CANADA
DEPARTMENT OF MINES AND RESOURCES

MINES AND GEOLOGY BRANCH
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GEOLOGICAL SURVEY

MEMOIR 226

PALÆOZOIC GEOLOGY OF THE BRANTFORD AREA, ONTARIO

BY

J. F. Caley

OTTAWA
EDMOND CLOUTIER
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
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Palæozoic Geology of the Brantford Area, Ontario

CHAPTER I

INTRODUCTION

GENERAL STATEMENT

During the field season of 1938 the writer studied and mapped the Palæozoic geology of an area in southwestern Ontario, here designated the Brantford area. The area is bounded on the east and west by longitudes 80° 00′ and 81° 00′, respectively, and extends from latitude 44° 00′ south to the north shore of Lake Erie. It comprises the counties of Wellington, Waterloo, Brant, and Norfolk, as well as the greater part of Oxford and a small part of each of Perth, Elgin, Haldimand, and Wentworth. The total area is approximately 4,500 square miles.

The work was undertaken with the object of revising the previous geological map and reporting, so far as possible, upon all phases of the bedrock geology. It is now over 20 years since publication of the latest geological map[1] of this area, and during that time considerable additional information has been made available through drilling for petroleum and natural gas and by the opening of quarries for the utilization of the rock. As the bedrock over a large part of the area is concealed by a mantle of glacial drift, information obtained through drilling furnishes additional structural data and enables a more accurate placing of certain geological contacts than was formerly possible. The importance of such an investigation and revision becomes apparent when one considers the fact that it is with these Palæozoic rocks that the oil, gas, salt, gypsum, road metal, building stone, etc., in southern Ontario are associated.

HISTORICAL SKETCH

One of the earliest geological accounts including the present area was made by Alexander Murray[2]. In 1843 Murray examined the country between Georgian Bay and Lake Erie; he divided the Palæozoic rocks of this area into ten divisions and correlated them with divisions in New York State.

The Reports of Progress of the Geological Survey for the years between 1843 and 1863 contain various accounts of the rocks present in the Ontario Peninsula. In 1863, Logan's "Geology of Canada" was published; this is essentially a summary of the work of the Geological Survey

[1]The Ontario Peninsula, Map 1715, 1918, in Mem. 111, Geol. Surv., Canada (out of print).
[2]Murray, A.: Geol. Surv., Canada, Rept. of Prog. 1843, pp. 51-91.

from its beginning (1842) and contains descriptions of the formations recognized, including their distribution, lithology, structure, thickness, fossil content, and probable age.

For many years after publication of the "Geology of Canada", Logan's interpretation of the bedrock was followed, and although much information was added no basic changes were made. Previous workers have dealt with the rocks of Brantford area largely according to the system to which they belong, the Ordovician, Silurian, and Devonian representatives having been investigated more or less independently. The more important works dealing with each system will be mentioned below.

Only the uppermost Ordovician, represented by a few feet of the Queenston formation, is exposed in the Brantford area. No detailed description of this formation as it occurs within the area is known to the writer, but the presence of these rocks at Cataract was reported in Guide Book No. 5 published by the Geological Survey of Canada in 1913.

In 1916 Foerste[1] described the Upper Ordovician formations of Ontario and Quebec. His report gives a brief account of the Queenston rocks as exposed at several localities between Georgian Bay and Lake Ontario.

Until about 1912, the "Geology of Canada" constituted the only comprehensive account of the Silurian rocks of the area. In 1912, the Geological Survey commenced a complete revision of these rocks under the direction of M. Y. Williams; this work culminated in publication of Memoir 111 in 1919[2].

In 1937 an account of the Guelph and Eramosa formations was published by Shaw[3]. This work traces the history of the Guelph formation, describes its fauna, and divides it into several palæontological zones. Shaw also proposes a classification and correlation of the Lower and Middle Silurian formations in the Niagara Peninsula, Ontario Peninsula, Bruce Peninsula, and Manitoulin Island.

The Devonian rocks of the area, like those of the Silurian, were investigated by Alexander Murray[4] in 1848 and the subdivisions adopted were those of the New York State classification. Murray's nomenclature was followed by subsequent workers who, however, recognized that the Devonian is in reality much more complex than the earlier workers suspected. The term "Corniferous" was applied in New York State to rocks that later proved to be a part of the formation previously called Onondaga. This latter term was considered to be more appropriate to the Canadian deposits, and in 1911 Stauffer[5] dropped the term "Corniferous" and adopted Onondaga in its place.

In 1915 Stauffer[6] published an account of the Devonian of southwestern Ontario; this report contains the latest and most detailed classification of the Devonian rocks occurring in the area.

---

[1]Foerste, A. F.: Geol. Surv., Canada, Mem. 83 (1916).
[2]Williams, M. Y.: Geol. Surv., Canada, Mem. 111 (1919).
[3]Shaw, E. W.: Trans. Roy. Can. Inst., vol. XXI, pt. 2, 1937, pp. 317-362.
[4]Murray, A.: Geol. Surv., Canada, Rept. of Prog. 1848.
[5]Stauffer, C. R.: Geol. Surv., Canada, Ann. Rept. 1911, p. 271.
[6]Stauffer, C. R.: Geol. Surv. ,Canada, Mem. 34, p. 4 (1915).

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FIELD WORK

The bedrock is everywhere overlain by a mantle of glacial drift and in general only along some of the streams where these have cut entirely through the surface deposits can natural outcrops be seen. In addition, various thicknesses of rock have been exposed by quarrying. All streams were traversed and outcrops were accurately located. Elevations of any recognizable horizon markers, both on outcrops and in quarries, were determined. All natural gas and oil wells were located and their surface elevations obtained; these data, together with a detailed examination of well samples, were used in construction of a subsurface structure map covering several townships in the southern part of the area. The stone quarries were mapped and detailed descriptions of the exposed strata made, and, so far as possible, information was obtained from the operators regarding utilization of the rock.

ACKNOWLEDGMENTS

Field assistance was rendered by Mr. A. K. Watt, whose able operation of the plane-table did much to facilitate the work.

To Colonel R. B. Harkness, Ontario Natural Gas Commissioner, thanks are here rendered for access to various drilling records in his custody.

The writer also wishes to express his indebtedness for courtesies extended by the owners and operators of the many quarries visited, who greatly facilitated the work by allowing examination of rocks exposed in their workings.

Finally, to the many farmers on whose property natural gas wells have been drilled, acknowledgment is here made for their time-saving assistance in pointing out well locations where these were not easily seen.

CHAPTER II

GENERAL CHARACTER OF THE AREA

The region lies within the Ontario lowland and forms a part of what may be termed the Palæozoic plain stretching southward from the Canadian Shield. Throughout the western half of the area, the Lake Erie shoreline is more or less cliff-like, the land rising abruptly from lake level (approximately 572 feet) to an altitude of about 650 feet. The shoreline throughout the remainder of the area is generally low, with 30- to 40-foot cliffs present at only a few isolated localities. The land surface as a whole rises to the northward, attaining a maximum altitude of about 1,650 feet in the north-central part of the area. The topography is for the most part gently undulating, with low relief, although some districts are irregularly and steeply hilly and others, commonly smaller in extent, are relatively flat and plain-like. The Niagara escarpment, which parallels the east boundary for some 50 miles, enters the area at Mineral Springs as well as at Cataract and northeast of Orangeville. At each of these places the typical bold face of the escarpment is broken and somewhat obscured by surface deposits, but its presence brings into the area exposures of both the Medina and Queenston formations, which are known only along the escarpment or in localities to the east.

The entire region has been glaciated and the bedrock is covered by a variable thickness of drift. These superficial deposits control the topography, so that the present surface in no way reflects the structure of the underlying rock. The drift seems to be thickest in the southwestern part of the area, where boring records show thicknesses of 110 to 395 feet. At a few localities, and particularly in Walpole and Beverly townships, the superficial deposits are thin and bedrock may be seen in many places along the roads, in small creek beds, and even in the fields.

The greater part of the area is drained into Lake Erie by way of the Grand River system, which covers practically all the northern three-quarters of the region. The system is dendritic in pattern, consisting of Grand River, its major tributaries the Conestogo, Nith, and Speed Rivers, and numerous small creeks tributary to each of these. Grand River rises in Dufferin county some distance north of the present area; it follows a southerly course for about 60 miles within the area, turns eastward near the city of Brantford, and pursues this course through the remainder of the area. Within the area it is normally a sluggish stream, with an average gradient of about 12 feet a mile. At only a few and widely separated localities does the river expose the underlying bedrock; the greater part of the stream course, therefore, is directly controlled by the overlying superficial deposits. The heterogeneity of these deposits is probably a leading factor in producing the great curves and meanders so common along much of the valley. This meandering is also a conspicuous feature of both Conestogo and Nith Rivers. Nowhere throughout their courses do these last-named rivers expose the bedrock.

The southern quarter of the area is drained into Lake Erie by small and relatively short streams, the largest being Otter Creek, Big Creek, Nanticoke Creek, and Lynn River.

Both Otter and Big Creeks flow through districts having a thick glacial mantle; they follow tortuous courses, have deep and steep-sided valleys, and nowhere expose the underlying bedrock.

The district drained by Lynn River and Nanticoke Creek has a thinner glacial covering. The valleys of these streams are shallow and Nanticoke Creek exposes the bedrock at several localities.

The extreme northwest part of the area is drained westward and northwestward into Lake Huron by way of Maitland and South Saugeen Rivers, respectively. Maitland River rises in Arthur township, from where it flows westward across the remainder of the area. South Saugeen River rises a few miles north of the area; it flows southwest past Mount Forest, a short distance from which it turns northwestward maintaining this course through the remainder of the area. Neither Maitland nor South Saugeen Rivers exposes bedrock within the area.

Nottawasaga River, which rises in Mono township, drains the extreme northeast part of the area into Georgian Bay. This river exposes both Medina and Queenston strata about 2 miles north of Orangeville.

Brantford area lies within what is probably one of the most thickly settled parts of Canada and is, therefore, easy of access. Five main highways cross the area in a general east-west direction; these are connected at convenient intervals so that all cities and practically all the larger towns are situated on paved highways. In addition, a grid of secondary roads encloses almost every concession.

The principal and most important industry is agriculture, and practically the entire area is under cultivation. Dairying and cattle raising occupy an important place in that industry, and the acreage devoted to tobacco growing is rapidly increasing, particularly in Norfolk, Elgin, and parts of Oxford counties. The soils are developed directly from the superficial deposits, the immediately underlying bedrock contributing little or not at all to their formation.

The production of natural gas constitutes an important industry in Elgin, Norfolk, Brant, Haldimand, and the southern part of Oxford county, and the quarrying of limestone for chemical purposes, lime, road metal, etc., is extensively carried on at several widely separated localities.

Considerable manufacturing is also carried on in many of the towns, such as Woodstock, Galt, Preston, Hespeler, Guelph, Fergus, and Brantford.

CHAPTER III

STRATIGRAPHY

GENERAL STATEMENT

The entire area is underlain by sedimentary strata, the Ordovician, Silurian, and Devonian systems each being represented. The sediments lie upon the irregular surface of the Precambrian, which consists of igneous and metamorphic rocks and which outcrops some distance to the north as the Canadian Shield. The thickness of the Palæozoic sediments is not everywhere the same. A study of samples from wells scattered throughout the southern two-thirds of the area indicates a maximum total thickness of about 3,700 feet; of this 2,337 feet are Ordovician, 953 feet Silurian, and 410 feet Devonian.

The lower one-third of the Ordovician consists essentially of limestones and dolomites with thin shale partings. These strata are overlain by a series of grey shales with thin limestone and calcareous sandstone bands, the whole followed by the red shales of the Queenston formation. These latter shales constitute the youngest Ordovician rocks.

The upper few feet of the Queenston formation represents the only Ordovician exposed in the Brantford area, the underlying rocks being known only from boring samples. Exposures of Queenston shale may be seen on Nottawasaga River about 2 miles north of Orangeville, on Credit River at Cataract, and at the abandoned brick works about one-half mile northwest of Credit Forks station.

The Silurian rocks in general begin with a group of strata consisting of grey sandstone, grey and brownish limestone, and grey, greenish, and reddish, calcareous shale (Medina formation). These rocks are followed by grey and buff dolomites (Lockport and Guelph formations), which are in turn overlain by interbedded, grey, calcareous shales and brown, platy dolomite with gypsum and anhydrite (Salina formation). The uppermost Silurian strata are brown dolomite and grey to bluish, argillaceous dolomite (Bertie-Akron formation).

Throughout the southern part of the area, light grey dolomite (Clinton formation) and dark grey shale (Rochester formation) intervene between the Medina and Lockport formations. These rocks are known only from well samples and nowhere do they come to the surface within the Brantford area. They do, however, outcrop in the adjoining area[1] to the east.

Silurian rocks underlie practically all the northeast half of the area and may be seen at numerous localities on Grand, Speed, and Eramosa Rivers and at several stone quarries. Their extension beneath younger strata throughout the remainder of the area is indicated by boring samples.

The Devonian rocks consist of remnants of the Oriskany sandstone and a maximum thickness of 410 feet of calcareous and cherty rocks here described as the Norfolk formation. These rocks underlie the southwest half of the area and may be seen to advantage at several quarries.

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[1]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940, pp. 42-54.

The Palæozoic sediments of Brantford area have never been subjected to strong deformative forces. They dip gently, averaging probably 30 feet a mile, in a southwesterly direction away from the Canadian Shield. As a result, the different formations cross the area in roughly northwest-southeast trending belts that vary in width in relation to their relative thickness.

In the present work an effort has been made to map lithological units and to define the formations with respect to types of sedimentation and geological history rather than solely with respect to their contained faunas. Consequently, only those divisions that can be separated lithologically appear on the accompanying map (No. 636A).

All available, reliable bore-hole samples have been examined and logged in an attempt to trace the underground extent of the different formations and the lithological changes from one locality to another.

Table of Formations

System	Formation	Member	Thickness
			Feet
Devonian	Norfolk		0-410
	Oriskany		Traces
Silurian	Bertie-Akron		35-105
	Salina		325-415
	Guelph		202-320
	Lockport		
	Rochester[1]		0-65
	Clinton[1]		0-35
	Medina	Cabot Head	40-90
		Manitoulin	15-35
		Whirlpool	Trace to 20
Ordovician	Queenston		363-500

[1]Known only from well samples.

DESCRIPTIONS OF FORMATIONS

QUEENSTON FORMATION

Definition. The term Queenston beds was proposed by Grabau[1] for the lower shaly 1,100 feet of Hall's[2] Medina sandstone of western New York. The name is derived from the town of Queenston on Niagara River opposite Lewiston, New York, where the beds are typically exposed.

Distribution. The Queenston formation has a very small areal extent, occupying about 6 square miles within the area. It underlies the country in three places along the east boundary. The first is on Nottawasaga River, the second along Credit River from Cataract to the east boundary, and the third immediately northeast of Mineral Springs. Exposures are few, isolated, and with one exception show only a few feet of the formation. The most extensive exposure is at an abandoned brick works quarry on the south side of the Canadian Pacific Railway about one-half mile west of Credit Forks station. Other outcrops may be seen at several localities along Nottawasaga River and on Credit River at the town of Cataract. Boring samples indicate the presence of these rocks beneath younger strata throughout the remainder of the area.

Lithology. As seen at the outcrops, the strata consist of brick-red to chocolate-coloured, thinly bedded, sandy, and argillaceous shale, which shows little or no variation either vertically or from one exposure to another. At the abandoned brick quarry one-half mile west of Credit Forks station, where about 66 feet of strata near the upper contact are visible, the formation shows bands from 1 inch to 9 inches thick of bluish green, hard, impure, limy rock spaced from about 2 to 8 feet apart. At this quarry the rock weathers into irregular, conchoidal, and hackly pieces; at some other localities a fine, reddish, clay soil results from the weathering of the formation.

Samples from borings passing completely through the formation at localities some distance south of the exposures show a uniform succession of red shale, commonly with small green patches and mottlings. The lithological uniformity is evidenced wherever the formation has been penetrated by borings.

Relation to Overlying Strata. The Queenston formation occupies a position at the top of the Ordovician system; it rests upon the Meaford formation and is overlain by the Whirlpool sandstone, which initiates the Silurian in this area. The Queenston-Whirlpool contact may be seen at the falls on the tributary of Nottawasaga River north of Glen Cross, at an old quarry 2½ miles north of Orangeville on the Glen Cross road, and on Credit River below the falls at Cataract.

At the foregoing localities the upper 1 foot to 4 feet of the Queenston consists of soft, clayey, greenish shale upon which rests the Whirlpool sandstone with sharp though uneven contact. It seems probable that this variable thickness of green colour is the result of a bleaching of the red

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[1]Grabau, A. W.: Science, vol. 27, April 17, 1908, p. 622.
[2]Hall, James: Geol. of New York, pt. IV, 1843, pp. 34-57.

shale by percolating ground waters charged with organic acids. The foregoing conditions coupled with the abrupt and decided change in lithology from Queenston to Whirlpool would point to a stratigraphic break at the top of the Ordovician. The following section at the falls on the tributary of Nottawasaga River north of Glen Cross is a typical example of this contact.

	Feet
Whirlpool sandstone (Silurian), grey, crossbedded sandstone.....	24
Disconformity	
Queenston shale (Ordovician), soft, bluish, clay shale	1
Brick-red shale.....	20+

Thickness. As the entire formation is nowhere exposed, its thickness cannot be obtained by direct measurement. The thickest single exposure is at the abandoned quarry west of Credit Forks station, where about 66 feet are visible. The total thickness is obtainable from bore-hole records, and the few wells that pass completely through the formation show a variation in thickness probably due to erosion at the close of Ordovician time. The following figures are from well samples examined by the writer.

County	Township	Thickness
		Feet
Perth.....	North Easthope.....	363
Oxford.....	West Oxford.....	460
Wellington.....	Eramosa.....	440
Wentworth.....	Beverly.....	500

Age and Correlation. According to Grabau[1], the Queenston shales were derived from the erosion of rocks in the highlands of the Appalachian region and constitute a deltaic deposit. Their red colour, ripple-marks, and general absence of marine fossils suggest that they were formed by subaerial deposition.

Kindle[2] states that fossils have never been found in the Queenston of western New York. Within the present area, the formation is likewise barren, but in the adjacent area[3] to the east, where it rests upon underlying fossiliferous strata with which it forms a continuous series, Richmond fossils have been observed by the writer. The presence of these fossils in the lower part, and their apparent absence in the upper part, of the Queenston may indicate that the lower part was formed in a sea that subsequently withdrew so that the later beds were laid down as subaerial sediments.

[1]Grabau, A. W.: Bull. Geol. Soc. Am., vol. 24, 1913, p. 431.
[2]Kindle, E. M.: Science, vol. 29, 1914, p. 1917.
[3]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940.

Fossils found in the lower part of the Queenston in the vicinity of Collingwood, Meaford, and Owen Sound, by Foerste[1], fix beyond doubt the Richmond age of the formation.

Grabau[2] regards the Queenston as the eastward extension of the Juniata beds of Pennsylvania and believes it to represent contemporaneous deposition.

MEDINA FORMATION

The use in this report of the term Medina in place of the Medina-Cataract of many previous workers was proposed by the writer in a report on the Toronto-Hamilton area[3]. In the Brantford area, then, the Medina includes all the strata between the Queenston below and the Clinton above, or where the Clinton and Rochester are absent, between the Queenston below and the Lockport above. As thus defined, the Medina formation includes three members, in ascending order, the Whirlpool, Manitoulin, and Cabot Head. Following the usage in the Toronto-Hamilton area, also, the Grimsby and Thorold members of the Medina are here considered as facies of the Cabot Head member.

Whirlpool Member

Definition. The term Whirlpool member was proposed by Grabau[4] for the 25 feet of quartzose sandstone that forms the base of the Medina formation on Niagara River. It rests upon the Queenston formation and is overlain by the Manitoulin member.

Distribution. The Whirlpool sandstone occupies a narrow band at the base of the Niagara escarpment, and comes into the present area both at Credit Forks and north of Orangeville. Its thinness and flat-lying attitude prohibit separate mapping on the scale employed in this work. It outcrops at several localities and may be seen at the falls on the tributary of Nottawasaga River north of Glen Cross, at an abandoned quarry 2½ miles north of Orangeville, on Credit River below the falls at Cataract, and also a short distance below Belfountain. Boring samples indicate the presence of the member beneath younger strata throughout the remainder of the area.

Lithology. The Whirlpool member as seen in this area does not differ materially in either appearance or composition from the Whirlpool at its type locality on Niagara River. It consists of grey, fine- to medium-grained, crossbedded sandstone in beds from a few inches to 2 feet thick. Some beds are mottled with a reddish chocolate colour, indicating some iron oxide in the rock. The crossbedding is more common in the lower, more thickly bedded part of the formation and wave marks have been observed in the upper beds. Where exposed below the falls at Cataract, large, elliptical, "pillow-like" structures are present in the sandstone.

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[1]Foerste, A. F.: Ohio Naturalist, vol. 13, 1913, p. 47.
[2]Grabau, A. W.: Bull. Geol. Soc. Am., vol. 24, p. 431 (1913).
[3]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940, pp. 25, 26.
[4]Grabau, A. W.: Jour. Geol., vol. 17, 1909, p. 238.

In boring samples, the Whirlpool member appears as a light grey to almost white, fine- to medium-grained sandstone. Small, rounded, dark brown to black, chert (?) specks are common in samples from most wells.

A study of well samples and field exposures shows the member to be lithologically uniform wherever present in the area, colour differences being the only apparent variation noted.

Thickness. The thickness of the Whirlpool may be determined both by direct measurement and by examination of well samples. As determined at the outcrops, it is 24 feet thick at the falls on the tributary of Nottawasaga River north of Glen Cross; about 15 feet at the quarry 2½ miles north of Orangeville; 15 feet on Credit River at Cataract; and 15 feet below the village of Belfountain. Examination of boring samples by the writer adds the following information.

County	Township	Thickness
		Feet
Elgin	Malahide	2 to 8
Elgin	Bayham	10
Elgin	South Dorchester	5
Norfolk	Woodhouse	10
Oxford	Dereham	5 to 10
Oxford	East Nissouri	Traces
Oxford	West Oxford	Traces
Brant	Brantford	10
Brant	Onondaga	10
Brant	Tuscarora	10
Wentworth	Beverly	15
Wellington	Eramosa	20
Wellington	Minto	10
Perth	North Easthope	2

The foregoing figures indicate local thickenings or irregularities, which are to be expected in view of the erosional surface upon which the member rests.

Fauna. No fossils were seen in the Whirlpool sandstone at any of the exposures examined. Williams[1], however, reports three forms from exposures east of this area. None of the forms is apparently well enough preserved to admit of positive specific identification; they are listed below.

Pleurotomaria sp.
Hormotoma subulata (Conrad) ? ?
? *Cornulites*

Manitoulin Member

Definition. The Manitoulin member immediately overlies the Whirlpool sandstone and is itself overlain by the Cabot Head member. The term was proposed by Williams[2] for the lower dolomitic part of the Cataract formation because of its importance on Manitoulin Island; it is at this latter locality that its typical development occurs.

[1]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 28.
[2]Williams, M. Y.: Ottawa Nat., vol. 27, 1913, p. 37.

Distribution. The Manitoulin member has the same general distribution as the underlying Whirlpool sandstone. It is exposed at the same localities and may, therefore, be seen at the falls on the tributary of Nottawasaga River north of Glen Cross; at the quarry 2½ miles north of Orangeville on the Glen Cross road; at the falls on Credit River below Cataract; and a short distance below Belfountain. The Manitoulin beds are also exposed on Nottawasaga River ¼ mile northwest of the above-mentioned quarry. Boring samples also indicate their presence beneath younger rocks throughout the remainder of the area.

Lithology and Contacts. The entire member is nowhere exposed within this area, the upper limit being concealed. Where it has been observed, the Manitoulin member consists of grey, impure, argillaceous, and in places arenaceous, limestone or dolomite in fairly even beds 4 inches to 1 foot thick, with bluish shale partings along the bedding planes. It is commonly weathered grey, but is buff-coloured in some places.

The contact with the underlying Whirlpool is in general quite sharp, the change from sandstone to limestone occurring without gradation. However, on Nottawasaga River, near the quarry 2½ miles north of Orangeville, about 8 inches of soft blue shale intervenes between the Whirlpool and the first limestone bed of the Manitoulin.

Any comprehensive study of the Manitoulin member over the entire area must necessarily be based upon drilling records. Such study is not entirely satisfactory because all wells for which reliable samples are available are located some distance south of the outcrop region. Indeed, most of the drilling in the map-area is confined to that part that lies south of Waterloo county. Further, an appreciable percentage of the existing wells do not reach the Manitoulin horizon. In all the samples examined it was found difficult, and in many impossible, to fix a definite line of separation between the Manitoulin strata and the overlying Cabot Head member.

A study of well samples shows the Whirlpool sandstone to be overlain by 15 to 35 feet of rock that is mainly calcareous but which contains varying quantities of greenish and grey shale. This division would seem to represent limestone interbedded with shale zones or merely with shale partings. These rocks are consistently overlain by grey, green, and reddish shale containing varying quantities of grey and reddish limestone; this would seem to represent a series of shale with thin limestone bands. This latter horizon, from a comparative study of field exposures, is interpreted as the Cabot Head member. The two foregoing lithologic divisions grade one into the other and, as already stated, it is not easy from well samples to place an exact line of division between them. In the study of well samples, however, an attempt has been made to separate the two divisions represented and to show the general lithological character of the Manitoulin member wherever reliable well samples exist. A study of the few existing outcrops assisted in interpreting the samples. The results appear in the following table:

County	Township	Thickness	Lithology
		Feet	
Elgin	Malahide	22	Grey, crystalline limestone; little grey shale.
Elgin	Bayham	30	Grey, crystalline limestone; little grey shale.
Norfolk	Woodhouse	35	Greenish grey shale; small amount of grey limestone in upper and lower 5 feet.
Norfolk	Charlotteville	21	Green and grey shale; little grey limestone.
Oxford	Dereham	15	Grey, crystalline limestone; small quantity of grey shale.
Oxford	East Nissouri	35	Grey, impure limestone; little greenish grey, limy shale.
Perth	North Easthope	35	Grey, crystalline limestone with a small quantity of green and grey, limy shale throughout.
Brant	Brantford	23	Grey, crystalline limestone; traces of grey shale.
Brant	Onondaga	25	Grey, crystalline limestone with minor quantity of grey, limy shale.
Brant	Tuscarora	20	Grey, crystalline limestone; little grey shale in the lower 10 feet.
Wentworth	Beverly	35	Grey, crystalline limestone; some greenish grey shale.
Wellington	Eramosa	20	Grey, crystalline limestone with a minor quantity of greenish grey shale.
Wellington	Minto	35	Grey and brownish grey, crystalline limestone; traces of shale in the upper 5 feet.

This table, though not covering quite the entire map-area, shows the Manitoulin member to be everywhere represented by essentially similar strata, although in Woodhouse and Charlottetville townships argillaceous rather than calcareous rock seems to predominate. Further, the lithology thus indicated by well samples is generally similar to that observed wherever the member outcrops.

Thickness. The foregoing table gives some indication of the thickness of the Manitoulin member as determined from boring samples. In considering the variation in thickness, it must be borne in mind that the upper contact is gradational and that the figures are based purely upon lithological evidence. Although nowhere in the field is the upper contact of the member visible, it is worth noting that at the falls on the tributary of Nottawasaga River north of Glen Cross the Whirlpool is overlain by about 25 feet of thin-bedded limestone with shale partings, above which is a concealed talus interval showing fragments of grey shale and thin, reddish, limy bands. It is reasonably certain that this concealed interval represents the lower part of the Cabot Head member, in which case the underlying 25 feet will represent the total thickness of the Manitoulin member at this locality.

Fauna. In contrast with the underlying Whirlpool member, the Manitoulin member encloses a considerable fauna. This fauna has been reported upon, either wholly or in part, by Logan[1], Parks[2], Schuchert[3], and Williams[4], and faunal lists appear in their reports. Williams lists the fossils from exposures of the Manitoulin member throughout the whole of the Ontario Peninsula and Manitoulin Island. Schuchert and Parks studied the Cataract and Credit Forks outcrops and included the fossils from both the Manitoulin and Cabot Head members in their reports on the fauna.

Cabot Head Member

Definition. The name Cabot Head was proposed by Grabau[5] for the rocks well exposed at that locality, and comprised the strata described by Logan[6] as lying between what is now the Manitoulin dolomite below and the Lockport dolomite above. These rocks as described by Williams[7] consist, in ascending order, of 70 feet of shale, red near the base, firm and green near the top; 4 feet of soft, green shale; 15 feet of thin, even-bedded dolomite; 32 feet of firm, green shale; 8 feet of rather massive, creamy weathered dolomite; and 4 feet of soft, green shale.

In the present area the Cabot Head member rests upon the Manitoulin member and is overlain successively from south to north by the Clinton and Lockport formations, respectively. In this connection it must be borne in mind that the writer[8] considers the Grimsby and Thorold members of the Medina formation to be facies of the Cabot Head member.

Distribution. The Cabot Head member has the same general distribution as the underlying members of the Medina formation and, consequently, has a very limited areal extent within the Brantford area. Exposures are few and confined to Caledon and Mono townships, where Cabot Head beds may be seen above the falls on the tributary of Nottawasaga River north of Glen Cross, and about ¼ mile below Cataract. The topographic expression of the member is commonly a steep, partly covered talus slope between a vertical face of Lockport dolomite above and the Manitoulin hard beds below. Though not actually exposed, the presence of Cabot Head beds is thus indicated at several localities, and particularly a short distance below Belfountain and on lot 8, along the road between concessions V E and VI E, Mono township. Well records show the presence of the member beneath younger rocks throughout the remainder of the area.

Lithology. Only part of the Cabot Head member is exposed, the most extensive outcrop showing not more than 20 feet of strata. As thus seen, the member consists of thin-bedded shale, green, grey, and firm in the lower part, red and somewhat softer above, with a number of sandy and

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[1]Logan, Sir Wm.: Geology of Canada, 1863, pp. 313-314.
[2]Parks, W. A.: Geol. Surv., Canada, Guide Book 5, 1913, pp. 10-13.
[3]Schuchert, C.: Geol. Soc. Am., vol. 25, 1914, pp. 281-285.
[4]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 30.
[5]Grabau, A. W.: Bull. Geol. Soc. Am., vol. 24, 1913, p. 460.
[6]Logan, Sir Wm.: Geology of Canada, 1863, pp. 312-320.
[7]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 33.
[8]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940.

dolomitic bands up to 2 inches thick. These hard bands are invariably covered with at least two species of *Helopora*, in addition to which is commonly a profusion of *Rhynchonella* sp.

The lithology of the entire member throughout its underground extent can be obtained only from a study of boring samples. As pointed out when discussing the Manitoulin member, well samples show a series of grey, green, and red shale above the dominantly calcareous samples referred to that member, although no definite dividing line can be placed. In the samples examined from South Walsingham, Middleton, Charlotteville, Woodhouse, Brantford, Tuscarora, and Onondaga townships, light grey and red sandstone and sandy shale occur at the top of the Cabot Head shales; this is here interpreted as representing the northwestern limit of the Grimsby member. North of these townships this sandy facies of the Cabot Head is absent and the typical Cabot Head as seen at the outcrops is directly overlain by the Clinton, or, where Clinton and Rochester formations are absent, by the Lockport dolomite. The following table will exemplify the lithology of the Cabot Head member exclusive of the sandy Grimsby facies where that is present as seen in boring samples examined by the writer. The townships from which the samples show the presence of the Grimsby facies are marked with an asterisk.

County	Township	Thickness	Lithology
		Feet	
Elgin	South Dorchester	70	Greenish grey shale; little red and grey limestone.
Elgin	Malahide	75	Grey shale; small quantity grey limestone.
Elgin	Bayham	80	Grey, green, and red shale, some quite sandy; little red limestone. Bryozoa fragments 30 feet from top.
Norfolk	Woodhouse*	55	Green shale; little grey limestone.
Norfolk	South Walsingham*	9+	Grey limestone; little grey and green shale.
Norfolk	Charlotteville*	15	Red and grey, impure limestone; little grey limestone.
Norfolk	Middleton*	25+	Red, limy shale; greenish grey shale in lower 10 feet; *Helopora* sp. in upper 15 feet.
Oxford	Dereham	75	Grey and green shale; little grey limestone; red limestone in upper 35 feet.
Oxford	East Nissouri	20	Greenish grey shale; little grey limestone. Grey limestone; some green shale; *Helopora* sp. Green shale; little grey limestone.
Oxford	West Oxford	30	Greenish grey shale; grey limestone in lower 10 feet.
Perth	North Easthope	5 10 25	Greenish grey shale; grey limestone; little green shale; grey, shaly limestone. *Rhinopora* sp.
Brant	Brantford*	29 61	Red and green shale; little red limestone; greenish grey shale; little grey limestone.

County	Township	Thickness	Lithology
		Feet	
Brant.....	Onondaga*.....	20	Green shale; little red shale and grey limestone.
		20	Greenish grey shale with minor amount of grey limestone.
Brant.....	Tuscarora*.....	20	Red and green shale; equal amount of grey, crystalline limestone.
		20	Green shale; little grey limestone.
Wentworth.....	Beverly.....	40	Red and green shale; Bryozoa fragments.
Wellington.....	Eramosa.....	40	Red and greenish grey shale with a little red and grey, limy shale.
Wellington.....	Minto.....	50	Grey, crystalline limestone; minor amount of greenish shale. Bryozoa at 15 feet from base.
Wellington.....	Puslinch.....	20	Red and greenish grey shale.
		30	Grey shale; minor amount of limestone.

From this table it will be seen that the general lithological character of the Cabot Head member, exclusive of the Grimsby facies, as seen at the outcrops continues without essential change throughout the underground extent of the member. The strata are dominantly red, green, and grey shales with a varying calcareous content representing the thin, limy and dolomite bands seen at the outcrop.

Thickness. An indication of the probable thickness of the Cabot Head member is shown by the foregoing table. The figures there recorded must not be taken as representing precisely the thickness of a lithological unit whose boundaries are definite; rather do they represent a more or less close approximation to the thickness of a member whose chief lithological character is a shale, but which grades downward into dominantly calcareous rocks and in some localities contains a sandstone and sandy shale facies in its upper part.

The total thickness of the Cabot Head member is nowhere exposed, the thickest outcrop exhibiting only 20 feet with neither lower nor upper contact visible. However, above the falls on the tributary of Nottawasaga River north of Glen Cross the steep, covered slope between the Lockport dolomite above and the Manitoulin member below includes an interval of about 32 feet, which probably closely approximates the total thickness of the Cabot Head member there.

Fauna. The fauna of the Cabot Head member is very similar to that of the underlying Manitoulin beds. It has been reported upon particularly by Williams[1], Parks[2], and Schuchert[3], in whose reports faunal lists may be found. About 60 per cent of the species reported by Williams from exposures within the present area are common to both Cabot Head and Manitoulin members. Also, practically all the forms that are not common to

[1]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 35.
[2]Parks, W. A.: Geol. Surv., Canada, Guide Book No. 5, 1913, pp. 10-13.
[3]Schuchert, C.: Bull. Geol. Soc. Am., vol. 25, 1914, pp. 281-285.

both members belong to the Hydrozoa and Anthozoa. Both these classes of invertebrates are usually associated with clear rather than muddy waters and both are more abundant in the Manitoulin calcareous deposits than in the Cabot Head argillaceous beds.

The most characteristic and probably the most abundant single fossil in the Cabot Head member as exposed in the Brantford area is the bryozoan *Helopora fragilis*. This fossil was seen to practically cover the surfaces of the limy bands within the shale. A small species of Rhynchonella also occurs in profusion on some of the hard bands.

Thickness and Lithology of the Medina above the Whirlpool Member. It seems advisable at this time, especially from the standpoint of the driller, to give some idea of the thickness and lithology as a whole of the strata to be expected between the Clinton or Lockport above and the Whirlpool sandstone below; that is, the lithology and thickness of the Medina formation exclusive of the Whirlpool member. The Whirlpool sandstone is readily recognized in well samples and is known to the drillers as the White Medina. The Clinton is likewise easily recognized by the driller, but the intervening strata comprising the Cabot Head and the Manitoulin members contain no definite horizon markers recognizable by the driller. Within the Medina formation the Thorold and Grimsby at the top and the Whirlpool member at the base are the only horizons productive of natural gas or oil. If in drilling, therefore, the upper horizon is passed without production, no results should be expected before the Whirlpool is reached.

The term Grimsby member was proposed by Williams[1] for that part of the Medina formation that lies below the Grey Band (Thorold sandstone) and above the Cabot Head as it occurs in the Niagara Peninsula. The type locality is at Grimsby. The term Thorold quartzite was proposed by Grabau[2] for the beds that separate the Grimsby member from the overlying Clinton dolomite and named from their exposure at Thorold.

Within the Brantford area neither the Thorold nor the Grimsby outcrop; indeed, neither are present in the northern part of the area where the stratigraphic horizon which they represent is exposed. They are, therefore, observable only in boring samples, which show them to be present at the top of the typical Cabot Head beneath several of the most southerly townships in the area. The following table shows both the thickness and lithology of the Medina formation exclusive of the Whirlpool member as they appear in well samples examined by the writer. Of necessity, the general distribution of the Thorold and Grimsby facies is also indicated.

[1]Williams, M. Y.: Geol. Surv., Canada, Sum. Rept. 1913, p. 184.
[2]Grabau, A. W.: Geol. Soc. Am., vol. 24, 1913, p. 460.

County	Township	Thickness	Lithology	Member
		Feet		
Elgin	Malahide	75	Grey shale; small amount of grey, crystalline limestone.	Cabot Head
		22	Grey, crystalline limestone; little grey shale.	Manitoulin
Elgin	Bayham	80	Grey, green, and red shale; little red limestone. Bryozoa fragments in upper 30 feet.	Cabot Head
		30	Grey, crystalline limestone; little grey shale.	Manitoulin
Elgin	South Dorchester	20	Greenish grey shale; little red and grey limestone. Bryozoa.	Cabot Head
		5	Red and grey, crystalline limestone with grey shale.	
		45	Green and grey shale; little grey limestone; Bryozoa fragments throughout.	
		15	Grey limestone; minor amount grey shale.	Manitoulin
Norfolk	Woodhouse	10	Light grey and greenish grey sandstone.	Grimsby
		20	Grey and greenish sandstone; little red shale.	
		30	Greenish grey shale; little red, impure limestone.	Cabot Head
		15	Greenish grey shale.	
		5	Grey limestone; little grey shale.	Manitoulin
		30	Greenish grey shale; little grey limestone in lower 5 feet.	
Norfolk	Charlotteville	15	Light grey sandstone; little grey shale.	Grimsby
		10	Red and green, sandy shale; little grey sandstone.	
		10	Greenish grey shale.	Cabot Head
		15	Red and grey, impure limestone; little green shale.	
		21	Green and grey shale; little grey limestone.	
Norfolk	Middleton	5	Grey sandstone.	Thorold
		5	Green and red shale; equal amount red sandstone.	Grimsby
		5	Red, sandy shale; little grey sandstone.	
		15	Red, limy shale; little green shale. *Helopora* sp.	Cabot Head
		10	Greenish grey shale; little red shale. Brachiopods.	

County	Township	Thickness	Lithology	Member
		Feet		
Norfolk	South Walsingham	15	Grey sandstone.	Thorold
		45	Red and grey sandstone with lesser amount of red and greenish shale.	Grimsby
Oxford	Dereham	15	Green shale; little grey dolomite.	Cabot Head
		5	Grey, impure limestone; little green and red shale. Bryozoa.	
		55	Greenish grey shale; little grey limestone.	
		5	Grey, impure limestone; little green shale. Bryozoa.	Manitoulin
		5	Grey and greenish, shaly limestone.	
Oxford	East Nissouri	20	Greenish grey shale; little grey limestone.	Cabot Head
		10	Grey limestone; some green shale. *Helopora* sp.	
		20	Greenish grey shale; little grey limestone.	
		25	Grey, impure limestone; little grey shale.	Manitoulin
		10	Grey and greenish, limy shale; little impure limestone.	
Oxford	West Oxford	20	Greenish grey shale.	Cabot Head
		10	Grey lime or dolomite. *Helopora* sp.	
		10	Grey, impure limestone; little green shale.	Manitoulin
		40	Greenish grey, limy shale; little grey limestone.	
Perth	North Easthope	5	Greenish grey, limy shale.	Cabot Head
		10	Grey, crystalline limestone; little green shale.	
		25	Grey, shaly limestones. *Rhinopora* sp.	
		10	Greenish grey, limy shale; little limestone.	Manitoulin
		25	Grey limestone and limy shale.	
Brant	Brantford	18	Red and green shale; little grey sandstone.	Grimsby
		29	Red and green shale; little red limestone.	Cabot Head
		61	Greenish grey shale; little grey limestone.	
		23	Grey, crystalline limestone; traces of grey shale.	Manitoulin

County	Township	Thickness	Lithology	Member
		Feet		
Brant	Onondaga	30	Dark red, arenaceous shale; little green shale.	Grimsby
		40	Green and grey shale; little red shale and grey limestone.	Cabot Head
		20	Grey, shaly limestone; little limy shale.	Manitoulin
Brant	Tuscarora	20	Light grey sandstone; little pyrite and glauconite.	Grimsby
		15	Red, green, and grey shale; little grey sandstone.	
		20	Red and green shale; equal amount grey limestone.	Cabot Head
		20	Greenish grey shale; little grey limestone.	
		20	Grey, crystalline limestone; grey shale in lower 10 feet.	Manitoulin
Wentworth	Beverly	40	Red shale; little green shale. Bryozoa.	Cabot Head
		10	Grey, crystalline limestone; little red and green shale.	
		15	Greenish shale; little limy shale.	Manitoulin
		10	Grey, crystalline limestone and limy shale.	
Wellington	Eramosa	40	Red and greenish shale; little red and grey, limy shale.	Cabot Head
		20	Grey, crystalline limestone with minor amount of greenish grey shale.	Manitoulin
Wellington	Puslinch	50	Red, green, and grey shale; little grey limestone.	Cabot Head
		25	Grey, crystalline dolomite with little grey, shaly dolomite.	Manitoulin
Wellington	Minto	50	Grey, crystalline limestone with minor amount of greenish shale. Bryozoa fragments.	Cabot Head
		35	Grey and brownish, crystalline limestone; traces of shale at top.	Manitoulin

In considering the lithology of the different members as represented in this table, or, indeed, in interpreting lithology from any boring samples resulting from the percussion method of drilling, it should be remembered that such samples must be washed before being studied. In the process of washing some of the finer, lighter, and softer material, as for instance some

types of shale, are necessarily lost. This loss may be sufficiently great to render the true quantitative relation between argillaceous and calcareous content obscure. As a result the samples may not portray the stratigraphy either as truly or in as great detail as it would appear at the outcrop.

Both the Manitoulin and typical Cabot Head members have already been described. The Grimsby, as it appears in the foregoing table, consists of red, grey, and greenish, sandy shale with somewhat minor amounts of red and grey sandstone. The Thorold appears as a light grey sandstone.

Relation of the Medina to Overlying Strata. The Medina formation, whether the sandy facies of the Cabot Head be present or not, is overlain by the Clinton formation from Lake Erie to about the latitude of Galt, and thence by the Lockport formation to the north boundary of the area.

The actual contact is nowhere visible in the field, but as already pointed out the soft, argillaceous character of the Cabot Head member commonly results in a steep slope immediately below vertical outcrops of Lockport dolomite. The upper limit of this slope can at many localities be taken as the Lockport-Medina contact. This condition is especially noticeable above the falls on the tributary of Nottawasaga River north of Glen Cross at Cataract, and a short distance below Belfountain. As thus indicated the contact is everywhere sharp and even.

In boring samples the upper limit of the Medina is in general also sharp and well defined. Where the Clinton is the overlying formation and the Thorold facies is absent, the change from light grey, crystalline dolomite to reddish, sandy shale and sandstone is sharp and easily recognized. Where, however, the Thorold facies is present, the general light grey colour of both Clinton and Thorold tends to mask the actual line of division; close scrutiny, however, reveals the dolomitic lithology of the Clinton and the siliceous character of the underlying Thorold.

Correlation of the Medina. Ulrich[1] considers the Clinch sandstone of Tennessee as the probable equivalent of the Tuscarora sandstone of Pennsylvania, which in general is to be correlated with the Medina of New York and Ontario.

Twenhofel[2] considers the fauna of the Gun River formation of Anticosti Island as the probable equivalent of that of the Ontario Medina.

Savage has made an extensive study of the Lower Silurian rocks in Illinois and Missouri[3] as well as in the Hudson Bay region[4]. Throughout this wide area he finds a striking similarity in the faunas of the Virgiana zone and of the higher strata containing *Camarotoechia? winiskensis, Isochilina grandis* var. *latimarginata,* and *Leperditia hisingeri* var. *fabulina.* He concludes, therefore, that during the time these strata were laid down the regions were part of the same basin of deposition that was broadly connected northward with the Arctic Ocean.

North of the present map-area, on Bruce Peninsula and on Manitoulin Island, the Cabot Head member contains thin-bedded, argillaceous dolomites known as the Dyer Bay dolomite lentille. According to Williams[5],

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[1]Ulrich, E. O.: Geol. Soc. Am., vol. 22, 1911, p. 608.
[2]Twenhofel, W. H.: Geol. Surv., Canada, Mem. 154, 1928, p. 73.
[3]Illinois Geol. Surv., Bull. 23, 1917, pp. 67-160.
[4]Jour. Geol., vol. 26, 1918, pp. 336-340.
[5]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 36.

these beds are absent northward from Colpoy Bay, but 2 or 3 feet of ferruginous limestone occurs a little above the centre of the Cabot Head shales as far south as Kelso. This locality is situated in the adjacent area to the east about 2 miles from the east boundary of the Brantford area, a short distance south of the latitude of Guelph. The limestone there encloses common Medina fossils, among which is *Rhynchonella? janea,* also present in the Dyer Bay lentille; the limestone at Kelso, therefore, may well be the southern representation of the Dyer Bay dolomite.

The presence of *Virgiana mayvillensis* in the Dyer Bay dolomite establishes its equivalence with the Virgiana zones described by Savage. As the Dyer Bay dolomite, which is near the top of the Medina formation, is of Upper Edgewood age it seems probable that the remainder of the Cabot Head and the Manitoulin dolomite are of Lower Edgewood age, for the underlying Girardeau and the Manitoulin dolomite have little in common.[1]

In the Lake Timiskaming region Hume[2] reports part of the Wabi formation as equivalent to the Cataract (Medina). The presence of *Camarotoechia? winiskensis, Leperditia hisingeri* var. *fabulina,* and *Zygobolbina williamsi* indicates a connection between this area and the Hudson Bay region, where the same assemblage has been observed by Savage.

The presence of *Virgiana mayvillensis* in the Dyer Bay dolomite may indicate that the Arctic waters were connected for a time with the sea that deposited the Medina in Ontario. However, as pointed out by Hume[3], only one fossil is common to the Dyer Bay dolomite and the Wabi formation, so that the limited correspondence of the fauna of Lake Timiskaming to that of the Medina seems to point to a separation of the two basins in late Medina time with much thicker deposits being formed in the Timiskaming area than are found above the Dyer Bay dolomite of Lake Huron.

LOCKPORT FORMATION

Definition. The term Lockport is taken from Lockport, New York, where these rocks were described by Hall as early as 1838. In his 1843 report Hall[4] refers to these rocks as Niagara limestones, being the upper division of the Niagara group, but the term Lockport was later revived by Clarke and Schuchert[5], and still persists.

The Lockport rests upon the Medina formation from the north boundary of the area southward to about the latitude of Galt, and thence upon the Rochester shale throughout the remainder of the area. It is everywhere overlain by the Guelph dolomite.

Distribution. The Lockport formation underlies about 160 square miles of country that forms a belt averaging about 3 miles wide, with a maximum of 10 miles, and extending along the east boundary of the area from about latitude 43° 15′ northward. It is typically the upper cliff-forming member of the Niagara escarpment, but is visible in the present area chiefly as small,

[1]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 44.
[2]Hume, G. S.: Geol. Surv., Canada, Mem. 145, 1925, p. 28.
[3]Hume, G. S.: Geol. Surv., Canada, Mem. 145, 1925, p. 33.
[4]Hall, James: Geology of New York, 1843, p. 84.
[5]Clarke, J. M., and Schuchert, C.: Science, Dec. 15, 1899, p. 876.

though numerous, isolated outcrops, due to denudation, and as more extensive exposures along stream valleys. Although small outcrops may thus be observed at a number of localities along the roads in East and West Flamborough, Nassagaweya, Caledon, and Mono townships, the most important and extensive exposures occur at the following localities: on the tributary of Nottawasaga River north of Glen Cross, above the falls; on Eramosa River at Everton; on Eramosa River both above and below Rockwood, and at several places between that town and Guelph. In addition, variable thicknesses of Lockport strata are made visible at several quarries distributed throughout the entire belt, the most important of which, however, are located 1½ miles east of Acton, at Rockwood, and in the Reformatory grounds at Guelph. The presence of Lockport rocks beneath younger strata throughout the remainder of the area is indicated by boring samples.

Lithology. The Lockport formation shows considerable variation in bedding, texture, and colour from place to place throughout the area. As exposed, it consists of two more or less distinct phases of a single lithological type. The lower part, attaining a thickness of as much as 45 feet at a single exposure, consists of magnesian limestone or dolomite, commonly light grey to bluish, fine to coarsely crystalline, in places quite porous, and disposed in beds from 2 to 4 feet thick, with both thicker and thinner beds locally developed, the whole commonly weathering a light grey, although darker grey is not entirely absent. Vertical jointing is a conspicuous feature at some outcrops. This description represents what might be called the typical Lockport lithology, and is applicable not only to the lower exposures within the present area but also to the upper, cliff-forming member of the Niagara escarpment from Dundas to far beyond the north bounary of the present area. Overlying this phase, and characteristically exposed on each side of number 7 highway one mile southwest of Rockwood, along the west side of Eramosa River between Rockwood and Guelph, and in the Reformatory quarry at Guelph, are vertical cliffs up to 30 feet high of grey to buff weathered, brownish, fine-textured, dense, bituminous dolomite in thin, even beds from ¼ inch to 5 inches thick, with black shale partings along the bedding planes. Exposures of this rock commonly show vertical joints, giving a blocky appearance to the cliff face. When struck with a hammer, this rock gives off a distinct petroliferous odour.

This upper phase of the Lockport comprises the Eramosa beds of Williams[1], which, according to that author, form a persistent member of the Lockport formation in Ontario.

Relation to Overlying Strata. Within the present map-area the upper limit of the Lockport is not easy to fix. Wherever the contact zone has been seen the Guelph dolomite conformably overlies the typical, brown, bituminous dolomite of the Eramosa member. In general, the contact could be placed anywhere within what might be called a transition zone up to 10 feet thick, in which brownish, dense, thin-bedded dolomite with black bituminous partings passes upward into much thicker bedded, brownish grey to grey, granular textured and porous dolomite (Guelph) with little or no bituminous content. The contact zone is exposed in the

[1]Williams, M. Y.: Geol. Surv., Canada, Mus. Bull. 20, 1915, p. 1; Geol. Surv., Canada, Mem. 111, 1919, p. 62.

Reformatory quarry at Guelph; in a road cut on the north side of Spencer Creek about lot 8, con. XI, West Flamborough tp.; on Spencer Creek above the mill ⅓ mile east of West Flamborough; and at an abandoned quarry 1½ miles north of Hayesland.

At Guelph, the type locality of the Eramosa beds, the base of the Guelph dolomite is exposed. According to Williams[1], the lowest bed of the Guelph is about 2 feet thick and is bituminous, with an odour resembling that of petroleum. Shaw[2] states that about 19 feet up on the quarry wall at the Ontario Reformatory, above a 2-foot bed showing curved lines of jointing, the beds are less bituminous and "take on more of a Guelph appearance". *Zaphrentis* cf. *racinensis* was observed above the 2-foot bed, and Shaw places the contact immediately below the first appearance of that fossil.

The foregoing observations were verified by the writer, the following being his interpretation of the section exposed by the Reformatory quarry.

	Feet
Surface	
Sandy soil	2
Guelph formation	
Grey weathered, brownish, porous dolomite in irregular beds from 2 to 6 inches thick in the upper part, thicker bedded below. Many poorly preserved stromatoporoids in the lower 2 feet	6
Brownish grey, granular, porous, massive, and reef-like dolomite. Many small vugs lined with calcite. Profusion of stromatoporoids and corals	6
Buff-grey, finely granular dolomite in fairly even beds up to 8 inches thick. Small cavities lined with calcite. This rock has the appearance of a fine sandstone	10
Scraggy weathered bed from 20 inches to 2 feet thick of brownish, cavernous and vuggy dolomite	2
Lockport formation (Eramosa)	
Grey weathered, brownish, fine, dense, bituminous dolomite in even beds from 2 to 8 inches thick with partings up to ¼ inch thick of black shale. Distinct petroliferous odour when struck. The upper 12 feet contains vugs lined with sphalerite and calcite. Few grey chert nodules in lower part, and the whole vertically jointed. The lower 9 feet is more bituminous, darker brown in colour, and almost black in the lower 2 feet. Beds very even, with bituminous material showing as thin, horizontal, black lines on the quarry face	21

On the north side of Spencer Creek, in the road cut about ¾ mile east of West Flamborough, the following section exposes a similar lithological change:

	Feet
Guelph formation	
Brownish grey, buff weathered, vuggy and porous dolomite	3½
Chocolate coloured, finely granular dolomite, in beds from 1 to 2 feet thick	8½
Lockport formation	
Brown, dense, hard dolomite in thin beds with the black bituminous partings toward the base. Emits petroliferous odour when struck (Eramosa beds)	18

[1]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 72.
[2]Shaw, E. W.: Trans. Roy. Can. Inst., vol. 21, pt. 2, 1937, p. 327.

Immediately above the mill on Spencer Creek, about ⅓ mile east of West Flamborough, is exposed about 15 feet of thin and even-bedded brown dolomite with black, bituminous partings. At the top this rock is distinctly granular and appears almost like a fine sandstone. This upper granular rock is considered as Guelph, the greater part of the exposure being classed as Eramosa beds.

At an abandoned quarry on the west side of the road 1½ miles north of Hayesland 8 feet of rock is exposed. This is brown, finely granular to sugary dolomite in fairly even beds from 4 to 8 inches thick, the whole weathered brownish grey. This rock is placed immediately above the Lockport-Guelph contact, although, excepting the granular texture, its general appearance is not unlike that of parts of the Eramosa.

At each of the foregoing localities interpreted as showing the contact zone at the top of the Lockport there is no indication of disconformity. There is, however, a more or less distinct change in lithology, which would indicate a widespread change in the factors affecting both the rate of deposition and, to some extent, the type of sediment supplied to the basin of deposition.

Relation to Underlying Formations. The lower contact of the Lockport where it rests directly upon the Medina formation has already been described when discussing the relation of the Medina to the overlying strata. It will be remembered, however, that from about the latitude of Galt southward, both the Rochester and Clinton formations intervene between the Lockport and the Medina formation, and, therefore, throughout this part of the area the Lockport rests not on the Medina formation but on the Rochester shale. Neither the Clinton nor Rochester formations outcrops in our area and they are, therefore, known only from well samples.

It should be mentioned here that samples from one well in Beverly township show the Lockport resting directly upon Clinton strata with no intervening Rochester shale; this would indicate that the Clinton and Rochester did not both disappear at precisely the same geographic position. However, that both these formations did not differ greatly in extent in the present area is also indicated by boring samples, because, with the one exception mentioned, those examined by the writer show both Clinton and Rochester strata to be present.

In well samples the Rochester formation appears as a medium to dark grey shale, which in some wells is somewhat calcareous toward the top. Wherever the Lockport rests upon the Rochester formation, therefore, the contact is easily recognized in boring samples by the sharp and abrupt change from the light grey, crystalline dolomite of the Lockport to the dark grey shale of the Rochester formation.

The Lockport Formation in Well Samples

Examination of samples from a large number of wells, most of which, however, are concentrated in the southern half of the area, failed to reveal any satisfactory criteria that would serve to separate the Lockport from the overlying Guelph formation; all the strata between the Salina above and the Rochester shale below appear as a lithological unit and are here logged as such under the term Guelph-Lockport. In those wells that from field relations are known to start on Guelph rocks, it is, therefore,

impossible, with any confidence, to know just how much to assign to each of the formations present. Those wells that start on Lockport strata present a fairly uniform lithology throughout all the formation present. In general, the presence of the Eramosa member of the Lockport cannot be readily distinguished in well samples, although these beds are indicated in wells from Beverly and Puslinch townships by the presence of dark brown dolomite with thin, black, bituminous coatings.

The upper limit of the Guelph-Lockport, its lithology and thickness in well samples will be discussed under Guelph formation.

Although the Guelph and Lockport are represented by a great thickness of essentially dolomitic rock there is what might be called a typical Guelph and a typical Lockport lithology. It is possible, chiefly on a basis of physical characters, among which rock texture holds a prominent place, to assign hand specimens of the two typical phases to their respective formations with reasonable assurance. However, there is a considerable vertical range, including the upper part of the Lockport and the lower part of the Guelph, where the lithology and physical characters are so similar that it would be impossible to place hand specimens from this range into their respective formations. The two formations have been separated chiefly on faunal evidence, the typical Guelph enclosing a profusion of large pelecypods and gasteropods; many of these are not confined to the Guelph, but they are characteristic of certain horizons in these rocks. As examined in the hand specimen and at the outcrop, the typical Guelph rocks are commonly more or less granular and have a glistening lustre on fresh surface; the typical Lockport is commonly lighter in colour and more coarsely crystalline.

Correlation of the Lockport. The Lockport of Ontario is a northwestward extension of the Lockport of New York State. A study of the literature dealing with the upper Niagaran sediments in what might be called the Great Lakes region, that is, in New York, Michigan, Wisconsin, Illinois, Indiana, and Ohio, forces the conclusion that in this area there is apparently no break, either stratigraphic or faunal, from the base of the Lockport to the top of the Guelph. The entire interval represents an unbroken sequence. This same condition prevails in the present map-area, as has already been suggested in the discussion of the Lockport formation in well samples. For this reason discussion of the correlation of the Lockport in Ontario and the Great Lakes region will be deferred until after the Guelph formation has been dealt with.

GUELPH FORMATION

Definition. The term Guelph formation first appeared in Logan's[1] "Geology of Canada" as the name adopted for the series of rocks typically developed in the vicinity of Galt and Guelph.

It is noteworthy that although as early as 1843, Alexander Murray[2] made special mention of the bituminous rocks in the rapids above Niagara Falls, he failed to recognize these "less typical" Guelph rocks as distinct from the underlying series (Lockport), and it was not until 1848 while studying the section at Galt that he[3] recognized the existence of a series

[1]Logan, Sir Wm.: Geology of Canada, 1863, p. 336.
[2]Murray, A.: Geol. Surv., Canada, Rept. of Prog. 1843.
[3]Murray, A.: Geol. Surv., Canada, Rept. of Prog. 1848-49.

of strata overlying the escarpment rocks and containing a distinctive assemblage of fossils.

The formation occupies a position between the Lockport dolomite below and the Salina formation above.

Distribution. Guelph rocks have an areal extent of about 900 square miles; they underlie a belt averaging about 15 miles wide lying immediately west of the Lockport belt and extending northward across the area from about the latitude of the city of Brantford. With the exception of numerous small outcrops located along the roads and small creeks, particularly in Beverly and Flamborough townships, practically the only natural exposures are along Grand and Speed Rivers and Irvine Creek where these have cut through the glacial mantle into the underlying rock. At several localities along these streams Guelph rocks are present as cliffs up to 60 feet in height. Such exposures may be seen to advantage on Grand River from Fergus to some distance below Elora; between Preston and Galt; on Speed River between Guelph and Hespeler; and on Irvine Creek from Salem to Elora. Small and more or less widely separated outcrops are present on Grand River from the north boundary of the area to Invernaugh and from Galt to Glen Morris, and on Speed River from Armstrong Mills to Guelph. Besides these natural outcrops, Guelph rocks are exposed in several quarries, the most important of which are located at Elora, Guelph, Galt, Glen Christie, and Troy.

Lithology. The Guelph formation exhibits noticeable variation in its physical characters, as seen from place to place in the Brantford area. It is essentially a light yellowish grey to cream-coloured, porous, finely crystalline to granular, pure dolomite, commonly with a glistening lustre on fresh surface due probably to minute dolomite or calcite cleavage faces, the whole in even beds from 8 inches to 3 feet thick. The most outstanding constant feature is its prevailingly pure dolomitic composition. Buff and brown colours are common in the lower part of the formation, as seen at the Reformatory quarry at Guelph, and grey colours may appear at any horizon. Beds from 3 to 8 inches thick have been observed in the lower as well as in some of the highest exposures, with beds up to 4 and 6 feet thick in the intervening horizons. Both in quarries and at outcrops thick beds can be seen passing laterally into thinner strata at more than one horizon. At one locality the highest beds exposed are bluish and distinctly argillaceous. Reef structures are present at different horizons throughout the entire exposed part of the formation, and at these horizons the rock is commonly blue in colour and argillaceous in composition. Outcrops may be weathered grey, buff, cream, or, less commonly, almost white.

One of the best sections is exposed in the quarry at Glen Christie, where a 64-foot wall can be examined. As a whole, this face shows light creamy coloured, fine-grained to dense but porous dolomite, which exhibits a glistening lustre on fresh surface. The lower 50 feet is massive, in places showing no bedding for thicknesses of 10 feet, but in following such zones horizontally they pass into thinner beds at several places. Toward the base this rock is more yellowish, finely granular, less porous, and resembles a fine sandstone in appearance. The upper 14 feet is less massive, beds under one foot thick with irregular bedding planes being common. At different horizons on the quarry face, large, irregularly lens-shaped, reef-

like masses obscure the bedding, and the rock is blue, hard, and somewhat argillaceous. Corals and gasteropods are common and not restricted to any particular horizon and stromatoporoids were observed both at the top and bottom of the face.

Although outcropping strata situated at numerous localities probably total over 100 feet (84 feet being exposed in the gorge at Elora) of the formation, no lithological or physical feature with sufficient lateral consistency to be used as an horizon marker has been observed.

It will be readily understood from the description of the Guelph formation at outcrops, that in well samples the entire thickness appears as a single lithological unit. As already pointed out, the underlying Lockport also exhibits the same feature in boring samples, and as no criteria could be found upon which to separate the two, they have been logged together under the term Guelph-Lockport. In well samples then, the Guelph-Lockport appears as uniform grey, buff, creamy, and brown-coloured, crystalline to granular dolomite. In general no subdivision is possible, although samples from some wells in Puslinch and Beverly townships do contain dark brown, dense dolomite with black, bituminous coatings, which would suggest the presence there of the Eramosa beds. The following table exemplifies the lithology of both the Guelph and Lockport strata, and also shows that where it has been penetrated the Guelph-Lockport is not generally divisible in well samples.

County	Township	Depth	Thickness	Lithology
		Feet	Feet	
Elgin	Malahide	1,068-1,199	131	Grey and brownish, crystalline dolomite.
		1,199-1,300	101	Buff and cream-coloured, crystalline dolomite.
		1,300-1,354	54	Brownish grey, finely crystalline dolomite.
Elgin	Bayham	1,010-1,260	250	Grey, cream, and brownish, finely granular dolomite; traces of selenite at 1,070 and 1,130 feet.
Elgin	South Dorchester	1,075-1,270	195	Grey and brownish grey, finely granular dolomite.
		1,270-1,315	45	Brownish, crystalline dolomite.
Norfolk	Woodhouse	520-600	80	Grey, finely granular dolomite.
		600-780	180	Cream-coloured, finely crystalline dolomite, with traces of selenite at 740 and 770 feet.
		780-800	20	Brown, fine dolomite.
Norfolk	Charlotteville	760-940	180	Brown and cream-coloured, finely granular dolomite.
		940-1,005	65	Brownish and grey, finely crystalline dolomite.

County	Township	Depth	Thickness	Lithology
		Feet	Feet	
Norfolk	Middleton	950-970	20	Grey, finely granular dolomite.
		970-1,010	40	Cream-coloured, finely granular dolomite; traces of selenite.
		1,010-1,050	40	Light grey, finely crystalline dolomite.
		1,050-1,220	170	Brownish grey, finely crystalline dolomite.
Norfolk	South Walsingham	1,020-1,035	15	Grey, finely granular dolomite; traces of selenite at 1,035 feet.
		1,035-1,210	175	Grey and brownish grey, finely crystalline dolomite.
		1,210-1,230	20	No samples.
Oxford	Dereham	900-925	25	Brownish grey, finely granular dolomite.
		925-965	40	Grey, finely crystalline dolomite; porous in upper 20 feet.
		965-1,060	95	No samples.
		1,060-1,125	65	Grey and brownish grey, crystalline dolomite.
Oxford	East Nissouri	1,010-1,030	20	Brownish grey, finely crystalline dolomite.
		1,030-1,050	20	Buff, finely granular dolomite; porous.
		1,050-1,060	10	Grey and brownish, finely granular dolomite.
		1,060-1,220	160	Grey and buff, crystalline dolomite; porous at 1,180 and 1,220 feet.
		1,220-1,295	75	Light grey, coarsely crystalline dolomite; porous from 1,220 to 1,250 feet.
Oxford	West Oxford	630-670	40	Grey, finely granular dolomite.
		670-860	190	Cream-coloured, crystalline dolomite; porous at 700 to 710 feet; 790 to 800; and 840 to 860 feet.
		860-950	90	Light grey, coarsely crystalline dolomite; porous at 860 to 920 feet.
Perth	North Easthope	810-950	140	Buff, finely granular dolomite.
		950-1,030	80	Buff, crystalline dolomite.
		1,030-1,055	25	Light grey to bluish, coarsely crystalline dolomite.
		1,055-1,095	40	Light grey to white, crystalline dolomite.
Brant	Brantford	0-78	78	Grey, crystalline dolomite.
		78-107	29	Medium to light grey, porous dolomite.
		107-136	29	Grey, finely crystalline dolomite.
		136-170	34	No samples.
		170-258	88	Light cream-coloured, granular dolomite.
		258-333	75	Light chocolate-coloured, fine-grained, bituminous dolomite.

County	Township	Depth	Thickness	Lithology
		Feet	Feet	
Brant	Onondaga	155-170	15	Grey, crystalline dolomite.
		170-190	20	Grey, granular dolomite.
		190-220	30	Grey and brownish, finely crystalline dolomite; traces of anhydrite at 205 feet.
		220-225	5	Light grey, granular dolomite.
		225-250	25	Light grey, crystalline dolomite; porous.
		250-270	20	Light buff, finely granular dolomite.
		270-300	30	Light buff, finely granular dolomite; little dark grey, limy shale.
		300-340	40	Brown, granular dolomite; anhydrite at 335 feet.
		340-395	55	Brownish grey, finely granular dolomite; traces of anhydrite at 375 feet.
		395-410	15	Light grey, coarsely crystalline dolomite.
Brant	Tuscarora	160-215	55	Grey, finely crystalline dolomite.
		215-250	35	Light grey, crystalline dolomite; traces of selenite at 225 and 230 feet.
		250-275	25	Light grey, finely granular dolomite; finely porous.
		275-305	30	Brownish grey, finely granular dolomite; traces of green shale.
		305-345	40	Dark brownish grey, crystalline dolomite.
		345-380	35	Grey, finely crystalline dolomite; traces of selenite at 350 feet.
		380-400	20	Light grey, crystalline dolomite.
Wentworth	Beverly	0-100	100	Brownish grey, finely granular dolomite (Guelph).
		100-140	40	Dark brownish grey, finely crystalline dolomite with black bituminous coatings (Eramosa).
		140-160	20	Light grey, crystalline dolomite.
		160-195	35	Light grey to white, coarsely crystalline dolomite; little grey, dolomitic shale at the base.
Wellington	Eramosa	180-210	30	Light, bluish grey, coarsely crystalline and porous dolomite.
		210-220	10	Grey, crystalline dolomite; much pyrite (Clinton).
Wellington	Puslinch	58-93	35	Light grey and cream-coloured, finely granular dolomite (Guelph).
		93-153	60	Light grey, finely crystalline dolomite (Guelph).
		153-173	20	Brown, crystalline dolomite (Guelph).
		173-208	35	Dark brownish grey dolomite with dark bituminous shale coatings (Eramosa).

County	Township	Depth	Thickness	Lithology
Wellington	Puslinch	Feet	Feet	
		208-288	80	Light grey, dense dolomite.
		288-368	80	Light grey and bluish grey, granular dolomite; little pyrite throughout.
Wellington	Minto	545-580	35	Brown, finely crystalline dolomite.
		580-620	40	Cream-coloured, crystalline dolomite.
		620-670	50	Grey, finely granular dolomite.
		670-695	25	Light grey, crystalline dolomite.
Waterloo	Waterloo	212-248	36	Grey, coarsely crystalline, porous dolomite.
		248-276	28	Cream-coloured, crystalline dolomite.
		276-308	32	Light grey, crystalline dolomite.
		308-349	41	Brownish grey, crystalline dolomite.
		349-397	48	Grey, finely crystalline dolomite; little grey, shaly dolomite at 391 feet.
		397-421	24	Brownish grey, crystalline dolomite; traces of grey shale.

Only in the west and south parts of the area, where the Guelph passes beneath younger rocks, does the drill penetrate the entire thickness of the Guelph-Lockport strata. There, total thicknesses range from 150 to 320 feet. These are shown in the following table:

County	Township	Thickness
		Feet
Elgin	Malahide	286
Elgin	Bayham	250
Elgin	South Dorchester	240
Norfolk	Woodhouse	280
Norfolk	Charlotteville	245
Norfolk	Middleton	270
Norfolk	South Walsingham	210
Oxford	Dereham	225
Oxford	East Nissouri	285
Oxford	West Oxford	320
Perth	North Easthope	285
Brant	Tuscarora	240
Wellington	Minto	150

The foregoing figures show a maximum thickness of 320 feet in West Oxford and a minimum of 150 feet in Minto township. These two localities are approximately 50 miles apart. Despite the local variations indicated in the table, there seems to be a distinct thinning of the Guelph-Lockport passing northward across the area.

Upper Limit of the Guelph. A consideration of the upper limit of the Guelph strata may help to explain the considerable local variations in thickness noted in the foregoing table. In most of the well samples examined it was found difficult to draw a sharp boundary between the Guelph and the overlying Salina beds. There is, in effect, a transition zone separating what is easily recognized as typical Guelph and typical Salina lithology. This zone varies in thickness and may properly be placed in either of the two formations. It commonly consists of grey or brownish grey, finely crystalline dolomite containing variable quantities of anhydrite, and in some wells more or less argillaceous material. Below this zone the samples are commonly grey, buff, or brownish, crystalline or finely granular dolomite, rarely with traces of anhydrite, and above it is grey, limy shale and brownish, fine dolomite, commonly with gypsum and anhydrite. After examination of samples from many wells it was decided to place the upper limit of the Guelph between the highest occurrence of grey or brownish, finely crystalline or granular dolomite and the lowest occurrence of anhydrite or gypsum associated with grey to brownish, finely crystalline to dense dolomite and grey, limy shale. The following table, extracted from samples logged by the writer, will illustrate the contact zone:

County	Township	Depth	Formation	Lithology
		Feet		
Elgin	Malahide	1,018–1,050	Salina	Dark grey, limy shale.
		1,050–1,068	Salina	Brownish grey, fine dolomite; traces of gypsum.
		1,068–1,199	Guelph	Grey and brownish, crystalline dolomite.
Elgin	Bayham	950– 970	Salina	Dark grey shale; traces of gypsum.
		970–1,010	Salina	Brownish, fine dolomite; traces of gypsum.
		1,010–1,260	Guelph	Grey, cream, and brownish, finely granular dolomite.
Elgin	South Dorchester	1,010–1,030	Salina	Dark grey, limy shale.
		1,030–1,075	Salina	Brown, fine dolomite; little grey shale; traces of gypsum.
		1,075–1,270	Guelph	Grey and brownish, finely granular dolomite.
Norfolk	Woodhouse	480–500	Salina	Dark grey shale; traces of gypsum
		500–520	Salina	Brown, fine dolomite; little grey, limy shale.
		520–600	Guelph	Grey, finely granular dolomite.
Norfolk	Charlotteville	730–760	Salina	Grey and greenish, limy shale; little brown dolomite; traces of gypsum.
		760–940	Guelph	Brown and cream-coloured, finely granular dolomite.
Norfolk	Middleton	840–950	Salina	Dark grey, limy shale; little brown, fine-grained dolomite; traces of gypsum.
		950–970	Guelph	Grey, fine-grained dolomite.
		970–1,010	Guelph	Cream-coloured, finely granular dolomite; traces of selenite.

County	Township	Depth	Formation	Lithology
Norfolk	South Walsingham	Feet 1,020–1,045	Salina	Grey and brown, crystalline dolomite; traces of gypsum; little green shale at 1,045 feet.
		1,045–1,115	Guelph	Brown and grey, granular dolomite; traces of selenite.
Oxford	Dereham	825–860	Salina	Dark grey shale.
		860–900	Salina	Brown, fine-grained dolomite with dark bituminous streaks; greenish shale at 890 feet.
		900–925	Guelph	Brownish grey, finely granular dolomite.
Oxford	East Nissouri	960–1,000	Salina	Grey, limy shale; little gypsum.
		1,000–1,010	Salina	Brown, fine-grained dolomite; little grey shale and gypsum.
		1,010–1,030	Guelph	Brownish, finely crystalline dolomite; traces of selenite.
		1,030–1,050	Guelph	Buff, finely granular, porous dolomite.
Oxford	West Oxford	470–540	Salina	Grey and greenish shale; little brown dolomite; little gypsum.
		540–630	Salina	Brownish, fine-grained and dense dolomite; traces of gypsum.
		630–670	Guelph	Grey, finely granular dolomite.
Perth	North Easthope	750–780	Salina	Dark grey, limy shale; anhydrite at 770 feet.
		780–810	Salina	Grey and buff, finely crystalline dolomite; traces of anhydrite at 805 feet.
		810–950	Guelph	Buff-coloured, finely granular dolomite.
Brant	Onondaga	110–150	Salina	Dark grey and greenish shale with traces of anhydrite.
		150–155	Salina	Grey, crystalline dolomite.
		155–170	Guelph	Grey, finely crystalline dolomite.
		170–190	Guelph	Grey, granular dolomite.
Brant	Tuscarora	95–135	Salina	Grey and greenish shale; little brown dolomite; traces of anhydrite.
		135–160	Salina	Brown, crystalline dolomite; little grey shale; traces of anhydrite.
		160–215	Guelph	Grey, finely crystalline dolomite.
		215–250	Guelph	Light grey, crystalline dolomite; traces of selenite at 725 to 730 feet.
Wellington	Minto	480–510	Salina	Brown and grey, fine-grained dolomite; little gypsum.
		510–545	Salina	Grey, limy shale; traces of gypsum.
		545–580	Guelph	Brown, finely crystalline dolomite.
		580–620	Guelph	Cream-coloured, crystalline dolomite.
Waterloo	Waterloo	175–212	Salina	Buff and brown dolomite with dark bituminous streaks; little grey and greenish shale; traces of gypsum.
		212–248	Guelph	Grey, crystalline, porous dolomite.

According to Williams[1], the Camillus shale, the lowest member of the Salina formation, rests unconformably upon the Guelph dolomite in Ontario. This statement appears to be based largely upon the variation in thickness of the Guelph strata throughout the Ontario Peninsula. In the present map-area, at least, no evidence was found to support the above interpretation. The upper limit of the Guelph is nowhere exposed, but there exists one outcrop that, if not at the top of the formation, is certainly not more than a few feet below the contact. On Grand River opposite the mouth of Swan Creek there is about 6 feet of roughly bedded, grey and bluish, shaly dolomite with stromatoporoids. In places this weathers into thin, wavy, platy beds of grey to bluish, calcareous, shale rock. Nowhere else has the Guelph been seen to exhibit such argillaceous beds, and although the rock cannot be observed passing upward into typical Salina beds it seems not unlikely that this exposure may indicate fluctuating conditions transitional to the Salina muddy phase of sedimentation.

About 2 miles southwest of this exposure the Grand River Conservation Commission has made test borings at a proposed dam site; through the courtesy of the consulting engineers cores from these test holes were made available for study. Examination of these cores shows the following results:

Hole No. 1 — *Salina Formation*

Feet	
0 to 10	Alternation of nearly black, hard, dense and compact, finely textured shale in thin, laminated beds with pale brownish, dense, fine-grained dolomite in beds ranging from less than 1 inch to about 4 inches thick. Planes of contact between shale and dolomite smooth and even.
10 to 23	Almost black, compact, thinly laminated shale as above, but with several layers of white, fibrous gypsum up to ½ inch thick distributed in the interval between 16 and 18 feet. Gypsum layers parallel to shale bedding with smooth, even contact planes.
23 to 29	Dark grey, dense, finely crystalline, impure dolomite. Core broken into sections from a few inches to 1 foot in length. Several thin and irregular partings of greenish, argillaceous material.
	Guelph Dolomite
29 to 35	Light grey, dense, finely crystalline dolomite.
35 to 53	Light creamy buff coloured, granular textured dolomite. Core broken into sections about 3 feet long, indicating thickness of bedding. Bedding planes smooth and even with no suggestion of argillaceous partings. A ¼-inch white gypsum layer at 45 feet.

Hole No. 2 — *Salina Formation*

Feet	
0 to 10	Dark grey to black, compact, thinly laminated shale.
10 to 20	Similar shale to above with 1- to 4-inch interbeds of brownish, finely crystalline dolomite.
20 to 33	Similar black shale with ½-inch white gypsum bands at about 20, 24, and 27 feet and a 1-inch band at 28 feet.
33 to 37	Dark grey, dense, impure, limy rock. Core broken into sections a few inches in length with greenish, argillaceous partings.
	Guelph Dolomite
37 to 55	Grey, dense, finely granular dolomite. From 50 to 53 feet the core contains white gypsum in irregular and lensy patches up to ½ inch in diameter.

[1] Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 83.

Hole No. 3 — *Salina Formation*

Feet	
0 to 29	Black, dense, compact, and thinly laminated shale with occasional thin beds of brownish, dense dolomite, particularly in the upper part. At least twenty bands of white, fibrous gypsum from ⅛ to 1 inch thick occur in this interval.
29 to 40	Grey, impure, dense, dolomitic rock. Core broken into sections up to 18 inches long, which show irregular breaks covered with greenish, argillaceous material. The whole interval mottled with white gypsum in irregular patches up to 1 inch in diameter.

Guelph Dolomite

40 to 50	Brownish grey, dense dolomite, becoming granular in lower few feet. Core broken into sections up to 2½ feet long with thin, green, argillaceous partings on the breaks. Whole interval contains small, irregular patches of white gypsum.

It will be seen that no really sharp lithological break exists between the typical Salina and the typical Guelph strata in these cores, and that transition rather than stratigraphic break is indicated.

All the evidence assembled from well samples, from core borings, from the foregoing exposure near the top of the Guelph, and from a lithological study of the formation where exposed, appears to militate against, rather than favour, unconformable relations between the Guelph and Salina formations in the Brantford area.

Fauna. The fauna of the typical beds to which the term Guelph was originally applied has been the subject of considerable study, the results of which are embodied in many publications, chief among which are works by Billings[1], Whiteaves[2], Parks[3], Williams[4], and Shaw[5].

All the corals and about 65 per cent of the brachiopods as listed by Williams from the Guelph rocks are also listed by him as occurring in the underlying Lockport dolomite; and of the total number reported from the Guelph, 40 per cent are present also in the lower formation. The outstanding difference in the faunas from the two formations appears to be the presence in the Guelph of a large assemblage of gasteropods and large pelecypods that, as a whole, are not found in the older strata.

Shaw has recently described several new species from the Guelph rocks at Galt, Elora, Tobermory, and Durham, and has published a complete list of the Ontario Guelph fauna as it is known at present. This list includes 163 species, of which 77 occur in rocks older than the Guelph. The Guelph fauna is thus seen to be characterized not particularly by a failure of earlier forms but rather by the introduction of many new species. Gasteropods are the most prolific individuals, and of the total number occurring in the Guelph, only one-third are found also at lower horizons. It is the general assemblage and association of forms rather than the presence of any particular fossil or fossils that could be called diagnostic of the formation, that characterizes the Guelph strata of Ontario. However, as pointed out

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[1]Billings, E.: Geol. Surv., Canada, Pal. Fossils, vol. I, 1861-1865.
[2]Whiteaves, J. F.: Geol. Surv., Canada, Pal. Fossils, vol. III, 1884-1906.
[3]Parks, W. A.: University of Toronto Studies, Geol. Ser. No. 4, 1907.
[4]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919.
[5]Shaw, E. W.: Trans. Roy. Can. Inst., vol. XXI, pt. 2, 1937, p. 331.

by Shaw[1], perhaps the most diagnostic and at the same time reasonably abundantly occurring species are *Megalomus canadensis, Trimerella grandis, Trimerella acuminata, Conchidium occidentale, Whitfieldella hyale,* and *Coelocaulis longispira.*

Correlation. Rocks of upper Niagaran age in Manitoba were described by Tyrrell[2]. The highest Silurian rocks enclosed specimens of *Pycnostylus guelphensis,* but it was not deemed advisable to separate the horizon as Guelph on the evidence of a fossil "whose range is so little known." At a more recent date, Savage[3] has shown these rocks to belong to a lower horizon.

Hume[4] has described the Palæozoic outlier in the Lake Timiskaming region. At this locality the Lockport formation forms the highest member of the Palæozoic rocks except for one exposure that "may represent the transition beds from the Lockport to the Guelph".[5]

In the Great Slave Lake area Hume[6] reports a Guelph fauna from rocks correlated with the Fitzgerald dolomite. The following species were recorded: *Pycnostylus guelphensis, Pycnostylus elegans, Spirifer* nearest *coralliensis, Phragmoceras* sp., *Poterioceras* sp., and *Rizoceras* sp. Although these forms strongly suggest a Guelph age, they are not diagnostic of that time, as both the species of Pycnostylus are now known to occur low in the Lockport (Gasport) and the other genera are not specifically identified.

Several authors have referred the latest Silurian rocks of the Hudson and James Bays region to Guelph time. According to Savage and Van Tuyl[7], the Attawapiskat coral reef is tentatively correlated with the Eramosa beds of Ontario. Analysis of the Attawapiskat fauna indicates a time within the Racine that is probably equivalent to the Eramosa or upper Lockport of Ontario.

Correlatives of the Ontario Guelph-Lockport occur in different degrees of development in the states bordering the Great Lakes.

In New York State, Clarke and Ruedemann[8] have described two Guelph faunal zones, the Upper and Lower Shelby dolomites, separated by about 32 feet of strata containing a normal Lockport fauna. The authors also suggest[9] that the two zones can be detected at Niagara Falls. The writer has been unable to verify this occurrence, and, in addition, Shaw[10] states that careful search by him failed to reveal their presence. According to Clarke and Ruedemann, the Lower Shelby encloses a purer Guelph fauna than does the Upper Shelby; this condition would suggest a correlation between the Lower Shelby and part of the Ontario Guelph. Admitting such a correlation, the intervening Lockport and Upper Shelby must also be equivalent to part of the Guelph as both lie between the Lower Shelby and the overlying Salina beds. Such a correlation seems justified in view of the fact that at Shelby, New York, 60 feet of Lockport underlies the

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[1]Shaw, E. W.: Trans. Roy. Can. Inst., vol. XXI, pt. 2, 1937, p. 347.
[2]Tyrrell, J. B.: Geol. Surv., Canada, Ann. Rept. 1890-91, vol. V, pt. E, p. 200.
[3]Savage, T. E.: Jour. Geol., vol. XXVI, 1918, pp. 334-340.
[4]Hume, G. S.: Geol. Surv., Canada, Mem. 145, 1925.
[5]Hume, G. S.: Op. cit., p. 34.
[6]Hume, G. S.: Geol. Surv., Canada, Bull. 44, 1926, pp. 59-64.
[7]Savage, T. E., and Van Tuyl, F. M.: Geol. Soc. Am., vol. 30, 1919, p. 368.
[8]Clarke, J. M., and Ruedemann, R.: Guelph Fauna in the State of New York; N.Y. State Mus., Mem. 5, 1903.
[9]Clarke, J. M., and Ruedemann, R.: Op. cit., p. 14.
[10]Shaw, E. W.: Trans. Roy. Can. Inst., vol. 21, pt. 2, 1937, p. 384.

Lower Shelby and about the same thickness of Lockport lies below the Guelph at Niagara Falls. Shaw[1] points out that neither the Upper nor Lower Shelby horizons are characterized by the most typical species of the Ontario Guelph, noting the absence of such forms as *Pycnostylus guelphensis, Pycnostylus elegans, Megalomus canadensis,* and *Conchidium occidentale.* The inference may well be that the facies represented by the Ontario Guelph was not present in New York during Guelph time.

In Indiana, the Upper Niagaran strata have been reported upon by Cumings and Shrock[2]. These authors have published a complete list of the Huntington dolomite fauna, and from their own analysis they conclude that the corals, brachiopods, and trilobites show Lockport affinities, whereas such forms as *Favosites occidens, Pycnostylus elegans, Pycnostylus guelphensis, Conchidium, Monomorella,* and *Dinobolus* are of distinct Guelphitic affinities. Cumings and Shrock further point out the lithologic similarity of the Huntington dolomite of Indiana, the Springfield-Cedarville of Ohio, the Racine-Port Byron of Illinois, and the Racine-Guelph of Wisconsin, and state that hand specimens of the Racine from Racine, Wisconsin, of the Huntington from Ridgeville, Indiana, and of the Cedarville from Springfield, Ohio, can scarcely be told apart.

The Cedarville dolomite of Ohio encloses such typical Guelph fossils as *Trimerella grandis, Trimerella acuminata, Megalomus canadensis, Coelocaulis macrospira, Conchidium occidentale,* and *Pycnostylus solarioides* and is correlatable with the Ontario Guelph.

In Wisconsin the Upper Niagaran dolomites were divided into Racine below and Guelph beds above, by Chamberlain[3]. Subsequent workers have expressed the opinion that this division is unwarranted and that neither a stratigraphical nor palæontological break exists from the base of the Racine to the top of the Guelph. Williams[4] makes the Ontario Guelph the equivalent of the Racine and the overlying Guelph beds of Wisconsin. According to Shaw[5], a Racine fauna has recently been recognized in the Gasport (Lockport) of Ontario by Nowlan; it, therefore, becomes more probable that the Racine-Guelph of Wisconsin is the correlative of the combined Lockport-Guelph of Ontario.

SALINA FORMATION

Definition. The term Salina was introduced by Dana[6] in 1863 to replace the "Onondago Salt Group" of Hall[7] and Vanuxem[8], as the name Onondaga was already in use for a limestone series. The Salina originally included four "deposits", which were, in ascending order, red shale; lower gypseous shales; gypseous deposit; and magnesium deposit. The series rested upon the Niagara group and was overlain by the Lower Helderberg group.

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[1]Shaw, E. W.: Op. cit., p. 348.
[2]Cumings, E. R., and Shrock, R. R.: Geology of Silurian Rocks of Northern Indiana; Dept. Conservation, Div. Geol., Indianapolis, Pub. 75, 1928, p. 97.
[3]Chamberlin, T. C.: Geol. of Wisconsin, vol. 2, 1877.
[4]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 75.
[5]Shaw, E. W.: Op. cit., p. 350.
[6]Dana, J. O.: Manual of Geology, 1st Edition, 1863, p. 246.
[7]Hall, James: Geol. Surv. of N.Y., 3rd Ann. Rept., 1839, p. 290.
[8]Vanuxem, L.: Geol. Surv. of N.Y., 3rd Ann. Rept., 1839, p. 249.

In 1910 Clarke and Schuchert[1] proposed the term "Cayugan period or group" to include the Salina beds, Rondout Waterlime, and Manlius limestone. In 1908 Grabau[2] proposed the usage "Middle Silurian or Salinan", which was represented only by non-marine sediments, and introduced the term Monroe for about 900 feet of fossiliferous strata in Michigan and adjoining regions in Ohio and Canada. In 1908, also, Schuchert uses "Cayugan Series" to include the Salina group embracing all formations between the Guelph-Niagara group and the base of the Devonian. In 1919 Williams[3] used "Cayugan group" to include all the Silurian in Ontario above the top of the Guelph. The group included three formations, which were, in ascending order, the Salina formation; Bertie waterlime formation; and Akron formation. This classification is here followed, the Salina being limited below and above by the Guelph dolomite and the Bertie beds, respectively.

Distribution. The Salina formation has an areal extent of about 1,200 square miles; it underlies a belt of country averaging about 18 miles wide and lying immediately west of the belt underlain by Guelph strata. At only one locality do these rocks appear at the surface. They may be seen on both sides of Grand River at Paris, where they form the river bed, and at several places within a distance of 2½ miles above that city, but nowhere in sections more than 5 feet thick.

Boring samples show the presence of Salina beneath younger strata throughout the remainder of the area.

Lithology. As seen at Paris and on the west side of Grand River one mile above the Canadian National Railways bridge, the Salina consists of grey and greenish, thin and irregularly bedded, soft, calcareous and argillaceous shale, which commonly weathers with conchoidal surfaces. Interbedded with the shale are thin beds of brownish, hard, dense dolomite, the maximum thickness exposed being about 5 feet. On the east side of the river about ¾ mile above Paris a small outcrop of similar shale shows traces of gypsum.

Only by means of boring samples can the entire formation be studied. As thus examined, the Salina formation shows, in general, an alternation of grey and brown-coloured intervals, each of which represents a lithology peculiar to itself. The brown consists of fine-grained to dense dolomite, rarely with dark, bituminous streaks, whereas the grey may be described as a dolomitic shale or, perhaps more properly, as an argillo-calcareous mud rock. The formation as a whole is, therefore, more or less calcareous, the nearest approach to true shale being some thin zones of green and greenish grey, soft, argillaceous rock observed in samples from a few of the wells. Small quantities of white anhydrite and gypsum are present throughout practically the entire formation, although perhaps more prevalent in the grey, shaly intervals.

On a basis of the two foregoing types of lithology the Salina formation is broadly divisible into four zones, which, in descending order, may be designated: Upper Shale; Upper Dolomite, Lower Shale; and Lower Dolomite.

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[1]Clarke, J. M., and Schuchert, C.: Am. Geologist, vol. 25, 1900, p. 118.
[2]Grabau, A. W.: Science, N.S., vol. 27, April 1908, p. 622.
[3]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 82.

The Upper Shale consists of 75 to about 110 feet of grey, argillo-calcareous mud rock with, in most of the wells examined, a small amount of brown dolomite either as thin interbeds or, in a few instances, as zones up to 20 feet thick. Small quantities of white anhydrite are present in almost every boring sample of the Upper Shale. In general, a more or less disseminated occurrence rather than thin beds is indicated, although in one well a 15-foot interval near the base of this zone is almost entirely anhydrite.

The Upper Dolomite when examined in detail consists of 75 to 150 feet of brown, fine dolomite. In most of the wells examined the dolomite is interbedded with dark, shaly rock; this is commonly present as thin interbeds separated by much greater thicknesses of dolomite, although in a few of the wells shaly zones up to 15 feet thick are present. Small quantities of anhydrite are present in nearly every boring sample throughout this zone.

The Lower Shale is probably the most variable of the four divisions, and in some wells there appears to be equal amounts of each of the two main types of lithology. The zone consists of 90 to about 150 feet of grey, calcareous and shaly mud rock with interbeds of brown dolomite. Although for the most part the shaly rock is the dominant type, most wells show the brown dolomite to be present in small but varying quantities throughout the entire interval, and in a few wells a single zone as much as 40 feet thick is present. As in the preceding divisions, small but variable quantities of anhydrite are scattered throughout.

The Lower Dolomite is the thinnest of the four divisions. In one well examined it is not present at all. Its thickness ranges to about 75 feet. In most of the wells it consists almost entirely of brown, fine dolomite, although as much as 20 feet of grey, limy shale is present in a few instances. Small quantities of anhydrite are present throughout.

Considering the formation as a unit, it presents essentially the same lithologic character and sequence wherever it has been examined. The Upper Shale and Lower Dolomite divisions are on the whole the most persistent and easily recognizable of the four general divisions of the formation. The formation almost invariably commences with a brown, fine dolomite and ends with grey, limy, mud rock. The Upper Dolomite and Lower Shale do not, in detail, present as much lithological uniformity, although on the whole they are dominantly brown dolomite and grey, limy mud, respectively. Although during drilling operations it would be very difficult if not impossible to recognize definite horizons at any particular stage, it would nevertheless be possible, within fairly wide limits, to estimate the position reached at any time with respect to the four lithological divisions.

It is not necessary to postulate deep water for the accumulation of the Salina sediments. It is difficult to reconstruct the probable physical conditions prevailing at the time of deposition, but the fine interbedding of dolomite and calcareous mud and the unequal lateral distribution of these beds, seen especially in parts of the Upper Dolomite and Lower Shale divisions, would indicate fluctuations in both type of material and rate of supply. It does not seem necessary to postulate fluctuations or oscillations in the water, as the observed conditions could conceivably be brought

about by transportation of the sediments by rivers. The uniformly fine texture and prevailing calcareous composition may indicate derivation from pre-existing calcareous and argillaceous deposits. The presence of anhydrite and the total absence of fossils would point to salinity somewhat in excess of normal.

Delimitation and Thickness. Neither the top nor the bottom of the Salina formation is exposed within the present area and, consequently, both contacts are observable only from drilling records. The lower contact as displayed by the test core borings put down at a proposed dam site on Grand River below Invernaugh has already been described in discussing the upper limit of the Guelph formation; the conclusion reached was that this contact is conformable and that it is more or less difficult to fix a definite and sharp line of demarcation between the two formations.

The Salina-Bertie contact is also conformable, and in most of the wells examined can readily be placed with reasonable assurance and consistency. It is here placed above the highest occurrence of anhydrite or gypsum, which is usually associated with fairly dark grey, limy shale. This horizon is almost invariably overlain by at least 50 feet of brown or grey, fine-grained dolomite with, in some wells, dark bituminous streaks, and which represents the Bertie-Akron series. The following table will illustrate the nature of this contact as seen in well samples:

County	Township	Thickness	Lithology	Formation
		Feet		
Elgin	Malahide	53	Brown and grey, fine-grained dolomite.	Bertie-Akron
		16	Dark grey, limy shale; traces of anhydrite.	Salina
Elgin	Bayham	50	Brownish grey dolomite with dark, bituminous streaks.	Bertie-Akron
		10	Dark grey, limy shale.	Salina
Elgin	South Dorchester	20	Grey, fine-grained dolomite.	Bertie-Akron
		10	Dark grey, limy shale with traces of anhydrite.	Salina
		5	Brown, fine-grained dolomite; little anhydrite.	Salina
Norfolk	Woodhouse	15	Brownish grey, fine-grained dolomite.	Bertie-Akron
		5	Brown, fine dolomite; little dark, limy shale.	Salina
Norfolk	Charlotteville	10	Dark brown, fine-grained dolomite.	Bertie-Akron
		5	Dark grey, limy shale; much gypsum.	Salina
		10	Brown, fine-grained dolomite; little grey, limy shale.	Salina
Norfolk	Middleton	10	Brown, finely crystalline dolomite...	Bertie-Akron
		5	Brown, dense dolomite; little dark grey, limy shale.	Salina
		5	As above, with traces of anhydrite...	Salina

County	Township	Thickness	Lithology	Formation
		Feet		
Norfolk	South Walsingham	10	Cream-coloured, fine-grained dolomite.	Bertie-Akron
		5	Grey, limy shale; traces gypsum.	Salina
		5	Grey, limy shale; little brown dolomite; traces of gypsum.	Salina
Oxford	Dereham	20	Brown, fine-grained dolomite.	Bertie-Akron
		5	Dark grey, limy shale.	Salina
		10	Dark grey, limy shale; little brown, fine-grained dolomite.	Salina
		5	Dark grey,limy shale; traces gypsum.	Salina
Oxford	East Nissouri	10	Brownish grey,fine-grained dolomite.	Bertie-Akron
		5	Dark, limy shale; little brown dolomite.	Salina
		5	Dark, limy shale; much anhydrite...	Salina
Oxford	North Oxford	10	Brownish grey, fine-grained dolomite.	Bertie-Akron
		10	Dark greenish, limy shale.	Salina
		20	Grey, limy shale; little brown dolomite; traces of gypsum.	Salina
Perth	North Easthope	10	Grey, finely granular dolomite.	Bertie-Akron
		10	Dark grey, limy shale; little anhydrite.	Salina

As delimited in this report, the Salina formation shows some variation in thickness, part of which is doubtless due to the difficulty in placing the lower boundary. The following table shows the thickness as interpreted from well samples:

County	Township	Thickness
		Feet
Elgin	Malahide	384
Elgin	Bayham	400
Elgin	South Dorchester	415
Norfolk	Woodhouse	325
Norfolk	Woodhouse	335
Norfolk	Charlotteville	335
Norfolk	Middleton	395
Norfolk	South Walsingham	365
Norfolk	South Walsingham	390
Oxford	Dereham	405
Oxford	Dereham	390
Oxford	East Nissouri	410
Oxford	North Oxford	390
Perth	North Easthope	430
Wellington	Minto	475+

Notwithstanding the local variations indicated by the foregoing figures, there does appear to be a thickening of the formation from south to north across the area. In Minto township, where the formation immediately underlies the drift, a consequent partial section shows a thickness 45 feet in excess of the thickest total section, which is located in North Easthope township some 35 miles to the south.

Correlation. A complete lack of palæontological material forces any correlation of the Salina beds to be a purely lithological one. In the State of New York, "Camillus" shale is the term applied to the beds immediately below the Bertie waterline and resting upon the rock salt. It has been pointed out by Alling[1], that although in a general stratigraphic sense the term "shale" is satisfactory, the Camillus at its type locality is really not a shale but a fine-grained, massive, ashen grey, magnesian-lime mud rock. The Salina beds of the area are an alternating series of grey, dolomitic shale or argillo-calcareous mud rock and brown, fine dolomite, the entire succession containing varying quantities of anhydrite and gypsum. It will be seen that both the New York Camillus and the Salina beds of the Brantford area represent essentially the same type of lithology. They both suggest special, and to a certain degree similar, physical conditions prevailing during the time of their accumulation. In view of its like stratigraphic position and similar lithology, the Salina of this area and the Camillus shale of New York State are here considered equivalents.

In the State of Michigan the Salina beds rest upon the upper Niagaran dolomites and are overlain by the Bass Island series, which is correlated with the Bertie-Akron of the Ontario Peninsula. Cook[2] has described the Salina at the deepest part of the Michigan basin, and states that it is in the main a dolomitic limestone formation, the rock being "grey, buff, or brown in colour and at times argillaceous". Admitting the possibility or even the probability of the Salina of the present area and the Michigan basin having been formed in separate and unconnected basins, the two deposits are here considered as contemporaneous.

BERTIE-AKRON SERIES

General Statement. All the Silurian strata overlying the Salina formation in the area are here treated as a single unit under the term Bertie-Akron series. This sequence of the youngest Silurian rocks embraces the stratigraphic position of the Bertie waterlime and Akron dolomite of previous workers, but neither at the outcrop nor in well samples has the writer been able to separate the two.

The term "Bertie or Cayugan dolomite" seems first to have been used by Chapman[3] in 1864 to designate the equivalents in Bertie and Cayuga townships, Ontario, of the New York geologists' "Waterlime Group". In these townships Chapman's Bertie strata consisted of "thin-bedded greyish dolomites interstratified toward the base with a few brown shales and with a brecciated bed composed chiefly of dolomite fragments". This succession evidently comprises all the Silurian strata above the "Onondaga Salt Group" (Salina).

The term Akron dolomite was used by Grabau[4] for the strata overlying the Bertie and succeeded by the Onondaga limestone at Akron Falls, New York. According to Williams[5], at its type locality the Akron consists of about 5 feet of light grey, somewhat nodular, fine-grained dolomite, which has wavy bedding and weathers into a pitted surface.

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[1]Alling, H. L.: N.Y. State Mus., Bull. 275, 1928, p. 24.
[2]Cook, C. W.: Mich. Geol. and Biol. Surv., Pub. 15, 1913, p. 86.
[3]Chapman, E. J.: Minerals and Geology of Canada, 1864, p. 190.
[4]Grabau, A. W.: Geol. Soc. Am., vol. XIX, 1908, p. 544.
[5]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 87.

Distribution. The Bertie-Akron series has an areal extent of about 180 square miles; it underlies a narrow belt of country, averaging about 2 miles wide, situated immediately west of the Salina belt. Only at one locality, in the south part of Springvale village where it forms a low ridge, has Bertie-Akron strata been seen to outcrop naturally. However, quarrying has exposed rocks of this series, which may be seen in the workings of both the Haldimand Quarries and Construction, Limited, east of Hagersville, and the Innerkip Quarries, Limited, a short distance south of Innerkip village.

Boring records indicate the presence of these rocks beneath younger strata throughout the remainder of the area.

Lithology. As visible at the outcrop and in the quarries the series consists of brown, cream, and bluish grey, fine-grained to dense dolomite and argillaceous dolomite, rarely with dark, bituminous streaks and commonly in even beds from a few inches to 2 feet thick. Vertical jointing is common and gives a blocky appearance to the exposure. It is pointed out that the sections exposed show somewhat different successions because the upper limit of the Silurian is an erosion surface and the different localities have doubtless been eroded to different degrees. The lithology is illustrated by the following sections:

	Feet
Section at Springvale village	
Bertie-Akron	
Pale brownish coloured, fine-grained, argillaceous dolomite, in rough beds up to 14 inches thick. Bedding becomes thin when traced a short distance laterally	4
Cream-coloured, fine-grained "waterlime" or argillaceous dolomite in regular, even beds up to 6 inches thick. Vertical jointing gives a blocky appearance to this interval	4
Section at Haldimand Quarries and Construction, Limited, Hagersville	
Devonian cherty limestone	24
—Disconformity—	
Bertie-Akron	
Cream-coloured, fine-grained, dense, argillaceous dolomite in even beds up to 8 inches thick and vertically jointed; joint cracks containing green-stained (glauconitic) sand	5
Bluish grey, finely laminated dolomite	2
Chocolate-brown, fine-grained, dense dolomite or shaly dolomite showing fine-grained laminæ, due to dark, bituminous streaks. Emits petroliferous odour when struck	2
Section at Innerkip Quarries, Limited, Innerkip	
Devonian cherty limestone	0 to 10
—Disconformity—	
Bertie-Akron	
Brown, fine-grained, dense dolomite in even beds from 6 to 24 inches thick and vertically jointed	4

When visited by the writer this quarry contained water up to the base of the above section; however, the entire face was examined by Goudge[1] when the quarry was in operation, and the following is the section as reported by him:

[1]Goudge, M. F.: Dept. Mines and Resources, Bur. of Mines, No. 781, pp. 258-259.

	Feet
Soil	2 to 7
Fine-grained, brown, cherty, calcium limestone similar to the cherty Onondaga limestone. In places along the quarry face this cherty stone has been removed by glaciation	0 to 10
Light brown, fine-grained, faintly mottled, porous Bertie-Akron dolomite in beds up to 26 inches, most of which are fractured into blocks and all of which contain cavities	12
Pure buff and brown dolomite in beds 6 to 18 inches thick. The top 32 inches of this section consists of buff, oolitic dolomite similar to that sampled in the quarry on the Callan Estate. Then comes yellowish, very finely granular dolomite, also similar to that below the oolitic dolomite in the quarry on the Callan Estate. Beneath this the beds are thinner, darker in colour, and are streaked horizontally with thin, dark seams.	11½
Fine-grained to very fine-grained, light brown dolomite in beds from a few inches to 15 inches thick, separated by very thin partings of clay-like, green shale. Vugs filled with ochreous material also occur in many of the beds	8
Dark brownish grey dolomite in beds 4 to 8 inches thick with partings of black shale. The top and bottom beds of this section are somewhat shaly. Towards the base the stone is faintly mottled with bluish grey. Closely spaced black lines are characteristic of all this stone	12
Argillaceous, bluish grey dolomite in beds 4 to 8 inches thick, separated by thin beds of blue shale	5
Thinly bedded, fine-grained, siliceous, blue-grey dolomite	7

In well samples the Bertie-Akron appears as a lithologically uniform series of brown, brownish grey, and grey, finely crystalline dolomite with, in some wells, dark bituminous coatings. Details of this lithology from examination of 5-foot samples are shown in the following table:

County	Township	Thickness	Lithology
		Feet	
Elgin	Malahide	5	Cream-coloured, fine-grained dolomite.
		25	Light brown, fine-grained dolomite.
		15	Drab, fine-grained dolomite; black, bituminous coatings.
		10	Brown, fine-grained dolomite; little dark grey, limy shale.
Elgin	Bayham	30	Brownish, fine-grained dolomite; black, bituminous coatings.
		10	Grey, fine-grained dolomite.
		10	Brown and grey, fine-grained dolomite.
Elgin	South Dorchester	5	Brown, porous, fine-grained dolomite.
		10	Brown and grey, fine-grained dolomite.
		15	Brown, fine-grained dolomite.
		20	Brown and grey, fine-grained dolomite; little pyrite at base.
Norfolk	Woodhouse	20	Brown, fine-grained dolomite.
		30	Cream-coloured, dense dolomite.
		25	Brownish grey, fine-grained dolomite.
Norfolk	Charlotteville	10	Brown, finely granular dolomite.
		15	Cream-coloured, dense dolomite.
		20	Brownish grey, fine-grained dolomite.
		25	Dark brown, fine-grained dolomite.

County	Township	Thickness	Lithology
		Feet	
Norfolk	Middleton	35	Cream-coloured, finely crystalline dolomite; little pyrite near top.
Oxford	Dereham	5	Brown, fine-grained dolomite.
		15	Brown and grey, fine-grained dolomite.
		20	Brown, fine-grained dolomite.
Oxford	East Nissouri	20	Cream-coloured, fine-grained dolomite; little pyrite.
		80	Brownish grey, finely crystalline dolomite; dark bituminous coatings near base.
Oxford	North Oxford	10	Brown, fine-grained dolomite.
		10	Cream-coloured, fine-grained dolomite.
		20	Brownish grey, fine-grained dolomite.
Perth	North Easthope	50	Buff, finely granular dolomite.
		25	Buff, finely crystalline dolomite.
		5	Dark grey, limy shale.
		10	Grey, finely granular dolomite.

It will be seen from the descriptions of both the foregoing exposures and well samples that no lithological divisions within the series can be made. It is not known how much, if any, of the upper part of the various sections is referable to the Akron dolomite; the series has been subjected to erosion, which may have entirely removed the Akron beds.

Thickness. The thickness of the entire Bertie-Akron series is nowhere obtainable by direct measurement. It varies from place to place in view of its disconformable relation to the overlying rocks. The 55½-foot section reported by Goudge[1] at the Innerkip quarry is thought to approximate the total thickness at that place, as this figure closely approaches the thickness shown in samples from wells located not far distant. The following table will indicate the thickness in the townships specified as obtained from examination of drilling samples.

County	Township	Thickness
		Feet
Elgin	Malahide	53
Elgin	Bayham	50
Elgin	South Dorchester	50
Norfolk	Woodhouse	75
Norfolk	Woodhouse	35
Norfolk	Charlotteville	85
Norfolk	Middleton	50
Norfolk	South Walsingham	70
Norfolk	South Walsingham	35
Oxford	Dereham	40
Oxford	Dereham	85
Oxford	East Nissouri	105
Oxford	North Oxford	50
Perth	North Easthope	85

[1]Goudge, M. F.: Op. cit.

Silurian-Devonian Contact. The Bertie-Akron series constitutes the youngest Silurian strata in the area, and is overlain by rocks of Devonian age. The Silurian-Devonian contact is disconformable, the Bertie-Akron having been subjected to a period of erosion prior to the Devonian transgression. The contact may be seen in both the Haldimand Quarries and Construction excavation at Hagersville and the Innerkip Quarries at Innerkip.

At the Haldimand Quarries excavation, the lower few feet of the Devonian is a grey, fine-grained limestone in fairly even beds, with much bluish grey, irregularly lensy and nodular chert and seams up to 1 inch thick of dark grey shale along the bedding planes. The actual contact is somewhat broken and shows a fragmental mixture of sandy and limy rock, but in one place the lowest bed observed is a thin layer of green-stained, glauconitic sandstone. Green sand also fills vertical joint cracks in the underlying, fine-grained Bertie-Akron dolomite. The contact is somewhat undulatory and the sandstone is here interpreted as a remnant of the Oriskany formation.

At the Innerkip quarry no sand was observed at the contact, but the Devonian, represented by very cherty, fine-grained limestone with a profusion of both simple and compound corals, rests with fairly sharp but distinctly undulating contact upon the lighter brown, even-bedded, fine-grained, dense, jointed Bertie-Akron dolomite.

An alternative interpretation of the sand present at the Haldimand Quarries excavation is that the sand is younger than the Oriskany sandstone. On lot 6, con. XIV, Walpole tp., about ¾ mile south of Springvale, an abandoned quarry shows about 5 feet of light grey, rusty weathered sandstone similar in appearance to that seen at the Haldimand Quarries excavation. The upper 12 to 15 inches of this sandstone contains an abundant fauna, chiefly of corals and brachiopods, which, according to Stauffer[1] is distinct from the Oriskany fauna and really belongs to the Onondaga. The writer did not see a contact of this sandstone with the underlying rock, but Stauffer[2] states that the "lowest beds are said to rest on light coloured chert which in turn rests on the drab dolomites exposed in the old quarry at the lime kiln in the village of Springvale". These drab dolomites belong to the Bertie-Akron series. It would thus appear that, in the vicinity of Springvale at least, the lower part of the Onondaga formation contains an arenaceous facies. No fossils were observed in the sandstone at the Haldimand quarries that might aid in determining its age and this sandstone rests directly upon the Bertie-Akron dolomite, a position normally occupied by the Oriskany in the adjacent area to the east. But, as pointed out in discussing the Silurian-Devonian contact in the Toronto-Hamilton area[3], field evidence shows that the Oriskany there lies between two disconformities, and that post Oriskany erosion was sufficient to remove the entire Oriskany, thus allowing the Onondaga to rest directly upon Bertie-Akron at some places. However, as the sandstone at the Haldimand quarries rests directly upon

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[1]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915, p. 87.
[2]Stauffer, C. R.: Op. cit., p. 83.
[3]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940.

Bertie-Akron dolomite and no fossils are available to prove a younger age, this sandstone is interpreted as representing a remnant of the Oriskany formation.

Fauna. The fauna of the Bertie-Akron series is best known for the eurypterid content of the Bertie warterlime beds. Clarke and Ruedemann[1] have listed the eurypterids from the Bertie waterline, Grabau[2] has reported on the fossils enclosed by the Akron dolomite of New York, and Alling[3] has listed the total fauna of the Bertie-Akron series in the Erie district. No fossils were observed by the writer in any of the exposures of Bertie-Akron in the present area, but Williams[4] reports finding two specimens of *Whitfieldella prosseri* at an old quarry just south of the station at Innerskip. When visited this quarry was partly caved in and full of water so that no examination could be made of the rock once exposed there.

ORISKANY FORMATION

Definition. The term Oriskany sandstone was introduced by Vanuxem[5] in 1839 to designate the 20 feet of white quartz sandstone exposed at Oriskany Falls, Oneida county, N.Y. At this locality, the sandstone rested upon the "Water Lime" group (Manlius limestone) and was overlain by the "grey crinoidal" or Onondaga limestone. The formation enters Canada in the vicinity of Fort Erie and in the Niagara Peninsula, adjacent to and east of the present area, it occupies a position between the Bertie-Akron series below and the Onondaga limestone above. It is, therefore, the initial Devonian deposit.

Distribution. As already intimated, the Oriskany in the area is represented only by a broken zone of sand and lime and a thin, glauconitic, sandy bed visible in the Haldimand Quarries excavation at Hagersville. This Oriskany remnant rests disconformably upon the Bertie-Akron, and the sand can be seen filling vertical joint cracks in these Upper Silurian dolomites. It has already been described when considering the Silurian-Devonian contact and will not be redescribed here.

In view of the fact that as much as 20 feet of Oriskany sandstone is exposed in the Toronto-Hamilton area only 4½ miles east of the Haldimand Quarries exposure, and as the sand at the latter locality is believed to represent a remnant of the Oriskany, the formation has been mapped as a thin band overlying the Silurian as far west as Hagersville.

The underground distribution of the Oriskany is not known. The position of the formation is between two disconformities in the adjacent area to the east, and at some places in that area it has doubtless been completely eroded away. Further, in none of the well samples from the present area has the writer been able to recognize its presence. This fact, however, does not of necessity indicate its absence, as the wells are widely spaced and, in 5-foot samples obtained from the percussion method of drilling, a thin zone of sand may easily be overlooked.

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[1]Clarke, J. M., and Ruedemann, R.: N.Y. State Mus., Mem. 14, vol. 1, 1912, p. 431.
[2]Grabau, A. W.: N.Y. State Mus., Bull. 45, 1901, pp. 233-237.
[3]Alling, H. L.: N.Y. State Mus., Bull. 275, 1928, p. 40.
[4]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 88.
[5]Vanuxem, L.: Geol. Surv. of N.Y., 3rd Ann. Rept., 1839, p. 273.

NORFOLK FORMATION

Definition. The term Norfolk formation is proposed for the strata within the Brantford area that have previously been mapped as Delaware and Onondaga, together with any underlying Devonian rocks of the same general character that are conformable with them. The formation thus embraces all the pre-Hamilton Devonian rocks above the base of the Onondaga, and may also include limestones thought by some to be of still earlier Devonian age.

As thus defined, the upper limit of the Norfolk formation is the base of the Olentangy shale; the lower limit, however, is somewhat indefinite. At the extreme southeast part of the area the formation is known to rest disconformably upon the Silurian Bertie-Akron series, the contact plane in places showing evidence of the Oriskany sandstone. Elsewhere in the area an appreciable thickness of strata may intervene between the Silurian and the base of the Norfolk formation.

Outside the present area and typically exposed along Detroit River and at the Anderdon quarries near Amherstburg is a series of rocks not unlike the Onondaga in lithology and enclosing a fauna that " if considered by itself would probably be pronounced a Schoharie or Onondaga fauna without a moment's hesitation".[1] These rocks have been named the Detroit River series by Grabau[2], and are reported to underlie the Onondaga formation, the upper contact being one of disconformity. This disconformable relation between the Detroit River series and the Onondaga formation is also reported to prevail on Maitland River at Goderich[3].

Within the Brantford area, and exposed only at the several quarries in the Thames River Valley near Beachville, is a section of limestone with a high calcium content, which on faunal evidence has been considered the equivalent of at least part of the Detroit River series[4]. No contact is exposed at this locality and the relationships of these strata to both the preceding and succeeding rocks cannot be seen. Nor does an examination of cuttings from wells drilled within the area give any reliable clue to these relationships. Evidence within the Brantford area upon which to definitely place the Beachville exposures is, therefore, lacking.

In view of the foregoing facts, it is not known whether the Beachville exposures can properly be placed within the Norfolk formation as above defined or whether they occupy a position below this formation and are separated from it by a stratigraphic break. If the latter is the case, these exposures will, of course, be pre-Norfolk in time.

The Delaware formation has been identified and mapped in Ontario by Stauffer[5] as occupying a position between the Onondaga below and the Hamilton above. According to that author, the " bottom limestone " of the Hamilton is identical both lithologically and faunally with the Delaware limestone of Ohio and may, therefore, be designated by the same name. Stauffer also states that " in its outcrops it has usually been confused with the Onondaga limestone, as has often been the case with its Ohio equivalent; but in well sections it has been considered as Hamilton. It is, in fact,

[1]Grabau, A. W., and Sherzer, W. H.: Mich. Geol. and Biol. Surv., Pub. 2, 1909, p. 217.
[2]Grabau, A. W.: Bull. Geol. Soc. Am., vol. XIX, 1908, p. 555.
[3]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915, p. 133.
[4]Stauffer, C. R.: Op. cit., p. 275.
[5]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915.

transitional in character and fauna between these two formations and of about the age of the Marcellus shale of New York. Its fauna contains many of the Marcellus forms "[1].

The Delaware limestone is nowhere exposed within the Brantford area and, therefore, neither its lithology nor its fauna have been seen by the writer there. In addition, no lithological separation has been possible in well samples within the Devonian rocks penetrated that would indicate the presence of Delaware strata as distinct from the underlying limestone. Therefore, Stauffer's Delaware is included in the Norfolk formation.

Distribution. The Norfolk formation has an areal extent of about 1,800 square miles; it represents the youngest bedrock in the area and immediately underlies the drift throughout all that part west and south of the Silurian belt. It thus occupies the southern and extreme western part of the area.

In contrast with its wide areal extent, outcrops of Norfolk strata are comparatively few and confined to that part of the area south of latitude 43° 15′. Most of the outcrops exhibit only a few feet of rock and occur along small streams and to a lesser extent along the shore of Lake Erie. They may thus be seen on Sandusk Creek from about 2 miles above Sandusk to the east boundary of the area; on Nanticoke Creek for a distance of 2 miles below the falls at Rockford, and near the village of Nanticoke; about ½ mile south of Marburg on Black Creek; on the Lake Erie shore 4½ miles east of Port Dover; and on Thames River about 1 mile below Woodstock. In addition to these natural outcrops, Norfolk rocks are exposed in a number of quarries. The largest of these are located in the vicinity of Hagersville both east and west of the town, at Innerkip, and in the Thames River Valley between Beachville and Ingersoll; the smaller ones, ¾ mile south of Springvale, at Sandusk, at Nanticoke, and 2½ miles east of Rereton on number 3 highway.

Lithology. As displayed at the outcrops and in the quarries, the Norfolk consists of grey and bluish weathered, grey, bluish, and brownish, fine to crystalline limestone in both even and irregular beds from a few inches to 2½ feet thick, rarely with thin, bluish, argillaceous partings. Grey and blue chert, in thin, irregularly lensy and nodular pieces is present at all the outcrops and at various horizons in most of the quarries. Most outcrops exhibit a profusion of corals, with Favosites, Zaphrentis, Cystiphyllum, Erydophyllum, and Synaptophyllum among the most common genera; brachiopods and bryozoa are also common. The following sections will illustrate this lithology as it occurs at various localities:

	Feet
1. Section at the falls on Nanticoke Creek at Rockford.	
Slaty blue weathered, thin but irregularly bedded, brownish grey, dense, fine-grained limestone with much grey and blue chert in irregularly lensy beds up to 3 inches thick. Profusion of corals	7
2. Section on Sandusk Creek about 1½ miles above Sandusk.	
Grey weathered, dense, brownish limestone with many corals...	3

[1]Stauffer, C. R.: Op. cit., p. 214.

	Feet
3. Section at the falls on Sandusk Creek at Sandusk.	
Bluish grey, crystalline limestone with very little chert.....	3
Slaty blue weathered, brown and bluish, fine-grained limestone in beds up to 2½ feet thick with blue chert in thin, irregular layers. Profusion of fossils, chief among which are *Favosites* sp.; *Cystiphyllum* sp.; *Erydophyllum* sp.; *Synaptophyllum* sp.; and *Zaphrentis* sp.....	12
4. Section in quarry on lot 1, con. XIV, Walpole tp., 2 miles west of Springvale.	
When visited, this quarry contained water to within 10 feet of the top.	
Bluish grey, crystalline limestone in irregular beds 6 to 8 inches thick with grey chert in irregular, lensy beds and nodules. Many corals	6
Blue, finer grained limestone in even beds about 6 inches thick with thin, blue, shaly partings. Practically no chert; very few fossils	4
5. Section at excavation of Haldimand Quarries and Construction, Limited, ¾ mile northeast of Hagersville.	
Brown, fine-grained limestone in thin, irregular beds with grey chert in lensy seams along bedding planes. Many corals at the top	14
Bluish, crystalline limestone in beds up to 14 inches thick with partings up to 1 inch thick of dark grey shale along bedding planes. Much grey chert in nodules and irregularly lensy beds	10
Broken zone of limestone and greenish, glauconitic sandstone (Oriskany).	
Cream-coloured, fine-grained, blocky dolomite in even beds up to 8 inches thick (Bertie-Akron).	
6. Section at quarry of Canada Crushed Stone Corporation, Hagersville.	
Grey to bluish, fine-grained limestone in thin, even beds with grey shale partings along bedding planes. Much blue chert.	10
Dark bluish grey, fine-grained limestone in even beds from 6 to 14 inches thick.	
Very little chert.....	6
Dark bluish grey, fine-grained limestone with much chert in irregular layers from a few inches to 1 foot thick.....	15
7. Section at excavation of the Hagersville Quarries, Limited, at Hagersville.	
Brown and bluish, fine-grained limestone in even beds up to 1 foot thick. Upper half showing much light grey chert; lower part practically free of chert.....	18
Same type of limestone as above, but in beds up to 2 feet thick with several grey, shaly partings up to 2 inches thick. Much bluish chert in lensy nodules. Many *Zaphrentis* sp..	12
At some places in this quarry, chert is present throughout the entire thickness exposed.	
8. Section at excavation of the Innerkip Quarries, Limited, at Innerkip.	
Grey to brownish, fine-grained, cherty limestone in thin but very irregular beds. A profusion of both simple and compound corals; also few brachiopods and trilobite pygidia..	0–10
—Disconformity—	
Brown, fine to dense dolomite in even beds from 6 to 14 inches thick (Bertie-Akron)	4
9. Section at the abandoned quarry of the Gypsum, Lime, and Alabastine, Canada, Limited, one mile below Beachville.	
Brown weathered, grey to brown, dense limestone in even beds from 2 to 6 inches thick with black streaks along bedding planes. Many *Zaphrentis* sp.....	9

	Feet
—Disconformity—	
Similar limestone in irregular beds up to 14 inches thick and vertically jointed. Many corals.....	16
At the north end of this quarry a number of large stromatoporoids occur about 12 feet from the top of the face.	
10. Section at the operating quarry of the Gypsum, Lime, and Alabastine, Canada, Limited, immediately below and across Thames River from the foregoing quarry.	
Brown, fine-grained to dense limestone with regular bedding from 5 to 12 inches thick in the upper part, but increasing to a maximum of 3 feet toward the bottom. Many small simple corals occur at various horizons throughout the entire face	49
11. Section at the workings of the North American Cyanamid, Limited, about 2 miles below Beachville.	
This quarry shows about 80 feet of brown, fine-grained limestone in even beds from 6 inches to 2 feet thick, the thicker beds being toward the bottom. At the north end of the pit and about 40 feet from the top of the face is a 6-foot zone of large stromatoporoids.	

Chemical analyses have shown a remarkable uniformity in the high calcium composition of this rock, but borings made in the floor of this pit to a depth of 75 feet show an increasing magnesian content with depth.

This quarry was completely flooded by Thames River during the flood of 1937; since that time, the river course has been diverted so that the quarry is now on the west instead of the east side of the river, as it was originally.

	Feet
12. Section at the quarry of the Innerkip Lime and Stone Company about 1 mile below that of the North American Cyanamid, Limited.	
Grey, medium-grained, impure sandstone in irregular beds from 12 to 16 inches thick. Many fossils such as *Atrypa* sp.; *Favosites* sp.; *Zaphrentis* sp.; *Conocardium* sp.....	2
Brown, dense limestone in even beds.....	25

The rocks exposed by the workings of the Gypsum, Lime, and Alabastine, Limited, the North American Cyanamid, Limited, and the Innerkip Lime and Stone Company, in the vicinity of Beachville have, chiefly on a basis of their contained fauna, been classed as Detroit River[1] and previously mapped[2] as such. As already stated, the Detroit River formation has been described as underlying the Onondaga and as being separated from it, both at Amherstburg and Goderich, by a disconformity. The writer has been unable to establish the relationships of the Beachville exposures despite the fact that Goudge[3] reports 3 and 2 feet, respectively, of "cherty Onondaga limestone" overlying the "Detroit River" high calcium limestone at the workings of the North American Cyanamid, Limited, and the Innerkip Lime and Stone Company.

There does not appear to be any essential lithological difference between the exposures classed as Onondaga and the rock at the Beachville quarries that has been called Detroit River. The presence of chert in the exposures classed as Onondaga is the only definite distinguishing feature. All the exposures of Onondaga show variable quantities of chert, commonly present

[1]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915, p. 275.
[2]Geol. Surv., Canada, Map No. 1715.
[3]Goudge, M. F.: Dept. Mines and Res., Bur. of Mines, Pub. 781, pp. 263-264.

as nodules and as thin, irregularly lensy layers along the bedding planes. The rock is bluish grey and brown and mostly fine grained. The "Detroit River" rock exposed at Beachville is also fine grained and commonly various shades of brown and is, therefore, not unlike the Onondaga except that it contains no chert.

Goudge[1] has made chemical analyses of the rocks exposed both in the Beachville quarries and in the quarries at Hagersville. The Beachville rocks are high calcium limestone; those at Hagersville contain variable quantities of silica, presumably in accordance with the quantity of chert present. It seems worth noting here that analyses of the Onondaga rocks that are almost free of chert show a very high calcium content, and that analyses of all samples taken from the Onondaga at the Hagersville quarries regardless of the quantity of chert present show a magnesium content almost as low as that of the high calcium limestone of the Beachville quarries. It would thus appear as if the two rocks, the "Detroit River" at Beachville and the Onondaga at Hagersville, are essentially similar lithologically, and that the presence of chert in the latter is the chief difference as viewed at the exposure.

As the Norfolk formation constitutes the youngest bedrock in the area, nowhere is its total thickness encountered by drilling. However, as the regional dip is in a general southwesterly direction, wells will pass through generally increasing thicknesses of Norfolk strata as they are located down dip and across the belt underlain by these rocks.

In boring samples the Norfolk formation appears as grey, brown, and cream-coloured, finely crystalline limestone, which in some wells becomes magnesian or dolomitic toward the base. Grey and bluish chert is present in all wells examined; in most cases it is very abundant at and near the base of the formation and is known to be present throughout the lower 230 feet of the samples from one well in South Walsingham township. Calcareous sandstone, invariably light cream in colour and containing glauconite at the base, is commonly present in the lower 5 to 60 feet and may, in association with chert, constitute the dominant lithology in this part of the formation. Some wells show similar sandstone at more than one horizon higher in the formation, and in samples from both South Dorchester and Woodhouse townships rounded quartz grains have been observed at about 270 and 195 feet from the base of the formation, respectively. A number of the wells also exhibit a zone from about 30 to 90 feet thick and situated 60 to 190 feet above the base in which the limestone contains dark grey to black, bituminous coatings and chert is entirely absent.

Within the Brantford area there is no lithologic character with sufficient lateral or vertical consistency to be used as a key horizon. Although the chert is not confined to any restricted horizon, it does appear, particularly in the thicker sections from wells in Malahide, South Dorchester, Dereham, Charlotteville, and South Walsingham townships, that there is, in general, a zone of limestone varying from 40 to 125 feet thick that is completely free of chert and which is situated between an upper and lower horizon of similar limestone containing appreciable quantities of chert. Furthermore, the rounded quartz grains already mentioned seem to occur particularly at or near the base of the upper chert-bearing limestone.

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[1]Goudge, M. F.: Dept. Mines and Res., Bur. of Mines, Pub. 781.

The chert free zone might be interpreted as representing the high calcium "Detroit River" limestone as seen at the Beachville quarries, and the overlying cherty limestone with the sand grains at the base, the "Onondaga" of previous mapping. It is emphasized, however, that neither at exposures nor in well samples has the writer been able to establish satisfactory evidence upon which to recognize the presence of "Detroit River" rocks in the Brantford area.

The following table, compiled from examination of well samples, illustrates in condensed form the lithology of the Norfolk formation:

County	Township	Depth	Thickness	Lithology
		Feet	Feet	
Elgin	Malahide	295–407	112	Brownish and cream-coloured, fine-grained limestone. Chert at 335 and 379 feet.
		407–484	77	Cream-coloured, fine-grained limestone with dark, bituminous streaks.
		484–596	112	Cream-coloured, fine-grained limestone; minor amount of chert throughout...
		596–624	28	Chiefly chert with small quantity of grey sand.
		624–631	7	Cream-coloured, fine-grained limestone; with a little chert.
Elgin	Bayham	270–440	170	Grey and cream-coloured, fine-grained limestone; dark, bituminous streaks from 380 to 440 feet.
		440–540	100	Grey, fine-grained limestone; much grey chert.
		540–560	20	Coarse grey sand; much chert.
Elgin	South Dorchester	260–460	200	Cream-coloured, fine-grained, limestone; little chert at 270, 310, and 340 feet; dark, bituminous streaks at 400 to 440 feet.
		460–570	110	Cream-coloured, fine-grained limestone; minor quantity of grey chert throughout. Fine-grained, calcareous sandstone at 560 to 570 feet.
		570–600	30	Chiefly grey chert with minor quantity of grey sand.
		600–610	10	Chiefly calcareous sandstone with some chert and brownish limestone.
Norfolk	Woodhouse	55–120	65	Brownish grey, fine-grained, magnesian limestone with grey chert; traces of sand at 55 and 90 feet.
Norfolk	Woodhouse	28–75	47	Brownish grey, dense limestone with traces of chert; clear quartz grains at 70 and 75 feet.
		75–140	65	Cream-coloured, fine-grained limestone; traces of chert at 140 feet.
		140–165	25	Brownish grey, fine-grained limestone; much chert throughout.
Norfolk	Charlotteville	80–180	100	Brownish grey, fine-grained to dense limestone; little grey chert; little sand at 155 and 165 feet.
		180–200	20	Brownish and cream-coloured limestone.
		200–210	10	Grey, calcareous sand; little grey limestone.
		210–235	25	Grey and cream-coloured limestone with dark, bituminous streaks.
		235–245	10	Chiefly chert; little grey, calcareous sand.
		245–270	25	Brown, fine-grained limestone with dark bituminous streaks and much grey chert

County	Township	Depth	Thickness	Lithology
		Feet	Feet	
Norfolk		270–280	10	Chiefly grey chert with a little brown limestone.
		280–325	45	Brown, fine-grained limestone; traces of chert.
		325–330	5	Cream-coloured chert; little grey sand.
		330–340	10	Grey sand, chert, and glauconite.
Norfolk	Middleton	235–490	255	Brownish, fine-grained, magnesian limestone; small quantity of chert throughout.
		490–500	10	Chert and grey, calcareous sandstone.
		500–505	5	Chert with much grey, calcareous sandstone and some glauconite.
Norfolk	South Walsingham	115–505	390	Grey and brownish, fine-grained limestone; little chert throughout; Protosalvinia at 355 to 391 and at 409 feet.
		505–535	30	Chiefly bluish grey chert; little grey limestone.
		535–560	25	Bluish grey chert with equal amount of grey limestone; some sand at 555 to 560 feet.
		560–620	60	Grey chert; little grey limestone; some grey sand with glauconite, and pyrite at 615 and 620 feet.
Oxford	Dereham	175–355	180	Cream-coloured and brownish grey, fine-grained limestone. Protosalvinia at 175 feet; Bryozoa fragments at 195 feet; traces of selenite at 210 feet; dark, bituminous streaks at 350 and 355 feet.
		355–485	130	Brownish grey, fine-grained limestone; little chert throughout; sand at 480 and 485 feet.
		485–500	15	Chiefly chert; little grey limestone and some sand.
Oxford	North Oxford	20–190	170	Brownish grey, fine-grained limestone; dark, bituminous streaks at 60 to 130 feet; much chert at 140 to 190 feet; Bryozoa fragments at 190 feet.
Perth	North Easthope	195–240	45	Buff, finely crystalline, dolomitic limestone with minor amount of chert; some glauconite at 215 feet.
		240–280	40	Buff to light cream-coloured, fine-grained, cherty limestone.
		280–375	95	Buff, finely granular, cherty limestoneo much cream-coloured chert from 330 t 375 feet.

Lower Limit of Norfolk Formation. The lower limit of the Devonian in the Brantford area has already been discussed under the heading Silurian-Devonian contact. However, in view of the introduction of the term Norfolk formation, some further remarks seem warranted.

Only at the excavation of the Haldimand Quarries and Construction at Hagersville and at the Innerkip Quarries at Innerkip is the base of the Norfolk formation visible. At the former locality it rests disconformably upon the Bertie-Akron dolomite (Silurian), from which it is in places separated by a broken, sandy and glauconitic zone here interpreted as a remnant of the Oriskany sandstone. At the Innerkip Quarries the Norfolk rests directly and disconformably upon Bertie-Akron dolomite.

The Norfolk formation is defined as including all the strata between the Hamilton above and the base of the previously mapped Onondaga below, plus any strictly conformable underlying Devonian rocks that may be present. The rocks exposed at the Beachville quarries have been referred by Stauffer[1] to the Detroit River formation. Outside the present area the Detroit River is reported as disconformably underlying the Onondaga formation. The relationships of the Beachville rocks are not known either to the overlying or underlying rocks; it, therefore, follows that excepting at the Hagersville and Innerkip quarries, where the top of the Silurian is exposed, the lower limit of the Norfolk formation is not definitely known.

In describing the Norfolk rocks from exposures it has been pointed out that the only distinguishing feature between the Beachville exposures (Detroit River of Grabau) and the rocks seen at the Hagersville quarries (Onondaga of Stauffer) is the presence of chert in the latter and its total absence in the former.

If the Beachville exposures are not separated from the Norfolk by a disconformity the Norfolk may be said to rest disconformably upon the Silurian throughout the Brantford area with an Oriskany remnant intervening at the Hagersville quarry as already stated. If, on the other hand, the Beachville rocks are Detroit River they must by definition disconformably underlie the Norfolk, and the Norfolk must of necessity, therefore, rest not upon the Silurian but upon this pre-Norfolk Devonian wherever these strata are present.

Thickness. Being the youngest bedrock in the area, the Norfolk increases in thickness from place to place in the down dip direction. The thickest exposed section is located in the workings of the North American Cyanamid, Limited, about 2 miles below Beachville, where about 80 feet of limestone is exposed. The following table, compiled from drilling records, will show the thickness present in the townships designated.

County	Township	Thickness
		Feet
Elgin	Malahide	336
Elgin	Bayham	290
Elgin	South Dorchester	350
Norfolk	Woodhouse	65
Norfolk	Woodhouse	137
Norfolk	Charlotteville	260
Norfolk	Middleton	270
Norfolk	South Walsingham	295
Oxford	Dereham	310
Oxford	Dereham	325
Oxford	North Oxford	170
Perth	North Easthope	180

[1]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915, p. 175.

Fauna and Correlation. The fauna of the Norfolk formation will be that of the Delaware and Onondaga plus that of the Detroit River as mapped by Stauffer, if these last-named rocks lie conformably below the Onondaga.

Stauffer[1] has reported on the fossils from each of the above-named formations in Ontario, and a check-list appears in the above cited work. The Delaware does not outcrop within the Brantford area and, consequently, no fossils from this part of the Norfolk section are known there. An analysis of the faunal list from the Onondaga of the adjoining Toronto-Hamilton area has been made[2]. The faunal list from these rocks in the Brantford area compiled from Stauffer's work is essentially the same with the addition of a few more species of already existing genera. Grabau[3] states that the fauna of the Detroit River if considered by itself would probably be pronounced a Schoharie or Onondaga fauna. Stauffer[4] concludes that the fauna of the Ontario Delaware is transitional in character between that of the Onondaga and Hamilton. From analysis of the Onondaga fauna of the Toronto-Hamilton area the writer placed the enclosing rocks there as about the time of the Onondaga of New York; the Columbus limestone of Ohio; the Dundee limestone of Michigan; and the "Grand Grève limestone-Gaspe sandstone" of Gaspe Peninsula. As the Norfolk formation may include strata somewhat earlier in Devonian time than the Onondaga of the Toronto-Hamilton area, and as its upper limit has been defined as the base of the Olentangy shale (Hamilton), it may be said to be of about the time of the Schoharie, Onondaga, and Marcellus of New York; the Mackinac, Dundee, and part of the Traverse group of Michigan; and the Columbus and Delaware of Ohio. It must be kept in mind, however, that if the Beachville exposures are separated from the overlying rocks by a long time break, other Devonian strata than indicated by the above correlation may be present.

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[1]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915.
[2]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940.
[3]Grabau, A. W., and Sherzer, W. H.: Op. cit., p. 217.
[4]Stauffer, C. R.: Geol. Surv., Canada, Mem. 34, 1915, p. 214.

CHAPTER IV

STRUCTURAL GEOLOGY

Anything more than a most general treatment of the geological structure of the area as a whole is fraught with many difficulties. The rock surface is everywhere covered with a mantle of glacial drift, which as well as resulting in a general scarceness of outcrops produces a surface topography that in no way reflects the attitude of the underlying bedrock. Only where the region is underlain by Guelph-Lockport strata are outcrops at all common, so that only there is it possible to make any direct observations regarding rock structure. As the strata are locally almost flat-lying, the small, scattered outcrops and exposures in quarries do not furnish much reliable information on structure. Exposed key horizons that might be used for structural determinations are absent; it will be clear, therefore, that from surface mapping alone, only a small amount of structural data is obtainable. Bore-hole records provide the best and most reliable structural information; as well as aiding in determination of regional dips, they are practically the sole source of information on detailed structures.

Detailed information regarding the topography of the Precambrian surface upon which the Palæozoic sediments rest is meagre. Records of only a few holes reaching the Precambrian are available and these are so widely separated that at best they indicate only the most general and regional character of its surface. So far as known, the surface is undulating, with a regional southerly slope that averages about 22 feet a mile over the 40-mile distance betwen Peel and Tuscarora townships. The Palæozoic sediments are about 2,491 feet thick in the north (Peel township) and about 3,480 feet in the south (South Walsingham township). The following tabulation of deep wells, some of which penetrate the Precambrian, summarizes our present information on deep drilling in the Brantford area. The table is compiled from drillers' logs. The samples were not all examined by the writer.

Lot	Concession	Township	County	Surface elevation	Depth of well	Thickness of drift	Thickness of sediments	Elevation of Precambrian surface Datum: sea-level	Remarks
				Feet	Feet	Feet	Feet	Feet	
5	III	Peel	Wellington	1,218	2,573	35	2,491	−1,308	Drilled 47 feet into granite.
6	IV	Eramosa	Wellington	1,197	2,180	170	2,010		Precambrian not reached.
7	IV	Puslinch	Wellington	1,038	2,670	58	2,309	−1,329	Drilled 303 feet into Precambrian.
7	IV	Puslinch	Wellington	1,038	2,531	52	2,308	−1,322	Drilled 171 feet into granite.
6	V	Pilkington	Wellington	1,299	2,385	103	2,282+		Precambrian not reached.
23	VIII	North Easthope	Perth	1,281	2,978	215	2,755	−1,689	Drilled 8 feet into Precambrian.
18	II	East Nissouri	Oxford	893	2,789	8	2,781+		Precambrian not reached.
		Brantford	Brant	730	2,160	45	2,115+		Precambrian not reached.
7	IIIE	Onondaga	Brant	678	2,712	76	2,580	−1,978	Drilled 56 feet into granite.
5	I W	Onondaga	Brant	?	2,625	72	2,553		
13	III	Tuscarora	Brant	706	2,881	82	2,799	−2,175	
21	III	Charlotteville	Norfolk	659	3,082	137	2,945+		Precambrian not reached.
Long Point		South Walsingham	Norfolk	?	3,925	395	3,480		Drilled 50 feet into Precambrian.
6	VII	Bayham	Elgin	625	3,484				
22	VIII	Bayham	Elgin	764	2,776	250	2,526+		Precambrian not reached.

The general structural features are of a simple type, the Palæozoic rocks having been so little deformed that they appear to be flat-lying or nearly so at the individual outcrop. Regionally, however, the strata exhibit a gentle inclination averaging somewhat less than the average for the underlying Precambrian surface, the general direction, as shown by the areal distribution of the formations, being in most cases west to southwest in the northern part of the area and nearly south throughout that part situated south of latitude 43° 00′. In the general absence of exposed key horizons, bore-hole records, or a combination of these with outcropping horizons, must be relied upon in obtaining the amount of dip. The following figures have thus been obtained.

About 5 miles north of Orangeville at the falls on the tributary of Nottawasaga River north of Glen Cross, the top of the Whirlpool sandstone has an elevation of about 1,318 feet. In a well on lot 3, con. XI, South Dorchester tp., the same horizon occurs at 580 feet below sea-level; the distance between these two localities is about 88 miles, thus indicating a regional dip of approximately 21 feet a mile south 25 degrees west. Using the altitude of the base of the Lockport formation at each of the foregoing localities, a dip of 20 feet a mile is indicated. By using the top of the Whirlpool sandstone in wells situated on lot 16, con. III, Onondaga tp., and lot 23, con. IV, Woodhouse tp., the dip is approximately 25 feet a mile south 10 degrees west. Using the altitude of the base of the Lockport in each of the foregoing wells, a dip of 24 feet a mile is indicated. Based on the bottom of the Lockport formation in wells located on lot 16, con. III, Onondaga tp., and at Port Rowan in South Walsingham township, the dip is approximately 24 feet a mile south 28 degrees west. It would thus appear, that, regionally at least, the sediments of the Brantford area dip gently away from the Canadian Shield at rates averaging from about 20 to 25 feet a mile.

Detailed study and correlation of well samples, particularly in Haldimand, Brant, Norfolk, Elgin, and Oxford counties, show that the regional southerly dip is interrupted by slight reversals and by variations in magnitude. These variations are not great, but they appear to be sufficient to play an important part in the accumulation of natural gas in commercial quantities. Structure contours have been drawn on top of the Clinton formation in this part of the area, and are shown on the structure map accompanying this report; this map will be discussed in a subsequent chapter on economic geology.

As already intimated, outcrops are more or less common in that part of the area underlain by Guelph-Lockport rocks. Some of these outcrops indicate variations and reversals in the general southwesterly dip, and gentle folds are apparent at more than one locality.

A low, anticlinal roll in the Guelph formation striking northwesterly probably extends from Waldemar to Tarbert. Exposures on the west side of Grand River at Waldemar show southwest dips of 2 to 3 degrees, whereas on the opposite side and near the mouth of Willow Brook low, northeast dips were observed. Some erratic dips are present in this vicinity, but close examination reveals them to be due to reef structures. Just above the north-south highway bridge at Tarbert about 7 feet of rock is exposed at the crest of a low anticline, and outward dipping beds can be seen for about

200 feet from the axis on both limbs. The southwest limb dips about 5 degrees and the opposite limb somewhat less. About one mile down stream, beds with low, southwest dips are visible.

At the town of Rockwood, some 20 miles south of Waldemar, a well-marked anticline is visible in the old quarry on the east side of Eramosa River. The crest of this fold crosses the river about 700 feet below the bridge on highway number 7 and trends generally northwest, crossing the Canadian National Railway about 800 feet west of the road between concessions IV and V; at this locality the railway cut exposes about 10 feet of limestone showing a maximum dip of about 8 degrees south 70 degrees west. This dip flattens westward. At the old quarry the maximum dip on both flanks is about 14 degrees; the crest is nearly flat with dips from 3 to 5 degrees on each side over a width of 200 to 250 feet. In the railway cut the southwest limb probably flattens to the regional dip within a relatively short distance, as exposures less than ¾ mile to the southwest show dips too low to be measured with the clinometer. To the northeast the rocks are concealed to within a few hundred feet of the axis of the fold.

The Rockwood structure was observed by Logan[1] and subsequently described by Williams[2].

The foregoing more or less well-marked surface folds have northwesterly trends paralleling the general strike of the formations and are, therefore, in the nature of low rolls superimposed upon the southwesterly dipping regional structure. Cross folding is suggested by the attitudes of several isolated and widely separated exposures. At the bend in highway number 7, immediately west of Acton, an exposure of Lockport dolomite dips about 18 degrees north 70 degrees west, and about 1¼ miles southeast an east dip of 15 degrees was recorded. Twenty-four miles south of this locality and about 2 miles northeast of the village of Troy, on lot 14, con. IV, Beverly tp., another outcrop dips 8 degrees south 40 degrees east. Although no structures can be defined by these isolated exposures, they do indicate the probable existence of minor folds trending roughly at right angles to those seen at Rockwood and Waldemar.

No evidence of faulting has been observed at any of the outcrops, nor has a study of well samples produced any indication of dislocation within the Palæozoic sediments.

There are some recognizable time breaks in the sedimentary succession of the Brantford area. There is no evidence of Cambrian rocks within the area, so that a long period elapsed between Precambrian and Ordovician time during part of which at least deposition occurred elsewhere. The entire period may not be one of erosion, as some part of Cambrian time may have been represented by sedimentation eroded before deposition of the existing strata.

The Ordovician-Silurian contact is one of disconformity, a period of non-deposition having taken place at the end of Queenston time and before the Whirlpool sandstone was laid down. Available information indicates

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[1]Logan, Wm. E.: Geology of Canada, 1863, p. 330.
[2]Williams, M. Y.: Geol. Surv., Canada, Mem. 111, 1919, p. 12; Geol. Surv., Canada, Sum. Rept. 1917, pt. E, p. 23.

no change in attitude of the Queenston rocks before the Whirlpool was laid down. The lensy character and local variation in thickness of the Whirlpool sandstone suggest a gently undulating surface for the Queenston formation.

The Silurian-Devonian contact is also disconformable. This is seen in the excavation of the Haldimand Quarries and Construction, Limited, at Hagersville, where remnants of the Oriskany sandstone rest upon the eroded surface of the Bertie-Akron series. At other localities the Norfolk formation is known to rest directly upon the Bertie-Akron, and, hence, at these places two sedimentary breaks merge into one. The Silurian rocks do not seem to have been regionally deformed prior to Devonian deposition, as the latter rocks apparently follow the general southwesterly dip of the Silurian; however, if they had been deformed, it must have been by forces acting along the same general directions as those deforming the Devonian. The chief significance of the Silurian-Devonian disconformity in the Brantford area at least, is its effect upon the thickness of the Bertie-Akron series, which varies from 35 to 105 feet at different localities.

CHAPTER V

ECONOMIC GEOLOGY

The economic products derived from the Palæozoic formations of the Brantford area are all of the non-metallic type. The more important of these are building stone from the sandstone and limestone formations; road metal from the harder dolomites; lime, fertilizer, and chemical limestone from the dolomites, magnesian limestones, and high calcium limestones; brick and tile from the shales; and natural gas.

STRUCTURAL MATERIALS

LIMESTONE

Guelph Strata. Although at the present time these Silurian rocks are not being utilized for building, there are many old quarries that have in the past supplied stone for this purpose. The main producing localities were along Grand River between Elora and Fergus; about 3½ miles southwest of Erin; and along Eramosa River in the immediate vicinity of Guelph. Many buildings in the latter city are constructed from local stone, and that quarried near Erin was used in various buildings in Fergus. Local stone has also been used in construction at Galt, Elora, and Hespeler, and for small buildings and foundation work at many other places in Wellington and Dufferin counties. In general, much of the Guelph dolomite is too roughly bedded and porous to be of use in very fine structural work. For detailed treatment of limestones for building purposes the reader is referred to Mines Branch Publication No. 733, 1933, by M. F. Goudge.

Norfolk Strata. Although these Devonian rocks are not now, and have never been, extensively used for building, it seems worth noting that Parks[1] reports these (Onondaga) rocks from the quarries at both Hagersville and Beachville as having been used locally for that purpose.

SANDSTONE

Whirlpool Sandstone. No sandstone is being quarried at the present time for building purposes, but the Whirlpool or Medina sandstone has been utilized in the past. About 30 years ago a small quarry was opened on lot 6, con. I, Mono West tp., Dufferin co., about 2½ miles north of Orangeville. About 15 feet of grey sandstone is now exposed at this locality, and rough dimension stone, sills, and roughly squared coursing stone were produced. This stone was used in the city hall, Toronto, the post office in Sarnia, and the library at Fergus. It does not appear from the present size of the quarry that much material was removed. Although this rock has been exploited at many localities in the adjoining area to the east[2], its distribution within the Brantford area is relatively small and it

[1]Parks, W. A.: Mines Branch, Dept. of Mines, Canada, Pub. 100, 1912, pp. 273, 277, 290.
[2]Caley, J. F.: Geol. Surv., Canada, Memoir 224, 1940.

is accessible at only a few places. For a detailed account of the workings and the character of this stone the reader is referred to Mines Branch Publication No. 100, volume 1, 1912, by W. A. Parks.

CRUSHED STONE

According to Goudge[1], crushed stone comprises the greatest tonnage of limestone produced in Ontario, and also comes first in total value even though the value a ton is one of the lowest of the limestone products. It has many uses, chief among which are for highway construction, concrete aggregate, railway ballast, rubble for building purposes, and for use as a refractory. Within the present area there are several principal centres where quarries are regularly operated for production of crushed stone, although some of these produce other limestone products as well. The following tabulation, compiled from Goudge and from the writer's field studies, shows the main producing localities, together with the geological horizon at each.

Operator	Location of quarry	Geological horizon
Hagersville Quarries, Limited	Hagersville	Norfolk
Haldimand Quarries and Construction, Limited	Hagersville	Norfolk Bertie-Akron
Canada Crushed Stone Corporation, Limited	Hagersville	Norfolk
Innerkip Quarries, Limited	Innerkip	Norfolk Bertie-Akron
City of Galt	Galt	Guelph
Ontario Reformatory	Guelph	Guelph Lockport (Eramosa)
Puslinch Quarry, Limited	Lot 34, Puslinch Gore	Guelph
Ritchie Cut Stone, Limited	Lot 15, cons. V, VI, Erin tp.	Guelph
O. H. Gow	Fergus	Guelph

In addition to the foregoing, a great quantity of crushed stone required for local highway work is produced by portable crushing plants from quarries opened at convenient places. Such temporary quarries are numerous throughout the eastern half of the area; stone from the Lockport, Guelph, and Norfolk formations is thus utilized.

LIME

During earlier years practically all varieties of the calcareous rocks of the Silurian were burnt for lime to some extent. Most of the kilns were operated by farmers, using wood as fuel. Ruins of these old kilns may still be seen beside rock outcrops in many parts of the area. Both the Silurian and Devonian limestone are now extensively exploited for production of lime, the chief operating quarries within the present area being at Guelph, Glen Christie, Rockwood, and Beachville.

[1]Goudge, M. F.: Bureau of Mines, Pub. No. 781, 1938, p. 33.

Production of lime on a commercial scale has been carried on at several other localities in the recent past, but for various reasons operations have been discontinued. Prior to 1932, Gypsum, Lime, and Alabastine, Canada, Limited, operated a quarry and plant on the north side of Grand River about 1 mile above the town of Elora. At Fergus, lime was produced at the quarry of James Gow, located on the east side of Grand River just below number 6 highway. On lot 29, Puslinch Gore, about 2 miles southwest of Puslinch, a quarry and plant was formerly operated by Christie, Henderson Company, Limited; this quarry is now owned by the Gypsum, Lime, and Alabastine, Canada, Limited. At the town of Rockwood, on lot 4, con. IV, Eramosa tp., a quarry and lime plant was operated by E. Harvey, Limited; judging by the present state of disrepair this plant has been idle for many years. With the exception of the last-named locality and the operating quarry just north of Rockwood station where the Lockport dolomite is the source rock, all the foregoing operators utilized the Guelph formation for their product. The quarries are all described in detail by Goudge.[1]

The Silurian rocks utilized for lime making have a wide distribution in the present area. The succession also attains an appreciable thickness, and should, therefore, be expected to vary somewhat in chemical composition both vertically and horizontally; nevertheless, it can safely be said that the supply of this raw material for lime manufacture is virtually inexhaustible. Devonian rocks at present being utilized for lime making are neither as abundant nor as accessible as those of the Silurian. The only producing locality is in the Thames River Valley near Beachville, where these rocks have been quarried to a depth of nearly 80 feet. At this locality these rocks dip beneath less suitable strata, thus making them less accessible as quarrying continues. Elsewhere in the area these rocks, if present, are concealed beneath chert-bearing limestones, which greatly add to the difficulty of exploitation.

In addition to providing the aforementioned products, viz., building stone, crushed stone, and lime, limestones of the Brantford area are also utilized for flux in various types of metallurgical plants, manufacture of beet sugar, glass, sulphite pulp, roofing grit, agricultural limestone, asphalt filler, and many other uses.

BRICK AND TILE

Brick and tile are the chief economic products manufactured from the argillaceous rocks of the Ontario Peninsula. The industry is not at present carried on within the Brantford area, but one of the shale formations (Qeenston) that furnishes the raw material used elsewhere[2] in the province is exposed at several places. In addition, the Cabot Head member of the Medina formation, which, according to Keele[3], would make a good material for roofing tile, is also exposed.

Queenston Shale. This is the most widely used shale in Ontario. Within the present area it may be seen at the abandoned quarry on the south side of the Canadian Pacific Railway about ½ mile west of Credit

[1]Goudge, M. F.: Bureau of Mines, Pub. No. 871, 1938.
[2]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940.
[3]Keele, J.: Geol. Surv., Canada, Mem. 142, 1924, p. 25.

Forks station; on Credit River below the falls at Cataract; and at several places along Nottawasaga River in Mono township. Although no analyses of the shale from these localities are available, Keele[1] states that the formation is homogeneous in physical character and is easily mined and crushed. It also develops good plasticity when mixed with water; this property renders it especially suitable for manufacture of wire-cut bricks, hollow building blocks, and field drain-tile.

Cabot Head Shale. Although these shales have not been utilized in the brick and tile industry, they have distinct economic possibilities. According to Keele[2], the Cabot Head shale as exposed at Cataract possesses good plasticity and working qualities and would be useful for making drain-tile or hollow blocks. Within the Brantford area these shales may be seen above the falls on the tributary of Nottawasaga River north of Glen Cross and about ¼ mile below Cataract. Though not exposed, their presence is also indicated by a steep talus slope immediately below the Lockport dolomite at many localities, and particularly a short distance below Belfountain and on lot 8 along the road between concessions V E and VI E, Mono township.

NATURAL GAS

INTRODUCTORY STATEMENT

Natural gas is any gas formed in nature. There are many types and varieties, such as marsh gas, petroleum gas, sulphur dioxide, carbon dioxide, and sulphuretted hydrogen. However, as generally understood, and as here employed, the term natural gas is the gas burned in homes and factories and obtained from oil or gas fields as compared with gas manufactured from coal or petroleum.

This natural gas of commerce is a mixture of compounds of carbon and hydrogen and generally contains other gaseous substances in minor quantities. The chief constituent hydrocarbons are methane (CH_4) and ethane (C_2H_6), although varying quantities of propane (C_3H_8) and butane (C_4H_{10}) may be present as gases. In addition, there may be certain gaseous impurities such as nitrogen (N), carbon dioxide (CO_2), and hydrogen sulphide (H_2S), as well as traces of oxygen (O), hydrogen (H), and carbon monoxide (CO).

In the oil and gas fields, natural gas is classified as "dry" or "wet" according to the quantity of gasoline vapours present, and "sweet" or "sour" according to the absence or presence of hydrogen sulphide. If much hydrogen sulphide is present it must be removed before the gas is used commercially. The "dry" gas is the usual natural gas of commerce and it commonly occurs in reservoirs separate from oil reservoirs. If present in oil reservoirs it is situated high on the structure so that it carries little or no oil vapours.

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[1]Keele, J.: Op. cit., p. 21.
[2]Keele, J.: Op. cit., p. 24.

The following table[1] shows chemical analyses of natural gas from the present area:

Field	Formation	CH_4	C_2H_6	C_3H_8	C_4H_{10}	C_5H_{12}	CO_2	O	N	He	H_2S	Specific gravity
Brownsville (Dereham tp.)	Guelph-Salina	81·4	4·5	1·6	0·5	0·2	0·5	0·8	9·8	0·28	0·5	0·653
Middleton tp. (lot 5, con. III N)	Guelph-Salina	84·9	5·4	1·4	0·4	0·2	0·1	0·4	6·31	0·19	0·7	0·647
Bayham tp., Elgin co. (pipe-line)	Clinton	89·07	4·09	1·36	0·59	0·36	.....	0·34	3·91	0·28	.....	0·644
Woodhouse tp., Norfolk co.	Clinton-Medina	83·09	5·30	1·73	0·46	0·23	0·29	0·29	8·2	0·41	.....	0·658
Norfolk co. (pipe-line)	Clinton-Medina	82·85	6·41	2·12	0·62	0·25	.....	0·54	7·2	0·28	.....	0·676
Onondaga tp., Brant co.	Clinton-Whirlpool	84·49	4·32	1·55	0·52	0·34	.....	0·29	8·15	0·34	.....	0·66

[1]Harkness, R. B.: 46th Ann. Rept., Ont. Dept. of Mines, pt. V, 1937, p. 87.

Natural gas is one of the most economically important substances found in the Palæozoic rocks of southwestern Ontario, and its production and distribution constitute a major industry in that part of the province. In the Brantford area, commercial production is at present confined to that part lying south of the latitude of Paris, where Norfolk county together with Walpole township, Haldimand county, Tuscarora and Onondaga townships, Brant county; Bayham and Malahide townships, Elgin county; and Dereham township, Oxford county, constitute the producing area. Although a relatively small amount of drilling has been done north of this region and shows of gas have been obtained at several localities, no commercial production has as yet been encountered. The presence of natural gas in the Brantford area has been known from at least the beginning of the present century, although serious exploitation is a somewhat later development. The most recent field was discovered in 1939 and is located in Malahide township. In 1937[1] production from the Brantford area was 1,301,762 M cubic feet; this figure is exclusive of the yield from Walpole township and also of the new Malahide field, which was brought in since that date.

PRODUCING HORIZONS

Commercial production comes entirely from rocks of Silurian age, the Medina, Clinton, and Guelph formations holding all the producing reservoir rocks. Four horizons are present within these formations, viz., the Whirlpool (White Medina), Grimsby (Red Medina), Clinton, and Guelph.

The Whirlpool is the lowest horizon and consists of fine- to medium-grained, grey sandstone, probably of eolian origin. It rests disconformably on the Queeston formation and varies in thickness from mere traces of sand in wells from East Nissouri and Oxford townships to about 24 feet as exposed at the falls on the north branch of Nottawasaga River. Examination of well records supplied by drillers indicates that Walpole, Tuscarora, Onondaga, Brantford, and Woodhouse townships all produce from this horizon.

The Grimsby or Red Medina constitutes an horizon somewhat less definite than the Whirlpool. These rocks are here considered as an arenaceous facies near the top of the Cabot Head member of the Medina formation. The Grimsby does not outcrop in the Brantford area; it is present only in the southern part, where it is concealed beneath younger rocks and is, therefore, known only from well samples. As thus examined, it consists of light grey and red standstone and sandy shale with some grey shale. As seen at the outcrop in Niagara gorge[2], the Grimsby contains irregularly distributed lenticular sandstone masses, in many places enclosed in shale or sandy shale. Drilling results indicate that the same conditions prevail in the present area, so that it becomes difficult to place the exact horizon of production. It is certain, however, that production from the Grimsby may come from almost any horizon within a maximum total thickness of about 45 feet. Walpole and Woodhouse townships are the

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[1]Harkness, R. B.: Ont. Dept. of Mines, vol. 47, pt. 5, 1938, p. 2.

[2]Caley, J. F.: Geol. Surv., Canada, Mem. 224, 1940.

chief areas producing from this horizon, although Grimsby gas is also found in Townsend, Middleton, Charlotteville, and South Walsingham townships.

The Clinton horizon, like the Grimsby, does not outcrop in the Brantford area; indeed, it is present only in that part south of the latitude of Galt, where it is concealed beneath younger strata. It is, therefore, known only from well samples, which show it to consist of grey, brownish grey, or buff-coloured, crystalline or granular limestone. It is pointed out at this time that the Clinton of drillers includes also the underlying Thorold sandstone. As already stated, the Thorold is a facies of the top of the Cabot Head member of the Medina formation and consists of light grey to almost white sandstone. In places it is difficult to separate it from the Grimsby, but it is readily distinguishable in Tuscarora, Onondaga, Middleton, South Walsingham, and Woodhouse townships. It would appear that where the Thorold is present at least some of the production reported by the driller as from the "Clinton" is really from the underlying sandstone. The following table shows the thickness of the Clinton proper as determined by the writer from well samples:

Township	Thickness
	Feet
Malahide	25
Bayham	20
South Dorchester	25
Woodhouse	10
Charlotteville	20
Middleton	15
South Walsingham	25
Dereham	20
East Nissouri	25
North Oxford	30
North Easthope	20
Brantford	13
Tuscarora	10
Beverly	35
Eramosa	Absent
Puslinch	Absent
Minto	Absent

The Clinton is productive throughout the entire present producing part of the area with the exception of Dereham township. In this township production is from the Guelph formation. Few holes have been drilled as deep as the Clinton there and all have so far been non-productive.

The Guelph formation contains the highest producing horizon in the Brantford area. Sufficient drilling samples to determine the exact position of production have not been obtained, but it is high in the formation and apparently within the upper few feet. This part of the Guelph is a grey, brownish buff, or cream-coloured, crystalline and finely granular dolomite, which in some samples shows fine porosity. At the present time all the production of Dereham township and a considerable percentage of that from both Bayham and Malahide townships is from the Guelph dolomite.

Of the total number of wells for which reliable records are available, 40 per cent got initial production from the Clinton; 7 per cent from the Whirlpool; 9 per cent from the Grimsby; and 11 per cent from the Guelph. It is pointed out that in addition to wells initially producing from any one of the four main horizons, 13 per cent draw from both Clinton and Grimsby; 19 per cent from both Clinton and Whirlpool; and 1 per cent from both Grimsby and Whirlpool.

SUBSURFACE STRUCTURE

The top of the Clinton formation constitutes the most suitable horizon upon which to draw subsurface structure contours. As samples for only a relatively small percentage of the wells are available, drillers' logs had to be relied upon in computing the elevations of the Rochester-Clinton contact. As this is a shale-limestone contact, it is readily recognized by the drillers and, therefore, reasonable assurance may be placd in their recordings of its depth. The Grimsby horizon was found too indefinite to be used for structural purposes. The Whirlpool sandstone, although it is a distinct litholigical unit, appears to thin and thicken when traced laterally, and at its lower contact is disconformable it is not suitable as a structural key horizon. An attempt was made to contour the top of the Guelph formation in Dereham, Malahide, and Bayham townships where these rocks are productive, but a lack of sufficient well samples and the difficulty in recognizing the Guelph-Salina contact from drillers' logs rendered the attempt unsuccessful.

The accompanying map (No. 636A) shows structure contours drawn on top of the Clinton horizon, with a contour interval of 20 feet. The general structure on this horizon is simple and shows a gradual southerly dip averaging 24 feet a mile over the entire producing area. Although this apparently monoclinal regional subsurface structure shows local increases and reversals in dip, the most conspicuous features are the general paucity of definite folds and of structural closure. The folds that are present are so gentle that it seems better to attribute them to initial dip or differential settling rather than to diastrophic movement. Unevenly distributed lenticular masses of sandstone within the argillaceous strata of the underlying Medina formation are strongly suspected at many localities, and it seems not unlikely that these would result in uneven settling under the superincumbent load of younger sediments.

A low, anticlinal roll or elongate dome is indicated at the north-central part of Tuscarora township immediately south of Grand River. This structure has an east-west trend, with the major axis about 1½ miles in length; it thus underlies the northern half of river lots 30 to 40. A closure of about 30 feet is indicated. The southerly dip is about 80 feet a mile, but it flattens rapidly to the regional average of about 24 feet a mile; the reversal in the regional south dip, which forms the north side of the structure, appears to be considerably less.

A similar structure, though somewhat greater in extent, is present in the west-central part of Onondaga township. It underlies lots 10 to 15, concession III, and extends westward about ¾ mile into Brantford township. The structure is elongate in an east-west direction, with the major axis about 2½ miles in length. A closure of about 20 feet is indicated. The dip

in the south side is more than double the regional average, being about 60 feet a mile. The north dip of the structure represents only a slight reversal of the regional southerly dip.

In the southwest part of Walpole township there is a small dome with a closure of about 20 feet. This structure underlies most of lots 1 to 3, concession II, and is probably little more than a bulge on the south dipping, regional monocline.

A low roll or elongate dome is present in the southwest part of Middleton township and underlies part of lots 2 to 5, concession I N, and most of lots 1 and 2, concession II N. The structure trends generally northwest-southeast, with a major axis about 2 miles long. The southwest flank dips about 80 feet a mile and is estimated to flatten to the regional rate within a distance of about 1½ miles from the crest of the fold. On the northeast side of the fold the regional southerly dip is resumed within approximately ¼ mile of the crest of the fold. A closure of 20 to 30 feet is indicated.

About 2½ miles east of the foregoing structure a very small doming of the Clinton horizon is indicated beneath the north part of lots 15 and 16, concession III S, and the south part of the same lots in concession II S. This structure is slightly elongate, with major axis trending northwest-southeast and about ½ mile in length. The southwest side has a maximum dip of about 130 feet a mile; this flattens gradually, attaining the regional average at an estimated distance of 1½ miles from the crest of the fold. On the northeast side the regional direction of dip is resumed within ½ mile of the crest.

As already suggested, the fact that the foregoing structures are both extremely gentle and very much localized would render it much more likely that they are the result of uneven settling than of any tectonic movement. It is further suggested that in some instances at least, low doming shown by the structure contours may represent the presence of reefs in the Clinton limestone. Reef structures are known to occur elsewhere, and can be seen at Niagara gorge in the upper Clinton and even projecting into the overlying Rochester shale.

The structure of the Grimsby and Whirlpool producing horizons cannot be definitely mapped. The Clinton-Grimsby contact as reported by drillers is stratigraphically the Thorold-Grimsby contact and is not reliable. Drillers place the contact purely on a colour basis, starting the Grimsby where the first red colour appears below the Clinton; the Thorold, therefore, where present, is included by them in the Clinton. Moreover, examination of well samples has shown that except for the red colour it would not be possible to separate the Thorold and Grimsby facies. It is further pointed out that production from the Grimsby may come from any horizon within a total maximum thickness of about 45 feet.

Well samples show local variations in thickness of the Whirlpool sandstone from place to place. This is probably due to the uneven surface upon which the strata rest; the structure would not, therefore, be truly represented by contouring the surface of the sandstone.

The presence of structural folds, at least those due to diastrophic causes, within either the Grimsby or Whirlpool rocks seems unlikely, and no apparent reason exists why these strata should be expected to exhibit any more marked structural features than those shown by the overlying

Clinton formation. Moreover, as diastrophism seems to have played at best only a minor part in forming the local and gentle folds and corrugations present on the Clinton, it should not be expected that these structures would necessarily be reflected downward and be present in the underlying formations. The combined thickness of the Cabot Head (including its arenaceous facies the Grimsby and Thorold) and Manitoulin members, that is, the thickness of the Medina formation exclusive of the Whirlpool member, does not vary greatly throughout the producing area. The following figures from well samples indicate this fact.

Township	Thickness of Cabot Head-Manitoulin interval
	Feet
Malahide	97
Bayham	110
South Dorchester	85
Woodhouse	110
Charlotteville	71
South Walsingham	60
Dereham	85
East Nissouri	85
West Oxford	80
Brantford	131
Onondaga	90
Tuscarora	95

PRODUCING FIELDS

It has been stated that commercial production within the Brantford area is at present confined to that part lying south of the latitude of Paris. Within this region drilling has been concentrated at more or less separated localities, which for purposes of description may be referred to as "fields". In most cases these localities of concentrated drilling are not properly fields in the sense of being producing areas whose limits are definitely known and that are separated by stretches of country known to be non-productive. Although it is true that areas of concentrated drilling are separated by considerable non-drilled regions, these latter do, in some instances at least, contain isolated and widely spaced producing wells. The lack of well-defined structures, as indicated on the accompanying subsurface map (No. 636A), suggests that structure resulting from diastrophic causes is not the major controlling factor in accumulation. This condition would lend support to the belief that the present producing localities may not constitute separate fields and that the intervening non-drilled areas may represent localities of potential production. The present producing localities will now be outlined, illustrating the stratigraphy of each with detailed logs prepared from well samples. It should be borne in mind that there is probably a number of wells, especially among those drilled many years ago, for which no records are now available, and that the following remarks are based upon wells for which data were obtainable and which could be located in the field.

Brant County

The extreme eastern part of Brantford township together with part of Onondaga and most of concessions V and VI, Tuscarora township, constitute an area of concentrated drilling. Gas is found in every part of this region, apparently regardless of structural conditions. Non-commercial wells occur sporadically throughout; in some instances these are surrounded by producers, a condition that strongly suggests discontinuous porosity of the reservoir rock. About 20 per cent of the holes for which records were obtained were initially either dry or non-commercial. The Clinton and Whirlpool are the chief producing horizons and an appreciable percentage of the wells draw from both horizons. The following logs illustrate the detailed stratigraphy of this region.

Log of E. and E. Hartley Well No. 3

Location: lot 16, con. III W, Onondaga tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
	0-110	110	No samples.
Salina	110-150	40	Dark grey and greenish, limy shale; traces of anhydrite.
	150-155	5	Grey, crystalline dolomite.
Guelph-Lockport	155-170	15	Grey, finely crystalline dolomite.
	170-190	20	Grey, finely granular dolomite.
	190-220	30	Grey and brownish, finely crystalline dolomite. Traces of anhydrite at 205 feet.
	220-250	30	Light grey, finely granular dolomite; porous in lower 20 feet.
	250-270	20	Light buff, finely granular dolomite.
	270-300	30	Light buff, finely granular dolomite with minor amount dark grey, limy shale.
	300-395	95	Brown and brownish grey, finely granular dolomite; traces of anhydrite at 335 and 375 feet.
	395-410	15	Light grey, medium and coarsely crystalline dolomite.
Rochester	410-455	45	Dark grey, limy shale.
Clinton	455-468	13	Buff and grey, finely crystalline limestone with traces of grey shale.
Thorold	468-478	10	Light grey, medium-grained sandstone.
Cabot Head and Manitoulin	478-500	22	Red shale, sandy at the base.
	500-520	20	Green shale; little red shale and grey limestone.
	520-540	20	Greenish grey shale.
	540-565	25	Grey, crystalline dolomite with minor amount of grey shale and dolomitic shale.
Whirlpool	565-575	10	Light grey, medium-grained sandstone.
Queenston	575-576	1	Red shale.

Log of Petrol Oil and Gas Company (T. Harris No. 1)

Location: lot 2, con. VI, Tuscarora tp.

Formation	Depth	Thickness	Lithology
Salina	30-50	20	Greenish grey, limy shale; little brown dolomite; traces of anhydrite.
	50-95	45	Brown, finely crystalline dolomite; some anhydrite.
	95-135	40	Grey and greenish, limy shale; little brown dolomite and traces of anhydrite.
	135-160	25	Brown, finely crystalline dolomite; little grey shale; traces of anhydrite.
Guelph-Lockport	160-215	55	Grey, finely crystalline dolomite.
	215-250	35	Light grey, crystalline dolomite; selenite at 225 and 230 feet.
	250-275	25	Light grey, finely granular dolomite; finely porous.
	275-305	30	Brownish grey, finely granular dolomite with traces of green shale.
	305-345	40	Dark brownish grey, finely crystalline dolomite.
	345-380	35	Grey, finely crystalline dolomite; trace of selenite at 350 feet.
	380-400	20	Light grey, crystalline dolomite.
Rochester	400-450	50	Dark grey, limy shale.
Clinton	450-460	10	Light grey, crystalline limestone; some pyrite.
Thorold	460-480	20	Light grey sandstone; some glauconite.
Grimsby	480-495	15	Red, green, and grey shale; little grey sandstone.
Cabot Head	495-515	20	Red and green shale; equal amount grey limestone.
	515-535	20	Greenish grey shale; little grey limestone.
Manitoulin	535-555	20	Grey, crystalline limestone; grey shale in lower 10 feet.
Whirlpool	555-565	10	Light grey, medium-grained sandstone.
Queenston	565-625	60	Red shale.

Log of Petrol Oil and Gas Company (T. Harris No. 1)—Concluded

Location: lot F-1, con. S.H.R., Brantford tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Guelph-Lockport	0–78	78	Grey, crystalline dolomite.
	78–136	58	Grey, finely crystalline and porous dolomite.
	136–170	34	No samples.
	170–258	88	Light buff, granular dolomite.
	258–333	75	Light brownish, fine-grained, bituminous dolomite.
Rochester	333–365	32	Dark brownish grey, fine-grained, shaly dolomite.
Clinton	365–395	30	Light grey, crystalline limestone.
Grimsby	395–407	12	Dark red and green shale.
	407–413	6	Dark red shale; little greenish sandstone.
Cabot Head	413–442	29	Red and green shale; little reddish limestone.
	442–503	61	Greenish grey shale; little grey limestone.
Manitoulin	503–526	23	Grey, crystalline limestone; traces of grey shale; little grey sandstone at base (Whirlpool).
Queenston	526–598	72	Red shale.

Haldimand County

Drilling covers practically all the southern two-thirds of that part of Walpole township that lies within the Brantford area. Within this part of the township, however, the greatest concentration of wells is on lots 1 to 6, concessions I to IV; lots 7 to 12, concessions IV and V; and lots 13 to 18, concessions V to VIII. Elsewhere within the first ten concessions the wells are more or less scattered, with the most extensive non-drilled areas embracing lots 1 to 6, concessions VI to X, and lots 7 to 15, concessions I and II. A consideration of the relation between the position of the wells and the structure contours as shown on the accompanying subsurface map (No. 636A) suggests that no obvious reason exists why the non-drilled areas should not be potential producing areas. About 35 per cent of the wells for which records are available were initially dry or came in with non-commercial production. The Clinton and Grimsby are the chief producing horizons, although many wells draw their supply from both of these and in some the Clinton and Whirlpool yield to the same well.

Norfolk County

Woodhouse township contains what might be called a western extension of the Walpole township producing area, although a sparsely drilled region intervenes between Walpole and the most thickly drilled part of Woodhouse. In Woodhouse most of the drilling is in the southwest part, embracing lots 3 to 12, concession I; lots 3 to 9, concession II; lots 2 to 6, concession III; lots 1 to 10, concession B.F.; and lot 1, Gore. In addition, more scattered drilling has been done, chiefly on lots 11, 12, 18, and 19, concession V; lots 12, 13, and 20, concession VI; and lots 13, 14, and 15, concession I. A glance at the accompanying structure contour map (No. 636A) will show extensive non-drilled areas, particularly in the northwest and central parts of the township. Of 128 wells for which records are available, 16 were dry. The main producing horizon is the Clinton, but the Grimsby also produces, and in about 20 per cent of the wells the yield is from both horizons. The following log will show the detailed stratigraphy of this producing region.

Log of Isaac Hewett Well No. 1

Location: lot 11, con. V, Woodhouse tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Norfolk	55–120	65	Brownish grey, fine-grained, magnesian limestone; grey chert; traces of sand at 55 and 90 feet.
Bertie-Akron	120–195	75	Brown and grey, fine-grained dolomite and magnesian dolomite.
Salina	195–205	10	Brown, fine-grained dolomite; little dark, limy shale.
	205–280	75	Dark grey and greenish, limy shale; little gypsum.
	280–380	100	Brown, fine-grained dolomite; some dark shale; traces of gypsum.
	380–420	40	Dark grey, limy shale; traces of anhydrite.
	420–480	60	Brown, fine-grained dolomite; little grey shale; traces of anhydrite.
	480–500	20	Dark grey, limy shale; traces of anhydrite.
	500–520	20	Brown, fine-grained dolomite; little dark, limy shale.
Guelph-Lockport	520–600	80	Grey, finely granular dolomite.
	600–780	180	Cream-coloured, finely crystalline dolomite; traces of selenite at 740 and 770 feet.
	780–800	20	Brown, fine-grained dolomite.
Rochester	800–810	10	Grey, limy shale.
	810–815	5	Dark, brownish grey, fine-grained dolomite.
	815–840	25	Dark grey, limy shale; little brownish limestone.
	840–880	40	Dark grey shale.

Log of Isaac Hewett Well No. 1—Concluded

Location: lot 11, con. V, Woodhouse tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Clinton	880–890	10	Grey, crystalline limestone.
Thorold	890–900	10	Light grey and greenish grey sandstone.
Grimsby	900–920	20	Grey and greenish sandstone; little red shale.
	920–950	30	Greenish grey shale; little reddish, impure lime and grey sandstone.
	950–965	15	Greenish grey shale.
Cabot Head and Manitoulin	965–970	5	Grey dolomite; little grey shale.
	970–1,000	30	Greenish grey shale; little grey dolomite at 995 to 1,000 feet.
Whirlpool	1,000–1,010	10	Chiefly grey, medium-grained sandstone.
Queenston	1,010–1,015	5	Red shale.

Middleton township contains three distinct areas where drilling is more or less concentrated; the most easterly of these is continuous with small producing localities in northeast North Walsingham township, northwest Charlotteville township, and southwest Windham township, and the most westerly extends a short distance into Bayham township, Elgin county. These areas are separated by more or less untested localities, but projection of the contours structurally connects them forming a narrow east-west trending producing and potential area extending from Bayham township eastward to Windham township. Gas is found practically throughout this area and dry holes occur at several places without any apparent relation to the structure contours. Such a condition indicates that dry holes do not necessarily show the limits of a field and argues in favour of considering the intervening untested areas as being potential. About 25 per cent of the wells for which records are available were either initially dry or came in with non-commercial production. The Clinton is the chief producing horizon, but a few wells yield from the Grimsby in Charlotteville and Middleton townships. The following logs will illustrate the detailed stratigraphy in this region.

Log of J. Holtby No. 2 Well

Location: lot 6, con. VIII, Bayham tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Norfolk	270–440	170	Grey and cream-coloured, fine-grained limestone; dark bituminous streaks from 380 to 440 feet.
	440–540	100	Grey, fine-grained limestone with much grey chert.
	540–560	20	Coarse, grey sand with much chert.
Bertie-Akron	560–610	50	Brownish grey, fine-grained dolomite with dark bituminous streaks.
Salina	610–650	40	Grey, limy shale and brown dolomite; some gypsum.
	650–950	300	No samples.
	950–970	20	Dark grey, limy shale; traces of anhydrite.
	970–1,010	40	Brown, fine-grained dolomite; traces of gypsum.
Guelph-Lockport	1,010–1,260	250	Grey, cream, and brownish coloured, finely granular dolomite; traces of selenite at 1,070 and 1,130 feet.
Rochester	1,260–1,300	40	Dark grey, limy shale.
Clinton	1,300–1,320	20	Brownish grey, granular dolomite.
Cabot Head and Manitoulin	1,320–1,400	80	Grey, greenish, and red shale; little reddish limestone. Bryozoa fragments at 1,350 feet.
	1,400–1,430	30	Grey, crystalline limestone; little grey shale.
Whirlpool	1,430–1,440	10	Greenish shale; some white sandstone.
Queenston	1,440–1,450	10	Red shale.

Log of J. A. Reid Well No. 1

Location: lot 3, con. XII, Charlotteville tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Norfolk	80–180	100	Brownish grey, fine-grained to dense limestone; little grey chert; little sand at 155 and 165 feet.
	180–200	20	Brown and cream-coloured, crystalline limestone.
	200–210	10	Grey, calcareous sandstone; little grey limestone.
	210–235	25	Grey and cream-coloured limestone with dark, bituminous streaks.
	235–245	10	Chiefly chert; little grey, calcareous sandstone.
	245–270	25	Brown, fine-grained limestone; much grey chert.
	270–280	10	Chiefly grey chert; little brown limestone.
	280–325	45	Brownish, fine-grained limestone; traces of chert.
	325–330	5	Chiefly cream-coloured chert; little grey sandstone.
	330–340	10	Grey sandstone; chert; glauconite.
Bertie-Akron	340–425	85	Brown and brownish grey, fine-grained dolomite.
Salina	425–510	85	Dark grey, limy shale; much gypsum.
	510–630	120	Brown, fine-grained dolomite; traces of gypsum.
	630–690	60	Grey and greenish, limy shale; little gypsum.
	690–730	40	Brownish grey, fine-grained dolomite; traces of gypsum.
	730–760	30	Grey and greenish, limy shale; little brown dolomite; traces of gypsum.
Guelph-Lockport	760–940	180	Brown and cream-coloured, finely granular dolomite.
	940–1,005	65	Grey, finely crystalline dolomite.
Rochester	1,005–1,020	15	Grey, crystalline limestone and dark grey, limy shale.
	1,020–1,040	20	Dark grey, limy shale.
Clinton	1,040–1,050	10	Unreliable samples.
	1,050–1,060	10	Grey, finely granular dolomite.
Grimsby	1,060–1,075	15	Light grey sandstone; little greenish and grey shale.
	1,075–1,085	10	Red and green, sandy shale; little grey sandstone.
Cabot Head	1,085–1,095	10	Greenish grey shale.
	1,095–1,110	15	Reddish and grey, impure limestone; little green shale.
Manitoulin	1,110–1,131	21	Green and grey shale; little grey limestone.

Log of W. F. Kingston No. 1 Well

Location: lot 4, con. I N, Middleton tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Surface	5–235	230	Sand, clay, gravel, etc.
Norfolk	235–490	255	Brownish grey, fine-grained, magnesian limestone; small amount of chert throughout.
	490–500	10	Equal amounts of chert and grey, calcareous sandstone.
	500–505	5	Chert; much grey, calcareous sandstone and some glauconite.
Bertie-Akron	505–555	50	Brownish grey and brown, finely crystalline dolomite; black, bituminous streaks at base.
Salina	555–620	65	Brown, fine-grained to dense dolomite with a little dark, limy shale and traces of gypsum throughout.
	620–680	60	Grey and brown, fine-grained to dense dolomite; traces of gypsum.
	680–840	160	Brown, fine-grained to dense dolomite with minor amount of dark, limy shale and traces of gypsum throughout.
	840–950	110	Dark grey, limy shale; little brown dolomite and traces of gypsum.
Guelph-Lockport	950–970	20	Grey, fine-grained dolomite.
	970–1,010	40	Cream-coloured, finely granular dolomite; traces of selenite.
	1,010–1,050	40	Light grey, finely crystalline dolomite.
	1,050–1,220	170	Brownish grey, finely crystalline dolomite.
Rochester	1,220–1,275	55	Dark grey, limy shale; little grey, crystalline dolomite at 1,230 feet.
Clinton	1,275–1,290	15	Grey, crystalline dolomite.
Thorold	1,290–1,295	5	Grey, medium-grained sandstone.
Grimsby and Cabot Head	1,295–1,300	5	Green and red shale with equal amount of red sandstone.
	1,300–1,305	5	Red, sandy shale; little grey sandstone.
	1,305–1,320	15	Red, limy shale; little green shale. Helopora sp.; Bryozoa.
	1,320–1,330	10	Greenish grey shale; little red shale; Brachiopods.

Drilling in South Walsingham township is practically confined to a relatively small area near the lake shore in the vicinity of Port Rowan and Port Royal, where most of the wells are located on lots 8 to 17, concession B and A; and on lots 16 and 17, concessions I and II. Gas is found throughout this district, although about 20 per cent of the wells for which records are available were initially dry or had non-commercial production.

The Clinton is the main producing formation, but in a few wells both Clinton and Grimsby are responsible for the yield. The following log shows the detailed stratigraphy here.

Log of Dominion Natural Gas Company (C. Cook No. 1)

Location: lot 9, con. B, South Walsingham tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Norfolk	290–450	160	Cream-coloured, finely crystalline, magnesian limestone; little chert at 370 feet; dark, bituminous streaks at 360 and 450 feet.
	450–485	35	No samples.
	485–495	10	Chiefly chert; little coarse sand.
	495–530	35	Brownish grey, fine-grained limestone; much chert; little coarse sand.
	530–535	5	Chert; little fine-grained sandstone.
	535–550	15	Grey, fine-grained limestone; much chert; little coarse sand.
	550–565	15	Chert; some clear, angular quartz grains.
	565–585	20	Chert; little coarse sand at 570 feet.
Bertie-Akron	585–655	70	Buff and brownish, fine-grained dolomite.
Salina	655–740	85	Dark grey, limy shale; traces of gypsum.
	740–790	50	Brown, finely crystalline dolomite.
	790–850	60	Dark grey, limy shale; little brown dolomite; traces of gypsum.
	850–860	10	Brown, fine-grained dolomite; minor amount grey, limy shale.
	860–940	80	Dark grey, limy shale; little brown dolomite; traces of gypsum.
	940–970	30	Brown, fine-grained dolomite.
	970–1,020	50	Dark grey, limy shale.
Guelph-Lockport	1,020–1,035	15	Grey, finely granular dolomite; traces of selenite at 1,035 feet.
	1,035–1,210	175	Grey and brownish grey, finely crystalline dolomite.
	1,210–1,230	20	No samples.
Rochester	1,230–1,275	45	Dark grey, limy shale.
Clinton	1,275–1,300	25	Grey, finely crystalline dolomite.
Thorold	1,300–1,315	15	Grey, medium-grained sandstone.
Grimsby	1,315–1,360	45	Red and grey sandstone with minor amount of red and greenish shale.

Only a few wells have been drilled in Houghton township and these are scattered throughout the southern two-thirds of the township. Of the seventeen wells for which records are available four were dry. Production is from the Clinton formation, although one well is reported to yield from the Whirlpool.

Elgin and Oxford Counties

Bayham and Malahide are the only producing townships in Elgin county that lie within the Brantford area. Practically all production in Malahide is from the Guelph, and it is also this formation that yields to the wells in the extreme northwest part of Bayham township.

Four separate localities of concentrated drilling are present in Bayham township. At the extreme northwest part, on lots 1 and 2, concessions IX and X, and lots 4, 5, and 6, concession X, there are about nineteen wells, which form an extension of the Brownsville gas field of Dereham township. All but one of these wells obtained commercial production, the yield coming from the upper few feet of the Guelph dolomite.

The second producing locality includes lots 22 to 28, concession VIII. This area produces from the Clinton and was included with the producing area of Middleton township already described.

The third locality is small and includes only about ten wells, situated on lots 1 and 2, concession V, and lots 1 to 4, concession IV. Of these ten wells only five were commercially productive and three were dry. No production data are available regarding the remaining wells. Production is from the Clinton formation.

The fourth locality is in the south-central part of the township and includes the Vienna field, which is now about 40 years old. Most of the wells are situated in an area embraced by lots 11 to 16, concession I, and lots 12 to 25, concessions II and III. Of about sixty-three wells in this region for which production data are available, thirteen, or about 20 per cent, were either initially dry or came in with non-commercial yield. Although this field is practically surrounded by dry or non-commercial wells, there are at least two cases of dry holes surrounded by producers, a condition indicative of discontinuous porosity of the reservoir rock. Production is mainly from the Clinton, although several wells yield from the Grimsby horizon. The log of J. Holtby No. 2 well on lot 6, concession VIII, already given, illustrates the detailed stratigraphy in Bayham township.

The foregoing outline of producing fields includes all those areas that yield from the Clinton and Medina formations; these areas have been contoured on top of the Clinton formation, the structure being shown on the accompanying structure contour map (No. 636A). In addition, however, there are two fields, the Malahide field in Malahide township and the Brownsville field in Dereham township, that obtain production from the Guelph dolomite. Very few of the wells in these fields have been drilled below this producing horizon.

The Malahide field was discovered by the Union Gas Company of Canada late in 1938 and is still being developed (May 1940). At the time of leaving the field (September 1939) eighteen wells had been drilled or were drilling; most of these are concentrated on lots 15 to 24, concession V, and lots 8 to 10, concession IV. Of the eighteen wells, eight were commercially productive, six were dry holes, and four were drilling. The actual producing horizon lies from 9 to 45 feet below the top of the Guelph formation. Sufficient data upon which to work out the detailed structure are not at hand. However, using the top of the Guelph as

determined from well samples there appears to be a low anticlinal roll or elongate dome trending roughly northeast-southwest, with its major axis extending at least from lot 15 to lot 23, concession V. This apparent structure is bounded on the northwest side by a line of dry holes situated within ¾ mile of the crest. No definite indication of the probable southeast limit is as yet known. The wells have been plotted on the accompanying structure map and the elevations, referred to sea-level, are given, where known, of the top of the Guelph in each well. No contours have been drawn.

The following log will illustrate the detailed stratigraphy in this field.

Log of E. Bowan No. 2 Well

Location: lot 21, con. V, Malahide tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Norfolk	295–407	112	Brownish and cream-coloured, fine-grained limestone; little chert at 335 and 379 feet.
	407–484	77	Cream-coloured, fine-grained limestone with dark, bituminous streaks.
	484–596	112	Light buff, fine-grained limestone; minor amount of chert throughout.
	596–624	28	Chert; small amount of grey sandstone.
	624–631	7	Cream-coloured, fine-grained limestone; little chert.
Bertie-Akron	631–684	53	Brown and grey, finely crystalline dolomite.
Salina	684–700	16	Dark grey, limy shale.
	700–722	22	Light brown, fine-grained dolomite; some dark grey, limy shale.
	722–821	99	Dark grey, limy shale; small amount of gypsum.
	821–877	56	Brown, fine-grained dolomite; traces of gypsum.
	877–920	43	Dark grey, limy shale; traces of gypsum.
	920–941	21	Brown, fine-grained dolomite; little dark grey, limy shale; traces of gypsum.
	941–993	52	Dark grey, limy shale; minor amount of gypsum.
	993–1,018	25	Brown, fine-grained dolomite; traces of gypsum.
	1,018–1,050	32	Dark grey, limy shale.
	1,050–1,068	18	Brownish grey, fine-grained dolomite; traces of gypsum.
Guelph-Lockport	1,068–1,199	131	Grey and brown, crystalline dolomite.
	1,199–1,300	101	Buff and cream-coloured, crystalline dolomite.
	1,300–1,354	54	Brown and grey, finely crystalline dolomite.

Log of E. Bowan No. 2 Well—Concluded

Location: lot 21, con. V, Malahide tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Rochester	1,354–1,403	49	Dark grey shale, limy in upper part.
Clinton	1,403–1,428	25	Grey and buff limestone.
Cabot Head and Manitoulin	1,428–1,503	75	Grey shale; small amount of grey, crystalline limestone.
	1,503–1,525	22	Grey, crystalline limestone; little grey shale.
Whirlpool	1,525	—	Traces of grey sandstone.

The Brownsville gas field is located chiefly in the southwest part of Dereham township, Oxford county. It was discovered in 1935, since which time it has undergone considerable development, having been extended southward into Bayham township, Elgin county. At the time of writing, the field included about eighty-three wells, sixty-four of which are in Dereham township and the remaining nineteen in Bayham township. The general area embraces lots 21 to 27, cons. XI and XII, Dereham tp., as well as lots 1 and 2, cons. IX and X, and lots 4 to 6, con. X, Bayham tp.

Of the eighty-three foregoing wells six are dry holes and seventy-two came in with commercial production; no production data is available on the remaining five wells. The actual horizon of production lies from 5 to 61 feet below the top of the Guelph formation, and the thickness of the producing zone is known to be about 18 feet in one well and about 6 feet in some others. The total production in 1937 as reported by Harkness[1] was 486,931 M cubic feet, of which 455,611 M cubic feet came from Dereham township and 31,320 M cubic feet from Bayham township. Several producing wells have been added to the field since 1937.

As previously stated, a lack of sufficient well samples and the difficulty in recognizing the Salina-Guelph contact in drillers' logs rendered an attempt to contour the top of the Guelph formation unsuccessful. However, the wells are plotted on the accompanying structure map. Whatever the structure may be, it would appear to be limited to the north and northeast by dry holes; the limits in other directions have not as yet been defined, although one dry hole occurs on the south half of lot 5, con. X, Bayham tp. In discussing the structure of this field, Evans[2] states that "the water data indicates that the structure of the Brownsville field is only a minor modification of the regional dip, since the sulphur water from the Detroit River series rises in all wells to or near the surface. Moreover, in one well, Preston No. 1, a sulphur water struck in the Guelph at 968 feet below the surface, rises to the top of the well."

The following log will show the detailed stratigraphy of this field:

[1]Harkness, R. B.: Ont. Dept. Mines, vol. 47, pt. 5, 1938, p. 2.
[2]Evans, C. S.: Ont. Dept. Mines, vol. 46, pt. 5, 1937, p. 100.

Log of R. W. Hawkins No. 1 Well

Location: lot 22, con. XI, Dereham tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Norfolk	175–355	180	Cream-coloured and brownish grey, finely crystalline limestone. Protosalvinia at 175 feet; Bryozoa at 195 feet; traces of selenite at 210 feet; dark, bituminous streaks at 350 and 355 feet.
	355–485	130	Brownish grey, finely crystalline limestone; little chert throughout; sand at 480 and 485 feet.
	485–500	15	Chert; little grey limestone and some sand.
Bertie-Akron	500–570	70	Brown, finely crystalline dolomite.
	570–585	15	Grey shale with lesser amount of brown dolomite.
Salina	585–600	15	Brownish grey, fine-grained dolomite; little grey, limy shale; traces of anhydrite.
	600–655	55	Greenish grey, limy shale; traces of anhydrite.
	655–680	25	Dark grey, limy shale; much anhydrite.
	680–715	35	Brown, fine-grained dolomite; little grey shale in upper 10 feet; little anhydrite.
	715–725	10	Dark grey, limy shale; traces of anhydrite.
	725–790	65	Brownish grey, fine-grained dolomite; traces of anhydrite.
	790–840	50	Dark grey, limy shale; little anhydrite.
	840–865	25	Alternation of grey shale and brown dolomite; traces of anhydrite.
	865–915	50	Brown, fine-grained dolomite; little grey shale.
	915–930	15	Grey, limy shale; much anhydrite.
	930–975	45	Brown, fine-grained dolomite; shale at 945 feet.
Guelph-Lockport	975–1,040	65	Grey and brownish, finely granular dolomite.
	1,040–1,195	155	Brownish grey, crystalline dolomite.
Rochester	1,195–1,240	45	Dark grey shale; little grey limestone at 1,215 and 1,235 feet.
Clinton	1,240–1,260	20	Grey, crystalline limestone.
Cabot Head and Manitoulin	1,260–1,295	35	Greenish grey shale; little grey and red, impure limestone.
	1,295–1,335	40	Grey and greenish shale; little grey limestone.
	1,335–1,350	15	Grey, crystalline limestone; little grey shale.
Whirlpool	1,350–1,360	10	Grey shale; little light grey sandstone.
Queenston	1,360–1,365	5	Red shale.

Reservoir Rocks

The main reservoir rocks in the Brantford area are the sandstones of the Thorold, Grimsby, and Whirlpool members of the Medina formation and the limestones of the Clinton and Guelph formations.

As seen in the Niagara region, the Whirlpool is composed chiefly of fine to medium, subangular quartz grains, which are largely secondarily enlarged. Alling[1] states that the added silica does not seem to completely fill the voids and the rock is cemented by chlorite and argillaceous matter as well as by silica. The porosity is primary and has been estimated at about 10 per cent.

The Grimsby as a reservoir rock is quite variable. This rock does not outcrop in the present area, but as seen at several localities in the Niagara district it consists of red and grey, medium-grained sandstone with shaly zones and lenticular masses of sandstone entirely enclosed by shale or sandy shale. Well samples from the present area indicate essentially similar conditions. The quartz grains are subangular to rounded, average about 0·1 mm. in diameter, and are cemented by chlorite, kaolin, and some calcite. The porosity is primary and probably more or less discontinuous, as evidenced by the irregularity in production from this horizon.

The Thorold does not outcrop in the Brantford area, but as seen at Niagara River it is a quartz sandstone of rounded, subangular, and even angular grains with an average diameter of 0·1 mm. Argillaceous material forms about 20 per cent[2] and includes chlorite, muscovite, and rusty biotite. Calcite also occurs in recrystallized grains, as well as forming cementing material. The porosity is doubtless primary in origin.

The Guelph is a dolomite formation that, as a unit, is fairly uniform in both physical and chemical characters. At the exposure this rock commonly contains pores and cavities of various sizes, many of which apparently originated through the leaching of fossils. The percentage porosity and its origin are not definitely known. The primary effective porosity is in all probability very low, as is the case with most known calcareous reservoir rocks. It seems probable that the effective porosity is largely secondary and due to solution or leaching. How this took place is not definitely known. The most common procedure is by ground water circulation, and such action practically presupposes an erosion period during its operation. No disconformity has been recognized at the top of the Guelph in the Brantford area. However, several conditions, viz., the variation in thickness of the Guelph-Lockport series, the distinctly brown colour of the upper samples of the Guelph in many of the wells, and the fact that gas production seems so far to be limited to the upper 60 feet of the formation, might be interpreted by some as indicating unconformable conditions at the top of the Guelph. It is not known that porosity is confined to the producing 60 feet of the Guelph. It is suggested that the Guelph gas may have its source in the bituminous Eramosa and lower Guelph beds and that a general upward migration is arrested by contact

[1]Alling, H. L.: Proc. Rochester Acad. Sci., vol. 7, No. 7, 1936, p. 194.
[2]Alling, H. L.: Op. cit., p. 196.

with the less pervious, overlying Salina beds. If such is the case, it follows that all the strata through which the gas passed on its way to the present place of accumulation must also be more or less porous.

Accumulation

From a study of the accompanying structure map it would seem reasonable to conclude that structure, in the sense of forms resulting from tectonic or diastrophic causes, is not the principal controlling factor in accumulation of natural gas in the Brantford area. One might conclude from an examination of the relation between the producing wells and dry holes to the structure contours as drawn on top of the Clinton formation that the chances of obtaining gas are equally good throughout the area regardless of the structure indicated by the contours. When one observes dry holes completely surrounded by producers, and also present in the producing areas without any apparent relation to the structure contours, it is difficult, even where they appear to do so, to consider their presence as definite evidence of the limits of a field. If this reasoning is sound it follows that much of the untested country that intervenes between present producing areas may properly be considered as worth testing. It should be remembered that a great number of the wells yield from two horizons, and that in many cases the records give only the total yield, thereby giving little idea of the individual yield of the respective horizons in any given well.

Gas has been obtained throughout the entire drilled area. The percentage of dry holes is between 30 and 35 per cent of the total, and their distribution is such that in general no definite relation to structural conditions can be stated. The number of closures on the Clinton is small and all are of the most general type.

Outside the present area, both at Niagara gorge and elsewhere, the Grimsby shows depositional irregularities such as lenticular masses, some of considerable size, of sandstone completely enclosed in shale. Such lenses could act as traps to migrating gas and oil, and if the voids in this rock were even as high as 10 per cent the lenses might, depending on their size, easily account for wells of considerable production. In the case of the Thorold sandstone, it was found by Stewart that where the calcareous cementing material was greatest in amount production was least and that the largest producing wells were located where the reservoir sandstone was purest. We know very little regarding causes of accumulation in the Whirlpool, but differential cementation probably plays a dominant part. The Clinton does not outcrop in the present area, but to the east it is known to contain organic reefs of considerable size. It is suggested that such reefs, if present in this area, may have arrested migration and so played some part at least in accumulation. The widespread production from this horizon, however, suggests that other and possibly more important causes of accumulation are operative. Causes of accumulation in the Guelph are not known. The writer has been unable, as yet, to work out the structure of this horizon. It seems worth noting, however, that so far the gas is confined to the upper 60 feet of the formation and that the overyling Salina is a less pervious

formation; it may be, therefore, that suitable porosity at the top of the Guelph, together with resistance offered to further migration by the Salina, may, in part at least, account for the accumulation.

It is the writer's belief that porosity, differential cementation, and stratigraphic form constitute major factors in causing accumulation, and that these factors combined with gentle anticlinal rolls and local flattenings of the regional dip account for the gas fields so far developed in the Brantford area.

Production

In the Brantford area production is from four horizons, the Guelph, Clinton, Grimsby, and Whirlpool. With the exception of those yielding from the Guelph, most of the wells yield from two horizons simultaneously. In many wells only the total yield is recorded, so that the quantity from each individual horizon is not always known.

The initial open flow volumes differ greatly in different wells throughout the area, and in many instances adjacent wells show greatly differing initial yields. Such a condition seems to point to variable reservoir sizes, discontinuous porosity, and probably abnormal conditions of rock pressure. The initial yields are shown in the well record tables in a subsequent chapter. The total production[1] from the Brantford area in 1937 (excluding the yield from Walpole township, which is not differentiated from Haldimand county) was 1,301,762 M cubic feet. Since that time the Malahide field has been brought in and several producing wells have been added to the Brownsville field.

According to Harkness[2], "the open flow of Clinton wells decreases 50 per cent within the first 2 years, and from the fifth year onward about 10 per cent of the previous years flow. The average life is 20 years, although the first well drilled in Welland county in 1889 is still producing a little gas from the Whirlpool sandstone."

Any statement seeking to account for the recorded reservoir pressures must be speculative. Many of the wells produce from two horizons simultaneously; the vertical distance between the horizons is appreciable and quite sufficient to account for a marked difference in pressure based upon the local hydrostatic head governed by depth. It seems reasonable to assume, however, that the pressures recorded are those of the lowest horizon producing, as production would not take place from this zone unless the pressure was greater than that of the upper horizon.

Available records indicate that the initial pressures are quite erratic. It is true that at several more or less localized places, as in the Brownsville field, pressures are fairly uniform, but considering the producing areas collectively, uniformity of pressure is not a feature. Neither can it be said that pressures little more than approximate in the most general sense the theoretical hydrostatic head governed by depth. On this basis by far the greater number of wells for which records are available have sub-normal initial pressures. A considerable number have pressures somewhat above normal, but relatively few show pressures that closely approximate the hydrostatic head.

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[1]Harkness, R. B.: Ont. Dept. of Mines, vol. 47, pt. 5, 1938, p. 2.

[2]Harkness, R. B.: A.A.P.G., 1938, p. 84.

In attempting to account for these abnormal pressures it is found that certain important data are missing. Reliable information is lacking regarding both the general water conditions and the action of edge waters during depletion of the reservoirs. It is suggested that partial or total absence of water in the rocks surrounding a producing reservoir might have an effect upon the pressure in that reservoir. In addition, the lenticular structure of much of the Grimsby producing horizon would indicate the presence of a series of comparatively small detached reservoirs; within these, abnormal pressures may be built up. Finally, differential cementation in rocks such as the Whirlpool and the Thorold may also limit the size of contained reservoirs and so affect pressures to some extent.

Other Areas

The present commercially productive part of the Brantford area lies generally south of the latitude of Paris, and more particularly comprises Norfolk county, together with Walpole township, Haldimand county; Tuscarora and Onondaga townships, Brant county; Bayham and Malahide townships, Elgin county; and Dereham township, Oxford county. North of this region the Brantford area has so far yielded neither gas nor oil in commercial quantities, although shows of oil and small quantities of gas are known to be present at various localities.

In this northern part as a whole, the stratigraphy of the Silurian system shows some changes from that of the producing area to the south. The dominantly arenaceous Grimsby and Thorold are replaced by the argillaceous and calcareous lithology of the Cabot Head member. The Clinton is not known to be present north of the latitude of Kitchener, and the Whirlpool sandstone, although it persists along the east boundary of the area, is represented only by traces of sand in wells from East Nissouri, Oxford, and Minto townships, and is not recognized at all in North Easthope township; it thus appears to pinch out in a westward direction across the area.

Although a comparatively small amount of drilling has been done and reliable well samples are scarce, yet it does appear that of the Silurian producing horizons to the south, only the Guelph can really be considered as offering any prospects of production; even this formation is open to serious doubt as to its producing potentialities. The Guelph rocks outcrop at many localities throughout the region of their areal distribution. Sections ranging from a few feet to over 80 feet have been seen, and it is highly probable, therefore, that where these strata form the youngest bedrock, any gas they may have contained would long since have been dissipated. Where the Guelph is buried beneath younger rocks, as for example in the western half of the region where they are overlain first by Salina and then by both Salina and Norfolk rocks, upward migration of any gas present in them may have been arrested by the less pervious character of the overlying Salina. There is still, however, the possibility of such gas migrating up the regional dip and still being lost at the outcrop, although the presence of favourable structures and variation in degree of porosity in the intervening distance may arrest and trap at least some of this gas. It is not

expected that appreciable quantities of gas would be found in the Whirlpool sandstone in this northern region. The member apparently thins rapidly to the vanishing point as we pass westward across the region and although it is present throughout the eastern part, it is known to outcrop at several places both at the northeastern part of the area and along the escarpment immediately to the east. The Grimsby and Thorold are absent and, as already stated, the Clinton is not known north of the latitude of Kitchener. However, if suitable structures could be found, the Clinton may be worth testing wherever it exists in view of its widespread productiveness in the southern part of the entire area.

There still remains for consideration the prospects of obtaining production from the Ordovician rocks of this northern part of the Brantford area. Excepting the Queenston, which outcrops in the northeast part of the region, all these rocks are concealed and are, therefore, known only from well samples and drilling records.

Stratigraphic Synopsis. The Ordovician rocks, in descending order, consist of the Queenston shale, the Meaford shale and limestone, the Dundas shale, the Billings shale, and the Trenton and older Palæozoic limestones. The detailed lithology of these lower formations is illustrated by the following log prepared from well samples.

Log of Rockwood Oil and Gas Company Well

Location: lot 6, con. IV, Eramosa tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Lockport	0–180	180	No samples.
	180–210	30	Light bluish grey, coarsely crystalline and porous dolomite.
	210–220	10	Grey, crystalline dolomite with much pyrite.
Cabot Head	220–260	40	Red and greenish grey shale with small amount of red and grey, limy shale.
Manitoulin	260–280	20	Grey, crystalline dolomite with little greenish grey shale.
Whirlpool	280–300	20	Light grey to white, medium-grained sandstone.
Queenston	300–740	440	Red shale with green mottlings.
Meaford-Dundas	740–880	140	Grey and greenish grey shale with frequent, grey, crystalline limestone bands.
	880–950	70	No samples.
	950–1,380	430	Grey shale with occasional thin limestone bands.
Billings	1,380–1,420	40	Dark grey shale.
	1,420–1,510	90	Dark grey to black, bituminous shale.

Log of Rockwood Oil and Gas Company Well—Concluded

Location: lot 6, con. IV, Eramosa tp.

Formation	Depth	Thickness	Lithology
	Feet	Feet	
Trenton and older Palæozoic limestones	1,510–1,720	210	Grey and brownish, crystalline limestone with occasional dark shale partings.
	1,720–1,790	70	Grey, limy shale with minor amount of grey, crystalline limestone, greenish, limy shale, and light grey, flaky "kaolinite".
	1,790–1,890	100	Grey, shaly limestone with minor amount of greenish and grey shale.
	1,890–1,930	40	Grey, finely crystalline limestone.
	1,930–1,970	40	Grey, limy shale.
	1,970–2,000	30	Grey, shaly limestone.
	2,000–2,060	60	Brownish grey, finely crystalline limestone with cream-coloured, dense "lithographic" limestone at 2,030, 2,060, and 2,070 feet.
	2,060–2,140	80	Brownish grey, finely crystalline limestone.
Basal beds	2,140–2,170	30	Greenish, fine-grained sandstone with minor amount of grey limestone and shale.
Precambrian	2,170–2,180	10	Angular and semi-rounded quartz, green schist, biotite.

The basal beds represent the sediments of the initial encroachment of the sea over the old Precambrian land surface. They differ in thickness and lithology from place to place and include arkose, sandstone, arenaceous limestone, and dolomite.

No satisfactory criteria have been found upon which the thick series of calcareous rocks between the basal beds and the Billings formation can be separated into their respective formations in well samples. This series includes the Trenton and probably at least the upper part of the Black River group, represented by the Leray and Lowville formations, and is here logged as a single unit.

The Billings is characteristically a dark grey to nearly black, bituminous shale; it grades upward into the Dundas shale, the upper contact being difficult to place in well samples. The lower contact is sharp and easily recognizable. Sproule[1] reports an erosional break at the top of the Cobourg (upper Trenton) in the Georgian Bay region and on Manitoulin Island; this condition has not been detected in well samples examined by the writer, although this by no means precludes the possibility of its presence.

The Dundas is mainly a grey shale with occasional thin limestone and calcareous sandstone bands; it grades upward into the Meaford, which is

[1]Sproule, J. C.: Geol. Surv., Canada, Mem. 202, 1936, p. 99.

chiefly a grey and greenish grey shale with grey, crystalline limestone bands that increase in thickness and number toward the top of the formation. No definite and sharp line of separation between the Dundas and Meaford can be placed in well samples and the two have been logged as a single unit.

The Queenston is characteristically a brick-red, sandy and argillaceous shale with frequent green-coloured bands and mottlings. The Meaford-Queenston contact is sharp and readily recognized in well samples.

Reservoir Rocks. Favourable reservoir rocks are not very plentiful in these Ordovician rocks. The Queenston need not be considered in this regard. The underlying Meaford and Dundas are together dominantly argillaceous, but the occasional limestone beds may function as reservoir rocks under favourable conditions of porosity and structure. The Billings, like the Queenston, is too finely textured and impervious to act as a reservoir. The Trenton is probably the most favourable. Like most limestones, however, its value as a reservoir rock depends largely upon its possession of secondary porosity. This is usually developed by the leaching and dissolving action of circulating ground waters, and hence presupposes a period of erosion. The top of the Trenton is one of erosion in the Georgian Bay and Manitoulin Island districts, although Sproule[1] states that at the former locality the hiatus is at a minimum. Whether this condition prevails throughout the area here under discussion cannot be said. Finally, the basal beds, consisting as they do at some localities of arkose and sandstone, may, under the proper conditions of porosity and structure, act as reservoir rocks.

Source Rocks. The most likely source rocks are the black, bituminous shales of the Billings formation. Elsewhere these shales are known to be petroliferous, and oil has been extracted from them in the past. In addition, many of the large number of shale partings and zones present throughout the Trenton and older Palæozoic series may also act as source rocks.

Structure. Less is known regarding the detailed structure than about any other character of these Ordovician rocks. Reliable data are too scattered and meagre to indicate subsurface structures, and without a knowledge of these, any ideas regarding the economic possibilities are more or less conjectural. The regional attitude of the strata as a whole is a gentle dip toward the southwest away from the Canadian Shield to the north. No faulting in the Ordovician rocks within the Brantford area is known to the writer.

Results of Tests. Widely spaced and scattered drilling has penetrated the Ordovician rocks in Perth, Oxford, and Wellington counties with no encouraging results. Information regarding much of this drilling is both incomplete and unreliable, but certain conclusions may be drawn from it.

Perth County. A well on lot 3, con. VIII, North Easthope tp., was drilled to the Precambrian in 1937, but encountered neither oil nor gas.

Oxford County. In 1909 a deep test was put down in North Oxford township near Beachville. This well penetrated the Trenton to a depth of 530 feet, but is reported to have encountered neither oil nor gas.

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[1]Sproule, J. C.: Op. cit.

Wellington County. Several deep tests for which rasonably reliable information exists were drilled in this county. On the south half of lot 7, con. IV, Puslinch tp., a well was drilled to a depth of 2,670 feet, entering the Precambrian at about 2,360 feet. An estimated 20 M cubic feet of gas was encountered in the Palæozoic limestone at a depth of 2,326 feet. In 1933 a second well on the same lot reached a depth of 2,531 feet, entering the Precambrian at about 2,360 feet. A show of gas was struck at 2,357 feet, which according to the drillers' log was in the arkose or basal beds immediately overlying the granite.

In 1900 a well was drilled on lot 6, con. V, Pilkington tp., which encountered sufficient gas for two stoves at a reported depth of 2,335 feet; this is about 645 feet below the top of the Trenton.

In the same year a well on lot 5, con. III, Peel tp., was drilled to 2,573 feet. It was reported to have reached the Precambrian at 2,526 feet and to have struck a small flow of gas at 2,506 feet, some 688 feet below the top of the Trenton.

In 1919 a well owned by the Imperial Oil Company was drilled on lot 6, con. IV, Eramosa tp., to a depth of 2,180 feet. This well reached the Precambrian at 2,170 feet. A show of gas was reported, but the exact horizon is not known.

Oil and Gas Prospects. It will be seen that the results of actual deep drilling tests made at widely separated districts in the northern part of the Brantford area are not encouraging. Showings and small flows of gas have been found in the Trenton and basal beds at several localities, but nothing of commercial significance has so far been discovered.

It is not likely that important discoveries will be made in either the Dundas or Meaford formations. Few conditions favour the occurrence of hydrocarbons and many indicate the improbability of their presence except in small quantities. Favourable source rocks are present and the most likely rocks to form reservoirs do possess sufficient impervious covering to retain any gas or oil they may contain. On the other hand, there are serious difficulties in regard to the migration and accumulation of any hydrocarbons that might originate in the source rocks. The probable reservoir rocks are separated from the source rock by relatively impervious shales through which migration must take place. The Meaford-Dundas as a unit is dominantly argillaceous; faults of any appreciable displacement are unknown, and wherever these rocks have been seen in the adjacent area to the east jointing is not a feature of the outcrops. It would seem, therefore, that avenues for migration are at a minimum. The most favourable rocks to function as reservoirs are thin limestone and calcareous sandstone bands. The primary effective porosity of these is likely to be very low, and the development of any secondary porosity through leaching is improbable in view of the absence of any unconformity within a reasonable vertical distance. In addition, these rocks have never been subjected to diastrophic movements sufficient to result in local structures that would act as points of accumulation.

Prospects of production from the Trenton seem equally discouraging, although these rocks have more to recommend them than has the Meaford-

Dundas series. So far as known, the Trenton is everywhere covered by the Billings source rocks and there is no apparent reason why a downward migration should not take place, in fact, such a movement might encounter less resistance than would an upward one. It is true that rocks equivalent to the Billings outcrop on Georgian Bay some 35 miles north of the present area, but in view of the belief that migration does not take place over very extensive lateral distances it is not thought that this fact would figure seriously in the dissipation of any oil or gas that might be present in the area here under discussion. No definite data are available regarding the detailed structure of the Trenton. Structural closure that would afford favourable conditions for accumulation has not been recognized, and as no severe deformation of these rocks has taken place it seems unlikely that closure of any appreciable magnitude will be found. It is a reasonable assumption, therefore, that any accumulation would be controlled largely by conditions of porosity.

Effective porosity in limestones is usually secondary and due chiefly to leaching or solution by ground water and such action presupposes an erosional period. A disconformity is present at the top of the Trenton in the Georgian Bay and Manitoulin regions. Sproule[1] states that at Georgian Bay the hiatus is at a minimum. This would indicate a shorter period of time during which ground water could act upon the limestone there. If the disconformity does not extend southward into the present area (there is no apparent indication of it in well samples here) lack of suitable porosity may well account for the discouraging results so far obtained by drilling into the Trenton formation. As the porosity of the rock cannot be foretold, it becomes impossible to indicate any locality that might be more favourable than another as a prospective drilling site, and yet it cannot be said that the Trenton offers absolutely no possibility as a potential producing formation. Only drilling can positively test this formation.

Both gas and oil have been found in the basal beds in other regions, and these beds may form reservoirs in this area. Downward migration might take place by way of faults and joints in the overlying limestones and be arrested by the Precambrian surface. The basal beds doubtless occupy depressions in the Precambrian surface, and it seems not improbable that considerable production might be obtained if reservoirs of sufficient size were penetrated. Here, again, sufficient data to outline or even to prove the existence of such reservoirs are not available and drilling would be the only test.

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[1]Sproule, J. C.: Op. cit.

CHAPTER VI

WELL RECORDS

The following table of well records has been prepared by J. S. Stewart of the Geological Survey from drillers' records and from field work conducted by him, and brought up to date (1939) by the writer. It should be borne in mind that for many of the wells, particularly among the older ones, complete information is not available; also that there are many wells, particularly dry holes and abandoned wells in which the casing has been pulled, for which the location and elevation are not now obtainable. In addition, as property ownership may change at any time, some of the names of the farm owners given in the tables may now be incorrect. In the table, the yield represents the initial open flow or volume of the well in thousands of cubic feet a day, and the pressure is the rock or reservoir pressure in pounds per square inch. The following abbreviations are used:

B.F.	Broken Front
E.	East
E.F.C.	East of Fairchild Creek
L.R.N.	Lake road north
R.R.	River range
W.	West
W.F.C.	West Fairchild Creek
N.	North
S.	South

Wells in Walpole Township, Haldimand County

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
1	1	Dominion Natural Gas Co..... S. R. Oakes No. 1.....	1,400 ft. S. of N. road..... 1,000 ft. W. of E. line.....	1930	615	1,039	Norfolk	.....	.....	46	348	22	Fresh water at 65 ft. Black water at 570 ft.
1	1	Empire Gas and Oil Syndicate. J. Meade No. 1.	NE. Corner.....	1932	623	992	"	.....	.....	306	425	24	
1	1	J. Meade No. 2.....	1,200 ft. S. of N. road..... 150 ft. E. of W. line.	1933	608	1,013	"	932	.....	Dry hole	.....	9	Show of gas. Fresh water at 90 ft.
1	1	Empire Gas and Oil Syndicate	1,650 ft. S. of N. road..... 50 ft. W. of E. line.....	1933	625	1,032	"	901 927	Clinton Grimsby	37	400	32	Fresh water at 80 ft. Sulphur water at 160 ft. Black water at 600 ft.
2	1	Dominion Natural Gas Co..... S.R. Marr No. 2.....	25 ft. S. of N. road..... 1,000 ft. W. of E. line.	1930	636	1,044	"	.....	.....	16	452	28	Fresh water at 69 and 100 ft. Black water at 580 ft.
2	1	S. R. Marr No. 1.....	900 ft. S. of N. road..... 450 ft. E. of W. line.	1930	626	1,047	"	.....	.....	85	457	25	Fresh water at 40 and 60 ft. Black water at 560 ft.
2	1	Geo. E. and M. M. Walker No. 1.	3,500 ft. S. of N. road..... 100 ft. W. of E. line.	1929	622	1,047	"	.....	.....	Dry hole	.....	28	Fresh water at 52 ft. Black water at 650 ft.
2	1	Empire Natural Gas Co..... H. Ross No. 5.	.....	1933	.....	1,032	"	901	Clinton	37	400	32	Fresh water at 80 ft. Sulphur water at 160 ft.
3	1	Dominion Natural Gas Co..... A. W. Oakes No. 1.	1,000 ft. S. of N. road..... 50 ft. E. of W. line.	1930	633	1,099	"	.....	.....	160	429	24	Fresh water at 93 ft.
3	1	E. Stone and J. Chambers No. 2.	2,100 ft. S. of N. road..... 100 ft. E. of W. line.	1930	628	1,043	"	.....	.....	Dry hole	.....	26	Fresh water at 90 ft. Black water at 550 ft.
3	1	E. Stone and J. Chambers No. 1.	3,050 ft. S. of N. road..... 650 ft. W. of E. line.....	1929	621	1,032	"	884 929	Clinton Grimsby	121	.....	27	Fresh water at 46 ft. Black water at 575 ft.
4	1	Otterville Natural Gas Synd...	50 ft. N. of S. road..... 50 ft. W. of E. line.	1935	600	1,013	"	878	Clinton	25	318	20	Fresh water at 60 ft. Black water at 100 ft.
4	1	Dominion Natural Gas Co..... A. Brown No. 1.	SE. Corner.....	1929	574	1,026	"	.....	.....	140	408	26	Fresh water at 38 ft. Black water at 550 ft.

5	1	Oakes No. 1	400 ft. E. of W. line 1,900 ft. S. of N. road.	1929	593	1,010	"			Dry hole		15	Fresh water at 40 ft. Black water at 560 ft.
5	1	A. Brown No. 2	150 ft. S. of N. road 400 ft. E. of W. line.	1929	618	1,025	"	901	Clinton	21	350	46	Fresh water at 56 ft. Black water at 602 ft.
5	1	Otterville Natural Gas Synd. A. B. Hoover No. 1	25 ft. S. of N. road 600 ft. E. of W. line.	1934	596	1,004	"	877	Grimsby	15	385	32	Fresh water at 30 ft. Black water at 85 ft. Sulphur water at 625 ft.
5	1	F. Jackson No. 1	1,700 ft. S. of N. road 850 ft. W. of E. road	1934	583	1,043	"	874 996	Clinton Whirlpool	112	300	23	Fresh water at 60 ft. Black water at 180 ft. Sulphur water at 465 ft.
5	1	Beacon Natural Gas Synd.	650 ft. N. of S. road 50 ft. W. of E. line.	1935	593	1,006	"	864		115	312	9	Fresh water at 9 ft. Black water at 78 ft. Sulphur water at 585 ft.
5	1	Beacon Natural Gas Synd.	SE. Corner	1935	576	1,007	"	921		82	335	18	Fresh water at 14 ft. Sulphur water at 63 ft.
5	1	W. C. Patterson S. A. Stone No. 1	2,200 ft. S. of N. road 1,050 ft. W. of E. road.	1934	585	971	"	855	Grimsby		350	12	Fresh water at 12 ft. Black water at 110 ft. Sulphur water at 580 ft.
5	1	S. A. Stone No. 2	550 ft. S. of N. line 1,100 ft. E. of W. line.	1936	583	993	"			Dry hole		2	Fresh water at 35 ft.
6	1	Empire Natural Gas Co. R. J. Evans No. 9	1,300 ft. S. of N. road 550 ft. E. of W. road.	1934	612	1,049	"	901		53	410	30	Salt water at 100 ft.
6	1	R. J. Evans No. 11	800 ft. S. of N. road 50 ft. E. of W. road.	1934	599	984	"			Dry hole		12	Fresh water at 55 ft.
6	1	W. C. Patterson	1,500 ft. S. of N. road 800 ft. W. of E. line	1934	585	1,053	"	906 1,000		60	320	6	Sulphur water at 45 ft.
6	1	Otterville Natural Gas Synd. Mrs. Stone No. 1	550 ft. S. of N. road 900 ft. W. of E. road.	1934	581	1,000	"			Dry hole		27	Sulphur water at 103 ft. Black water at 425 ft.
7	1	Dominion Natural Gas Co. C. J. Vokes.				1,054	"	1,010	Whirlpool	238	500	34	
12	1	F. Flemming No. 2				963	"	825 860	Clinton Grimsby	688	450	38	
13	1	Chas. Lamb No. 1		1909		976	"	915	Whirlpool	800	430	30	
1	2	Otterville Natural Gas Synd.	1,900 ft. N. of S. road 725 ft. W. of E. line.	1933	641	1,022	"			Dry hole		29	Sulphur water at 110 ft. Black water at 580 ft.
1	2	Otterville Natural Gas Synd.		1933		1,015	"	855		50	435	28	Fresh water at 146 ft. Sulphur water at 565 ft.

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
1	2	Otterville Natural Gas Synd...	.....	1933	.....	1,021	Norfolk	.....	.....	Dry hole	.....	30	Fresh water at 70 ft. Sulphur water at 180 ft.
1	2	Empire Natural Gas Co..... E. Porritt No. 1.	700 ft. N. of S. road..... 500 ft. W. of E. line.	1933	634	989	"	920	Grimsby	900	450	31	Fresh water at 60 ft. Black water at 700 ft.
1	2	E. Porritt No. 3.....	1,350 ft. N. of S. road..... 5 ft. W. of E. line.	1933	637	989	"	918	Grimsby	825	480	31	Fresh water at 60 ft. Sulphur water at 700 ft.
1	2	E. Porritt No. 2.....	1,800 ft. N. of S. road..... 900 ft. W. of E. line.....	1933	640	1,031	"	895 943	Clinton Grimsby	87	475	30	Fresh water at 24 ft. Black water at 740 ft.
1	2	W. Jackson No. 7.....	1,850 ft. N. of S. road..... 500 ft. W. of E. line.	1934	639	1,070	"	888	.....	88	470	25	Fresch water at 92 ft., rose 60 ft. Black water at 230 ft., rose 200 ft.
1	2	E. Porritt.....	450 ft. N. of S. road..... 850 ft. W. of E. line.	1937	627	1,072	"	1,030	Whirlpool	34	350	20	Fresh water at 90 ft., rose 60 ft.
2	2	Empire Natural Gas Co..... W. Jackson.....	1,050 ft. N. of S. road..... 550 ft. E. of W. line.	1937	633	1,030	"	.....	.....	Dry hole	.....	26	Sulphur water at 90 ft., rose 65 ft.
2	2	Dominion Natural Gas Co..... J. L. Jackson.....	25 ft. S. of N. road..... 450 ft. W. of E. line.	1927	647	1,031	"	909	Grimsby	41	470	36	Fresh water at 90 ft. Black water at 547 ft.
2	2	E. Meade No. 2.....	1,325 ft. N. of S. road..... 500 ft. W. of E. line.	1931	641	1,026	"	.....	.....	Dry hole	.....	21	Fresh water at 95 ft. Black water at 550 ft.
2	2	Otterville Natural Gas Synd...	750 ft. S. of N. road..... 550 ft. E. of W. line.....	1933	646	1,015	"	885 930	Clinton Grimsby	15	435	28	Fresh water at 146 ft. Black water at 565 ft.
2	2	Otterville Natural Gas Synd...	2,000 ft. S. of N. road..... 500 ft. E. of W. line.	1933	640	1,021	"	.....	.....	Dry hole	.....	30	Fresh water at 70 ft. Sulphur water at 180 ft.
2	2	E. Meade No. 1.....	1,600 ft. N. of S. road..... 450 ft. E. of W. line.	1934	636	1,033	"	767	.....	90	470	33	Fresh water at 65 ft.
2	2	Empire Natural Gas Co..... W. Jackson No. 6.....	800 ft. N. of S. road..... 1,000 ft. E. of W. line.	1934	635	1,066	"	1,020	Whirlpool	45	475	30	Black water at 97 ft.

3	2	Dominion Natural Gas Co. E. Meade No. 1	2,450 ft. S. of N. road 1,000 ft. W. of E. line.	1930	636	1,025	"			82	322	22	Fresh water at 62 and 110 ft. Black water at 580 ft.
3	2	Chas. Ross No. 2	1,000 ft. S. of N. road 300 ft. E. of W. line.	1930	643	1,028	"			Dry hole		31	Fresh water at 50 and 115 ft. Black water at 548 ft.
3	2	Dominion Natural Gas Co	1,000 ft. S. of N. road 50 ft. W. of E. line	1927	639	1,011	"	886 922	Clinton Grimsby	157	465	25	Fresh water at 102 ft. Black water at 532 ft.
3	2	Empire Natural Gas Co Harvey Vokes No. 10				1,066	"	869 1,011	Clinton Whirlpool	105	365	18	Fresh water at 50 ft. Black water at 110 ft.
4	2	Harvey Vokes No. 1		1934		1,015	"	875	Clinton	20		25	Fresh water at 68 ft. Sulphur water at 320 ft. Black water at 635 ft.
4	2	H. Vokes	1,900 ft. N. of S. road 400 ft. W. of E. line.	1934	609	975	"	838		5		4	Fresh water at 80 ft.
4	2	Dominion Natural Gas Co D. Vokes No. 1	1,100 ft. S. of N. road 850 ft. W. of E. line.	1930	637	1,015	"			8		22	Fresh water at 95 ft. Black water at 542 ft.
4	2	Otterville Natural Gas Synd F. Field No. 1	50 ft. N. of S. road 900 ft. W. of E. line.	1934	627	1,017	"	892	Grimsby	17	365	18	Fresh water at 56 and 178 ft.
5	2	W. C. Patterson A. Evans No. 1.		1935		984	"			Dry hole		7	Fresh water at 41 ft.
5	2	W. C. Patterson	350 ft. N. of S. road 900 ft. E. of W. line.	1935	591	982	"			Dry hole		7	
5	2	W. C. Patterson Gas Co J. Cooper No. 1	1,100 ft. N. of S. road 700 ft. E. of W. line.	1937	618	998	"	898	Grimsby	40	350	20	Black water at 55 ft.
6	2	W. C. Patterson E. Benner No. 1.		1934		1,022	"					17	Fresh water at 25 ft.
6	2	E. Benner No. 2		1934		980	"			55	350	5	Fresh water at 40 ft. Sulphur water at 496 ft.
6	2	W. C. Patterson	800 ft. N. of S. road 75 ft. W. of E. line.	1934	621	1,008	"			Dry hole		23	Fresh water at 90 ft. Sulphur water at 670 ft.
7	2	W. C. Patterson F. Snowdon No. 1.		1934		1,022	"			Dry hole		30	Fresh water at 40 ft.
8	2	Dominion Natural Gas Co		1930	638	1,071	"	896 1,019	Clinton	21	207	26	Fresh water at 102 ft. Black water at 585 ft.
8	2	R. Bonfield No. 1	SE. Corner	1907	618	1,000	"	885	Clinton			34	
13	2	C. Swarts No. 1	SW. Corner	1909		958	"	870	Clinton	700	450	27	

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
14	2	Sterling Gas Synd. L. Bartlett No. 1	NW. Corner	1933	634	990	Norfolk	845 887	Clinton Grimsby	70	235	25	Sulphur water at 85 ft.
15	2	A. Wedreick No. 1	NW. Corner	1933	639	1,025	"	860 984	Clinton Whirlpool	100	275	16	Sulphur water at 55 ft.
15	2	Dominion Natural Gas Co.		1906		998	"			Dry hole		32	
1	3	Otterville Natural Gas Synd. E. Blake No. 1	50 ft. N. of S. road 850 ft. W. of E. line.	1933	652	1,030	"	916	Clinton	9	500	34	Fresh water at 60 ft. Sulphur water at 400 ft.
1	3	E. Blake No. 2	1,400 ft. N. of S. road 650 ft. W. of E. line.	1933	652	986	"	924	Grimsby	300	350	32	Fresh water at 126 ft. Sulphur water at 300 ft.
1	3	Mrs. H. Robb No. 1	50 ft. N. of S. road 100 ft. E. of W. road.	1934	653	1,014	"			Dry hole		47	Fresh water at 125 ft. Black water at 625 ft.
1	3	Mrs. H. Robb No. 2		1934		1,042	"	897		96	430	47	Fresh water at 115 ft. Black water at 360 ft.
1	3	B. Butcher No. 1		1934		1,067	"	922 1,020	Clinton Whirlpool	46	450	41	Fresh water at 56 ft. Sulphur water at 200 ft.
1	3	E. Blake No. 3		1934		1,016	"	919	Clinton	85	450	47	Fresh water at 58 ft. Sulphur water at 490 ft.
2	3	W. Butcher No. 2	750 ft. N. of S. road 100 ft. W. of E. line.	1934	647	1,022	"	912	Clinton	181	450	34	Fresh water at 60 ft. Sulphur water at 123 ft.
2	3	W. Butcher No. 3	1,950 ft. N. of S. road 250 ft. W. of E. line.	1936	649	1,035	"			Dry hole		39	Fresh water at 115 ft., rose 55 ft. Sulphur water at 360 ft., rose 305 ft.
2	3	W. Butcher No. 4	1,800 ft. N. of S. road 750 ft. E. of W. line	1936	649	1,080	"	910 1,025	Clinton Whirlpool	53	400	38	Sulphur water at 165 ft., rose 75 ft.
2	3	Dominion Natural Gas Co. Wm. Richardson No. 1	1,850 ft. S. of N. road 900 ft. E. of W. line.		651	1,010	"	908	Grimsby	38	380	46	
2	3	Beacon Natural Gas Synd.	2,000 ft. N. of S. road 75 ft. E. of W. line	1935	652	1,065	"	913 1,013	Grimsby Whirlpool	50	420	47	Black water at 195 ft.

3	3	Dominion Natural Gas Co.			657	1,010	"			Dry hole		36	
3	3	W. J. Saunders No. 1	600 ft. S. of N. road 800 ft. W. of E. line	1922	657	1,006	"	873 890	Clinton Grimsby	50	400	33	
3	3	W. J. Saunders No. 2	50 ft. S. of N. road 200 ft. E. of W. line	1923	659	996	"	850 899	Clinton Grimsby	225	460	38	
3	3	Otterville Natural Gas Synd. W. Butcher No. 1		1933		1,067	"	907 1,017	Clinton Whirlpool	80	480	40	Fresh water at 100 ft. Sulphur water at 310 ft.
3	3	E. Field No. 1	SE. Corner	1934	646	1,013	"	907	Clinton	156	320	26	Fresh water at 108 ft. Sulphur water at 400 ft.
3	3	E. B. Field No. 2	950 ft. N. of S. road 550 ft. W. of E. line.	1934	648	1,005	"			Dry hole		26	Fresh water at 110 ft. Sulphur water at 400 ft.
4	3	Dominion Natural Gas Co. I. Columbus No. 1	750 ft. S. of N. road 200 ft. E. of W. line	1922	639	1,008	"	859 964	Clinton	190	380	27	
4	3	Dominion Natural Gas Co.	1,150 ft. N. of S. road 150 ft. E. of W. line.	1927	648	1,015	"			Dry hole		26	Fresh water at 100 ft. Black water at 576 ft.
5	3	W. C. Patterson Saunders No. 1	1,500 ft. S. of N. road 100 ft. E. of W. line.	1935	649	995	"			Dry hole		30	Black water at 165 ft.
6	3	B. Kindree No. 2	300 ft. N. of S. road 300 ft. W. of E. road.	1935	631	995	"			50	350	14	Sulphur water at 90 ft.
6	3	B. Kindree No. 3	1,200 ft. N. of S. road 50 ft. E. of W. line.	1935	635	983	"			162	300	8	Black water at 80 ft.
6	3	B. Kindree No. 4	800 ft. N. of S. road 1,200 ft. W. of E. road.	1935	622	1,030	"			85	325	6	Black water at 80 and 490 ft.
6	3	Springvale Gas Co. Hodge No. 1	300 ft. S. of N. road 50 ft. E. of W. line.		633		"						
6	3	Dominion Natural Gas Co.	1,700 ft. N. of S. road 50 ft. E. of W. line.	1928	633	996	"			Dry hole		25	
6	3	J. Mitchell No. 1	25 ft. N. of S. road 1,600 ft. W. of E. road.	1928	621	977	"			Dry hole		46	Fresh water at 60 ft. Black water at 540 ft.
6	3	W. C. Patterson B. Kindree No. 1.		1934		980	"			Dry hole		4	Fresh water at 75 ft. Black water at 500 ft.
7	3	Dominion Natural Gas Co. Milo Wood Estate No. 2	1,250 ft. S. of N. road 100 ft. W. of E. line.	1924	630	985	"	866	Grimsby	18	325	27	
7	3	Cartwright T. Snowden No. 1	1,000 ft. N. of S. road 300 ft. E. of W. road.	1936	636	997	"			Dry hole		24	Black water at 53 ft.
8	3	Dominion Natural Gas Co. M. Wood No. 1.		1924		991	"	904	Grimsby	43	215	22	

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
9	3	A. W. Doughty No. 2	1,150 ft. S. of N. road 100 ft. W. of E. line.	1924	663	1,000	Norfolk	885	Grimsby	60	235	16	
10	3	Dominion Natural Gas Co. John Henning No. 2	1,200 ft. N. of S. road 50 ft. W. of E. line.	1931	661	1,057	"			100	374	15	Fresh water at 30 and 90 ft. Black water at 540 ft.
11	3	Elva V. Walker	1,175 ft. N. of S. road 600 ft. W. of E. line.	1931	654	996	"			Dry hole		10	Fresh water at 40 ft. Black water at 530 ft.
12	3	Dominion Natural Gas Co.	NW. Corner		663	981	"			Dry hole		26	
12	3	Sterling Gas Synd. C. Hare No. 3	1,875 ft. S. of N. road 350 ft. W. of E. line	1933	655	1,042	"	873 998	Clinton Whirlpool	40	295	14	Sulphur water at 50 ft.
12	3	C. Hare No. 2	2,300 ft. S. of N. road 200 ft. W. of E. line	1933	659	986	"	835 885	Clinton Grimsby	40	300	23	Sulphur water at 53 ft.
12	3	C. Hare No. 1	50 ft. N. of S. road 1,000 ft. E. of W. line	1933	642	982	"	862 888	Clinton Grimsby	27	305	10	Fresh water at 34 ft.
13	3	Dominion Natural Gas Co. J. Walker No. 2	2,100 ft. S. of N. road 450 ft. E. of W. line.	1930	653	1,004	"			Dry hole		22	Fresh water at 55 and 78 ft. Black water at 560 ft.
13	3	Dominion Natural Gas Co.	SW. Corner	1906	645	1,020	"	965	Whirlpool	108		14	
13	3	Sterling Gas Synd. A. Wedreick No. 1	50 ft. N. of S. road 950 ft. W. of E. line.	1933	647	1,009	"			70	285	16	Sulphur water at 80 ft.
15	3	E. Bartlett No. 1	925 ft. N. of S. road 50 ft. E. of W. line	1933	636	982	"	841 880	Clinton Grimsby	60	325	15	Sulphur water at 56 ft.
15	3	Dominion Natural Gas Co.	SE. Corner	1906	604	984	"			Dry hole		5	
16	3	R. M. Lofthouse No. 1	1,100 ft. S. of N. road 350 ft. W. of E. line	1930	640	1,037	"	853 975	Clinton	56	276	19	Fresh water at 86 ft. Black water at 530 ft.
2	4	Dominion Natural Gas Co.	2,000 ft. N. of S. road 500 ft. E. of W. line.		664	1,001	"	905	Grimsby	9		40	

2	4	E. N. Miller No. 1	50 ft. N. of S. road 800 ft. E. of W. line.	1923	658	1,006	"	887		16	460	40	
2	4	W. C. Patterson E. Miller No. 1	1,100 ft. N. of S. road 25 ft. W. of E. line.	1935	663	996	"			83	310	32	Fresh water at 55 ft.
3	4	Furlong No. 1	700 ft. N. of S. road 900 ft. W. of E. line.		639	926	"			107	350	14	Sulphur water at 70 ft.
3	4	Dominion Natural Gas Co. R. J. Carpenter No. 1		1929		915	"	819 830	Clinton Grimsby	38	520	14	
4	4	W. J. Robinson No. 1	SW. Corner	1924		990	"			Dry hole		46	
4	4	F. W. Reicheld J. B. McKenzie No. 1	2,200 ft. N. of S. road 600 ft. W. of E. line	1937	691	990	"	869 898	Clinton	18	475	32	
4	4	J. B. McKenzie No. 2	3,200 ft. N. of S. road 400 ft. W. of E. line	1937	676	990	"	868 898	Clinton Grimsby	43	475	28	
4	4	J. B. McKenzie No. 3	800 ft. N. of S. road 600 ft. W. of E. line.	1938	656		"						
5	4	Geo. Saunders No. 1	40 ft. E. of W. line 1,650 ft. S. of N. road	1937	666	1,047	"	851 983	Clinton	43	500	26	
5	4	W. C. Patterson Geo. Saunders No. 2	2,200 ft. S. of N. road 1,000 ft. E. of W. line.	1935	671	990	"			Dry hole		26	Fresh water at 60 ft. Sulphur water at 156 ft.
5	4	Delhi Gas Synd. Craddock No. 1	1,500 ft. N. of S. road 50 ft. W. of E. line.	1935	667	990	"	890	Grimsby	90	485	33	Water at 100 ft.
5	4	Craddock No. 2	100 ft. N. of S. road 100 ft. W. of E. line.	1935	665	1,003	"			Dry hole		25	Water at 50 and 150 ft.
5	4	Craddock No. 3	1,100 ft. N. of S. road 950 ft. W. of E. line.	1935	663	991	"	896	Grimsby	46	465	34	Water at 110 ft.
6	4	Chas. Back No. 1	2,000 ft. S. of N. road 1,600 ft. W. of E. road.	1935	667	981	"			Dry hole		23	Water at 110 ft.
7	4	F. W. Reicheld M. Wood No. 1	1,000 ft. N. of S. road 150 ft. E. of W. road.	1936	650	1,015	"			Dry hole		33	Fresh water at 79 ft. Show of gas at 848 and 966 ft.
7	4	Delhi Gas Synd. Wm. Doughty No. 1	150 ft. S. of N. road 100 ft. W. of E. line.	1935	666	977	"			Dry hole		46	Water at 60 ft.
8	4	Dominion Natural Gas Co. M. A. Wood No. 1	1,700 ft. S. of N. road 100 ft. W. of E. line.	1924		989	"	847	Clinton	18	384	37	
9	4	Dominion Natural Gas Co.	400 ft. S. of N. road 1,000 ft. E. of W. line.	1930	661	972	"			18			

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
9	4	F. Reicheld M. Woods	1,300 ft. N. of S. road 800 ft. E. of W. line.	1937	666	981	Norfolk	.....	.....	Dry hole	.....	27	Water at 95 ft., rose 20 ft.
9	4	A. W. Doughty No. 1	1,950 ft. N. of S. road 550 ft. W. of E. line.	1937	663	967	"	.....	.....	Dry hole	.....	34	Sulphur water at 30 ft.
10	4	C. Warner No. 5	2,600 ft. N. of S. road 500 ft. W. of E. line.	1936	655	952	"	.....	.....	Dry hole	.....	34	Sulphur water at 65 ft., rose 35 ft.
10	4	C. Nicol No. 2	1,900 ft. N. of S. road 500 ft. E. of W. line.	1936	662	958	"	.....	.....	Dry hole	.....	33	Sulphur water at 75 ft., rose 40 ft.
10	4	Dominion Natural Gas Co. C. Nicol No. 1	900 ft. S. of N. road 50 ft. E. of W. line.	1930	658	975	"	.....	.....	203	462	28	Fresh water at 73 ft. Black water at 568 ft.
10	4	C. L. Warner No. 1	50 ft. N. of S. road 950 ft. E. of W. line.	1931	670	957	"	.....	.....	Dry hole	.....	21	Fresh water at 32 and 60 ft. Black water at 530 ft.
10	4	F. W. Reicheld C. Werner No. 1	550 ft. S. of N. road 750 ft. W. of E. line	1934	650	980	"	827 952	Clinton Whirlpool	170	455	17	Fresh water at 94 ft.
11	4	W. C. Patterson W. E. Tyrell No. 1	250 ft. S. of N. road 750 ft. W. of E. line.	1936	641	960	"	.....	.....	Dry hole	.....	34	Fresh water at 47 and 68 ft.
11	4	W. E. Tyrell No. 2	300 ft. S. of N. road 50 ft. W. of E. line	1936	637	966	"	839 855	.....	.....	410	19	Black water at 62 ft.
11	4	W. E. Tyrell No. 3	1,800 ft. S. of N. road 500 ft. E. of W. line	1936	641	958	"	831 852	.....	.....	460	35	Fresh water at 55 ft.
11	4	W. E. Tyrell No. 4	1,850 ft. S. of N. road 600 ft. W. of E. line.	1936	649	.....	"						
11	4	W. E. Tyrell No. 5	900 ft. S. of N. road 700 ft. E. of W. line.	1936	635	944	"	.....	.....	Dry hole	.....	24	Black water at 33 ft. Show of gas at 841 ft.
12	4	Hiawatha Gas Synd David Hill No. 2	50 ft. N. of S. road 1,000 ft. W. of E. road.	1937	662	1,000	"	891	Grimsby	30	190	25	Sulphur water at 103 ft., rose 73 ft.

12	4	W. C. Patterson W. E. Tyrell No. 1	500 ft. N. of S. road 1,200 ft. W. of E. road	1936	663	954	"	834 851			460	23	Fresh water at 65 ft. Black water at 667 ft.
12	4	Hoover and May No. 3	1,000 ft. S. of N. road 50 ft. W. of E. line.	1923	637	950	"	830	Grimsby	20	280	0	
13	4	Hoover and May	1,900 ft. S. of N. road 900 ft. E. of W. line.	1922	621	946	"	830	Grimsby	35	290		
13	4	R. B. Pope	1,650 ft. S. of N. road 550 ft. E. of W. line	1933	631	936	"	814 854	Clinton Grimsby	32	360	0	Fresh water at 33 ft.
13	4	R. B. Pope B. Ionson No. 2	50 ft. S. of N. road 800 ft. E. of W. line	1933	661	943	"	837 863	Clinton Grimsby	50	485	14	Sulphur water at 62 ft.
13	4	Union Gas Co	800 ft. S. of N. road 250 ft. W. of E. line.	1931	649	955	"			Dry hole		14	Fresh water at 60 ft.
16	4	Dominion Natural Gas Co J. C. Bush No. 1.		1913		959	"	865	Grimsby	130	405	17	
3	5	Dominion Natural Gas Co	SW. Corner	1935	668	975	"			Dry hole		25	Sulphur water at 85 ft.
3	5	W. Hunt No. 1	50 ft. N. of S. road 650 ft. W. of E. line	1935	667	1,015	"	841 972	Clinton Whirlpool	120	435	20	Fresh water at 60 ft.
3	5	Dominion Natural Gas Co	850 ft. N. of S. road 550 ft. W. of E. line	1935	676	980	"	844 888	Clinton Grimsby	30	485	44	Sulphur water at 104 ft.
4	5	O. Parkinson No. 1	SE. Corner	1935	677	1,027	"	850 986		40	520	29	Fresh water at 65 ft.
4	5	F. Reicheld O. Parkinson No. 2	50 ft. N. of S. road 1,300 ft. W. of E. line.	1935	677	985	"			Dry hole		31	Sulphur water at 150 ft.
6	5	Dominion Natural Gas Co J. Mitchell No. 1	800 ft. N. of S. road 50 ft. E. of W. line.	1928	669	977	"			Dry hole		46	Fresh water at 60 ft. Black water at 540 ft.
6	5	Dominion Natural Gas Co		1928		965	"	834 872	Clinton Grimsby	25		46	Fresh water at 64 ft. Black water at 517 ft.
7	5	V. and L. McDonald No. 1	SW. Corner	1928		1,026	"	848 966	Clinton Whirlpool	30	450	47	Fresh water at 73 ft. Black water at 518 ft.
7	5	V. McDonald No. 2		1928		958	"	824	Clinton	25	465	35	Fresh water at 55 ft. Black water at 505 ft.
7	5	Eliza McDonald No. 1	1,000 ft. N. of S. road 600 ft. W. of E. line	1928	668	968	"	844 868	Clinton Grimsby	210	455	38	Fresh water at 50 and 100 ft. Black water at 510 ft.
8	5	Dominion Natural Gas Co B. Hurst No. 1	1,500 ft. N. of S. road 50 ft. W. of E. line.	1927	660	963	"			Dry hole		23	Fresh water at 62 ft. Black water at 500 ft.

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
8	5	F. McSarley		1928		955	Norfolk			Dry hole		35	Fresh water at 70 and 115 ft. Black water at 495 ft.
9	5	W. C. Patterson H. Bradley No. 3	2,200 ft. S. of N. road 900 ft. W. of E. line.	1935	663	958	"			Dry hole		30	Fresh water at 76 ft.
10	5	H. Bradley No. 1	100 ft. S. of N. road 1,000 ft. E. of W. line.	1935	658	940	"			37	520	14	Fresh water at 80 ft. Black water at 460 ft.
10	5	H. Bradley No. 3	1,000 ft. S. of N. road 200 ft. E. of W. line	1935	667	993	"	850 948	Grimsby Whirlpool	25	525	24	Fresh water at 87 ft.
10	5	Fred Reicheld No. 1	200 ft. N. of S. road 900 ft. W. of E. line.	1934	634	937	"	835	Grimsby	30	475	6	Sulphur water at 55 ft.
10	5	Fred Reicheld No. 2	1,200 ft. N. of S. road 900 ft. W. of E. line	1934	642	940	"	801 840	Clinton Grimsby	200	475	7	Sulphur water at 60 ft.
10	5	Fred Reicheld No. 3	2,500 ft. N. of S. road 900 ft. W. of E. line.	1934	662	959	"	845	Grimsby	28	475	25	Fresh water at 42 ft.
10	5	Fred Reicheld No. 4	1,200 ft. S. of N. road 900 ft. W. of E. line.	1935	666	937	"			Dry hole		8	
10	5	Fred Reicheld No. 5		1935		996	"	818 943	Clinton Whirlpool	157	505	22	Fresh water at 42 ft.
11	5	Fred Reicheld E. Pond No. 1.	300 ft. N. of S. road 100 ft. W. of E. line	1936	632	975	"	817 935	Clinton Whirlpool	30	510	10	Water at 50 ft.
11	5	E. Pond No. 2	200 ft. N. of S. road 1,000 ft. W. of E. line.	1936	643	953	"	841	Grimsby	212	515	16	Fresh water at 60 ft., rose 50 ft.
11	5	F. W. Reicheld J. R. Pond No. 1	1,100 ft. N. of S. road 900 ft. E. of W. line	1934	661	969	"	835 951	Clinton Whirlpool	58	515	26	Fresh water at 72 ft.
11	5	E. Pond No. 4	1,750 ft. N. of S. road 1,050 ft. E. of W. line.	1937	658	954	"	835	Clinton	37	470	20	

12	5	Frank Pond No. 1	2,100 ft. S. of N. road 1,200 ft. W. of E. road	1936	658	951	"	839 843	Clinton		475	24	Fresh water at 55 and 78 ft.
12	5	Frank Pond No. 2	1,800 ft. S. of N. road 100 ft. E. of W. line.	1936	663	949	"	851	Grimsby		475	24	Fresh water at 80 ft.
14	5	Dominion Natural Gas Co. J. Peacock No. 1	2,000 ft. S. of N. road 150 ft. W. of E. line	1927	664	956	"	845 864	Clinton Grimsby	49	305	9	Fresh water at 50 ft. Black water at 505 ft.
14	5	J. Peacock No. 2	NE. Corner	1927	670	952	"	834		30	465	20	Fresh water at 95 ft. Black water at 510 ft.
14	5	Union Gas Co.	50 ft. N. of S. road 900 ft. E. of W. line.	1931	659	959	"			160	430	10	Sulphur water at 79 ft.
14	5	Norhal Gas Synd. H. E. Elliott No. 2.	SE. Corner	1934	652	962	"	833	Clinton	33	480	14	Fresh water at 45 ft.
14	5	H. Elliott No. 3	400 ft. N. of S. road 1,050 ft. W. of E. line.	1934	659	973	"	843	Clinton	125	480	13	Fresh water at 55 ft.
14	5	H. Elliott No. 4	1,350 ft. N. of S. road 1,050 ft. W. of E. line.	1934	666	972	"			Dry hole		15	Sulphur water at 130 ft.
14	5	H. Elliott No. 5	1,100 ft. S. of N. road 100 ft. W. of E. line.	1934	660	967	"	830 867	Clinton	10		11	Sulphur water at 140 ft.
15	5	Dominion Natural Gas Co. W. R. Lofthouse No. 1	750 ft. S. of N. road 850 ft. W. of E. line.	1927	663	948	"	833	Clinton	88	470	23	Fresh water at 85 ft. Black water at 492 ft.
15	5	Dominion Natural Gas Co.	850 ft. S. of N. road 500 ft. W. of E. line.	1927	655	953	"			Dry hole		23	Fresh water at 75 ft. Black water at 465 ft.
16	5	A. C. Lofthouse No. 1	800 ft. S. of N. road 600 ft. E. of W. line	1927	646	933	"	800 834	Clinton Grimsby	30	465	18	Fresh water at 80 ft. Black water at 474 ft.
17	5	Otterville Natural Gas Synd. E. O. Booth No. 2	50 ft. S. of N. road 1,000 ft. E. of W. line.	1934	666	935	"			Dry hole		16	Fresh water at 60 ft. Black water at 300 ft.
17	5	F. Booth No. 1	NW. Corner	1933	654	931	"	809 834	Clinton Grimsby	50	400	32	Fresh water at 70 ft.
17	5	Dominion Natural Gas Co.		1913		945	"	825 860	Clinton Grimsby	52	385	24	
17	5	A. Stewart No. 1	50 ft. N. of S. road 800 ft. W. of E. line	1935	657	980	"	824 879	Clinton Grimsby	120	280	9	Sulphur water at 205 ft.
1	6	Adrian Gas Co. J. Jacques No. 1	2,100 ft. S. of N. road 600 ft. E. of W. road.	1936	681	976	"			Dry hole		64	Fresh water at 120 ft. Black water at 550 ft.
1	6	Wm. Jacques No. 1	1,800 ft. N. of S. road 400 ft. E. of W. road.	1936	669	965	"			Dry hole		45	Fresh water at 90 ft. Black water at 275 ft.

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
10	6	W. C. Patterson Jonson No. 1	100 ft. N. of S. road 100 ft. E. of W. line.	1935	666	956	Norfolk	.....	.....	55	415	26	Fresh water at 68 ft. Black water at 495 ft.
10	6	Jonson No. 2	900 ft. N. of S. road 100 ft. E. of W. line	1935	670	1,002	"	827 944	Clinton Whirlpool	57	405	20	Fresh water at 18 ft. Black water at 491 ft.
12	6	Dominion Natural Gas Co	1,200 ft. S. of N. road 50 ft. W. of E. line.	1925	659	940	"	.....	.....	Dry hole	.....	24	Fresh water at 60 and 80 ft.
13	6	Sandusk Gas Synd C. Doherty.	.....	1935	.....	948	"	.....	.....	Dry hole	.....	26	Fresh water at 57 ft.
13	6	C. Doherty	SW. Corner	1935	662	951	"	831 863	Clinton Grimsby	39	478	11	Sulphur water at 48 ft.
13	6	Sandusk Gas Synd	1,100 ft. N. of S. road 50 ft. E. of W. line.	1935	670	955	"	853	Grimsby	32	500	20	Black water at 97 ft.
14	6	Dominion Natural Gas Co E. S. Pond No. 2	1,400 ft. S. of N. road 200 ft. W. of E. line.	1928	673	951	"	.....	.....	Dry hole	.....	18	Fresh water at 50 and 100 ft. Black water at 470 ft.
15	6	Dominion Natural Gas Co Arthur Lofthouse	1,900 ft. N. of S. road 400 ft. W. of E. line	1928	.....	945	"	815 845	Clinton	84	460	30	Fresh water at 70 ft. Black water at 460 ft.
15	6	W. J. Wilson No. 1	400 ft. N. of S. road 1,000 ft. W. of E. line	1927	665	955	"	840 846	Clinton Grimsby	58	468	12	
16	6	Walpole Gas Synd W. J. Shuter No. 6	2,300 ft. S. of N. road 250 ft. E. of W. line.	1937	657	928	"	.....	.....	Dry hole	.....	14	
16	6	W. J. Shuter No. 2	750 ft. S. of N. road 1,100 ft. W. of E. line	1933	674	932	"	.....	Clinton Grimsby	70	430	14	Fresh water at 45 ft.
16	6	Walpole Gas Synd	1,800 ft. N. of S. road 1,000 ft. W. of E. line.	1933	652	919	"	798	Clinton	275	450	13	Fresh water at 56 ft.
16	6	W. J. Shuter No. 3	950 ft. S. of N. road 25 ft. E. of W. line	1933	664	925	"	790 850	Clinton Grimsby	37	435	9	Fresh water at 33 ft.
16	6	Walpole Gas Synd	1,700 ft. S. of N. road 950 ft. E. of W. line	.....	665	932	"	.....	Clinton Grimsby	70	430	14	Fresh water at 45 ft.

16	6	Walpole Gas Synd.	50 ft. S. of N. road 500 ft. W. of E. line	1932	673	924	"	791 817	Clinton	270	450	9	Sulphur water at 58 ft.
16	6	J. Shuter No. 1	1,750 ft. N. of S. road 450 ft. E. of W. line.	1933	667	936	"			Dry hole		27	Show of gas in Clinton Fresh water at 34 ft.
16	6	W. N. Shuter No. 4	150 ft. N. of S. road 650 ft. E. of W. line.	1933	659	966	"		Clinton	230	440	14	Fresh water at 35 ft.
16	6	Dominion Natural Gas Co. J. Y. Shuter No. 1.		1924		935	"	831	Grimsby	21	425	15	
17	6	M. C. Biggar No. 1	2,200 ft. N. of S. road 50 ft. E. of W. line.	1925	655	930	"			Dry hole		15	
17	6	Walpole Gas Synd. M. Biggar No. 3	1,500 ft. S. of N. road 550 ft. W. of E. line.	1933	671	933	"			Dry hole		19	Fresh water at 56 ft.
17	6	M. Biggar No. 5	600 ft. S. of N. road 350 ft. E. of W. line.	1933	668	922	"			Dry hole		4	Fresh water at 60 ft.
17	6	M. Biggar No. 4	1,350 ft. S. of N. road 50 ft. E. of W. line	1933	654	914	"		Clinton Grimsby	175	435	3	Fresh water at 28 ft
17	6	M. Biggar No. 2	650 ft. S. of N. road 150 ft. W. of E. line	1933	664	914	"	791 818	Clinton Grimsby	40		14	
17	6	M. Biggar No. 1	50 ft. S. of N. road 600 ft. W. of E. line	1932	666	918	"	780 804	Clinton	165	455	7	Fresh water at 15 ft.
18	6	J. Forrest No. 1	2,200 ft. N. of S. road 500 ft. W. of E. road	1934	681	933	"	809 848	Clinton Grimsby	157	375	32	Fresh water at 65 ft.
18	6	J. Forrest No. 2	2,200 ft. N. of S. road 1,550 ft. W. of E. road.	1934	673	931	"			Dry hole		29	Fresh water at 26 ft.
18	6	J. Forrest No. 3	1,250 ft. N. of S. road 25 ft. W. of E. road	1936	676	937	"	816 844	Clinton Grimsby	456	400	29	Water at 80 ft., rose 50 ft.
18	6	J. Forrest No. 4	700 ft. N. of S. road 800 ft. W. of E. road	1936	673	941	"	826 846	Clinton Grimsby	125	410	29	Water at 40 ft.
18	6	J. Forrest No. 5	150 ft. N. of S. road 300 ft. E. of W. line.	1937	674	936	"			Dry hole		28	Fresh water at 82 ft.
18	6	J. Forrest No. 6	300 ft. N. of S. road 50 ft. W. of E. road	1937	674	941	"	816 842	Clinton Grimsby	100	400	32	Fresh water at 56 ft., rose 25 ft.
2	7	W. C. Patterson B. Fallis No. 2.		1934		921	"			Dry hole		17	Fresh water at 38 ft. Black water at 494 ft.
3	7	McCarter	200 ft. S. of N. road 200 ft. W. of E. road.		686		"			Dry hole			

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
5	7	Domestic Natural Gas Co..... W. J. Saunders No. 1.....	1,200 ft. S. of N. road..... 900 ft. W. of E. line.	1935	685	955	Norfolk	869	Grimsby	17	375	20	Fresh water at 125 ft. Sulphur water at 400 ft.
5	7	Thos. McNeill No. 1.....	100 ft. S. of N. road..... 900 ft. W. of E. line.....	1935	691	970	"	810 920	Clinton Whirlpool	54	375	19	Fresh water at 30 ft. Sulphur water at 80 ft.
6	7	Wm. Saunders No. 2.....	100 ft. S. of N. road..... 100 ft. E. of W. line.....	1935	685	1,002	"	870 945	Grimsby Whirlpool	8	370	10	Show of oil. Fresh water at 50 ft. Sulphur water at 420 ft.
7	7	Economy Gas Synd..... C. E. Davidson No. 1.....	100 ft. S. of N. road..... 700 ft. E. of W. line.....	1936	678	997	"	835 947	Clinton Whirlpool	10	380	30	Fresh water at 47 ft. Black water at 232 ft.
8	7	Ladd and Knight..... C. Columbus No. 1.....	2,500 ft. S. of N. road..... 900 ft. W. of E. line.....	1936	690	944	"	825 853	Clinton Grimsby	35	435	23	Fresh water at 85 ft. Black water at 155 ft.
8	7	Roy Batler No. 1.....	900 ft. S. of N. road..... 600 ft. W. of E. line.	1935	683	930	"	.....	.....	53	450	23	Fresh water at 65 ft. Black water at 170 ft.
9	7	Foster Swing No. 1.....	100 ft. S. of N. road..... 700 ft. W. of E. line.	1936	684	936	"	.....	.....	Dry hole	.....	24	Black water at 75 ft.
10	7	W. C. Patterson..... D. C. Allen.....	2,100 ft. S. of N. road..... 300 ft. E. of W. line.	1934	661	917	"	.....	.....	Dry hole	.....	6	Fresh water at 23 ft. Black water at 465 ft.
12	7	W. J. Fallis No. 1.....	2,250 ft. S. of N. road..... 600 ft. E. of W. line.....	1934	664	974	"	808 920	Clinton Whirlpool	37	500	19	
13	7	W. Bousfield No. 2.....	1,400 ft. N. of S. road..... 50 ft. E. of W. road.	1934	666	928	"	.....	.....	Dry hole	.....	20	Water at 45 ft. Black water at 490 ft.
13	7	W. Bousfield No. 1.....	2,000 ft. S. of N. road..... 1,800 ft. W. of E. line.	1933	653	963	"	.....	.....	100	500	3	
13	7	Geo. Perrott No. 2.....	1,850 ft. N. of S. road..... 700 ft. W. of E. line.	1934	669	930	"	.....	.....	40	500	31	Fresh water at 53 ft. Black water at 480 ft.
13	7	Geo. Perrott No. 1.....	100 ft. N. of S. road..... 850 ft. W. of E. line.	1933	674	943	"	.....	.....	Dry hole	.....	25	Fresh water at 26 ft. Sulphur water at 480 ft.
14	7	Dominion Natural Gas Co.....	NE. Corner.....	1925	685	937	"	.....	.....	5	.....	35	Water at 69 ft.

15	7	Dominion Natural Gas Co.	50 ft. S. of N. road 750 ft. W. of E. line.	1925	686	930	"	800	Clinton	96	485	24	
15	7	Walpole Gas Synd. A. Porter No. 1	1,900 ft. N. of S. road 300 ft. W. of E. line.	1933	668	931	"			26	425	24	Fresh water at 46 ft.
15	7	A. Porter No. 2	50 ft. N. of S. road 600 ft. W. of E. line.	1933	676	925	"			28	425	31	Sulphur water at 57 ft.
16	7	Walpole Gas Synd	SW. Corner	1933	671	924	"		Clinton	87	435	13	Water at 44 ft.
16	7	R. J. Shuter No. 3	1,600 ft. N. of S. road 1,000 ft. W. of E. line.	1933	681	932	"			14		13	Water at 38 ft.
16	7	R. J. Shuter No. 3	850 ft. N. of S. road 950 ft. E. of W. line	1933	682	931	"	813 837	Clinton Grimsby	46		16	Water at 45 ft.
16	7	Dominion Natural Gas Co. C. P. McCarthy No. 1	900 ft. S. of N. road 50 ft. E. of W. line.	1925	692	939	"	834	Grimsby	78		13	Fresh water at 45 ft.
16	7	A. C. Porter No. 1	50 ft. S. of N. road 650 ft. W. of E. line	1925	696	896	"	795 820	Clinton Grimsby	314	500	17	
17	7	D. McBurney No. 1	900 ft. S. of N. road 50 ft. E. of W. line	1924	694	913	"	813 830	Clinton Grimsby	137	500	18	
17	7	W. Carpenter No. 1	2,000 ft. S. of N. road 600 ft. W. of E. line	1924	689	915	"	819 830	Clinton Grimsby	58	520	14	
17	7	Walpole Gas Synd A. Porter No. 1	700 ft. N. of S. road 500 ft. E. of W. line.	1932	671	915	"	780	Clinton	66	445	3	Sulphur water at 76 ft.
17	7	A. Porter No. 3	1,500 ft. N. of S. road 100 ft. W. of E. line.	1935	689	916	"	798	Clinton	90	400	12	Water at 105 ft.
17	7	A. Porter No. 4	1,400 ft. N. of S. road 900 ft. W. of E. line	1935	683	924	"	772 799	Clinton Grimsby	34	390	13	Fresh water at 85 ft.
18	7	Mrs. McBurney No. 5	2,100 ft. N. of S. road 1,000 ft. W. of E. road.	1935	683	926	"	820	Grimsby	155	395	10	Water at 50 ft.
18	7	Dominion Natural Gas Co. O. Easton No. 1	NW. Corner	1924	694	917	"	800 825	Clinton Grimsby	12	500	16	
18	7	O. Easton No. 2	1,200 ft. S. of N. road 300 ft. E. of W. line	1924	691	914	"	811 836	Clinton Grimsby	55	487	10	
18	7	F. Laidlaw No. 2	1,950 ft. S. of N. road 300 ft. W. of E. line	1924	688	897	"	788 817	Clinton Grimsby	414	500	18	
18	7	Walpole Gas Synd		1933		914	"	794	Clinton	31	430	19	
18	7	W. McBurney No. 1	1,500 ft. N. of S. road 850 ft. E. of W. line.	1934	674	914	"	813	Grimsby	35	375	26	Fresh water at 110ft.

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
18	7	Walpole Gas Synd.	2,000 ft. N. of S. road 50 ft. W. of E. line.	1933	687	924	Norfolk	.....	Grimsby	325	445	20	Fresh water at 63 ft.
18	7	Walpole Gas Synd.	50 ft. N. of S. road 800 ft. W. of E. line	1932	671	914	"	776 806	Clinton Grimsby	200	455	28	Fresh water at 47 ft.
19	7	Dominion Natural Gas Co. F. Laidlaw No. 1	1,900 ft. S. of N. road 800 ft. E. of W. line.	1924	684	924	"	855	.....	140	450	13	
19	7	C. W. Featherstone Thos. Falls No. 1	1,500 ft. N. of S. road 200 ft. W. of E. line	1922	670	913	"	786 816	Clinton Grimsby	.....	.....	7	Show of gas.
19	7	C. W. Featherstone	1,500 ft. S. of N. road 50 ft. W. of E. line	1922	673	914	"	782 800	Clinton Grimsby	204	480	0	
19	7	C. W. Featherstone	NE. Corner	1923	681	915	"	789 809	Clinton Grimsby	38	420	27	
2	8	Otterville Nat. Gas Synd. Wm. Rutherford No. 1	.....	1933	.....	899	"	752 796	Clinton Grimsby	30	425	30	Fresh water at 30 ft. Sulphur water at 300 ft.
3	8	McCarter, Allan and Marshall McCarter No. 1	200 ft. S. of N. road 200 ft. W. of E. road	1935	686	1,042	"	772 936	Clinton Whirlpool	15	365	12	
5	8	Ladd and Knight J. Wodham No. 1	350 ft. N. of S. road 900 ft. E. of W. line	1935	689	992	"	860 935	Grimsby Whirlpool	106	455	20	Fresh water at 45 ft.
6	8	G. Dossar No. 1	600 ft. N. of S. road 1,700 ft. W. of E. road	1935	694	1,000	"	818 942	Clinton Whirlpool	123	455	18	Fresh water at 62 ft.
6	8	Williamson No. 1	600 ft. N. of S. road 900 ft. W. of E. road.	1936	689	984	"	.....	.....	84	465	11	Fresh water at 45 ft.
8	8	Dominion Natural Gas Co. Jas. McCarthy No. 1	.....	1926	.....	957	"	801 822	Clinton Grimsby	314	493	14	Fresh water at 55 ft.
8	8	W. C. Patterson Geo. Yule No. 1	550 ft. N. of S. road 600 ft. E. of W. line.	1934	683	910	"	.....	.....	Dry hole	.....	9	Fresh water at 40 ft.
8	8	Adrian Gas Co. Geo. Yule No. 1	1,800 ft. S. of N. road 100 ft. W. of E. road.	1936	694	932	"	.....	.....	Dry hole	.....	19	Fresh water at 32 and 80 ft. Black water at 275 ft.

11	8	S. E. Cartwright J. M. Donovan No. 1	650 ft. N. of S. road 650 ft. E. of W. line.	1936	685	934	"			10	450	18	Fresh water at 85 ft. Black water at 110 ft.
11	8	J. M. Donovan No. 2	2,200 ft. N. of S. road 450 ft. E. of W. line.	1936	688	932	"			60	440	16	Fresh water at 105 ft., rose 82 ft. Black water at 125 ft.
11	8	J. M. Donovan No. 3	1,000 ft. N. of S. road 250 ft. E. of W. line.	1936	687	932	"			40	500	15	Black water at 75 ft.
11	8	J. M. Donovan No. 4	50 ft. E. of W. line 3,000 ft. N. of S. road.	1937	685	924	"			46	480	15	
11	8	J. A. Fallis No. 1	1,500 ft. E. of W. line 2,200 ft. N. of S. road.	1937	686	925	"			Dry hole		16	Black water at 95 ft., rose 35 ft.
12	8	W. C. Patterson E. Devine No. 1	1,350 ft. S. of N. road 850 ft. W. of E. road.	1934	675	900	"			Dry hole		7	Fresh water at 23 ft. Sulphur water at 450 ft.
12	8	E. Devine No. 2	1,850 ft. S. of N. road 900 ft. W. of E. road.	1934	669	900	"			Dry hole		4	Fresh water at 23 ft. Sulphur water at 450 ft.
12	8	Dominion Natural Gas Co	1,900 ft. N. of S. road 350 ft. W. of E. line.	1936	677	911	"	818	Clinton	25	384	11	
12	8	G. Devine No. 1	800 ft. S. of N. road 50 ft. E. of W. line.	1926	688	909	"			Dry hole		12	Fresh water at 63 ft. Black water at 456 ft.
13	8	Thos. Jaques No. 1	1,450 ft. N. of S. road 50 ft. W. of E. line.	1926	676	912	"	788	Clinton	65	390	5	
13	8	W. C. Patterson G. Devine No. 1	1,650 ft. S. of N. road 50 ft. E. of W. line.	1933	685	925	"			325	400	7	Fresh water at 25 ft. Sulphur water at 480 ft.
13	8	G. Devine No. 2	1,400 ft. S. of N. road 1,100 ft. E. of W. road.	1936	688	918	"	801			225	13	Fresh water at 60 ft.
15	8	Dominion Natural Gas Co D. Columbus No. 1	1,800 ft. N. of S. road 1,000 ft. W. of E. line	1926	684	915	"	801 819	Clinton Grimsby	25	408	13	
15	8	S. McKechnie E. Wright No. 1	1,600 ft. N. of S. road 650 ft. W. of E. line.	1936	689	920	"			50	450	15	Fresh water at 45 ft. Black water at 150 ft.
15	8	E. Wright No. 2	1,450 ft. N. of S. road 1,250 ft. W. of E. line.	1937	685	916	"			92	450	10	
16	8	Dominion Natural Gas Co E. A. Wright No. 1.	SW. Corner	1925	690	926	"	817	Clinton	241	485	20	Fresh water at 50 ft. Sulphur water at 110 ft.
16	8	Ladd and Knight W. Addison No. 1	1,000 ft. N. of S. road 1,000 ft. W. of E. line.	1935	687	915	"			150	320	18	Sulphur water at 80 ft. Black water at 220 and 500 ft.
17	8	W. Willis No. 1	100 ft. N. of S. road 550 ft. E. of W. line.	1936	695	924	"				450	14	

Wells in Walpole Township, Haldimand County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
17	8	Dominion Natural Gas Co..... A. Webb No. 1.....	1,200 ft. N. of S. road..... 25 ft. E. of W. line.	1926	694	921	Norfolk	806	Clinton	21	.....	18	Fresh water at 35 ft.
17	8	Broadway Gas Synd..... Jas. Falls No. 1.....	700 ft. N. of S. road..... 250 ft. W. of E. line.....	1934	697	916	"	811 829	Clinton Grimsby	35	415	15	
18	8	Dominion Natural Gas Co.....	NE. Corner.....	1929	686	893	"	754	Clinton	43	.....	18	Fresh water at 50 ft. Black water at 520 ft.
18	8	Dominion Natural Gas Co.....	SE. Corner.....	1924	691	900	"	792 820	Clinton Grimsby	140	490	13	
19	8	Cyclops Gas Synd..... Geo. Easton No. 9.....	2,300 ft. N. of S. road..... 600 ft. E. of W. road.	1933	683	891	"	758	Clinton	20	390	26	Fresh water at 42 ft.
19	8	Geo. Easton No. 10.....	700 ft. N. of S. road..... 500 ft. E. of W. line.	1933	686	907	"	776	Clinton	20	405	14	Fresh water at 42 ft.
19	8	Dominion Natural Gas Co..... R. R. Easton No. 1.....	100 ft. S. of N. road..... 500 ft. W. of E. line.	1929	691	893	"	756	Clinton...	55	443	18	
20	8	.....	1,480 ft. E. of W. line..... 220 ft. N. of S. road.	1938	690	.....	"	.....	.....	.....	.....	.....	
21	8	L. Keen.....	275 ft. E. of W. line..... 860 ft. N. of S. road.	1938	693	.....	"	.....	.....	.....	.....	.....	
4	9	Union Gas Co.....	.....	1931	.....	912	"	.....	.....	Dry hole	.....	29	Fresh water at 46 ft.
6	9	Dominion Natural Gas Co..... Henry Johnson No. 1.....	1,400 ft. N. of S. road..... 200 ft. W. of E. line.	1929	695	910	"	.....	.....	Dry hole	.....	24	Fresh water at 35 ft. Black water at 505 ft.
7	9	Dominion Natural Gas Co.....	50 ft. N. of S. road..... 700 ft. W. of E. line.	1921	685	917	"	794	Clinton	21	355	15	
7	9	Adrian Gas Co..... J. Bonner No. 1.....	400 ft. N. of S. road..... 900 ft. E. of W. road.	1936	693	917	"	.....	.....	Dry hole	.....	16	Fresh water at 60 ft.
8	9	Dominion Natural Gas Co..... F. E. Lofthouse.....	750 ft. N. of S. road..... 850 ft. W. of E. line.	1929	701	933	"	.....	.....	Dry hole	.....	17	Fresh water at 35 ft. Black water at 510 ft.

9	9	A. Sevenpifer	700 ft. N. of S. road 800 ft. W. of E. line	1927	696	886	"	761 797	Clinton Grimsby	28	485	22	Fresh water at 35 ft. Black water at 432 ft.
13	9	Gas Finders Gas Co. G. Devine No. 1	50 ft. N. of S. road 100 ft. E. of W. road.	1935	693	919	"			Dry hole		11	Black water at 90 ft.
17	9	Walpole Gas Synd	50 ft. N. of S. road 700 ft. E. of W. line	1933	698	920	"	742 861	Clinton Whirlpool	30	400	50	Fresh water at 25 ft. Sulphur water at 225 ft.
17	9	Walpole Gas Synd	1,000 ft. N. of S. road 700 ft. E. of W. line	1933	701	912	"	755 796	Clinton Grimsby	20	480	21	Fresh water at 62 ft. Sulphur water at 450 ft.
17	9	Dominion Natural Gas Co. G. Williamson No. 1	50 ft. N. of S. road 400 ft. E. of W. line.	1929	698	905	"			Dry hole		12	Fresh water at 55 ft. Black water at 520 ft.
17	9	W. C. Patterson T. Beckerson	1,150 ft. N. of S. road 400 ft. E. of W. line.	1933	700	898	"			Dry hole			
18	9	Dominion Natural Gas Co. F. A. Mason No. 1	50 ft. S. of N. road 700 ft. E. of W. line	1927	695	880	"	758 783	Clinton Grimsby	63	400	13	Fresh water at 28 ft. Black water at 440 ft.
18	9	Dominion Natural Gas Co.	SW. Corner	1929	694	955	"	773 897	Clinton Whirlpool	241	425	1	Fresh water at 60 ft. Black water at 748 ft.
19	9	Dominion Natural Gas Co.	1,300 ft. N. of S. road 50 ft. E. of W. line.	1930	687	880	"			Dry hole		3	Fresh water at 50 ft. Black water at 480 ft.
19	9	Dominion Natural Gas Co.		1927		880	"			Dry hole		8	Fresh water at 17 ft. Black water at 430 ft.
20	9	T. J. Nixon No. 1		1928		921	"	744 866	Clinton Whirlpool	171	352	12	Fresh water at 40 ft. Black water at 432 ft.
20	9	T. J. Nixon No. 2		1928		880	"	752	Clinton	25		13	Fresh water at 45 ft. Black water at 450 ft.
6	10	T. J. Nixon No. 2	1,700 ft. S. of N. road 300 ft. W. of E. line.	1929	698	898	"			Dry hole			
9	10	Union Gas Co.	NW. Corner	1921	698	889	"			Dry hole		16	Sulphur water at 45 ft.
17	10	Dominion Natural Gas Co. J. E. Snell No. 1	700 ft. N. of S. road 100 ft. W. of E. line.	1927	688	876	"			Dry hole		14	Fresh water at 40 ft.
18	10	Dominion Natural Gas Co.	1,450 ft. N. of S. road 350 ft. W. of E. road.	1928	700	873	"			Dry hole		10	Fresh water at 20 and 70 ft. Black water at 450 ft.
19	10	Dominion Natural Gas Co.	2,300 ft. N. of S. road 50 ft. W. of E. line	1928	712	882	"	763 788	Clinton Grimsby	49	480	11	Fresh water at 50 ft. Black water at 650 ft.
19	10	Dominion Natural Gas Co.	SW. Corner	1929	706	931	"	766 879	Clinton Whirlpool	68	423	18	Fresh water at 65 ft. Black water at 440 ft.

Wells in Walpole Township, Haldimand County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
19	10	Mrs. C. Reid No. 1	1,100 ft. N. of S. road 1,000 ft. W. of E. line	1928	700	875	Norfolk	746 791	Clinton Grimsby	171	488	16	Fresh water at 35 ft. Black water at 435 ft.
20	10	W. Morphy No. 2		1929		893	"			96	462	2	Fresh water at 40 ft.
20	10	W. Morphy No. 1		1929		883	"	764 794	Clinton Grimsby	121	415	2	Fresh water at 20 ft. Black water at 475 ft.
21	10	J. Awde No. 1	900 ft. N. of S. road 25 ft. E. of W. line	1928	714	881	"	792	Grimsby	84	525	1	Fresh water at 50 ft. Black water at 460 ft.
21	10	J. Awde No. 2	900 ft. N. of S. road 500 ft. W. of E. line	1928	713	880	"	778 795	Clinton Grimsby	25	450	20	Fresh water at 50 ft. Black water at 475 ft.
9	11	Union Gas Co.	NE. Corner	1931	710	891	"			Dry hole		21	Fresh water at 79 ft.
15	11	Dominion Natural Gas Co.	SE. Corner	1929	713	886	"			Dry hole		4	Fresh water at 60 ft. Black water at 517 ft.
17	11	Dominion Natural Gas Co.	SE. Corner	1929	713	877	"			Dry hole		4	
21	11	Mohawk Gas Synd. E. McConachie No. 1	50 ft. N. of S. road 400 ft. W. of E. line.	1936	722	866	"	755	Clinton	12	315	8	
5	12	Union Gas Co.	NE. Corner	1930	724	871	"	747	Clinton			17	Show of gas.
2	13	Dominion Natural Gas Co. E. Evans No. 1.		1906		1,005	"		Grimsby			13	Show of gas.
11	13	Springvale Gas and Oil Co.		1921		860	"		Grimsby	100		17	
12	14	Springvale Gas and Oil Co.		1921		864	"		Grimsby	150		10	

Wells in Tuscarora Township, Brant County

8	3	Michener	NE. Corner	1927	676	801	Salina			Dry hole		39	Fresh water at 38 ft.
13	3	Petrol Oil and Gas Co.	3,400 ft. S. of N. road 200 ft. E. of W. line.	1926	706	2,881	"			2		82	

24	4	Petrol Oil and Gas Co. No. 49..	1,600 ft. S. of N. road..... 100 ft. E. of W. line.	1931	694	601	"	485	Clinton	22	.....	65	Abandoned. Fresh water at 68 ft.
12	5	Ajax Oil and Gas Co. No. 17...	150 ft. S. of N. road..... 620 ft. W. of E. line.	1931	678	572	"	450	Clinton	Dry hole	.....	90	Show of gas. Fresh water at 97 ft., rose 57 ft.
13	5	Ajax Oil and Gas Co. No. 16...	150 ft. S. of N. road..... 500 ft. E. of W. line.	1931	673	562	"	445	Clinton	35	225	63	Fresh water at 68 ft
14	5	Ajax Oil and Gas Co. No. 15...	NW. Corner.....	1931	662	553	"	433	Clinton	18	225	65	Fresh water at 65 ft., rose 57 ft.
14	5	Ajax Oil and Gas Co. No. 18...	1,150 ft. S. of N. road..... 200 ft. W. of E. line.	1931	671	560	"	443	Clinton	20	205	78	
14	5	Ajax Oil and Gas Co. No. 23...	2,850 ft. S. of N. road..... 200 ft. E. of W. line.....	1931	677	626	"	475 575	Clinton Whirlpool	56	249	65	Fresh water at 71 ft.
14	5	Ajax Oil and Gas Co. No. 28...	2,050 ft. S. of N. road..... 400 ft. W. of E. line.	1933	672	570	"	459	Clinton	Dry hole	.....	50	Show of gas at 459 and 566 ft. Fresh water at 64 ft.
15	5	Ajax Oil and Gas Co. No. 19...	2,150 ft. S. of N. road..... 100 ft. W. of E. line.....	1931	672	615	"	452 563	Clinton Whirlpool	158	250	72	Fresh water at 72 ft., rose 55 ft.
15	5	Ajax Oil and Gas Co. No. 20...	3,000 ft. S. of N. road..... 600 ft. W. of E. line.	1931	674	627	"	.....	.....	188	239	63	Fresh water at 67 ft.
15	5	Ajax Oil and Gas Co. No. 21...	3,050 ft. N. of S. road..... 230 ft. E. of W. line.....	.....	678	632	"	465 578	Clinton Whirlpool	40 60	233	74	Fresh water at 74 ft., rose 54 ft.
15	5	Ajax Oil and Gas Co. No. 22...	2,750 ft. N. of S. road..... 550 ft. W. of E. line.....	.....	670	629	"	458 575	Clinton Whirlpool	2 119	260	64	Fresh water at 64 ft., rose 40 ft.
15	5	Ajax Oil and Gas Co. No. 24...	2,100 ft. S. of N. road..... 200 ft. E. of W. line.....	1931	680	623	"	469 568	Clinton Whirlpool	9 58	250	79	Fresh water at 80 ft., rose 46 ft.
15	5	Ajax Oil and Gas Co. No. 26...	1,850 ft. N. of S. road..... 520 ft. E. of W. line.....	1931	680	637	"	477 587	Clinton Whirlpool	2 25	238	60	Fresh water at 61 ft.
16	5	Ajax Oil and Gas Co. No. 14...	650 ft. S. of N. road..... 100 ft. W. of E. line.	1931	663	555	"	445	Clinton	35	210	63	Fresh water at 63 ft., rose 55 ft.
16	5	Ajax Oil and Gas Co. No. 25...	3,000 ft. S. of N. road..... 250 ft. W. of E. line.	1931	682	626	"	.....	.....	47	.....	79	Fresh water at 79 ft.
16	5	Ajax Oil and Gas Co. No. 27...	2,250 ft. N. of S. road..... 400 ft. E. of W. line.....	1931	680	635	"	467 578	Clinton Whirlpool	37 7	225	64	Fresh water at 64 and 148 ft.
20	5	Petrol Oil and Gas Co. No. 61..	1,260 ft. S. of N. road..... 750 ft. E. of W. line.....	1931	691	575	"	466 572	Clinton Whirlpool	2	.....	89	Sulphur water at 100 ft.
21	5	Petrol Oil and Gas Co. No. 52..	SE. Corner.....	1931	690	589	"	470	Clinton	2	.....	51	

Wells in Tuscarora Township, Brant County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
22	5	Petrol Oil and Gas Co. No. 58..	900 ft. S. of N. road..... 290 ft. E. of W. line.....	1931	688	583	Salina	459 576	Clinton Whirlpool	Dry hole	.....	99	Show of gas. Sulphur water at 95 ft.
23	5	Petrol Oil and Gas Co. No. 51..	1,650 ft. N. of S. road..... 100 ft. W. of E. line.	1931	693	578	"	.....	.....	Dry hole	.....	74	Show of gas.
24	5	Petrol Oil and Gas Co. No. 32..	1,400 ft. S. of N. road..... 50 ft. W. of E. line.	1930	692	639	"	466	Clinton	71	227	86	
24	5	Petrol Oil and Gas Co. No. 32..	1,400 ft. S. of N. road..... 100 ft. E. of W. line.	1930	698	560	"	446	Clinton	17	205	75	
24	5	Petrol Oil and Gas Co. No. 42..	735 ft. N. of S. road..... 70 ft. E. of W. line.	1931	692	594	"	475	Clinton	3	.....	76	Fresh water at 90 ft.
24	5	Petrol Oil and Gas Co. No. 44..	2,600 ft. N. of S. road..... 80 ft. W. of E. line.	1931	703	583	"	466	Clinton	10	187	76	Abandoned.
24	5	Petrol Oil and Gas Co. No. 48..	SE. Corner.....	1931	692	582	"	462	Clinton	27	225	71	Abandoned.
26	5	Petrol Oil and Gas Co. No. 43..	SE. Corner.....	1931	697	604	"	490	Clinton	19	210	94	Fresh water at 110 ft.
1	6	Petrol Oil and Gas Co. No. 1... A. Thomas.....	2,550 ft. N. of S. road..... 25 ft. W. of E. line.....	1937	677	631	"	463 566	Clinton Whirlpool	41	215	13	Fresh water at 70 ft., rose 50 ft.
1	6	F. Loft No. 72.....	1,050 ft. S. of N. road..... 50 ft. W. of E. line.....	1935	695	645	"	485 590	Clinton Whirlpool	60	225	54	Sulphur water at 210 ft.
1	6	O. Joseph No. 73.....	2,700 ft. S. of N. road..... 50 ft. W. of E. road.....	1936	683	631	"	467 571	Clinton Whirlpool	56	230	17	Sulphur water at 310 ft.
1	6	H. Loft.....	1,000 ft. S. of N. road..... 25 ft. E. of W. line.	1936	682	590	"	468	Clinton	15	190	55	Fresh water at 62 ft., rose 50 ft.
2	6	Petrol Oil and Gas Co. No. 70..	600 ft. S. of N. road..... 100 ft. E. of W. line.....	1931	671	615	"	447 562	Clinton Whirlpool	93	190	50	Fresh water at 90 ft.
2	6	Petrol Oil and Gas Co..... T. Harris No. 1.....	1,775 ft. N. of S. road..... 1,400 ft. W. of E. road.....	1939	658	625	"	459 570	Clinton Whirlpool	76	205	20	Fresh water at 22 ft. Sulphur water at 180 ft.
3	6	Petrol Oil and Gas Co. No. 71..	1,500 ft. S. of N. road..... 500 ft. E. of W. line.....	1934	666	610	"	444 550	Clinton Whirlpool	47	200	62	

3	6	Petrol Oil and Gas Co. J. Bearfoot	50 ft. N. of S. road 2,900 ft. W. of E. road	1939	667	635	Norfolk	465 585	Clinton Whirlpool	35	230	12	Fresh water at 60 ft.
4	6	J. Burnham	4,625 ft. W. of E. road 25 ft. N. of S. road	1939	687	655	"	485 595	Clinton Whirlpool	33	220	41	Fresh water at 75 ft.
4	6	Petrol Oil and Gas Co. No. 76. F. Smith No. 1	1,850 ft. S. of N. road 600 ft. E. of W. line	1936	662	601	Salina	432 542	Clinton Whirlpool	61 61	180	32	Fresh water at 37 ft.
4	6	Petrol Oil and Gas Co. No. 77. F. Smith No. 2	3,300 ft. S. of N. road 600 ft. E. of W. line.	1936	659	585	"	450	Clinton	39	450	38	Fresh water at 57 ft., rose 12 ft.
6	6	Petrol Oil and Gas Co. No. 75. H. Skye No. 1	1,200 ft. S. of N. road 500 ft. E. of W. road.	1936	674	570	"			Dry hole		55	Fresh water at 58 ft.
14	6	Ajax Oil and Gas Co. No. 49. J. Logan No. 1	1,050 ft. S. of river road 300 ft. W. of E. line.	1936	664	600	"	542	Whirlpool	134	173	49	Fresh water at 59 ft., rose 51 ft.
14	6	Ajax Oil and Gas Co. No. 50. J. Logan No. 2	50 ft. S. of river road 150 ft. W. of E. line.	1936	647	584	"	523	Whirlpool	93	177	33	Sulphur water at 43 ft., rose 33 ft.
15	6	Ajax Oil and Gas Co. No. 44. E. and G. Doxtator No. 1	3,150 ft. S. of river road 100 ft. W. of E. line	1935	667	604	"	433 550	Clinton Whirlpool	114	221	55	Fresh water at 47 ft., rose 30 ft. Sulphur water at 74 ft., rose 37 ft.
15	6	Ajax Oil and Gas Co. No. 45. E. and G. Doxtator No. 2	2,300 ft. S. of river road 100 ft. E. of W. line	1935	662	602	"	430 546	Clinton Whirlpool	136	220	42	Sulphur water at 87 ft., rose 45 ft.
15	6	Ajax Oil and Gas Co. No. 47. I. Smoke No. 1	2,500 ft. N. of S. road 150 ft. E. of W. line.	1936	658	550	"			Dry hole		51	Fresh water at 48 ft., rose 20 ft. Sulphur water at 102 ft.
15	6	Ajax Oil and Gas Co. No. 48. E. and G. Doxtator No. 3	1,200 ft. S. of N. road 25 ft. E. of W. line	1936	687	622	"	464 569	Clinton Whirlpool	114	173	85	Sulphur water at 85 ft.
20	6	Ajax Oil and Gas Co. No. 43. S. and R. Monberry	2,500 ft. S. of N. road 250 ft. W. of E. line	1935	663	545	"	427 543	Clinton Whirlpool	11	180	50	Sulphur water at 84 ft.
2	R.R.	Petrol Oil and Gas Co. No. 69.	1,520 ft. N. of S. line 100 ft. E. of W. line	1934	673	617	"	447 553	Clinton Whirlpool	18 23	192	45	Fresh water at 45 and 90 ft.
3	R.R.	Petrol Oil and Gas Co. No. 64.	SE. Corner	1933	682	630	"	448 587	Clinton Whirlpool	68	240	67	Fresh water at 76 ft. Sulphur water at 255 ft.
5	R.R.	Petrol Oil and Gas Co. No. 65.	SW. Corner	1933	676	635	"	450 559	Clinton Whirlpool	73	240	53	Fresh water at 63 ft.
5	R.R.	Petrol Oil and Gas Co. No. 79.	1,150 ft. N. of S. road 25 ft. W. of E. line.	1936	686	635	"	463	Clinton	47	155	44	Fresh water at 100 ft.
8	R.R.	Petrol Oil and Gas Co. No. 66.	SE. Corner	1933	672	625	"	441 551	Clinton Whirlpool	27	235	37	Fresh water at 55 ft.

Wells in Tuscarora Township, Brant County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a. sq. in.	Thickness of drift in feet	Remarks
13	R.R.	Ajax Oil and Gas Co. E. Doxtator No. 1	800 ft. N. of S. road 500 ft. W. of E. road	1936	644	608	Salina	441 556	Clinton Whirlpool	4 16	172	43	Sulphur water at 65 ft.
13	R.R.	J. Green No. 1	450 ft. W. of E. road 900 ft. N. of S. road	1937	645	581	"	414	Clinton Whirlpool	28	177	40	Sulphur water at 58 ft., rose 28 ft.
16	R.R.	Ajax Oil and Gas Co. No. 35	200 ft. S. of N. road 500 ft. W. of E. line	1934	645	577	"	420 526	Clinton Whirlpool	.....	.....	.....	
17	R.R.	Ajax Oil and Gas Co. No. 37	1,050 ft. S. of N. road 190 ft. E. of W. line.	1934	660	593	"	537	Whirlpool	38	201	38	
17	R.R.	Ajax Oil and Gas Co. No. 38	2,000 ft. S. of N. road 140 ft. W. of E. line	1934	663	600	"	431 548	Clinton Whirlpool	50	191	46	
17	R.R.	Ajax Oil and Gas Co. No. 39	3,000 ft. S. of N. road 50 ft. W. of E. line	1934	659	596	"	429 543	Clinton Whirlpool	37	230	45	Fresh water at 55 ft. Sulphur water at 85 ft.
17	R.R.	Ajax Oil and Gas Co. No. 40	4,000 ft. S. of N. road 150 ft. W. of E. line	1934	648	590	"	421 539	Clinton Whirlpool	65	220	53	Fresh water at 54 ft. Sulphur water at 82 ft.
18	R.R.	Ajax Oil and Gas Co. No. 36	NW. Corner	1934	627	555	"	397 505	Clinton Whirlpool	76	228	37	
18	R.R.	Ajax Oil and Gas Co. No. 41	2,900 ft. S. of N. road 250 ft. E. of W. line	1935	650	602	"	433 550	Clinton Whirlpool	29	198	19	
18	R.R.	Ajax Oil and Gas Co. No. 42	1,900 ft. S. of N. road 50 ft. E. of W. line	1935	644	591	"	422 540	Clinton Whirlpool	42	182	39	Fresh water at 48 ft. Sulphur water at 76 ft.
25	R.R.	Ajax Oil and Gas Co. No. 33	NE. Corner	1927	641	612	"	393 433	Clinton Grimsby	45	174	39	Sulphur water at 73 ft.
27	R.R.	Petrol Oil and Gas Co	NE. Corner	1928	641	620	"	393 495	Clinton Whirlpool	44	.....	56	Fresh water at 56 ft.
27	R.R.	Petrol Oil and Gas Co	100 ft. S. of N. road 100 ft. W. of E. line.	1928	689	600	"	.....	.....	135	40	53	Sulphur water at 54 ft.
29	R.R.	Ajax Oil and Gas Co. No. 31	2,500 ft. S. of N. road 50 ft. E. of W. line	1933	703	588	"	454 563	Clinton Whirlpool	10	.....	116	Fresh water at 116 ft.
										6	150	112	Fresh water at 115 ft.

30	R.R.	Ajax Oil and Gas Co. No. 30...	500 ft. S. of N. road..... 75 ft. E. of W. line.....	1933	676	586	"	417 530	Clinton Whirlpool	17	150	88	Fresh water at 60 ft.
32	R.R.	Ajax Oil and Gas Co. No. 29...	900 ft. S. of N. road..... 120 ft. W. of E. line.....	1933	680	589	"	418 533	Clinton Whirlpool	35	150	91	Fresh water at 92 ft.
32	R.R.	Ajax Oil and Gas Co. No. 32...	150 ft. N. of S. road..... 250 ft. E. of W. line.....	1933	679	586	"	430 532	Clinton Whirlpool	12	150	97	Fresh water at 98 ft.
33	R.R.	Ajax Oil and Gas Co. No. 8....	1,700 ft. S. of N. road..... 250 ft. E. of W. line.....	1930	683	590	"	427 531	Clinton Whirlpool	42	170	84	Fresh water at 86 ft.
33	R.R.	Ajax Oil and Gas Co. No. 11...	3,200 ft. S. of N. road..... 50 ft. E. of W. line.....	1930	661	596	"	440 540	Clinton Whirlpool	18	173	99	Fresh water at 99 ft., rose 79 ft.
33	R.R.	Ajax Oil and Gas Co. No. 13...	900 ft. S. of N. road..... 240 ft. E. of W. line.....	1931	679	588	"	448 530	Clinton Whirlpool	47	135	102	Fresh water at 102 ft., rose 94 ft.
34	R.R.	Ajax Oil and Gas Co. No. 5....	700 ft. S. of N. road..... 300 ft. E. of W. line.....	1930	681	587	"	416 528	Clinton Whirlpool	78	168	96	
34	R.R.	Ajax Oil and Gas Co. No. 6....	340 ft. S. of N. road..... 220 ft. E. of W. line.....	1930	686	588	"	418 531	Clinton Whirlpool	38	160	90	Fresh water at 92 ft., rose 62 ft.
34	R.R.	Ajax Oil and Gas Co. No. 7....	1,400 ft. S. of N. road..... 160 ft. E. of W. line.....	1930	683	593	"	426 534	Clinton Whirlpool	63	154	104	Fresh water at 42 ft.
34	R.R.	Ajax Oil and Gas Co. No. 10...	2,100 ft. S. of N. road..... 300 ft. E. of W. line.....	1930	687	600	"	434 545	Clinton Whirlpool	49	161	80	Fresh water at 82 ft., rose 51 ft.
35	R.R.	Ajax Oil and Gas Co. No. 3....	660 ft. S. of N. road..... 300 ft. E. of W. line.....	1930	666	576	"	408 519	Clinton Whirlpool	135	168	72	Fresh water at 74 and 165 ft.
35	R.R.	Ajax Oil and Gas Co. No. 4....	200 ft. S. of N. road..... 400 ft. E. of W. line.....	1930	658	562	"	396 502	Clinton Whirlpool	147	166	65	
35	R.R.	Ajax Oil and Gas Co. No. 9....	1,320 ft. S. of N. road..... 350 ft. W. of E. line.....	1930	667	590	"	422 532	Clinton Whirlpool	179	172	97	Fresh water at 99 ft., rose 57 ft.
35	R.R.	Ajax Oil and Gas Co. No. 12...	2,100 ft. S. of N. road..... 390 ft. W. of E. line.....	1930	660	585	"	421 528	Clinton Whirlpool	6 21	136	85	Fresh water at 85 ft., rose 74 ft.
36	R.R.	Ajax Oil and Gas Co. No. 1....	300 ft. S. of N. road..... 430 ft. W. of E. line.....	1930	657	558	"	391 502	Clinton Whirlpool	90	167	60	
36	R.R.	Ajax Oil and Gas Co. No. 2....	1,050 ft. S. of N. road..... 490 ft. W. of E. line.....	1930	676	573	"	408 518	Clinton Whirlpool	31	158	75	Fresh water at 15 ft.
37	R.R.	Petrol Oil and Gas Co. No. 23..	200 ft. S. of N. road..... 400 ft. W. of E. line.....	.....	657	563	"	394 504	Clinton Whirlpool	101	.....	68	
37	R.R.	Petrol Oil and Gas Co. No. 25..	1,650 ft. S. of N. road..... 450 ft. W. of E. line.	.....	690	592	"	.....	.....	.....	.....	.....	

Wells in Tuscarora Township, Brant County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
37	R.R.	Petrol Oil and Gas Co. No. 27..	580 ft. N. of S. road..... 600 ft. W. of E. line.	1930	690	610	Salina	.....	.....	Dry hole	.....	101	
37	R.R.	Petrol Oil and Gas Co. No. 63..	SE. Corner.....	.....	687	.....	"	.....	.....	.....	.....	.....	Abandoned.
38	R.R.	Petrol Oil and Gas Co. No. 22..	.....	1930	656	559	"	393 505	Clinton Whirlpool	150	140	63	
38	R.R.	Petrol Oil and Gas Co. No. 60..	100 ft. S. of N. road..... 50 ft. E. of W. line.	1932	656	583	"	465	.....	3	.....	97	Sulphur water at 97 ft.
39	R.R.	Petrol Oil and Gas Co. No. 62..	SE. Corner.....	1933	688	566	"	.....	.....	Dry hole	.....	86	Fresh water at 88 ft.
40	R.R.	Petrol Oil and Gas Co. No. 20..	550 ft. S. of N. road..... 150 ft. W. of E. line.	.....	661	.....	"	.....	.....	.....	.....	.....	
40	R.R.	Petrol Oil and Gas Co. No. 24..	1,250 ft. S. of N. road..... 50 ft. W. of E. line.	.....	673	.....	"	.....	.....	.....	.....	.....	
40	R.R.	Petrol Oil and Gas Co.....	1,950 ft. S. of N. road..... 50 ft. W. of E. line.....	1930	685	573	"	390 500	Clinton Whirlpool	90	125	69	
41	R.R.	Petrol Oil and Gas Co. No. 59..	SE. Corner.....	1931	697	613	"	450 561	Clinton Whirlpool	43	180	73	Fresh water at 75 ft. Sulphur water at 90 ft.
42	R.R.	Petrol Oil and Gas Co. No. 15..	500 ft. S. of N. road..... 100 ft. W. of E. line.	1929	.....	625	"	502	Whirlpool	42	128	72	Fresh water at 39 ft. Sulphur water at 75 ft.
42	R.R.	Petrol Oil and Gas Co. No. 17..	.....	1929	644	593	"	475	Whirlpool	35	128	54	Fresh water at 54 ft.
42	R.R.	Petrol Oil and Gas Co.....	1,800 ft. N. of S. road..... 250 ft. E. of W. line.....	1928	644	592	"	272 485	Guelph Whirlpool	107	.....	39	Sulphur water at 40 ft.
43	R.R.	Petrol Oil and Gas Co. No. 6...	100 ft. N. of S. road..... 200 ft. W. of E. line.	1928	654	610	"	530	Whirlpool	55	160	55	Fresh water at 35 ft.
43	R.R.	Petrol Oil and Gas Co. No. 56..	SE. Corner.....	1931	698	615	"	450 563	Clinton Whirlpool	74	185	93	
44	R.R.	Petrol Oil and Gas Co. No. 57..	SW. Corner.....	1931	690	620	"	445 564	Clinton Whirlpool	68	150	59	Sulphur water at 61 ft.

45	R.R.	Petrol Oil and Gas Co. No. 7...	200 ft. N. of S. road..... 200 ft. W. of E. line.....	1928	661	619	"	397 503	Clinton Whirlpool	110	160	68	Sulphur water at 68 ft.
45	R.R.	Petrol Oil and Gas Co. No. 18..	1,000 ft. N. of S. road..... 100 ft. W. of E. line.	.....	660	616	"	.....	.....	34	.....	.....	
45	R.R.	Petrol Oil and Gas Co.....	750 ft. S. of N. road..... 70 ft. E. of W. line.	1930	667	616	"	395	Clinton	34	135	64	Fresh water at 64 ft.
46	R.R.	Petrol Oil and Gas Co. No. 3...	420 ft. N. of S. road..... 250 ft. W. of E. line.....	1929	663	630	"	398 512	Clinton Whirlpool	45	125	74	Fresh water at 74 ft.
46	R.R.	Petrol Oil and Gas Co. No. 8...	1,350 ft. N. of S. road..... 150 ft. W. of E. line.....	1929	656	623	"	398 540	Clinton Whirlpool	63	160	72	
47	R.R.	Petrol Oil and Gas Co. No. 16..	600 ft. S. of N. road..... 250 ft. E. of W. line.....	1929	687	640	"	416 525	Clinton Whirlpool	92	125	119	
48	R.R.	Petrol Oil and Gas Co. No. 9...	150 ft. N. of S. road..... 150 ft. E. of W. line.	1929	664	623	"	528	Whirlpool	76	160	85	
48	R.R.	Petrol Oil and Gas Co. No. 11..	600 ft. S. of N. road..... 150 ft. E. of W. line.....	1929	680	646	"	415 515	Clinton Whirlpool	.....	129	105	Sulphur water at 105 ft.
48	R.R.	Petrol Oil and Gas Co. No. 12..	1,650 ft. S. of N. road..... 150 ft. E. of W. line.....	1929	709	675	"	395 523	? Whirlpool	83	.....	139	
48	R.R.	Petrol Oil and Gas Co. No. 13..	2,600 ft. S. of N. road..... 150 ft. E. of W. line.	1929	681	662	"	422	Clinton	Dry hole	.....	88	Show of gas at 422 ft.
48	R.R.	Petrol Oil and Gas Co. No. 14..	1,050 ft. S. of N. road..... 300 ft. E. of W. line.	1929	657	615	"	493	Whirlpool	71	.....	74	
48	R.R.	Petrol Oil and Gas Co. No. 21..	300 ft. S. of N. road..... 150 ft. W. of E. line.....	1930	668	573	"	400 507	Clinton Whirlpool	50	125	90	Fresh water at 90 ft.
48	R.R.	Petrol Oil and Gas Co. No. 23..	2,700 ft. N. of S. road..... 100 ft. E. of W. line.	1930	669	535	"	358	Clinton	4	125	64	
53	R.R.	Petrol Oil and Gas Co. No. 46..	SE. Corner.....	1931	703	598	"	476 505	Clinton	14	115	70	Fresh water at 95 ft.
57	R.R.	Petrol Oil and Gas Co. No. 53..	200 ft. N. of S. road..... 250 ft. E. of W. line.	1931	655	542	"	430	Clinton	.....	.....	31	Show of gas. Fresh water at 31 ft.

Wells in Onondaga Township, Brant County

6	3 E	.....	4,700 ft. N. of R.R. tracks 150 ft. W. of E. line.	.....	691	.....	.....	.....	.....	.....	.....	.....	Show of oil and gas.
7	3 E	Canadian Dutch Oils, Ltd.....	1,300 ft. S. of N. line..... 500 ft. E. of W. line.	1924	678	2,712	.....	2,656	Arkose	.....	.....	.....	One-half bbl. of oil.

Wells in Onondaga Township, Brant County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
7	3 E	Canadian Dutch Oils, Ltd.	1,300 ft. S. of N. line 50 ft. W. of E. line.	1925	674	650	Salina		Arkose		160		
8	3 E	Canadian Dutch Oils, Ltd.	1,300 ft. S. of N. road 250 ft. E. of W. line.	1924	671	643				10	160		
15	3 E	Howell											Five wells—all abandoned.
16	3 E	Carmody	100 ft. S. of N. road 500 ft. W. of E. line.		646								
16	3 E	Carmody	850 ft. S. of R.R. tracks. 80 ft. W. of E. line.		640								
16	3 E	Howell	250 ft. S. of N. road 900 ft. E. of W. line.		648								
17	3 E	Carmody	1,150 ft. S. of R.R. tracks 260 ft. W. of E. line.		660								
17	3 E	Carmody	1,500 ft. S. of R.R. tracks 100 ft. W. of E. line.		661								
17	3 E	Carmody	2,100 ft. S. of R.R. tracks 100 ft. W. of E. line.		648								
21	3 E	Onondaga Oil and Gas Co.	SE. Corner	1927	655	652		399 490	Clinton Whirlpool	15	120		
21	3 E	Border City Synd.	600 ft. N. of R.R. tracks 200 ft. E. of W. line.		666								
23	3 E	Port Colborne and Welland Gas Co.		1935	634	525	Salina	485	Whirlpool	4	170		
23	3 E	Dominion Natural Gas Co.	SE. Corner		640								
24	3 E	Blain	500 ft. N. of S. line 300 ft. W. of E. line.	1934	618	550	Salina			100	200		
1	1 W	Dominion Natural Gas Co.	50 ft. N. of S. road 3,800 ft. E. of W. line	1931	669	578		408 515	Clinton Whirlpool	45		82	Fresh water at 90 ft.

2	1 W	Dominion Natural Gas Co.	50 ft. N. of S. road 3,800 ft. E. of W. line	1931	661	558	Salina	392 497	Clinton Whirlpool	29	105	70	Water at 120 ft.
2	1 W	Dominion Natural Gas Co.	50 ft. N. of S. line 3,100 ft. E. of W. line	1931	667	571	Salina	405 512	Clinton Whirlpool	24	100	72	Water at 125 ft.
4	1 W	Campbell	20 ft. S. of N. line 1,900 ft. E. of W. line.		670								
4	1 W	Campbell	100 ft. S. of N line 2,700 ft. E. of W. line.		641								
5	1 W	Aikens				2,625			Clinton				Show of gas.
6	1 W	Hunter	SW. Corner		653					Dry hole			
6	1 W	Hunter	150 ft. N. of S. line 2,300 ft. E. of W. line.		642								
8	1 W		150 ft. N. of S. line 400 ft. E. of W. line.		631								
10	1 W	Standard Gas Co.		1911	710	590		362	Clinton			57	
10	1 W	Standard Gas Co.		1911	710	602		363 475	Clinton Whirlpool			49	
10	1 W	Standard Gas Co.		1911	710	600			Whirlpool			46	Show of oil.
1	2 W	Dominion Natural Gas Co.	50 ft. N. of S. road 1,200 ft. W. of E. line	1931	675	585	Salina	423 537	Clinton Whirlpool	9	160	75	Fresh water at 74 and 80 ft. Abandoned.
1	2 W	Dominion Natural Gas Co.	200 ft. N. of S. road 950 ft. E. of W. line.		670								
1	2 W	Dominion Natural Gas Co.	130 ft. N. of S. road 2,950 ft. W. of E. line.		670								
2	2 W	Dominion Natural Gas Co.	50 ft. N. of S. line 2,000 ft. W. of E. line	1931	679	546	Salina	431 541	Clinton Whirlpool	Dry hole		78	Show of gas at 431, 443, and 541 ft. Water at 82 ft.
5	2 W	Randolph Synd.	50 ft. N. of S. line 2,600 ft. W. of E. line	1934	707	725	"	444 663	Clinton Whirlpool	16	140	110	Fresh water at 136 ft.
6	2 W	Can. Penn. Grade Prod., Ltd. W. Brown No. 6	700 ft. N. of S. line 1,000 ft. W. of E. road.	1938	668	539	"	524	Whirlpool	5	40	85	Fresh water at 94 ft., rose 60 ft. Black water at 235 ft., rose 205 ft.
6	2 W	Buffalo Drilling Co. W. Brown No. 13	850 ft. N. of S. line 500 ft. W. of E. road.	1938	634	510	"	480	Whirlpool	6	130	48	20 gals. oil a day.

Wells in Onondaga Township, Brant County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
7	2 W	Dominion Natural Gas Co.....	50 ft. S. of N. line..... 3,450 ft. W. of E. line.	.....	683	.....	.....	.....	.....	.....	.....	.....	Abandoned.
10	2 W	B. Mason.....	50 ft. N. of S. line..... 2,250 ft. E. of Centre road.	.....	664	.....	.....	.....	.....	.....	.....	.....	
11	2 W	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Four wells, abandoned
1	3 W	Dominion Natural Gas Co.....	SE. Corner.....	.....	697	.....	.....	.....	.....	.....	.....	.....	Four wells, abandoned
6	3 W	Cainsville Gas and Oil Synd...	50 ft. N. of S. line..... 500 ft. E. of river road.	1928	712	605	.....	553	Whirlpool	10	160	110	
7	3 W	F. Mann.....	50 ft. S. of N. line..... 200 ft. W. of river road..	1928	712	605	....	443 552	Clinton Whirlpool	10	.....	123	
8	3 W	Dominion Natural Gas Co.....	200 ft. S. of N. line..... 500 ft. W. of E. line.	1916	683	550	.....	.....	.....	Dry hole	.....	83	
8	3 W	Brett.....	550 ft. N. of S. road..... 800 ft. W. of E. line.	.....	683	.....	.....	.....	.....	.....	.....	.....	
9	3 W	Dominion Natural Gas Co.....	SE. Corner.....	1925	672	583	Salina....	440 539	Clinton Whirlpool	12	225	120	
11	3 W	Dominion Natural Gas Co.....	300 ft. S. of N. line..... 2,500 ft. W. of E. line.....	1925	699	583	....	440 530	Clinton Whirlpool	10	245	120	
12	3 W	Dominion Natural Gas Co.....	50 ft. S. of N. line..... 1,300 ft. W. of E. line.....	1925	685	565	....	415 525	Clinton Whirlpool	9	155	96	
12	3 W	Dominion Natural Gas Co.....	NE. Corner.....	1927	678	565	.....	.....	.....	8	155	96	
14	3 W	Dominion Natural Gas Co.....	150 ft. S. of N. line..... 3,000 ft. E. of W. line.....	1925	706	575	Salina....	435 537	Clinton Whirlpool	24	.....	98	
16	3 W	Buffalo Drilling Co..... E. and E. Hartley No. 3.....	200 ft. N. of S. line..... 500 ft. W. of E. line.	1937	699	579	Salina....	459	Clinton	28	132	110	1½ bbls. oil per hour at 574 ft. Fresh water at 110 ft. Sulphur water at 160 and 350 ft.

16	3 W	E. and E. Hartley No. 4	25 ft. N. of S. line 500 ft. W. of E. line	1937	697	628	"	456 568	Clinton Whirlpool	9	128	106	½ bbl. oil per hour at 573 ft. Fresh water at 110 ft., rose 50 ft.
16	3 W	E. and E. Hartley No. 5	650 ft. N. of S. road 350 ft. NW. of well No. 3	1937	691	583	"	450 560	Clinton Whirlpool	6	128	111	Fresh water at 110 ft., rose 70 ft. Black water at 280 ft., rose 210 ft.
16	3 W	Premier Oils, Ltd	SE. Corner	1931	695	585	"	472 572	Clinton Whirlpool	50		111	Fresh water at 100 and 114 ft.
16	3 W	Premier Oils, Ltd	200 ft. N. of S. line 3,500 ft. E. of W. line	1932	689	595	"	473 595	Clinton Whirlpool	55		100	Fresh water at 100 and 114 ft.
17	3 W	Premier Oils, Ltd	100 ft. N. of S. line 500 ft. E. of W. line.		688								
17	3 W	?	200 ft. N. of S. line 1,050 ft. W. of river road.		665								
18	3 W	?	15 ft. N. of S. line 1,250 ft. W. of river road.		662								
18	3 W	Nottawa Oil and Gas Co. T. Hamilton No. 2	750 ft. N. of S. road 385 ft. W. of E. fence	1937	685	579	Salina	450 553	Clinton Whirlpool	19	130	100	Fresh water at 102 ft., rose 52 ft.
18	3 W	T. Hamilton No. 3	1,300 ft. N. of S. road 975 ft. NW. of well No. 2.	1938	676	571	"	445 534	Clinton Whirlpool	14	130	90	Fresh water at 100 ft., rose 80 ft.
19	R.R.	Aloka Oil Co	650 ft. S. of N. road 200 ft. E. of W. line	1934	689	602	"	454 570	Clinton Whirlpool	30	185	90	Fresh water at 113 ft.
19	R.R.	Aloka Oil Co	NW. Corner		677								
20	R.R.	Aloka Oil Co	NW. Corner		683								
22	R.R.	?	100 ft. S. of N. road 550 ft. W. of E. line.		668								
26	R.R.	Dominion Natural Gas Co	3,300 ft. S. of N. road 100 ft. W. of E. line.	1931	690	574	Salina			Dry hole		111	
26	R.R.	Oughtred	2,840 ft. N. of S. road 400 ft. E. of W. line.		691								
27	R.R.	Dominion Natural Gas Co	2,250 ft. N. of S. road 350 ft. E. of W. line.		686								
28	R.R.	Dominion Natural Gas Co	1,200 ft. S. of N. road 100 ft. W. of E. line	1931	655	582	Salina	417 530	Clinton Whirlpool	9	190		Abandoned.
28	R.R.	Dominion Natural Gas Co	3,800 ft. N. of S. line 50 ft. W. of E. line.	1934	681								

Wells in Onondaga Township, Brant County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
28	R.R.	Dominion Natural Gas Co.	4,900 ft. N. of S. road 200 ft. E. of W. line.		675								
29	R.R.	Standard Gas Co.	SW. Corner	1917	646	535				Dry hole			
30	R.R.	Dominion Natural Gas Co.	900 ft. S. of N. road 50 ft. E. of W. line	1930	667	564	Salina	417 522	Clinton Whirlpool	75	132	90	Water at 91 and 102 ft.
30	R.R.	Dominion Natural Gas Co.	2,200 ft. S. of N. road 200 ft. E. of W. line.	1931	650	572	"			7	180	70	Water at 82 ft.
31	R.R.	Dominion Natural Gas Co.	2,900 ft. S. of N. line 250 ft. E. of W. line.		652								
32	R.R.	Dominion Natural Gas Co.	2,850 ft. S. of N. line 140 ft. E. of W. line.		661								
34	R.R.	?	NW. Corner		670								
35	R.R.	Dominion Natural Gas Co.	1,050 ft. S. of N. road 60 ft. W. of E. line.		682								
38	R.R.	Reserve Natural Gas Co.	1,000 ft. S. of N. road 50 ft. W. of E. line.	1932	637	556	Salina			5	110	73	Fresh water at 80 ft. Salt water at 330 ft. Abandoned.
39	R.R.	Van Sickle	2,500 ft. S. of N. road 160 ft. W. of E. line.		622								
39	R.R.	Reserve Natural Gas Co.	2,000 ft. S. of N. road 350 ft. W. of E. line	1905	638	570	Salina		Clinton Whirlpool			90	
44	R.R.	Dominion Natural Gas Co.	150 ft. N. of river road 50 ft. W. of E. line.		665								Abandoned.
50	R.R.	Petrol Oil and Gas Co. No. 33	1,000 ft. S. of N. line 360 ft. W. of E. line	1930	631	543	Salina	373 484	Clinton Whirlpool	53	125	40	
51	R.R.	Petrol Oil and Gas Co. No. 40	1,500 ft. N. of river road 100 ft. W. of E. line.	1931	656	506	"	418	Clinton	5		67	

51	R.R.	Petrol Oil and Gas Co. No. 47..	2,100 ft. S. of N. line..... 50 ft. W. of E. line.	1931	660	502	"	393	Clinton	Dry hole	.....	80	Show of gas at 393 ft.
52	R.R.	Petrol Oil and Gas Co. No. 30..	1,500 ft. S. of river road... 200 ft. W. of E. line.....	1930	626	540	"	372 486	Clinton Whirlpool	53	145	50	Fresh water at 50 ft.
52	R.R.	Petrol Oil and Gas Co. No. 31..	1,100 ft. S. of river road... 25 ft. E. of W. line.....	1930	629	543	"	374 486	Clinton Whirlpool	102	145	47	
52	R.R.	Petrol Oil and Gas Co. No. 38..	100 ft. S. of river road... 100 ft. E. of W. line.....	1931	643	515	"	383 500	Clinton Whirlpool	16	.....	49	Fresh water at 65 ft.
53	R.R.	Petrol Oil and Gas Co. No. 37..	1,250 ft. N. of river road.. 100 ft. W. of E. line.	1931	665	577	"	518	Whirlpool	79	145	84	Fresh water at 99 ft.
53	R.R.	Petrol Oil and Gas Co. No. 39..	3,500 ft. S. of N. line..... 100 ft. W. of E. line.....	1931	650	556	"	388 498	Clinton Whirlpool	38	142	58	
53	R.R.	Petrol Oil and Gas Co. No. 41..	2,800 ft. S. of N. line..... 50 ft. E. of W. line.	1931	659	555	"	.....	.....	23	140	71	
53	R.R.	Petrol Oil and Gas Co. No. 45..	2,000 ft. S. of N. line..... 50 ft. W. of E. line.	1931	657	502	"	392	Clinton	41	148	73	
54	R.R.	Petrol Oil and Gas Co. No. 29..	900 ft. S. of river road... 50 ft. W. of E. line.....	1930	626	540	"	374 483	Clinton Whirlpool	190	155	49	Fresh water at 49 ft.
54	R.R.	Petrol Oil and Gas Co. No. 35..	50 ft. W. of river road.. 150 ft. W. of E. line.	1930	652	554	"	405	Clinton	24	132	79	Fresh water at 85 ft.
55	R.R.	Petrol Oil and Gas Co.....	1,600 ft. S. of N. line..... 50 ft. W. of E. line.	1931	660	510	"	384	Clinton	12	155	77	
57	R.R.	Petrol Oil and Gas Co.....	100 ft. S. of river road... 80 ft. E. of W. line.	1931	644	515	"	396	Clinton	1	.....	74	
64	R.R.	Welland Gas Co..... Vanderlit No. 1.....	100 ft. S. of river road... 400 ft. W. of E. line.	1935	637	501	"	.....	.....	Dry hole	.....	75	
66	R.R.	Port Colborne and Welland Gas Co.	SE. Corner.....	1919	629	550	.....	.....	Whirlpool	115	230	54	
68	R.R.	Port Colborne and Welland Gas Co.	SE. Corner.....	....	625	556	....	....	Clinton Whirlpool	60	.....	45	
68	R.R.	Port Colborne and Welland Gas Co.	300 ft. N. of river road.. 50 ft. E. of W. line.....	....	644	570	....	....	Clinton Whirlpool	40	.....	64	Abandoned.
70	R.R.	Port Colborne and Welland Gas Co.	SE. Corner.....	.....	624	573	Salina....	500	Whirlpool	45	125	23	Fresh water at 12 ft.
72	R.R.	Port Colborne and Welland Gas Co.	1,300 ft. S. of river road... 300 ft. E. of W. line.	1934	627	576	"	494	Whirlpool	70	155	25	Fresh water at 35 ft.

Wells in Onondaga Township, Brant County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
72	R.R.	Port Colborne and Welland Gas Co.	750 ft. S. of river road... 50 ft. E. of W. line.	1934	648	523	Salina....	.....	.....	Dry hole	.....	33	Fresh water at 40 ft.
73	R.R.	Walker.....	100 ft. S. of river road... 50 ft. E. of W. line.	.....	664	600?	.....	.....	.....	.....	.....	.....	
75	R.R.	Wilson Douglas No. 1.....	SW. Corner.....	1935	658	532	Salina....	.....	.....	Dry hole	.....	62	Fresh water at 60 ft., rose 20 ft. Sulphur water at 115 ft., rose 20 ft.
76	R.R.	W. A. Douglas No. 1.....	700 ft. N. of river road.. 100 ft. E. of W. line.....	1935	648	596	"	405 518	Clinton Whirlpool	13	200	61	Fresh water at 48 ft., rose 20 ft. Fresh water at 60 ft., rose 20 ft. Sulphur water at 210 ft., rose 20 ft.
77	R.R.	J. A. Douglas No. 1.....	SE. Corner.....	1934	629	509	"	.....	.....	Dry hole	.....	38	Fresh water at 12 ft.
77	R.R.	J. A. Douglas No. 2.....	1,350 ft. N. of river road.. 50 ft. E. of W. line.	1935	650	521	"	.....	.....	Dry hole	.....	61	Fresh water at 65 ft. Sulphur water at 350 ft.
78	R.R.	.....	500 ft. S. of N. line..... 50 ft. E. of W. line.	1934	654	565	"	.....	.....	40	200	64	Sulphur water at 110 ft.
79	R.R.	.....	1,900 ft. N. of river road.. 250 ft. E. of W. line.	1934	646	581	"	.....	.....	85	190	51	Fresh water at 50 ft.
79	R.R.	J. H. Douglas No. 3.....	2,900 ft. N. of river road.. 50 ft. E. of W. line.	1935	646	490	"	.....	.....	Dry hole	.....	53	Fresh water at 50 ft. Sulphur water at 130 ft.
80	R.R.	J. H. Douglas No. 2.....	1,000 ft. N. of river road.. 250 ft. W. of E. line.	1935	652	594	"	519	Whirlpool	50	185	63	Fresh water at 60 ft. Sulphur water at 120 ft.
82	R.R	Ferris No. 1.....	300 ft. N. of river road.. 100 ft. E. of W. line.	1935	625	565	"	495	Whirlpool	30	185	30	Fresh water at 70 ft., rose 5 ft. Sulphur water at 180 ft., rose 5 ft.
83	R.R.	Connor No. 1.....	1,100 ft. N. of river road.. 300 ft. E. of W. line.	1936	636	575	"	490	Whirlpool	30	185	34	Fresh water at 45 ft. Sulphur water at 125 ft.

85	R.R.	W. J. Douglas No. 1	3,700 ft. N. of river road.. 25 ft. E. of W. line.	1936	635	560	"	476	Whirlpool	35	170	36	Fresh water at 50 ft. Sulphur water at 150 ft.
85	R.R.	W. J. Douglas No. 2	2,600 ft. N. of river road.. 50 ft. E. of W. line.	1936	659	569	"	491	Whirlpool	40	175	51	Fresh water at 75 ft. Sulphur water at 150 ft.
85	R.R.	W. J. Douglas No. 3	3,700 ft. N. of river road.. 25 ft. E. of W. line.	1936	657	489	"	.....	.....	Dry hole	.....	44	Fresh water at 55 and 175 ft.
86	R.R.	W. J. Douglas No. 4	1,700 ft. N. of river road.. 300 ft. E. of W. line.	1936	680	605	"	.....	.....	50	165	62	
87	R.R.	D. Douglas No. 1	2,500 ft. N. of river road.. 50 ft. W. of E. line.	1936	680	594	"	.....	.....	30	170	68	Fresh water at 80 ft. Black water at 215 ft.
88	R.R.	L. Douglas No. 1	650 ft. N. of river road.. 25 ft. W. of E. line.	1936	666	596	"	512	Whirlpool	50	170	60	Fresh water at 80 ft.
88	R.R.	L. Douglas No. 2	1,500 ft. N. of river road.. 150 ft. W. of E. line.	1936	675	588	"	512	Whirlpool	26	160	47	Black water at 205 ft.
16	3E.F.C.	R. W. Little H. Perrin No. 3	40 ft. S. of N. road..... 1,000 ft. W. of E. road.	1939	649	.....	.....	.....	.....	.....	.....	.....	
16	3W.F.C.	H. C. Staysa N. F. McDonald No. 1	275 ft. N. of S. road..... 1,700 ft. W. of E. road.	1939	680	.....	.....	.....	.....	.....	.....	.....	

Wells in Brantford Township, Brant County

5	Bow Park	.....	Bow Park farm No. 5	....	681	624	Salina	420 530 540	Clinton Whirlpool Queenston?	.....	.....	72	
7	"	.....	Bow Park farm No. 6	.....	648	648	"	.....	.....	.....	.....	87	
7	"	.....	Bow Park farm No. 7	.....	655	616	"	479	Whirlpool	.....	.....	45	Show of gas at 479 ft.
8	"	.....	Bow Park farm No. 3	1904	600	611	.....	498	Whirlpool	.....	235	65	Fresh water at 72 ft.
9	"	.....	Bow Park farm No. 8	.....	603	753	"	439	Clinton	.....	.....	91	
15	"	.....	Bow Park farm No. 1	1904	620	602	"	490	Whirlpool	.....	282	68	Fresh water at 73 ft.
15	"	.....	Bow Park farm No. 9	.....	610	631	"	.....	.....	.....	.....	97	
16	"	.....	Bow Park farm No. 2	1903	620	582	....	395 508	Clinton Whirlpool	.....	265	88	Fresh water at 91 ft.
		Shapley and Muir	City of Brantford, Clarence and Wellington Sts.	.....	671	670	.....	610	.....	.....	.....	61	

Wells in Brantford Township, Brant County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
		Waterous Engine Co.	Dalhousie St.		707	1,118						63	
		?		1888	730	2,160	Salina		Trenton				Show of gas at top of Trenton.
19	1	Brant Hydro Station	SE. Corner		731	335						148	Water well, water at 148 and 290 ft., small quantity.
D	Brantford highway	R. Devereaux No. 1		1926	734	606		530	Whirlpool	5		125	Salt water at 200 ft., rose 120 ft.
D	"	R. Devereaux No. 2		1926	735	586	Guelph	530	Whirlpool	2		125	
F	Indian trail	Mckillop		1928	651	606	"	530	"	20	150	75	Sulphur water at 106 ft., rose 94 ft.
F-1	"	Mckillop No. 2		1928	660	605	"	380 524	Clinton	30	190	80	Fresh water at 156 ft., rose 138 ft.
	Range 1	H. Jenning	200 ft. N. of S. line 2,000 ft. W. of Grand River		729	825							

Wells in Oakland Township, Brant County

2	1	Dominion Natural Gas Co.	500 ft. S. of N. road 800 ft. E. of W. line.	1924	782	850	Bertie-Akron	730	Clinton	10	350	29	
2	1	Dominion Natural Gas Co.	2,000 ft. S. of N. road 650 ft. E. of W. line.	1924	780	855	"			Dry hole		30	
2	2	Dominion Natural Gas Co.	1,200 ft. N. of S. road 700 ft. E. of W. line.	1924	778	852	"			Dry hole		44	

Well in Burford Township, Brant County

15	6	.....	1,600 ft. S. of N. road..... 600 ft. E. of W. line.	.....	855	900?	Salina....	.....	.....	.....	.....	.....		

Wells in Windham Township, Norfolk County

3	2	O. Gibson No. 1.....	1,300 ft. N. of S. road..... 800 ft. W. of E. line.	1936	839	970	Norfolk..	862	Clinton	3	240	115	Fresh water at 45 ft., rose 25 ft. Fresh water at 115 ft., rose 95 ft.	
5	4	H. Serles..... H. Serles No. 1.....	500 ft. S. of N. road..... 150 ft. E. of W. line.....	1938	837	1,015	"	880 996	Clinton Whirlpool	10	400	145	Fresh water at 145 ft., rose 111 ft. Fresh water at 170 ft., rose 150 ft.	
24	12	Delhi Gas Synd.....	50 ft. N. of S. road..... 900 ft. W. of E. line.	1934	788	1,252	"	1,141	Clinton	40	270	201	Fresh water at 240 ft.	
24	12	?.....	1,500 ft. N. of S. road..... 650 ft. E. of W. line.	.....	792	.....	.....	.....	.....	Dry hole	.....	.....		
13	13	Enterprise Gas Co.....	50 ft. S. of N. road..... 950 ft. W. of E. line.	1916	779	.....	.....	.....	.....	2	180	.....	Abandoned.	
23	13	Enterprise Gas Co.....	2,000 ft. S. of N. road..... 800 ft. E. of W. line.	1913	786	1,248	Norfolk..	.....	.....	350	515	207		
23	13	Enterprise Gas Co.....	1,500 ft. N. of S. road..... 150 ft. E. of W. line.	1915	775	1,192	"	1,116	Clinton	221	.....	184		
23	13	Dominion Natural Gas Co..... D. M. Wilson No. 1.....	1,000 ft. N. of S. road..... 350 ft. W. of E. line.	1927	760	1,174	"	1,113	Clinton	37	415	185		
24	13	Enterprise Gas Co.....	1,150 ft. S. of N. road..... 650 ft. W. of E. line.	1913	786	1,177	"	1,149	Clinton	313	481	209		
24	13	Delhi Gas Synd.....	2,100 ft. S. of N. road..... 50 ft. E. of W. line.	1934	776	1,251	"	1,133	Clinton	150	270	187	Fresh water at 240 ft.	
24	13	Delhi Gas Synd.....	1,900 ft. S. of N. road..... 800 ft. W. of E. line.	1934	772	1,247	"	.....	.....	Dry hole	.....	193	Show of gas at 1,145 ft. Fresh water at 240 ft.	

Wells in Townsend Township, Norfolk County

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
5	9	.....	1,800 ft. S. of N. road..... 500 ft. E. of W. line.	.....	760	1,035	Norfolk..	.....	.....	Dry hole	.....	90	Sulphur water at 510 ft. Salt water at 585 ft.
16	10	Union Gas Co. No. 185.....	60 ft. N. of S. road..... 910 ft. W. of E. line.	1931	712	938	"	860	Grimsby	Dry hole	.....	18	Show of gas. Fresh water at 42 ft.
23	11	Union Gas Co. No. 184.....	50 ft. S. of Centre road. 750 ft. E. of W. line.	1931	667	886	"	817	Grimsby	Dry hole	.....	5	Show of gas. Fresh water at 38 ft.
15	14	Walter Gas Synd.....	SW. Corner.....	1934	661	983	"	884 915	Clinton Grimsby	17	390	40	
15	14	Dominion Natural Gas Co.....	1,300 ft. N. of S. road..... 740 ft. W. of E. line.	1926	698	1,007	"	.....	.....	6	.....	62	Fresh water at 90 ft. Black water at 540 ft.
16	14	Dominion Natural Gas Co.....	45 ft. N. of S. road..... 1,360 ft. W. of E. line.....	1925	693	1,024	"	884 997	Clinton Whirlpool	105	600	44	Fresh water at 44 ft.
21	14	Union Gas Co. No. 188.....	SE. Corner.....	1931	687	983	"	879	Clinton	Dry hole	.....	52	Show of gas. Fresh water at 110 ft.
24	14	Ogletree.....	1,050 ft. S. of N. road..... 250 ft. W. of E. line.	1911	652	3,215	"	.....	.....	.....	.....	.....	Sulphur water at 450 ft.

Wells in South Walsingham Township, Norfolk County

Long	Point	Dominion Natural Gas Co.....	SE. point.....	1918	.....	3,925	Norfolk	.....	.....	Dry hole	.....	395	
Long	Point	Dominion Natural Gas Co.....	SE. point.....	1919	.....	1,534	"	1,390	Grimsby	111	.....	380	Abandoned.
Long	Point	Dominion Natural Gas Co.....	SE. point.....	1920	.....	1,488	"	.....	.....	150	.....	340	
9	S.R.S.	Erie Gas Co.....	3,450 ft. S. of shore road.. 500 ft. E. of W. line.	1910	574	1,347	"	.....	.....	Dry hole	.....	300	
10	"	Dominion Natural Gas Co..... Ethel M. Foster No. 1.....	450 ft. S. of shore road.. 800 ft. W. of E. line.	1912	572	1,347	"	1,322	Clinton	70	645	301	

15	"	Dominion Natural Gas Co.	NW. Corner	1912	573	1,411	"	1,309		18		271	
15	"	Port Rowan Natural Gas Co.	NE. Corner	1910	587					28	360		
5	B	Erie Gas Co.	NE. Corner	1910	591					Dry hole			
8	B	Dominion Natural Gas Co.	1,500 ft. S. of N. road 50 ft. W. of E. line.	1912	602	1,371	Norfolk	1,331	Clinton	221	670	317	
9	B	Dominion Natural Gas Co.	50 ft. S. of N. road 1,075 ft. W. of E. line.	1912	574	1,442	"	1,298	Clinton	313	565	280	
9	B	A. P. Barrett No. 1	800 ft. N. of S. road 600 ft. W. of E. line.	1912	595	1,347	"	1,331	Clinton	241	665	300	
9	B	C. Cook No. 1	2,250 ft. N. of S. road 600 ft. W. of E. line	1923	578	1,358	"	1,320 1,336	Clinton Grimsby	180	430	285	
9	B	C. Cook No. 2	850 ft. S. of N. road 900 ft. E. of W. line	1926	593	1,397	"	1,330 1,357	Clinton Grimsby	59	530	305	
10	B	Dominion Natural Gas Co.	NE. Corner	1924	608	1,371	"			18	475	300	
10	B	Erie Gas Co.	NW. Corner	1910	574		"			252	515		
10	B	Regal Gas Synd. W. Leighfield No. 1	2,025 ft. S. of N. road 725 ft. W. of E. line	1933	593	1,395	"	1,311 1,388	Clinton Grimsby	280	370	302	Fresh water at 560 ft.
12	B	Empire Natural Gas Co. C. Leighfield No. 1	1,200 ft. N. of S. road 1,100 ft. W. of E. road	1935	597	1,393	"	1,310 1,348	Clinton Grimsby	60	600	298	Sulphur water at 300 ft.
4	A	Marr	NW. Corner	1896	628					Dry hole			
8	A	Dominion Natural Gas Co.	300 ft. N. of S. road 1,300 ft. E. of W. line.	1925	603	1,468	Norfolk	1,259		36	490	315	Water at 1,275 ft.
11	A	Dominion Natural Gas Co.	2,050 ft. S. of N. road 100 ft. E. of W. line.	1912	618	1,485	"	1,363	Clinton			332	Show of gas.
14	A	Dominion Natural Gas Co.	1,750 ft. S. of N. road 400 ft. E. of W. line.	1925	589	1,355	"	1,287	Clinton	83	368	274	
14	A	Dominion Natural Gas Co.	3,000 ft. S. of N. road 100 ft. E. of W. line.	1926	581	1,340	"	1,297	Clinton	29	510	277	Fresh water at 277 and 287 ft.
15	A	Dominion Natural Gas Co.	3,900 ft. S. of N. road 250 ft. E. of W. line.	1912	580	1,329	"	1,288	Clinton	75	495	272	
15	A	Dominion Natural Gas Co.	3,000 ft. S. of N. road 25 ft. E. of W. line.		581		"			49	400		
16	A	Port Rowan Natural Gas Co.	College Ave., Pt. Rowan	1907	614	1,450	"					303	

Wells in South Walshingham Township, Norfolk County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
16	A	Dominion Natural Gas Co.....	2,450 ft. S. of N. road..... 150 ft. E. of W. line.	.....	618	.....	.....	.....	.....	4	295	.....	
17	A	Dominion Natural Gas Co.....	1,900 ft. N. of shore road. 875 ft. E. of W. line.	.....	626	.....	.....	.....	.....	4	290	.....	
17	A	Dominion Natural Gas Co.....	200 ft. N. of shore road. 950 ft. E. of W. line.	.....	613	.....	.....	.....	.....	4	275	.....	
17	A	Dominion Natural Gas Co.....	2,000 ft. N. of shore road. 200 ft. E. of W. line.	.....	624	.....	.....	.....	.....	25	380	.....	
17	A	Dominion Natural Gas Co.....	1,000 ft. N. of shore road.. 550 ft. E. of W. line.	.....	612	.....	.....	.....	.....	4	295	.....	
16	1	Empire Natural Gas Co.....	1,450 ft. S. of N. road..... 600 ft. W. of E. line.	1935	644	1,369	Norfolk..	.....	.....	57	460	305	Fresh water at 300 ft.
17	1	H. Mudford No. 2.....	3,150 ft. S. of N. road..... 150 ft. E. of W. line.	1935	649	1,458	"	.....	.....	Dry hole	.....	305	Fresh water at 305 ft., rose 225 ft.
17	1	H. Mudford No. 1.....	1,450 ft. S. of N. road..... 450 ft. E. of W. line.	1935	634	1,358	"	1,296	Clinton	95	550	295	Fresh water at 330 ft.
11	2	Dominion Natural Gas Co.....	100 ft. S. of N. road..... 800 ft. E. of W. line.	1912	664	1,491	"	1,356	Clinton	25	.....	326	
16	2	Dominion Natural Gas Co.....	1,200 ft. N. of S. road..... 250 ft. E. of W. line.....	1913	597	1,314	"	1,272 1,291	Clinton Grimsby	88	595	256	
17	2	D. E. Morris No. 1.....	1,440 ft. N. of S. road..... 175 ft. E. of W. line.	1912	610	1,293	"	1,265	Clinton	89	545	250	
17	2	Dominion Natural Gas Co.....	550 ft. S. of N. road..... 1,075 ft. W. of E. line.	1912	660	1,437	"	.....	.....	73	.....	303	
20	2	Dominion Natural Gas Co.....	50 ft. N. of S. road..... 700 ft. E. of W. line.	1913	636	1,425	"	1,277	Clinton	.....	.....	275	Show of gas.
8	3	Dominion Natural Gas Co.....	1,500 ft. N. of S. road..... 350 ft. W. of E. line.	1912	666	1,503	"	1,370	Clinton	.....	.....	344	Show of gas.
12	5	Dominion Natural Gas Co.....	50 ft. S. of N. road..... 1,000 ft. W. of E. line.	1912	580	1,360	"	1,235	Clinton	.....	.....	207	Show of gas.

Wells in North Walsingham Township, Norfolk County

20	9	Dominion Natural Gas Co.....	50 ft. S. of N. road..... 825 ft. E. of W. line.	1911	619	1,304	Norfolk	1,151	Whirlpool	.....	.....	118	Show of gas.
12	12	Dominion Natural Gas Co.....	1,500 ft. N. of S. road..... 80 ft. W. of E. line.	1911	743	1,397	"	1,288	Clinton	.....	.....	245	Show of gas.
18	13	Dominion Natural Gas Co.....	50 ft. S. of N. road..... 800 ft. W. of E. line.	1921	745	1,264	"	.....	.....	43	.....	208	
19	13	Dominion Natural Gas Co.....	60 ft. S. of N. road..... 1,000 ft. E. of W. line.	1912	744	1,341	"	1,209	Clinton	70	.....	207	
19	14	Midwal Oil and Gas, Ltd..... J. Booth No. 1.....	900 ft. S. of N. road..... 1,000 ft. E. of W. line.	1932	757	1,240	"	.....	.....	Dry hole	.....	225	Fresh water at 226 and 260 ft.
19	14	Dominion Natural Gas Co..... John Jones No. 1.....	1,350 ft. N. of S. road..... 50 ft. E. of W. line.	1926	742	1,334	"	.....	.....	Dry hole	.....	207	
19	14	John Collins No. 1.....	1,925 ft. S. of N. road..... 1,700 ft. E. of W. line.	1927	756	1,277	"	1,213	Clinton	42	560	222	Abandoned. Fresh water at 255 ft. Sulphur water at 912 ft.
20	14	F. J. Ebert No. 1.....	790 ft. S. of N. road..... 80 ft. W. of E. line.	1927	752	1,251	"	1,197	Clinton	80	500	215	Fresh water at 266 ft.
20	14	Wm. Walters.....	675 ft. S. of N. road..... 300 ft. E. of W. line.	1927	757	1,268	"	1,216	Clinton	236	570	224	Fresh water at 260 ft. Sulphur water at 910 ft.
20	14	F. J. Ebert No. 2.....	1,900 ft. S. of N. road..... 950 ft. W. of E. line.	1928	755	1,277	"	1,212	Clinton	95	570	221	Water at 915 ft.
21	14	Midwal Oil and Gas, Ltd.....	860 ft. S. of N. road..... 750 ft. W. of E. line.	1933	754	1,262	"	1,204	Clinton	45	410	218	Fresh water at 235 ft.
21	14	Dominion Natural Gas Co.....	NE. Corner.....	1921	742	1,234	"	.....	.....	83	.....	189	
22	14	Dominion Natural Gas Co.....	3,070 ft. S. of N. road..... 15 ft. E. of W. line.	1920	762	1,230	"	.....	.....	Dry hole	.....	220	
23	14	Dominion Natural Gas Co.....	SE. Corner.....	1918	705	1,169	"	.....	.....	Dry hole	.....	154	
23	14	Griffin No. 1.....	50 ft. S. of N. road..... 750 ft. W. of E. line.	1920	756	1,236	"	.....	.....	80	.....	219	
23	14	Griffin No. 2.....	2,290 ft. N. of S. road..... 25 ft. E. of W. line.	1920	733	1,240	"	.....	.....	68	.....	202	
24	14	J. Gehring No. 1.....	1,000 ft. N. of S. road..... 1,000 ft. W. of E. line.	1919	755	1,206	"	.....	.....	297	.....	.....	

Wells in Houghton Township, Norfolk County

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
2	L.R.N.	Dominion Natural Gas Co.....	500 ft. S. of N. road..... 300 ft. W. of E. line.	1918	649	1,445	Norfolk..	1,420	Clinton	.....	.....	.....	Show of gas.
1	E	Dominion Natural Gas Co.....	SW. Corner.....	1913	654	1,533	"	1,405	Clinton	116	670	288	Abandoned.
10	1	Dominion Natural Gas Co.....	1,100 ft. S. of N. line..... 1,100 ft. E. of W. line.	1912	675	1,495	"	.....	.....	Dry hole	.....	288	
11	1	Dominion Natural Gas Co.....	700 ft. S. of N. road..... 650 ft. E. of W. line.	1912	680	1,491	"	.....	.....	Dry hole	.....	278	
12	1	Medina Gas Co.....	50 ft. S. of N. line..... 2,000 ft. W. of E. line.	.....	685	1,528	"	.....	.....	.....	.....	.....	
13	1	Medina Gas Co.....	500 ft. S. of N. road..... 200 ft. W. of Centre line	1926	699	1,486	"	.....	Clinton	.....	.....	288	Show of gas.
19	1	Medina Gas Co.....	750 ft. S. of N. line..... 100 ft. W. of E. line.	1917	716	1,360	"	.....	.....	Dry hole	.....	.....	
12	2	Dominion Natural Gas Co.....	100 ft. N. of S. line..... 1,150 ft. E. of W. line.	1912	676	1,523	"	.....	Whirlpool	.....	.....	271	Show of gas.
3	3	R. R. Pattison No. 1.....	NW. Corner.....	1931	661	1,545	"	1,423	Clinton	.....	.....	304	Show of gas. Fresh water at 325 ft. Sulphur water at 1,150 ft.
4	3	J. Francis No. 1.....	75 ft. N. of S. line..... 1,250 ft. E. of W. line.	1920	656	1,463	"	.....	.....	314	260	294	Salt water at 1,424 ft.
7	4	Mary Hazen No. 1.....	1,650 ft. N. of S. line..... 1,700 ft. E. of W. line.	1931	674	1,465	"	1,386	Clinton	118	580	304	Sulphur water at 316 ft.
7	4	R. Corner No. 1.....	50 ft. S. of N. road..... 400 ft. W. of E. line.	1931	676	1,474	"	1,391	Clinton	140	600	311	Sulphur water at 315 ft.
8	4	S. Rutledge No. 1.....	1,950 ft. S. of N. line..... 2,100 ft. W. of E. line.	1931	677	1,507	"	1,110	.....	.....	.....	305	Show of gas. Sulphur water at 308, 312, 1,110 ft.

8	4	R. Harries No. 1	50 ft. N. of S. road 1,850 ft. W. of E. line.	1931	673	1,522	"	1,382	Clinton	450	590	305	Sulphur water at 315 ft.
8	4	H. Hasen No. 1	200 ft. N. of S. road 1,300 ft. E. of W. line.	1912	675	1,517	"	1,394	Clinton	78	610	305	
8	5	R. Harries No. 2	800 ft. N. of S. road 50 ft. E. of W. line.	1931	675	1,459	"	1,395	Clinton	336	600	306	Sulphur water at 322 ft.
2	6	Dominion Natural Gas Co.	800 ft. N. of S. road 50 ft. W. of E. road.	1936	583	1,495	"			Dry hole		269	Show of gas at 1,370 ft.

Wells in Charlotteville Township, Norfolk County

7	1	Dominion Natural Gas Co. L. D. Reeves No. 1.	SW. Corner	1910	668	1,356	Norfolk			Dry hole		245	
16	1	E. Jewell No. 1	NE. Corner	1910	666	1,305	"	1,176	Grimsby			190	Show of oil.
19	2	H. W. Oakes No. 1	50 ft. N. of S. road 800 ft. W. of E. line.	1910	676	1,301	"	1,182	Clinton			191	Show of gas.
24	2	E. Oakes No. 1	SW. Corner	1910	654	1,278	"	1,101 1,228	Clinton Grimsby	96	650	149	
24	2	Dominion Natural Gas Co.	3,800 ft. N. of S. road 50 ft. W. of E. line.	1910	618	1,197	"	1,031	Grimsby	115	635	73	
24	2	Dominion Natural Gas Co.	1,300 ft. S. of N. road 500 ft. W. of E. line.	1928	644	1,196	"	1,083	Grimsby	9		102	Abandoned.
21	3	Dominion Natural Gas Co.	50 ft. S. of N. road 900 ft. E. of W. line.	1907	659	3,082	"			Dry hole		137	
24	5	A. H. Smith No. 1	SW. Corner	1914	704	1,218	"	1,109	Grimsby	103		168	
24	5	E. G. McKnight No. 1	NW. Corner	1915	738	1,231	"			Dry hole		200	
19	8	Dominion Natural Gas Co.	1,200 ft. S. of N. road 50 ft. E. of W. line.	1928	765	1,238	"	1,129	Whirlpool	4		215	
1	11	Dominion Natural Gas Co.	50 ft. S. of N. road 800 ft. W. of E. line.	1917	743	1,206	"			123	600	203	
2	11	Dominion Natural Gas Co.	2,600 ft. N. of S. road 150 ft. W. of E. line.	1917	646	1,190	"			96	605	94	
3	11	Dominion Natural Gas Co.	SE. Corner	1910	709	1,284	"	1,156	Clinton			164	Show of gas.
3	11	Allan Reid No. 1	650 ft. S. of N. road 50 ft. E. of Centre road.	1917	698	1,160	"			60	595	153	

Wells in Charlotteville Township, Norfolk County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
3	11	Cora J. Charlton No. 1	NW. Corner	1916	642	1,132	Norfolk	.....	.....	640	605	99	
4	11	Dowswell No. 1	50 ft. S. of N. road, 1,000 ft. E. of W. line.	1917	718	1,153	"	.....	.....	Dry hole	.....	175	
4	11	Dowswell No. 2	2,000 ft. N. of S. road, 800 ft. E. of W. line.	1917	736	1,200	"	.....	.....	17	.....	94	
7	11	Dominion Natural Gas Co.	500 ft. N. of S. road, 50 ft. E. of W. line.	1928	757	1,272	"	.....	.....	Dry hole	.....	206	Water at 893 ft.
1	12	Dominion Natural Gas Co.	1,500 ft. N. of S. road, 75 ft. E. of W. line.	1918	765	1,242	"	1,183	Clinton	150	605	220	
1	12	Cora J. Charlton No. 5	50 ft. N. of Centre road 500 ft. W. of E. line.	1918	772	1,226	"	1,181	Clinton	73	670	223	
2	12	J. B. Lynn No. 1	SE. Corner	1910	727	1,300	"	1,160	Clinton	68	500	183	
2	12	Cora J. Charlton No. 3	50 ft. N. of Centre road 1,000 ft. E. of W. line.	1917	750	1,249	"	.....	.....	430	550	201	
2	12	Cora J. Charlton No. 4	2,700 ft. N. of S. road, 1,000 ft. E. of W. line.	1917	764	1,231	"	.....	.....	95	595	215	
3	12	Dominion Natural Gas Co.	600 ft. N. of S. road, 200 ft. E. of W. line.	1932	642	.....	.....	.....	.....	.....	.....	.....	
3	12	Dominion Natural Gas Co.	2,150 ft. S. of N. line, 400 ft. E. of W. line.	1922	656	1,122	Onondaga	1,052	Clinton	60	350	97	
3	12	J. A. Reid No. 1	1,100 ft. N. of S. road, 450 ft. W. of E. line.	1917	656	1,131	"	.....	.....	300	605	110	
3	12	J. A. Reid No. 2	1,000 ft. S. of N. line, 600 ft. E. of W. line.	1917	645	1,130	"	.....	.....	171	615	96	
9	B.F.	Turkey Point Club No. 1	2,800 ft. NW. of club-house	1936	575	1,242	"	1,198	Grimsby	98	600	210	Fresh water at 212 ft., rose 6 ft.
9	"	Turkey Point Club No. 2	Near club-house	1936	573	1,238	"	.....	.....	Dry hole	.....	210	Sulphur water at 215 ft., rose 207 ft.
9	"	Dominion Natural Gas Co. Rennie Estate No. 1	4,000 ft. NE. of club-house, Turkey Point.	1936	574	1,305	"	1,203	Grimsby	64	605	208	Fresh water at 245 ft., rose 220 ft.

Wells in Middleton Township, Norfolk County

1	1 N	Acme Oil and Gas Co.	1,350 ft. S. of N. road 100 ft. W. of E. line.	1931	771	1,330	Norfolk	1,315	Clinton			231	Show of gas. Salt water at 245 ft.
2	1 N	Ronson No. 1	NW. Corner	1933	763	1,400	"	1,285	Clinton		26	223	Salt water at 248 ft.
3	1 N	W. Blakely No. 1	2,250 ft. S. of N. road 500 ft. E. of Centre road.	1931	765	1,325	"	1,280	Clinton	385	490	225	Salt water at 240 ft.
3	1 N	W. Blakely No. 2	3,750 ft. N. of S. road 50 ft. E. of Centre road.	1931	775	1,335	"	1,295	Clinton	280	505	237	Salt water at 360 ft.
3	1 N	Walter Gas Synd W. F. Kingston No. 4	3,500 ft. S. of N. road 225 ft. W. of Centre road	1933	773	1,334	"			Dry hole		225	Sulphur water at 235 and 258 ft. Salt water at 1,007 ft.
3	1 N	W. F. Kingston No. 5	2,200 ft. S. of N. road 225 ft. W. of Centre road	1933	765	1,350	"			Dry hole		238	Sulphur water at 233 and 254 ft. Salt water at 1,004 ft.
3	1 N	Lindley Estate	1,300 ft. S. of N. road 50 ft. E. of W. road	1936	764	1,342	"	1,285 1,294		165	300	222	Sulphur water at 233 ft., rose 113 ft.
3	1 N	Walter Gas Synd M. Lindley No. 1	600 ft. S. of N. road 600 ft. W. of E. road.	1936	763	1,342	"					222	Sulphur water at 233 ft.
4	1 N	Dominion Natural Gas Co. F. and B. Lymburner No. 1.	1,400 ft. N. of S. road 90 ft. W. of E. line.	1920	774	1,320	"			Dry hole		231	
4	1 N	Acme Oil and Gas Co. Lymburner No. 1	2,700 ft. N. of S. road 450 ft. W. of E. line.	1931	771	1,387	"	1,280	Clinton	540	425	231	Salt water at 260 ft.
4	1 N	A. E. Swinn No. 1	3,200 ft. N. of S. road 50 ft. E. of W. line.	1931	766	1,338	"	1,276	Clinton	281	435	231	Water at 300 ft.
4	1 N	Walter Gas Synd W. F. Kingston No. 3	2,400 ft. S. of N. road 500 ft. E. of W. line.	1933	762	1,329	"			Dry hole		225	Sulphur water at 240 and 360 ft. Salt water at 1,010 ft.
4	1 N	Ontario Counties Gas Co. W. F. Kingston No. 1	3,400 ft. S. of N. road 600 ft. W. of E. line.	1931	773	1,346	"	1,295	Clinton	235	380	236	Water at 335 ft.
4	1 N	W. F. Kingston No. 2	3,650 ft. N. of S. road 150 ft. W. of E. line.	1932	766	1,370	"	1,324	Grimsby	75	300	225	Sulphur water at 235 and 360 ft. Salt water at 1,000 ft.
5	1 N	Acme Oil and Gas Co. M. Heemer No. 1	1,500 ft. N. of S. road 350 ft. W. of E. line.	1931	775	1,411	"	1,288	Clinton	500	410	231	Water at 245 ft.
5	1 N	M. Heemer No. 2	2,300 ft. N. of S. road 290 ft. E. of W. line.	1931	770	1,385	"	1,275	Clinton	300	380	231	Water at 235 and 1,030 ft.

Wells in Middleton Township, Norfolk County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
5	1 N	Hodson No. 1	2,550 ft. N. of S. road 1,075 ft. W. of E. line.	1931	772	1,325	Norfolk	1,290	Clinton	210	385	232	Water at 240 ft.
5	1 N	Dominion Natural Gas Co N. Stillwell No. 1.	SE. Corner	1917	796	1,371	"	1,327	Clinton	420	630	245	
6	1 N	Vacuum Oil and Gas Co Willitts No. 1.	SW. Corner	1930	777	1,355	"	1,296	Clinton	360	390	231	
6	1 N	E. Willitts No. 1	1,000 ft. N. of S. road 75 ft. E. of W. line.	1916	775	1,305	"	1,288	Clinton	750	625	190	
6	1 N	E. Willitts No. 2	3,000 ft. N. of S. road 175 ft. E. of W. line.	1916	771	1,385	"	.....	Clinton	10	.....	.....	
7	1 N	Chas. Townsend No. 1	SW. Corner	1916	777	1,392	"	1,273	Clinton	.....	.....	235	Show of gas.
1	2 N	E. P. Rowe Chas. Coyle No. 1	1,500 ft. N. of Centre road 75 ft. E. of W. line.	1934	738	1,317	"	1,248	Clinton	500	600	185	Sulphur water at 200 ft.
1	2 N	C. Coyle No. 2	700 ft. N. of Centre road 50 ft. E. of W. line.	1934	738	1,289	"	1,265	Clinton	31	550	190	Fresh water at 170 ft. Sulphur water at 260 ft.
1	2 N	C. Coyle No. 3	400 ft. N. of Centre road 375 ft. W. of E. line.	1935	732	1,282	"	1,253	Clinton	748	550	178	Fresh water at 165 ft. Sulphur water at 245 ft.
1	2 N	C. Stillwell No. 4	1,000 ft. S. of N. line 515 ft. E. of W. line.	1934	681	1,318	"	1,204	Clinton	300	440	123	Fresh water at 122 ft.
2	2 N	H. Manary No. 1	SE. Corner	1934	761	1,338	"	1,285	Clinton	210	375	220	Fresh water at 218 ft. Black water at 385 ft.
2	2 N	Nottawa Oil and Gas Co	950 ft. S. of N. line 25 ft. W. of E. road.	1936	679	829	"	823	.....	.....	.....	127	Fresh water at 100 ft.
3	2 N	J. B. Dean No. 1	50 ft. N. of S. road 50 ft. E. of W. road.	1936	745	1,326	"	1,265	Clinton	40	375	185	Fresh water at 195 ft.
3	2 N	Rose Valley Synd Stewart No. 1	1,300 ft. S. of N. line 650 ft. E. of W. road.	1936	672	820	"	815	Guelph	370	360	117	Water and sulphur gas at 129 ft.

2	3 N	Midwal Oil and Gas, Ltd..... W. Kelly No. 1.....	4,600 ft. S. of N. road..... 50 ft. W. of E. line.	1935	761	1,282	"	.....	.....	Dry hole	.....	194	Fresh water at 65 ft. Sulphur water at 200 ft.
5	3 N	Norfolk Middleton Gas Co..... V. Macdonald No. 1.....	3,700 ft. S. of N. road..... 800 ft. W. of E. line.	1934	758	900	"	.....	.....	1,000	300	.....	
5	3 N	V. Macdonald No. 2.....	3,500 ft. S. of N. road..... 300 ft. E. of W. line.	1935	769	900	"	.....	.....	500	300	.....	
5	5 N	Caledon Oil and Gas Co..... O. Pittman No. 1.....	380 ft. S. of R.R. track. 250 ft. W. of E. line.	1924	659	425	"	.....	.....	Dry hole	.....	60	
4	1 S	Dominion Natural Gas Co..... B. Dean No. 1.	NE. Corner.....	1917	773	1,338	"	1,329	Clinton	.....	.....	234	Show of gas. Water at 1,010 ft.
5	1 S	Tillsonburg Oil and Gas Co.... M. Dean.....	50 ft. S. of N. road..... 800 ft. W. of E. line.	1930	776	1,434	"	.....	.....	Dry hole	.....	233	Water at 245 and 425 ft. Salt water at 1,315 ft.
6	1 S	White No. 1.....	NW. Corner.....	1931	778	1,346	"	1,303	Clinton	63	262	224	Sulphur water at 1,020 ft.
6	1 S	White No. 2.....	NE. Corner.....	1931	775	1,347	"	1,293	Clinton	188	290	226	Sulphur water at 1,012 ft.
6	1 S	Vacuum Oil and Gas Co.....	1,000 ft. S. of N. road..... 100 ft. E. of W. line.	1916	774	1,425	"	1,320	Clinton	.....	.....	232	Show of gas.
7	1 S	Tillsonburg Oil and Gas Co.... H. Simons No. 1.....	750 ft. S. of N. road..... 300 ft. E. of W. line.	1937	777	1,350	"	1,288	Clinton	92	175	234	Fresh water at 238 ft.
7	1 S	W. Hudson No. 1.....	1,250 ft. S. of N. road..... 1,300 ft. E. of W. line.	1937	.....	1,340	"	.....	.....	Dry hole	.....	229	Fresh water at 240 ft. Sulphur water at 300 ft.
21	1 S	Walter Gas Synd..... B. C. Buchner No. 1.....	2,600 ft. S. of N. road..... 50 ft. W. of E. line.	1933	749	1,287	"	.....	.....	Dry hole	.....	162	Sulphur water at 170 ft. Salt water at 1,015 ft.
46	1 S	Enterprise Gas Co.....	.....	1907	762	.....	.....	.....	.....	88	330	.....	
46	1 S	Enterprise Gas Co.....	2,200 ft. N. of S. road..... 50 ft. E. of W. line.	1907	762	.....	.....	.....	.....	41	330	.....	
46	1 S	Enterprise Gas Co.....	850 ft. N. of S. road..... 150 ft. E. of W. line.	1907	770	.....	.....	.....	.....	221	320	.....	
47	1 S	Enterprise Gas Co.....	900 ft. N. of S. road..... 50 ft. E. of W. line.....	1914	771	1,148	Norfolk..	1,035 1,141	Clinton Whirlpool	3	.....	88	
47	1 S	Enterprise Gas Co.....	1,200 ft. N. of S. road..... 500 ft. E. of W. line.	.....	778	.....	.....	.....	.....	39	320	.....	
47	1 S	Enterprise Gas Co.....	200 ft. S. of R.R. track. 50 ft. W. of E. line.	.....	771	.....	.....	.....	.....	96	320	.....	
12	2 S	Dominion Natural Gas Co..... F. Taylor No. 1.....	4,300 ft. S. of N. road..... 125 ft. W. of E. line.	1925	755	1,308	Norfolk..	.....	.....	Dry hole	.....	245	

Wells in Middleton Township, Norfolk County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
13	2 S	Geo. Fisher No. 1	1,150 ft. N. of S. road 75 ft. W. of E. line.	1925	758	1,308	Norfolk	1,265	Clinton	110	500	240	
14	2 S	B. Farrah No. 1	1,850 ft. N. of S. road 25 ft. W. of E. line.	1925	777	1,307	"	1,265	Clinton	95	600	248	
15	2 S	A. Teller No. 1	500 ft. N. of S. road 650 ft. W. of E. line.	1924	767	1,351	"			121	640	235	
16	2 S	J. Fisher No. 1	1,300 ft. N. of S. road 90 ft. E. of W. line.	1925	773	1,265	"	1,253	Clinton	600	640	245	
16	2 S	J. Fisher No. 2	1,400 ft. N. of S. road 600 ft. E. of W. line.	1925	780	1,367	"			Dry hole		246	Fresh water at 258 ft. Sulphur water at 940 ft.
16	2 S	Medina Gas Co. M. Campbell No. 1.	SE. Corner	1925	777	1,322	"	1,259	Clinton	266	610	245	
16	2 S	M. Campbell No. 2	1,500 ft. N. of S. road 700 ft. E. of W. line.		777	1,326	"	1,258	Clinton	243		246	
17	2 S	Dominion Natural Gas Co. W. P. Townsend No. 1	975 ft. N. of S. road 100 ft. E. of W. line.	1925	776	1,308	"	1,257	Clinton	250	640	243	
18	2 S	J. Graydon No. 1	2,450 ft. N. of S. road 150 ft. E. of W. line.	1925	770	1,291	"			Dry hole		229	
18	2 S	Ajax Oil and Gas Co. M. Horton No. 1	50 ft. N. of S. road 750 ft. E. of W. line.	1932	779	1,360	"	1,260	Clinton	70	405	248	Water at 255 ft
43	2 S	Dominion Natural Gas Co. J. A. Quance No. 2	250 ft. N. of S. road 450 ft. E. of W. line.	1920	744	1,177	"			131	550	184	
43	2 S	J. A. Quance No. 1	1,000 ft. N. of S. road 250 ft. W. of E. line.	1921	753	1,212	"			198		191	
44	2 S		1,350 ft. N. of S. road 300 ft. E. of W. line.	1924	756								
46	2 S	Enterprise Gas Co. H. Malford	4,250 ft. S. of N. line 50 ft. W. of E. line.	1913	736	1,218	Norfolk			Dry hole		155	

46	2 S	H. Malford	NW. Corner	1907	766	.....	.....	.....	.....	Dry hole	.....	.....	
14	3 S	Dominion Natural Gas Co.	1,925 ft. S. of N. road 500 ft. E. of W. line.	1926	728	.....	.....	.....	.....	12	345	.....	
15	3 S	Dominion Natural Gas Co.	NW. Corner	1925	761	1,275	Norfolk	.....	.....	21	525	235	
16	3 S	Medina Gas Co.	1,475 ft. S. of N. road 650 ft. E. of W. line.	1925	756	1,298	"	1,230	Clinton	208	610	235	
16	3 S	Dominion Natural Gas Co. H. Wallace No. 1	1,125 ft. S. of N. road 65 ft. E. of W. line.	1925	757	1,284	"	1,230	Clinton	208	640	230	Fresh water at 240 ft.
17	3 S	J. and A. Wittit No. 1	550 ft. S. of N. road 100 ft. E. of W. line.	1925	776	1,374	"	1,258	Clinton	266	640	253	Fresh water at 315 ft. Black water at 1,195 ft.
17	3 S	J. Wittit No. 2	1,750 ft. S. of N. road 25 ft. W. of E. line.	1926	764	1,302	"	1,248	Clinton	94	550	231	
18	3 S	Midwal Oil and Gas, Ltd. M. Horton No. 8.	NW. Corner	1934	777	1,306	"	1,269	Grimsby	35	275	243	Fresh water at 255 ft.
18	3 S	M. Horton No. 9	1,300 ft. S. of N. road 400 ft. W. of E. line.	1934	776	1,280	"	1,253	Clinton	10	.....	245	Fresh water at 255 ft.
22	3 S	Dominion Natural Gas Co.	40 ft. S. of N. road 825 ft. E. of W. line.	1926	764	1,325	"	1,195	Clinton	7	.....	225	Fresh water at 230 ft. Black water at 950 ft.
29	3 S	J. R. Booth No. 1	625 ft. N. of S. road 350 ft. W. of E. line.	1926	767	1,268	"	1,212	Clinton	37	560	234	
30	3 S	Chas. Keinzle	60 ft. N. of S. road 850 ft. W. of E. line.	1926	755	1,265	"	1,201	Clinton	142	560	220	Fresh water at 256 ft. Black water at 1,050 ft.
30	3 S	F. Ebert No. 1	2,700 ft. S. of N. road 550 ft. W. of E. line.	1927	791	1,279	"	1,239	Clinton	48	440	259	
30	3 S	J. Flood No. 1	1,850 ft. N. of S. road 225 ft. W. of E. line.	1927	753	1,260	"	1,197	Clinton	154	550	224	Sulphur water at 230 ft.
31	3 S	L. Sage	1,150 ft. N. of S. road 900 ft. E. of W. line.	1921	743	1,232	"	.....	Clinton	75	550	206	
32	3 S	Midwal Oil and Gas, Ltd. Robt. B. Taylor No. 2	1,360 ft. N. of S. road 275 ft. W. of E. line.	1933	752	1,251	"	1,184	Clinton	82	500	210	Water at 214 ft.
32	3 S	Robt. B. Taylor No. 3	2,700 ft. N. of S. road 600 ft. W. of E. line.	1933	770	1,261	"	1,197	Clinton	175	251	238	Fresh water at 239 ft.
32	3 S	M. M. Mitchell No. 5	2,175 ft. N. of S. road 75 ft. E. of W. line.	1933	763	1,256	"	1,193	Clinton	46	460	224	Fresh water at 230 ft.
33	3 S	R. Hanselman No. 4	3,550 ft. N. of S. road 550 ft. W. of E. line.	1933	783	1,260	"	1,204	Clinton	94	545	246	Fresh water at 250 ft.

Wells in Middleton Township, Norfolk County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
33	3 S	R. Hanselman No. 7	1,940 ft. N. of S. road 420 ft. W. of E. line.	1934	758	1,235	Norfolk	1,185	Clinton	55	450	228	Water at 6, 12, and 25 ft.
33	3 S	Dominion Natural Gas Co. R. Hanselman No. 1	100 ft. N. of S. road 530 ft. E. of W. line.	1926	760	1,308	"	1,205	Clinton	.....	.....	223	Show of gas.
35	3 S	G. L. Bitzer	SE. Corner	1920	760	1,230	"	1,175	Clinton	42	590	218	
39	3 S	A. B. Gehring	SW. Corner	1926	764	1,290	"	1,175	Clinton	12	.....	215	Black water at 830 ft.
40	3 S	K. Crysler No. 1	SW. Corner	1918	760	1,208	"	1,155	Clinton	351	585	207	
40	3 S	K. Crysler No. 3	1,400 ft. N. of S. line 350 ft. W. of E. line.	1919	665	1,118	"	1,056	Clinton	96	600	110	
41	3 S	K. Crysler No. 2	1,000 ft. N. of S. line 300 ft. E. of W. line.	1919	756	1,214	"	1,144	Clinton	157	565	202	
42	3 S	K. Crysler No. 4	900 ft. N. of S. line 50 ft. E. of W. line.	.....	753	1,214	"	.....	.....	157	.....	202	
42	3 S	Dominion Natural Gas Co.	1,850 ft. N. of S. line 450 ft. W. of E. line.	1920	740	1,177	"	1,124	Clinton	131	550	184	Abandoned.
25	4 S	H. Fuhr No. 1	NW. Corner	1926	762	1,303	"	.....	.....	Dry hole	.....	231	Fresh water at 240 and 385 ft. Black water at 948 ft.
29	4 S	M. Smith No. 1	SW. Corner	1927	775	1,343	"	.....	.....	Dry hole	.....	247	Fresh water at 287 ft.

Wells in Woodhouse Township, Norfolk County

3	1	Dominion Natural Gas Co. Wm. H. Buchner No. 1	1,400 ft. N. of S. road 800 ft. W. of E. line	1911	654	1,193	Norfolk	1,057 1,081	Clinton Grimsby	121	475	151	
4	1	Wm. J. Roberts No. 1	50 ft. S. of N. road 500 ft. E. of W. line	.....	702	1,181	"	1,064 1,076	Clinton Grimsby	271	.....	141	

4	1	Enoch Roberts	1,700 ft. N. of S. road 200 ft. W. of E. line.	1909	683	1,183	"			Dry hole		143	
5	1	J. H. Marshall No. 1	100 ft. S. of N. road 700 ft. E. of W. line	1909	708	1,181	"	1,055 1,083	Clinton Grimsby	825	480	141	
5	1	J. H. Marshall	800 ft. S. of N. road 100 ft. W. of E. line.	1911	695	1,181	"			280	445	125	
6	1	J. E. Anderson No. 1	50 ft. S. of N. road 530 ft. W. of E. line.	1907	696	1,186	"	1,050	Clinton	100		134	
6	1	J. Carpenter No. 1	SE. Corner	1907	659	1,160	"	1,030	Grimsby	48	500	114	
7	1	H. J. Culver No. 1	1,500 ft. N. of S. road 1,000 ft. E. of W. line.	1912	657	1,132	"			512	505	113	
7	1	Chas. Dixon No. 1	1,300 ft. N. of S. road 50 ft. E. of W. line.	1911	653	1,142	"	1,021	Grimsby	801		116	
7	1	Thos. Bowlby No. 1	SE. Corner	1912	636	1,117	"	983 1,010	Clinton Grimsby	648		96	
8	1	W. J. Carpenter No. 1	50 ft. S. of N. road 550 ft. E. of W. line	1909	663	1,133	"	1,002 1,019	Clinton Grimsby	382		78	
8	1	Wm. Duncan No. 1	50 ft. S. of N. road 900 ft. W. of E. line.	1908	659	1,127	"	1,010	Grimsby	313		77	
8	1	Wm. Duncan No. 3	1,500 ft. S. of N. road 1,000 ft. W. of E. line.	1913	640	1,104	"			5		49	
9	1	McCoy No. 1	SW. Corner	1907	627	1,141	"	998		110		32	
9	1	Geo. Dixon No. 1	50 ft. S. of N. road 900 ft. W. of E. line.	1907	643	1,097	"	970	Clinton	53		63	
10	1	F. E. Marr No. 1	50 ft. N. of S. road 700 ft. E. of W. line.	1907	618	1,139	"	1,085	Whirlpool	300	500	80	
12	1	J. S. Martin	40 ft. S. of N. road 1,000 ft. W. of E. line.	1918	651	1,083	"	972	Clinton			52	Show of gas.
12	1	Economy Gas Synd. G. Gamble No. 1	Village of Port Dover	1937	583	1,094	"	950 1,047	Grimsby Whirlpool	27	460	24	Fresh water at 62 ft. Sulphur water at 85 ft. Black water at 394 ft.
		T. Ivey and Sons No. 1	NW. end of St. Patrick St., Port Dover.	1937	591	1,068	"	938 978	Clinton Grimsby	27	465	28	Fresh water at 72 ft., rose 27 ft. Black water at 154 ft., rose 131 ft. Sulphur water at 485 ft., rose 452 ft.

Wells in Woodhouse Township, Norfolk County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
		T. Ivey and Sons No. 2	NW. end of St. Patrick St., Port Dover.	1937	602	1,054	Norfolk	.....	.....	Dry hole	.....	44	Fresh water at 86 ft., rose 64 ft. Black water at 248 ft., rose 226 ft.
		Economy Gas Synd. W. F. Colbe No. 1.	S. side Clinton St. between St. Patrick and St. Andrew Sts., Port Dover.	1938	578	1,120	"	989 1,067	Grimsby Whirlpool	71	.....	43	Fresh water at 96 ft., rose 76 ft. Black water at 254 ft., rose 234 ft.
13	1	L. Corbitt No. 1	1,100 ft. E. of W. line 50 ft. N. of S. road	1936	629	1,176	"	1,009 1,100	Grimsby Whirlpool	162	.....	66	Fresh water at 92 ft., rose 48 ft.
13	1	L. Corbitt No. 2	SE. Corner	1937	623	1,075	"	971	Clinton	40	.....	62	Sulphur water at 70 ft., rose 48 ft. Black water at 475 ft., rose 417 ft.
13	1	L. Corbitt No. 3	100 ft. S. of highway 1,200 ft. W. of E. line.	1937	629	1,102	"	.....	.....	Dry hole	.....	76	Fresh water at 112 ft., rose 57 ft. Fresh water at 240 ft., rose 184 ft.
13	1	H. Smith No. 1	100 ft. S. of highway 100 ft. E. of W. line.	1936	630	1,132	"	1,087	Whirlpool	112	545	52	Fresh water at 110 ft., rose 57 ft. Black water at 410 ft., rose 357 ft.
14	1	C. Finch No. 1	150 ft. N. of shore road 800 ft. W. of E. line	1936	621	1,150	"	960 1,085	Clinton Whirlpool	185	455	58	Fresh water at 110 ft., rose 55 ft.
14	1	C. Finch No. 2	500 ft. S. of highway 700 ft. E. of W. line.	1936	629	1,117	"	991	Clinton	38	355	61	Fresh water at 110 ft., rose 55 ft.
14	1	J. Hudson No. 1	100 ft. S. of highway 200 ft. W. of E. line.	1937	629	1,092	"	.....	.....	Dry hole	.....	76	Fresh water at 110 ft., rose 55 ft. Fresh water at 320 ft., rose 268 ft.
15	1	L. Corbitt No. 1	100 ft. N. of shore road 600 ft. E. of W. line.	1936	628	1,128	"	.....	.....	Dry hole	.....	65	Fresh water at 80 ft., rose 27 ft. Black water at 165 ft., rose 112 ft.

16	1	Dominion Natural Gas Co..... G. and S. A. Mills.	SW. Corner.....	1910	625	1,104	"	971	Clinton	.....	.....	75	Show of gas.
19	1	Wm. E. Anderson No. 1.....	SW. Corner.....	1908	610	1,076	"	.....	.....	Dry hole	.....	44	
21	1	J. Feargue No. 1.....	4,700 ft. S. of N. road..... 50 ft. E. of W. line.	1908	617	1,054	"	968	Grimsby	.....	.....	39	Show of gas
22	1	J. H. Fletcher No. 1.....	SE. Corner.....	1908	607	1,069	"	925	Clinton	.....	.....	36	Show of gas.
23	1	David Hodgson.....	4,250 ft. S. of N. road..... 950 ft. E. of W. line.	.....	631	1,062	"	.....	.....	313	.....	31	
23	1	Daniel Blake No. 1.....	4,100 ft. S. of N. road..... 50 ft. W. of E. line.	1908	629	1,041	"	945	Grimsby	.....	.....	22	Show of gas.
23	1	Union Gas Co. No. 211..... Fletcher farm.....	1,500 ft. S. of N. road..... 250 ft. E. of W. line.....	1938	643	1,052	"	944 1,039	Grimsby Whirlpool	24 Show	.....	30	
24	1	Dominion Natural Gas Co..... C. and Geo. Howey No. 1....	2,850 ft. S. of N. road..... 250 ft. W. of E. line.	1907	615	1,053	"	935	Grimsby	135	.....	10	
24	1	J. W. A. Barker No. 1.....	4,000 ft. S. of N. road..... 50 ft. W. of E. line.....	1907	606	1,048	"	910 1,027	Clinton Whirlpool	440	.....	18	
1	2	Emma Boughner No. 1.....	SW. Corner.....	1909	719	1,217	"	1,110	.....	.....	.....	187	Show of gas.
3	2	J. A. Cruikshank.....	50 ft. S. of N. road..... 900 ft. E. of W. line.	1928	716	1,174	"	1,071	Clinton	35	400	155	Water at 235 ft.
3	2	Chas. and Thos. Bowlby.....	100 ft. N. of S. road..... 500 ft. E. of W. line.	1913	713	1,191	"	1,082	Grimsby	156	485	173	
3	2	Thos. Dixon No. 1.....	1,900 ft. N. of S. road..... 50 ft. W. of E. line.	1907	713	1,188	"	1,090	Clinton	50	.....	180	Abandoned.
4	2	Dominion Natural Gas Co.....	1,000 ft. N. of S. road..... 900 ft. W. of E. line.....	1913	683	1,164	"	1,028 1,061	Clinton Grimsby	221	445	114	
4	2	J. E. Ryckman.....	2,300 ft. S. of N. road..... 50 ft. W. of E. line.	1910	704	1,186	"	1,056	Clinton	121	.....	149	
5	2	B. Bowlby No. 1.....	SW. Corner.....	1907	708	1,152	"	.....	.....	350	325	148	
5	2	B. Bowlby No. 2.....	50 ft. N. of S. road..... 650 ft. W. of E. line.	1909	705	1,182	"	1,077	Grimsby	880	485	139	
5	2	Erie Gas Co..... C. A. Thompson No. 1.....	2,350 ft. N. of S. road..... 900 ft. W. of E. line.	1931	666	1,150	"	1,013	Clinton	87	325	85	
5	2	Dominion Natural Gas Co..... C. J. Cantelon No. 1.....	1,200 ft. N. of S. road..... 50 ft. E. of W. line.....	1910	673	1,142	"	1,006 1,036	Clinton Grimsby	982	450	98	
6	2	Geo. Laurie No. 1.....	1,600 ft. S. of N. road..... 900 ft. W. of E. line.....	1909	618	1,141	"	1,015 1,029	Clinton Grimsby	120	510	106	

Wells in Woodhouse Township, Norfolk County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
6	2	Geo. Laurie No. 2	1,850 ft. S. of N. road 50 ft. E. of W. line.	1909	707	1,176	Norfolk	1,057	Clinton	.....	.....	127	Show of gas.
7	2	F. Boulter No. 1	50 ft. N. of S. road 975 ft. W. of E. line	1907	677	1,155	"	1,014 1,060	Clinton Grimsby	192	.....	86	
7	2	F. Boulter No. 2	2,200 ft. N. of S. road 50 ft. E. of W. line	1910	701	1,165	"	1,027 1,048	Clinton Grimsby	73	450	131	
7	2	Wm. Duncan No. 1	2,150 ft. N. of S. road 1,000 ft. W. of E. line.	1918	688	1,165	"	1,037	Grimsby	271	.....	118	
7	2	W. Waddle No. 2	500 ft. S. of N. road 50 ft. W. of E. line.	1914	609	1,053	"	940	Clinton	30	395	22	
7	2	W. Waddle No. 1	100 ft. S. of N. road 800 ft. W. of E. line.	1906	612	1,061	"	942	Clinton	221	.....	28	
8	2	Dominion Natural Gas Co	1,150 ft. S. of R.R. tracks. 50 ft. E. of W. line.	1914	666	1,089	"	981	Grimsby	200	365	82	
8	2	Wm. Stamp	SW. Corner	1907	678	1,120	"	1,028	Grimsby	250	410	94	
8	2	Wm. Wright	1,200 ft. N. of S. line 550 ft. E. of W. line.	1914	678	1,095	"	.....	.....	575	360	98	
8	2	Dominion Natural Gas Co	1,600 ft. S. of N. line 400 ft. E. of W. line.	1906	617	1,036	"	965	Grimsby	492	.....	31	
8	2	C. McNeilhedge No. 1	50 ft. N. of R.R. tracks 500 ft. W. of E. line	1906	612	1,037	"	946 965	Clinton Grimsby	103	.....	24	
9	2	J. Goodland No. 1	SW. Corner	1907	648	1,084	"	1,014	Grimsby	414	.....	70	
9	2	W. J. Williams No. 1	560 ft. N. of S. road 850 ft. W. of E. line.	1909	645	1,097	"	974	Clinton	.....	.....	58	Show of gas.
17	2	C. A. Welch No. 1	50 ft. S. of N. road 800 ft. E. of W. line.	1918	600	1,018	"	.....	.....	Dry hole	.....	4	

22	2	Union Gas Co. No. 232 J. Mead	NW. Corner	1939	659	1,030	"	918 943	Clinton Grimsby	11 16	.....	39	
24	2	Dominion Natural Gas Co. D. J. Ward No. 1	50 ft. N. of S. road 550 ft. W. of E. line.	1908	627	1,015	"	.....	.....	Dry hole	.....	11	
2	3	A. E. Begley No. 1	SE. Corner	1928	718	1,174	"	1,059	Clinton	26	500	157	Sulphur water at 225 ft.
3	3	J. W. Cameron No. 1	NE. Corner	1906	648	1,131	"	1,080	Whirlpool	150	.....	36	Abandoned.
3	3	R. A. Saville	1,100 ft. N. of S. road 50 ft. W. of E. line.	1928	703	1,159	"	1,027	Clinton	4	.....	135	Sulphur water at 205 ft.
5	3	A. E. Schoff	750 ft. S. of N. road 100 ft. E. of W. line.	1917	623	1,011	"	922	Clinton	88	520	25	
5	3	J. F. Smythe No. 1	50 ft. N. of S. road 760 ft. E. of W. line.	1912	676	1,132	"	1,001	Clinton	185	475	117	
5	3	J. F. Smythe No. 2	2,100 ft. S. of N. road 500 ft. W. of E. line	1916	620	1,100	"	916 1,030	Clinton Grimsby	1,035	465	36?	
5	3	J. F. Smythe No. 3	1,500 ft. S. of N. road 200 ft. E. of W. line.	1929	685	1,128	"	999	Clinton	70	250	95	Sulphur water at 118 ft.
6	3	W. H. Williams No. 1	50 ft. N. of S. road 700 ft. W. of E. line.	1908	639	1,110	"	962	Grimsby	70	.....	70	
6	3	Geo. Kirkwood No. 1	1,000 ft. S. of N. road 90 ft. E. of W. line.	1916	709	1,104	"	.....	.....	210	470	98?	
6	3	Erie Gas Co. C. A. Thompson No. 2	700 ft. N. of S. road 350 ft. E. of W. line	1931	627	1,125	"	940 978	Clinton Grimsby	246	240	36	
6	3	C. A. Thompson No. 3	700 ft. N. of S. road 500 ft. E. of W. line	1931	645	1,114	"	975 999	Clinton Grimsby	96	270	74	
6	3	L. O. Kelly No. 4	1,500 ft. N. of S. road 900 ft. W. of E. line.	1933	618	1,062	"	939	Clinton	15	275	44	Sulphur water at 70 and 124 ft.
6	3	Aloka Oil and Gas Co. F. Smith No. 1	1,900 ft. S. of N. road 50 ft. W. of E. line.	1935	702	1,104	"	978	Grimsby	Dry hole	.....	47	Show of gas at 978 ft.
7	3	Dominion Natural Gas Co.	750 ft. N. of S. road 75 ft. E. of W. line.	1906	615	1,055	"	929	Clinton	271	.....	34	
8	3	S. F. Smith	50 ft. N. of S. road 1,000 ft. W. of E. line.	1908	680	1,118	"	1,015	Clinton	.....	.....	82	Show of gas.
18	3	W. Porter	SE. Corner	1910	650	1,066	"	932	Clinton	.....	.....	57	Show of gas.
4	4	J. Austin No. 1	1,000 ft. S. of N. road 100 ft. W. of Centre line.	1932	720	1,064	"	.....	.....	Dry hole	.....	92	
5	4	G. and E. Caswell No. 1	SW. Corner	1932	713	1,092	"	1,023	Clinton	225	435	90	

Wells in Woodhouse Township, Norfolk County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
6	4	Wm. Halloway No. 1.....	SE. Corner.....	1923	701	1,080	Norfolk..	990	Clinton	70	430	102	
6	4	J. Field No. 1.....	1,375 ft. N. of S. road..... 150 ft. E. of W. line.	1924	704	1,086	"	1,066	Clinton	46	435	73	
12	4	P. O. Austin No. 1.....	1,625 ft. N. of S. road..... 25 ft. W. of E. line.	1924	681	1,065	"	.....	.....	Dry hole	.....	58	
18	4	Dominion Natural Gas Co.....	1,400 ft. S. of N. road..... 200 ft. W. of E. line.	1924	623	996	"	.....	.....	Dry hole	.....	21	
23	4	Union Gas Co. No. 229..... T. Reynolds.	40 ft. SE. of highway 6 600 ft. SW. of road between cons. 4 and 5 along SE. line of highway 6.	1939	658	995	"	.....	.....	Dry hole	.....	25	Show of gas in Whirlpool.
2	5	Simcoe Wool Stock Co..... Mrs. Brook No. 1.....	100 ft. N. of S. road..... 200 ft. E. of W. line.	1936	672	1,003	"	964	Clinton	10	500	42	Sulphur water at 107 ft.
11	5	Walter Gas Synd..... Mary Gill No. 1.....	100 ft. S. of N. road..... 900 ft. W. of E. line.	1936	702	1,044	"	962	Grimsby	78	525	60	Sulphur water at 200 ft.
11	5	J. and A. Chechak No. 1.....	950 ft. W. of E. line..... 1,400 ft. S. of N. road.	1937	672	1,014	"	886	Clinton	71	510	40	Fresh water at 50 ft., rose 40 ft. Sulphur water at 95 ft., rose 55 ft.
11	5	I. Hewitt No. 1.....	650 ft. W. of E. line..... 2,800 ft. S. of N. road.	1938	672	1,015	"	883	Clinton	58	500	50	Fresh water at 15 ft., rose 10 ft. Sulphur water at 100 ft., rose 60 ft.
12	5	Walter Gas Synd..... N. R. Butler No. 1.....	60 ft. E. of W. line..... 1,000 ft. S. of N. road.	1937	702	1,040	"	909	Clinton	106	530	59	Black water at 158 ft., rose 58 ft.
12	5	King.....	.....	1938	698	.....	.....	.....	.....	.....	.....	.....	
17	5	Union Gas Co. No. 193.....	1,735 ft. S. of N. road..... 325 ft. W. of E. line.	1931	678	1,000	Norfolk..	960	Grimsby	5	.....	47	Sulphur water at 85 ft.

18	5	Union Gas Co. No. 189	50 ft. S. of N. road 800 ft. E. of W. line.	1931	641	983	"	885	Grimsby	15	425	3	Fresh water at 8 ft.
19	5	Union Gas Co. No. 201	500 ft. S. of N. road 60 ft. E. of W. line.	1931	636	992	"	885	Grimsby	45	340	7	Fresh water at 50 ft.
19	5	Union Gas Co. No. 206	950 ft. S. of N. road 1,700 ft. E. of W. line.	.....	634	979	"	874	Grimsby	6	.....	9	Fresh water at 68 ft.
10	6	Walter Gas Synd W. Roberts No. 1	100 ft. N. of S. road 100 ft. W. of E. line.	1936	708	1,057	"	947	Clinton	9	300	72	Abandoned. Fresh water at 136 ft. Black water at 570 ft.
12	6	J. Walker No. 1	1,050 ft. N. of S. road 1,050 ft. W. of E. line	1935	704	1,037	"	914 960	Clinton Grimsby	43	385	57	Fresh water at 72 ft. Sulphur water at 143 ft.
13	6	B. A. Beatty No. 1	800 ft. S. of N. road 35 ft. W. of E. line.	1934	697	1,026	"	896	Clinton	85	.....	90	Water at 121 ft.
13	6	B. A. Beatty No. 2	1,500 ft. S. of N. road 700 ft. W. of E. line	1934	670	1,032	"	880 1,000	Clinton Whirlpool	70	390	75	Fresh water at 87 ft.
13	6	C. A. Blow No. 1	2,075 ft. N. of S. road 50 ft. E. of W. line.	1934	704	1,088	"	1,032	Whirlpool	45	570	52	Sulphur water at 72 ft.
13	6	J. Steinhoff No. 1	1,700 ft. N. of S. road 150 ft. W. of E. line.	1934	693	1,036	"	.....	.....	Dry hole	.....	85	Water at 94 ft.
13	6	Dominion Natural Gas Co B. A. Beatty No. 1	50 ft. S. of N. road 750 ft. W. of E. line.	1926	700	1,027	"	907	Clinton	7	.....	86	Black water at 540 ft.
14	6	Robt. A. Nixon No. 1	50 ft. S. of N. road 750 ft. E. of W. line	1926	697	1,040	"	880 1,006	Clinton Grimsby	142	460	80	
15	6	A. Mitchell	NW. Corner	1924	660	975	"	.....	.....	Dry hole	.....	31	
16	6	A. Graves No. 1	1,600 ft. S. of N. road 350 ft. E. of W. line.	1926	673	991	"	874	Clinton	6	.....	55	Fresh water at 63 ft. Black water at 500 ft.
17	6	H. Newell No. 1	NW. Corner	1925	696	1,006	"	.....	.....	Dry hole	.....	63	Water at 73 ft.
20	6	Burchell Gas Synd W. Ferris No. 1	SW. Corner	1935	642	1,009	"	859 879	Clinton Grimsby	40	500	10	Sulphur water at 60 and 30 ft. Black water at 400 ft.
20	6	W. Ferris No. 2	900 ft. N. of S. road 400 ft. E. of W. line.	1935	638	1,004	"	900	Grimsby	39	500	31	Fresh water at 60 ft. Sulphur water at 160 ft. Black water at 400 ft.
22	6	N. Brown No. 1	50 ft. N. of S. road 50 ft. E. of W. line.	1935	672	1,012	"	.....	.....	Dry hole	.....	42	Fresh water at 78 ft. Black water at 647 ft.
1	B.F.	Dominion Natural Gas Co C. Aiken.	NE. Corner	1921	655	1,179	"	1,041	Clinton	25	485	136	

Wells in Woodhouse Township, Norfolk County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
1	"	J. A. Colliver	25 ft. N. of Centre line. 1,230 ft. W. of E. line.	1910	699	1,209	Norfolk	1,195	Whirlpool	.....	.....	151	Show of gas.
1	"	J. S. Boughner No. 1	925 ft. S. of Centre line. 210 ft. E. of W. line.	1928	688	1,214	"	1,093	Clinton	.....	.....	147	Show of gas.
1	"	W. L. Oakes No. 1	1,625 ft. S. of N. road 150 ft. W. of E. line.	1909	623	1,175	"	1,038	Clinton	100	525	126	
2	"	R. M. Morris	1,400 ft. N. of S. road 650 ft. E. of W. line	1909	595	1,046	"	1,002 1,026	Clinton Grimsby	17	500	66	
2	"	Wm. D. Boyd No. 1	SE. Corner	1908	590	1,177	"	1,112	Grimsby	.....	.....	71	Show of oil.
2	"	D. M. Colliver	650 ft. S. of N. road 775 ft. E. of W. line	1921	642	1,157	"	1,010 1,040	Clinton Grimsby	178	555	116	
3	"	Geo. and W. F. Smith No 1	SE. Corner	.....	635	1,175	"	1,053	Grimsby	48	475	112	
3	"	Geo. W. Buchner	1,250 ft. S. of N. road 850 ft. E. of W. line	1921	636	1,148	"	1,019 1,030	Clinton Grimsby	32	460	109	
4	"	S. J. and R. F. Evans	1,200 ft. S. of N. road 300 ft. W. of E. line.	1918	636	1,152	"	.....	.....	293	605	99	
4	"	C. D. Wooley No. 1	1,250 ft. S. of N. road 75 ft. E. of W. line	1919	644	1,158	"	1,011 1,121	Clinton Whirlpool	157	415	101	
4	"	C. D. Wooley No. 4	740 ft. S. of N. road 40 ft. E. of W. line	1922	673	1,214	"	1,033 1,146	Clinton Whirlpool	198	635	127	
4	"	C. D. Wooley No. 5	3,650 ft. S. of N. road 25 ft. E. of W. line.	1922	651	1,160	"	1,030	Clinton	20	345	114	
4	"	C. D. Wooley No. 6	3,800 ft. S. of N. road 500 ft. E. of W. line.	1922	654	1,191	"	1,061	Grimsby	18	.....	132	
4	"	H. and A. William No. 1	100 ft. S. of Centre line. 750 ft. E. of W. line.	1923	670	1,202	"	1,070	Whirlpool	285	150	131	
5	"	Enoch Roberts	NE. Corner	1913	673	1,166	"	1,021	Clinton	.....	.....	128	Show of gas.

5	"	C. D. Wooley	4,700 ft. S. of N. line 200 ft. W. of E. line	1911	637	1,140	"	1,029 1,126	Clinton Whirlpool			115	Show of gas.
5	"	C. D. Wooley No. 2	4,600 ft. N. of lake shore 925 ft. E. of W. line	1919	652	1,191	"	1,006 1,132	Clinton Whirlpool	104	760	109	
5	"	C. D. Wooley No. 3	3,475 ft. S. of N. road 700 ft. E. of W. line.	1920	655	1,160	"	1,014	Clinton	37	310	129	
6	"	P. Boughner No. 1	2,000 ft. S. of N. road 75 ft. E. of W. line	1920	653	1,191	"	1,010 1,147	Clinton Whirlpool	252	685	117	
6	"	P. Boughner No. 2	3,200 ft. S. of N. road 200 ft. E. of W. line.	1920	622	1,168	"	996		140	255	95	
6	"	J. King No. 1	2,200 ft. S. of N. road 100 ft. W. of E. line.	1913	638	1,176	"	1,025	Grimsby	250		103	
7	"	Dominion Natural Gas Co	1,500 ft. S. of N. road 700 ft. E. of W. line	1913	641	1,144	"	896 1,022		390	490	104	
7	"	Thos. Bowlby No. 2	1,000 ft. S. of N. road 300 ft. W. of E. line.	1912	636	1,176	"			340	645	100	
8	"	Wm. Duncan No. 2	600 ft. S. of N. road 750 ft. E. of W. line.		633	1,142	"	998	Grimsby	512	645	91	
10	"	Dominion Natural Gas Co	350 ft. S. of N. road 750 ft. E. of W. line	1908	615	1,107	"	960 1,018	Clinton Grimsby	221		82	
1	Gore	H. Graves No. 1	3,700 ft. S. of N. road 650 ft. W. of E. line.		705	1,266	"	1,226	Whirlpool	134	550	166	Water at 171 ft.
1	"	M. McCall No. 2	5,550 ft. S. of N. road 80 ft. E. of W. line.	1928	654	1,227	"	1,227		37		125	Water at 145 ft.
1	"	W. F. Oakes No. 1	7,900 ft. S. of N. road 100 ft. W. of E. line.	1928	656	1,241	"	1,198	Whirlpool	17	400	129	Fresh water at 144 ft.
1	"	E. McCall and H. Nichols No. 1.	6,300 ft. S. of N. road 50 ft. W. of E. line.	1928	685	1,263	"	1,263		95	625	148	Water at 800 ft.
1	"	Wm. Butler No. 1	2,200 ft. S. of N. road 550 ft. W. of E. line	1929	711	1,233	"	1,107 1,138	Clinton Grimsby	34	490	167	Fresh water at 182 ft.

Wells in Bayham Township, Elgin County

7	1	Dominion Natural Gas Co	5,300 ft. S. of N. road 25 ft. W. of E. line.	1911	644	1,555	Norfolk			Dry hole		285	
12	1	Dominion Natural Gas Co	400 ft. S. of N. road 575 ft. W. of E. line.	1917	578	1,362	"		Clinton			205	Show of oil and gas.

Wells in Bayham Township, Elgin County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
13	1	Dominion Natural Gas Co.....	2,600 ft. S. of N. road..... 500 ft. E. of W. line.	1917	637	1,431	Norfolk..	1,398	Clinton	1,377	620	272	
13	1	Dominion Natural Gas Co.....	400 ft. S. of N. road..... 300 ft. E. of W. line.	1918	630	1,454	"	1,397	Clinton	88	625	278	
14	1	R. C. Drake No. 1.....	40 ft. from lake shore.. 400 ft. E. of W. line.	1910	565	1,502	"	1,370	Clinton	157	720	249	
14	1	Dominion Natural Gas Co.....	1,940 ft. S. of N. line..... 50 ft. E. of W. line.	1918	636	1,432	"	.....	.....	.....	.....	275	Abandoned.
16	1	Dominion Natural Gas Co.....	SW. Corner.....	1911	631	1,537	"	1,415	Clinton	.....	.....	260	Show of gas.
18	1	Dominion Natural Gas Co.....	NW. Corner.....	1912	631	1,514	"	1,393	Clinton	73	.....	251	
7	2	Medina Gas Co.....	2,150 ft. S. of N. line..... 576 ft. W. of E. line.	1914	667	.....	"	.....	.....	Dry hole	.....	.....	
10	2	Dominion Natural Gas Co.....	NE. Corner.....	1911	664	1,521	"	1,430	Clinton	50	.....	290	
12	2	Medina Gas Co.....	950 ft. S. of N. road..... 350 ft. W. of E. line.	1923	658	1,405	"	1,389	Clinton	110	200	270	
12	2	Dominion Natural Gas Co.....	1,300 ft. N. of S. road..... 50 ft. W. of E. line.	1917	636	1,436	"	1,393	Clinton	280	300	270	
12	2	Dominion Natural Gas Co.....	2,500 ft. N. of S. road..... 600 ft. E. of W. line.	1911	580	1,339	"	1,308	Clinton	314	720	195	
13	2	Dominion Natural Gas Co.....	1,600 ft. N. of S. road..... 50 ft. W. of E. line.	1911	643	1,505	"	1,385	Clinton	578	680	269	
13	2	Dominion Natural Gas Co.....	SW. Corner.....	1917	638	1,440	"	1,402	Clinton	231	420	270	
14	2	Dominion Natural Gas Co.....	10 ft. S. of N. road..... 800 ft. E. of W. line.	1911	584	1,328	"	1,305	Clinton	2,770	780	184	
14	2	Dominion Natural Gas Co.....	3,950 ft. S. of N. road..... 50 ft. E. of W. line.	1911	581	1,442	"	1,338	Clinton	259	580	202	

14	2	Dominion Natural Gas Co.....	750 ft. S. of N. road..... 750 ft. E. of W. line.	1912	642	1,480	"	1,364	Clinton	382	420	248
14	2	Dominion Natural Gas Co.....	2,350 ft. S. of N. road..... 670 ft. E. of W. line.	1912	582	1,435	"	.....	.....	Dry hole	.....	195
14	2	Dominion Natural Gas Co.....	1,850 ft. S. of N. road..... 150 ft. E. of W. line.	1912	645	1,485	"	1,385	Clinton	192	445	254
14	2	Medina Gas Co.....	SE. Corner.....	1911	640	1,421	"	1,398	Clinton	500	.....	.....
14	2	Medina Gas Co.....	2,700 ft. N. of S. road..... 120 ft. E. of W. line.	1911	580	1,366	"	1,325	Clinton	370	.....	.....
15	2	Dominion Natural Gas Co.....	1,200 ft. S. of N. road..... 75 ft. E. of W. line.	1912	586	1,358	"	1,325	Clinton	463	.....	195
15	2	Dominion Natural Gas Co.....	SE. Corner.....	1913	641	1,438	"	1,381	Clinton	99	550	273
15	2	Dominion Natural Gas Co.....	NE. Corner.....	1911	580	1,426	"	1,313	Clinton	306	.....	188
15	2	Dominion Natural Gas Co.....	4,500 ft. N. of S. road..... 450 ft. W. of E. line.	1912	645	1,475	"	1,410	Grimsby	48	600	254
15	2	Medina Gas Co.....	25 ft. S. of N. road..... 600 ft. W. of E. line.	1911	582	1,354	.....	1,320	Clinton	453	.....	.....
16	2	Medina Gas Co.....	2,950 ft. S. of N. road..... 50 ft. E. of W. line.	1915	643	1,455	.....	1,392	Clinton	95	.....	.....
16	2	Medina Gas Co.....	108 ft. S. of N. road..... 430 ft. E. of W. line.	1911	583	1,346	.....	1,317	Clinton	1,000	.....	.....
16	2	Medina Gas Co.....	800 ft. S. of N. line..... 200 ft. W. of E. line.	1912	651	1,455	.....	1,393	Clinton	150	.....	.....
17	2	Dominion Natural Gas Co.....	NE. Corner.....	1913	586	1,415	Norfolk..	1,321	Clinton	5,000	400	210
18	2	Medina Gas Co.....	SE. Corner.....	1912	630	1,410	.....	.....	.....	.....	.....	.....
18	2	Dominion Natural Gas Co.....	NE. Corner.....	1913	656	1,455	Norfolk..	1,381	Clinton	172	520	262
18	2	Dominion Natural Gas Co.....	1,400 ft. S. of N. road..... 1,100 ft. W. of E. line.	1921	651	1,422	"	1,395	Clinton	39	230	272
19	2	Dominion Natural Gas Co.....	1,920 ft. S. of N. road..... 1,000 ft. E. of W. line.	1913	661	1,464	"	1,408	Clinton	87	654	287
19	2	Dominion Natural Gas Co.....	650 ft. S. of N. road..... 50 ft. E. of W. line.....	1914	657	1,403	"	1,389 1,403	Clinton Grimsby	1,000	640	278
20	2	Medina Gas Co.....	NW. Corner.....	1912	661	1,444	"	1,396	Clinton	250	.....	.....

Wells in Bayham Township, Elgin County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
21	2	Medina Gas Co.	3,550 ft. S. of N. line 80 ft. E. of W. line.	1912	590	1,360	.....	.....	.....	Dry hole	.....	.....	
21	2	Dominion Natural Gas Co.	NE. Corner	1912	653	1,496	Norfolk	1,380	Clinton	125	580	265	
22	2	Medina Gas Co.	NW. Corner	1912	648	1,451	.....	.....	.....	712	.....	.....	
23	2	Dominion Natural Gas Co.	NW. Corner	1913	656	1,433	Norfolk	1,373	Clinton	292	604	287	
24	2	Dominion Natural Gas Co.	NE. Corner	1914	644	1,402	"	1,370	Clinton	55	565	263	
11	3	Medina Gas Co.	2,500 ft. N. of S. line 50 ft. W. of E. line	1917	684	1,410	.....	1,030 1,235	.....	10	.....	.....	
12	3	Medina Gas Co.	950 ft. N. of S. road 600 ft. E. of W. line.	1914	668	1,462	Norfolk	1,397	Clinton	67	.....	.....	
12	3	Medina Gas Co.	150 ft. N. of river road 300 ft. W. of E. line.	1914	589	1,363	.....	1,313	Clinton	192	.....	.....	
13	3	Medina Gas Co.	4,000 ft. S. of N. line 400 ft. W. of E. line.	1923	654	1,398	.....	1,370	Clinton	25	260	240	
14	3	Medina Gas Co.	1,000 ft. N. of S. road 200 ft. W. of E. line.	1911	583	1,320	.....	1,308	Clinton	991	.....	.....	
14	3	Medina Gas Co.	1,000 ft. N. of S. road 250 ft. E. of W. line.	1911	660	1,396	.....	1,390	Clinton	1,600	.....	.....	
14	3	Dominion Natural Gas Co.	1,000 ft. N. of S. road 400 ft. W. of E. line.	1911	594	1,432	Norfolk	1,325	Clinton	231	.....	200	Abandoned.
14	3	Dominion Natural Gas Co.	1,300 ft. N. of S. road 100 ft. E. of W. line.	1911	629	1,470	"	1,345	Clinton	491	480	240	
14	3	Dominion Natural Gas Co.	SW. Corner	1911	659	1,504	"	1,388	Clinton	498	680	267	
15	3	Dominion Natural Gas Co.	1,800 ft. N. of S. road 500 ft. W. of E. line.	1911	585	1,403	"	.....	.....	290	.....	192	
15	3	Medina Gas Co.	1,500 ft. N. of S. road 300 ft. E. of W. line.	1910	586	1,370	.....	1,305	Clinton	293	.....	.....	

16	3	Dominion Natural Gas Co.....	3,700 ft. S. of N. road..... 250 ft. E. of W. line.	1911	662	1,507	Norfolk..	.....	.....	65	640	265	
17	3	Dominion Natural Gas Co.....	880 ft. N. of S. line..... 390 ft. W. of E. line.	1915	601	1,379	"	1,328	Clinton	135	315	210	
17	3	Medina Gas Co.....	3,500 ft. N. of S. road..... 300 ft. W. of E. line.	1914	678	.....	.....	.....	.....	Dry hole	.....	.....	
18	3	Dominion Natural Gas Co.....	1,000 ft. N. of S. line..... 500 ft. E. of W. line.	1914	641	1,416	Norfolk..	1,378	Clinton	293	375	241	
19	3	Dominion Natural Gas Co.....	875 ft. N. of S. line..... 550 ft. E. of W. line.	1915	658	1,423	"	1,388	Clinton	182	345	275?	
19	3	Medina Gas Co.....	2,000 ft. S. of N. line..... 475 ft. E. of W. line.	1913	652	1,483	"	1,363	Clinton	200	.....	.....	
20	3	Dominion Natural Gas Co.....	SE. Corner.....	1912	660	1,502	"	1,394	Clinton	210	650	277	
21	3	Dominion Natural Gas Co.....	1,440 ft. N. of S. line..... 30 ft. W. of E. line.	1912	658	1,452	"	1,385	Clinton	477	610	275	
21	3	Medina Gas Co.....	3,500 ft. S. of N. line..... 200 ft. W. of E. line.	1914	655	1,440	"	1,370	Clinton	221	.....	.....	
21	3	Medina Gas Co.....	3,250 ft. S. of N. line..... 1,150 ft. E. of W. line.	1914	667	1,484	.....	1,385	Clinton	353	.....	.....	
22	3	Medina Gas Co.....	1,400 ft. N. of S. line..... 400 ft. W. of E. line.	1913	648	1,450	.....	1,374	Clinton	393	.....	.....	
22	3	Medina Gas Co.....	2,650 ft. N. of S. line..... 475 ft. W. of E. line.	1913	656	1,460	.....	1,383	Clinton	807	.....	.....	
23	3	Dominion Natural Gas Co.....	1,250 ft. N. of S. road..... 550 ft. W. of E. line.	1914	659	1,423	Norfolk..	1,386	Clinton	157	520	273	
24	3	Medina Gas Co.....	3,200 ft. N. of S. road..... 200 ft. E. of W. line.	1913	665	1,472	.....	1,385	Clinton	111	.....	.....	
25	3	Dominion Natural Gas Co.....	SE. Corner.....	1914	602	1,405	Norfolk..	1,332	Clinton	.....	.....	232	Show of gas.
1	4	Dominion Natural Gas Co.....	NW. Corner.....	1917	742	1,406	"	.....	.....	.....	.....	258	
2	4	Dominion Natural Gas Co.....	NW. Corner.....	1917	717	1,418	"	1,185	.....	837	465	257	
3	4	Dominion Natural Gas Co.....	NW. Corner.....	1917	710	1,429	"	1,398	Clinton	.....	.....	282	Show of gas.
4	4	Medina Gas Co.....	1,400 ft. N. of S. road..... 500 ft. W. of E. line.	1911	584	1,410	.....	.....	.....	Dry hole	.....	.....	
23	4	Dominion Natural Gas Co.....	2,550 ft. S. of N. road..... 500 ft. E. of W. line.	1911	700	1,518	Norfolk..	.....	.....	.....	.....	294	

Wells in Bayham Township, Elgin County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
1	5	Medina Gas Co.	1,500 ft. N. of S. road 100 ft. W. of E. line.	1917	610	1,285	Norfolk				700	156	Water at 100 ft.
1	5	Medina Gas Co.	3,050 ft. N. of S. road 280 ft. E. of W. line.		722					Dry hole			
2		Medina Gas Co.	1,600 ft. N. of S. road 150 ft. E. of W. line.	1906	611	1,287	Norfolk				475	150	Water at 500 ft.
2		Medina Gas Co.	2,650 ft. N. of S. road 725 ft. E. of W. line.	1917	608	1,310	"	1,263	Clinton	270	510		Abandoned.
2	5	Medina Gas Co.	SW. Corner		720	1,320				17	190		Abandoned.
2	5	Medina Gas Co.	1,600 ft. N. of S. road 400 ft. W. of E. line.		650	1,396				50	180		
5	5	Olga Gas Co. J. A. Jackson	2,400 ft. S. of N. line 1,000 ft. W. of E. line.	1936	604	1,282	Norfolk	1,260	Clinton	30		164	Sulphur water at 385 ft. Salt water at 990 ft.
6	7	Vacuum Oil and Gas	5,500 ft. S. of N. road 200 ft. W. of E. line.	1919	625	3,484				Dry hole			Salt water at 3,415 ft.
12	7	Dominion Natural Gas Co.	SW. Corner	1920	609	1,237	Norfolk	1,225	Clinton	2		150	Abandoned.
23	7	Bayham Gas Synd. A. Allemand	300 ft. S. of N. line 250 ft. W. of E. line.	1936	658	1,237	"			Dry hole		144	Fresh water at 142 ft., rose 100 ft. Sulphur water at 437 ft., rose 420 ft.
23	7	F. Allemand	350 ft. S. of N. line 350 ft. W. of E. line.	1936	658		"			Dry hole			
6	8	Aloka Kidd	500 ft. S. of N. road 400 ft. W. of E. line.	1938		1,444	"			Dry hole			
6	8	Reed Adams Co. J. Holtby	850 ft. E. of W. road 350 ft. S. of N. road.	1937	773	1,444	"	1,085	Guelph			236	Show of gas. Fresh water at 236 ft. Sulphur water at 1,035 ft.

20		Eden Gas Synd. J. W. Howey No. 1.	SE. Corner	1936	761	1,336				Dry hole		247	Sulphur water at 250 ft., rose 120 ft. Black water at 915 ft.
20	8	Eden Gas Co. J. W. Howey No. 1	100 ft. N. of S. road 500 ft. W. of E. road.	1936	761	1,336	Norfolk			Dry hole		247	Sulphur water at 250 and 915 ft.
21	8	Walter Gas Synd. F. Chandler	1,500 ft. S. of N. line 250 ft. E. of W. line.	1936	665					Dry hole			
22	8	Eden Gas Synd. C. Davis	900 ft. N. of S. line 300 ft. W. of E. line.	1936	761	1,334	Norfolk			Dry hole		244	Sulphur water at 225 ft., rose 115 ft.
22	8	Dominion Natural Gas Co. A. Gray No. 1	1,050 ft. S. of N. road 50 ft. W. of E. line.	1911	764	2,776	"			Dry hole		250	
22	8	Eden Gas Co. C. Davis No. 1.	2,200 ft. S. of N. road	1936	761	1,334	"			Dry hole		244	Sulphur water at 225 and 350 ft.
23	8	S. McKechnie N. Gray No. 3	2,500 ft. S. of N. line 250 ft. W. of E. line.	1937	779	1,420	"			95	460	248	Water at 235 ft.
23	8	Canadian Gas Synd. Claude Wilson No. 1	3,200 ft. S. of N. road 200 ft. W. of E. line.	1935	774	1,349	"	1,315	Clinton	336	600	248	Fresh water at 300 ft. Sulphur water at 980 ft.
23	8	Claude Wilson No. 2	40 ft. N. of Centre line 850 ft. W. of E. line.	1935	774	1,360	"	1,325	Grimsby	40	600	251	
23	8	New Eden Gas Co. C. E. Wilson No. 1	3,750 ft. S. of N. road 600 ft. W. of E. line.	1938	772	1,368	"	1,327	Clinton	232	330	250	Fresh water at 220 ft., rose 90 ft. Black water at 260 ft.
23	8	C. E. Wilson No. 2	4,300 ft. S. of N. road 300 ft. W. of E. line.	1938	766								
23	8	Canadian Gas Synd. C. E. Wilson No. 3	2,700 ft. S. of N. line 400 ft. E. of W. line.	1937	788	1,355	Norfolk	1,315	Clinton	40	300	257	Fresh water at 255 ft. Sulphur water at 280 and 970 ft.
24	8	Eden Gas Synd. E. Capling No. 3	1,500 ft. S. of N. road 200 ft. E. of W. line.	1937	779	1,352	"	1,312	Clinton	152	300	244	Fresh water at 230 ft., rose 110 ft. Sulphur water at 340 ft.
24	8	S. McKechnie N. Gray No. 1	1,500 ft. S. of N. line 500 ft. W. of E. line.	1936	779	1,355	"			400	520	238	Fresh water at 240 ft.
24	8	N. Gray No. 2	2,300 ft. S. of N. line 200 ft. E. of W. line.	1937	780	1,370	"	1,316	Clinton	143	460	244	Water at 245 ft.
24	8	Eden Gas Synd. Capling No. 1	1,500 ft. S. of N. line 100 ft. E. of W. line.	1936	778	1,360	"	1,312	Clinton	225	490	245	Fresh water at 230 ft. Sulphur water at 340 ft.
24	8	Olga Gas Co. C. E. Wilson No. 1	3,950 ft. S. of N. road 100 ft. W. of E. line.	1935	769	1,342	"	1,300	Clinton	730	600	241	Fresh water at 125 ft. Sulphur water at 1,050 and 1,055 ft.

Wells in Bayham Township, Elgin County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
24	8	C. E. Wilson No. 2	5,000 ft. S. of N. road 75 ft. E. of W. line.	1935	763	1,350	Norfolk	1,310	Clinton	295	600	244	Fresh water at 244 ft. Sulphur water at 450, 1,030, and 1,055 ft.
24	8	C. Wilson No. 3	1,300 ft. S. of N. road 100 ft. E. of W. line.	1936	772	1,360	"	1,319	Clinton	.....	600	248	Fresh water at 250 ft.
24	8	C. Wilson No. 1	1,400 ft. S. of N. road 50 ft. W. of E. line.	1936	769	1,342	"	1,300	Clinton	730	600	241	Fresh water at 125 ft. Sulphur water at 1,030 and 1,055 ft.
25	8	Canadian Gas Synd. S. Williams No. 1	2,500 ft. S. of N. road 50 ft. W. of E. line.	1935	768	1,354	"	1,298	Clinton	600	.....	223	Sulphur water at 225 ft.
25	8	Medina Gas Co. S. Williams No. 2	3,150 ft. S. of N. road 200 ft. W. of E. line.	1935	.....	1,344	"	1,298	Clinton	300	560	220	Fresh water at 140 ft. Sulphur water at 330 ft.
25	8	Central Pipe Line Co. S. Williams No. 3	3,450 ft. S. of N. line 400 ft. E. of W. line.	1936	767	1,346	"	1,300	Clinton	478	560	235	Fresh water at 150 ft. Sulphur water at 340 ft.
25	8	E. P. Rowe J. Ball No. 4	300 ft. W. of E. line S. boundary.	1936	732	1,322	"	1,275	Clinton	425	550	201	Sulphur water at 202 ft.
25	8	New Eden Gas Co. W. H. Roloson No. 1	650 ft. E. of W. line 60 ft. S. of N. road.	1937	777	1,318	"	.....	.....	Dry hole	.....	237	Fresh water at 235 ft., rose 105 ft. Sulphur water at 935 ft.
25	8	Medina Gas Co. S. Williams No. 2	3,400 ft. S. of N. road 50 ft. W. of E. line.	1935	764	1,344	"	1,298	Clinton	325	560	170	Fresh water at 140 ft. Sulphur water at 330 ft.
25	8	Rowe and Knight J. Ball No. 3	5,300 ft. S. of N. road 800 ft. W. of E. road.	1936	720	1,309	"	1,356	.....	.....	560	180	Sulphur water at 182 ft.
26	8	J. Ball No. 2	4,000 ft. S. of N. road 1,200 ft. W. of E. road.	1936	740	1,315	"	1,270	Clinton	500	580	195	Sulphur water at 197 ft.
26	8	Alton No. 1	1,360 ft. S. of N. road 640 ft. E. of W. line.	1935	767	1,330	"	1,295	Clinton	300	.....	222	Fresh water at 215 ft. Sulphur water at 360 and 960 ft.

26	8	E. P. Rowe J. Ball No. 2	2,200 ft. S. of N. road 50 ft. W. of E. line		758	1,321		360 1,286	Onondaga Clinton	1,327		205	Show of oil in Onondaga. Fresh water at 205 ft.
27	8	J. Ball No. 1	3,350 ft. S. of N. road 700 ft. E. of W. line.	1935	667	1,244	Norfolk	1,194	Clinton	750		118	Sulphur water at 120 ft.
27	8	E. P. Rowe Gas Co. A. C. Wilson No. 1	650 ft. S. of N. road 600 ft. E. of W. line	1934	770	1,325	"	330 950	Onondaga Guelph	 517		220	Show of oil in Onondaga. Sulphur water at 270 ft.
27	8	E. P. Rowe A. C. Wilson No. 2	1,700 ft. S. of N. road 550 ft. E. of W. line.	1935	685	1,246	"	1,207	Thorold	1,000	590	136	
27	8	C. Ball No. 1	1,150 ft. N. of S. line 200 ft. E. of W. line.	1937	729	1,338	"	1,279	Clinton	321	485	200	Sulphur water at 200 ft.
27	8	N. Gray No. 1	2,500 ft. N. of S. line 200 ft. W. of E. line.	1937	731	1,327	"	1,268	Clinton	240	425	195	Show of oil at 300 ft. Water at 198 ft.
28	8	E. Stilwell No. 1	300 ft. S. of N. road 900 ft. E. of W. line.	1934	676	1,201	"	1,178	Clinton	731	550	126	Sulphur water at 135 and 200 ft.
28	8	N. G. Dean and Son C. Ball No. 2	80 ft. E. of W. line 690 ft. N. of S. road.	1938	753	1,302	"			Dry hole		214	Black water at 220 ft., rose 100 ft.
28	8	Dean Gas Synd C. Ball.		1938	724	1,315	"	1,257	Clinton	110	330	310	Fresh water at 190 ft., rose 130 ft. Sulphur water at 235 ft., rose 155 ft.
1	9	Kidd-Adams A. E. Cheeseman No. 2	2,650 ft. N. of railway 320 ft. E. of W. road.	1938	789	946	"	945	Guelph	585	427	195	Fresh water at 195 ft., rose 150 ft. Sulphur water at 305 ft., rose 225 ft.
1	9	A. E. Cheeseman No. 1	350 ft. S. of N. road 300 ft. E. of W. road.	1938	798	945	"	945	Guelph	2,048	440	197	Fresh water at 197 ft., rose 40 ft. Sulphur water at 350 ft., rose 40 ft.
2	9	Western Ontario Natural Gas Co. H. Clarke No. 2.	2,200 ft. E. of W. road 325 ft. S. of N. road	1939	783	932	"	906 930	Guelph	1,125	406	193	Fresh water at 195 ft., rose 172 ft. Salt water at 500 ft.
2	9	H. Clarke No. 1	1,550 ft. E. of W. road 310 ft. S. of N. road.	1938	789	937	"	937	Guelph	1,500	439	198	
27	9	Medina Gas Co. N. H. Gray No. 2.	SE. Corner	1935		863	"	856	Guelph			158	Show of gas. Sulphur water at 856 ft.
27	9	Walwark and Simpson N. H. Gray No. 1	SW. Corner	1934	776	1,304	"	345 1,025	Onondaga Guelph			222	Show of oil in Onondaga.

Wells in Bayham Township, Elgin County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
28	9	E. P. Rowe E. Stilwell No. 3	400 ft. N. of S. line 600 ft. E. of W. line.	1934	706	1,238	Norfolk	.....	.....	Dry hole	.....	152	Sulphur water at 855 ft.
28	9	E. Stilwell No. 5	NW. Corner	1934	765	1,312	"	340 1,285	Onondaga Clinton	409	500	217	Show of oil in Onondaga. Fresh water at 210 ft. Sulphur water at 270 ft.
1	10	Kidd-Adams A. E. Cheeseman No. 1	2,350 ft. N. of S. road 165 ft. E. of W. road.	1938	770	917	"	905	Guelph	2,585	.....	162	Fresh water at 160 and 165 ft. Sulphur water at 212, 320, and 540 ft.
1	10	A. E. Cheeseman No. 2	1,450 ft. N. of S. road 135 ft. E. of W. road	1938	774	924	"	898	Guelph	1,736	440	167	Fresh water at 170 ft., rose 45 ft. Fresh water at 260 ft.
1	10	Central Pipe Line Co. Geo. Berdan No. 1	450 ft. S. of N. road 1,050 ft. E. of W. road	1938	774	920	"	895 920	Guelph	3,800	441	167	Fresh water at 87 ft., rose 30 ft. Sulphur water at 166 ft., rose 50 ft.
2	10	Geo. Oldrieve J. Silverthorne No. 1	600 ft. S. of N. road 1,725 ft. E. of W. road	1938	781	930	"	897 929	Guelph	4,135	440	174	Fresh water at 175 ft., rose 25 ft. Sulphur water at 425 ft.
2	10	Central Pipe Line Co. C. Turner No. 1	1,100 ft. N. of S. road 300 ft. E. of W. line.	1938	801	945	?	940	?	5,900	433	.....	Fresh water at 204 ft., rose 35 ft. Salty water at 220 ft.
4	10	W. C. Patterson Hagel No. 1	250 ft. S. of N. line 450 ft. W. of E. line.	1937	800	966	Norfolk	933	Guelph	1,980	.....	201	
4	10	Hagel No. 2	1,100 ft. S. of N. line 50 ft. W. of E. line.	1937	805	953	"	949	Guelph	2,300	470	209	Fresh water at 210 ft., rose 40 ft. Sulphur water at 470 ft.
5	10	A. M. Smith H. Downing No. 1	350 ft. S. of N. line 100 ft. E. of W. line.	1936	812	970	"	960	Guelph	1,990	465	212	Sulphur water at 215 and 523 ft.
5	10	H. Downing No. 2	100 ft. S. of N. line 400 ft. E. of W. line.	1937	809	977	"	960	Guelph	277	470	211	Sulphur water at 223 and 535 ft.

5	10	H. Downing No. 3	1,250 ft. S. of N. line 500 ft. E. of W. line.	1937	804	971	"	957	Guelph	160	470	209	Sulphur water at 220 and 529 ft.
5	10	Downing No. 4	650 ft. S. of N. road 350 ft. W. of E. road.	1938	809	979	"	942	Guelph	174	455	210	Fresh water at 214 ft., rose 164 ft. Salt water at 964 ft.
5	10	W. C. Patterson Robinson No. 1	2,100 ft. S. of N. line 350 ft. E. of W. line.	1937	797	963	"	939	Guelph	410	.....	207	
5	10	S. McKechnie T. Turnbull	3,300 ft. S. of N. line 900 ft. W. of E. line.	1937	796	1,016	"	.....	.....	Dry hole	.....	223	Fresh water at 226 ft. Sulphur water at 460 ft.
6	10	Nelson Gas Synd. G. Nelson No. 1	1,800 ft. S. of N. line 200 ft. E. of W. line.	1937	803	967	"	945	Guelph	1,333	.....	210	Fresh water at 55, 149, 164, 188 ft. Sulphur water at 215, 430, 509, and 550 ft.
6	10	G. Nelson No. 2	2,150 ft. S. of N. line 400 ft. E. of W. line.	1937	792	969	"	.....	.....	Dry hole	.....	195	Fresh water at 60 and 150 ft. Sulphur water at 395 ft., rose 210 ft. Salt water at 967 ft., rose 600 ft.
9	10	W. C. Patterson G. Lindsay No. 1	746 ft. W. of E. line 1,956 ft. S. of N. line. 350 ft. W. of property line	1937	783	978	"	.....	.....	Dry hole	.....	188	Fresh water at 190 ft., rose 14 ft. Black water at 978 ft.
10	10	Rose Valley Gas Co. Merinchuck No. 1	2,900 ft. S. of N. line 400 ft. W. of E. line.	1937	776	944	"	932	Guelph	3,400	455	180	Fresh water at 80 ft., rose 70 ft. Sulphur water at 184, 250, and 510 ft.
11	10	A. L. Rodgers and A. Holmes F. Cook No. 1	400 ft. E. of W. line 75 ft. N. of C.N. Rys.	1938	771	968	"	.....	.....	Dry hole	.....	182	Fresh water at 60 ft., rose 40 ft. Sulphur water at 184 ft., rose 182 ft. Black water at 515 ft., rose 250 ft. Salt water at 960 ft., rose 510 ft.

Wells in Malahide Township, Elgin County

1	1	.....	500 ft. S. of river bank 400 ft. E. of W. line.	1918	585	.....	.....	.....	.....	.....	.....	.....	Show of oil.
2	1	Ashton Pineo farm	4,900 ft. S. of N. line 200 ft. W. of E. line.	1918	584	.....	.....	.....	.....	.....	.....	.....	

Wells in Malahide Township, Elgin County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
3	1	Ashton Pineo farm	SW. Corner	1918	582	.....	.....	.....	.....	.....	.....	.....	Show of oil and gas.
31	1	Ashton Pineo farm	20 ft. N. of Centre road 320 ft. E. of W. line.	1918	578	.....	.....	.....	.....	.....	.....	.....	
3	1	Western Peninsula Oil and Gas Co.	150 ft. N. of Centre road 200 ft. W. of E. line.	1930	592	300	.....	235	Onondaga	.....	.....	167	Water at 145 ft.
4	1	H. Stephens	NW. Corner	.....	709	260	Norfolk	215	Onondaga	.....	.....	210	Show of oil.
4	1	Western Peninsula Oil and Gas Co.	160 ft. S. of Centre road. 100 ft. W. of E. line.	1930	585	305	.....	57	Surface	.....	.....	217	
4	1	Western Peninsula Oil and Gas Co.	250 ft. N. of Centre road 310 ft. E. of W. line.	1930	586	306	.....	.....	.....	.....	.....	.....	
5	1	Wm. Stebens	25 ft. W. of E. road 50 ft. N. of bridge.	1929	577	400	.....	.....	.....	.....	.....	176	
33	1	Kiser and Lauer	1,300 ft. S. of N. line 50 ft. W. of E. line.	1921	660	1,522	Norfolk	.....	.....	70	.....	268	
34	1	Kiser and Lauer	NW. Corner	1921	673	1,485	"	.....	.....	201	585	280	
2	2	Roberts farm	550 ft. N. of S. road 575 ft. E. of W. line.	.....	589	1,509	.....	.....	.....	.....	.....	.....	
25	2	Dominion Natural Gas Co. Thos. E. Chute No. 1	150 ft. N. of S. road 100 ft. E. of Centre line.	1924	685	1,558	Norfolk	.....	.....	Dry hole	.....	279	
32	2	M. McConnell No. 1	400 ft. N. of S. road 900 ft. E. of W. line.	1923	681	1,456	"	.....	.....	Dry hole	.....	280	
33	2	J. K. Bradford No. 1	SW. Corner	1922	682	1,498	"	1,431	Clinton	156	525	283	
34	2	M. A. and M. E. Haines No. 1	1,500 ft. N. of S. line 150 ft. E. of W. line.	1924	683	1,560	"	.....	.....	Dry hole	.....	298	
35	2	Kiser and Lauer	50 ft. N. of S. road 550 ft. E. of W. line.	1921	675	1,444	"	.....	.....	Dry hole	.....	277	

18	3	Union Gas Co. No. 13 R. R. Briggs	100 ft. N. of S. road 50 ft. E. of W. line.	1939	710	1,565	"			Dry hole		265	Show of gas at 1,148 ft.
8	4	Union Gas Co. No. 20 J. and M. E. Page	2,100 ft. S. of N. road 50 ft. W. of Centre lot line.		765								Drilling Sept. 5/39.
8	4	E. Wayne Spaulding Johnson No. 1	225 ft. N. of S. road 5,150 ft. E. of W. road.	1937	791	1,617	Norfolk			Dry hole		280	Fresh water at 125, 165, and 260 ft. Sulphur water at 285 ft.
9	4	Union Gas Co. No. 14 Guy Percy	2,600 ft. S. of N. road 350 ft. W. of E. line.	1939	753	1,103	"		Guelph			290	
10	4	Union Gas Co. No. 17 G. L. Van Patter	500 ft. E. of W. line 600 ft. S. of Middle lot line.		739								Drilling Sept. 5/39.
14	4	Union Gas Co. No. 19 Dunn farm	405 ft. S. of N. road 80 ft. E. of W. line.		764								Drilling Sept. 5/39.
9	5	Union Gas Co. No. 10 A. C. and E. M. Howe	1,300 ft. N. of S. road 50 ft. W. of E. line.	1939	760	1,258	Norfolk			Dry hole		234	
15	5	Union Gas Co. No. 16 Everett Van Patter	350 ft. N. of S. road 350 ft. W. of E. road.	1939	763	1,083	"	1,083	Guelph	555		282	
17	5	Union Gas Co. No. 6 A. E. Richardson	1,125 ft. S. of N. road 540 ft. E. of W. line.	1939	801	1,419	"			Dry hole		340	
17	5	Union Gas Co. No. 11 A. E. Richardson	1,415 ft. N. of S. road 190 ft. W. of E. line.	1939	753	1,075	"	1,968	Guelph	318		179	
19	5	Union Gas Co. No. 5 L. M. and F. Harrett	2,470 ft. S. of N. road 300 ft. E. of W. line.	1939	759	1,086	"	1,081	Guelph	1,707		275	
19	5	Union Gas Co. No. 9 W. and V. Liddle	250 ft. N. of S. road 150 ft. E. of W. line.	1939	731	1,089	"	1,065	Guelph	239		260	
20	5	Union Gas Co. No. 8 L. Young Estate	1,650 ft. N. of S. road 150 ft. W. of E. road.	1939	737	1,072	"	1,967	Guelph	449		268	
21	5	Union Gas Co. No. 2 E. Bowan	1,100 ft. S. of N. road 50 ft. E. of W. road.	1938	749	1,525						269	
22	5	Union Gas Co. No. 12 S. Bowen	2,715 ft. N. of S. road 50 ft. E. of W. line.	1939	733	1,069	Norfolk	1,064	Guelph	323		265	
23	5	Union Gas Co. No. 15 Ray Prong	2,925 ft. S. of N. road 75 ft. E. of W. line.	1939	733	1,065	"	1,060	Guelph	740		270	
24	5	Union Gas Co. No. 18 Laidlaw farm	2,700 ft. S. of N. road 50 ft. E. of W. line.		726								Drilling Sept. 5/39.

Wells in Malahide Township, Elgin County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
35	5	Richmond Gas Co. Chiverton No. 1.	.....	1917	.....	1,390	Norfolk	.....	.....	.....	.....	160	Show of gas at 1,271 ft.
19	6	Union Gas Co. No. 7. A. Dickout	190 ft. N. of S. road. 179 ft. E. of W. line.	1939	803	1,145	"	.....	.....	Dry hole	.....	319	
5	7	A. W. Pierce	.....	1915	747	235	.....	.....	.....	.....	.....	.....	
25	7	Union Gas Co. No. 1	100 ft. N. of S. road. 50 ft. W. of E. road.	1938	782	1,526	Norfolk	.....	.....	Dry hole	.....	287	Fresh water at 165 ft., rose 20 ft. Salt water at 1,104 ft. Show of gas.
4	8	Connor and Oldrieve. L. McKinney No. 1.	SE. Corner	1937	793	1,617	"	.....	.....	Dry hole	.....	280	Fresh water at 125, 165, and 260 ft. Sulphur water at 285 ft., rose 240 ft.
11	8	.....	4,000 ft. S. of N. line. 100 ft. E. of W. line.	.....	799	416	"	.....	.....	.....	.....	247	Show of gas. Show of oil.
14	8	.....	NE. Corner	.....	791	.....	.....	.....	.....	.....	.....	.....	
15	8	Walker farm	NE. Corner	.....	783	.....	.....	.....	.....	.....	.....	.....	
23	8	Reed-Adams. M. Henstreet No. 1	500 ft. E. of W. line. 2,850 ft. S. of N. road.	1938	749	994	Norfolk	.....	Guelph	.....	.....	228	Show of gas at 980 ft. Fresh water at 228 ft., rose to top of hole. Sulphur water at 435 ft.
26	9	J. E. Lindsay No. 1	2,600 ft. N. of S. road. 500 ft. E. of W. road.	1936	773	994	"	.....	.....	Dry hole	.....	204	Fresh water at 190 and 204 ft.
35	9	Kidd-Adams. Cheeseman No. 5.	.....	1939	.....	939	"	.....	.....	.....	.....	.....	Show of gas at 932 ft.

Wells in Dorchester South Township, Elgin County

8	7	Union Gas Company F. McIntyre	75 ft. W. of E. line 480 ft. N. of Centre lot line.	1938	894	661	Norfolk			Dry hole		215	Fresh water at 218 ft., rose to surface. Sulphur water at 470 ft.
6	10	Winkworth	650 ft. N. of S. line		841	404	"						Show of oil.
3	11	Union Gas Company H. G. Martyn	50 ft. E. of W. road 100 ft. S. of N. road.	1938	880	1,471	"			Dry hole		256	Fresh water at 140 ft., rose 70 ft. Sulphur water at 270, 440, and 610 ft. Show of gas at 356 to 366 ft.
A	11	A. Leach	30 ft. S. of N. line	1928	859	262	"						Water well.

Well in Dorchester North Township, Middlesex County

24	B	D. Connor W. Knott No. 1	1,350 ft. E. of W. road 3,700 ft. N. of S. road.	1937	890	1,483	Norfolk			Dry hole		130	Fresh water at 134 ft., rose 25 ft. Sulphur water at 490 ft.

Wells in Dereham Township, Oxford County

5	10	Ajax Oil and Gas Co. O. H. Petman No. 1.	NE. quarter	1932	837	1,290	Norfolk			Dry hole		145	Fresh water at 84 and 150 ft. Salt water at 350 ft.
19	10	Armand Smith Holtby No. 1	100 ft. N. of S. road 400 ft. E. of W. line.	1937	822	996				Dry hole		179	Fresh water at 180 ft. Sulphur water at 250 ft.
15	11	A. Smith	650 ft. W. of E. road 600 ft. N. of S. road.	1938	820	1,373				Dry hole		179	Fresh water at 67 ft., rose 50 ft. Fresh water at 210 ft., rose 60 ft.
18	11	Aloka Oil and Gas Co. Hawkins No. 1	350 ft. N. of S. road 400 ft. W. of E. line.	1937	794	1,264				Dry hole		170	Fresh water at 62 ft., rose 47 ft. Sulphur water at 400 ft., rose 385 ft.
22	11	Armand Smith J. Preston No. 1	263 ft. N. of S. road 222 ft. E. of W. line.	1936	783	1,370	Norfolk			Dry hole		167	Fresh water at 168 ft., rose 138 ft. Sulphur water at 968 ft.

Wells in Dereham Township, Oxford County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
22	11	J. Preston No. 2	2,750 ft. N. of S. road 200 ft. E. of W. lot line.	1936	795	954	Norfolk	.....	.....	Dry hole	.....	183	Fresh water at 214 ft., rose 184 ft. Sulphur water at 350 ft.
23	11	A. Treleaven Clarke No. 1	177 ft. W. of E. line 191 ft. N. of S. road.	1936	782	910	"	898	Guelph	800	480	165	Fresh water at 55 and 80 ft. Sulphur water at 167, 300, and 420 ft.
23	11	Clarke No. 2	300 ft. N. of S. road 600 ft. E. of W. line.	1936	784	910	"	900	Guelph	1,240	490	165	Sulphur water at 375 ft.
23	11	Clarke No. 3	1,100 ft. N. of S. road 100 ft. E. of W. line.	1936	785	905	"	895	Guelph	2,000	.....	158	Sulphur water at 375 ft., rose 371 ft.
23	11	G. Clark	1,025 ft. W. of E. line 850 ft. N. of S. road.	1939	782	.....	"	.....	.....	.....	.....	.....	
23	11	McNiven Derraugh No. 1	2,300 ft. S. of N. road 550 ft. W. of E. line.	1936	795	980	"	.....	.....	Dry hole	.....	171	Fresh water at 210 ft. Mineral water at 406 ft. Sulphur water at 610 ft.
24	11	Aikens Synd S. Elliott No. 1	1,300 ft. N. of S. road 100 ft. W. of E. line.	1936	787	907	"	905	Guelph	5,486	475	152	Fresh water at 154 ft., rose 12 ft. Sulphur water at 510 ft.
24	11	S. Elliott No. 2	2,100 ft. N. of S. road 650 ft. W. of E. line	1937	792	927	"	919 924	Guelph	1,074	465	169	
24	11	S. Elliott No. 3	400 ft. N. of S. road 350 ft. W. of E. line.	1937	786	929	"	908	Guelph	3,300	460	167	Fresh water at 175 and 330 ft.
24	11	S. Elliott No. 4	400 ft. N. of S. road 400 ft. E. of W. line.	1937	785	941	"	910	Guelph	855	460	168	Fresh water at 115 and 175 ft.
24	11	S. Elliott No. 5	1,150 ft. N. of S. road 450 ft. E. of W. line.	1937	787	933	"	910	Guelph	3,489	460	168	Fresh water at 170 ft.
24	11	S. Elliott No. 6	1,450 ft. N. of S. road 800 ft. W. of E. line.	1937	793	910	"	903	Guelph	22,000	455	173	Fresh water at 175 ft., rose 150 ft.

24	11	S. Elliott No. 7	1,555 ft. N. of S. road 330 ft. E. of W. line.	1937	791	928	"	907	Guelph	1,300	446	168	Fresh water at 20 and 170 ft.
25	11	Patterson and Treleaven A. P. Scanlon No. 3	1,300 ft. N. of S. road 250 ft. W. of E. line.	1937	791	930	"	902	Guelph	3,847	455	168	
25	11	A. P. Scanlon No. 4	2,200 ft. N. of S. road 450 ft. W. of E. line.	1937	791	954	"	952	Guelph	372	455	173	Black water at 317 ft.
25	11	Adams and Co. A. P. Scanlon No. 3	350 ft. N. of S. road 375 ft. E. of W. line.	1938	785	946	"	913	Guelph	824	.....	170	Fresh water at 80 ft., rose 50 ft. Fresh water at 170 ft., flowing.
25	11	A. P. Scanlon No. 4	1,450 ft. N. of S. road 400 ft. E. of W. line.	1938	785	940	"	940	Guelph	1,016	.....	166	Fresh water at 206 ft., rose 180 ft.
25	11	A. P. Scanlon No. 5	2,125 ft. N. of S. road 425 ft. E. of W. line.	1938	788	.....	.....	.....	.....	.....	.....	.....	
25	11	Dereham Gas Co. A. P. Scanlon No. 2	800 ft. S. of N. road 200 ft. W. of E. line.	1937	805	1,010	Norfolk	.....	.....	Dry hole	.....	192	Fresh water at 85 ft. Gas at 963 and 972 ft.
25	11	Aloka Gas Co. A. P. Scanlon No. 1	350 ft. N. of S. road 300 ft. W. of E. line.	1937	784	938	"	912	Guelph	1,400	455	170	Fresh water at 178 ft. Sulphur water at 460 ft.
25	11	A. P. Scanlon No. 5	900 ft. N. of S. road 650 ft. W. of E. line.	1937	782	944	"	920	Guelph	2,139	450	167	Fresh water at 170 ft.
26	11	J. Humphrey No. 1	300 ft. N. of S. road 500 ft. E. of W. line.	1937	783	936	"	907	Guelph	1,750	450	110	Fresh water at 175 ft. Sulphur water at 450 ft.
26	11	Central Pipe Line Co. Clark No. 1	350 ft. N. of S. road 350 ft. W. of E. line.	1937	784	943	"	908	Guelph	3,300	455	173	Fresh water at 110 and 230 ft.
28	11	Kidd-Adams Williams No. 1	1,350 ft. E. of W. road 100 ft. N. of Michigan Central Ry.	1939	780	941	"	930	Guelph	592	.....	168	Fresh water at 169 ft., rose 160 ft. Sulphur water at 240 ft.
21	12	Dexter Oil and Gas Co. Mills No. 1.	NW. Corner	1936	777	1,356	"	.....	.....	Dry hole	.....	172	Fresh water at 60 ft. Sulphur water at 400 and 990 ft.
21	12	Western Ontario Natural Gas Co. W. Lucas No. 1.	360 ft. E. of W. road 640 ft. N. of S. road.	1938	800	966	"	960	Guelph	80	440	203	
22	12	Aloka Oil and Gas Co. G. S. Elliott No. 1	1,600 ft. S. of N. road 300 ft. E. of W. line.	1936	773	915	"	905	Guelph	1,100	460	160	Fresh water at 164 ft., overflowed.
22	12	G. S. Elliott No. 2	1,400 ft. S. of N. road 800 ft. E. of W. line.	1936	772	940	"	919	Guelph	300	480	162	Fresh water at 165 ft., overflowed.

Wells in Dereham Township, Oxford County—Continued

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
22	12	Patterson-Treleaven A. Rook No. 2	900 ft. S. of N. road 300 ft. W. of E. line.	1937	788	928	Norfolk	893	Guelph	1,838	460	166	Fresh water at 210 ft. Sulphur water at 490 ft.
22	12	A. Rook No. 1	2,200 ft. S. of N. road 200 ft. E. of W. line.	1937	775	949	"	927	Guelph	1,000	480	185	Black water at 186 ft.
22	12	A. Rook No. 3	200 ft. S. of N. road 1,000 ft. W. of E. road.	1937	799	967	"	944	Guelph	284	475	200	
22	12	A. Treleaven A. Rook	1,225 ft. W. of E. road 1,475 ft. N. of S. road.	1939	781	.....	"	.....	.....	.....	.....	.....	
23	12	Aloka Oil and Gas Co. Hawkins No. 1.	NE. Corner	1935	781	905	"	895	Guelph	220	450	166	Sulphur water at 166 ft.
23	12	Hawkins No. 2	700 ft. S. of N. road 300 ft. W. of E. line.	1935	777	917	"	900	Guelph	230	465	164	Sulphur water at 168 and 430 ft.
23	12	Hawkins No. 3	1,300 ft. S. of N. road 100 ft. W. of E. line.	1936	772	915	"	900	Guelph	2,338	450	164	Sulphur water at 168 ft.
23	12	Hawkins No. 4	1,900 ft. S. of N. road 700 ft. W. of E. line.	1936	772	920	"	911	Guelph	2,300	475	163	Fresh water at 164 ft., overflows.
23	12	Hawkins No. 5	3,000 ft. S. of N. road 25 ft. W. of E. line.	1937	778	930	"	912	Guelph	849	400	173	Fresh water at 173 ft., rose 165 ft.
23	12	McKechnie Oldrieve and Connor. J. Peacock No. 1.	1,100 ft. N. of S. road 700 ft. W. of E. line.	1936	781	937	"	916	Guelph	1,660	460	176	Fresh water at 180 ft.
23	12	J. Peacock No. 2	SE. Corner	1936	795	952	"	.....	Guelph	866	460	192	Fresh water at 200 ft.
23	12	J. Peacock No. 3	1,250 ft. N. of S. road 25 ft. W. of E. line.	1936	780	908	"	.....	Guelph	4,300	460	175	
23	12	Aloka Oil and Gas Co. W. Waterworth No. 1	2,100 ft. N. of S. road 550 ft. E. of W. line.	1936	772	920	"	897	Guelph	500	475	159	Fresh water at 164 ft., overflows.
23	12	W. Waterworth No. 2	2,800 ft. S. of N. road 350 ft. E. of W. line.	1937	773	915	"	908	Guelph	570	.....	162	Fresh water at 162 ft.

23	12	W. Waterworth No. 4		1937	779	935	"	895	Guelph	2,890		165	Fresh water at 165 ft.
23	12	McNiven Synd. C. Hawkins No. 6	200 ft. S. of N. road 800 ft. W. of E. line.	1937	785	915	"	900	Guelph	480	455	167	Fresh water at 210 ft. Sulphur water at 480 ft.
24	12	Aloka Oil and Gas Co. C. Waterworth No. 3	400 ft. S. of N. road 100 ft. W. of E. line.	1937	784	941	"	908	Guelph	3,180	455	170	Fresh water at 170 ft.
24	12	C. Waterworth No. 5	1,000 ft. S. of N. road 450 ft. E. of W. line.	1937	785	941	"	907	Guelph	1,500	455	170	Fresh water at 170 ft.
24	12	C. Waterworth No. 6	1,050 ft. S. of N. road 600 ft. W. of E. line.	1937	782	941	"	905	Guelph	1,700	455	169	Fresh water at 169 ft.
24	12	C. Waterworth No. 10	425 ft. S. of N. road 900 ft. E. of W. line.	1938	786	935	"		Guelph	1,638	441	171	
24	12	C. Waterworth No. 11	250 ft. E. of W. line 286 ft. S. of N. road.	1938	787					5,513			
24	12	Central Pipe Line Co. A. Berdan No. 1	325 ft. N. of S. road 350 ft. W. of E. line	1938	778	922	Norfolk	895 905 917 922	Guelph	11		174	Fresh water at 190 ft. Salt water at 210 ft.
25	12	Reid-Adams M. Hawkins	125 ft. W. of E. line 1,120 ft. S. of N. road.	1939	782		"						
25	12	Aloka Oil and Gas Co. R. Hawkins No. 1	650 ft. S. of N. road 400 ft. W. of E. line.	1937	784	926	"	920	Guelph	1,030	455	172	Fresh water at 200 ft. Sulphur water at 485 ft.
25	12	R. Hawkins No. 2	250 ft. W. of E. line 1,550 ft. S. of N. road.	1938	781		"	905	Salina?	9,192	441	170	
25	12	R. Hawkins No. 3	450 ft. W. of E. line 2,150 ft. N. of S. road.	1938	781	930	"			3,164			
25	12	R. Hawkins No. 4	725 ft. W. of E. line 1,200 ft. S. of N. road.		783								
26	12	Central Pipe Line Co. J. R. Farrow No. 1	950 ft. S. of N. road 1,000 ft. W. of E. line.	1938	786	937	Norfolk	913	Guelph	2,016	445	175	
26	12	Treleaven and Patterson G. Williams No. 1	300 ft. S. of N. road 200 ft. W. of E. line.	1937	785	940	"	911	Guelph	2,556		173	Fresh water at 170 ft. Sulphur water at 410 ft.
26	12	G. Williams No. 2	1,250 ft. S. of N. road 360 ft. W. of E. line.	1937	786	939	"	910	Guelph	22,230	450	175	Fresh water at 176 ft. Sulphur water at 385 ft.
26	12	Aloka Oil and Gas Co. L. Brown No. 1	500 ft. S. of N. road 300 ft. E. of W. line.	1937	783	932	"	917	Guelph	2,287	450	175	Fresh water at 200 ft. Mineral water at 430 ft.
27	12	Kidd Synd. L. Brown No. 1	450 ft. S. of N. road 1,200 ft. W. of E. line.	1937	776	940	"	914	Guelph	285	450	161	Fresh water at 161 ft. Salt water at 365 ft.

Wells in Dereham Township, Oxford County—Concluded

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
27	12	Aloka Oil and Gas Co. Moore No. 1	500 ft. S. of N. road 400 ft. W. of E. line.	1937	781	931	Norfolk	.....	Guelph	4,655	.....	172	Water at 200 and 300 ft.
27	12	Reid-Adams T. M. Moore No. 2	1,140 ft. S. of N. road 200 ft. W. of E. line.	1938	786	935	"	905	Guelph	2,400	.....	178	
27	12	T. M. Moore No. 3	1,750 ft. S. of N. road 375 ft. W. of E. line.	1938	787	936	"	912	Guelph	3,500	450	174	
27	12	M. J. Aikens, W. Adams L. J. Brown No. 1	1,350 ft. S. of N. road 950 ft. W. of E. line.	1938	780	935	"	908	Guelph	1,000	443	168	

Well in Oxford North Township, Oxford County

18	2	Beachville well	SW. Corner	1909	893	2,789	Norfolk	.....	.....	Dry hole	.....	.....	

Well in Zorra West Township, Oxford County

30	7	Niagara Falls Synd	500 ft. S. of N. line 1,500 ft. W. of E. line.	1910	1,158	1,900	.....	.....	.....	Dry hole	.....	.....	

Well in Zorra East Township, Oxford County

10	17	Innerkip well	SW. Corner	1908	986	1,500	.....	.....	.....	.....	.....	.....	Show of gas.

Wells in North Easthope Township, Perth County

28	6	Volcanic Gas and Oil Co. W. Cook No. 1.	NW. quarter	1937	1,260	1,223	Norfolk	.....	.....	Dry hole	.....	230	Fresh water at 230, 820, 852, 905 to 910 ft.
23	8	J. Chalmers No. 1	NW. quarter	1937	1,281	2,978	"	.....	.....	Dry hole	.....	215	Fresh water at 130, 780 to 785, and 1,050 to 1,058 ft.

Wells in Waterloo County

	.....	Town of Waterloo	.....	1867	800	1,120	Salina	.....	.....	.....	.....	130	Later deepened to 1,800 ft. Salt water at 800 and 900 ft. No gas or oil.
		Town of Kitchener	½ mile east of Grand Trunk Ry. station.	Prior to 1890	1,080	1,257	Salina	.....	.....	Dry hole	.....	187	

Wells in Wellington County

Eramosa Township

6	4	Rockwood Oil and Gas Co.	150 ft. N. of C.N. Rys. 1,000 ft. W. of E. road.	1919	1,197	2,180	Lockport	.....	Trenton	.....	.....	170	Show of gas.

Minto Township

19	10	H. Brimblecombe	100 ft. N. of S. road. 2,200 ft. E. of road intersection.	1931	1,255	909	Salina	.....	.....	Dry hole	.....	69	Fresh water at 120 ft. Sulphur water at 540 to 700 ft.

Wells in Wellington County—Concluded

Peel Township

Lot	Con.	Designation	Location	Year drilled	Altitude in feet above sea-level	Depth in feet	Bedrock formation	Producing depth in feet	Producing formation	Yield Mcf.	Pressure in lbs. a sq. in.	Thickness of drift in feet	Remarks
5	3	Ohio Oil Co. Ernst No. 1	1,600 ft. N. of S. road. 3,600 ft. W. of E. road.	1900	1,218	2,573	.....	2,506	Trenton	.....	.....	35	Sulphur water at 140 ft. Small gas well.

Pilkington Township

6	5	Standard Oil Co. M. Auger	3,800 ft. SW. of NE. road. 150 ft. E. of NW. road.	1900	1,299	2,385	Salina	.....	.....	Dry hole	.....	103	Small supply of gas at 2,335 ft.

Puslinch Township

7	4	Bollert Oil and Gas Co. A. Neaubauer.	South half	1929	1,038	2,670	Guelph	2,326	Trenton	.....	.....	58	Show of gas at 2,326 ft.
7	4	Aloka Oil Co. A. Neaubauer.	South half	1933	1,038	2,531	Guelph	2,357	Trenton	.....	.....	52	Show of gas at 2,357 ft. Fresh water at 60 to 80 ft.