of this area is noteworthy. Since bread is a perishable commodity, daily deliveries are necessary. Sales trucks are able to cover only a limited distance in one day, and from Hamilton they go twenty to thirty miles. They deliver throughout rural as well as urban areas, for no longer do housewives in the country bake their own bread, and it is one commodity which is considered essential.

Firms which operate only from Hamilton have extended their delivery areas southward along No. 6 Highway because there are no important cities toward the south to act as distribution centres for many companies. Larger firms, however, with province-wide coverage, ship bread by train to route centres for distribution by truck and their distribution areas do not reflect the area of city influence as well. The Canada Bread Company has divided the St. Catharines-Hamilton-Toronto region into several delivery areas (Fig. 13) so that each section of the whole



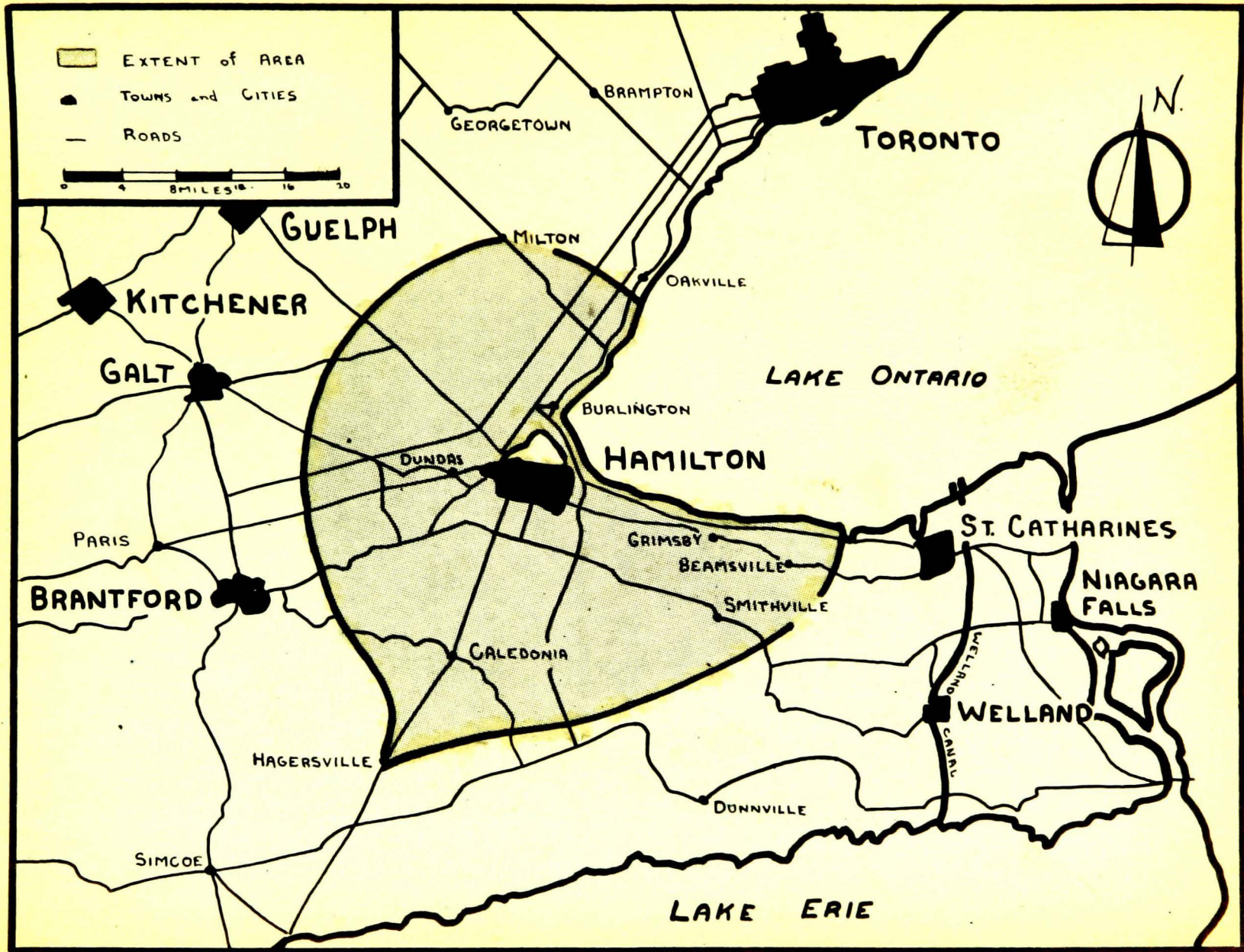


FIG.12 AREA DEPENDENT on HAMILTON for BREAD DELIVERIES



region will be equally well served. Caledonia has been made the distribution centre for the area southward to the Lake Erie shore. This has restricted the area served by Hamilton in the south.

Competition among Hamilton bread companies in the area shown in Fig. 12 is acute. Only the better established firms are able to send daily delivery trucks far enough from Hamilton to meet competitors from St. Catharines, or Toronto, or the cities to the west. Were these cities not in existence however, it is probable that the area dependent on Hamilton for bread delivery would be more extensive.

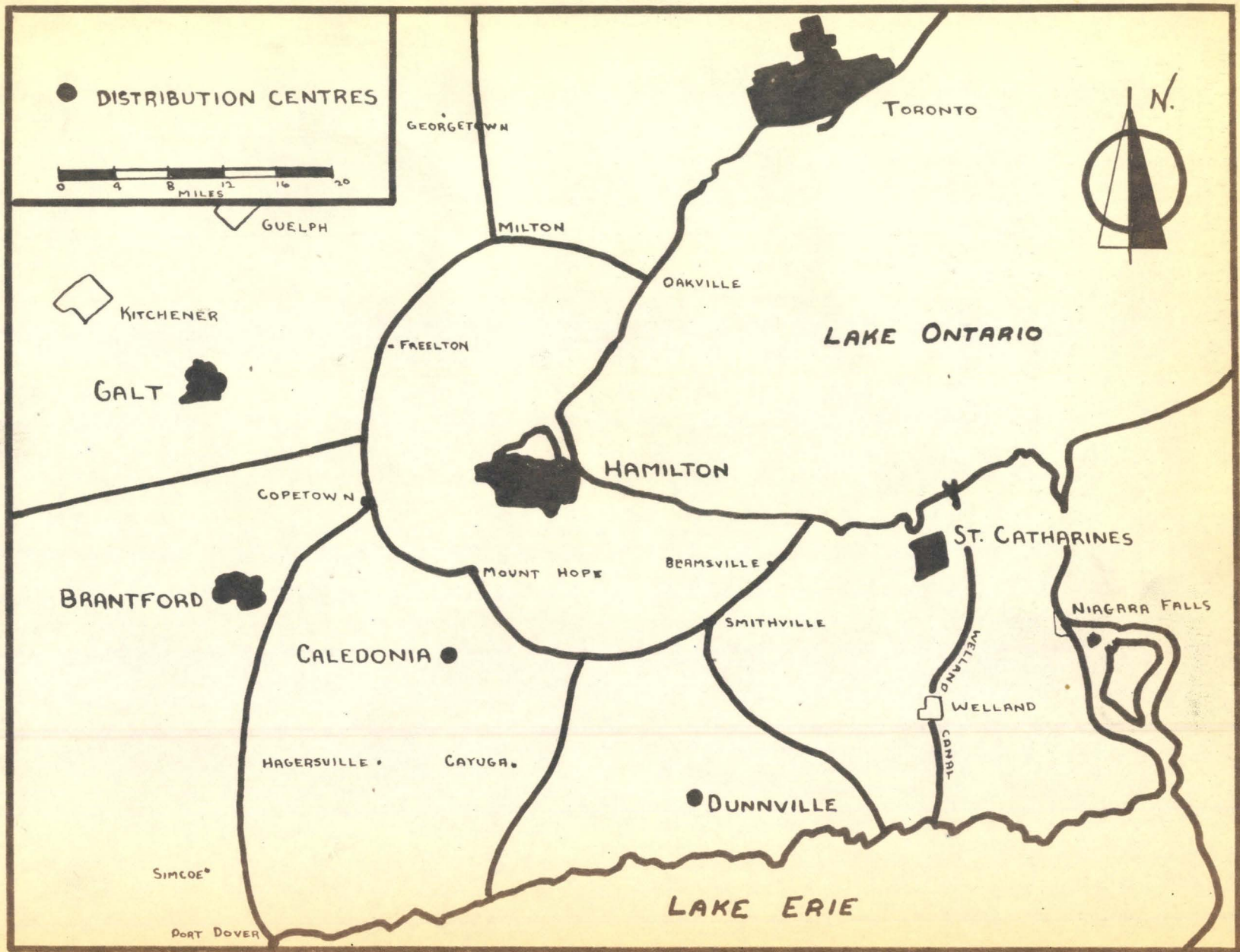
There are two factors, then, which are of importance in limiting the area to which Hamilton bread companies make door to door deliveries: the existence of other cities nearby which act as distribution centres, and the factor of the distance which can be covered profitably in one day by truck.

### Wholesale Trade

The areas of retail distribution are more significant than the areas of wholesale distribution in delineating the area of city influence. Retail trade is directly with the consumer, whereas wholesale trade is with retailers in cities, towns and villages.

Several wholesale grocers deliver from Hamilton throughout the region. Balfours Limited and Emsden Bros. Limited have been taken as representative examples, and the areas served by these two have been combined in Fig. 14.





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FIG. 13 DISTRIBUTION AREAS of the CANADA BREAD Co.



The area is unique in shape and may be contrasted to all the areas of retail deliveries. Because of the nature of the goods they handle and the fact that it is not necessary to make deliveries in the same area each day, wholesalers are able to send their trucks for greater distances than do companies making door to door deliveries.

Most deliveries are made by truck; therefore, the highway network is of significance in explaining the area served from Hamilton. This city has an advantageous position since highways radiate in all directions.

However, because the distance covered by wholesalers in neighbouring cities is great, it is difficult to estimate the area dependent mostly on Hamilton. The important competitors which Hamilton meets are in Toronto, Kitchener, Brantford, and St. Catharines. Despite this, Lumsdens have enough business in St. Catharines to make deliveries that far east along the densely populated Iroquois Plain. To the west, Lumsdens go to Cainsville even though wholesalers operate out of Brantford.

It would seem that the areas served by wholesalers in the region overlap to a greater degree than do the areas served by retailers. Kitchener, Brantford, and Hamilton all deliver to Galt; both Hamilton and Brantford deliver to Simcoe; and wholesalers from Toronto deliver throughout the whole region.

The situation is similar in the case of fruit and vegetable wholesalers. Hamilton is able to maintain suprem-



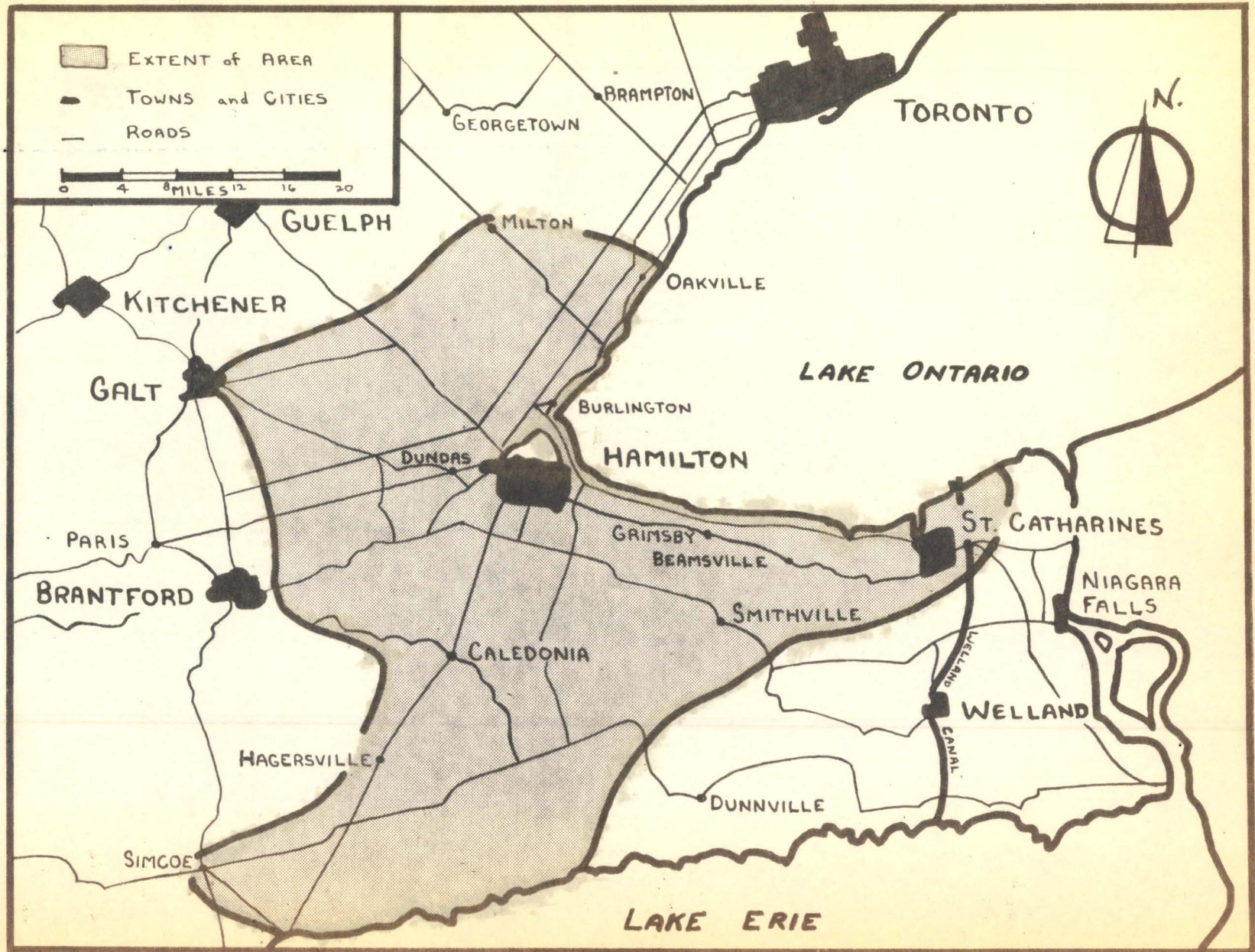


FIG. 14. DELIVERY AREA of BALFOURS LTD. and LUMSDEN BROS LTD.



acy only in the area from Burlington to Caledonia, and Cope-  
town to Winona. Stevensons Fruit Company goes to St. Cath-  
arines and Niagara Falls, and the Wright Fruit Company to  
Fergus and Simcoe, but this does not mean that these should  
be included in the area dependent on Hamilton.

Wholesalers in each of the cities in the surround-  
ing region have tried to expand their trade areas, so that  
there is a wide zone of competition which no one city can  
claim as dependent.

In contrast to these indefinite areas, the area  
dependent on Hamilton for wholesale drug products is better  
defined. Fig. 15 shows the area served by the National Drug  
and Chemical Company, which is the only drug wholesaler in  
Hamilton.

In Toronto and London are the drug wholesalers who  
compete with the National Drug and Chemical Company. In both  
cities are warehouses of the National Drug and Chemical Com-  
pany which is an independent concern, and also wholesalers  
who are associated with the Rexall drug stores, or the  
I.D.A. drug stores.

It is with these warehouses that Rexall and I.D.A.  
druggists prefer to deal because of the lower prices which  
they are accorded. Druggists who are not affiliated with  
either of these two organizations deal with the National  
Drug Company.

However, throughout the Niagara Peninsula, the  
proximity of Hamilton means that often I.D.A. or Rexall  
druggists will order from Hamilton rather than Toronto.



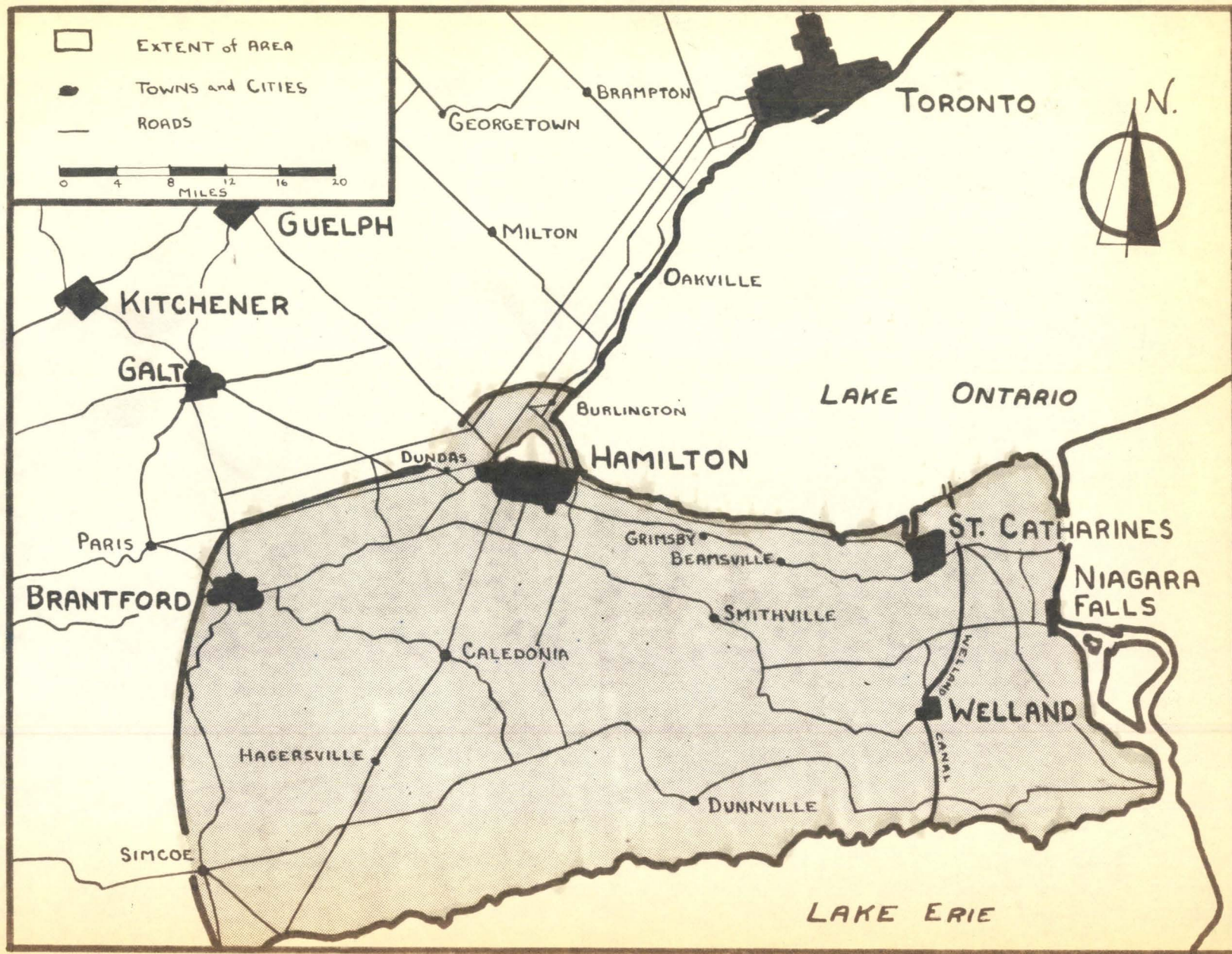


FIG. 15. AREA SERVED by the NATIONAL DRUG and CHEMICAL Co.



In the immediate area of Hamilton many druggists who usually order from Toronto, may occasionally buy a product in Hamilton because they need it at once.

The influence of Toronto is the most noteworthy feature of this trade area. It is shown more plainly than the area dependent on Hamilton for groceries because groceries are in demand everywhere, and a more central distribution point is able to give better service to the whole area. In Toronto, too, the drug wholesalers have a greater variety of goods in stock and are able to give better service. Goods are sent by express, therefore, the cities north-west of Hamilton deal with Toronto because rail connections are better than with Hamilton.

#### Newspaper Circulation

One of the best criteria which may be used to determine the extent of the unland of a city is newspaper circulation, for rural and town dwellers will buy the paper of the city with which they are most closely connected. Not only do they look for local as well as world-wide news, they look for advertisements of the stores to which they go on their week-end trip to the city.

This is shown well by the circulation area of the Hamilton Spectator (Fig. 16). The shape of the area is similar to the retail trade area of Robinson's Department Store, extending north almost to Milton and south to Lake Erie. The boundary is not quite half way between Toronto and Hamilton, but is more than half the distance from Ham-



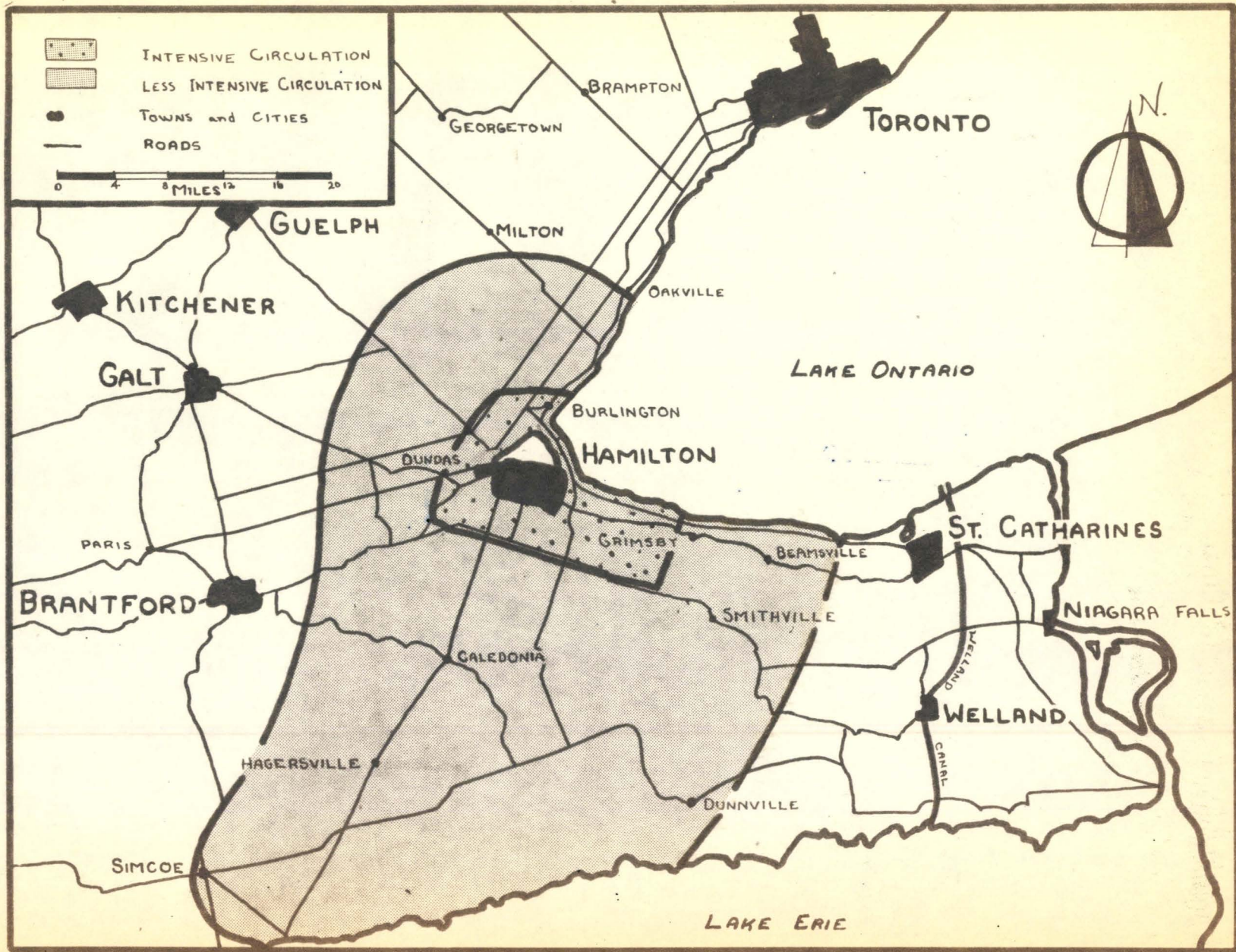


FIG. 16. CIRCULATION of the HAMILTON SPECTATOR



ilton toward Brantford and St. Catharines. This emphasizes that Toronto is larger and more important than Hamilton, and that Hamilton is larger and more important than the other cities of the region.

Within this area, people are interested in what is happening in Hamilton. Beyond the limits of the area, they are more interested in one of the other cities near Hamilton and subscribe to papers other than the Spectator.

Thus, it cannot be said that papers from the cities near Hamilton compete with the Spectator in the same way that stores compete for retail trade. Rather, newspaper circulation reflects the area which is closely connected with the city in economic life and in interest.

Throughout the area shown in Fig. 16, the Globe and Mail, a morning newspaper published in Toronto, is circulated. This might almost be classed as the paper for Ontario, for it has columns to interest the urban business man and the farmer. Because of its different character, many families subscribe to both the Spectator and the Globe and Mail, and therefore, it is no competition.

At the periphery of the area are sold the papers of nearby cities. This shows the transition zone between their spheres of influence and that of Hamilton. From Toronto come the Telegram and the Star, from Galt the Reporter, from Guelph the Daily Mercury, from Kitchener the Kitchener-Waterloo Record, from Welland the Welland-Port Colborne Tribune, from St. Catharines the Standard, from Niagara Falls the Review, and from Brantford the Expositor.



In addition to these daily newspapers there are a host of weekly newspapers published in the smaller towns throughout the area. These do not compete with the Spectator because they are published only once a week and deal mostly with events of local interest.

The relationship of the newspapers throughout a region shows well the relationships which exist throughout the unland as a whole.

Toward the edge of the area there is a section which no city can rightly claim to dominate. Papers from different cities are sold, and in the same way the people from this segment may go to either city depending on what they wish to do, or the time they have, or the distance, or on innumerable personal factors. But as one approaches the city, the pull of city becomes more intense. Just as in the immediate area of Hamilton, the Spectator is the most important newspaper sold, so in this area the people look to Hamilton for all their needs. Only occasionally do other newspapers enter the area, and rarely do many people go to the nearby cities. Only the Toronto papers enter Hamilton and it is usually to Toronto that Hamiltonians go when they are unable to obtain what they wish at home.

The smaller papers in the small towns are important because of the local news they offer; but their scope is limited. In the same way, these smaller towns have limited shopping and service facilities, and it is necessary for their residents to go to a larger centre for specialized goods or for a greater choice.



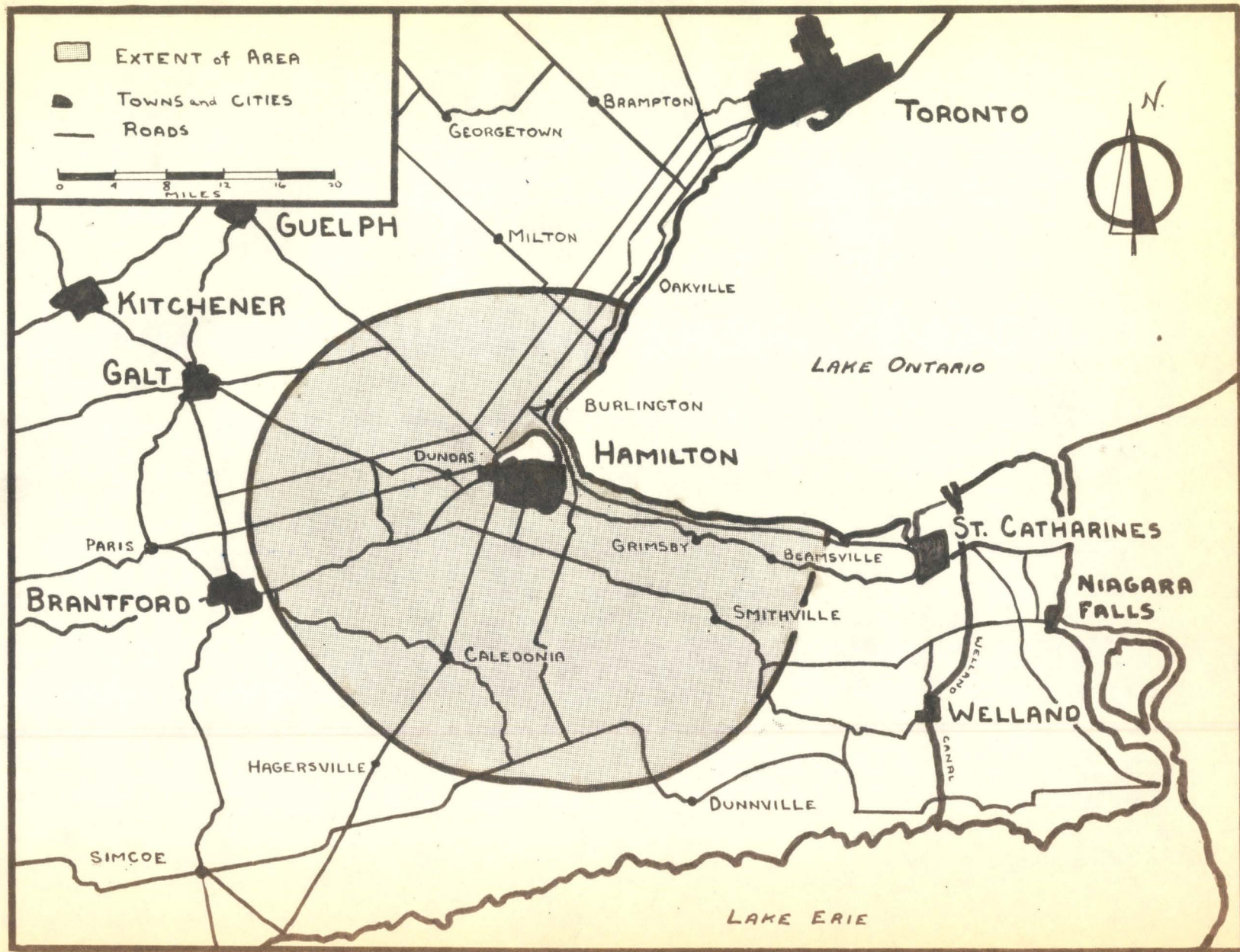
The area of newspaper circulation, in contrast to most of the other areas considered, is not established directly by urban competition. Rather, residents of an area buy the paper of a city because they are closely linked with its social and economic life.

### Medical Services

The region around Hamilton is dependent on this city for some of its medical services. Of most significance is the area served by the Hamilton General Hospital, and St. Joseph's Hospital (Fig. 17). Neither of these is a specialized hospital.

The majority of patients admitted to these institutions come from the city itself or from the county of Wentworth. Fewer come from near the edges of the area because of the existence of hospitals in Toronto, Oakville, Brampton, Guelph, Galt, Kitchener, Brantford, Simcoe, Dunnville, Welland, Grimsby, and St. Catharines. All these hospitals are sufficiently well-equipped and well-staffed to look after diseases, and to handle cases of surgery which are not unusual. However, only those in Toronto, St. Catharines, and Hamilton are able to look after cases which require complicated surgery or specialized treatment. In some instances, such as brain surgery, Toronto alone has qualified specialists. Toronto has a larger population and there is sufficient work to occupy men with specialized training. In addition, the excellent reputation of the University of Toronto Medical School has attracted many specialists who are interested in lecturing as well as maintaining their own practices.





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FIG. 17. AREA from which HAMILTON HOSPITALS DRAW their PATIENTS



Thus, the boundary of the area served by Hamilton hospitals differs with the treatment required. In the north and the south-east, the boundary is stable because the Toronto and St. Catharines hospitals are as well equipped and staffed as the Hamilton hospitals. To the west and south, however, the boundary is more mobile and fluctuates southward to include the area south to Lake Erie, or west to include Brantford. The hospitals in this section are much smaller and less well-equipped and cannot compete with Hamilton on an equal basis for patients.

#### Cultural Facilities

As has been stated, the cultural influence of the city throughout the region is hard to gauge. However, it is possible to delineate the area from which McMaster University draws its students.

Fig. 18 shows the area from which most students have come in the past four years, and within which most scholarships are awarded. It should be understood that McMaster cannot claim to be the university to which all students from this area come, for this university is lacking in such facilities as applied science, medicine, dentistry, and law. The larger universities at Toronto, London, and Kingston, and the more specialized Ontario Agricultural and Veterinary College at Guelph, attract many whom McMaster is not equipped to accommodate. Despite this, the courses offered by this university are sufficiently diversified to attract those interested in general arts or



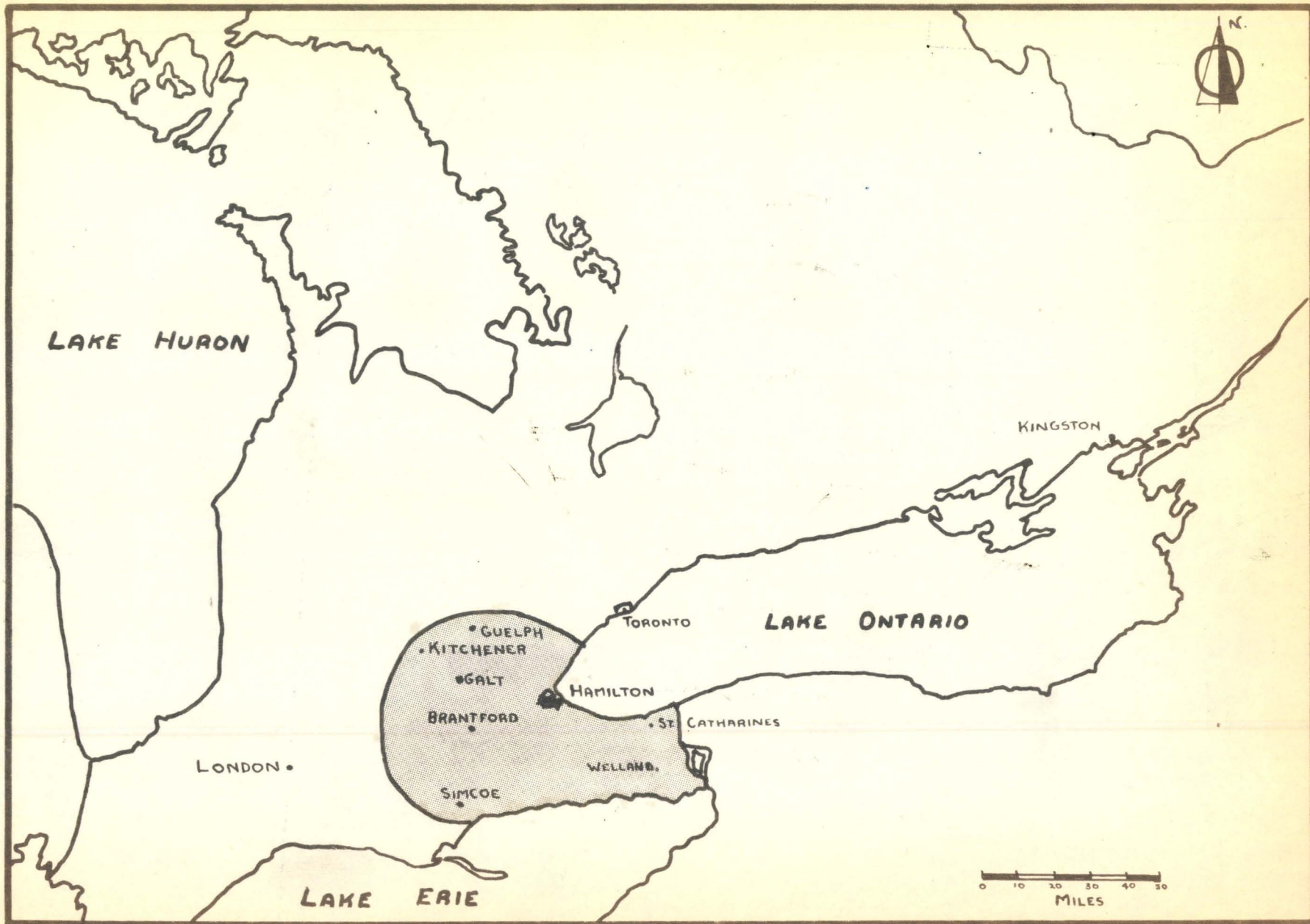


FIG. 18. AREA from which **McMASTER UNIVERSITY** draws its **STUDENTS**



science and, therefore, this does not affect the validity of the area delineated.

Most students, over 50 per cent., come from the greater Hamilton area and are able to commute to the University. Often they go to McMaster, rather than one of the other universities, because it is so much cheaper to live at home than in residence. Within the area shown in Fig. 18, students are able to go home only for week-ends. Beyond the boundary this reason of distance may prompt them to go to London or to Toronto. Many personal factors, other than the courses available and distance from home, influence an individual's choice of university.

McMaster University is limited by proximity to the University of Toronto and the University of Western Ontario in London. It is the University of the Niagara Peninsula.

It should also be mentioned that Hamilton is the cathedral city for both the Roman Catholic and the Anglican bishoprics of Niagara. This is significant in that it shows Hamilton as the regional centre of cultural and social facilities throughout the Niagara Peninsula.

#### Bus Service

Last of all it is necessary to consider the area served by the Canada Coach Lines which operates the inter-ban busses running out of Hamilton.

The routes taken by the Canada Coach Lines busses are shown in Fig. 19. The most adequate coverage is of the area immediately adjacent to the city, but busses go north







to Milton, Guelph, and Kitchener, west to St. Thomas, and eastward throughout the Niagara Peninsula.

It is significant to note the lack of a bus line running to Toronto. Toronto-Hamilton traffic is monopolized by the Gray Coach Line, which operates out of Toronto. This reflects how much Hamilton is in the sphere of influence of Toronto.

Also noteworthy is the coverage of the whole of the Niagara Peninsula from Hamilton. Busses run along the Queen Elizabeth Way and Highway No. 6 to St. Catharines, through the well populated Iroquois Plain. They also go along the main highways from Hamilton which join that city to the towns throughout the Haldimand Clay Plain.

To the west there are more lines than to the south because of the greater number of cities and towns which are large enough to require bus service.

Bus lines provide transportation between city and unland and have largely replaced the railway for short journeys. They are important in that they enable dwellers in the rural area and the small towns to come to the city for goods and services.

These preceding examples all show the interdependence of city and region.



CHAPTER V  
CONCLUSION

The Umland of Hamilton

From the preceding examples of the dependence of Hamilton on the region around it, and of the region on the city, it is possible to determine the extent of the umland of Hamilton.

Twelve examples have been considered and rarely do the boundaries coincide. But, by combining all the areas, it may be seen that there are certain common trends.

It would seem that there are three zones of differing intensities of attraction ringing the city. In the immediate vicinity of Hamilton is the zone of greatest attraction. In this zone are offered all goods and services. Students come to the University and patients to the hospitals. Deliveries are made by the large stores, the bread companies, the wholesalers, and the newspaper. In addition, small retail and specialized shops and dairies deliver in this area, and it is convenient for shoppers to come to the city. Included in this zone are Burlington, Waterdown, Dundas, and Stoney Creek.

Beyond this is the area of moderate attraction. The large retail stores, the bread companies, and the wholesalers deliver; the newspaper is sent out by truck and the medical and cultural facilities of the city are available. It differs from the preceding zone in that fewer stores deliver, deliveries are less frequent, and it is less conven-



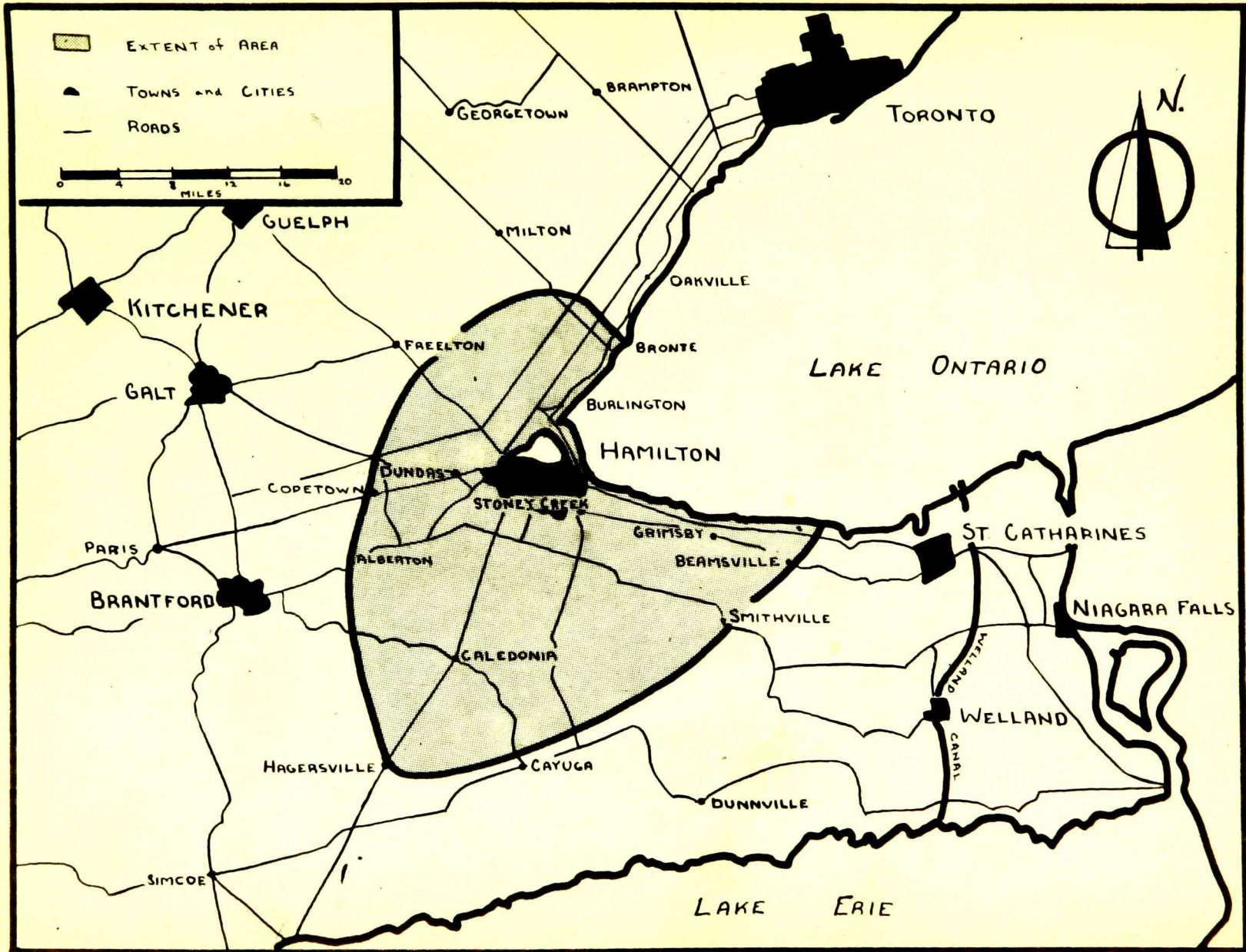


FIG. 20. The UMLAND of HAMILTON



ient for shoppers to go to the city because of the greater distance. It is the boundary of this area which has been shown in Fig. 20 as that of the umland of Hamilton. It should be understood that this is not a definite boundary beyond which the influence of Hamilton is not felt. An absolute boundary cannot be drawn because of the different factors considered and the differing competition offered by nearby cities. Enclosed within the boundary is the area which is linked more closely to Hamilton than to any of the other cities of the region.

Beyond this boundary is a zone of competition which no one city may rightly claim within its umland. Robinson's, the Spectator, Jackson's and other bread companies, and many wholesalers deliver beyond this limit in all directions. But into this zone come also goods, newspapers, and other evidences of the influence of nearby cities. Shoppers may go as easily to one city as to another.

Milton, Simcoe, and Dunnville all lie within this zone. The residents of Milton are attracted either to Hamilton or to Toronto, those of Simcoe to Brantford or Hamilton, and those of Dunnville to Hamilton, or St. Catharines, and the Canadian and American border cities. Just as the boundary of the zone of moderate attraction was indefinite, so is this. It forms a "buffer zone" between urban regions. At one edge, the attraction of Hamilton is greater; at the other, the attraction of the cities of Toronto, Guelph, Kitchener, Galt, Brantford, Welland, Niagara Falls, and



St. Catharines is predominant.

Thus, the extent and shape of the umland of Hamilton is largely the result of the position of this city in the hierarchy of towns and cities in the region. To the north is Toronto, which has all the facilities offered by Hamilton and is of most significance in limiting its umland. To the west are the cities of Guelph, Galt, Kitchener, and Brantford, and to the east, St. Catharines, and Welland; all of which have most of these facilities but lack others. Their stores exert as much attraction as do those of Hamilton, and food trucks deliver from door to door throughout the areas adjacent to each city. Their hospitals are well enough equipped to look after most patients who come from nearby, but some of these have to be sent to Hamilton for treatment. Students are educated on the primary and secondary level, but often come to McMaster for university training.

South of Hamilton there are no cities to limit the extent of the umland, and therefore, it is elongated in the south, its lowest point being at Hagersville on No. 6 Highway.

Each of the towns scattered throughout the Hamilton umland has its own limited trade area to which it supplies everyday necessities, but all are dependent on the larger centre for some goods and services. Since they do not compete with Hamilton on an equal basis, they may be included within the area of the umland.

Retail trade is the best criterion to use in delineating the area dependent on the city. The extent of the retail trade area reflects the conditions in the towns and



cities and in the rural sections of the region. Shoppers will not come from other urban centres which compete equally with Hamilton. They will come from the areas linked closely to the city by transportation routes and the number will be proportional to the population density.

The shape and the extent of the Hamilton umland and the indefinite character of the boundary are due to the proximity of other urban centres.



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