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Windsor, Ontario: A Study in Urban Geography

J. Lewis Robinson

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Windsor, Ontario

A Study in Urban Geography

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Vancouver, B.C.

Aug., 1944

by

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Thesis

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WINDSOR, ONTARIO. A STUDY IN URBAN GEOGRAPHY

INTRODUCTION

"The Southern Gateway to Canada"—this is the slogan which the Essex County Tourist Association has given to Windsor. As Canada's most southern city, and with a position of great importance as a focal point for transportation, Windsor is a distinctive city. Across the Detroit River, the boundary between United States and Canada, the cities of Windsor and Detroit face each other. Similar industries are located in both cities. Windsor is one of the few cities of the world which is separated from its larger economic counterpart by an international boundary line, and as such, well illustrates the complexities of internationalism.

Windsor's geographic position is of peculiar interest in that it is the only Canadian city which is directly south of part of the United States. This fact has been a great influence on Windsor's development, since it causes the city to be virtually surrounded by territory of the United States. Thus Windsor might be called an "outlier" of Canada, still predominately Canadian in spirit, but greatly modified by border conditions.

Thirty-five years ago, Windsor was a quiet city of 14,000 people. Today it has a population of 108,000, is the fourth largest city in the province of Ontario, and ranks fourth in industrial production for all of Canada. Stretching for about six miles in a
general east-west direction along the river, and extending southward for approximately two and a half miles, Windsor is a sharp contrast to Detroit. The tall skyscrapers of Detroit dwarf the commercial core of Windsor opposite it (Fig. 2, p.4). Probably nowhere along the border between the United States and Canada is there a better location for Windsor and Detroit. This factor of location, always dominant in the development of both cities, is the key to their success.

**REGIONAL SETTING**

In order to better understand Windsor and its problems, we must see what natural conditions prevail in the nearby area. Windsor is not an entity in itself, but is a part of a larger physical area. A description of the factors of the natural environment although not referring to Windsor directly, help to place Windsor in its geographic setting.

**Geology and Topography**

The peninsula of Western Ontario is an area of little relief, most of it being a former glacial lake plain. From "Ontario Island", a high area northeast of London, the peninsula slopes gently westward. Essex County is westernmost and flattest part of the peninsula which juts south and west towards the United States. (Fig. 3, p.5)

When the Great Lakes decreased in size to their present position, they left behind a low-lying, flat area which separated
The commercial cores of Windsor and Detroit, looking north from Windsor.
shallow Lake St. Clair from Lake Erie. The peninsula of Essex, which includes slightly more than the political bounds of Essex County, corresponds closely to the area which is directly underlain by Gan-
shallow Lake St. Clair from Lake Erie. The peninsula of Essex, which includes slightly more than the political bounds of Essex County, corresponds closely to the area which is directly underlain by Onondaga limestone. Some exposures of lower Devonian limestone and dolomite in the southwest part of the county prevent the area from being completely Onondaga. The limestone and dolomite has been called the Detroit River Series by the Government Geologic Survey.1

Bed rock dips in a northwest direction at Windsor and Detroit. Although quarries are found in the southern part of the county, bed rock beneath Detroit is from 100 to 260 feet below the surface.2 Glacial drift throughout the county ranges from 50 to 100 feet in thickness. The boulder clay, when wet, has a tendency to flow and creep and has caused the quagmires for which the county was notorious in its early days. Geology was chiefly important to the area in that it left salt, limestone, and natural gas as natural resources.

The low, flat character of the peninsula made much of it swampy at one time. The northern part, along the complete length of the shore of Lake St. Clair, is very flat. The break between land and water is not sharp. Much of the land extending south from the shore, is low and swampy; the lake is less than ten feet deep for a distance of a half-mile from the shore.

The only significant relief found in the county is the result of a glacial moraine (Fig. 4, p.7) The moraine is the westerly end of a more pronounced moraine which extends along the

2. Parkins, A. E. Historical Geography of Detroit. p.168
north shore of Lake Erie. Relief reaches a maximum of only one hundred feet for the whole peninsula. The highest point is found near Leamington in the southeast part of the county. (Fig. 3, p.5) The knoll near Leamington is caused by two moraines meeting; one continues to the west, the other cuts diagonally across the county in a northwest direction.

The westward extending moraine is poorly defined. A stream has cut through it, so that the location where the moraine is most apparent, is at a slightly higher area south of Harrow. It then merges into the surrounding territory in the marshes of the southwest corner of the county.

The moraine which extends northwest from Leamington to Detroit is known locally as "the ridge". It is a broad ridge of till about 20 feet above the surrounding area. Its gently sloping sides make it inconspicuous to the eye. Quoting F. B. Taylor, two theories as to the origin of the ridge exist. One theory states that the moraine might have been formed by a minor ice lobe of old Lake Huron. Most of the characteristics of the moraine seem to point out that it was a simple terminal moraine laid down under water.

The moraine was important to the region in that it was the only high and dry route across the swampy peninsula. The ridge was like a finger pointing the way to the site of Windsor.

**Climate**

Essex peninsula has been called the Canadian Corn Belt. The

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3. Taylor, F. B. The Moraine System of Southwestern Ontario, p.65
southwestern section of Western Ontario juts far enough southward to be included within the 70°F isotherm for July, which is generally recognized as the limit of successful corn growth. Essex peninsula is known as the mildest section of the province. Its growing season which usually begins about the first week of April, is about a week earlier than any other area, and gives it a total of 210 days. Essex county is thus one of the premium agricultural areas of Ontario, noted especially for its early vegetables.

The mean annual temperature of this area is 47° to 49°F. It is divided seasonally into a winter mean of 26°F, a spring mean of 44°F, a summer mean of 70°F, and a fall mean of 51°F. The winter mean temperature is distinctive in that only two areas of Canada have milder winters. The lowest recorded temperature of -34°F and the highest temperature of 104°F gives the area a maximum known range of 138°F.

The average annual precipitation of 28 to 32 inches is lower than the rest of Western Ontario. It is a result of the fact that the county is not on the direct leeward side of a large body of water. The annual snowfall of 40 inches is also less than any other part of southern Ontario. Summer rainfall of 17 inches is relatively low for the province, and when combined with higher summer temperatures, it causes rainfall effectively to be below the normal for the province.

However, lower precipitation has not had a serious effect on agriculture, and the relatively mild climate has given Windsor a strong, stable hinterland, which may be based on early season

5. Ibid., The date of the occurrence of the mean of 42°F marks the beginning of the growing season.
6. These areas are the West Coast of British Columbia and the Southwest tip of Nova Scotia.
agriculture. The peninsula has a growing season long enough to allow a great variety of crops, varying from early vegetables to late season fruit.

Soils, Drainage, and Vegetation

The lacustrine soils and drainage of Essex peninsula are the result of the glacial lake which once covered the county. The Brockton Clay Loam which covers most of the peninsula is classed as "a lake sediment with some ground moraine in origin." It is stone free, or nearly so. This soil is medium to high in organic matter and is well supplied with lime.

Three areas of poorer soils are found within the peninsula. They are the Fox and Berrien sandy soils centering around Colchester and Leamington respectively, and the acid Napanee Clay Loam found between Harrow and Kingsville. These soils are reflected by differences in land utilization. Two areas of muck and peat also play a definite part in the agriculture of the county. They correspond to the truck gardening areas of Point Pelee and La Salle, in opposite corners of the county.

Natural drainage is poor. Agriculture was delayed for many years until outlets were found to drain the interior. The farmers of the area have been spared the problem of erosion, but drainage is a contending problem.

The peninsula has eight major creeks which sluggishly flow from both sides of the central moraine. (Fig. 3, p. 5) The average

width of the streams is ten to thirty feet. However, at their
drowned mouths, they are usually much wider, and nearly all have
marshland on both sides. Two areas of extensive swampland are found
in the county. One extends inland from the mouth of Big Creek in the
southwest part of the county; the other is in the interior of Point
Pelee. The swamps have been a problem to transportation around the
ing edge of the county.

The early settlers found that the clay soils of the higher
moraines were timbered with beech, maple, elm, hickory, and other
deciduous trees. "Oak growth was found on the sand and gravel
beaches and was more easily cleared."9 Settlers soon removed the
trees, so that natural vegetation is now a minor factor in a county
which is over ninety per cent cleared.

**Crops**

Climate, topography and soils combined to help determine
the crops grown in the area. Corn, winter wheat and oats are the
predominant crops. Fifty-eight thousand acres of wheat in 1937 pro-
duced a little over one million bushels, while 64,000 acres produced
almost two million bushels of oats. Fifty-five thousand acres of
husking corn, the only significant amount in the province, produced
1,400,000 bushels in 1937. The county has an average yield of corn
per acre of over forty-five bushels, among the highest in the world.

Tobacco is a specialty crop, grown on sandy soils along the
shore of Lake Erie. Here is the western extremity of the larger
Ontario tobacco belt. Early vegetables and berries are grown

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8. The drowned mouth characteristics of the streams is due to the
fact that drainage of the Great Lakes was once diverted and
this section of the system had a lower water level.

Essex County Farms
throughout the county, notably in the muck soils, and give rise to the county's title of "The Garden of Canada." (Fig. 5, p. 12)

HISTORICAL DEVELOPMENT

Indian Days

Physiographic features contributed to the convergence of Indian trails upon Windsor. Although in this Great Lakes Region, travel by water along the shores, was the usual method of Indian travel, in winter the cross-country trails became more important. As was generally true, these trails were the forerunners of our modern roads.

There were several definite Indian routes in Essex County linking the various Indian settlements. (Fig. 4, p. 7) One of them rimmed the southern part of the county, being a section of the long trail along the northern shore of Lake Erie. It avoided the swamp and extended across to Amherstburg, and there branched. One route continued to the south-west from Amherstburg, crossing the river via the islands near the mouth of the Detroit River. The other trail continued northward along the east bank of the river and crossed over at the site of present-day Windsor. An east-west route coming from the Thames River valley, extended across the flat land along the southern shore of Lake St. Clair and also crossed the river at the Detroit-Windsor narrows.

A third and more important trail for direct travel followed the moraine from Leamington, after branching from the Lake Erie trail.
mentioned above. This route led to the narrow part of the river, where the moraine was cut by the Detroit River. Thus the county had a complete trail around the water's edge and one diagonally across it. At the junction of these three trails, and at an easy and convenient crossing place, was the site of Windsor.

At the junction of routes, two Indian villages were settled. The village of the Ottawas was first located on the site of the present heart of Windsor. It was later moved eastward to approximately the present site of the Ford Plant. The Wyandottes were located near the present village of Ojibway, south-west of the Ottawas.

Thus Indian trails prophesied the beginnings of two settlement nuclei: one at Amherstburg, at a crossing place; the other at Windsor, which was both a junction and a crossing place. It was left to the white man to decide which of these sites was to become the more important.

The French Period

In 1702, Sieur de la Cadillac landed his boats in the narrow part of the river before entering Lake St. Clair. He chose the north shore of the river as a good location for his group of French settlers. The bank on the north side was higher than that on the south, and being on the outside of the curve of the river, provided a deeper harbour. Fort Pontchartrain was built on this site. A clearing was made outside the walls; storehouses and homes were constructed
within. Thus a settlement was started at the narrows, Detroit, far inland from the interior of French Canada, and far from the center of colonial government. (Fig. 6, p. 46)

During the French period, the settlement grew but gradually. In 1750, Governor Galissoniere said of Detroit: "Throughout the whole interior of Canada it is the best adapted locality for a town where all the trade of the lakes would concentrate. Were it provided with a good garrison and surrounded by a goodly number of settlers, it would be able to overawe all the Indians of the continent. It is sufficient to see its position on the map to understand its utility." 10

The settlers soon spread to the south side of the river. By 1752, the area for several miles on both sides of the river was laid out in the elongated, river-touching farms typical of the French settlers. The usual farm was two arpents wide and forty arpents back from the river. 11 The first mission house had been built in 1749 near the present site of Assumption College to minister to the Huron Indians who had been forced to the south side, away from the fort, by the French. However, the centre of the isolated settlement still remained the fort at Detroit. It continued to be primarily a fur-trading post, tapping the wealth of the Great Lakes area.

During the French-English wars, there were 2,500 settlers on both sides of the river. They survived the famed Indian rebellion under Pontiac, but were to have their fate decided on the battlefield of Quebec. The Peace of Paris in 1763, ceded all of this area...

10. Parkins, op. cit., p. 79.
11. The Canadian arpent is about .85 acres. The width of a square arpent is a common measure of length, about twelve rods. Funk and Wagnall's Practical Standard Dictionary.
of Canada to England. Included with the area was the small fur-trading post of Detroit.

**The First English Influence**

The coming of the English had little effect upon the settlement. The French were given their choice as to leaving or remaining under the British crown. There was a slight decrease in population, but since government had never been of much importance to them, most decided to stay with their river front farms.

The chief effect of the change of ownership was to make the military influence in Detroit more pronounced. It became a British outpost against Americans more so than against Indians. English officers and garrison and a few new English merchants gave a different atmosphere to the fort. However, the surrounding area remained predominately French in culture. The new regime did bring the first permanent English settlers to the area. A group of Loyalists, a detachment from the famous Butlers Rangers, came in from Lake Erie and settled south of Amherstburg.

In 1783, Detroit again had its fate settled over a conference table in Europe. For the first time the area was divided politically—the area north and west of the river was henceforth to belong to the successfully rebelling colonies and was to be a part of the United States. However, Detroit was still far from the centre of government and the British were reluctant to give up such an important post in the mid-west. For thirteen years longer, Detroit remained a British fort and the seat for the Western District.  

12. The Western District was a political division of Upper Canada, and included most of present day Western Ontario.
During this period, British settlers continued to come into the Detroit River district and gave the beginnings of a cosmopolitan British-French atmosphere to the area.

The Beginning of Internationalism

In 1796, the fort was officially handed over to the Americans. This change in nationality caused a few temporary repercussions in the area. There was a serious loss of population for Detroit at first, when, for a short time, its population fell from 2,200 to 500. For a while, Sandwich and Amherstburg rivaled Detroit for superiority of the river. However, Detroit's superior position as a "shoving-off" place for settlement shifting westward soon brought its population back to normal as Americans moved in. The result of the new boundary had been a redistribution of population. Sandwich became the new district seat in 1796 and received the resident officials who moved across the river. The military personnel shifted south to the new fort at Amherstburg, which was built to counter-balance Detroit. (Fig. 7, p. 9)

Thus we again see two rival settlements growing up at opposite ends of the Detroit River, where the Indian trails prophesied. Amherstburg was the military location, while Sandwich was the administrative centre. Windsor, at this time, was a meadow of Colonel Francis Baby's farm on the corner of Church and Sandwich Streets, which was directly opposite Detroit. This better geographic location for the future was to surpass both the other larger settlements.
ESSEX PENINSULA AREA
AS MAPPED IN 1800
BY D.W. SMITH
SURVEYOR-GENERAL OF UPPER CANADA

COURTESY—G.F. MACDONALD
The new boundary had little effect upon freedom of movements in the area. American control remained loose and non-forceful. General opinion felt that the change was only transitory, and that the British would soon be in control again. The Detroit River District passed through the war of 1812 with little effect upon the permanent settlers. However, it gradually became apparent that the international boundary line through the Detroit River was to be a permanent one. With this realization, we can trace the beginnings of the international spirit which typifies this region—the spirit which realizes that the border is there, but because of lax regulations and lack of control was little affected by it. The intermixture of both British and French settlers back and forth across the river during the early period, made it apparent that "blood was thicker than the international boundary in the Detroit River."

The Nucleus of Sandwich

The town of Sandwich had grown up on the Canadian side, south-west of Detroit. Colonel James Baby had erected his house there in 1803 as a North-West fur trading post. The single road which ran along the river front connecting the various French farms also served as the main street of the town. The town was laid out so that the main street paralleled the river and the other streets cut it at right-angles.
Sandwich was primarily administrative. Since becoming the district seat of Hesse, which included most of lower Western Ontario, settlement had centered around the administrative buildings such as the court house and jail. In 1817, Sandwich and the area behind it, had thirteen stores, eight taverns, eight windmills, and one water mill.\textsuperscript{13} Sandwich had better agricultural land behind it than some of the other areas, and this factor probably helped maintain it as an agricultural centre. In 1844, a small settlement of Irish started directly behind the main part of Sandwich. They drained the marsh lands and developed highly productive farms.\textsuperscript{14}

The Nucleus of Windsor

During the same period of the early 19th century, another nucleus, called "The Ferry", was forming. It was directly across from Detroit and was connected by a ferry service using dugout canoes in the summer and sleighs in the winter. In 1830, a steamboat service was started to carry passengers. At the Canadian terminal, an inn, a few farms, and a trading post farther east, were the nuclei of the settlement known as "The Ferry" or "South Detroit."

With the establishment of The Ferry as a terminal of the stage coach line from Buffalo in 1828, more and more settlers began to trickle into the region. Some stayed to take up farms along the Canadian shore, but most continued on through the natural gateway of Detroit to the lands of the United States.

\textsuperscript{13} Gourlay, R. \textit{A Statistical Account of Upper Canada}, p. 275
\textsuperscript{14} Guillet, E. C. \textit{Early Life in Upper Canada}, p. 151
Stores and lodging places soon appeared around the stage and ferry terminals, and spread along the one main street. A visitor to this area in 1827, noted the difference between the settlement of The Ferry and the activity in Detroit. He noted fifteen to twenty wooden houses there and stated that he believed that this settlement "would soon eclipse Sandwich and may rival Chatham."

The first plan of Windsor originated when the Baby farm was subdivided into lots in 1830. This was followed by the dividing of the McDougal farm in 1835. Both of these subdivisions started from the river road and extended south for two blocks. (Fig. 8, p. 23) By 1836, the linear settlement was large enough to call a meeting to decide upon the name for the community, variously called The Ferry, South Detroit, and Richmond. The result of the community meeting was the village of "Windsor." 16

In 1837, while visiting in Detroit, Mrs. Anna Jameson wrote:

"Yesterday and to-day, I have passed some hours driving about on the British shore. I hardly know how to convey to you the difference between the two shores. Its is as incredible as it is impossible—to behold on one side, a city of towers and spires and animated population, with villas and handsome houses stretching along the shore, and a hundred vessels or more crowding the port, loading and unloading—and on the other side, a little struggling hamlet, one schooner, one wretched steamboat, some windmills, a Catholic chapel or two, a supine ignorant peasantry, all the symptoms of apathy, indolence, mistrust, and hopelessness." 17

Thus was Detroit and Windsor pictured by an English woman traveller who apparently was not pleased with the French-Canadians of the "south shore." Another visitor of 1844 gives a different picture of Windsor on an international boundary.

15. Sheriff, A Tour Through North America, p. 215
17. Jameson, A. Winter Studies and Summer Rambles in Canada, p. 86.
"The village of Windsor is a new place, formed in consequence of the American tariff, to enable inhabitants to smuggle British goods across the river. Americans buy cloth in Windsor, have it made into a suit and wear it back to Detroit under the very nose of the Collector of Customs." 18

These opinions are coloured by the personalities of the writers, but each helps to paint part of the picture of these two border settlements in their loose beginnings.

**Sandwich and Windsor before 1854**

In the period before 1854, there was a gradual growth in the two settlements of Sandwich and Windsor. Windsor's function was primarily commercial, in the sense that it served the transitory settlers who stopped there before crossing the border. The commercial function of Sandwich was concerned with collecting and distributing goods for the agricultural population of the area. Both towns grew along the main river front road. (Fig. 9, p.25) Between them, farms made a fairly complete river front settlement. The river front road which connected the farms was controlled by a road company with a toll gate near the McSwan estate. Since the road was the only one along the border, the toll gate did not greatly hinder traffic. However, the type of soil of this area made the road no less muddy than the later ones.

The eastern limit of settlement was Moy House. Located near the present site of Moy Avenue, it was a fur-trading post which had shifted from Detroit in 1799. Between Moy House and Windsor were several other small fur warehouses, and several farms which extended

south from the river.

This period is almost one of decline for Windsor so far as relative growth is concerned. Chatham street remained the southern limit of settlement until 1858. Beyond it, all was farmland. During this time, Sandwich remained the larger of the two, because of its connection as the county seat. In 1854, Windsor was incorporated as a village of 3,200 acres. In 1857, it was a town of 1,000 population. Growth in the whole county was also increasing during this period. The 1824 population of 4,274 for the county had doubled by 1837 as settlers continued to pour in from the East.

The First Railroad Comes to the Border

The coming of the Great Western Railroad in 1854 made the first serious change in the picture of settlement along the Detroit River. When the Great Western chose Windsor for its Canadian terminal, because it was directly opposite Detroit, rather than the larger town of Sandwich, it marked the beginning of the decline of the older settlement and a step in the rise of the younger one.

The completion of the 110 mile section from London to Windsor in January, 1854 marks a new era in Windsor's development. The moraine gave the railroad a little difficulty at first because of the high bank directly opposite Detroit. However, this was overcome by reclaiming all of the land along the river front and constructing the railroad terminal and buildings on the new low area. Thus it was the positional fact of nearness to Detroit which was the deciding factor in beginning the modern growth of Windsor.
Detroit was also growing rapidly during this period. Michigan had become a state in 1837, and for ten years Detroit was its capital, having a population of 10,000 in 1840. During that period, Detroit was primarily a transportation centre and a stepping-off place. However, industry was increasing in importance. Flour milling was the leading industry at that time, followed in importance by the manufacture of carriages and wagons.

The Nucleus of Walkerville

East of Windsor, another settlement was starting. In 1858, Hiram Walker came into Canada from Massachusetts, and established a distillery. He chose a site where the level land sloped gently down to the water's edge, and at a point where the new railroad swung inland away from the shore. Thus his distillery was between the railroad and the shore, and served by these two excellent transportation facilities, there arose Canada's largest distillery.

Walker bought the land extending south from the river and began laying out a town. Walkerville thus developed as a planned town, with the usual rectangular pattern which topography encouraged. (Fig. 10, p. 28) To house his employees, Walker built two streets of tenements. The houses were double-story, four family apartments, and all were similar. These long lines of similar houses still stand as a part of the Walkerville residential area. The older frame buildings constitute a small slum area, while the stronger brick buildings have been able to withstand the attacks of time.

19. Farmer, A: Detroit, Dynamic City, p. 180
Windsor as a Focal Point for Transportation

After the coming of the railroad, Windsor became increasingly important as a transportation centre. The Talbot Road had been completed during the period 1811–27. It followed the old Indian trails, branched near Leamington and terminated at both Amherstburg and Windsor. Thus by 1827, there was a continuous road from Halifax to Windsor, although the sections in Essex and Kent counties, because of the nature of the glacial soil, were often impassable even on horseback. Windsor had also been connected with Chatham to the east since 1792 by a road along the shore of Lake St. Clair. (Fig. IV, p. 30)

Transportation across the river was improved. A telegraph cable was laid down in 1857 connecting Windsor with Detroit and other mid-western cities. Also in the same year, the new ferryboat, "Union," began operating. The boat was large enough to keep the channel free from ice and thus continuous year round service became possible. In 1867, the Great Western started a train ferry with a capacity of fourteen cars. Trains no longer had to be broken before crossing. Prior to that, a ferry had taken freight and passengers across the river where they were reloaded before proceeding westward.

Increased traffic due to the railroad, resulted in a customs office being located at this important border point. As the first real restraint on border freedom, it had very little effect upon the tempo of movement across the river. However it did have the effect of giving a permanent feeling to the town.

20. Guillet, op. cit., p. 518
Another curb on cross-river traffic came in 1862. Windsor had become important to Americans during the period from 1860-62, when many escaped across the river to avoid the military draft. Because of this, the United States government stopped all travel to Canada except by permit. Traffic again moved freely after the Civil War.

The decade of the 1860's was important in the transportation growth of the city. In 1882, the Great Western was amalgamated with a larger company, the Grand Trunk Railroad. In 1883, the Canadian Southern Railroad which had been built to Amherstburg in 1872, sent a branch from Essex to Windsor. In 1888, the Lake Erie and Detroit Railroad, now the Pere Marquette, completed the track from St. Thomas to Walkerville. The year 1890 brought still another railroad to this focal point. The Ontario and Quebec railroad, a subsidiary of the Canadian Pacific, completed service from London to Windsor. This railroad had a large steel ferry to carry its trains across to Detroit. Proposed plans for a railroad tunnel at the time had to wait until 1910 to be completed.

The Street Railway from Sandwich to Windsor was bought by American capitalists in 1891, and service was made electric. The same company also bought the Walkerville Electric road and made service complete between the three towns. A further extension of the route to Amherstburg in 1903 thus linked all four border settlements of Essex County.

The period of expansion also brought some permanency to the transportation situation. In 1885, Ouellette Avenue was extended

22. Pound, op. cit., p. 191
north to the river. The customs houses and a permanent waiting room were constructed there. The foot of Ouellette Avenue became the only passenger dock in Windsor. It was situated beside the Grand Trunk railroad ferry dock, and made this river front area the focal point of Windsor. Thus it was that the promise of Windsor’s geographic position was fulfilling itself. Windsor, as a focal point for transportation, was the key to its nineteenth century development.

The Pattern of Development

The increasing importance of transportation caused the border areas to expand. During this time, the pattern of movement was southward. The Talbot Road which came into the area via the Huron Line, and the road along Lake St. Clair to Chatham, were long the only links with the interior. (Fig. 1, p. 30) However around 1860, three major roads were built southward. In order to serve more of the farms, Walker Road was extended to the approximate present position of Tecumseh Road. Dougall Road was extended by Mr. Dougall of Windsor to bring more farmers and produce to his store. Howard Avenue was built out to meet Talbot Road and so to divert traffic directly into Windsor.

Downtown Windsor grew up around the transportation terminals. Above the ferry landing, and extending south for two streets, a small commercial core had been formed. These old and small buildings were a poor contrast to the newer and bustling commercial centre of Detroit which was directly across the river.

THE COMMERCIAL CORE OF WINDSOR-1871

LEGEND FOR STRUCTURES

- BRICK
- FRAME
- STONE
- SHEDS

APPROXIMATE SCALE

100 FEET

SOURCE - G.F. MACDONALD, WINDSOR.
The big fire of 1871 was to be a blessing in disguise for Windsor. The fire raged through the commercial centre of the city, and even help from the fire engines of Detroit could save only a few buildings. The results of the fire were new buildings, better spacing and a cleaner, fresher town. In addition, increased capital from fire insurance allowed businesses to construct better foundations and bigger stores. The lack of bed rock and the type of quicksand soil had been a factor holding back the development of larger buildings.²⁴

As a result of the fire, Ouellette Avenue was widened from fifty to seventy-five feet and became the main north-south artery.²⁵ (Fig.12, p-

Thus, based on transportation development and facilities, the last half of the 19th century saw a rapid development of Windsor from the struggling hamlet to a town of 10,000 in 1887. (Fig.14, p.35).

Its post office was reported as having the second largest distributing office in Ontario, due to handling border mail.²⁶ Windsor's position as an important border town and port of entry was quite in evidence.

Development of Sandwich in the Late 19th Century

During the same period, Sandwich discovered something to pull it out of the lethargy which had existed there since the coming of the railroad to Windsor. In 1866, the oil craze hit Sandwich, and the company which formed to drill a well, struck mineral water, (salt water), instead of oil. Sandwich soon became a popular rendezvous for mineral baths. Several hotels grew up around the springs

²⁴. This creep characteristic was a problem which the Detroit-Windsor Tunnel had to overcome in 1928-30.
²⁵. See appendix for list of merchants in 1871.
²⁶. A Brief Sketch of the County of Essex, p. 21.
and carried on a flourishing business for a few years. Sandwich was linked to Detroit by a ferry which landed at the Brock Street dock. However, the decline in mineral bath popularity in a few years brought an end to the town's small boom. In 1882, Sandwich had only thirty-seven industries and businesses listed, and all were small scale, with saw-mills leading in importance. Sandwich was situated just far enough away from the direct line of traffic, to cause it to be secondary to Windsor. (Fig. 76, p. 37)

Several years elapsed before the resource which underlay Sandwich was to be discovered in its real form. In 1891, the salt beds were discovered, and in 1893, a salt industry started at Sandwich. Three chief factors encouraged its development. 27

1. The interest of the Canadian Pacific Railroad in developing eastward freight from this point.

2. The fact that most of Canada's salt requirements were then imported from the United States.

3. Abundant fuel from the wastes of the saw-mills which flourished in the neighborhood at that time.

The salt industry became the only major industry of Sandwich and remained so. It caused a minor boom of residential development in the town around 1900, but this soon died out. Aside from salt, the chief importance of the town still remained in its function as the county seat, and activity centered around these county buildings.

Development of Detroit in the Late 19th Century

Events in Detroit were reflecting themselves in Windsor. (Fig. 13, p. 44) During this period, Detroit had also become an important rail centre. By 1885, ten railroads radiated from the city. Detroit had begun its development because of its port location, but after direct connections across Canada by rail were made, this latter means of transportation soon surpassed water.

Detroit passed through various stages of industry before evolving her present economy. The tanning of hides of the 1830's was replaced by flour milling in the thirties and forties. The manufacture of wagons and carriages, which was first in importance around 1850, was replaced in importance by iron and copper smelters of the 1860's. By 1880, copper smelting had disappeared and tobacco and cigars were Detroit's leading industry, followed by foundry and machine shop products (both valued at about five million dollars).

Thus Detroit's background of industry, mixed with skilled labour from the carriage and machine shop industry, made it ready for the development of the automobile industry in the last decade of the 19th century.

The Nucleus of East Windsor

In 1904, Henry Ford founded his Canadian plant. He chose a site directly east of Walker's distillery, and also on the river. With the river in front, and the railroad behind, the transportation problem for such an industry was solved. A village of less than

28. Detroit was listed as 26th among the Lake ports in total freight handled in 1926.
600 people existed in the area at that time. It immediately began growing as workers came into the area from the rest of Ontario to take advantage of higher wages being offered in the factory. Many of these continued on to Detroit, where still higher wages were an attraction.

The plant remained one of small scale production for the first few years. Gradual increases in activity resulted in a gradual growth of Ford City, the town which had developed around the plant. It was not until 1922 that Ford City was completely laid out in plan. This was followed by a period of rapid development, which corresponds to the growth of the auto industry, and resulted in the formation of the city of East Windsor in 1925, from former Ford City. (Fig. 18, p.147)

The Beginning of the Industrial Period in Windsor

The founding of the Ford Plant marked a new era in the growth of the Border Cities. In the period before 1917, they laid out new factory districts, and secured more land which was sold to industries at low cost. Industries were given exemption from taxes in Windsor for ten years, and given free water during the same period.

Soon other American industries were concentrating upon this focal point. The Canadian tariff, erected against imported manufactured articles, made branch plants in Canada an important part of American industrial policy. Windsor, being closest to the new area of industrialism arising in mid-west United States, received a large

30. Of the 400,000 foreign born in Detroit in 1920, one quarter were Canadian.
THE BORDER CITIES 1917
SANDWICH, WINDSOR, WALKERVILLE, FORD CITY.

SOURCE - MAP OF WATER DISTRIBUTION, KNOWLES' REPORT 1917

SCALE
ONE MILE

DETOIT RIVER
percentage of these plants.

In 1917, Windsor's per capita car ratio of 1-17 was the highest in Canada at that time. There were four firms manufacturing autos, five making trucks, two manufacturing trailers, and ten making parts and accessories. The 18,000 automobiles exported from Windsor in 1917 shows how this basic industry had developed.

Windsor offered many advantages of location to industries from the United States. It was the nearest Canadian city to most of the main offices of mid-western United States. It had quick and efficient transportation lines, which allowed executives to cross back and forth easily. It had good water and rail transportation facilities which allowed goods to be brought in and shipped out with ease. It was on the edge of a large Canadian population concentration and thus near a ready market. Such a positional factor made Windsor a logical choice for industrial location in Canada. Added to these factors, was an active Chamber of Commerce which worked in the United States and encouraged American industries to establish themselves in Windsor. So it was that prior to World War II, Windsor had become the fourth industrial city of Canada.

Development of Windsor in the Twentieth Century

During this period of industrial influx, Windsor and the other border towns continued the same pattern of development. Starting from a long strip along the river, settlement spread southward, away from the river. The north-south streets served as lines
of settlement, with the east-west streets being constructed, when necessary, to join them. This resulted in the present day pattern of Windsor, which has straight streets extending north from the river, fairly evenly spaced, being cut at right angles by cross streets which are more irregular, both in spacing and continuity.

(Fig. 19, p. 76)

GROWTH OF POPULATION
OF WINDSOR ON.

GROWTH OF POPULATION
OF DETROIT AND BORDER CITIES

GROWTH OF POPULATION
OF THE BORDER CITIES

- 0

I

- 0

I

- 0

I
of settlement, with the east-west streets being constructed, when necessary, to join them. This resulted in the present day pattern of Windsor, which has straight streets extending south from the river, fairly evenly spaced, being cut at right angles by cross streets which are more irregular, both in spacing and continuity. (Fig. 19, p. 46)

Due to the bend in the river, the development away from the river also resulted in a merging of the pattern at the junction of Windsor and Sandwich. This zone is the only area of Windsor where the rectangular street pattern is not followed. Since the area is a thinly populated section where settlement between the two nuclei has not completely met, it has not resulted in any traffic problems.

The final and inevitable step in the expansion of the border settlements was amalgamation in 1935 into one large city. (Fig. 19, p. 46) Two towns and two cities had grown into what really amounted to one complete settlement along the river. They were popularly known as the Border Cities. There was no break in settlement between them and no great difference within them. Finally, the amalgamation movement which had been fostered for several years previously, and held back by bitter opposition from Walkerville, was put to a vote in 1935. A city-wide majority, despite a vocal opposition majority within Walkerville, passed the amalgamation resolution. Thus just one hundred years after the tiny village of Windsor was given its name, a new and larger Windsor arose, with a population of 104,000.
International Importance

Windsor is located on an international boundary line. This dominant positional factor caused the city to develop naturally into a cosmopolitan centre, part American, part Canadian. Prior to the last decade there was a fairly free flow of people back and forth across the border. Virtually the only barrier between the two cities was that of the river. Since it is a port of entry for Canada, a vast amount of goods enters here; some stops to supply the Windsor industrial plants, the rest is distributed throughout eastern Canada. Since Windsor is an industrial city, made up chiefly of American firms located just within the border of Canada, raw materials from both Canada and the United States concentrate here. They are then manufactured into products for the rest of the Dominion and the British Empire.

Entering the opposite foreign country held no more glamour to a Detroiter or a Windsorite than the simple physical crossing of the river. Both Americans and Canadians found it advantageous to live in one city and work in the other. In the height of the commuting days in 1926, there were 18,000 Canadians crossing to work in Detroit, while 700 Americans were working in Windsor. Government restrictions since that time have gradually decreased the number of commuters. Especially during the depression years of the early 1930's, American workers were protected by forbidding many Canadians to continue working in United States. The regulation was one of the factors which decreased the population of Windsor. (Fig. 16, p. 44)

32. Since the outbreak of war, Customs collections at the port of Windsor have increased greatly. 1939-$17 million, 1940-$35 million, 1941-$50 million.

33. This figure does not include several hundred Americans who were living in, and outside of, Windsor and commuting to their offices in Detroit.
Those who were able, changed their residence to Detroit. Such restrictions really aided Windsor. The city became less dependent on Detroit, causing her own industries to support the city. In 1940, there were 800 people living in Windsor and working in Detroit, while 220 people were residing in Detroit and commuting to Windsor.

Most of Windsor is opposite the industrial and commercial cores of Detroit. Windsor is a long, narrow city, while the industrial and commercial centers of Detroit are much larger in area, and concentrate near the river. Thus, the residential areas of Windsor are really closer to the chief centers of Detroit than are many of the residences of Detroit. The Americans who built homes on the edges of, and outside of, Windsor found that they could have the advantages of a quiet, suburban life and still be within three miles of downtown Detroit.

The ferries were long the connecting link between the two cities. Three boats from Windsor, running continuously, gave five or ten minute service to border crossers. Two ferries crossing from Walkerville gave service to the eastern sides of the cities. Their advertisement of "enter a foreign country for a nickel" attracted many tourists to Windsor from United States. The Windsor ferry was discontinued in 1938, being unable to match the faster service of the bridge and tunnel.

In order to keep abreast with the increasing tempo in transportation, a bridge and tunnel were constructed to handle the traffic
flowing between the two ports. The Ambassador Bridge, begun in 1927, and completed in 1929, was at that time the largest single span bridge in the British Empire. The tunnel, constructed between 1928 and 1930, was the first international vehicular tunnel. The bridge, in particular, serves through traffic and is located near the edge of both cities in order to avoid downtown congestion. On the Windsor side, the exit for the bridge is south of the limits of dense settlement. Thus through traffic over the bridge virtually misses most of Windsor. The tunnel links the commercial cores of both cities; its exits are near the hearts of both business districts. Such a position makes it more important for local traffic. Thus the commercial core of Windsor is really closer to the main commercial core of Detroit than are many of Detroit's satellite commercial centres. The tunnel is a factor which makes the two cities more of a geographic whole; the bridge tends to omit Windsor from the border area.

The great volume of traffic crossing the half-mile of the Detroit River made both the bridge and the tunnel a necessity. Annual traffic across the river averages about one million cars and about five million people, making Windsor the busiest port in the Dominion. Windsor has averaged from 20 to 24 per cent of the total entries at International ports for the last decade. Its closest competitors, Niagara Falls and Fort Erie have never equalled the

34. Correctly, it is a tube, not a tunnel. The sections were constructed above water, sunk in a ditch, and then covered over.
volume which enters Windsor. 35

The tunnel reported that over 85% of the cars crossing through were American, and of that total about 15% came from outside of Michigan. 36

An American holiday brings the volume of traffic up to an enormous figure. On July 4, 1941, 29,000 autos carrying about 112,000 people entered Canada at Windsor. Thus, exclusive of bus, train, and pedestrian crossings, about 78 persons per minute were entering Windsor. Typical distribution of cars as to means of entry are shown by the figures for the four-day holiday period of

35. Total traffic through the ports of Windsor, Niagara Falls, Fort Erie, and all ports.

<table>
<thead>
<tr>
<th>Year</th>
<th>Windsor</th>
<th>Niagara Falls</th>
<th>Fort Erie</th>
<th>All Forts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>5,764,209</td>
<td>5,140,736</td>
<td>4,109,019</td>
<td>24,067,863</td>
</tr>
<tr>
<td>1933</td>
<td>4,942,676</td>
<td>3,717,157</td>
<td>3,808,142</td>
<td>20,921,944</td>
</tr>
<tr>
<td>1934</td>
<td>5,105,991</td>
<td>3,582,481</td>
<td>3,776,023</td>
<td>22,375,598</td>
</tr>
<tr>
<td>1935</td>
<td>5,314,839</td>
<td>3,984,364</td>
<td>3,776,362</td>
<td>24,753,529</td>
</tr>
<tr>
<td>1936</td>
<td>6,139,450</td>
<td>4,437,701</td>
<td>4,109,036</td>
<td>28,044,931</td>
</tr>
<tr>
<td>1937</td>
<td>6,602,167</td>
<td>4,972,965</td>
<td>4,365,375</td>
<td>31,425,702</td>
</tr>
<tr>
<td>1938</td>
<td>5,889,394</td>
<td>4,215,593</td>
<td>4,493,369</td>
<td>29,313,193</td>
</tr>
<tr>
<td>1939</td>
<td>5,662,942</td>
<td>3,820,236</td>
<td>4,443,024</td>
<td>28,144,106</td>
</tr>
<tr>
<td>1940</td>
<td>4,173,454</td>
<td>2,583,720</td>
<td>3,695,116</td>
<td>20,452,692</td>
</tr>
<tr>
<td>1941</td>
<td>3,979,199</td>
<td>2,467,098</td>
<td>3,918,267</td>
<td>17,911,482</td>
</tr>
</tbody>
</table>

See appendix for figures on kind of persons and mode of transportation of traffic through the port of Windsor.

36. War regulations caused vehicle traffic to decline 29% and passenger traffic 47% from July to December, 1940 — General Manager Tunnel Corporation, Detroit.
July 3–6, 1941; by ferry — 919, by bridge — 28,600, by tunnel — 40,835.

As the focal point for transportation, Windsor is the open end of the bottle neck of Western Ontario, which juts southward into the United States. Canadian traffic flowing westward finds Windsor the most convenient gateway. American traffic uses the route across Southern Ontario, from Windsor to Buffalo as the most direct means of travel across northern mid-western United States. Four railroads converge upon Windsor and enter the United States by means of two train ferries and a railroad tunnel. Ten railroads radiate out from Detroit. About 15 trains per day pass through Windsor normally, and are checked by customs and immigration officers. Windsor recently became a station on the Trans-Canada airline route. Thus Windsor and Detroit are both connected with transcontinental airlines. Windsor's airport is said to be seven minutes driving time from downtown Detroit, via the tunnel, while the nearest Detroit airport is eighteen minutes from the same centre. 37

Windsor is located on the busiest waterway in the world. (Fig. 207, p. 52) The Detroit River, with a channel depth of about 40 feet carries an average of about 81,000,000 tons of freight annually. This is more tonnage than the Panama and Suez Canals combined. However, tonnage from Windsor and Detroit make up a minor part of the total. Although located on such an important water route,
Lake freighters on the Detroit River, Looking southwest.

Detroit is on the right. Windsor is on the left, showing the railroad along the river front.
Windsor and Detroit are not important port cities, omitting direct cross-river tonnage.39

Windsor's annual average of 600,000 tons of water-borne freight is made up chiefly of 500,000 tons of incoming coal for the industrial firms. The coal is handled by five chief coal companies and the industrial firms themselves, all of which are located along the river front. (Fig.2/P.54) Wharfage along the centre of the city is generally parallel to the river, unlike many American port cities. This characteristic is due to the narrow width of the Detroit River which prohibits docks from extending into the river. The government dock at Windsor, leased to Canada Steamship Lines, is the only dock of any size serving general water freight. (Fig.22/F.55) Its 60,000 tons of outbound freight is divided into 32,000 tons westbound and 27,000 tons eastbound. Incoming freight to the government dock amounting to a total of 15,000 tons indicates the minor importance of water traffic to Windsor.40 Freight, in total, which passes through Windsor, moves in a general east-west direction by rail and highway, with water being of secondary importance.41 Due to the fact that the three leading industries and the railroads have taken up most of the available dock space, the harbour of Windsor has not been an influential factor in its development. (Fig.22/F.55) The river front was always of major importance for cross-river traffic, but of minor importance to through-river traffic.

39. Average annual imports at Detroit are 385,000 tons, with exports amounting to 235,000 tons.

40. See appendix for complete water freight figures.

41. Letters from various industries in Windsor—March, 1942.
River front and coal docks in Ward Five, looking southwest from the Ambassador Bridge.
Air view of the commercial core and docks of Windsor, from the Detroit River looking south.
Manufacturing in Windsor has an international flavour. Its basis is American branch plants located in Windsor to supply a Canadian and British Empire market. Of the 260 companies located in Windsor, 136 of these are American, either directly or indirectly. The Canadian tariff on imported manufactured goods made it profitable for these firms to locate branches in Canada. Since Windsor was closest to the growing industrial area of mid-western United States, and had excellent transportational links with the rest of Canada, it received the major share of American firms.

As far as domestic trade, apart from the automobile industry, is concerned, there is no ruling in Canada as to what constitutes a Canadian product. Thus any assembly plant in Canada is manufacturing a Canadian product regardless of what percentage of Canadian raw materials it may contain.

For British Empire preference, there are more definite requirements. "Usually 50% or 75% Canadian content of materials, labour and overhead are required." Most of the American firms have located in Windsor since 1900 to take advantage of the Canadian and Empire market. Only six of the 136 total were there previous to that time. Twenty-two were located in Windsor prior to 1914, while during the war-time boom years seventeen more placed branches in Windsor. During the decade of post-war prosperity, forty-five American plants crossed the border. Since 1929, and especially after the Ottawa Economic Conference of 1932, forty-six more

42. Canadian Exporter, August, 1935—"Windsor, Canada's Most Southern City."

43. The Conference gave further preferential advantages to goods made within the British Empire.
firms located branch plants or factories in Windsor. Since the outbreak of war in 1939, ten more firms have crossed to Windsor, mainly in the expansion and enlargement of existing industries.

The geographic position of Windsor and Detroit is excellent for sources of raw materials. They are within easy range of most of the resources of central North America, and the cities' focal position attracts them to the area. Perhaps no international position within the British Empire has more characteristics for success. Materials are brought in from all over Canada and much of the United States. Many of the finished products of Windsor's industries go into automobiles. These in turn, and especially along with drugs from pharmaceutical industry, are distributed widely throughout Canada and the Empire.

44. Letter from the Chamber of Commerce, Windsor, April 1942.

45. About 20% of the raw materials for automobile industry came from United States. 175 firms in Canada make parts for the Chrysler Corp. and ship these to Windsor for assembly. Most of the 3000-5000 items used in the drug industry come from the United States and England. The brewing industry uses hops from Oregon and British Columbia, and malt from Toronto, derived from Ontario grain. The raw materials for the Wire and Iron works come from Canadian mills.
Steel comes from Hamilton and some United States mills. Brass is brought in from New Toronto. The lumber industry is supplied from Northern Ontario, Quebec and British Columbia.
Letters from various industries—March, 1942.

46. "Windsor Salt" is a trade name of C.I.L., and is one of the chief sources of Canadian salt. The brewing industry does an extensive export business. The West Indies is one of the chief markets. Canada exported 24,192 automobiles in 1940. Most of these came from Windsor. Oshawa is the other chief source.
Site Characteristics of Windsor:

Topography was like a finger pointing at the site of Windsor. The ridge which begins in a broad drift core near Leamington becomes narrower approaching the Detroit River. The moraine reaches its narrowest point where it is cut by the Detroit River, but can be traced as a moraine extending into Michigan. The northwest corner of the county was thus slightly higher than the shore to the east and south. Upon this low moraine, which rose about 20 feet above the river, the city of Windsor developed.

The small local relief within the city makes it essentially flat. The eastern part, almost at lake level at 585 feet, rises gently to the south to an elevation of 615 feet at the city limits. A "high" section of the city is found near the river in the central part of the city. It is a rather indefinite ridge, with an elevation of 605 feet, which begins just within the eastern political limits of former Windsor. It extends along the river bank to approximately the western limits of pre-1935 Windsor. The "ridge" slopes southward and merges with the only "valley" of the city. The valley was once occupied by a small stream. (Fig.15P.36) which flowed where Giles Boulevard is at present. With a relief of less than 20 feet in any of its course, the broad depression is hardly discernable for most of the distance. Modern urban development has further reduced its apparenity.

The land in central Windsor rises gently to the south from the former creek to the "high" point of the city. It is the highest section of the city, with an elevation of 617 feet and is found in the southeast corner of the former city of Windsor, on Tecumseh Road. A drainage divide is formed by this higher land, along which Tecumseh Road runs. The land further south is drained by Grand Haraic Creek, which empties into Turkey Creek south of Windsor.

Except for lower elevations, the western part of Windsor is similar to the eastern. It is actually swampery along the shore near the Canadian Industries Plant, where an elevation of 575 feet coincides with that of the river. The main street of former Sandwich marks the crest of a sharp rise from the low area bordering the river. The land is slightly "rolling" to the southeast of this crest, forming a definite depression in the Prince Road Park area. It again attains an elevation of 600 feet at the southeastern city limits.

Above all, the city is flat. Despite the minor undulations, taken as a whole, a maximum relief of about 40 feet in an area 6 miles long and 2 miles wide is insignificant. Transportation lines found no physical barriers blocking the way to the river.

**General Functional Pattern:**

Windsor is a city of linear functional patterns. Its industry is located in belts along the river or the railroads; its commercial centres are strips along the main streets; its residential zones
City of Windsor, looking westward from Ward One.

Scattered residences of Ward One in the foreground. Ford Motor Co. factories in centre foreground. Further westward is the area of small residences between the two areas of industry. The dark area of the central section is caused by the large trees of residential Ward Two. (Walkerville)
City of Windsor, looking eastward from Ward Five.

New Reseau Park in foreground.
Solid residential area of northern
Ward Four and Five in centre and right.
also tend to follow narrow bands. The city itself is a long narrow agglomeration along the river, never extending back from the river more than two and a half miles. In one location the settled area narrows to a width of only four or five blocks.

In a total length of about six miles along the south side of the Detroit River, four settlements merged into one city. Throughout their period of growth, they really grew as one area, "The Border Cities," and the fact that they were separate municipalities had little affect upon the functional zones. (Figs. 23, 24, p. 69, 61)

**Industrial Areas**

Industry in Windsor plays a major role in Canadian economy. Windsor's industry had a rapid growth in the present century, and due to this, has followed rather definite lines of development. Based largely on one main business, concentration has been the keynote of Windsor's industrial pattern. Industry which deviates from the general pattern is usually concerned with something other than automobiles. (Fig. 25, p. 63)

Three of the main, and oldest, industries of Windsor were established along the river front. These three, The Ford Motor Co., Hiram Walker's, and Canadian Industries, are the only concerns of any size to have a desirable river front location. Since the railroads take over the rest of the available river frontage, later industry which came into the city was forced to locate inland.

Industry has tended to follow the railroads in expanding south
from the river. The railroads form a triangle in West End and within the area heavy industry has concentrated. The Essex Terminal railroad, constructed about 1910 (Fig. 13-4) acts as a shuttle between the various firms. Swinging in a wide arc through the southern part of the city, industry grew up along the railroad and resulted in the present industrial belt which girds the city.
from the river. The railroads form a triangle in Ward One and within
the area heavy industry has concentrated. The Essex Terminal Rail-
road, constructed about 1910 (Fig.7 P.43) acts as a shuttle between
the various firms. Swinging in a wide arc through the southern
part of the city, industry grew up along the railroad and resulted
in the present industrial belt which girds the city.

While heavy industry grew up around the Ford, General Motors and
Chrysler plants of Ward One, diversified industry and subsidiary
accessory plants have concentrated in central Windsor. (Fig.5 P.63)
Industry has never been of great importance to the western side
of the city, which remains predominantly residential. Since ease
of transportation is one of the locational factors in developing
Windsor's industries, any further expansion will probably follow
the same pattern.

The railroads occupy much desirable industrial space along the
river front. Since the railroads continue by ferry across to
Detroit, at least some river frontage is a necessity. However, the
chief reason for their monopoly is the historical fact that the
railroads came to Windsor many years prior to the arrival of
industry.

The railroads entering the west central part of the city seem
to have been an impeding factor. They occupy two strips extending
north-south through the city. (Fig.48 P.111). Settlement east of the
railroads is virtually complete, but to the west becomes rather
FIG. 26

Industrial Sites in Windsor.

Small industry on Mc Dougal Street, north of Shepherd St.
L.A. Young Industries on the left, Kelsey Wheel Co.
on the right.

Subsidiary automobile industry located
along the C.N.R. in Ward One.

Canadian Bridge Co.Ltd.,
On Walker Road, north of
Essex Terminal Railroad.
sparse. Unless cut by more adequate city transportation lines these strips of railroad yard will prevent future expansion of the city to the south-west.

Truck transportation has tended to concentrate in south central Windsor, along McDougald and Windsor Avenues. This area appears on the map of commercial areas. (Fig. 28, p. 70). The trucking area thus merges with the area of small industry, and has two major locational advantages: (1) the industries which they supply are close at hand, and (2) being located in the southern part of the city, the area is near the highways. Industry and transportation again complement each other.

Industry in Windsor is represented by a great variety of firms. Eighty per cent of the industrial employees are concerned with the manufacture of iron and steel products. Eight major automobile companies have been, or are, located in the city. The Ford Motor Co. Ltd, which produced 117 cars in 1904, was turning out about 100,000 cars annually prior to the present war. The Chrysler Corp. Ltd, is primarily an assembly plant, with only the motor being made in Windsor. (See footnote No. 45) It produced about 35,000 cars annually which are distributed throughout Canada. The automobile companies used Windsor's focal position to good advantage.

American integration of industry has been carried over to Windsor. Serving the automobile factories are thirty plants supplying parts for the accessory firms. Fifteen other plants doing
diversified iron and steel work brings the total number of industries associated with iron and steel work to sixty-one. (Fig. 26, p. 65)

The manufacture of chemical and allied products ranks next in importance in Windsor's economy. The pharmaceutical branch, especially, has its products well known throughout Canada. One of the few natural resources of the area is utilized by one of these firms, Canadian Industries, Limited (known throughout Canada simply as C. I. L.). (Fig. 27, p. 68) The commercial salt beds which underlie Windsor are continuous with those of Michigan. The beds are at an average depth of 1000 feet below the surface, and one of the beds is 270 feet thick. Since 1927, C. I. L. extracts about 100,000 tons of salt annually from the veins. Prior to the present war considerable amounts of caustic soda and chlorine were chief by-products. The thirty-three plants concerned with the chemical and drug industry are chiefly American in origin, and make up a very important section of the whole Canadian industry of this nature.

Miram Walker's distillery, the largest in Canada, and the means of starting the town of Walkerville, heads a list of six breweries and four wineries which are concerned with the manufacture of alcoholic beverages. This industry also has wide distribution of its products (see footnote 46.).

Commercial areas

In its early beginnings, Windsor was important commercially.

46. "Salt"—booklet published by C. I. L. Salt Division, p. 6
50. Complete listing of kinds of industries and their numbers will be found in the appendix.
Canadian Industries Limited.
Salt manufacturers in Ward Drive (Sandwich)

Approach to the railroad tunnel to Detroit.
While Sandwich served an administrative function, Windsor continued to hold commercial dominance throughout the growth of the city. Even while industry was coming into the area and locating in the towns outside of Windsor, commercial interests concentrated in "downtown Windsor". The dominance of the larger commercial core over the other centres is shown by the growth of the area since amalgamation in 1935. (Fig.42 P.74)

Windsor has a larger frontage utilized for retail business than is justified by its population, when compared with various other cities.51 The main commercial core occupies a large area of north-central Windsor. (Fig.28 P.70) Unlike many cities where the commercial centres are in clusters which tend to form a concentric pattern around the main core, Windsor's commercial areas have a linear pattern, each paralleling the river, and being successively farther from it.

The business districts of both Windsor and Detroit have gradually shifted away from the river. These cities are similar to most towns and cities situated along a river in this respect. River-bordering towns usually located their business district near the river, and then as the town expanded away from the river, business moved in the direction of expansion. The original core of Windsor was located in the area between Sandwich and London Streets and between Ferry and Goyeau Streets (Fig.2 P.33). As the residential area spread southward, business also moved south, using Ouellette

Downtown Windsor commercial core.
Looking north along Ouellette Ave., Detroit in the distance
Views of Windsor from the main commercial core.

Looking south along the main street, Ouellette Avenue.

Looking west towards the Ambassador Bridge.
Avenue as the main street. Commercial building in the last decade has been concentrated in the corner around Ouellette Avenue and Wyandotte Street. (Fig.27)

Four streets which parallel the river act as minor commercial areas for central Windsor. Wyandotte Street is virtually a commercial belt joining all four municipalities. It is almost solidly small retail business and used car lots. Wyandotte Street is an example of a commercial area which grew regardless of political boundaries. Erie Street, the next southern commercial area, is of similar character, but is not as extensive as Wyandotte Street.

Ottawa Street, still further south, is the rising business area of Windsor. Its development is fairly recent and shows promise of still further extension. It is located in the centre of a district which is made up chiefly of a labouring class, many of whom are foreign-born. Several of the business firms of "downtown Windsor" have built branches in this district to tap the labouring trade. Ottawa Street also follows the same linear functional pattern and extends across a former political boundary.

An outer line of commerce is located along Tecumseh Road (Fig.28) It is not as solidly commercial as are the others, but has promise of greater importance, since settlement has been continually pushing in a southward direction.

The commercial cores of the former towns of Sandwich and Walker-

52. See appendix for leading nationalities within Windsor.
ville show signs of decay. Ward Five has long been in a stagnant condition. It is mirrored in the rather drab appearance of its few stores. Vacant stores along the one short main commercial street testify to the drawing power of the more modern shops of the chief commercial core of Windsor. Walkerville’s business district was never little more than a continuation of the Wyandotte Street commercial belt. Walkerville preferred to remain a pretty, and quietly exclusive residential area, with an industrial centre on one side and a commercial centre on the other.

The commercial street of Ward One, the former city of East Windsor, is an exception to much of what has been said concerning the commercial pattern of Windsor. Wedged between the two most important industrial prongs extending southward, Drouillard Road also grew in a southerly direction rather than east-west. The main commercial core is concentrated within the triangle of railroads. Beyond the railroad to the south, Drouillard Road continues to be a commercial street, but is intermixed with residences. The name "Coca Cola Lane" given to this section of the street typifies the small grocery-refreshment store, usually having a residence in the rear. (Fig.3/F.75) The street will probably become more completely commercial since settlement is rapidly filling in the area.

A satellite commercial area, which is beyond the commercial pattern, is located in the northeast corner of the city. A small group of stores have grown up to supply a residential area which
Southern Drouillard Road.
A mixture of small stores and residences.

Typical Apartment House of Second Class Residential zone.
(my home at 1632 Sycamore St. - J.K.R.)
is of a better class than the usual low middle-class homes of the industrial workers of Ward One.

Residential Areas

Windsor does not have a great range in its residential classes. The mansion class has but few representatives; slums are small in area. The lack of diversity in residential types caused a problem of differentiating residence classes according to the usual field study method. Accordingly, a method was devised which utilized certain physical characteristics of each house. By using the Canadian Underwriter's Insurance Atlas, it was possible to plot upon maps definite residential characteristics. Information was collected as to the number of stories, kind of roof, type of structure material, size of lot, and presence or absence of a garage. A block having the superlative of these characteristics would be placed in the first class residential zone, while a block having the least of these factors would become third class.

Maps were constructed with symbols which graded from dense to light, showing the degree of desirability of the characteristic. Differences within blocks could be accounted for with the symbol gradation. The symbols made the first and third class apparent as was desired. The intermediate characteristics are plotted accurately, although not necessarily measurable to the eye.

It was found that the kind of roofing material was not a differentiating factor. Roof types were divided into two subdivisions.

53. Used through the courtesy of the publishers, The Underwriters Survey Bureau, Toronto.
by the Atlas, patent and shingle. However, since both the tar-paper roofs of the third-class and the patent shingles of the first-class homes were both called patent, the division lost its value. Presence or absence of a garage was not plotted since it was not a part of the residence. The information was used however in borderline cases to help determine the residence class. Two months of research in the field comparing various residential sections, combined with the Insurance Atlas method, and a comparison of assessment rates, was added to twelve years residence in the city to evolve the final residential classification.

First-Class Residences

Areas of first-class residences partially follow the linear functional pattern of Windsor, but also tend to concentrate in rectangular sections. (Fig.31P.7f) Walkerville's first-class area centres around old and picturesque St. Mary's Church and extends southward from Willistead Park. Parts of the area may be placed in the mansion class as far as Canadian cities are concerned, and yet are found within a few blocks of slum areas and the heavy belt of industry. (Fig.44P.11/) A political boundary helps to explain this sharp functional break.

Another first-class area is located in the section formerly known as South Walkerville in the southeastern part of central Windsor. It is one of the new residential building areas of the city (Fig.72P.74). It is the only first-class residence zone
First Class Residences.

**Corner of St. Mary's Gate and Devonshire Road.**

**Corner of Lincoln Road and Soames Ave.**

**Casgrain Place, north of London St.**
FIRST CLASS RESIDENCES.

RIVERSIDE DRIVE?, WEST OF GEORGE AVE.

CORNER OF NIAGARA ST. AND DEVONSHIRE RD.

VICTORIA AVE. SOUTH OF TECUMSEH RD.
which is capable of much expansion. Many of the homes have been built in the last five years and reflect the return of prosperity during the late thirties. (Fig. 33 P. 79) Much of the rest of the area, although called second class, is an excellent residential area. Assessment values of less than $3000 caused several of the blocks to be differentiated as second class.

Similar to the central Walkerville mansion class, is the line of first-class residences along Riverside Drive (Fig. 37 P. 30). This zone extends beyond the city limits into the town of Riverside, again demonstrating the disregard of political boundaries in the functional pattern of Windsor.

Ward Four has a zone of excellent residences along Victoria Avenue which well typified Windsor's linear pattern. Extending southward from near Wyandotte Street and becoming progressively newer, the street has maintained its claim of having the richest homes in old Windsor. Ouellette Avenue, two streets to the east of Victoria, has all of the residential characteristics of a first-class zone. (Figures 45, 46, & 47). However, since it is the main artery of traffic, many of its large homes have become tourist homes and can no longer be called first-class residences. The street also has a great number of apartment houses and multiple dwelling within the large residences. This lowers the classification of the street as a whole.

First-class residences of Ward Five are located in the district
First class residential zone of northern West Five, east of the Ambassador Bridge.

Second class residences directly west of the main commercial core.
around Assumption College, in the northwest part of the city. (Fig.35i,82) A rectangular section of homes between Wyandotte Street and the river form the city's largest area of first-class homes. The boundaries of the zone, and differences within it, were difficult to determine and many homes called second class differ very little from the first-class residences in general appearance. Such houses usually lacked enough similar ones close to it to make the whole block first class.

Second-Class Residences

As is usual, by far the bulk of the residences are second class. It is the category which is left after the first and third-class types are determined. It includes residences with assessment rates ranging generally from $1000 to $3000. The second-class residential area consists of the major amount of houses in the residential western side of the city, and includes the large area of settlement of central Windsor. (Fig.36P,8) The small cottages of Ward One also fall into this residential subdivision. The second-class residential area is the basis which fills in the settlement pattern between the other functional zones.

Third-Class Residences

Third-class residences are located in only one large area in Windsor, but are scattered in several other sections throughout the city. (Fig.33P,8) A slum area is found in the negro section of Windsor extending along McDougal and Windsor Avenues, north and
south of Wyandotte Street. This section has been the home of the negroes since they first escaped across to the freedom of Canada, and has always been decadent. Small houses, in poor repair, with few services, make up the centre of the third-class zone. (Fig.37 P.8)

The area east of the negro section is also called third class. It is one of the oldest residential areas of Windsor as shown by the map of Windsor in 1872 (Fig./3 P.34), and exhibits the signs of decay typical of such an area.

Most cities have a band of decadent residences which surround the main commercial core. Often it is an area of low-class rooming houses. The residential zones of Windsor are distinctive in that the circular pattern is not duplicated. Windsor’s third-class residential area is located on only the east side of the commercial core. The boarding houses and rooming places typical of residences near the business area are found west of the commercial core but have not been classified as third class. (Fig.35 P.82) The reason for the lack of circular pattern may be found in the historical development and morphology of the city. Settlement spread to the east of the commercial core (see historical development maps) and thus the eastern area is older. The homes on the east were small and frame, while those on the west were much larger, and many were constructed of brick (Fig.45 P.82). The western side of the commercial core was once a first-class residential zone of early Windsor, and since the growth of the city has been so recent, the area has not
THIRD CLASS RESIDENCES

TUSSCORORA STREET, BETWEEN MCDUGAL AND MERCER STS.

MCDUGAL STREET, NEAR ASSUMPTION ST.

MCDUGAL STREET, NORTH OF ERIE ST.
FIG. 38

Third Class Residences.

Tenements on St. Antoine Street, Ward Five.

Poor residences mixed with storage buildings. McDougal Street, north of London St.
yet fallen into a stage of disrepair which would make it third class.

Ward Five, although very old, and called decedent, has only one small section of third-class residences. A block of tenements and another block of small, poorly-kept houses, are the only blots in the quiet, elderly dignity of the former town of Sandwich.

(Fig. 38) Here the houses are generally further apart, and larger. Their age is apparent, but the homes have been maintained in fairly good condition.

Scattered third-class residences are found near the major industrial areas, as would be expected. One such area is the original frame structure area built by Hiram Walker for his town. Walker built several blocks of identical buildings in making his town. Most of these houses still remain. (Fig. 37) The frame homes, in the heart of the industrial section are in very poor condition. The brick structures have proven more durable and are in better repair. The latter form a linear transitional zone, between the industrial section and the first-class area of former Walkerville.

Scattered third-class residences are located between the railroads of Ward Four. The whole area is of low second-class calibre. However its poor appearance is due greatly to being begrimed with soot from the railroads rather than any structure deficiency.

For an industrial city, Windsor is fortunately lacking in large areas of third-class residences. Two factors help to explain the welcome deficiency. Homes of the industrial workers usually
Original Walker residences in Ward Two.

Brick duplexes on Monmouth Road, north of Richmond St.

Frame houses on Walker Road, near Edna St.
constitute this poor class, and most of them, although small and often poorly constructed, are new. They are located chiefly in Ward One, which was not subdivided until 1922. Another factor is that a great number of poor residences were moved out of the city during the depression years of the early 1930’s.

**Suburban Residences**

Lack of third-class residences within the city is also partially explained by their location outside of the political bounds of the city. In Sandwich West, along Dominion Boulevard (Fig.7o P.7/) the area popularly known as "Tin Can City" was a real slum area. Here, houses were actually constructed of cardboard boxes and tin cans as the full weight of the depression struck the automobile industry.

The return of prosperity brought improvement to the area. Most of the shacks have now been torn down, removed or rebuilt. There has been some attempt to better the condition of the streets, but it still looks poor. The government has also undertaken a policy of rehabilitation for the area. For the past three years they have been granting lots to war veterans who so applied, and are moving in or rebuilding homes for them. "Tin Can City" is an island of poor residences, playing no part in the functional pattern of Windsor, and not fitting into the rural economy of the area in which it is situated.

Remington Park, south of Central Windsor (Fig.7o P.7/) is a section of low middle-class homes of industrial workers. The type

Suburban residences in Remington Park.
of residents and their homes are similar to those of Ward One. With the locational factors of being close to the city and still having the advantages of county taxes, a village of small, frame, one-story homes has arisen. (Fig. 4/F. 72) Construction has increased greatly in the last few years as the area rapidly expands. Remington Park is an extension of the residential area of Windsor beyond the city limits. Its lower character is a reflection of the fact that it is beyond the city boundary.

The third suburban area which is included within the geographic city is a section beyond the southeast corner of the city (Fig. 40/F. 7/). It is also an area of new construction but differs partially from Remington Park in that the eastern part of the area has a much better class of homes. It is the only area of better class homes outside of the city limits and still within the geographic city. Fine homes are found outside the city, notably in South Windsor, but are beyond the area included within the geographic city. The residential area southeast of the city is similar to that within the city limits in general types of structure and appearance. Its expansion is due to its proximity to the industrial area of the east side.

Present Building Trends

The expansion of the last six or seven years is reflected by definite building trends within the city (Fig. 42/F. 7/). Two areas stand out as centers of new residential construction and both have
adequate room for still more expansion. One area is that of South Walkerville with its group of first-class residences built around Memorial Park. The other area is in Ward 11, and is the continuing southward extension of the former city of East Windsor. Small cottages of second-class category are typical of the new homes.

A product of present war conditions and of a temporary character
adequate room for still more expansion. One area is that of South Walkerville with its group of first-class residences built around Memorial Park. The other area is in Ward One, and is the continuing southward extension of the former city of East Windsor. Small cottages of second-class category are typical of the new homes.

A product of present war conditions and of a temporary character is the Wartime Housing Project of Ward One. To meet the need of locating a large number of industrial labourers near their work, and to take care of the great influx of people to the war industries in Windsor, five hundred homes were constructed on vacant land of former East Windsor. (Fig. 45, p. 76). When the five hundred are finished, plans have been completed to construct three hundred more similar houses. Twenty-five of the latter will be located in Ward Five to house some of the workers at the steel plant in Ojibway. The Wartime houses are not permanent structures. They are one- and two-story cottages of three or four architectural styles.

Areas of present commercial construction centering around Ottawa Street and the heart of downtown Windsor, have been noted in an early section. New industrial building has been largely done by the few major companies, and includes huge new factories at both Ford's and Chrysler's.

The tempo of new building in the city has increased in recent years. The two million dollar construction mark set in 1940 for the second time since 1930 rose to over four million dollars in
AIR VIEW of MODERN HOMES for WAR WORKERS in WINDSOR
1941. However this building figure does not compare with the expansion decade of 1919-1929 when annual building permits averaged five million dollars.

**Cultural Functions**

The education needs of the city of Windsor are supplied by one college, four collegiates or high schools, one vocational school and one continuation school. (Fig. 44P.78). There are numerous public and separate schools which make up the grand total of fifty-nine educational buildings. The primary schools are fairly evenly distributed throughout the city and with the opening of the

Gordon MacGregor
David Maxwell Continuation School in Ward One, the distribution of schools for secondary education is also adequate.

Park areas within the city show a lack of planning during the early growth of Windsor. Scarcity of parks is a serious deficiency to the crowded sections of the old part of north central Windsor. Both ends of the towns also have inadequate park space. Ward Five has Prince Road Park, which is an excellent park as regards to complete facilities, but is located too far from the settled area of the city. Ward One has only one park with adequate facilities for juvenile play and that is located within a ball park. Thus the area of potentially greater population, located near heavy industry, is without adequate recreational space.

Town planning became aware of the problem in the last two decades and has given the southern sections of the city excellent parks.

(Fig. 44P.78)
Cultural Sites.

Kennedy Collegiate Institute on Tecumseh Road.

Assumption Church, with Assumption College in the background. Taken from the Ambassador Bridge.

Beautiful Jackson Park in south central Windsor.
Attempts to landscape the river front area have been started by making a park along the river, east of the Ambassador Bridge. (Fig. 24P. 61) The problem of alleviating the congestion of the third-class area of north central Windsor is one for future planning.

Further cultured institutions are represented by ninety-four churches and missions, and thirteen hospitals and charitable institutions scattered widely throughout the city to care for the needs of the body and soul of the people of Windsor. Sixty-three hotels bespeak of the importance of the tourist trade and demonstrate how Windsor's focal position is reflected in the functions of the city. Nine theatres help fill the need for entertainment of both tourist and local citizen.

Windsor has only the new Post Office Building as a public building of monumental character. The City Hall is an old school building of the nineteenth century, and is inadequate for a city of Windsor's size. The county buildings, such as the jail and court house, are virtually forgotten in Ward Five. The railway terminals use ancient passenger stations which were built in the late nineteenth century when Windsor was much smaller. Windsor's public buildings play an inconspicuous part in the total functional pattern, and for the sake of the civic pride of Windsor, the more inconspicuous the better.

**Public Utilities**

Windsor is supplied with water, gas and power. Water for the
city is taken from the eastern end of Detroit River near Peche Island. The city water system at one time supplied eleven municipalities. The city has one Filtration Plant and two pumping stations. Due to the flat nature of the whole area, pumping is the greatest single item of expense in delivering water. Water is pumped to as far east as the town of Tecumseh; the western limits are beyond La Salle, a total distance of twelve miles. In the present metropolitan water system, Windsor owns all the lines, even though some of the outside areas paid to have the mains built. Since amalgamation these areas now pay Windsor a flat rate for their water which includes maintenance and pumping.

Natural gas comes from wells near Port Alma and Tilbury, about forty miles east of Windsor. At one time Kingsville was an important source of gas, but the wells have since declined. The gas is purified at Port Alma, on Lake Erie south of Chatham, and then sent to Windsor in eight and ten-inch mains.55 Within the last decade the wells have been declining and occasionally pressure is not great enough during the winter to supply all of the industrial plants. The decline in the volume of gas is being met by refusing to allow any new domestic consumers of gas.

Electric power is supplied to the city by the Hydro Electric Power Commission of Ontario from its plant at Niagara Falls. Two lines of large steel towers carry the power 230 miles from Niagara to Windsor. The city of Windsor buys the power from the Commission.

55. Windsor's 23,000 gas consumers use about 9,000,000 cubic feet of gas daily.
and operates its own distributing system under the Hydro Division of the Windsor Utilities Commission. The rural areas beyond the city limits are supplied directly by the Ontario Commission.

**Transportation Facilities**

The functional pattern of Windsor has been a hindrance to overland transportation along the river, although encouraging north-south travel. The city spread southward from the river, shooting streets out ahead of development, and thus allowing transportation in this direction to be easy and direct. In addition, the main highway lines came in from the south and found direct access to the river.

East-west traffic has been more restricted. The chief factor preventing such travel has been the railroads. The main lines, extending north-south through the city, have cut opposite street development. (Fig.7P.46) Only three main east-west arteries completely connect the various sections of the city. Sandwich Street, the original river front street of the various towns, always was a main east-west connecting road. Early in the present century Wyandotte Street was cut through, and now serves as the central commercial link. Finally, Tecumseh Road, which was formerly the southern limit of the city, acts as the highway link for faster through traffic. City planning sometime in the future will have to overcome the problem of poor east-west transportation in order to knit together more closely the functional zones of Windsor.
In Ward One, the problem of east-west traffic is accentuated by the presence of the solid belt of industry extending north-south along the railroad, thus forming a double barricade. (Fig. 4, P. 111) The transportational problem there has become quite acute recently due to the increased number of employees working in war industry at the factories and driving to work. Complicated traffic jams at quitting time have been the result. 56 Lack of adequate parking space in this industrial area also is a phase of the transportation problem of Ward One. The city grew up so completely around the industries that very little space was left for parking. Lack of city planning for the functional zones is apparent in the transportational pattern of Windsor.

Functional Trends

Like its neighbour city across the border, Windsor has been moving back from the river. Industry, finding the river front space taken, tended to partially box the city, leaving the open side of the square towards the river. Along the various railroads and across with the Essex Terminal, the industrial pattern demonstrates its dependence on rail transportation rather than on water in maintaining its supplies.

As indicated on the map of new building areas, (Fig. 4, P. 74), commercial Windsor tends both to concentrate and also to continue its parallel linear development. The increasing number of stores in downtown Windsor shows the concentration and growth of this area as

56. The Ford Motor Co. now staggered its quitting times to alleviate the problem.
the dominant commercial core. The rise of the Ottawa Street district to second in importance as a business centre, and the continued building on the other business streets, illustrates the continuation of the pattern of east-west commercial streets serving north-south residential streets. While Detroit was spreading out following its radial street pattern, Windsor has maintained its rectangular street pattern, with all the inherent difficulties for direct transportation.

Expansion is in a general southeast direction. This augurs ill for the future of Ward Five. The southeastern part of the city offers no geographic barrier to expansion. Future development, whether industrial, commercial or residential, will fit easily into the present functional pattern.

The Hinterland

Windsor as a geographic city extends beyond the limits of the political city. (Fig. 4o F. 7/) Generally speaking, the suburban geographic city follows the main lines of transportation, thus having easy and short access to the city. Windsor still has adequate space to spread southward and it has been in this direction that the settlement pattern has continually moved. The suburban area included within the telephone exchange has a population of about 16,000 people.57

The town of Riverside, omitted from the study, is directly east of Windsor. It is almost entirely a residential settlement which

57. The Bell Telephone Exchange includes the towns of Riverside, Le Salle and Ojibway; also the townships of Sandwich East and West. The rural lines extend up to 7 miles beyond the city limits.
Letter - Manager of Windsor Branch of Bell Telephone Co. of Canada. March 1942.
tapers away from the eastern limits of Windsor to a narrow strip along the river front. Riverside Drive, which continues along the river from Windsor into Riverside, is an area of exclusive first-class homes, many of which are among the most expensive in the border area.

In general, the town is sparsely settled. The eastern section is devoted almost entirely to American summer cottages, which are open only part of the year. The small commercial section is interested chiefly in the summer trade. Riverside's function is primarily to supplement Windsor's residential zones.

The suburban areas beyond the city limits have all the services and conveniences of the city. Most of the residents work somewhere within Windsor and drive to the city. Small gardens for home consumption are typical of most of the homes. When houses become more scattered and further apart, one is out of the geographic city and into the hinterland.

The hinterland of Windsor roughly coincides with Essex peninsula. Within the area, which is somewhat larger than the county, and contains about 55,000 people, the people regard Windsor as the "big city". Department stores testify that on Saturdays their customers come from anywhere within the area. The Windsor Daily Star is virtually the exclusive newspaper of Essex county. It even extends its daily deliveries to areas beyond London, 120 miles to the east.
The hinterland has not been of great effect as a basis for the city's growth. It has given Windsor a strong, stable base, without which a city has a problem in food supply, but its products are not directly contributory to Windsor's industrial success. The county is agricultural, called the "Garden of Canada"; the city is industrial, "the Automobile Centre of the British Empire". The canneries and tobacco factories are located in the small towns of the county rather than in Windsor. While industries based on agricultural products are found in the hinterland, much of the agricultural produce naturally finds a market in the city.

Especially at present, during wartime conditions, the city is having an effect upon the hinterland. The war industries, converted from peacetime manufacturing, are making army tanks, trucks, and military supplies, and are demanding great numbers of labourers. Available labour within the area has converged upon Windsor, draining the towns of their skilled workers. As many as 350 employees of the Ford Motor Company drive in every day from as far away as Leamington, 35 miles to the southeast. This is roughly more than one-third of the working population of the town and demonstrates how labour is being drained into Windsor. People moving into the city have increased the population over 1,000 since 1940, and this

58. Manufacturers of canned goods are located in Leamington (H. J. Heinz Co.), Harrow, Essex and Tecumseh. Tobacco factories are in Leamington and Kingsville.

59. Windsor's milk all comes from within Essex county. Enough milk is produced within the county to supply both city and small towns. Distribution of milk from Windsor's dairies extends from 20 to 30 miles into the county. - Letters from Windsor dairies. March 1942.

60. There are 650 Ford employees from rural areas depending on public transportation to reach work (chiefly Greyhound bus). This number does not include those who come by private car, nor is it the total number of workers from rural areas. - Personnel Office, Ford Motor Co. Ltd.
figure does not include the numbers who have entered the city since January 1, 1942. (Fig.8 p.44) The great and sudden influx resulted in serious housing shortage in Windsor, which was countered by the rapid construction of 800 wartime homes. (Fig.43 p.76)

Conclusion

Geographic location of Windsor as a focal point on the international boundary gave it a reason for growth. The positional factor of being just a half mile from a rising industrial city of the United States, and within a Canadian tariff, gave Windsor its industrial character.

Undoubtedly, a large share of Windsor is due to Detroit. There is no doubt that a city would have arisen at this natural crossing place, as a transportation terminal. But it is to be doubted that Windsor would have grown to its present size, or have had the industrial stamp upon it that it has, if it had not been for a city such as Detroit arising on the other shore of the river.

Without the international boundary, Windsor would probably not be an industrial city. Detroit and its small Canadian counterpart, Windsor, are too similar to exist together as twin cities. There is too much duplication of functions; too much of the same product being turned out by the same machinery, which one factory could do as well. However, without an international boundary, Windsor would probably become a much greater residential city than it is now. International regulations prevent many people from living in Windsor and
working in the nearby Detroit industries. Thus political regulations both maintain and restrict Windsor.

Amalgamation was simply the answer to the next obvious step in the development of the Canadian border cities. When four such settlements finally merged and were concerned with one chief industrial function, political duplication was unnecessary. True, Walkerville lost its exclusive restrictions, and had to take over part of the debts of the other municipalities, but it had no geographic basis for remaining a separate entity. The "Border Cities" could only find further progress and development as a "border city", Windsor.

What the future holds for the city no one knows. As the fourth industrial city of Canada, Windsor has risen to vital importance during war conditions. This industrial boom and experience will probably cause it to play an even more important part in the general industrial economy of Canada in peace time. Industry in Windsor may be said to have an artificial and political basis for its development but one cannot take away from Windsor, its geographic position as a transportation focal point. This geographic position in the centre of a bottleneck through which transportation lines must pass, and must stop to cross a river, Windsor will always have. Geographically, the focal centre of Windsor will always be a city of importance to the area.
Appendix A

How Windsor's acreage is divided:
- Fully developed and built on: 3,007 acres.
- Fully developed and not built on: 614 acres.
- Partially developed and built on: 77 acres.
- Partially developed and not built on: 807 acres.
- Undeveloped: 1,218 acres.
- Covered with water: 1,218 acres.
- Otherwise unfit for building: 83 acres.
- Parks: 197 acres.
- School properties: 169 acres.
- Other municipal properties: 32 acres.
- Dominion or Provincial properties: 5 acres.
- Streets and lanes: 1,408 acres.
- Total acreage: 8,250 acres.

Mileage of Windsor Streets:
- Total mileage of all roads: 334.51 (includes alleys)
  - Concrete: 180 miles.
  - Sheet asphalt: 28 miles.
  - Cinders: 59 miles.
  - Improved earth: 39 miles.
  - Crushed stone: 10 miles.
  - Asphalt block: 6 miles.
  - Macadam: 2 miles.
  - Unimproved: 10 miles.

Mileage by former political divisions:

<table>
<thead>
<tr>
<th></th>
<th>Miles Paved</th>
<th>Alleys Paved</th>
<th>Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Windsor</td>
<td>50</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>Walkerville</td>
<td>30</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Windsor</td>
<td>90</td>
<td>64</td>
<td>60</td>
</tr>
<tr>
<td>Sandwich</td>
<td>41</td>
<td>25</td>
<td>17</td>
</tr>
</tbody>
</table>
Appendix B

Kinds of Industries and numbers of firms in Windsor.

61 companies manufacturing iron and steel products.
33 companies manufacturing chemical and allied products.
10 businesses making alcoholic beverages.
37 firms manufacturing non-metallic mineral products, builders' supplies, etc.
32 companies in the canning, baking and confectionary industry.
37 companies concerned with wood and paper manufacture.
12 firms making non-ferous metal products.
10 businesses in the textile industry.
6 representatives of the animal products division.
12 industries manufacturing miscellaneous products.

Appendix C

Number of merchants and residents in downtown Windsor in 1870.


Number of merchants suffering losses in the fire of 1870 were 41.

Appendix D

Key facts about the city of Windsor:

Population (Dominion Census, 1931)

Male - 50,364.
Female - 47,815.
Total - 98,179.

Age groups:
Male (15-60) - 21,356.
Female (15-60) - 20,138.
Children - 18,234.

Population by wards in 1940.
Ward Four - 27,418. Ward Five - 17,316.

Religion.
Protestant - 59,017. 60%
Roman Catholic - 34,235. 35%
Jewish - 2,476. 5%

---
### Appendix D (continued)

<table>
<thead>
<tr>
<th>Service</th>
<th>1938</th>
<th>1937</th>
<th>1936</th>
<th>1935</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephones</td>
<td>15,415</td>
<td>14,439</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric meters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>24,023</td>
<td>23,766</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>3,225</td>
<td>3,152</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>467</td>
<td>460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas meters</td>
<td>18,141</td>
<td>17,350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radios</td>
<td>14,559</td>
<td>13,432</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Registration</td>
<td>14,987</td>
<td>14,295</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>1,865</td>
<td>1,935</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Appendix E.

#### Coal Imported to Windsor:

<table>
<thead>
<tr>
<th>Company</th>
<th>1940</th>
<th>1939</th>
<th>1937</th>
<th>1936</th>
<th>1935</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.I.I.</td>
<td>87,200</td>
<td>64,000</td>
<td>65,000</td>
<td>70,000</td>
<td>55,000</td>
</tr>
<tr>
<td>Pittsburg Coal Co.</td>
<td>94,000</td>
<td>125,000</td>
<td>77,780</td>
<td>78,286</td>
<td>60,000</td>
</tr>
<tr>
<td>Zavinsky Coal Co.</td>
<td>5,275</td>
<td>20,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empire Coal Co.</td>
<td>90,000</td>
<td>75,000</td>
<td>56,595</td>
<td>88,655</td>
<td>58,160</td>
</tr>
<tr>
<td>Confederation Coal Co.</td>
<td>43,000</td>
<td>32,745</td>
<td>21,850</td>
<td>33,452</td>
<td>30,000</td>
</tr>
<tr>
<td>Ford Motor Co.</td>
<td>97,999</td>
<td>75,000</td>
<td>73,000</td>
<td>62,000</td>
<td>55,000</td>
</tr>
<tr>
<td>Mullen Coal Co.</td>
<td>101,000</td>
<td>105,500</td>
<td>135,000</td>
<td>130,000</td>
<td>85,000</td>
</tr>
<tr>
<td>Resume Coal Co.</td>
<td>25,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>538,739</td>
<td>477,245</td>
<td>429,228</td>
<td>447,668</td>
<td>357,160</td>
</tr>
</tbody>
</table>

**Total for 1941 -** 521,014 tons.

#### Marine Freight Traffic in and out of the Port of Windsor (in tons)

<table>
<thead>
<tr>
<th>Company</th>
<th>1940</th>
<th>1939</th>
<th>1937</th>
<th>1936</th>
<th>1935</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.I.E.</td>
<td>53,800</td>
<td>1,000</td>
<td>35,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Steamship Lines</td>
<td>62,500</td>
<td>15,000</td>
<td>33,500</td>
<td>48,000</td>
<td></td>
</tr>
<tr>
<td>Canadian Cement Co.</td>
<td>8,890</td>
<td>7,137</td>
<td>128</td>
<td>2,705</td>
<td></td>
</tr>
<tr>
<td>Canadian Pacific Railroad</td>
<td>17,085</td>
<td>0</td>
<td>15,952</td>
<td>22,518</td>
<td></td>
</tr>
<tr>
<td>Hirex Walkers</td>
<td>2,021</td>
<td>14,569</td>
<td>2,800</td>
<td>20,417</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>144,395</td>
<td>37,806</td>
<td>87,380</td>
<td>93,640</td>
<td></td>
</tr>
<tr>
<td><strong>Total for 1941</strong></td>
<td>135,797</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total freight by water:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>656,311</td>
</tr>
<tr>
<td>1940</td>
<td>683,134</td>
</tr>
<tr>
<td>1939</td>
<td>602,431</td>
</tr>
<tr>
<td>1937</td>
<td>522,856</td>
</tr>
<tr>
<td>1936</td>
<td>596,097</td>
</tr>
<tr>
<td>1935</td>
<td>472,838</td>
</tr>
</tbody>
</table>

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Marine Freight Traffic in and out of the Port of Windsor (in tons)

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<th>1939</th>
<th>1937</th>
<th>1936</th>
<th>1935</th>
</tr>
</thead>
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<td>1,000</td>
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<td></td>
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<tr>
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<td>15,000</td>
<td>33,500</td>
<td>48,000</td>
<td></td>
</tr>
<tr>
<td>Canadian Cement Co.</td>
<td>8,890</td>
<td>7,137</td>
<td>128</td>
<td>2,705</td>
<td></td>
</tr>
<tr>
<td>Canadian Pacific Railroad</td>
<td>17,085</td>
<td>0</td>
<td>15,952</td>
<td>22,518</td>
<td></td>
</tr>
<tr>
<td>Hirex Walkers</td>
<td>2,021</td>
<td>14,569</td>
<td>2,800</td>
<td>20,417</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>144,395</td>
<td>37,806</td>
<td>87,380</td>
<td>93,640</td>
<td></td>
</tr>
<tr>
<td><strong>Total for 1941</strong></td>
<td>135,797</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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</tr>
<tr>
<td>1937</td>
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</tr>
<tr>
<td>1936</td>
<td>596,097</td>
</tr>
<tr>
<td>1935</td>
<td>472,838</td>
</tr>
</tbody>
</table>
## Appendix F.

Total Traffic through the Port of Windsor, Ont. for the last ten years

<table>
<thead>
<tr>
<th>Year</th>
<th>Returning Residents</th>
<th>Tourists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highway</td>
<td>Ferry</td>
</tr>
<tr>
<td>1932</td>
<td>2,801</td>
<td>650</td>
</tr>
<tr>
<td>1933</td>
<td>2,345</td>
<td>325</td>
</tr>
<tr>
<td>1934</td>
<td>2,501</td>
<td>637</td>
</tr>
<tr>
<td>1935</td>
<td>2,313</td>
<td>312</td>
</tr>
<tr>
<td>1936</td>
<td>2,675</td>
<td>214</td>
</tr>
<tr>
<td>1937</td>
<td>2,913</td>
<td>076</td>
</tr>
<tr>
<td>1938</td>
<td>2,422</td>
<td>351</td>
</tr>
<tr>
<td>1939</td>
<td>2,555</td>
<td>598</td>
</tr>
<tr>
<td>1940</td>
<td>1,332</td>
<td>971</td>
</tr>
<tr>
<td>1941</td>
<td>1,159</td>
<td>421</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Admitted as Immigrants</th>
<th>Returned Canadians</th>
<th>Percentage of totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>3,402</td>
<td>2,071</td>
<td>5,764</td>
</tr>
<tr>
<td>1933</td>
<td>2,707</td>
<td>2,175</td>
<td>4,942,675</td>
</tr>
<tr>
<td>1934</td>
<td>915</td>
<td>1,129</td>
<td>5,104</td>
</tr>
<tr>
<td>1935</td>
<td>789</td>
<td>759</td>
<td>5,141</td>
</tr>
<tr>
<td>1936</td>
<td>877</td>
<td>707</td>
<td>5,691</td>
</tr>
<tr>
<td>1937</td>
<td>1,060</td>
<td>726</td>
<td>6,202</td>
</tr>
<tr>
<td>1938</td>
<td>999</td>
<td>708</td>
<td>5,998</td>
</tr>
<tr>
<td>1939</td>
<td>764</td>
<td>574</td>
<td>5,552</td>
</tr>
<tr>
<td>1940</td>
<td>1,046</td>
<td>890</td>
<td>4,173</td>
</tr>
<tr>
<td>1941</td>
<td>752</td>
<td>765</td>
<td>3,979</td>
</tr>
</tbody>
</table>

* Americans or persons of other nationality residing in the United States.
** Canadians who were residing in the United States but were returning to Canada for permanent residence.
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Graduated: 1930.
Graduated: 1935.
College: Assumption College, Windsor, 1936-37.
Graduate Work: Syracuse University, 1940-42.