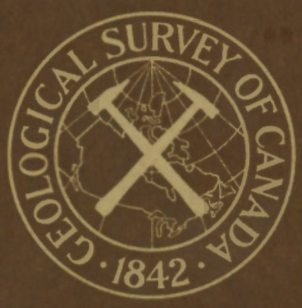

GEOLOGICAL
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CANADA

DEPARTMENT OF MINES
AND TECHNICAL SURVEYS

Paper 60-26

SUBSURFACE STRATIGRAPHY OF ORDOVICIAN ROCKS IN SOUTHWESTERN ONTARIO

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(Report, table, and 14 figures)

B. V. Sanford

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By
B. V. Sanford

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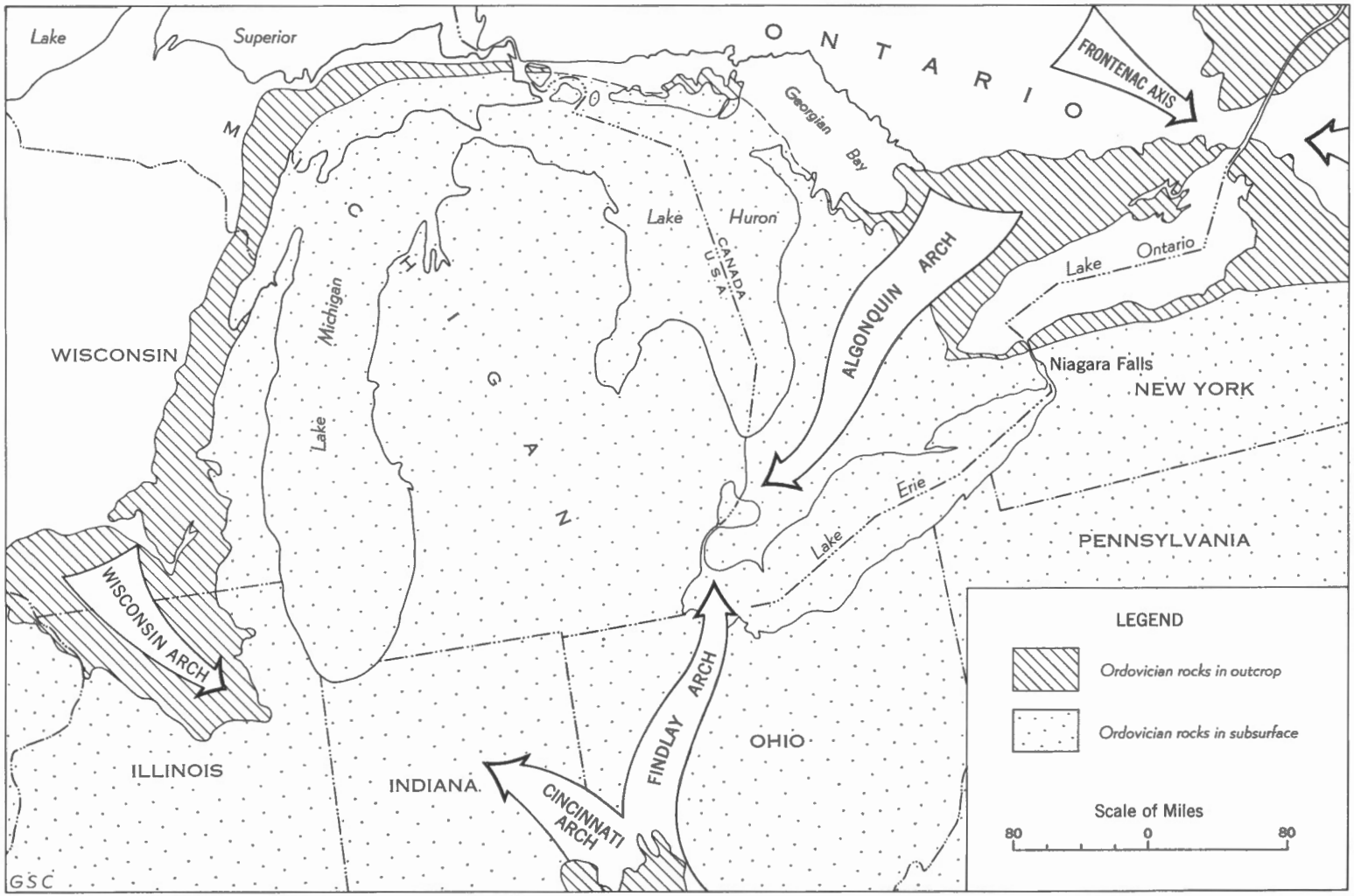

Figure 1. Map of the Great Lakes region of United States and Canada showing surface and subsurface extent of Ordovician rocks

SUBSURFACE STRATIGRAPHY OF ORDOVICIAN ROCKS IN SOUTHWESTERN ONTARIO

INTRODUCTION

Southwestern Ontario constitutes the western extremity of the St. Lawrence Lowlands physiographic province and occupies a land area of approximately 25,000 square miles. The region discussed here includes also some 15,000 square miles beneath the Canadian part of the Great Lakes. It is bordered to the south and west by the International Boundary, to the north by the Canadian Shield, and it extends eastward to the Frontenac axis — a projection of Precambrian rocks extending in a southeasterly direction from the Shield to the Adirondack Mountains in New York State. A shelf area throughout much of Palaeozoic time, southwestern Ontario lies on the eastern rim of the Michigan basin and the northwestern flank of the Appalachian geosyncline.

Sedimentary rocks underlying southwestern Ontario range in age from Cambrian, through Ordovician, Silurian and Devonian to Mississippian, and have a known thickness of more than 4,700 feet. This report is concerned only with that part of the Palaeozoic section that rests upon beds of Upper Cambrian age, or in their absence, on the eroded Precambrian surface, and is overlain by rocks of Lower Silurian age. This part of the section is represented by strata of Middle and Upper Ordovician age which in subsurface average more than 50 per cent of the total Palaeozoic column. Lower Ordovician Beekmantown and Chazy beds which are present to the eastward in the Ottawa Valley, are not recognized in Ontario west of the Frontenac axis.

Figure 1 shows the areas in the Great Lakes region of the United States and Canada where rocks of Ordovician age outcrop, and areas where they are known to be present in the subsurface. In southwestern Ontario these beds occur at or near the surface east of a line drawn southeastward from the west side of Georgian Bay to Niagara Falls. West of this line they are present in the subsurface and lie buried beneath several hundred feet of younger Palaeozoic beds, and can only be studied by examination of well sample cuttings, or drill core. More than 150 wells were examined by the writer and these form the basis for the present compilation.

STRATIGRAPHY

The first systematic studies of Ordovician strata in Ontario and Quebec began with the inception of the Geological Survey of Canada in 1842. By the time Sir William Logan published his famous 1863 report on the geology of Canada, such eminent workers as Vanuxem, Conrad, Emmons and Hall had established a nomenclature for the Ordovician rocks in New York State. Consequently, most of these terms were applied by Logan to the adjacent areas of Canada, and some still remain in the literature after nearly 100 years of use.

Since the beginning of the present century, stratigraphic studies of Ordovician rocks in Ontario and Quebec have continued. Among the best known of the workers in southwestern Ontario are H.M. Ami, W.A. Johnston, P.E. Raymond, A.F. Foerste, W.A. Parks, G.M. Kay, F.P. Young, J.F. Caley, C.G. Winder, and B.A. Liberty. The endeavors of these workers have been confined to areas in which rocks of Ordovician age outcrop, and no systematic attempt has been made to project these studies into the subsurface of southwestern Ontario.

The purpose of the present study therefore has been to divide the Ordovician system into readily recognizable subsurface rock units The nomenclature used is given in Table I. Some of the formational names as applied are provisional, and future studies may result in some modification of the classification used in this report.

The Ordovician succession as determined from the writer's investigations is shown on Figure 2. The columnar sections, (Fig. 14) illustrate lithologies and regional structure of the various rock units throughout most of the district.

The oldest Ordovician strata in southwestern Ontario are those formations of the Black River group of Middle Ordovician age. They consist, in ascending order, of a basal unit of shaly and sandy dolomite, dolomitic shale and arkose (Shadow Lake), and brown to cream-coloured lithographic limestone (Gull River), succeeded by finely crystalline to granular buff limestone (Coboconk). The Trenton group in turn consists of medium grey, shaly, carbonaceous limestone and fragmental limestone (Kirkfield), and fragmental limestone with interbedded shale (Sherman Fall), succeeded by dark brown, dense, argillaceous and subaphanitic limestone of the Cobourg.

Throughout the southwestern peninsula of Ontario, in the general region west of the Niagara escarpment (subsurface), it has been common practice to regard the entire Trenton and Black River carbonate sequence as a single stratigraphic unit. It is the writer's opinion, however, that due to recent discoveries of major significance from the Trenton in southeastern Michigan and in Essex county of Ontario, operators will be turning more than ever before towards these deeper horizons in search of oil and gas. For this reason, a description of the rock units which make up this Middle Ordovician sequence seems timely. The terms Trenton and Black River as used in this report designate major rock units as groups rather than intervals of geological time. The total thickness of the several rock units which make up the Trenton and Black River varies from 550 feet in the Lake Simcoe area to slightly more than 1,000 feet in the western part of Lambton county.

Overlying the Trenton is a thick succession of shales which range from black bituminous (Collingwood) to bluish grey (Blue Mountain) and grey to greenish grey shale with interbedded calcareous siltstones of the Meaford-Dundas. Red shales with silty limestone or dolomite interbeds make up the Queenston formation, and constitute the youngest Ordovician strata in Ontario. The total thickness of the Upper Ordovician varies from about 500 feet on the tip of Bruce Peninsula to about 1,800 feet under the eastern part of Lake Erie.

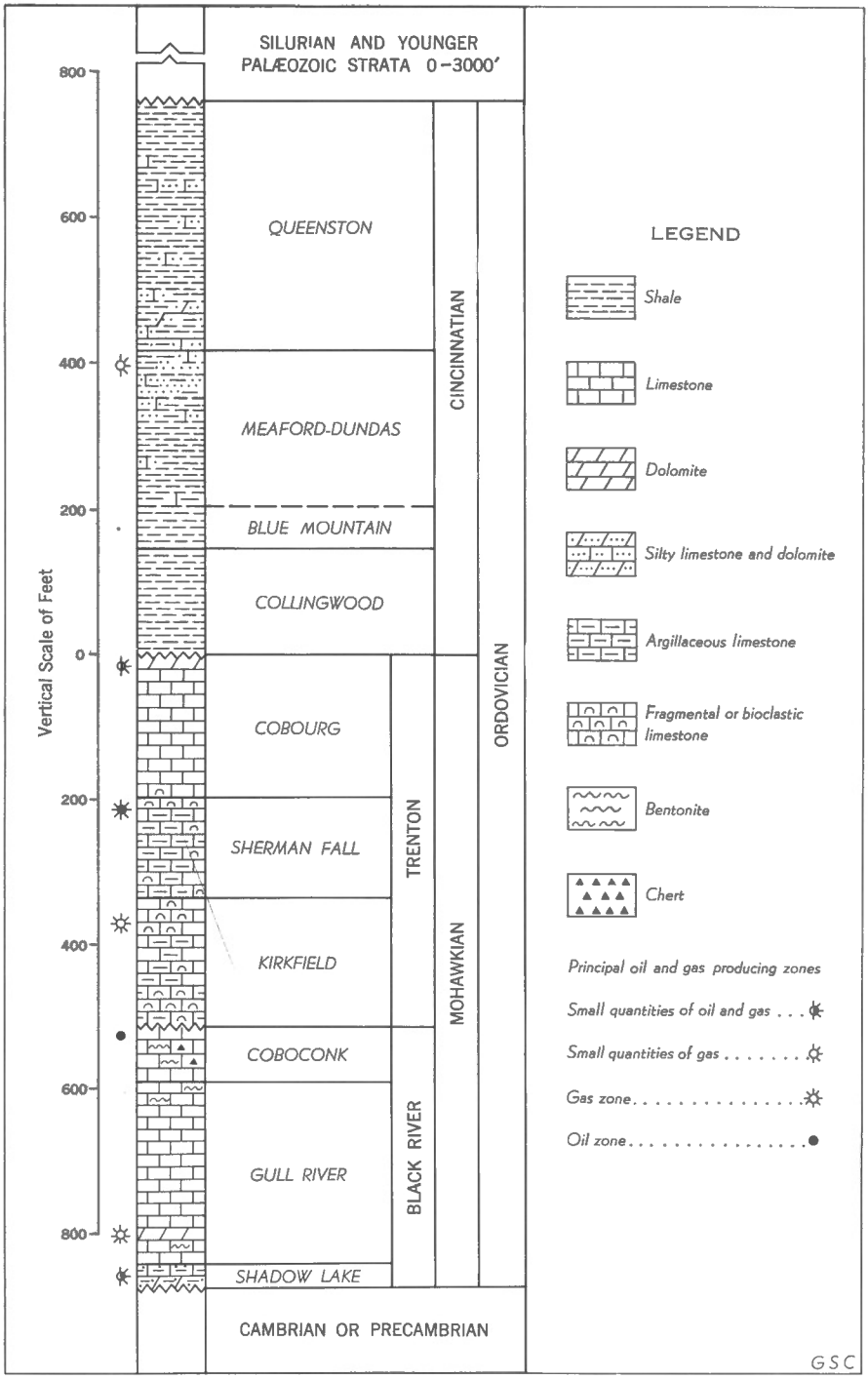

Figure 2. Subsurface stratigraphic column of Ordovician strata in southwestern Ontario

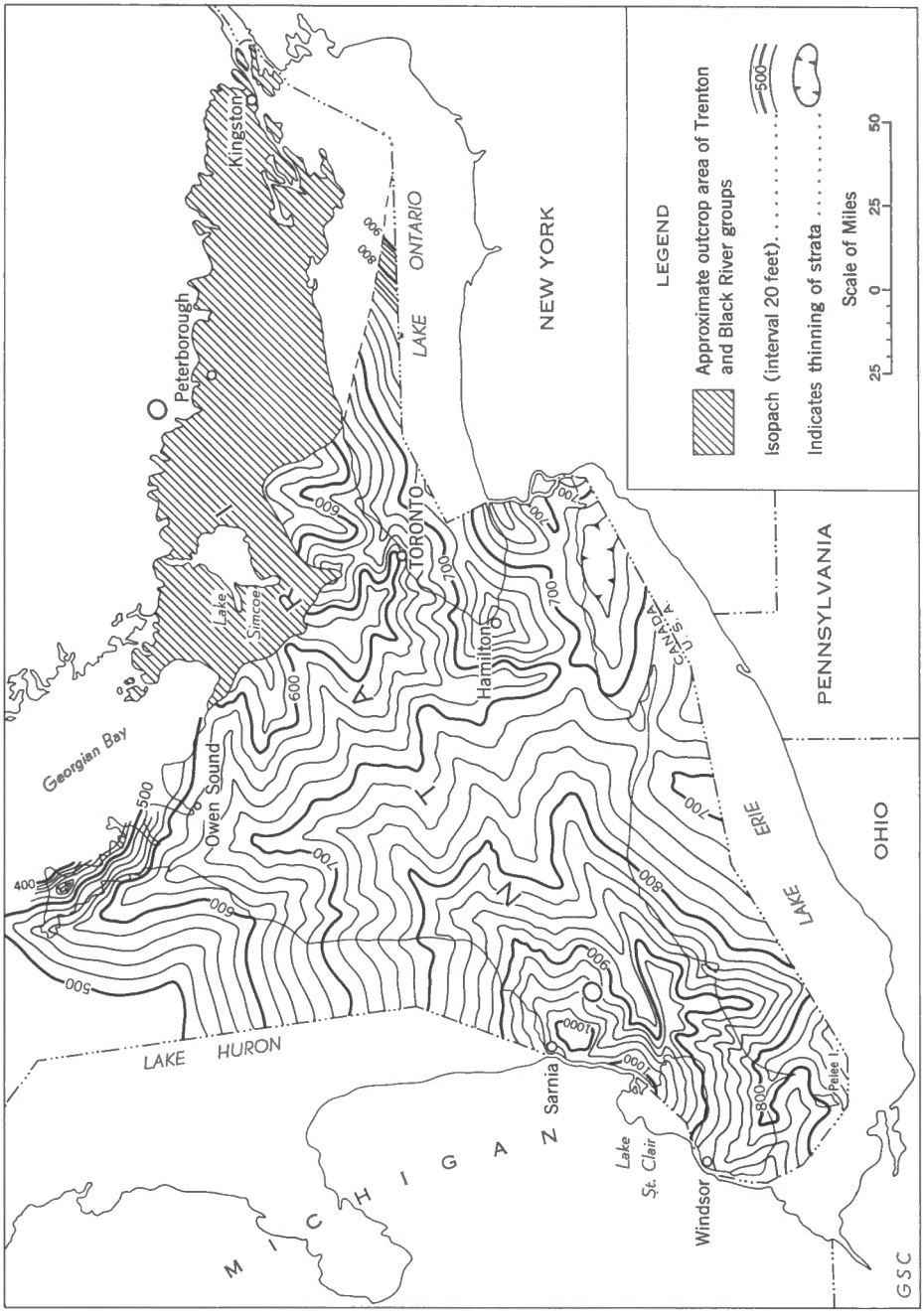

Figure 3. Isopachous map of Trenton and Black River groups in southwestern Ontario

MIDDLE ORDOVICIAN

Black River Group

The term Black River group is here applied to Shadow Lake, Gull River and Coboconk formations in ascending order. These rock units can be readily recognized in well cuttings throughout southwestern Ontario, except in a few localities where dolomitization has obscured all traces of original lithologies. The beds here described as Black River vary lithologically from the overlying Trenton, from which they are separated throughout much of the district by a disconformity. The overall thickness of the Black River group (as shown on Fig. 4) varies from about 80 feet in the Lake Simcoe area to slightly more than 500 feet in the vicinity of Lake St. Clair.

Shadow Lake Formation (Reference section is Imperial Oil Ltd. Kimball No. 13 well, lot 16, con. 5, Moore tp., Lambton county; interval 4,168-4,191 feet.)

Okulitch (1938)[1] proposed the term Shadow Lake formation for 18 feet of beds which rest upon the Precambrian in a small quarry and adjacent road-cut on highway 35, near Shadow Lake, Victoria county. The section as described by Okulitch contains a lithology similar to the lowermost beds of the Black River group in the subsurface throughout much of southwestern Ontario, and that term is here applied throughout the entire district.

The beds here referred to as Shadow Lake represent the initial sediments deposited as the Middle Ordovician seas first transgressed into the region, and therefore have no uniformity of lithology or thickness. Where observed in subsurface the beds consist of green or occasionally red dolomitic and sandy or silty shale, greenish grey shaly and silty dolomite, with occasional brown lithographic limestone interbeds. Where the formation rests directly upon the Precambrian surface it may also contain a few feet of arkose or detrital material from the granitic-type rocks below. In the Georgian Bay region, Simcoe, Grey and Bruce counties, these beds thicken somewhat and consist mainly of red shale, associated with a minor amount of reddish quartz sandstone. In the extreme southwest part of the peninsula, Essex and Kent counties, the formation is commonly represented by a few feet of dark grey to greenish grey fissile and sandy shale, and is referred to by some workers as 'Glenwood shale'.

The Shadow Lake formation is generally present along the edge of the Palaeozoic-Precambrian boundary from Penetanguishene to Kingston, being locally absent depending on relief of the underlying Precambrian. The formation is present throughout most of southwestern Ontario in subsurface, where it varies from 2 or 3 feet to as much as 50 feet in thickness. In some wells it is completely absent. Stratigraphically the formation overlies the truncated edges of the Upper Cambrian formations (Sanford and Quillian, 1959), or in their absence, the igneous and metamorphic rocks of the Precambrian. The lower contact is placed at the change from dark grey to greenish

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[1] Dates, or names and dates in parentheses refer to publications listed in the Bibliography.

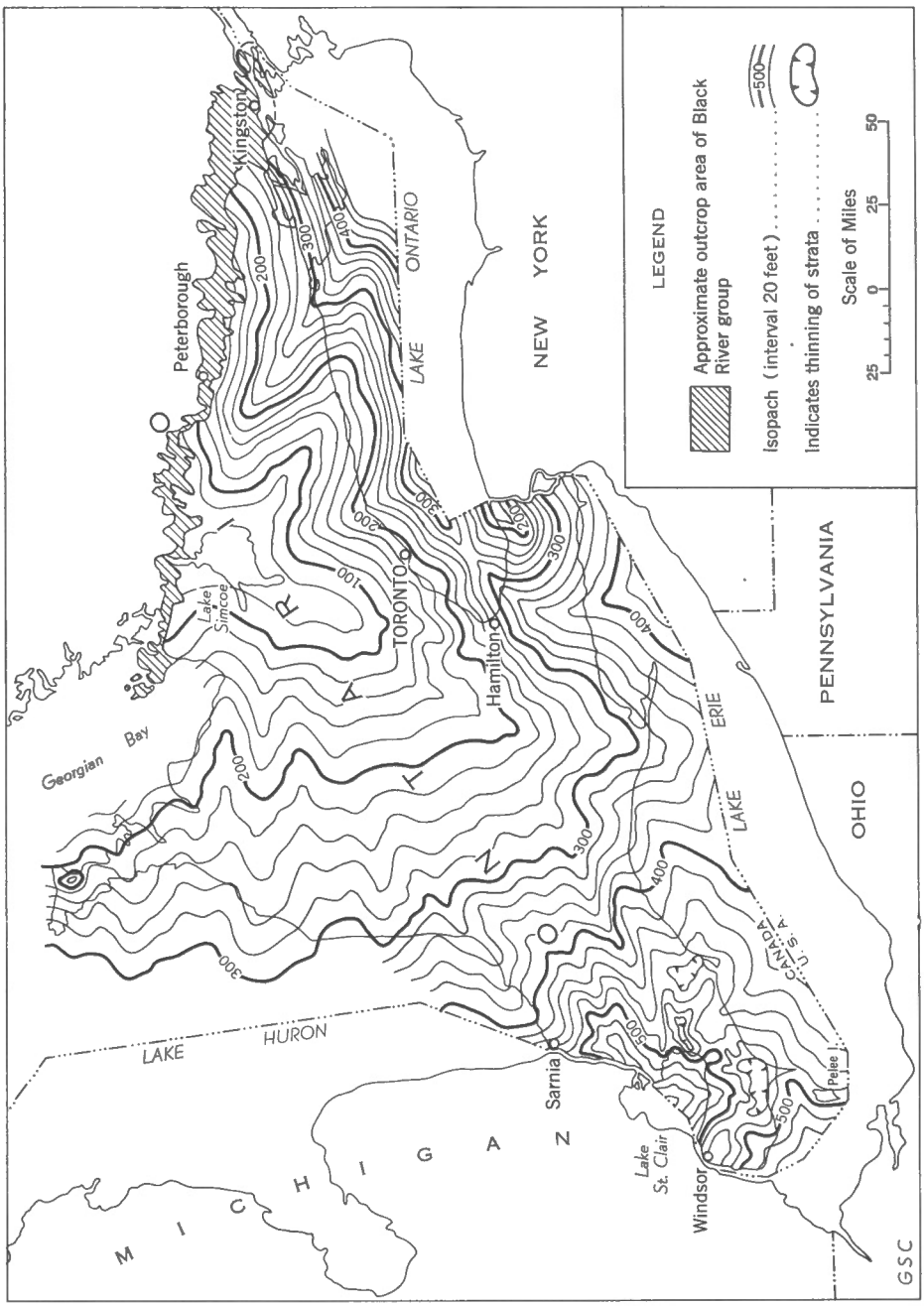

Figure 4. Isopachous map of Black River group in southwestern Ontario

grey or red shale, grey-green sandy dolomite of the Shadow Lake to the sandy-buff or grey-buff dolomite of the Trempealeau (Little Falls); to the whitish grey dolomite, shale and sandstone of the Eau Claire (Theresa); to the white quartzose sandstone of the Mount Simon (Potsdam), or in the absence of these Upper Cambrian beds, to the igneous and metamorphic rocks of the Precambrian.

Gull River Formation (Reference section is Imperial Oil Ltd. Kimball No. 13 well, lot 16, con. 5, Moore tp., Lambton county; interval 3,801-4,168 feet.)

The term Gull River formation was originally proposed by Okulitch (1938) for beds that overlie the Shadow Lake formation, and are succeeded by his "Moore Hill". The type locality is a roadside escarpment 2.2 miles north of the town of Coboconk, Victoria county. Liberty (1953) redefined the Gull River formation to embrace the beds described as Moore Hill by Okulitch, and the term as redefined by Liberty is used in this report.

In subsurface, the Gull River formation is remarkably consistent lithologically throughout all of southwestern Ontario. As observed in well cuttings, the beds consist typically of brown to buff-brown and cream-coloured lithographic limestone containing minor interbeds of finely crystalline and brown granular to crystalline dolomite. In the extreme western part of the district, the formation grades downward from medium greyish brown lithographic limestone to buff brown, pure to muddy limestone containing thin brown granular dolomite interbeds here and there near the base, as well as occasional oolitic limestone zones at consistent horizons. In the more north-easterly part of the peninsula, where the formation thins to 200 feet and less (Fig. 4), the limestones become predominantly cream- to buff-coloured and contain an increased number of dolomite interbeds. At several localities the Gull River was observed to be completely dolomitized throughout. In many of the wells examined the formation was observed to contain two consistent bentonite zones; one which commonly occurs within the uppermost few feet of the formation, and a lower zone, more rarely present, near its base. Grey-buff chert nodules were also observed here and there in the uppermost part of the unit. These become predominantly black towards the eastern margin of the district.

The Gull River formation is present at the surface along a narrow belt from Penetanguishene to Kingston, and in subsurface throughout the entire region to the westward. The formation thickens gradually westward from about 75 feet near Lake Simcoe to more than 400 feet in Lambton county. These beds also thicken southeastward under Lake Ontario to more than 300 feet in Marysburg township, Prince Edward county. The lowermost contact throughout most of southwestern Ontario is reasonably abrupt, and is placed where medium to dark brown, finely crystalline to lithographic limestone of the Gull River rests upon the grey to greenish grey shaly dolomite, or green or dark grey sandy shale of the Shadow Lake. In the absence of the Shadow Lake formation, these beds rest upon the truncated edges of Upper Cambrian formations. In the absence of Upper Cambrian strata, the lowermost beds of the Gull River have been observed to rest directly upon igneous and metamorphic rocks of the Precambrian.

Coboconk Formation (Reference section is Imperial Oil Ltd. Kimball No. 13 well, lot 16, con. 5, Moore tp., Lambton county; interval 3,689-3,801 feet.)

Johnston (1911) proposed Coboconk limestone as the provisional name for some 10 to 20 feet of beds immediately underlying his "Kirkfield group", which he described as "dark blue to grey nodular and cherty limestones, generally in massive beds from 1 to 3 feet thick." The type locality is at Coboconk, Victoria county, Ontario. The term as here applied in the subsurface includes those beds which occur stratigraphically between the lithographic limestone of the Gull River below, and the dark grey, carbonaceous and in places very shaly fragmental beds of the overlying Kirkfield formation of the Trenton group.

In well cuttings the Coboconk consists of buff to buff-brown and tan-coloured limestone — finely crystalline to granular in texture and occasionally containing a thin zone of fragmental limestone at the top of the formation. The typical buff limestone may give way locally to buff, granular or medium crystalline dolomite. Chert and bentonite are common constituents of the Coboconk, but some of the wells examined contained neither. In the extreme western part of the district where the formation is known to thicken considerably, it may contain interbeds of buff-brown, very finely crystalline to subaphanitic limestone, which might easily be mistaken for beds of the underlying Gull River.

The Coboconk outcrops in an irregular belt from the vicinity of Penetanguishene eastward to the vicinity of Kingston. These beds are also present in subsurface throughout most of southwestern Ontario and vary in thickness regionally from about 25 feet in the Lake Simcoe district to slightly more than 100 feet in Kent, Lambton and Essex counties. Due to the disconformable relationship between the Black River and overlying Trenton, the Coboconk formation has been completely removed locally by erosion and the Kirkfield can be observed to rest directly upon the Gull River. The lowermost contact of the Coboconk formation where observed is placed where buff or tan-coloured finely crystalline to granular limestone rests upon greyish brown to cream-coloured lithographic limestone of the Gull River. This contact is reasonably distinct throughout most of the district, but is slightly more difficult to recognize in the extreme southwestern part of the peninsula.

Trenton Group

One has only to examine the literature to realize the challenge that rocks of Trenton age have presented to the many workers who have studied them in outcrop. Due to limited and poorly exposed sections, much difficulty has been experienced in piecing together the several rock units of this stratigraphic interval. In subsurface the Trenton has been penetrated by several hundred wells, which when examined in detail can be divided into distinct rock units. The strata here defined under the headings of Kirkfield, Sherman Fall and Cobourg can be recognized in subsurface over a large part of southwestern Ontario. However, some modification in the original definition of

these formations has been applied to provide workable subsurface map-units.

The Trenton group has a consistent thickness of some 530 feet westward from York county, through Peel, Wellington, Waterloo, Oxford, Perth, Middlesex, Lambton, and the southern part of Huron counties (Fig. 5). North of the 500-foot isopach these beds thin to 265 feet at the tip of Bruce Peninsula. They thin southward to less than 300 feet south of Pelee Island, and to 260 feet in an area offshore adjacent to Haldimand county. Trenton beds are known to thicken eastward to more than 500 feet in the vicinity of Picton in Prince Edward county.

Kirkfield Formation (Reference section is Bruce Oil and Gas Co. No. 1 well, lot 20, con. 2 WBR, Lindsay tp., Bruce county; interval 1,145-1,335 feet.)

The term "Kirkfield group" was proposed by Johnston (1911) for the Crinoid and Dalmanella beds and overlying Prasapora beds exposed in the vicinity of Kirkfield, Victoria county. The so-called Prasapora beds were later placed into a separate unit and called "Trenton" by Raymond (1914), "Trenton (restricted)"(Raymond, 1921), and "Sherman Fall"(Kay, 1929). The Kirkfield formation as here applied in subsurface comprises those beds which rest directly upon the Coboconk (Black River), and are succeeded by beds of the Sherman Fall formation. They consist of greyish brown finely crystalline limestone at the top, alternating with grey and grey-buff fragmental limestone, and grading downward to dark grey, fragmental, carbonaceous and shaly limestone and shale at the base. Traces of bentonite have been observed in some wells near the base of the formation.

Beds which make up the Kirkfield formation are present at or near the surface from Nottawasaga Bay eastward to the vicinity of Prince Edward county, and are present in subsurface throughout the entire region to the westward where they vary in thickness from 160 to 200 feet. The lowermost contact is placed where dark grey, argillaceous and fragmental carbonaceous limestone and shale of the Kirkfield rests upon buff or tan-coloured finely crystalline or granular limestone of the Coboconk. Where the Coboconk is locally absent, the dark coloured beds of the Kirkfield rest directly upon brown to cream-coloured lithographic limestone of the Gull River. This contact representing a disconformity is extremely abrupt.

Sherman Fall Formation (Reference section is J.T. Burton No. 3 well, lot 33, con. 12, Nottawasaga tp., Simcoe county; interval 460-550 feet.)

The Sherman Fall formation as proposed by Kay (1929) included those beds originally defined as Prasapora beds, or Trenton (restricted) by Raymond (1921) and others. As used here the term Sherman Fall undoubtedly includes also some of the beds originally assigned to the Lower Cobourg of Raymond (1921) and Kay (1929).

The subsurface unit here defined includes those beds which occur stratigraphically between the Kirkfield formation below and the Cobourg (new) above. As observed in well cuttings, the formation consists of grey to grey-buff, finely crystalline to fragmental

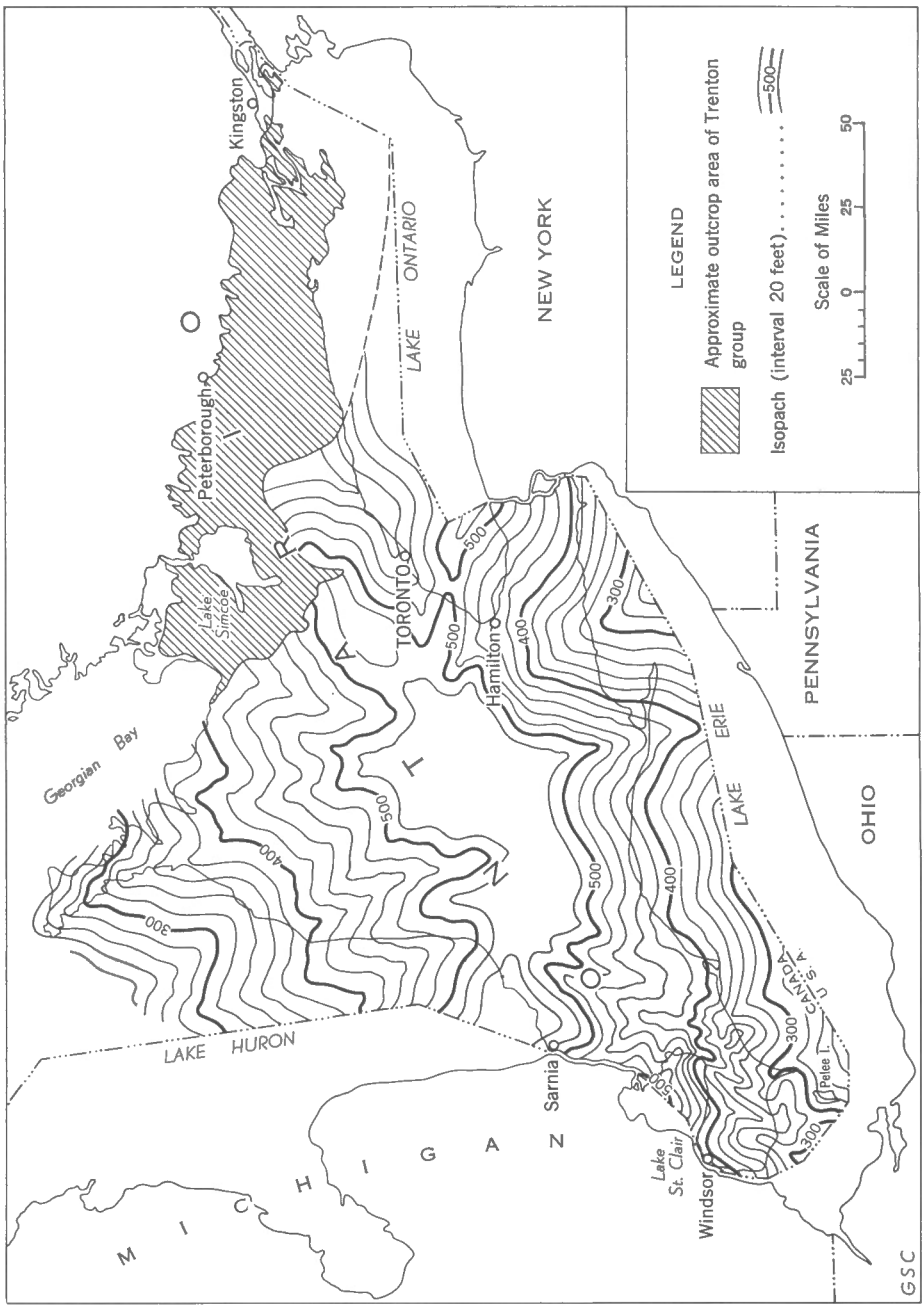

Figure 5. Isopachous map of Trenton group in southwestern Ontario

limestone, containing abundant shale partings, and interbedded dark grey shale. The uppermost part of the formation consists of light grey, crystalline, fragmental or bioclastic limestone which nearly everywhere contains dark grey mottlings or specks. These beds grade downward to grey and grey-buff limestone and fragmental limestone with interbedded shale. This uppermost fragmental facies may be equivalent to the Lower Cobourg of Raymond, and the Hallowell member of Kay's (1937) Cobourg.

The Sherman Fall formation occupies an outcrop area from Nottawasaga Bay eastward to Prince Edward county, and is present throughout southwestern Ontario in subsurface where it has a thickness varying between 90 and 120 feet. The lowermost contact in well cuttings is placed where grey to dark grey shaly and fragmental limestone with interbedded shale rests upon grey to grey-buff limestone and fragmental limestone of the Kirkfield. A distinct colour-change is generally apparent at this horizon, the Sherman Fall beds being darker. In various parts of southwestern Ontario, the Sherman Fall and Kirkfield formations cannot be readily separated, and must therefore be logged as a single unit.

Cobourg Formation (Reference section is Imperial Oil Ltd. well, lot 20, con. 4, Stanley tp., Huron county; interval 2,666-2,910 feet.)

Raymond (1914) proposed the name "Picton" for the beds occurring between his Trenton (restricted) below and the Collingwood formation above. Raymond (1921) later substituted the name Cobourg for Picton. The Cobourg formation as here used includes those beds which rest upon grey fragmental limestones of the Sherman Fall and are overlain by the dark brown to dark greyish brown shales of the Collingwood. It is probably equivalent stratigraphically to the upper member of the Cobourg as originally defined. As observed in subsurface, the formation is a distinct rock unit and consists of brown to dark brown, and greyish brown, finely crystalline to subaphanitic limestone containing a few shale partings and occasional fragmental limestone interbeds in its lower part. Throughout Essex and Kent counties, and part of Lambton county, the uppermost 5 to 30 feet of the Cobourg gives way to brown, medium crystalline dolomite. Although a disconformity between the Cobourg and the overlying Collingwood undoubtedly exists throughout much of southwestern Ontario, in no other locality has erosion been more intense at this horizon than throughout Essex and part of Kent counties. Considerable quantities of bioclastic material within the Cobourg and the upper part of the Sherman Fall might indicate that this area (Findlay arch) was emerging during Trenton time.

The Cobourg formation is present at the surface from Collingwood eastward to Prince Edward county. It is everywhere present in subsurface to the westward where it varies in thickness from 15 feet at the tip of Bruce Peninsula, to 40 feet beneath Lake Erie offshore from Essex County, and to slightly more than 200 feet throughout the central part of southwestern Ontario. The lowermost contact of the formation is placed where brown, finely crystalline or subaphanitic limestone rests upon grey, crystalline, fragmental or bioclastic limestone of the Sherman Fall. Due to the large quantities of bioclastic material in the lowermost part of the Cobourg in Essex county and parts of Kent county, this contact may in some wells be

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difficult to determine. Throughout the remainder of the region this break in lithology is reasonably abrupt.

UPPER ORDOVICIAN

Collingwood Formation

(Reference section is Manock Gas Syndicate well, lot 22, con. 2, Louth tp., Lincoln county; interval 1,309-1,515 feet.)

Raymond (1912) proposed the term Collingwood formation for about 50 feet of interbedded limestone and shale immediately overlying the Trenton in the Ottawa Valley. The term was not clearly defined, and there is still some controversy as to whether Ottawa or Collingwood should be considered the type locality. The writer believes that it was meant to be Collingwood and not Ottawa, and that the original usage of the term constituted a correlation.

Beds which rest on the Trenton in the Toronto-Oshawa area are considered younger than the Collingwood on Georgian Bay, and have long been regarded as Gloucester in age. However, due to the similarity between the so-called Gloucester beds in the Toronto-Oshawa region and the Collingwood beds on Georgian Bay, they are here treated as a single rock unit, and for simple treatment in subsurface, are referred to as Collingwood formation.

The Collingwood as here used consists of dark brownish grey to black, fissile, bituminous and pyritiferous shales, grading upward to dark grey shales with dark brownish grey bituminous shale interbeds. Throughout much of the district, the lowermost few feet of the formation consists of dark brown bituminous limestone interbedded with black shale.

The formation is present immediately below the glacial drift in a narrow band from Cragleith on Georgian Bay southeastward to the Oshawa area, and is everywhere present in the subsurface to the westward. It varies in thickness from about 95 feet on Bruce Peninsula to slightly more than 200 feet in Essex county and the Niagara Peninsula to the eastward. The lowermost contact is generally unconformable and reasonably distinct. It is placed where dark brownish grey or black bituminous and calcareous shales with thin dark brown bituminous limestone interbeds overlie the brown, finely crystalline limestone or in some cases buff-brown granular dolomite, of the Cobourg.

Blue Mountain Formation

(Reference section is Manock Gas Syndicate well, lot 22, con. 2, Louth tp., Lincoln county; interval 1,056-1,309 feet.)

Parks (1928) proposed the term Blue Mountain formation for soft grey and bluish grey shales between his "Upper Collingwood" below and the "Dundas" formation above, in the Nottawasaga Bay region of southwestern Ontario. Due to the similarity of the Blue Mountain beds to the overlying Meaford-Dundas, it is extremely

difficult to separate the two formations in subsurface, in which case it is suggested that they be logged as a single unit. In well cuttings the beds consist of grey to dark grey, soft fissile shale, containing occasional thin laminations of grey argillaceous and silty limestone.

The outcrop area of the Blue Mountain formation extends from Nottawasaga Bay southeastward to the Toronto area. The subsurface extent of the Blue Mountain however is imperfectly known; the beds are undoubtedly present throughout the eastern part of the Ontario peninsula but are not recognized in the western half. The formation varies in thickness from 30 feet on Bruce Peninsula to about 250 feet in the Niagara region. The lowermost contact is placed where grey to dark grey shales of the Blue Mountain rest upon slightly darker grey shales with bituminous interbeds of the Collingwood. This contact is generally gradational over an interval of 10 to 20 feet.

Meaford-Dundas Formation

(Reference section is Manock Gas Syndicate well, lot 22, con. 2, Louth tp., Lincoln county; interval 729-1,056 feet.)

Parks (1923) and Foerste (1924) proposed the terms Dundas formation and Meaford formation respectively. The term Meaford was used by Foerste for the bluish grey shales and limestones which overlie the less calcareous beds of the Dundas. In the Toronto-Hamilton map-area, Caley (1940) treated both the Meaford and the Dundas as individual rock units, but (1943) referred to them as "Meaford-Dundas" in subsurface. Liberty (1955) similarly combined the two terms (Dundas-Meaford) and redefined them as a single rock unit applicable to surface exposures. The Meaford-Dundas as here preferred comprises those beds which overlie the Blue Mountain formation, or in its absence the Collingwood, and are succeeded by the Queenston.

In well cuttings the formation consists of grey, calcareous siltstone, and grey silty limestone, with minor interbedded greenish grey shale at the top, grading downward to greenish grey to medium grey shale, with interbeds of crystalline limestone and siltstone decreasing in quantity towards the base. The outcrop area of the Meaford-Dundas formation extends from Colpoy Bay on Bruce Peninsula southeastward to the Toronto region, and the beds are everywhere present in subsurface. The formation does not vary greatly in thickness from one locality to another. Throughout much of southwestern Ontario it averages about 200 feet, but thickens southeastward in the Hamilton and Niagara regions to more than 300 feet. Figure 6 illustrates the combined thickness of the Meaford-Dundas, Blue Mountain and Collingwood formations throughout the district. They vary from a minimum of 300 feet in Essex and Lambton counties to about 900 feet in the vicinity of Hamilton. The lowermost contact of the Meaford-Dundas is everywhere gradational. The medium grey shales containing hard limestone or siltstone interbeds near the base grade downward into soft, fissile shales of the Blue Mountain where these beds are present, and in their absence, the contact is placed where the first bituminous shale beds of the Collingwood are first encountered. This commonly coincides with a slight colour change, the Collingwood being darker.

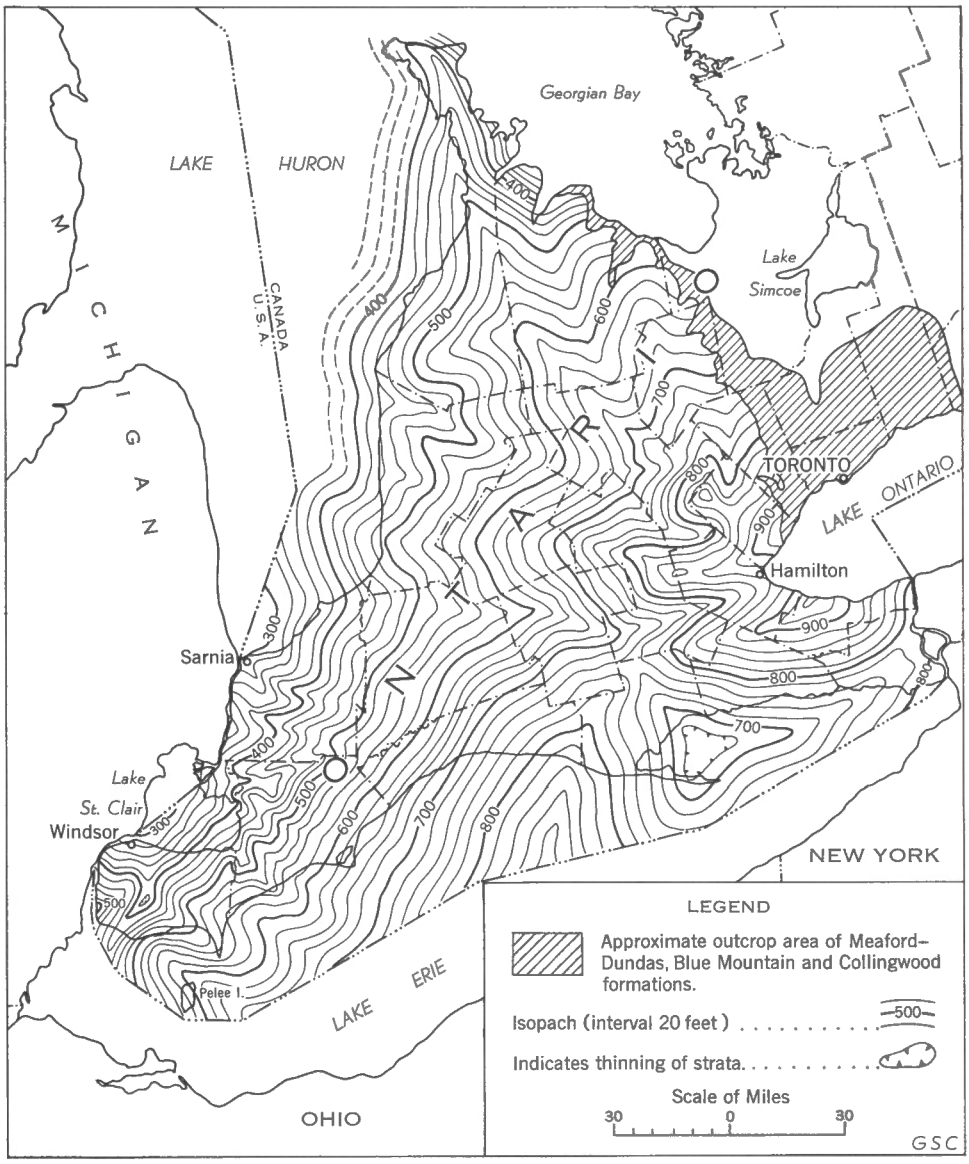


Figure 6. Isopachous map of Meaford-Dundas, Blue Mountain and Collingwood formations in southwestern Ontario.

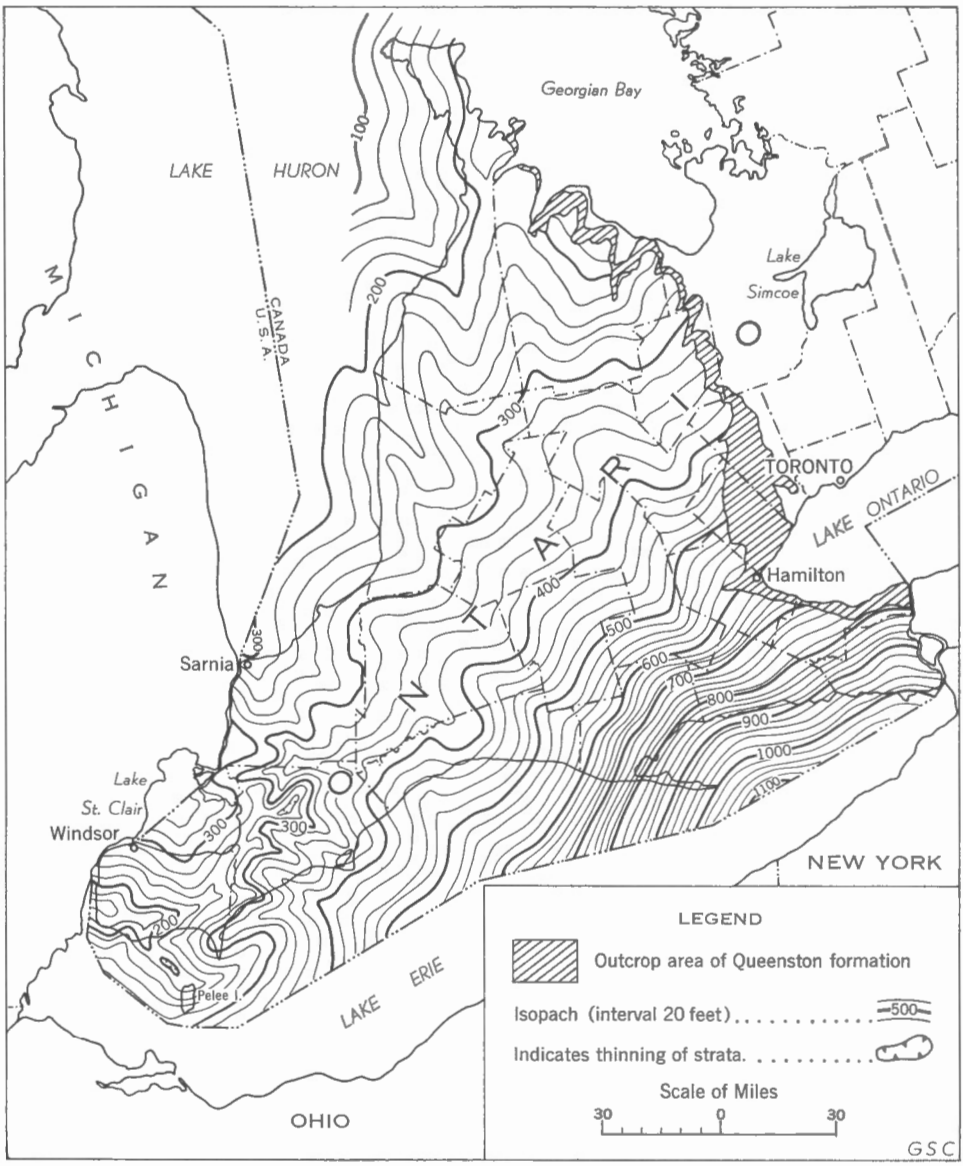


Figure 7. Isopachous map of Queenston formation in southwestern Ontario.

Queenston Formation

(Reference section is Crowland Gas Syndicate No. 61 well, lot 11, con. 2, Crowland tp., Welland county; interval 610-1,542 feet.)

The term Queenston was proposed by Grabau (1908) for some 1,100 feet of Hall's Medina sandstone of western New York. The formation as known in the Niagara Peninsula, occupies a position between the Meaford-Dundas below, and beds of Lower Silurian (Cataract) age above. It represents the youngest Ordovician strata in Ontario, and varies in lithology from one locality to another. Throughout the Niagara Peninsula and for some distance northward (Figs. 1 and 14) the formation consists of brick-red shale, with occasional green shale interbeds, and grey crystalline and silty limestone. The limestone beds increase in thickness and number toward the base of the formation. In Bruce Peninsula as well as in Essex county and vicinity where the formation tends to thin considerably, it consists of brick-red shale with green shale and silty limestone at the top but grading downward into grey and greyish brown medium crystalline dolomite. This dolomite facies is lithologically similar to the Kagawong formation which is equivalent to the Queenston on Manitoulin Island.

The Queenston formation occupies an outcrop area immediately east of the Niagara escarpment from Cape Croker on Bruce Peninsula to the Niagara River, and is everywhere present in the subsurface. It varies in thickness from 150 feet on Bruce Peninsula to about 1,100 feet offshore under the eastern part of Lake Erie (Fig. 7). The lower contact of the Queenston in the southeastern part of the peninsula is placed where red shales and interbedded red silty limestone or dolomite rest upon grey calcareous siltstones and interbedded grey and greenish grey shales of the Meaford-Dundas. To the extreme north and west, the lower contact is less abrupt and in well samples must be placed with caution. It occurs where brown, crystalline dolomite of the Queenston rests upon grey siltstone with interbedded silty limestone and greyish green shale of the Meaford-Dundas. .

STRUCTURE

Southwestern Ontario is characterized by what appears to be a very flat surface topography. Glacial drift deposits ranging in thickness from a few feet to more than 600 feet blanket the region, so that the present surface locally does not reflect the structure of the underlying bedrock. From a regional point of view however there is considerable variation in relief. In the region west of the Niagara escarpment, the land rises from an elevation of 572 feet at Lake Erie to about 1,700 feet in the region south of Nottawasaga Bay, and then decreases to 581 feet along the shore of Lake Huron. This regional variation is due to a Precambrian basement high known as the Algonquin arch that extends from Lake Simcoe southwestward to Walpole Island, Kent county. Over this Precambrian mass, Palaeozoic beds dip gently southward into the Appalachian geosyncline (27 feet per mile), and westward into the Michigan basin (33 feet per mile). The arch as now known is probably in the same position as it was during Upper Cambrian time when the first Palaeozoic seas

transgressed the region, although it is known to have fluctuated and change position at various intervals throughout Palaeozoic time.

The broad Findlay arch extends northeastward through Ohio into Essex county and the adjacent part of southeastern Michigan where it terminates. This arch, often erronously associated with the Algonquin arch, was not prominent until Upper Ordovician time.

Structure contours (Fig. 13) on the Cobourg formation (top of Trenton group) show a similar pattern to those drawn on the Precambrian surface (Sanford and Quillian, 1959). The top of the Cobourg attains an elevation of about 700 feet above mean sea-level between Lake Simcoe and Georgian Bay, and dips west, south and southwestward towards Walpole Island where it is about 2, 500 feet below sea-level. The Findlay arch in Essex county rises from about 2, 500 feet below sea-level to about 1, 200 feet below sea-level under Lake Erie, adjacent to the International Boundary.

In the subsurface of southwestern Ontario, well cuttings indicate some local doming, anticlinal structures, and some possible faulting in Ordovician strata. The contour interval and scarcity of well control on Figure 13 makes it difficult to localize small structures although many are believed to exist. Some of the more major structures however are quite apparent on this scale. One of the most interesting features is a narrow westward extension of the Algonquin arch through Zone, Camden, Chatham and Dover East townships; it is believed to terminate a short distance west of Walpole Island. Where this structure appears most prominent, rocks of the Trenton group dip northwestward at the rate of about 38 feet to the mile. To the south the beds appear to drop approximately 500 feet over a distance of about a mile, or at the rate of slightly more than 5 degrees. Due to the limited number of deep stratigraphic tests in this locality however, the outline of much of this structure on Figure 13 is merely a postulation based on more detailed information higher in the stratigraphic column. Future drilling will be necessary before the exact attitude and extent of this structure can be definitely established. The possibility of a major east-west-trending fault through the northern part of Kent county controlling this structure is not unlikely. The presence of elongated synclines, as shown in Figures 10 and 12 are also possible results of faulting. Such structures are believed to originate from slippage along old Precambrian faults, resulting in fracturing of the overlying Palaeozoic beds. Through the fracture zones, magnesium-rich waters from the underlying Upper Cambrian beds have subjected the Middle Ordovician Trenton and/or Black River limestones to dolomitization. Compaction along the fracture zones subsequent to dolomitization possibly accounts in part for the subsidence and resulting synclinal structure characteristic of the Ordovician oil and gas fields of southwestern Ontario and southeastern Michigan. These structures can be dated, and are believed to have occurred at intervals between Middle Ordovician and Middle Devonian time.

PETROLEUM AND NATURAL GAS

Southwestern Ontario has been a producer of petroleum for more than 100 years. Although gas accompanied the initial flows of oil in most of the early fields, the natural-gas industry did not begin until some 30 years after the discovery of oil. During the early period of development, oil wells produced from shallow Devonian horizons in the extreme western part of the peninsula in Kent and Lambton counties. The first commercial production of natural gas came in 1889, from rocks of Silurian age. During that year two major gas discoveries were made, one at each end of the peninsula — Essex and Welland counties — and these initiated the natural-gas industry in Ontario. Drilling then increased at a rapid rate, and many wells were completed to deeper horizons (Ordovician and older). In 1900 a small gas field producing from the Trenton and Black River was discovered at Hepworth on Bruce Peninsula. Although the gas was used locally for many years, its yield by present standards would hardly be regarded as commercial.

Continued deep drilling resulted, in 1917, in the discovery of the Dover oil and gas field in the Trenton group in Dover township, Kent county, near Lake St. Clair. This field during its 42 continuous years of operation has produced nearly 12 billion cubic feet of gas and approximately 243, 000 barrels of oil.

In the years subsequent to 1917, numerous shows of both oil and gas were encountered in rocks of Middle Ordovician age throughout southwestern Ontario. A small accumulation of gas was developed between 1937 and 1940 at Picton in Hallowell township, Prince Edward county. In 1954 the Acton gas field was discovered in Esquesing township, Halton county. This field, still under development, produces from the lower part of the Black River group.

The Colchester oil field in Colchester South township, Essex county, is presently undergoing rapid development; it was discovered early in 1959. From results of the first few wells drilled, there is every indication that this field will prove to be of major significance; production is from rocks of the Trenton group.

Although most of the Ordovician production to date has been obtained from the Trenton and Black River carbonate sequence, the Meaford-Dundas formation is known to contain near-commercial quantities of natural gas. Several wells drilled during 1922-1927 in Caledon township, Peel county obtained flows of 40 to 475 Mcf of gas a day. Several wells drilled in various other localities in the eastern part of the peninsula have produced flows of gas from these beds. The most recent was drilled in 1955 on lot 11, con. 5, Crowland tp., Welland county. This well, though only yielding a few thousand cubic feet daily, was kept as a commercial gas well. Production when obtained is primarily from the siltstones and silty limestone interbeds within the uppermost part of the Meaford-Dundas.

The five fields discovered to date in southwestern Ontario from the Trenton and Black River groups are briefly discussed here, in order of their discovery.

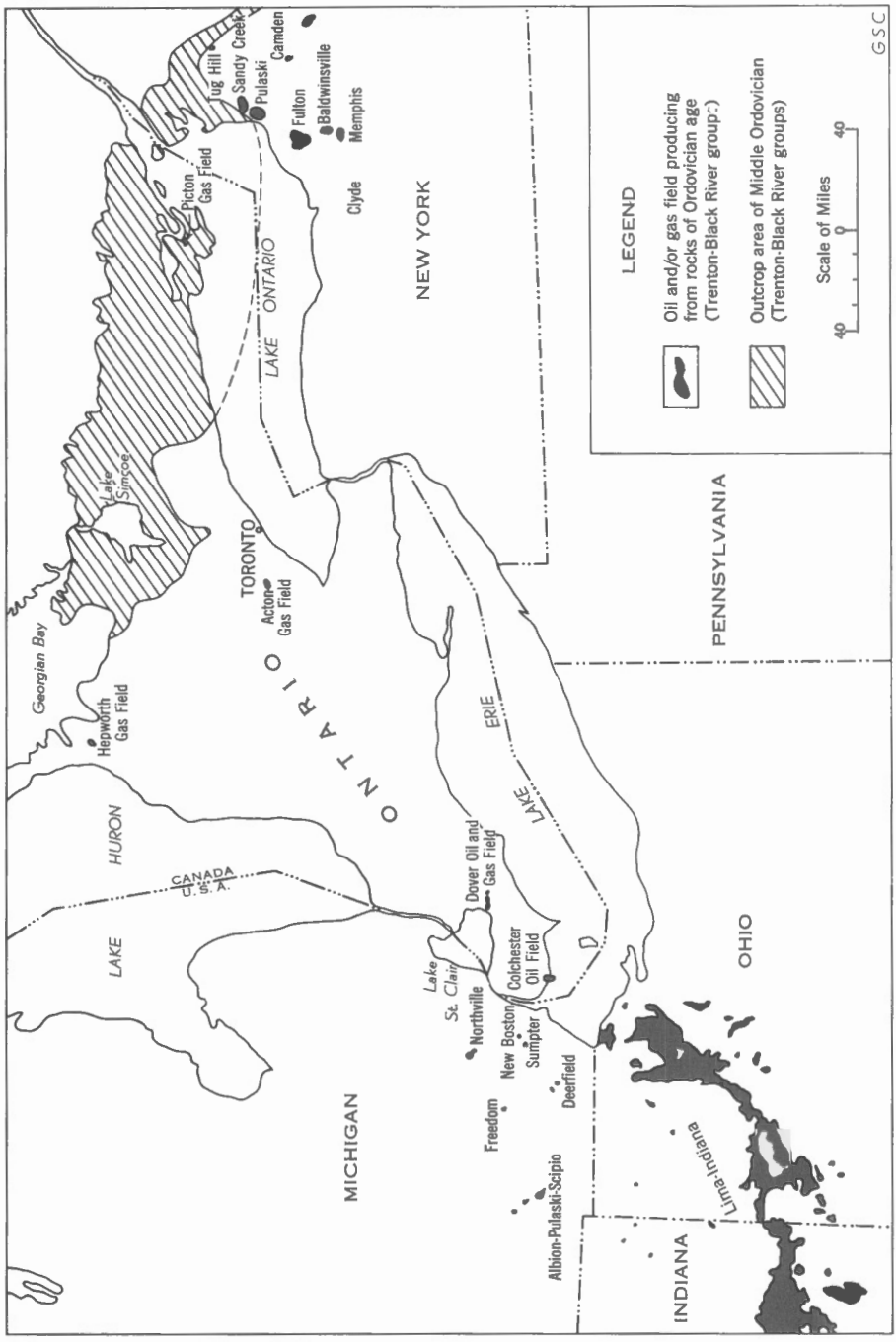


Figure 8. Map of southwestern Ontario and adjacent areas of the United States, showing oil and gas fields producing from rocks of middle Ordovician age

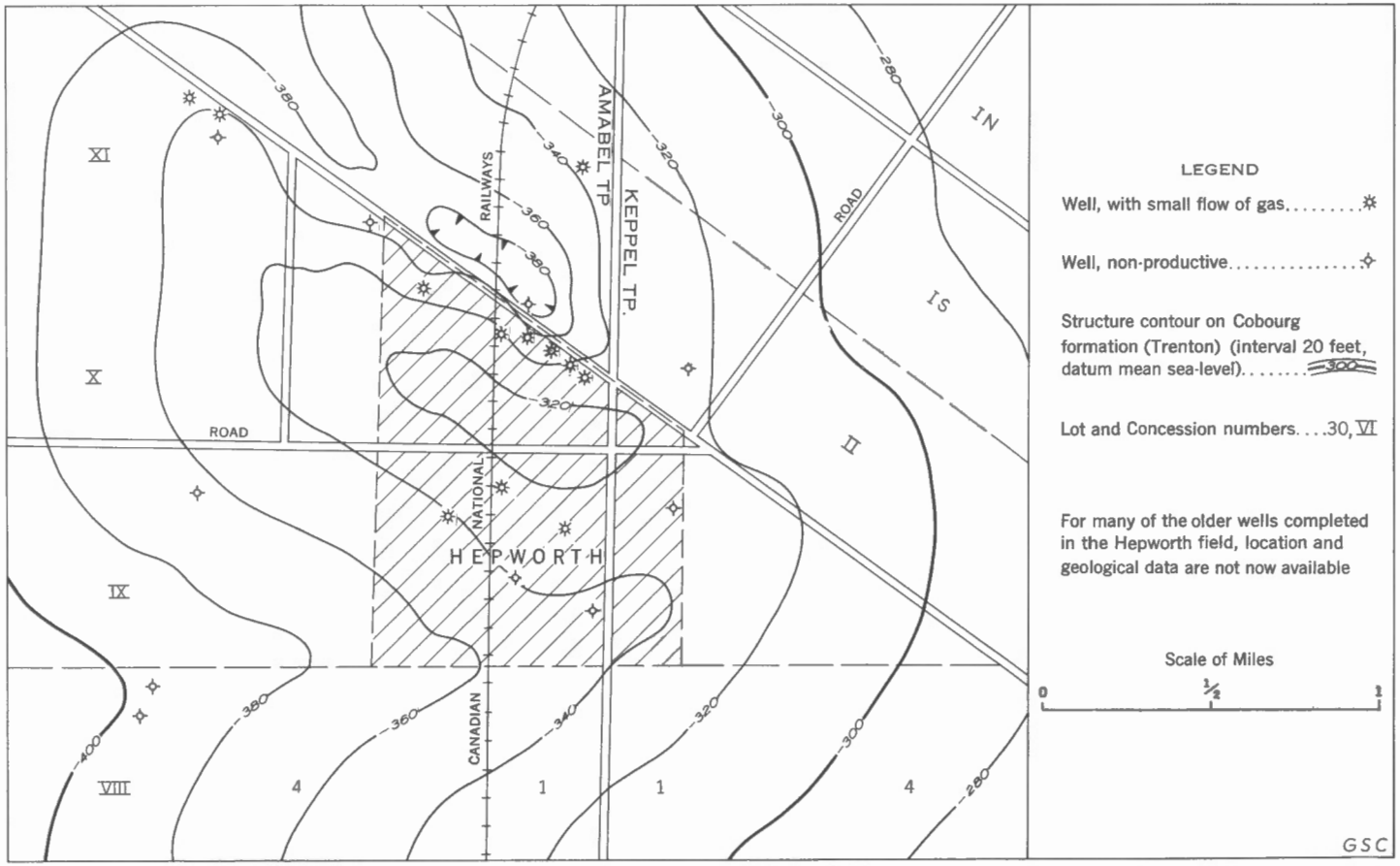


Figure 9. Structure contours on Cobourg formation, (Trenton), Hepworth gas field

Hepworth Gas Field

The first near-commercial production of natural gas from rocks of Ordovician age in southwestern Ontario (excluding Manitoulin Island) was in the year 1900. It came from a well completed on lot 1, con. 10, Amabel tp., Bruce county, that obtained a flow of gas from the Trenton. Although the original flow is now unknown, Clapp (1915) reported production at a depth of 1,405 feet, with a rock pressure of 425 pounds per square inch. Production figures for subsequent wells are also incomplete, but they indicate that probably none of the flows exceeded 100 Mcf of gas a day, with average initial open flows much less.

Cuttings are not now available for any of the wells completed within the limits of the Hepworth field, but from drillers records and detailed examination of more recent wells drilled nearby it can be reasonably assumed that much of the production was obtained from either the Coboconk or the upper part of the Gull River formation of the Black River group, or perhaps from both of these formations. However some of the wells produced from zones slightly higher in the column, from near the base of the Trenton group. From available records, it would seem that production was obtained from within one to three thin productive intervals between depths of 1,400 and 1,475 feet below the surface. These depths correspond to about 350 to 425 feet below the top of the Trenton.

Figure 9 shows the possible structure on the Cobourg formation (Trenton) at the Hepworth field. The positive structure is possibly the result of drape over a Precambrian basement high. One or two negative values on the north side of the structure indicate the presence of a narrow southeasterly trending syncline, suggesting possible faulting or subsidence. Many of the wells known to have been drilled in and around Hepworth are not shown on this figure due to unreliable location data. Cumulative production of the Hepworth field is not accurately known, but is unlikely to have exceeded 25,000 Mcf.

Dover Gas and Oil Field

This field is located in Dover West township and adjacent parts of Dover East and Raleigh townships of Kent county. According to Caley (1945a) "the discovery well was drilled in 1917, on lot 3, concession 3, Dover West township, and a heavy flow of gas was struck at a depth of 3,165 feet or 282 feet below the top of the Trenton formation. This gas, together with lighter flows from depths of 3,010 and 3,040 feet, gave an open flow of 6,000 Mcf a day, with a rock pressure of 1,250 pounds a square inch. Oil was present with the gas. In 1919, eight wells were producing gas and oil in commercial quantities. Subsequent drilling in this vicinity resulted in a relatively high percentage of failures for a time, but by 1935 the trend of the field had been determined, and in that year ten productive wells and two dry holes were drilled. Five more producers were drilled during the period 1938 to 1940. At least ten wells had initial open flows from 3,000 Mcf to 7,000 Mcf of gas a day, and initial yields from twenty-five other wells were from 50 Mcf to 2,000 Mcf a day. Initial yields of oil were from 4 to 100 barrels, and one well came in with 200 barrels a day." Gravity of the oil averaged 40° API. From an examination of drilling records, it would appear that little or no connate water was present in the reservoir rock.

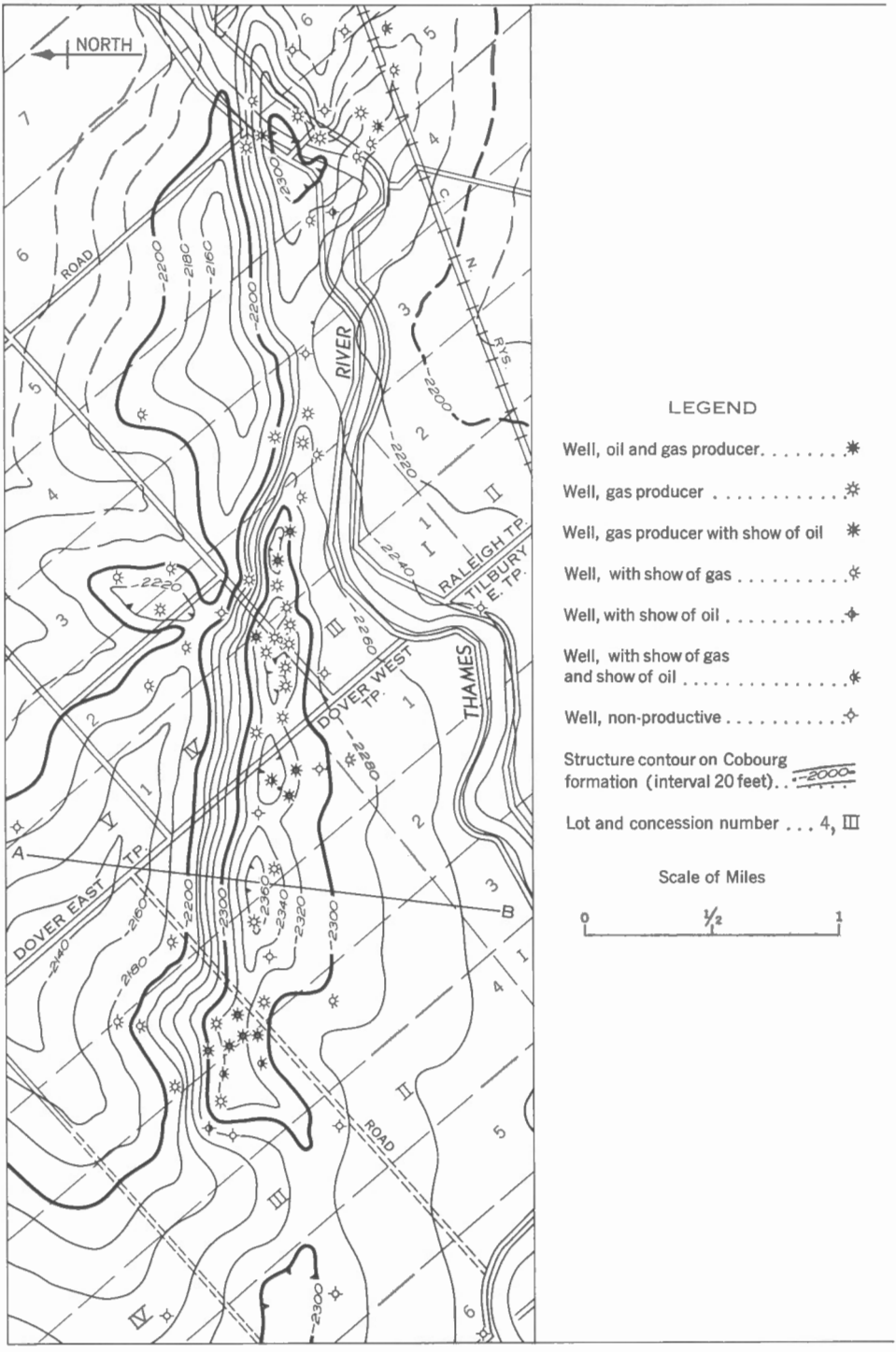
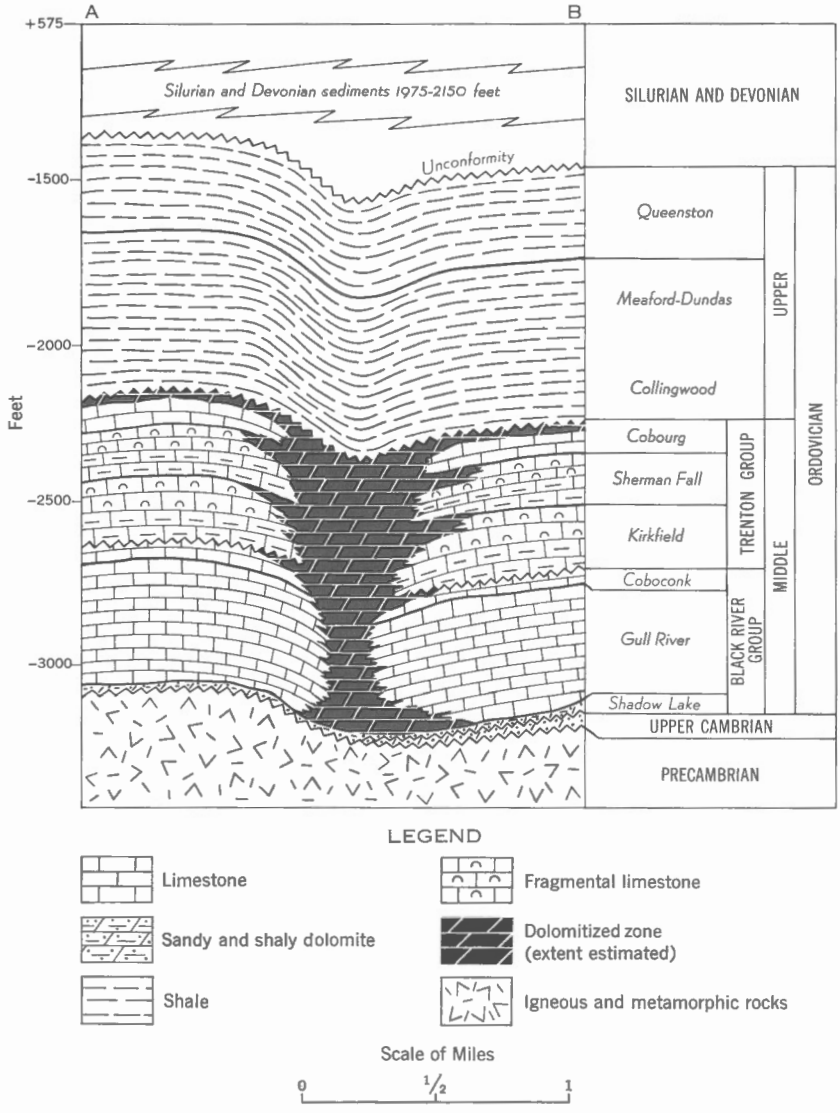


Figure 10. Structure contour map and diagrammatic section of Dover oil and gas field


A
B
+575
-1500
-2000
-2500
-3000
Feet
Silurian and Devonian sediments 1975-2150 feet
Unconformity
SILURIAN AND DEVONIAN
Queenston
Meaford-Dundas
Collingwood
Cobourg
Sherman Fall
Kirkfield
Coboconk
Gull River
Shadow Lake
UPPER
MIDDLE
ORDOVICIAN
TRENTON GROUP
BLACK RIVER GROUP
UPPER CAMBRIAN
PRECAMBRIAN
LEGEND
Limestone
Fragmental limestone
Sandy and shaly dolomite
Dolomitized zone (extent estimated)
Shale
Igneous and metamorphic rocks
Scale of Miles
0
1/2
1

During the early years of drilling, records were poorly kept, and the exact number of wells completed in the Dover field is therefore not known. However, more than 70 wells are known to have been drilled within the present productive limits of the field and adjacent areas within the structural trend.

Production in the Dover field is primarily from the Trenton group and to a small extent from the uppermost part of the Black River. Gas occurs at irregular intervals throughout the uppermost 400 feet of the Trenton, with major yields from depths of 100 to 200 feet below its top. The oil is known to occur as high as 200 feet below the top of the Trenton, but most of the production is from 300 to 425 feet below its top. Production occurs along the axis of a syncline where the beds have been dolomitized. The degree of dolomitization varies greatly over the entire length of the field with the result that productive zones are not consistent from one well to another. Dolomitization however, is observed to be considerably more intense along the line of section A-B (Fig. 10) than in any other part of the field.

Structure contours on the Cobourg (Trenton) (Fig. 10) show an elongated syncline trending in an east-west direction with more than 60 feet of closure in its western part. Production is confined almost entirely to the lowermost parts of the syncline. As shown on the structure diagram, the field consists of several separate productive areas and totals about 500 acres. Recovery of gas to date has been 11,969,639 Mcf with an estimated remaining reserve of 876,500 Mcf. The ultimate recovery of gas will therefore be approximately 25,692 Mcf per acre. Oil production to the end of 1958 was 243,005 barrels, with an estimated remaining reserve of some 6,850 barrels. Of the total field area only about 100 acres were productive of oil, making an ultimate recovery of about 2,499 barrels per acre.

The table on page 25 shows the yearly production of oil and gas for the Dover field.

Picton Gas Field

From 1937 to 1940 inclusive, approximately 15 wells were completed at Picton, in Hallowell township, Prince Edward county, to depths between 491 and 702 feet. These wells were all recorded as producing gas wells containing initial open flows varying from 1,700 cubic feet to 90 Mcf a day with rock pressures varying between 20 and 100 pounds per square inch. In most of the wells three or four productive intervals were encountered between 225 and 498 feet from the surface. Production in each of the wells was obtained in the Trenton from bioclastic limestone zones which are characteristic of the Sherman Fall and Kirkfield formations throughout southwestern Ontario.

The only commercial production reported from this field was during 1940 when 1,000 Mcf of gas was recovered from 14 operating wells.

Year	Natural Gas (Mcf)	Petroleum (bbl)	Year	Natural Gas (Mcf)	Petroleum (bbl)	Year	Natural Gas (Mcf)	Petroleum (bbl)
1917	165,525	8,000	1931	338,422	891	1945	162,286	5,935
1918	468,798	20,000	1932	275,558	453	1946	134,814	4,643
1919	470,808	16,705	1933	252,694	763	1947	129,184	4,545
1920	835,079	12,000	1934	363,344	558	1948	134,780	3,830
1921	275,351	7,473	1935	935,446	13,117	1949	100,431	3,562
1922	212,188	5,482	1936	842,362	15,536	1950	139,121	3,295
1923	183,342	5,618	1937	636,552	10,498	1951	180,231	3,309
1924	199,770	3,898	1938	509,677	8,801	1952	110,853	2,704
1925	126,687	2,957	1939	433,496	15,037	1953	79,643	1,331
1926	159,136	958	1940	381,837	11,856	1954	95,668	2,773
1927	189,438	602	1941	341,516	9,819	1955	81,720	2,232
1928	178,273	773	1942	310,261	8,494	1956	76,140	1,304
1929	366,224	715	1943	220,133	9,376	1957	71,717	2,328
1930	459,112	457	1944	181,211	7,642	1958	87,313	1,585
						1959	73,500	1,150
						Total cumulative production	11,969,639	243,005

Acton Gas Field

The Acton gas field is currently confined to lots 15, 16 and 17, cons. 4 and 5, Esquesing tp., Halton county. It is just east of the Niagara escarpment, approximately 5 miles southeast of the town of Acton. Twenty-five wells have been drilled in this locality; thirteen are regarded as commercial gas wells, one is an indicated oil well, and eleven are either dry or have non-commercial flows of oil or gas. The field is still under development. Four hundred and fifty acres have proven productive and this number may increase as further drilling is undertaken to the north and northeast.

The Acton gas field was discovered in October 1954, when a well drilled in lot 15, con. 5, Esquesing tp. obtained an initial open flow of 99 Mcf of gas a day between depths of 1,800 and 1,814 feet below the surface. This well had a reported rock pressure of 700 pounds per square inch. Data concerning this and subsequent wells drilled in this field are shown in the table on page 27.

Production in the Acton field is obtained primarily from the Black River group, the Gull River formation, and perhaps to a lesser extent from the Coboconk. Some production has also been reported at depths corresponding to the lower part of the Kirkfield formation of the Trenton group. In some wells production is from a thin porous zone, in bedded dolomites, near the base of the Gull River, but in a number of wells where the entire Black River has been dolomitized, production is from zones much higher and at irregular intervals throughout. Where the Black River beds are productive, gas is obtained from dolomite zones, yet some wells penetrated thick zones of medium crystalline dolomite without encountering any oil or gas. Where gas was reported at higher intervals within the Trenton, it is obtained from fragmental or bioclastic limestone interbeds within the lowermost 70 feet of the Kirkfield formation.

The structure underlying the Acton field is shown on Figure 11. Structure contours on the Black River group indicate a narrow southeast-trending anticline, with a pronounced structural low to the northeast. This structural feature is probably due to fracturing and subsidence during the hiatus between Trenton and Black River time, as no dolomitization has been observed within the Trenton group. The rapid variation in thickness of the Trenton over this field from southwest to northeast indicates that some pronounced structure existed at least during Trenton time. Further stepout drilling will be necessary before this structure can be accurately determined. It should be pointed out however that the wells that contained the largest open flows were situated lower structurally. Wells 3, 22, 23, and 26, on the northeast flank of the structure contained the highest flows. On the west side of the structure, wells 4, 12 and 14 had comparatively fair initial open flows; all three are low structurally.

Well	Original Reported Open Flow (Mcf)	Original Rock Pressure (psi)	Productive Interval	Depth to Top of Black River (feet)
Anthony Oil and Gas				
No. 2	99	700	1,800-1,814	1,730
No. 3	188	480	1,779	1,686
No. 4	332	377	1,851, 1,855, 1,898	1,819
No. 5	non-productive			1,821
No. 7	non-productive			1,819
No. 9	non-productive			1,672
No. 10	30	373	1,739-1,759 1,776-1,788 1,824-1,829	1,725
No. 11	non-productive			1,928
No. 12	360	350	1,834-1,838 1,860-1,867 1,919-1,926	1,820
No. 13	non-productive			1,659
No. 14	392	281	1,827-1,831 1,859-1,867 1,895-1,899	1,822
No. 15	non-productive			1,834
No. 16	non-productive			1,673
No. 17	non-productive			1,733
No. 18	non-productive			1,802
No. 19	non-productive			1,784
No. 20	231	350	1,752-1,756 1,818-1,822	1,742
No. 21	2 bbl(oil)	abandoned	1,927-1,937	1,827
No. 22	440	300	1,732-1,734 1,745-1,747 1,775-1,785	1,749
No. 23	450	360	1,690-1,692 1,730-1,731 1,748-1,749 1,756-1,766	1,761
No. 24	70	400	1,820-1,823 1,839-1,842 1,888-1,892	1,814
No. 25	67	435	1,835-1,839 1,851-1,853 1,897-1,899	1,803
No. 26	203	435	1,660-1,662 1,715-1,718 1,735-1,746	1,668
No. 27	non-productive			1,674
No. 28	non-productive			1,752
No. 29	75	---	1,818-1,820 1,884-1,890	1,807
No. 30	250	---	1,817-1,819	1,808

91062-0—3½

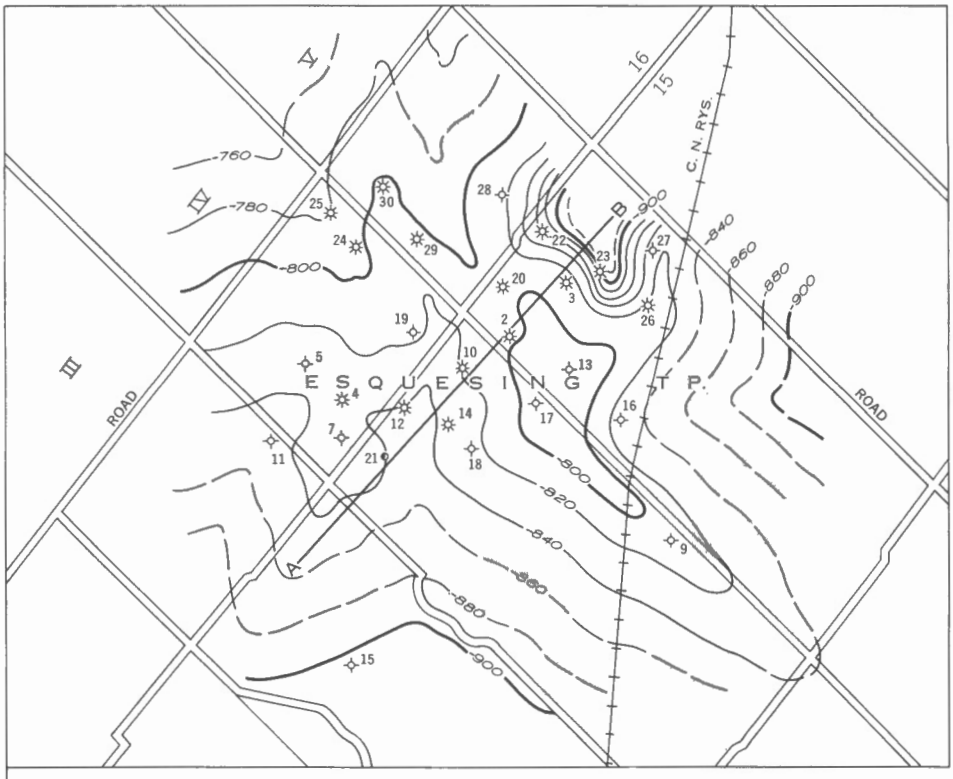
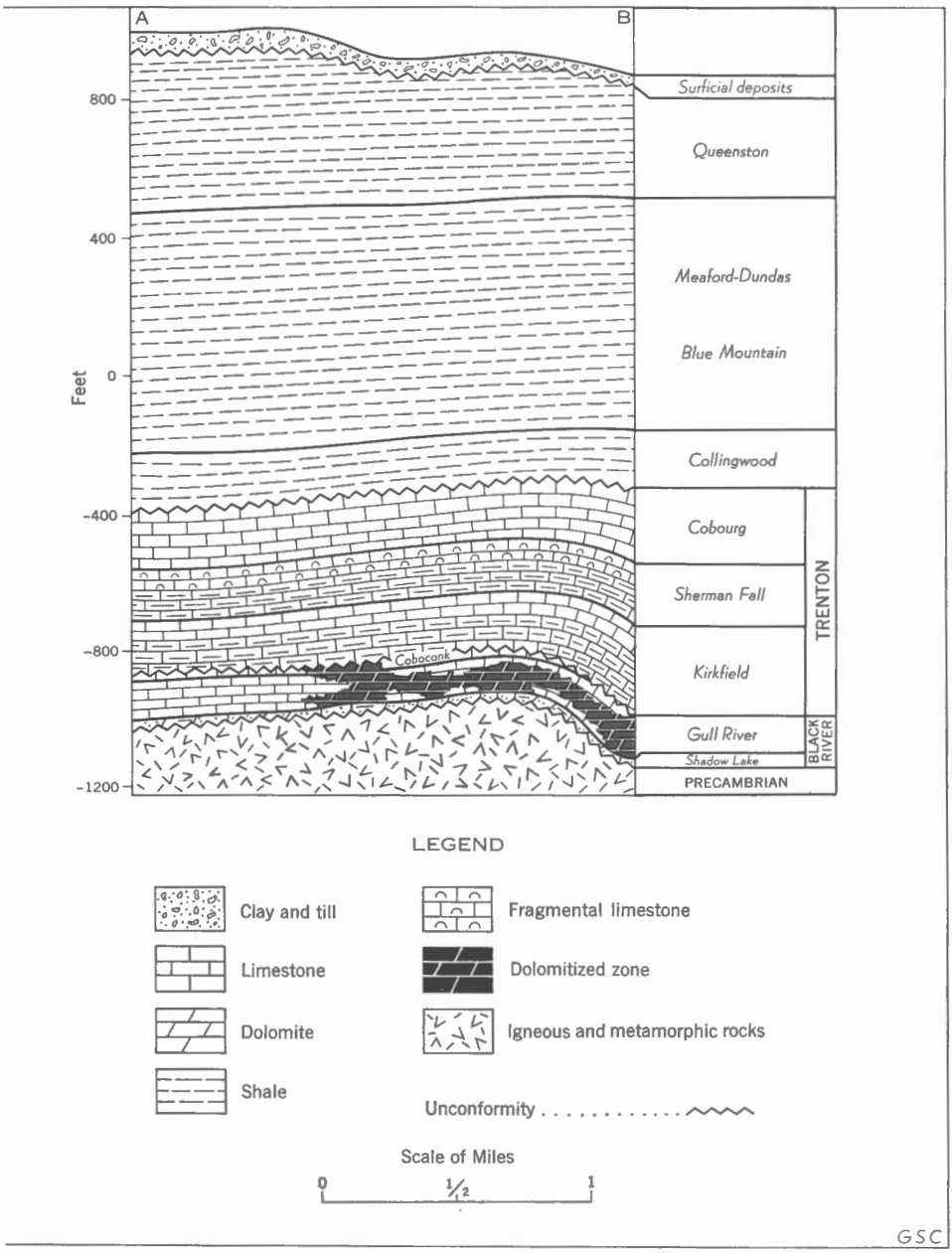


Figure 11. Structure contour map and diagrammatic section, Acton gas field


A
B
800
400
0
-400
-800
-1200
Feet
Surficial deposits
Queenston
Meaford-Dundas
Blue Mountain
Collingwood
Cobourg
Sherman Fall
Kirkfield
TRENTON
Gull River
Shadow Lake
BLACK RIVER
PRECAMBRIAN
Coboconk
LEGEND
Clay and till
Limestone
Dolomite
Shale
Fragmental limestone
Dolomitized zone
Igneous and metamorphic rocks
Unconformity
Scale of Miles
0
1/2
1
GSC

Gas production from the Acton field since discovery is as follows:

Year	Mcf
1954	------
1955	------
1956	1,422
1957	29,025
1958	47,201
1959	57,000
Cumulative production	134,648

Remaining recoverable reserves in the Acton field are estimated at 343,000 Mcf. Ultimate recovery would therefore be approximately 1,600 Mcf per acre.

Colchester Oil Field

The Colchester oil field is located about a mile west of Colchester village in Colchester South township, Essex county. The field is still under active development and at the time of writing it is confined to lots 76, 78, 79 and 81, con. 1, and offshore in Lake Erie as shown on Figure 12. Thirteen wells have been drilled in this locality; nine are regarded as commercial oil wells, and four contained non-commercial flows of oil. More than 400 acres are now proven productive, and this number will undoubtedly increase as additional wells are completed to the north, west and south.

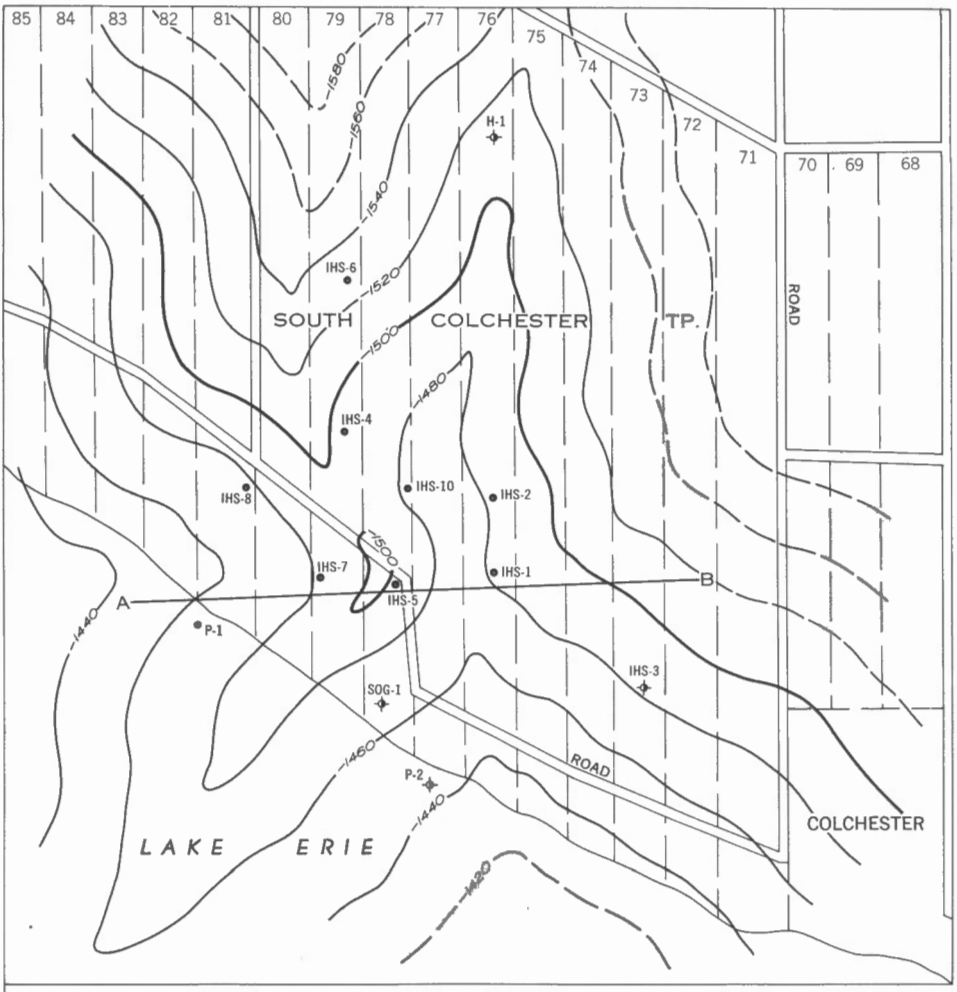
Although a showing of oil was reported in 1924 from the Trenton in a well completed by the Southern Ontario Gas Company on lot 78, con. 1, Colchester South tp., some 33 years elapsed before further drilling in this immediate locality was undertaken. In 1957 Harvest Petroleums, Ltd. completed a Trenton-Black River test in the northern part of lot 76, con. 1 and obtained a good showing of oil at the top of the Trenton. During 1959, Imperial Oil Ltd., in a joint venture with Harvest Petroleums, Ltd. and Submarine Oil and Gas Ltd., completed their No. 1 well on lot 76, con. 1 and obtained a flow of oil between depths of 2,148 and 2,165 feet, or 65 feet below the top of the Trenton. Subsequent drilling resulted in seven more producing wells on shore and one dry hole. During the summer of 1959, Place Gas and Oil Company Ltd. completed two deep wells offshore from Colchester South township; one of these obtained a good flow of oil from the Trenton, and the other obtained showings of oil only. The gravity of the oil in the Colchester field varies from 40.8 to 42°API, with an average of 41.5. Salt water was encountered in one or two of the wells, but whether or not an oil-water contact exists throughout the major part of the field has not yet been established. The table on page 31 describes the deep wells drilled to date in the Colchester area.

Well	Initial Flow (bbl)	Productive Interval	Depth to Trenton (feet)
Southern Ontario Gas Co. No. 1	show of oil	2,140 2,295	2,058
Harvest Petroleums Ltd. No. 1	2-3	2,145-2,153	2,140
Place Colchester No. 1	250	2,048-2,055 2,101-2,111 2,120-2,123	2,043
Place Colchester No. 2	show of oil	2,087-2,120	2,028
Imperial-Harvest-Submarine No. 1	125	2,148-2,165	2,083
Imperial-Harvest-Submarine No. 2	5	2,092-2,099	2,082
Imperial-Harvest-Submarine No. 3	show of oil	2,090-2,100 2,381-2,392	2,090
Imperial-Harvest-Submarine No. 4	170	2,097-2,100 2,133-2,170 2,222-2,228	2,087
Imperial-Harvest-Submarine No. 5	300	2,097-2,148	2,097
Imperial-Harvest-Submarine No. 6	50	2,137-2,148	2,137
Imperial-Harvest-Submarine No. 7	25	------	-----
Imperial-Harvest-Submarine No. 8	170	------	-----
Imperial-Harvest-Submarine No. 10	125	------	-----

Production in the Colchester field is obtained mainly from the Cobourg and Sherman Fall formations of the Trenton group. The discovery well obtained production from a porous bioclastic limestone zone at the top of the Sherman Fall, but subsequent production in more recent wells has been from dolomitized zones within the Cobourg and Sherman Fall.

Although the structure underlying the Colchester field is still imperfectly known, Figure 12 shows a north-plunging structure and a corresponding synclinal structure on its west side. From well No. 5 it might seem that within the lowermost part of the structure, the Trenton, and part if not all of the Black River would be completely dolomitized, with interfingerings of dolomite branching out on zones which originally contained some primary porosity as postulated in the diagrammatic section (Fig. 12). Well No. 6 contains dolomitized zones principally within the Black River, suggesting that the dolomitization trend begins in these beds and transgresses up section and up dip to the more porous Trenton beds where dolomitization is most intense. Although some oil production is obtained on the flanks of the syncline, the higher-productive wells will probably lie within the lowermost part of the structure.

There is yet insufficient evidence to prove faulting, but such intense secondary dolomitization in this field suggests that major fracturing of the Trenton and Black River has taken place. This might be substantiated to some extent by the fact that Place Colchester No. 1 well, located offshore in Lake Erie, obtained a good flow of oil from the Manitoulin dolomite (not productive elsewhere in southwestern Ontario) which might suggest the possible transfer of hydrocarbons from depth through a connecting fracture zone.



LEGEND

Well, with commercial flow of oil . . . . . •

Well, with show of oil . . . . . ✦

Structure contours on Cobourg formation (interval 20 feet, datum mean sea-level) 1500

Lot numbers, (front concession) 68–85

Imperial-Harvest-Submarine IHS-1-10

Harvest Petroleums Ltd. H-1

Place Gas and Oil Ltd. P-1-2

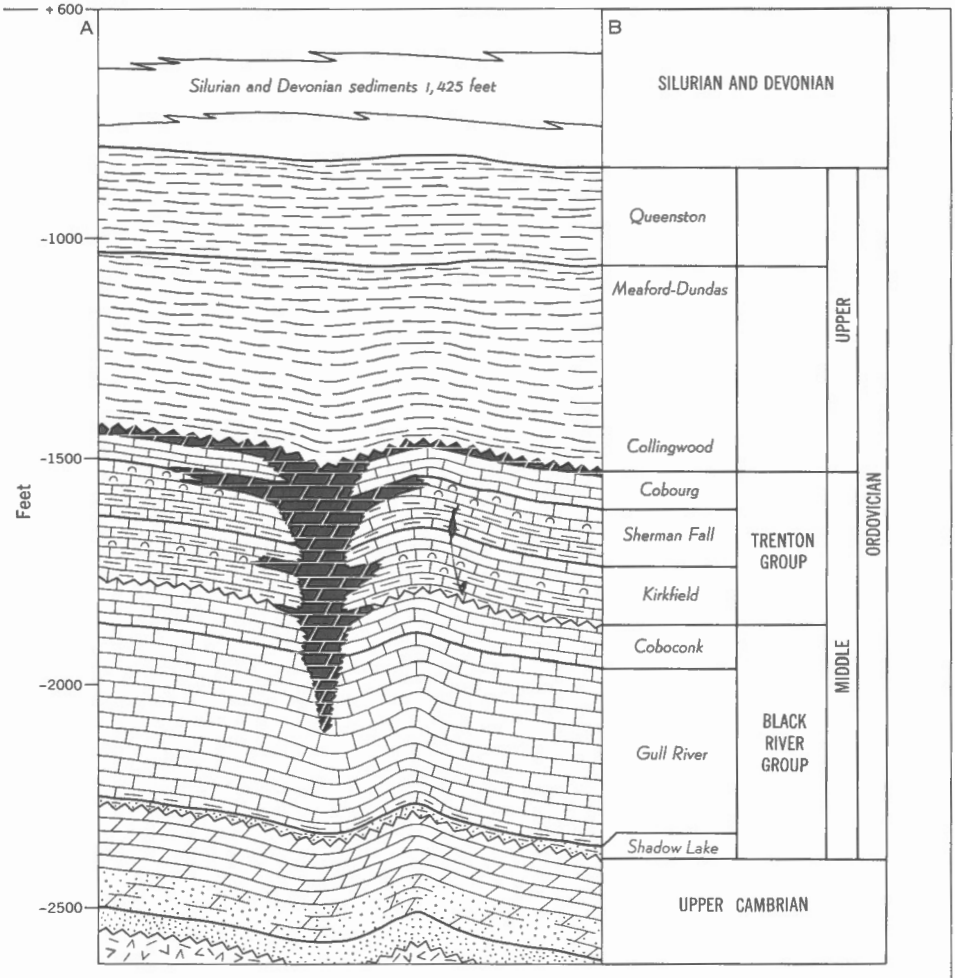
Southern Ontario Gas Co. SOG-1

Scale of Miles

0 ½ 1

GSC

Figure 12. Structure contour map and diagrammatic section, Colchester oil field


+600
A
B
Silurian and Devonian sediments 1,425 feet
SILURIAN AND DEVONIAN
Queenston
Meaford-Dundas
Collingwood
Cobourg
Sherman Fall
Kirkfield
Coboconk
Gull River
Shadow Lake
TRENTON GROUP
BLACK RIVER GROUP
UPPER
MIDDLE
ORDOVICIAN
UPPER CAMBRIAN
-1000
-1500
-2000
-2500
Feet
LEGEND
Shale
Limestone
Igneous and metamorphic rocks
Dolomitized zone
(Thickness and extent estimated)
Sandstone
Dolomite
Fragmental or bioclastic limestone
Unconformity
Scale of Miles
0
1/2
1

Wells on land were placed on production during the latter part of 1959 as completed, and produced an estimated 52,000 barrels of oil up to the end of the year. No production has been taken to date from Place Colchester No. 1 well offshore, although a plan has been devised to make the well produce by pump and tank batteries situated on shore. No reliable estimates of ultimate recoverable reserves are yet available.

FUTURE POSSIBILITIES

More than 20,000 wells have been drilled in southwestern Ontario during the period 1860 to 1958. Most of these only penetrate the Devonian and Silurian with perhaps fewer than 400 wells with sufficient depth to test deeper Ordovician and Cambrian horizons. Although only three commercial fields have been discovered in the Ordovician, marginal yields and showings of both oil and gas from Middle Ordovician rocks have been found from time to time at widely separated localities throughout southwestern Ontario.

The possibilities of discovering additional accumulations of oil and gas in the Ordovician strata are believed to be reasonably good, although these possibilities may vary from one locality to another. Local facies changes within the Trenton and Black River groups are not readily observable from sample examination. On a regional basis however, facies changes are quite apparent in both groups, and bear considerable relationship to the isopachous maps. Figure 4 shows the thickness of the Black River group and indicates a shelf area throughout the central part of southwestern Ontario during the interval of their deposition; this increases in relief to the northeast towards Lake Simcoe. Although the limestones of the Black River group are reasonably clean throughout southwestern Ontario, they are observed to be considerably cleaner to the northeast as the highest part of the Algonquin arch is approached. The future possibility of finding accumulations of gas such as the Hepworth and Acton gas fields is extremely good, particularly where the Black River thins to 250 feet and less, and interbedded dolomites have been observed to be considerably more abundant. Almost the reverse is true for the Trenton group. Figure 5 shows these strata to thicken considerably throughout the central part of the peninsula, and to thin both to the north and south. Throughout this area of maximum thickness (400-500 feet) much of the Trenton is very argillaceous and finely textured. Where these strata tend to thin laterally, they become considerably cleaner, containing more abundant fragmental or clastic limestone interbeds. The possibilities of gas fields in the Trenton are therefore considered better in those areas where it thins to 400 feet and less.

From a tectonic viewpoint the Findlay-arch part of southwestern Ontario (Essex county and part of Kent county) has probably been subjected to more intense deformation than any other part of the peninsula. Future possibilities are therefore believed to be extremely good in this region. It should be pointed out however, that up to the end of 1958, in Essex county alone, only about 30 deep wells had been drilled to test the Trenton, although in Ohio immediately to the south, wells have been producing from rocks of Middle Ordovician age (Trenton-Black River) for three quarters of a century.

Throughout the western half of southwestern Ontario production of both oil and gas from the Devonian and Silurian has been obtained either from reef, anticlinal or dome structures. Most of the production obtained from rocks of Ordovician age in southwestern Ontario has favored synclinal structures. This is also to some extent true in the adjacent area of southeastern Michigan in the Scipio-Pulaski-Albion field, where large flows of oil are being obtained from the Trenton in an elongated synclinal structure. Structural highs should not be overlooked, but in the light of such recent discoveries in Essex county and southeastern Michigan, the petroleum geologist should look to these regions with a new perspective. Where negative structures (lows) are known or suspected to exist, they should be considered worth further study.

As can be observed on Figure 13 there are still large areas throughout southwestern Ontario that remain virtually untested. During the past few years offshore drilling equipment has been designed and used successfully for drilling beneath the waters of the Great Lakes. This accomplishment has added several million acres of offshore property, which should greatly enhance future oil and gas possibilities in this region.

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APPENDIX

Well Records

The following deep wells drilled in southwestern Ontario, are shown on Figure 13. The list has been compiled from the records of the Geological Survey. Some of the wells are indicated as being oil or gas producers, but no record has been kept by the Geological Survey as to whether they are still productive or have subsequently become abandoned. In the Hepworth, Dover, and Acton fields, many of the wells are too closely spaced to be shown on the accompanying map and the individual wells are shown on Figures 9, 10, and 11 respectively.

These records do not necessarily include all of the deep wells known to have been drilled in the district. During early development of the oil and gas industry, many wells were completed but no records were kept. Some of the data for many of the older wells in this list can be regarded as unreliable.

Most of the deep wells drilled to Cambrian and/or Precambrian are listed in the appendix of GSC Paper 58-12. These deep tests as well as many additional wells completed to horizons higher in the Ordovician are included here. Some changes have been made in the data concerning several of the wells listed in Paper 58-12. In some cases, where more than one well has been completed on a single lot, only one well is recorded here.

The following abbreviations are used:

BF—Broken Front
BFLE—Broken Front Lake Erie
E—East
EBR—East Boundary Range
ED—East Division
EFC—East Fairchild Creek
ER—East Range
LE—Lake Erie
LES—Lake Erie Survey
LRE—Lake Range East
N—North
NCD—North Concession Division
NE—Northeast
NMR—North Middle Road
NR—North Range
NTR—North Talbot Road
RF—River Front
RR—River Range
S—South
STR—South Talbot Road
SW—Southwest
W—West
WBR—West Boundary Range
WBS—West Boundary Survey
WCR—West Communication Road
WD—West Division
WFC—West Fairchild Creek

ESSEX COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	Chanty well	29	1	Anderdon	---	-----	1914	----------	2,396	
2.	Canadian Steel Corp.	7	1	Anderdon	607	2,566	1914	Trenton	2,392	Show of oil at 2,369 and 2,494 Salt water at 2,445, 2,530 and 2,566
3.	Canadian Delhi Oil Ltd.	10	6	Anderdon	597	2,575	1956	Trenton	2,434	Show of oil at 2,558
4.	Canadian Delhi Oil Ltd.	9	8	Anderdon	603	3,252	1957	Upper Cambrian	2,418	Dry
5.	The Trenton Gas Syndicate	53	5	Malden	590	2,531	1956	Black River	2,143	Show of oil at 2,180
6.	The Malden Gas Syndicate No. 1	53	5	Malden	587	2,500	1955	Trenton	2,154	Show of gas at 2,154
7.	French Petroleum-River mouth No. 1	Lake Erie		Malden	597	2,782	1959	Black River	1,938	Dry
8.	French Petroleum-North Harbour No. 1	Lake Erie		Colchester S.	597	2,350	1959	Black River	1,977	Dry
9.	Putman and Putman No. 2	Lake Erie		Colchester S.	591	2,985	1958	Black River	2,130	Dry
10.	Place Gas and Oil Co. Ltd., Colchester No. 1	Lake Erie		Colchester S.	579	2,424	1959	Black River	2,054	250 bbl a day from Trenton, 2,048-2,055, 2,101-2,111, 2,120-2,123
11.	Place Gas and Oil Co. Ltd., Colchester No. 2	Lake Erie		Colchester S.	579	2,389	1959	Black River	2,028	Show of oil in Trenton
12.	Southern Ontario Gas Co.	78	1	Colchester S.	593	2,905	1924	Upper Cambrian	2,058	Show of oil at 2,140 Show of gas at 2,295
13.	Imperial-Harvest-Submarine No. 5	78	1	Colchester S.	601	2,148	1959	Trenton	2,097	350 bbl a day from Trenton, 2,113-2,148
14.	Imperial-Harvest-Submarine No. 4	79	1	Colchester S.	598	2,228	1959	Trenton	2,087	170 bbl a day from Trenton, 2,097-2,100, 2,133-2,170, 2,222-2,228
15.	Imperial-Harvest-Submarine No. 6	79	1	Colchester S.	610	2,758	1959	Black River	2,137	50 bbl a day from Trenton, 2,137-2,148
16.	Harvest-Petroleums Ltd. No. 1	76	1	Colchester S.	628	2,600	1957	Black River	2,140	Oil at 2,145-2,153; 2 bbl per day (abandoned)
17.	Imperial-Harvest-Submarine No. 2	76	1	Colchester S.	611	2,488	1959	Black River	2,082	5 bbl a day from Trenton, 2,092-2,100
18.	Imperial-Harvest-Submarine No. 1	76	1	Colchester S.	600	2,492	1959	Black River	2,083	125 bbl a day from Trenton, 2,148-2,165
19.	Imperial-Harvest-Submarine No. 3	73	1	Colchester S.	609	2,505	1959	Black River	2,090	Show of oil in Trenton, 2,090-2,101, 2,381-2,392
20.	Provincial Natural Gas and Fuel Co.	64	1	Colchester S.	632	2,420	1905	Trenton	2,150	Show of oil and gas at 2,150
21.	Miller Farm	18	2	Colchester S.	594	2,250	1923	Trenton	2,250	Dry
22.	Canadian Delhi Oil Ltd.	13	NMR	Colchester N.	612	3,240	1956	Upper Cambrian	2,395	Dry
23.	Canadian Delhi Oil Ltd.	17	9	Maidstone	617	3,500	1955	Upper Cambrian	2,625	Salt water at 3,492
24.	Bon Jasperson	14	2	Maidstone	602	3,516	1934	Upper Cambrian	2,643	Salt water at 3,000
25.	Canadian Delhi Oil Ltd.	274	STR	Gosfield N.	643	3,324	1956	Upper Cambrian	2,468	Dry

26.	O.K. West No. 1	13	9	Gosfield N.	632	3,347	1957	Upper Cambrian	2,464	Dry
27.	O.K. West No. 2	13	9	Gosfield N.	629	2,505	1957	Trenton	2,474	Gas at 2,475-2,499; 50 Mcf a day
28.	Bon Jasperson	8	IED	Gosfield S.	642	2,935	1927	Black River	2,375	Show of oil at 2,360
29.	H.B. Smith No. 1	6	IED	Gosfield S.	638	3,247	1952	Upper Cambrian	2,300	Dry
30.	Olga Gas and Oil Co.	32	IWD	Gosfield S.	575	2,603	1930	Black River	2,175	Dry
31.	Putman and Putman No. 1	Lake Erie		Gosfield S.	591	2,601	1957	Black River	2,194	Show of oil at 2,308 and 2,313
32.	Bluewater-Phillips-Pelee Island No. 2	Lake Erie		Mersea	580	3,027	1959	Upper Cambrian	2,204	Dry
33.	Pelee Island well	Pelee Island		Mersea	575	2,800	1895?	Black River	2,388	Dry
34.	Bluewater-Phillips-Pelee Island No. 1	Lake Erie		Mersea	580	3,075	1958	Upper Cambrian	2,258	Dry
35.	Putman and Putman No. 3	Lake Erie		Mersea	593	2,601	1958	Trenton	2,392	Dry
36.	Bluewater Oil and Gas	Pelee Point		Mersea	579	3,436	1958	Upper Cambrian	2,500	Dry
37.	Ontario Natural Gas Co.	239	NTR	Mersea	612	2,896	1905	Black River	2,488	Show of oil at 2,594
38.	Imperial Oil Ltd. No. 673	10	7	Mersea	635	3,490	1958	Precambrian	2,525	Dry
39.	Imperial Oil Ltd.	1	7	Mersea	641	3,358	1921	Upper Cambrian	2,520	Dry
40.	Rosslyn well	5	10	Tilbury W.	610	3,423	1922	Upper Cambrian	2,570	Dry
41.	Union-Imperial, No. 3	14	11	Tilbury W.	605	3,549	1946	Precambrian	2,603	Show of oil at 3,041-3,047

KENT COUNTY

1.	Imperial Oil Ltd. No. 668	18	6	Romney	600	3,609	1958	Precambrian	2,654	Dry
2.	E. Coste No. 2	21	6	Romney	607	3,145	1922	Black River	2,675	Salt water at 3,125
3.	E. Coste No. 3	19	3	Romney	623	3,528	1923	Upper Cambrian	2,670	Dry
4.	Erie Petroleum	194	NTR	Romney	631	3,669	1943	Upper Cambrian	2,750	Dry
5.	Wesley Dawson No. 6	189	NTR	Romney	631	3,588	1950	Upper Cambrian	2,695	Dry
6.	Southern Ontario Gas Co. Shanks No. 6	188	NTR	Romney	636	3,560	1923	Upper Cambrian	2,712	Dry
7.	Bluewater-Trans Valley	30	2	Romney	630	3,671	1958	Precambrian	2,701	Dry
8.	Imperial-Union-Dominion	A	Gore	Romney	629	3,160	1957	Black River	2,685	Oil at 2,699-2,712; 5 bbl per day. Show of gas at 2,699-2,712
9.	Imperial-Union-Dominion	A	Gore	Romney	633	3,653	1958	Precambrian	2,701	Dry
10.	Putman and Putman No. 2	186	NTR	Romney	630	2,850	1958	Trenton	2,720	Dry
11.	Union Natural Gas Co. No. 251	184	NTR	Romney	633	3,659	1924	Upper Cambrian	2,750	Dry
12.	Union Natural Gas Co.	178	NTR	Romney	637	3,655	----	Upper Cambrian	2,755	Dry
13.	Consolidated West Petroleum No. 37	Lake Erie		Romney	590	3,330	1958	Black River	2,779	Dry
14.	Canadian Kewanee-Pelee No. 1	Lake Erie		Romney	599	3,790	1959	Upper Cambrian	2,807	Dry
15.	Union Natural Gas Co. No. 248	174	NTR	Tilbury E.	636	3,770	1924	Upper Cambrian	2,833	Dry
16.	John Adaskin	17	10	Tilbury E.	608	3,597	1958	Upper Cambrian	2,732	Show of oil at 3,112-3,122
17.	Eugene Coste No. 6	19	7	Tilbury E.	595	3,588	1924	Upper Cambrian	2,700	Dry
18.	Union Natural Gas Co. No. 249	10	NMR	Tilbury E.	610	3,692	1924	Upper Cambrian	2,768	Dry
19.	Imperial Oil Ltd.	3	2	Tilbury E.	578	3,290	1918	Black River	2,790	Dry
20.	Union Natural Gas Co. No. 6	1	3	Tilbury E.	578	3,740	1917	Precambrian	2,820	Dry
21.	E.P. Rowe	5	2	Raleigh	582	3,281	1936	Black River	2,848	Show of gas at 3,285
22.	E.P. Rowe	5	2	Raleigh	581	3,247	1937	Black River	2,830	Gas at 2,944-3,223; 4,000 Mcf a day
23.	Dominion Natural Gas Co. Ltd.	7	3	Raleigh	577	3,273	1944	Black River	2,815	Dry
24.	Imperial Oil Ltd. No. 45	7	4	Raleigh	578	3,738	1946	Upper Cambrian	2,837	Gas at 2,985-2,960; 160 Mcf a day

KENT COUNTY (cont.)

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
25.	Imperial Oil Ltd. No. 59	9	5	Raleigh	579	3,765	1946	Upper Cambrian	2,830	Show of gas at 3,120 Salt water at 3,460
26.	Imperial Oil Ltd.	11	5	Raleigh	582	3,685	1946	Black River	2,901	Oil at 3,606-3,613; 8 bbl a day Show of gas at 3,350 and 3,618 Show of oil and gas at 3,594-3,600
27.	Imperial Oil Ltd. No. 51	10	6	Raleigh	581	3,758	1946	Upper Cambrian	2,853	Salt water at 3,450
28.		1	6	Raleigh	593	3,167		Trenton	2,780	Dry
29.	Imperial Oil Ltd. No. 76	13	7	Raleigh	589	3,351	1947	Black River	2,886	Dry
30.	Imperial Oil Ltd. No. 179	142	NTR	Raleigh	651	3,911	1948	Upper Cambrian	2,959	Dry
31.	Lake St. Clair Gasfields No. 6	Lake St. Clair		Dover W.	592	3,697	1955	Black River	2,790	Dry
32.	Lake St. Clair Gasfields No. 1	Lake St. Clair		Dover W.	591	3,005	1955	Trenton	2,780	Dry
33.	Lake St. Clair Gasfields	8	4	Dover W.	575	3,120	1956	Trenton	2,822	Dry
34.	Union Gas Co. of Canada Ltd. No. 8	4	4	Dover W.	576	3,728	1923	Black River	2,833	Dry
35.	Olga Gas and Oil Co. No. 3	5	3	Dover W.	576	3,313	1929	Black River	2,870	Dry
36.	Union Gas Co. of Canada Ltd. No. 3	4	3	Dover W.	577	3,275	----	Black River	2,865	Dry
37.	Union Gas Co. of Canada Ltd. No. 11	3	3	Dover W.	576	3,285	1919	Trenton	2,896	Show of oil at 2,916-3,085 Show of gas at 3,270-3,280
38.	Union Gas Co. of Canada Ltd. No. 21	2	3	Dover W.	577	3,700	1929	Black River	2,785	Show of gas at 2,935
39.	Union Gas Co. of Canada Ltd. No. 2	1	3	Dover W.	575	3,770	----	Precambrian	2,770	Show of gas at 2,905
40.	Union Gas Co. of Canada Ltd. No. 9	3	2	Dover W.	575	3,330	1918	Black River	2,670	Show of gas at 3,005, 3,015 and 3,145
41.	Union Gas Co. of Canada Ltd. No. 4	5	1	Dover W.	577	3,240	----	Black River	2,805	Dry
42.	Ajax Oil and Gas Co. Ltd.	2	2	Dover W.	574	3,348	1928	Black River	2,944	Gas at 2,972-3,185; 75 Mcf
43.	Union Gas Co. of Canada Ltd. No. 16	1	2	Dover W.	574	3,774	1922	Precambrian (?)	2,930	Producing well
44.	Universal	1	1	Dover W.	577	3,305	1921	Black River	2,867	Show of gas at 2,927 and 3,105
45.	E.P. Rowe	2	4	Dover E.	578	3,275	1937	Trenton	2,900	Gas at 3,023-3,100; 3,000 Mcf a day
46.	Ajax Oil and Gas Co. No. 5	3	4	Dover E.	578	3,190	1929	Black River	2,687	Show of gas at 3,250
47.	Olga Gas and Oil Co.	4	3	Dover E.	577	3,365	1929	Black River	2,782	Show of gas at 2,220-3,270
48.	F.H. Stover and Son No. 3	3	3	Dover E.	576	3,203	1935	Black River	2,780	Gas at 2,911-2,917; 500 Mcf a day
49.	Midwood Oil and Gas Co. Ltd.	5	2	Dover E.	581	3,265	1935	Black River	2,805	Show of gas at 3,240
50.	Dawn Oil and Gas Co. Ltd. No. 1	10	4	Dover E.	583	3,846	1954	Precambrian	2,877	Show of gas at 3,302
51.	W.C. Bowman	11	4	Dover E.	580	3,332	1920	Black River	2,898	Show of oil and gas

52.	W. Cook No. 1	12	2	Dover E.	580	3,692	----	Black River	2,904	Show of gas at 3,395-3,400
53.	E. Coste No. 7	17	7	Dover E.	582	3,813	1924	Precambrian	2,887	Show of gas at 3,325
54.	Union-Imperial-Electric 1	19	14 W	Dover E.	579	3,987	1948	Precambrian	3,031	Dry
55.	Union-Imperial-Electric 3	18	14 W	Dover E.	579	3,956	1948	Precambrian	3,006	Dry
56.	Union-Imperial-Electric 5	38	15 W	Dover E.	578	3,715	1948	Precambrian	2,773	Dry
57.	Union-Imperial No. 1	1	14	Chatham	583	3,685	1945	Precambrian	2,727	Show of gas at 3,198-3,204
58.	Union Gas Co. of Canada Ltd. No. 73	2	14	Chatham	581	3,700	1944	Precambrian	2,767	Dry
59.	Union Gas Co. of Canada Ltd. No. 3	6	14	Chatham	587	3,725	1936	Precambrian	2,767	Dry
60.	Union-Imperial No. 2	4	13	Chatham	583	3,998	1946	Precambrian	3,040	Show of gas at 3,470-3,475
61.	Union Gas Co. of Canada Ltd. Chatham 89	3	9	Chatham	587	3,862	1956	Precambrian	2,952	Show of gas at 3,410-15, 3,610-13 and 3,823-29
62.	F.A. Ogletree	19	6	Chatham	604	5,928	1937	Precambrian	2,900	Dry
63.	E.P. Rowe	6	1	Chatham	598	3,812	1940	Precambrian	2,887	Show of oil at 3,305 and 3,340
64.	H. English No. 1	2	4 WCR	Harwich	595	3,789	1939	Upper Cambrian	2,873	Dry
65.	F.H. Stover and Son	21	13 LES	Harwich	616	3,400	1931	Black River	3,017	Dry
66.	Imperial Oil Ltd. No. 556	14	9 LES	Harwich	644	3,978	1956	Upper Cambrian	3,069	Dry
67.	Imperial Oil Ltd.	4	4 WCR	Harwich	583	4,078	1956	Precambrian	3,050	Dry
68.	Rondeau Park well	Rondeau		Harwich	576	4,010	1918	Black River	3,252	Dry
69.	Goodall Mining Co. Ltd. No. 1	24	1 LES	Harwich	576	3,002	1956	Meaford-Dundas	----	Dry
70.	Imperial Oil Ltd. No. 530	92	BF LE	Howard	609	4,206	1955	Precambrian	3,190	Dry
71.	E.P. Rowe	5	3	Zone	631	3,985	1924	Precambrian	3,055	Dry
72.	Olga Gas and Oil Co.	12	RR	Zone	668	3,998	1930	Upper Cambrian	3,095	Dry

LAMBTON COUNTY

1.	Imperial Oil Ltd. No. 163	11	5	Sombra	580	3,897	1949	Black River	2,945	Dry
2.	Union Gas Co. of Canada Ltd. No. 25	19	1	Dawn	626	3,869	1928	Precambrian	2,913	Dry
3.	Union Gas Co. of Canada Ltd. No. 3	24	5	Dawn	654	3,080	1921	----------	-----	
4.	Union Gas Co. of Canada Ltd. No. 2	26	6	Dawn	656	3,939	1922	Precambrian	2,920	Dry
5.	E. Coste No. 4	30	9	Dawn	665	3,920	1923	Precambrian	2,965	Dry
6.	Sarnia Gas and Oil Co.	16	1	Moore	620	4,180	1929	Precambrian	3,208	Show of gas at 3,490; Show of oil at 3,690
7.	Imperial-Union No. 25	10	2	Moore	619	4,132	1954	Precambrian	3,168	Dry
8.	Imperial Oil Ltd. No. 711	2	4	Moore	641	4,081	1959	Precambrian	3,078	Dry
9.	Western Salt Co. No. 3	23	RF	Moore	600	4,420	1929	Black River	3,450	Dry
10.	Imperial Oil Ltd. Kimball No. 13	16	5	Moore	630	4,220	1949	Precambrian	3,184	Dry
11.	Imperial Oil Ltd. No. 626	20	6	Moore	634	4,307	1957	Upper Cambrian	3,276	Dry
12.	Imperial Oil Ltd. No. 582	19	8	Moore	647	4,424	1957	Precambrian	3,365	Dry
13.	Imperial Oil Ltd. No. 559	49	RF	Moore	644	4,534	1956	Precambrian	3,447	Dry
14.	Dow Chemical Co. of Canada No. 4	25	RF	Sarnia	606	4,849	1950	Precambrian	3,703	Dry
15.	Imperial-Caluan Bosanquet 24-2	24	2	Bosanquet	639	3,916	1954	Precambrian	3,001	Dry
16.	High Pressure Oil and Gas Co.	3	SB	Bosanquet	707	3,725	1923	Black River	3,020	Dry
17.	Masters-Perry No. 1	14	1 S	Warwick	740	4,068	1954	Precambrian	3,147	Show of gas in Trenton
18.	Carman No. 1	11	11	Enniskillen	665	3,777	1905	Black River	3,175	Dry
19.	McIntosh Oil and Gas Co. No. 1	14	10	Enniskillen	627	4,124	1937	Precambrian	3,121	Dry
20.	Hyatt Farm	6	7	Enniskillen	653	3,963	1915	Black River	2,899	Dry
21.	Oil Springs Oil and Gas Co. No. 2	18	2	Enniskillen	647	3,065	1913	Trenton	2,910	----------
22.	Imperial Oil Co. No. 7	19	2	Enniskillen	663	3,753		Black River	2,950	Gas at 3,320, 3,485 and 3,506-3,511; 219 Mcf a day
23.	Ohio Oil Co.	5	4	Brooke	684	3,380	1900	Trenton	3,000	Dry

ELGIN COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	C.B. Lewis No. 9	7	11	Aldborough	676	3,948	1959	Upper Cambrian	3,080	Gas at 3,918-21; 10 Mcf (572 Mcf a day from Cambrian, 3,940)
2.	Dominion Natural Gas Co.	23	10	Dunwich	597	3,580	1918	Upper Cambrian	2,730	Dry
3.	Union Gas Co. of Canada Ltd. No. 62	1	5	Malahide	702	3,536	1941	Upper Cambrian	2,708	Dry
4.	Vacuum Oil and Gas	6	7	Bayham	625	3,484	1919	Upper Cambrian	2,600	Dry
5.	Dominion Natural Gas Co.	22	8	Bayham	764	2,776	1911	Trenton	2,720	Dry

MIDDLESEX COUNTY

1.	Southern Ontario Gas Co.	6	6	Mosa	706	3,755	1929	Precambrian	2,865	Dry
2.	Union Gas Co. of Canada Ltd.	7	R5S	Ekfrid	678	3,582	1931	Precambrian	2,680	Dry
3.	Barr and Fauling	16	2	Metcalfe	714	3,700	1927	Precambrian	2,824	Show of gas at 3,600
4.	New British Dominion Oil and Gas Co. No. 1	21	8	Caradoc	796	3,197	1952	Black River	2,694	Dry
5.	L. Wilson	23	R2N	Caradoc	699	2,620	1915	Collingwood	-----	---
6.	Delaware Development Co.	4	D	Delaware	700	3,406	1915	Precambrian	2,600	Dry
7.	Canadian Emjay Nationwide Minerals No. 1	20	9	Biddulph	1,047	3,463	1955	Precambrian	2,644	Dry

NORFOLK COUNTY

1.	Northcal Oils Ltd.	Lake Erie		Walsingham S.	590	4,270	1958	Upper Cambrian	3,440	Dry
2.	Dominion Natural Gas Co.	Long Point		Walsingham S.	575	3,925	1919	Upper Cambrian	3,140	Dry
3.	United States Steel Co. No. 1	21	1	Charlotteville	704	4,270	1952	Precambrian	2,798	Dry
4.	Dominion Natural Gas Co.	21	3	Charlotteville	659	3,082	1907	Trenton	2,690	Dry
5.	United States Steel Co. No. 4	6	Gore	Woodhouse	736	-----	1952	Precambrian	2,680	Dry
6.	T. Murphy	24	14	Townsend	652	3,215	1911	Black River	2,415	Dry

OXFORD COUNTY

1.	S.M. Julian	12	8	Dereham	886	3,410	1947	Black River	2,620	Dry
2.	Beachville Well	18	2	Oxford N.	893	2,789	1909	Black River	2,260	Dry
3.	Nationwide Minerals Ltd. No. 1	30	11	Zorra E.	1,142	3,786	1954	Precambrian	2,295	Dry

PERTH COUNTY

1.	St. Marys Cement Works	21	17	Blanchard	1,015	3,174	1927	Precambrian	2,365	Dry
2.	Stratford Well	Stratford		Easthope N.	1,180	2,386	----	Trenton	2,346	Dry
3.	Volcanic Oil and Gas No.1	23	8	Easthope N.	1,281	2,978	1937	Precambrian	2,213	Show of oil and gas at 2,950
4.	Mitchell Oil Syndicate	20	2	Logan	1,153	3,188	1926	Precambrian	2,400	Dry
5.	Pan Western Oils Ltd. No. 2	25	1	Logan	1,136	3,145	1954	Precambrian	2,376	Dry
6.	Nationwide Minerals No. 2	15	13	Elma	1,177	2,900	1954	Precambrian	2,115	Dry

HURON COUNTY

1.	Imperial Oil Ltd. No. 537	19	18	Stephen	660	3,715	1956	Precambrian	2,840	Dry
2.	Oilstan Prospecting Syndicate No. 1	16	6	Stephen	800	4,060	1959	Precambrian	2,682	Dry
3.	Imperial-Sun-Stanley 20-4	20	4	Stanley	808	3,496	1954	Precambrian	2,686	Dry
4.	Huron and Bruce Oil Co. Ltd.	23	2	Hullett	982	3,531	1939	Precambrian	2,735	Dry
5.	Imperial Oil Ltd. No. 533	22	6	Goderich	837	3,704	1955	Precambrian	2,908	Dry
6.	Imperial Oil Ltd. No. 563	12	LRE	Colborne	719	3,645	1956	Upper Cambrian	2,861	Dry
7.	Imperial Oil Ltd. No. 600	8	3ED	Ashfield	786	3,555	1957	Precambrian	2,790	Dry
8.	Imperial Oil Ltd. No. 469	39	12	Wawanosh E.	1,062	3,199	1954	Precambrian	2,400	Dry

BRUCE COUNTY

1.	Lake St. Clair Gas Fields Ltd.	69	1	Kinloss	973	3,351	1956	Precambrian	2,640	Dry
2.	Dominion Natural Gas Co.	18	5	Culross	1,039	2,859	1942	Precambrian	2,184	Dry
3.	W.A. Smythe No. 1	18	13	Culross	928	2,384	1941	Trenton	2,167	Dry
4.	Union Gas Co. of Canada Ltd.	60	A	Kincardine	607	2,923	1941	Upper Cambrian	2,282	Dry
5.	Imperial Oil Co.	3	6	Amabel	711	1,678	1901	Precambrian	1,092	Dry
6.	Nottawa Oil and Gas	4	7	Amabel	742	1,476	1935	Black River	1,062	Show of gas at 1,435
7.	Nottawa Oil and Gas	6	8	Amabel	698	1,728	1935	Precambrian	1,095	Dry
8.	J. Hughes No. 2	14	10	Amabel	603	1,500	1919	Black River	1,062	Show of gas at 1,450 and 1,475
9.	Hugh Anderson No. 1	10	10	Amabel	631	1,510	1919	Black River	1,055	Show of gas at 1,440
10.	Nottawa Oil and Gas	6	9	Amabel	---	1,432	1935	Black River	1,050	Dry
11.	Nottawa Oil and Gas	5	9	Amabel	692	1,495	1936	Black River	1,060	Dry
12.	Nottawa Oil and Gas	3	9	Amabel	706	1,440	----	Trenton	1,046	Gas at 1,409
13.	Nottawa Oil and Gas	1	9	Amabel	718	1,442	1935	----------	-----	Dry
14.	Grey and Bruce	1	10	Amabel	707	1,650	----	Precambrian	895	Gas at 1,405
15.	Northern Gas and Gasoline	2	10	Amabel	700	1,440	1919	Black River	1,030	Small quantity of gas
16.	Hepworth No. 4	33	2S	Amabel	720	1,421	----	Trenton	1,057	Gas at 1,407; 20 Mcf a day
17.	Nottawa Oil and Gas Co.	4	11	Amabel	692	1,500	1936	Black River	1,048	Gas at 1,402-14; 40 Mcf
18.	Imperial Oil Co.	6	11	Amabel	698	1,471	1902	Black River	1,056	Small quantity of gas at 1,415
19.	T. Tompkins	40	2S	Amabel	682	1,550	----	----------	-----	Flow of gas at 1,415
20.	Imperial Oil Ltd. No. 536	52	NCD	Amabel	686	1,645	1955	Precambrian	1,040	Dry
21.	Gordon Farrow	2	21	Amabel	652	1,300	1901	Trenton	936	Dry
22.	Imperial Oil Ltd. No. 531	3	3EBR	Albemarle	648	1,579	1955	Precambrian	940	Dry
23.	Mulberry Creek Oil and Gas Co. No. 1	17	4WBR	Eastnor	607	1,600	1924	Precambrian	1,028	Dry
24.	Imperial Oil Ltd.	31	1E	Eastnor	658	1,515	1954	Precambrian	991	Dry
25.	Bruce Oil and Gas Co.	20	2WBR	Lindsay	667	1,582	1951	Precambrian	1,045	Dry
26.	Imperial Oil Ltd. No. 532	36	4E	Lindsay	732	1,438	1955	Precambrian	1,003	Dry
27.	Imperial Oil Ltd. No. 528	44	1EBR	St. Edmund	676	1,615	1955	Precambrian	1,063	Dry

GREY COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	S. Spencer	1	6	Keppel	742	1,640		Black River		Dry
2.	Harrison well	1	9	Keppel	719	1,485		Black River	1,055	Dry
3.	Nottawa Oil and Gas Co.	31	2S	Keppel	717	1,438	1935	Black River	1,042	Dry
4.	Imperial Oil Co.	38	2N	Keppel	721	1,500	1902	Black River	1,032	----------
5.	Imperial Oil Ltd.	22	2S	Keppel	790	1,632	1955	Precambrian	1,040	Show of gas at 1,408
6.	Nottawa Oil and Gas Co.	11	7	Keppel	---	1,617	1935	Black River	988	Gas at 1,358 and 1,378; 30 Mcf
7.	Ben Allen Cement Co.	30	8	Keppel	786	1,370	1911	Black River	856	Show of gas at 1,290
8.	Goodfellow well	32	1	Sarawak	738	1,204	----	Black River	735	Dry
9.	Annan Petroleum No. 4	31	2	Sarawak	749	1,190	1948	Black River	795	Dry
10.	W.L. Forest	28	1	Sarawak	730	1,366	1938	Precambrian	752	Salt water at 1,365
11.	Annan Petroleum	29	3	Sarawak	713	1,210	1948	Black River	690	Show of oil at 547 and 1,063 Show of gas at 1,204 and 1,207 Salt water at 1,207
12.	W.L. Forest	28	3	Sarawak	717	1,320	1938	Precambrian	715	Show of oil
13.	T. Catbush	10	3	Sarawak	596	1,254	----	Black River	683	Show of gas at 1,050
14.	Annan Petroleum No. 2	23	C	Sydenham	737	1,160	1948	Black River	600	Show of oil at 670
15.	Annan Petroleum No. 3	32	2	Sydenham	881	1,161	1948	Black River	645	Show of gas at 990
16.	Pennsylvania Oil and Gas Co.	29	9	St. Vincent	1,040	1,045	1930	Trenton	815	Salt water at 1,156-1,160
17.	B. Doran No. 4	25	7	St. Vincent	751	976	1921	Precambrian	335	Show of oil at 625 Show of gas at 865
18.	B. Doran No. 1	25	7	St. Vincent	648	854	1921	Black River	281	Show of oil and gas at 710-812
19.	B. Doran No. 2	24	7	St. Vincent	632	846	1919	Black River	268	Show of oil and gas at 700 and 720
20.	B. Doran No. 3	23	6	St. Vincent	594	835	1919	Black River	325	Show of gas at 700
21.	Arnora Sulphur Mining Corp. No. 2	13	4	Glenelg	1,282	1,962	1956	Precambrian	1,272	Dry
22.	Arnora Sulphur Mining Corp. No. 1	10	19	Proton	1,562	2,300	1955	Precambrian	1,480	Show of gas at 1,945-1,973
23.	R.J. Henderson	180	2SW	Artemesia	1,610	1,970	----	Precambrian	1,321	Dry
24.	James Pratt and Sons	Flesherton		Artemesia	1,559	1,900	1916	Precambrian	1,280	Dry
25.	Canadian Oil Fields	135	35 W	Artemesia	1,395	1,873	1921	Black River	1,355	Show of gas at 1,645-1,695; Show of oil at 1,715
26.	Canadian Oil Fields	140	3 NE	Artemesia	---	1,875	1918	Black River	-----	Show of gas at 1,700
27.	----------	10	11	Osprey	1,545	1,801?	1905	Precambrian	1,160	Gas at 1,361; 25 Mcf a day Show of oil at 1,760-1,765
28.	Blue Mountain Oil and Gas Co.	26	7	Collingwood	606	747	1921	Precambrian	85	Small flows of gas from 288-632
29.	Blue Mountain Oil and Gas Co.	27	7	Collingwood	636	550	1922	Black River	-----	Show of gas at 80 Some oil at 100, 375, 400, 450 and 500

30.	----------	26	5	Collingwood	---	587	----	----------	-----	Gas at 95; 6 Mcf a day
31.	Blue Mountain Oil and Gas Co.	20	2	Collingwood	---	645	1920	Precambrian	-----	----------
					WELLINGTON COUNTY					
1.	Ohio Oil Co.	5	3	Peel	1,218	2,573	1900	Precambrian	1,817	Gas at 2,506; small gas production
2.	Standard Oil Co.	6	5	Pilkington	1,299	2,385	1900	Black River	1,685	Show of gas at 2,335
3.	E.P. Rowe	7	11	Luther W.	1,608	2,156	1954	Precambrian	1,500	Show of gas at 516-522, and 2,055-2,060
4.	Eramosa Oils Ltd. No. 2	6	1	Garafraxa W.	1,350	2,285	1956	Precambrian	1,577	Show of gas at 2,130
5.	Eramosa Oils Ltd. No. 1	32	2	Eramosa	1,370?	3,324	1956	Precambrian	1,600	Show of gas at 2,237
6.	Rockwood Oil and Gas Co.	6	4	Eramosa	1,197	2,180	1919	Precambrian	1,510	Show of gas
7.	Anthony Gas and Oil Exploration Ltd. No. 8	3	3ED	Guelph	1,144	2,170	1956	Black River	1,582	Dry
8.	Anthony Gas and Oil Exploration Ltd. No. 6	7	3ED	Guelph	1,150	2,303	1955	Precambrian	1,585	Show of gas at 2,125
9.	----------	Guelph		Guelph	-----	1,472	----	----------	1,362	----------
10.	Bollert Gas and Oil Co. No. 1	7	4	Puslinch	1,038	2,670	1929	Precambrian	1,681	Show of gas at 2,326
11.	Village of Morrison well	30	7	Puslinch	-----	2,937	1959	Precambrian	1,644	Dry hole
					HALDIMAND COUNTY					
1.	B. Culp	19	6	Cayuga S.	627	3,153	1921	Black River	2,450	Dry
					BRANT COUNTY					
1.	Petrol Oil and Gas Co.	13	3	Tuscarora	706	2,881	1926	Precambrian	2,150	Dry
2.	Canadian Dutch Oils Ltd.	7	3EFC	Onondaga	678	2,712	1924	Precambrian	1,847	Oil at 2,656; 1/2 bbl a day
3.	Aikens well	5	1WFC	Onondaga	730	2,625	----	Precambrian	1,800	Dry
4.	A. Sharp No. 1	4	2WFC	Onondaga	708	2,723	1942	Precambrian	1,975	Dry
5.	Brantford well	City		Brantford	730	2,160	1888	Trenton	1,950	Dry
6.	Tri-Zone Oil Development Co.	15	3	Dumfries S.	894	2,647	1953	Precambrian	1,985	Dry
					WELLAND COUNTY					
1.	Capt. Scott Misner No. 1	23	5	Wainfleet	575	3,104	1950	Upper Cambrian	2,330	Dry
2.	Provincial Natural Gas Co.	7	3	Wainfleet	582	3,135	1908	Precambrian	2,440	Dry
3.	----------	13	3	Humberstone	---	3,055	----	Black River	2,505	----------
4.	----------	9	2	Humberstone	---	3,300	----	----------	-----	----------
5.	Provincial Natural Gas Co.	33	BF	Bertie	589	3,410	1919	Black River	-----	Dry
6.	J. McLeod	31	BF	Bertie	---	3,335	1918	----------	2,570	Dry
7.	Provincial Natural Gas Co.	3	3LE	Bertie	593	3,470	1923	Upper Cambrian	2,685	Dry
8.	----------	35	3LE	Bertie	---	3,280	----	Upper Cambrian	2,315	Dry
9.	D. Sherk	6	15NR	Bertie	595	3,255	1891	Upper Cambrian	2,525	Dry
10.	G. Ruck	14	13NR	Bertie	---	3,131	1895	----------	2,400	----------
11.	----------	1	5	Willoughby	---	3,092	----	----------	2,365	----------
12.	John Soder	2	4	Willoughby	586	3,030	----	----------	2,340	Show of gas at 2,940
13.	Provincial Natural Gas Co.	2	3	Willoughby	582	3,032	----	Precambrian	2,313	Dry
14.	----------	5	3	Willoughby	---	3,073	----	----------	2,341	----------
15.	----------	5	7	Crowland	600	2,913?	1923	Precambrian	2,358	----------

WELLAND COUNTY (cont.)

No.		Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
16.	Crowland Gas Syndicate No. 62	10	6	Crowland	---	1,730	1956	Meaford-Dundas	-----	Dry
17.	Crowland Gas Syndicate No. 61	11	5	Crowland	613	3,307	1955	Upper Cambrian	2,335	Gas at 1,635 and 1,670; small flow
18.	----------	178	---	Stamford	---	2,812	----	----------	2,045	----------
19.	Crowland Gas Syndicate	2	3	Pelham	375	2,462	1957	Upper Cambrian	1,790	Show of gas at 2,200
20.	Thorold Natural Gas	Thorold		Thorold	517	2,430	1888	Black River	1,905	Show of gas at 2,430
				LINCOLN COUNTY						
1.	S. Fleming and J. Walsh	22	5	Grantham	330	705	1954	Meaford-Dundas	-----	Fresh water at 120; salt water at 410
2.	J. Walsh	18	2	Grantham	---	458	1955	Queenston	-----	Fresh water at 65; salt water at 210
3.	St. Catherines well	4	3	Louth	297	2,200	1888	Upper Cambrian	1,506	Gas at 2,185; 4 Mcf a day
4.	Manock Gas Syndicate	22	2	Louth	305	2,313	1952	Precambrian	1,519	Salt water at 261, 2,233 and 2,306
				WENTWORTH COUNTY						
1.	Premier Development Co.	20	4	Ancaster	710	2,827	1927	Precambrian	1,880	Show of oil at 2,560
2.	Valley Gas and Oil Co.	38	1	Ancaster	561	2,160	1922	Precambrian	1,360	Show of gas at 2,120 and show of oil at 2,124
3.	Rockton Oil and Gas Syndicate No. 3	30	4	Beverly	820	2,675	1936	Precambrian	1,650	Dry
4.	Rockton Oil and Gas Syndicate No. 2	1	3	Beverly	766	1,745	1935	----------	1,710	----------
5.	Valley Gas and Oil	10	1	Flamboro W.	442	2,123	1924	Precambrian	1,275	Show of gas at 1,650
6.	Hamilton Natural Gas	17	5	Barton	290	1,960	1894	Precambrian	1,250	----------
				HALTON COUNTY						
1.	Canadian Steel and Brass	15	1S	Trafalgar	---	1,630	1920	Precambrian	780	----------
2.	Greenles Bros. Gas well	14	2	Trafalgar	644	1,700	----	Precambrian	1,100	Gas at 1,610-1,620; flow sufficient to supply 3 families
3.	W.I. Dick	15	1	Trafalgar	---	1,465	1866	Trenton	1,200	Oil at 1,443; 4-5 bbl a day
4.	Anthony Gas and Oil Exploration No. 31	13	10	Trafalgar	---	1,705	1959			
5.	Mrs. J.A. Macklin	7	3	Nelson	---	1,740	1929	Black River	1,060	Shows of gas at 225, 250, 450 and 485
6.	Hollinger Consolidated Gold Mines Ltd.	1	7	Nassagaweya	821	1,967	1943	Precambrian	1,273	Show of gas at 1,860-1,864

7.	----------	3	7	Nassagaweya	706	1,900	----	Precambrian	1,153	Gas at 1,710 and 1,725; 5 Mcf a day
8.	Rockwood Oil and Gas Co.	12	3	Nassagaweya	1,048	2,240	1918	Precambrian	1,564	----------
9.	Suburban Gas Co. No. 1	30	7	Nassagaweya	1,110	2,445	1929	Precambrian	1,450	Show of gas at 1,980 (2 wells in same lot)
10.	W.I. Dick	2	2	Esquesing	---	1,048	----	Collingwood	-----	Dry
11.	Anthony Gas and Oil Exploration Ltd. No. 15	14	3	Esquesing	924	2,163	1957	Precambrian	1,326	Dry
12.	Anthony Gas and Oil Exploration Ltd. No. 9	12	4	Esquesing	867	1,916	1956	Precambrian	1,187	Shows of gas at 1,775-1,776, and 1,795-1,796
13.	Anthony Gas and Oil Exploration Ltd. No. 11	16	3	Esquesing	1,084	2,088	1956	Black River	1,432	Show of gas at 2,014-2,018
14.	Anthony Gas and Oil Exploration Ltd. No. 7	16	4	Esquesing	990	1,999	1955	Precambrian	1,317	Show of gas at 1,863
15.	Anthony Gas and Oil Exploration Ltd. No. 18	15	4	Esquesing	980	1,981	1957	Precambrian	1,317	Dry
16.	Anthony Gas and Oil Exploration Ltd. No. 17	14	4	Esquesing	940	1,902	1957	Black River	1,252	Shows of gas at 363-364, 394-395, and 1,838-1,839
17.	Anthony Gas and Oil Exploration Ltd. No. 16	14	5	Esquesing	847	1,807	1957	Black River	1,152	Show of gas at 1,712-1,714
18.	Anthony Gas and Oil Exploration Ltd. No. 3	15	5	Esquesing	875	1,826	1955	Black River	1,183	Gas at 1,779; 188 Mcf a day
19.	Anthony Gas and Oil Exploration Ltd. No. 14	15	4	Esquesing	986	1,995	1957	Precambrian	1,324	Gas at 1,827-1,831, 1,859-1,867, 1,896-1,899, 1,918-1,921; 392 Mcf a day

PEEL COUNTY

1.	Clarkson well	Clarkson		Toronto	266	1,472	----	Precambrian	804	Show of gas at 1,238 and 1,307
2.	A. Roumegous	16	1	Toronto	---	1,423	1920	Precambrian	785	----------
3.	Cooksville well	15	1	Toronto	---	1,355	1909	Precambrian	710	Small quantity of gas
4.	R.L. Killins No. 2	12	3 W	Toronto	581	1,536	1954	Precambrian	865	Dry
5.	J.W. McCutcheon	Brampton		Chinquacousy	723	1,575	1910	Black River	950	----------
6.	Campbell Cross Oil Syndicate	25	1 E	Chinquacousy	892	1,732	1934	Precambrian	945	Show of gas at 555
7.	Patrick Sullivan	17	1	Albion	---	1,100	1925	Trenton	800	Dry
8.	University of Toronto	4	1 W	Caledon	933	605	1927	Meaford-Dundas	----	Gas at 235, 340, 370, 440 and 590; 40 Mcf a day; 4 or 5 wells completed on same lot
9.	Dover Oil Co.	5	1 W	Caledon	895	935	1922	Trenton	880	Gas at 60, 204, 285, 330, 375, 555 and 935; 300 Mcf a day
10.	Dover Oil Co.	6	1 W	Caledon	904	1,449	1922	Precambrian	860	Gas at 460, 480 and 553; 475 Mcf a day

DUFFERIN COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	Hockley Valley Oil Co.	12	7	Mono	925	5,553	1930	Precambrian	641	Shows of gas reported at 1,300, 1,525 and 1,975
2.	Canadian Dutch Oil Fields	32	5	Amaranth	1,616	2,820	1922	Precambrian	1,373	Show of oil at 1,998
3.	J. Pickering Co.	2	3	Melancthon	1,600	1,950	1907	Black River	1,300	Dry

SIMCOE COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	Tottenham well	5	3	Tecumseh	830	1,042	----	Black River	450	Small show of gas
2.	Beeton well	10	7	Tecumseh	750	1,400	1883	Precambrian	346	Show of gas at 321-346
3.	Eugene Boileau No. 1	12	9	Tecumseh	713	1,068	----	----------	-----	----------
4.	Wellington Industrial Securities Co.	20	3	Adjala	785	973	1949	Precambrian	374	Salt water at 583
5.	Wellington Industrial Securities Co.	21	3	Adjala	785	978	1949	Precambrian	385	Shows of oil at 854-855, 876-887, 905, 952, 960 and 968
6.	M. Stobie	18	11	Gwillimbury W.	904	920	1945	Black River	(237)	Small show of gas at 860
7.	M. Stobie	19	11	Gwillimbury W.	825	840	1946	Precambrian	(160)	Dry
8.	M. Stobie	21	10	Gwillimbury W.	718	780	1945	Precambrian	(180)	Show of gas at 312 and 550
9.	G. Heroux	11	3	Essa	750	2,450	1952	Precambrian	(300)	----------
10.	W.H. Donald	Barrie		Vespra	760	575	1913	Precambrian	(375)	----------
11.	McMaster and Boileau No. 2	15	7	Nottawasaga	1,039	1,071	1944	Precambrian	467	Show of gas at 578
12.	McMaster and Son No. 1	15	7	Nottawasaga	1,033	865	1943	Trenton	447	Gas at 421, 584-587, 620-624, 735-865; 100 Mcf a day
13.	A.E. Davis No. 1	21	7	Nottawasaga	957	964	1944	Black River	324	Gas at 643; 30 Mcf a day Show of oil at 927 Salt water at 932
14.	R. Cherry	28	5	Nottawasaga	750	413	1933	Precambrian	(2)	Shows of gas at 80, 118 and 157; salt water at 370
15.	R. Cherry	27	8	Nottawasaga	---	360	----	Black River	(10)	----------
16.	Jack Perdue No. 1	33	11	Nottawasaga	840	883	1940	Black River	288	Flows of gas at 292, 418 and 870 Oil at 830; reported 16 bbl a day
17.	Pretty River Valley Oil and Gas Co.	34	12	Nottawasaga	863	942	1941	Precambrian	315	----------
18.	J.T. Burton	33	12	Nottawasaga	832	895	1955	Precambrian	305	Show of gas at 282 and 875
19.	R. Cherry	39	6	Nottawasaga	595	440	1930	Precambrian	-----	Show of oil
20.	Cherry Chemical Oil and Gas Co.	39	5	Nottawasaga	590	364	1929	Black River	(1)	Gas at 315; 200 Mcf a day Salt water at 347 and 362
21.	Hospital for Insane	Penetang.		Penetanguishene	696	299	1913	Precambrian	(172)	----------

YORK COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	McDonald Tin Works No. 1	New Toronto		Etobicoke	300	1,312	1893	Precambrian	645	Gas at 780, 885 and 1,089; 50 Mcf a day; salt water at 1,250

2.	Swansea Bolt Works No. 1	Swansea		York	347	1,261	1889-91	Precambrian	643	----------
3.	Imperial Oil Ltd.	Toronto		York	255	1,120	1948	Black River	550	Dry
4.	Copelands Brewery	Toronto		York	260	1,200	1882	Precambrian	595	Dry
5.	Taylor Bros. Paper Mill No. 1	11	3	York	297	1,127	1890	Precambrian	478	Show of gas at 700-750
6.	R. Henderson No. 1	13	3	York	639	1,394	1924	Precambrian	765	Dry
7.	Highland Creek	Near village		Scarboro	---	682	1866	Black River	248	Show of gas in Trenton Brine reported
8.	F. Ogletree	33	1	Vaughan	940	1,135	1932	Trenton	635	----------
9.	Ontario Oil Co.	11	3	Vaughan	648	4,640	1923	Precambrian	520	Show of gas at 210, 415 and 851 Fresh water at 146, 200 and 525 Salt water reported at 1,700, 2,100, 2,300, 2,700, 2,800, 4,300 and 4,640
10.	Sir Donald Mann	13	3	Vaughan	694	2,900	1933	Precambrian	560	----------
11.	J. Durham No. 1	6	1	Whitchurch	975	1,292	1926	Black River	700	Salt water at 1,145
12.	New Market well	High school		Whitchurch	---	1,000	1900-10	Precambrian	-----	----------
13.	M. Stobie No. 1	113	1 E	Gwillimbury E.	742	835	1945	Precambrian	(202)	Show of gas at 645 Show of oil at 830
14.	M. Stobie	29	7	Gwillimbury E.	754	1,082	1943	Precambrian	(115)	Brine reported at 739 and 773
15.	Sunderland Oils	12	7	Gwillimbury N.	737	621	1943	Precambrian	(85)	----------
16.	R.B. Bond	4	9	Markham	536	1,010	1949	Precambrian	380	Shows of gas at 243 and 310 Gas at 585 and 738; 10 Mcf a day
				ONTARIO COUNTY						
1.	Sunderland Oils Ltd.	3	4	Scott	928	977	1942	Precambrian	378	Show of gas at 841 Salt water at 570-950
2.	Whitby Gas and Oil Co.	28	1	Whitby W.	310	728	1888	Precambrian	120	Show of gas at 400 and 700
3.	Beaton Dairy	12	1	Whitby E.	368	200	-----	----------	-----	Trace of gas at 90-100
4.	Sunderland Oils Ltd.	5	6	Brock	891	1,146	1942	Precambrian	(149)	Show of oil in arkose
				VICTORIA COUNTY						
1.	Crude Oil Co.	3	3	Mariposa	946	3,104	1943	Precambrian	163	Shows of gas at 188, 221, 505 and 847-848
2.	Max Kempin	Lindsay		Ops	---	515	1932	Precambrian	(52)	----------
3.	Northern Development Co. No. 1	2	11	Emily	870	440	1924	Precambrian	(30)	Traces of gas at 147 and 183
4.	Maracarden Oil Ltd.	12	5	Eldon	---	378	1952	Precambrian	(11)	Shows of oil at 150 and 330
5.	Emily Creek Oil and Gas Syndicate	5	4	Verulum	816	320	1943	Precambrian	(10)	Show of gas at 47
				DURHAM COUNTY						
1.	Bowmanville well	8	1	Darlington	---	700	1910	----------	-----	Some gas reported
2.	W. Neil Co. No. 1	30	4	Clarke	---	130	1921	Trenton	100	----------
3.	W. Neil Co. No. 2	1	8	Clarke	670	180	1921	Trenton	97	----------
4.	A. Gallagher No. 1	25	2	Hope	---	1,079	1956	Precambrian	-----	Salt water at 1,050
5.	A. Gallagher No. 2	8	5	Hope	512	729	1956	Precambrian	-----	----------
6.	Oil and Gas Syndicate of Port Hope	Port Hope		Hope	278	596	1901	Precambrian	-----	Show of gas at 100 and 576 Water at 574

NORTHUMBERLAND COUNTY

No.	Well Name	Lot	Concession	Township	Elevation (feet)	Total Depth (feet)	Year Completed	Oldest Rocks Penetrated	Depth to Trenton (feet)	Yield from Ordovician
1.	Central Ontario Oils	28	1	Cramahe	---	1,020	1923	Precambrian	-----	----------
2.	Brighton well	16	6	Cramahe	---	731	1952	Precambrian	-----	----------
				HASTINGS COUNTY						
1.	Belleville Natural Gas and Oil No. 1	Belleville		Thurlow	---	252	----	Precambrian	-----	----------
2.	Belleville Natural Gas and Oil No. 3	Massasauga Point		Thurlow	---	280	----	Precambrian	-----	----------
3.	Melrose well	Melrose		Tyendinaga	---	1,723	1920	Precambrian	-----	----------
				PRINCE EDWARD COUNTY						
1.	J. Cleason Co.	11	2MT	Hallowell	---	613	1943	Black River	-----	Gas at 310, 360 and 455; small flow. Sulphur water at 150
2.	Picton Natural Gas	Picton		Hallowell	---	490-525	1937-40	Trenton-Black R.	-----	Several wells drilled at Picton; some produced small quantities of gas from the Trenton
3.	Miss L. Babcock	11	WLP	Marysburg S.	---	1,000	1937	Black River	-----	Gas at 250, 375 and 500; small flow
				LENNOX AND ADDINGTON COUNTY						
1.	G. Stewart No. 1	16	3	Richmond	---	430	1954	Precambrian	-----	Show of gas at 176