

FORTIETH ANNUAL REPORT
OF THE
ONTARIO DEPARTMENT OF MINES
1931
PART V



PROVINCE OF ONTARIO
DEPARTMENT OF MINES

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FORTIETH ANNUAL REPORT
OF THE
ONTARIO DEPARTMENT OF MINES
BEING
VOL. XL, PART V, 1931

Natural Gas in 1930, by R. B. Harkness	-	-	1-53
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PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
Printed and Published by Herbert H. Ball, Printer to the King's Most Excellent Majesty
1932

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COLOURED MAP (In pocket at back of report)

Map No. 40g—Natural Gas Pipe Lines in Southwestern Ontario. Scale, 10 miles to the inch.

NATURAL GAS IN 1930

By R. B. Harkness

General

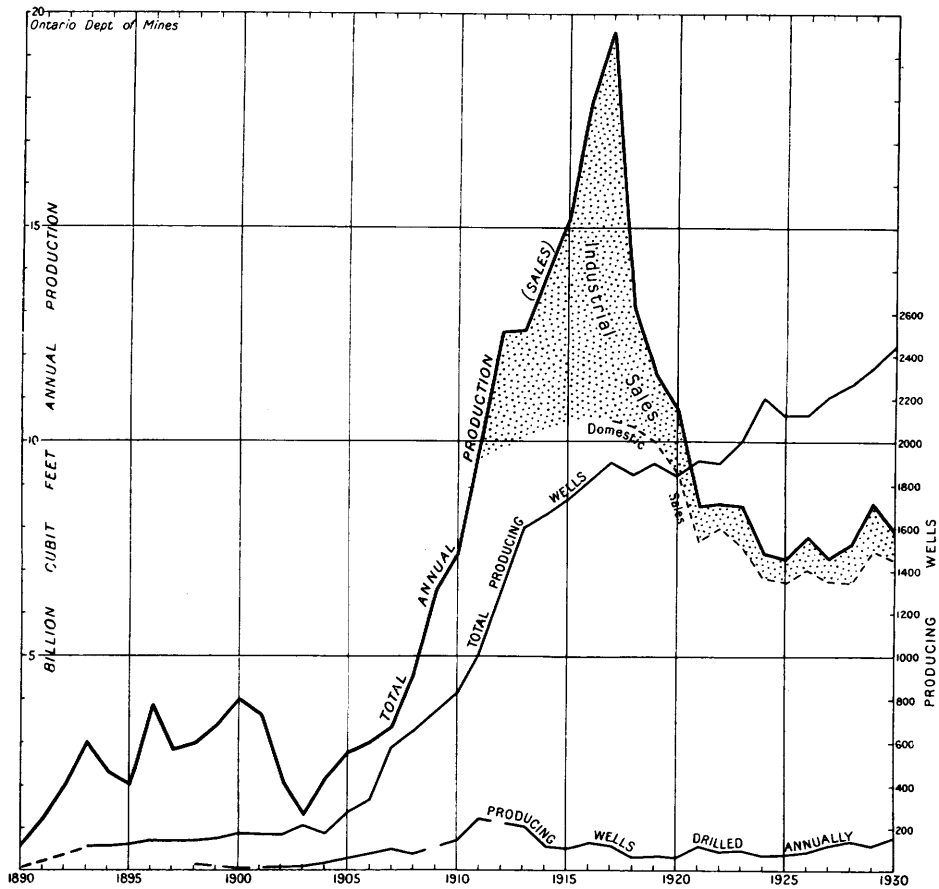
The natural gas production in Ontario in 1930 is below that of 1929, but well above the average for the last six years. The value, however, shows an increase, due to a higher average retail rate. Table I shows the production by fields for the past four years.

TABLE I—NATURAL GAS PRODUCTION BY FIELDS, 1927-1930

County	Field	1927	1928	1929	1930
		M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.
Essex	Kingsville	4,994,071	5,228,451	5,780,061	4,999,270
Kent	Tilbury				
	Dover	189,438	178,273	366,224	459,112
Lambton	Dawn	12,666	16,204	94,027	131,647
	Oil Springs				
Middlesex	Crumlin		300	300	300
Elgin	Bayham	40,698	44,154	46,272	48,018
Norfolk	Norfolk				277,971
Lincoln	Lincoln	1,668,148	1,746,894	1,866,136	1,479,032
Haldimand	Haldimand				
Wentworth	Wentworth				
Brant	Onondaga	13,224	13,804	31,558	58,637
Welland	Welland	278,967	301,847	298,688	408,475
Bruce	Amabel	224	240	107	858
Peel	Caledon	1,500	100		
Wells in surface drift	Howard and Sarnia	52,278	42,473	39,814	20,088
Private wells		60,000	60,000	60,000	60,000
Total produced		7,311,214	7,632,740	8,583,187	7,943,416
Value		\$4,331,780	\$4,535,312	\$4,968,133	\$5,061,588
Imported mixed gas		M cu. ft. 103,040	M cu. ft. 116,639	M cu. ft. 138,352	M cu. ft. 144,577
Manufactured gas				3,986	3,248
Total distributed		7,414,254	7,749,379	8,725,525	8,091,241

The decrease in the consumption of natural gas from 8,583,187 M cubic feet in 1929 to 7,943,416 M cubic feet in 1930 is due both to the depression felt throughout the world (which has slowed down or shut down many Ontario industries) and to the milder fall and winter of 1930. The extension of gas lines in municipalities now being served with gas and the addition of new municipalities accounted for an increase of 3,144 in the number of consumers served in the province, but the quantity used per consumer is reduced 3,000 cubic feet. The new discoveries of gas, which will be discussed later, have very much improved the service to the municipalities in Lambton county that have been heretofore dependent on the Tilbury field, and has reduced the distance from the gas field by forty miles. The prosperous year of 1929, with the great increase in demand, had the effect of stimulating the search for gas. The number of wells drilled shows an increase of 17 per cent. over the previous year, and the number of

dry holes, a decrease of 8 per cent. The result of this activity was the extension of the De Clute and Dawn fields, the discovery of the Mosa (or Newberry) gas field, and the extension of the gas field in Middleton township. Some of the wells in the Kent fields were of considerable capacity. There does not appear to have been any cessation of activity at the end of the year, and the season of 1931 should also be a banner year. Comparing the apparent reserves of gas at the present time with those of five years ago gives a very favourable outlook for the future, especially in the Tilbury and Haldimand fields. The cleaning-out operations in the Tilbury field and the drilling in the Haldimand



Graph of the natural gas industry in Ontario for the past forty years.

field force a change in the estimate of reserves; and, although a definite statement cannot be made, it would appear that the lifetime of these fields has been extended by ten years or more and that the undrilled acreage holds supplies of gas hitherto unsuspected. The promise of these future supplies resulted in a very active campaign, and improved methods of prospecting are being tried, among these being core-drilling and the use of geophysical instruments. To date, the core-drilling has been more satisfactory than geophysics in the Kent and Lambton field. In the Haldimand-Norfolk field no better method has been found than following the indication given by highest remaining rock pressures and the thickest "sand," or, in undrilled areas, "wildcatting."

The graph on page 2 shows very clearly the history of the gas industry in Ontario—total production, total number of producing wells, and number of producing wells drilled each year for forty years.

Table II shows the number of gas consumers and the quantity of gas used for purely domestic cooking and heating. The amount of gas used by industries and for other purposes is shown in Tables III and IV.

TABLE II—DOMESTIC CONSUMPTION OF GAS, 1921-1930

Year	No. of pay consumers	Total quantity used	Quantity used per consumer
		M cu. ft.	M cu. ft.
1921.....	58,609	5,937,316	101.3
1922.....	63,229	6,028,947	95.3
1923.....	62,352	6,210,459	99.6
1924.....	61,100	5,933,595	97.1
1925.....	62,338	5,300,424	85.6
1926.....	63,695	5,595,521	87.8
1927.....	66,818	5,210,315	78
1928.....	70,259	5,699,553	71.2
1929.....	80,991	6,336,873	78.2
1930.....	84,135	6,332,519	75.2

The following table shows the capital invested, number of men employed, and wages paid in the natural gas industry for the years 1927 to 1930:—

	1927	1928	1929	1930
Capital invested in all natural gas operations, including drilling, producing and distributing.....	\$31,987,879	\$36,601,828	\$35,162,736	\$36,162,268
Number of men employed.....	1,123	1,209	1,323	1,328
Wages paid.....	\$1,148,339	\$1,497,999	\$1,529,367	\$1,545,648

Analysis of Gas Consumption

Tables III and IV give details concerning the gas consumed in Ontario during 1930. By comparing these tables with those published in previous years, the history of prices and quantity consumed can be traced from year to year. It will be found of interest to note the changes in the ratio of gas used to the price charged from year to year.

TABLE III—GAS CONSUMPTION IN TOWNS AND CITIES, 1930

Town or city	Popu- lation	No. of consumers		Quantity consumed, M cu. ft.			Dist- ance from gas field miles	Net rate per M cu. ft.
		Pay	Free	Pay	Free	Indus- trial		
Alvinston	612	143	1	3,481	13	136	20	\$0.55-80
Aylmer	2,100	680		28,780			16	.90
Bartonville	350	85		3,582			19	.60
Belle River	810	172		17,298		579	29	.55-80
Belmont	350	70		3,022			9	1.00
Binbrook	100	19		1,487			1	.25-40
Blenheim	1,572	567	2	61,547	332	1,083	20	.50-75
Bothwell	653	107		2,892			14	.55-80
Brantford	30,350	4,052	5	156,167	1,154	7,595	140	.80
Bridgeburg and Fort Erie	5,173	1,298	4	65,574	1,725		8	1.00-1.30
Bridgen	300	157		13,553		1,462	30	.50-75
Burlington	3,300	167		8,439			48	.75
Cainsville	600	132		5,995			4	.80
Caledonia	2,000	545		49,905			7	.60
Canfield	150	62		5,313		602	1	.50-60
Cayuga	790	215	1	20,778	54	529	6	.60
Chatham	16,970	4,115	1	485,024	5,435	35,916	22	.50-75
Chippawa	1,100	12		511			5	.40
Coatsworth	100	31	1	2,453	43	24	4	.50-75
Comber	658	141		16,552		1,809	19	.50-75
Cottam	300	90	3	9,414	217	736	35	.55
Courtland	380	52		4,124		122	3	.60
Courtright	450	123	1	12,435	252	670	49	.50-75
Crystal Beach	352	205		13,581			1	1.00-1.30
Delhi	840	292		25,169		1,289	4	.60
Dorchester	477	111	1	7,993	18		95	.60-85
Dresden and Tupperville	1,450	498	1	54,682	132	647	30	.50-75
Dundas	5,000	1,161	1	64,761	40	5,421	172	.70
Dunnville	3,500	997	3	101,983	410	9,741	7	.40-60
Dutton	835	255	3	25,029	157	1,067	52	.55-80
Echo Place	300	66		3,036			3	.80
Eden	80	27		1,299			11	.60
Essex	1,600	519	1	59,698	101	4,013	33	.55-80
Fairground	40	15		656			1	.60
Fenwick	165	99		6,431			18	.75
Fingal	410	41	2	3,295	12	539	71	.55-80
Fisherville	102	50		4,889		241	2	.50-55
Florence	278	56		1,424			5	.55-80
Fonthill	750	235		6,223			25	.95-1.20
Galt	13,752	1,034	1	61,582	261	5,015	147	.80
Grimsby	1,888	59		2,089			10	.85
Hagersville	1,290	416		35,362			14	.60
Hamilton	143,129	8,295	4	223,035	622	217,573	47	.75
Hepworth	300	6	2	458	400		1	.75
Highgate	410	114	3	11,112	445		32	.50-75
Ingersoll	5,100	964	2	43,069	313	3,372	100	.80
Inwood	250	68		1,580			14	.55-80
Jarvis	460	202		19,780			9	.60
Kingsville	3,590	698	1	91,800	266	190	30	.55
Lake Shore		389		8,407			16	1.00-1.30
Lambeth	486	84		5,621			85	.60-85
Leamington	5,169	1,465		197,558		4,497	20	.55
Lynedoch	151	47		3,486		1,779	2	.60
Mabee	82	11		704			1	.60
Merlin	386	147	2	16,009	2,252	1,092	2	.50-75
Merritton	2,596	370		14,481		135	35	.75
Nelles Corners	100	1	4		1,000	529	1	.50
Niagara Falls	18,539	3,045		114,535		28,228	11	1.00-1.30
Oil Springs	512	125		4,836			2	.75
Paris	4,368	595	1	27,295	127	1,396	129	.80
Petrolia	3,148	745	1	84,621	412		60	.55-80

TABLE III—GAS CONSUMPTION IN TOWNS AND CITIES, 1930—Continued

Town or city	Popu- lation	No. of consumers		Quantity consumed, M cu. ft.			Dist- ance from gas field miles	Net rate per M cu. ft.
		Pay	Free	Pay	Free	Indus- trial		
Port Burwell.....	650	233	.....	15,371	.....	.....	3	\$0.60
Port Colborne and Hum- berstone.....	5,661	1,778	5	91,138	568	2,766	5	.60-.95
Port Dover.....	1,650	553	1	50,348	150	454	1	.60
Port Rowan.....	669	239	.....	15,704	.....	.....	1	.60
Ridgetown.....	1,895	645	3	68,002	2,293	1,096	28	.50-.75
Ridgeway.....	864	219	.....	14,509	.....	.....	1	1.00-1.30
Rodney.....	680	243	2	22,539	156	664	40	.55-.80
Ruthven.....	438	48	.....	6,846	.....	.....	25	.55
St. Anns.....	92	25	.....	1,005	.....	.....	7	.85
St. Catharines.....	30,000	4,734	2	234,640	515	11,661	35	.75
St. George.....	550	98	.....	3,882	.....	26	148	.80
St. Williams.....	300	109	.....	6,520	.....	965	1	.60
Sarnia.....	18,503	4,583	1	359,325	1,232	11,274	55	.55-.80
Selkirk.....	585	139	1	13,217	99	.....	1	.60
Shedden.....	400	92	.....	7,452	.....	.....	63	.55-.80
Simcoe.....	4,582	1,664	3	193,947	482	9,873	20	.60
Smithville.....	330	177	.....	7,157	.....	.....	6	.75
Sombra and Port Lambton	2,000	147	.....	14,711	.....	585	45	.55-.80
Stevensville.....	450	33	.....	2,186	.....	.....	1	1.00-1.30
Straffordville.....	300	80	.....	6,573	.....	595	6	.60
Thamesville.....	800	190	1	4,869	44	186	13	.55-.80
Thorold.....	4,932	990	.....	40,078	.....	423	35	.75
Tilbury.....	2,000	494	2	50,171	494	634	14	.50-.75
Tillsonburg.....	3,257	1,003	1	80,047	377	2,894	16	.63
Vienna.....	284	77	1	3,882	107	.....	1	.60-.80
Vittoria.....	280	82	.....	5,223	.....	.....	3	.60
Wallaceburg.....	4,530	1,175	1	128,261	292	109,241	19	.50-.75
Wallacetown.....	244	46	1	4,011	23	490	60	.55-.80
Waterford.....	1,096	14	.....	75	.....	.....	30	.60
Welland.....	12,100	2,654	3	90,934	487	7,364	3	.45-1.30
Wellandport.....	140	16	.....	247	.....	.....	3	.75
West Lorne.....	818	207	3	18,912	345	714	49	.55-.80
Wheatley.....	700	242	.....	22,447	.....	1,412	12	.50-.65
Windsor (Border Cities)..	85,900	14,779	.....	1,677,111	.....	99,302	45	.55-.80
Woodstock.....	10,898	1,910	1	85,186	293	3,433	110	.80
Wyoming.....	475	102	.....	2,253	.....	.....	65	.55-.80
Total.....	.....	76,362	84	5,674,674	24,150	604,079	.....	.....

TABLE IV—GAS CONSUMPTION IN TOWNSHIPS, 1930

Township	Population	No. of consumers		Quantity consumed, M cu. ft.			Net rate per M cu. ft.
		Pay	Free	Pay	Free	Industrial	
ESSEX:							
Gosfield, North.....	2,190	98	2	9,886	303	175	\$0.55
Gosfield, South.....	2,291	392	1	38,616	597	17,084	.50-.55
Maidstone.....	2,109	79	7	6,534	1,592	552	.55-.80
Mersea.....	3,825	454	2	47,263	400	23,834	.50-.55
Rochester.....	1,941	198	6	16,848	1,369	646	.55-.80
Sandwich, East.....	1,090	11	.....	2,615	.....	.....	.55-.80
Sandwich, South.....	1,433	113	.....	11,638	.....	523	.55-.80
Sandwich, West.....	2,754	1	.....	69	.....	.....	.55-.80
Tilbury, North.....	1,788	32	.....	1,659	.....	204	.50-.75
Tilbury, West.....	1,563	22	1	2,137	208	.....	.50-.75
LAMBTON:							
Brooke.....	2,350	9	.....	152	.....	.....	.55-.80
Dawn.....	2,307	65	3	4,963	581	1,349	.40-.65
Enniskillen.....	2,656	115	.....	7,063	.....	431	.55-.80
Moore.....	3,251	295	.....	22,013	.....	990	.50-.75
Plympton.....	2,531	5	.....	109	.....	.....	.55-.80
Sarnia.....	2,560	3	10	600	2,113	.....	.40
Sombra.....	2,875	57	.....	4,537	.....	630	.50-.75
KENT:							
Camden.....	1,305	13	.....	668	.....	.....	.50-.75
Chatham.....	4,940	91	.....	8,477	.....	736	.50-.75
Dover.....	3,600	426	1	45,195	153	3,404	.30-.80
Harwich.....	4,327	440	10	43,265	2,868	.....	.50-.75
Howard.....	2,768	174	3	19,231	442	.....	.50-.75
Orford.....	1,875	20	3	2,239	373	.....	.50-.75
Raleigh.....	3,676	576	24	63,451	6,357	865	.50-.75
Romney.....	1,510	74	37	7,884	10,795	500	.40-.65
Tilbury, East.....	2,914	237	72	23,777	23,078	9,740	.40-.65
Zone.....	800	7	.....	220	.....	.....	.55-.80
ELGIN:							
Aldborough.....	2,837	21	1	1,292	325	.....	.55-.80
Bayham.....	3,162	75	17	3,682	3,118	389	.60-.80
Dunwich.....	2,500	49	1	4,820	109	.....	.55-.80
Malahide.....	2,953	53	3	2,222	475	.....	.60-.80
Southwold.....	3,510	110	.....	8,548	.....	585	.55-.80
MIDDLESEX:							
North Dorchester.....	3,056	15	1	1,027	300	.....	.60-.85
Westminster.....	6,175	161	.....	18,148	.....	.....	.60-.85
NORFOLK:							
Charlotteville.....	2,600	16	7	1,186	985	.....	.60
Middleton.....	2,150	33	1	2,264	200	.....	.60
North Walsingham.....	1,520	5	4	375	588	.....	.....
South Walsingham.....	1,581	21	7	1,701	1,022	.....	.60
Townsend.....	3,715	32	.....	2,380	.....	.....	.60
Windham.....	3,205	2	3	174	478	.....	.60
Woodhouse.....	2,050	163	10	17,035	1,459	.....	.60
BRANT:							
Brantford.....	7,220	8	.....	286	.....	.....	.80
Burford.....	3,833	2	.....	151	.....	.....	.80
Onondaga.....	1,017	51	13	3,922	2,473	.....	.60-.70
South Dumfries.....	2,532	10	.....	346	.....	.....	.80
Tuscarora.....	800	1	.....	144	.....	.....	.30
OXFORD:							
East Oxford.....	1,724	9	.....	589	.....	.....	.80
West Oxford.....	1,810	54	.....	4,158	.....	.....	.80

TABLE IV—GAS CONSUMPTION IN TOWNSHIPS, 1930—*Continued*

Township	Population	No. of consumers		Quantity consumed, M cu. ft.			Net rate per M cu. ft.
		Pay	Free	Pay	Free	Industria	
HALDIMAND.							
Canborough.....	902	82	49	6,290	8,093	492	\$0.60
Dunn.....	800	119	10	7,275	2,615		.60
Moulton.....	1,628	312	31	9,854	3,827	12,099	.50-.60
North Cayuga.....	1,309	5	12	153	2,076		.60
Oneida.....	1,287	67	9	8,232	1,680		.50-.60
Rainham.....	1,695	138	27	10,455	5,230	1,468	.40-.60
Seneca.....	1,561	150	53	12,242	7,630		.60
Sherbrooke.....	300	82	11	4,653	1,189		.50-.60
South Cayuga.....	510	58	16	3,752	2,812		.60
Walpole.....	3,042	312	59	23,530	9,039	1,783	.40-.60
LINCOLN:							
Caistor.....	1,220	101	26	6,446	2,486	199	.50-.60
Gainsborough.....	2,017	23	2	1,932	229		.50
Grantham.....	4,175	9		581			.75
Louth.....	2,548	8	1	528	100		.75
WELLAND:							
Bertie.....	3,298	189	69	12,666	13,315		.50-1.30
Crowland.....	3,750	87	22	2,937	2,850		.75-1.30
Humberstone.....	2,149	247	37	15,249	5,967		.50-1.30
Pelham.....	2,365	60	2	3,944	115		.75
Stamford.....	4,915	87	4	5,764	772		1.00-1.30
Thorold.....	3,401	8	1	130	170		.75-.80
Wainfleet.....	2,357	86	26	4,098	4,921		.40-1.00
Willoughby.....	870	29	29	1,921	5,467		1.00-1.30
WENTWORTH:							
Ancaster.....	4,550	55		8,865			.70-.75
Barton.....	7,665	229		10,051			.60-.75
Binbrook.....	1,109	72	21	9,614	4,186	786	.60
Glanford.....	1,415	125	4	14,690	664	393	.60
Saltfleet.....	4,706	135		6,434			.75
Total.....		7,773	771	657,845	148,194	79,857	

SUMMARY

Total distribution to customers.....	M cu. ft. 7,188,799
Used by companies for all purposes.....	110,575
Used by private well-owners.....	74,000
Leakage in transmission lines.....	413,619
Leakage in distribution plants.....	288,367
Leakage in rural lines.....	15,881

Total amount of gas distributed..... 8,091,241

Gas Wells and Their Production

In Table V is given a summary by townships of the number of gas wells in Ontario, their production, and the number abandoned; the number of new wells drilled, with their open flow; and the rock pressure of each township. Only the acres under lease held by operating companies are herein reported.

TABLE IV—GAS WELLS AND THEIR PRODUCTION, 1930

County	Township	No. of wells producing	No. of wells abandoned	Wells drilled			Production M cu. ft.	Rock pressure, lbs. per sq. in.	Acres under lease	Rental paid
				No. dry	No. producing	Open flow				
Essex	Gosfield, South	20					171	5,898	\$325	
	Mersea	3					278			
Kent	Raleigh	30		7	11	24,301	606	132,428		
	Romney	147		1	3	357	229			
	Tilbury, East	137	3		2	399	229			
	Dover	9		3	1		360	14,662	179,054	
Lambton	Dawn	18		5	4	7,131	667	91,143		
	Euphemia	3					345			
	Enniskillen	3					100	760		
	Sarnia	14					70	5,000	50	
Middlesex	Dorchester, North	3					25	100		
	Mosa	1		4	1	1,048				
Elgin	Bayham	39	1				172	48,018		
	Malahide	1	1				215			
Norfolk	Charlotteville	15	1				224			
	Houghton	3					300			
	Middleton	25	1		1	300	294			
	North Walsingham	9					365	277,971		
	South Walsingham	13	1				333			
	Townsend	1					300			
	Windham	8					266			
	Woodhouse	53	3				267			
Haldimand	Canborough	126	3		1	28	96	298,727	69,176	
	Dunn	31	1	1	1	25	166			
	Moulton	88	8		1	17	123			
	North Cayuga	128	11	14	19	938	247			
	Oneida	23	3	3	3	102	119			
	Rainham	199	2	4	20	1,157	262			
	Seneca	166	2	11	17	1,239	104			

Sherbrooke.....	13	1	2	2	2	85	1,479,032	124
South Cayuga.....	56	2	.....	.....	.....	.....	.....	158
Walpole.....	215	.....	17	13	.....	1,213	.....	269
Wentworth.....	42	1	.....	.....	.....	.....	.....	81
Glanford.....	11	.....	.....	.....	.....	.....	.....	65
Lincoln.....	53	2	15	2	654	.....	.....	90
Gainsborough.....	5	.....	.....	.....	.....	.....	.....	100
Welland.....	89	2	8	.....	.....	.....	.....	85
Bertie.....	47	1	1	.....	15	.....	408,475	113
Crowland.....	81	1	.....	.....	.....	.....	.....	62
Humberstone.....	36	4	.....	.....	.....	.....	.....	114
Wainfleet.....	38	.....	1	.....	15	.....	.....	35
Willoughby.....	27	.....	1	.....	7	.....	58,637	103
Onondaga.....	44	.....	28	2	2,517	.....	.....	142
Tuscarora.....	2	.....	.....	.....	.....	.....	.....	44,315
Bruce.....	6	.....	.....	.....	.....	.....	858	100
Amabel.....	.....	.....	.....	.....	.....	.....	.....	.....
Caledon.....	.....	.....	.....	.....	.....	.....	.....	.....
Surface wells.....	69	.....	.....	.....	.....	.....	14,000 ¹	.....
Howard.....	2	.....	.....	.....	.....	.....	6,088 ²	.....
Sarnia.....	300	.....	.....	.....	.....	.....	60,000 ⁴	.....
Private wells ³	2,452	55	158	72	41,548	.....	7,943,416	.....
Total.....	.....	.....	.....	.....	.....	.....	.....	.....

¹This gas is not metered and therefore must be estimated. The wells are owned privately, and the gas is used for domestic purposes.

²This gas is sold to the Union Natural Gas Company, and was used in Ridgeway.

³Principally in Haldimand, Norfolk, and Welland counties.

⁴Estimated.

Exploratory Drilling

Most of the exploratory drilling done in the past year was in the vicinity of old fields, following the work done in the year 1929.

The Union Natural Gas Company extended the Dawn field some distance into Euphemia township and pushed north with the De Clute field in Raleigh township, where two or three large producing wells were drilled by that company and the Highbank Oil Company. The wells of the old Oil Springs Oil and Gas Company at Oil Springs are being cleaned out and "shot," and production increased.

The Southern Ontario Company drilled a producing well in Mosa township, near North Newberry. The producing horizon is in the Grimsby sandstone (Red Medina). This is an unlooked-for extension of the Grimsby, which has not been heretofore recorded in any well within thirty miles eastward, where it is known to thin out and disappear.

The Norfolk and Haldimand fields have had a great deal of attention, and the number of new wells is more than usual. The Dominion Natural Gas Company led in these counties.

On the Tuscarora Indian Reserve the Ajax and Petrol Gas companies have drilled a number of producing wells. This Indian Reserve has all indications of holding a large reserve of gas for the future.

A well was begun in St. Vincent township, Grey county, but was closed down before the gas horizon was reached.

The year 1930 has been the most successful year on the basis of numbers of producing wells drilled since 1913. The number of feet drilled in 1930 was 232,940.

An example of the methods used to extend gas fields is to be found in the township of Middleton. A gas well was drilled by the Vacuum Gas and Oil Company in 1917 and has been producing continuously since that date. About five hundred feet distant another producing well was drilled by the Dominion Natural Gas Company. Following this, these and other companies drilled dry holes at all quarters of the compass, centred on these two producing wells, and the surrounding area was abandoned. The original rock pressure of these wells was 625 pounds, and the rock pressure in 1930 was 380 pounds.

The Vacuum well had produced one hundred million cubic feet of gas, and the open flow of the well had declined from 750 M cubic feet to 50 M cubic feet. It was the opinion of the Vacuum Company that this was a very much larger gas pool than was at first thought. The result of an enlarged drilling campaign in 1930 and the first half of 1931 has been 12 producing wells and 2 dry holes. The well drilled farthest from the original Vacuum Company well, about 3,630 feet distant, has a rock pressure of 495 pounds, which is 130 pounds less than the original well. The rock pressures of new wells and distances from the original well are as follows:—

Lbs.	Feet
385.....	630
410.....	1,290
425.....	2,185
435.....	2,930
495.....	3,630

This pressure is still 130 pounds less than the original pressure, and will indicate that the well has probably drained gas for a distance of a mile. It

must be said that in this instance the drainage has been in one direction only and the area very much restricted. However, it shows clearly that, where an area is first proved and the rock porous, drilling wells too close together is purely a waste of capital. The case in point shows that, even where an area has been abandoned, a careful study of "rock pressures" and "open flows" may indicate that an adjacent area is feeding a more restricted area.

Leakage

In the year 1921, when the natural gas industry was in a critical condition, the Ontario Government employed a natural gas engineer, Samuel S. Wyer, of Columbus, Ohio, to make a report and recommend the action to be taken in order that the remaining supply might be conserved. One of his recommendations (which were published in the report on natural gas in 1921) was that excessive leakage should be curtailed and that all gas should be measured. These recommendations were carried out, and the inspector of gas wells and lines made frequent tests to note progress. As a result of these tests, it became obvious that many plants were poorly designed and inadequate for the distribution of gas at low pressure. This was brought to the attention of the operating company and they were requested to remedy the matter.

In 1922, in the 17 distribution plants where leakage was measured, 251,845,000 cubic feet of gas was lost; 288,367,000 cubic feet of gas was lost in 1930 from 48 distributing plants. To get a basis for comparison, all sizes of pipe are figured at their equivalent length in 3-inch pipe. By comparing this mileage with the actual leakage it will be seen that the leakage remains practically constant, while the length of pipe is nearly trebled. On a basis of consumers, the leakage per consumer is reduced by 50 per cent. Table VI shows a comparison of the leakage in distribution plants from 1922 to 1930.

TABLE VI—LEAKAGE IN DISTRIBUTION PLANTS IN ONTARIO, 1922-1930

Year	Equivalent No. of miles of plants 3-inch pipe		Leakage		Average No. of consumers	Leakage per consumer	Average pressure, ounces per sq. in.	Percent- age of leakage
			Actual	Allowable ¹				
			M cu. ft.	M cu. ft.		cu. ft.		
1922.....	17	461.87	251,845	92,374	24,839	10,139	5.31	11.41
1923.....	17	478.33	172,953	95,666	23,445	7,375	5.30	8.39
1924.....	31	734.53	226,758	146,906	36,099	6,281	5.65	6.15
1925.....	32	804.30	544,260	160,860	39,701	13,709	5.19	12.73
1926.....	37	808.39	305,921	161,778	40,190	7,611	5.35	7.13
1927.....	39	840.87	333,141	168,174	44,150	7,545	4.84	8.15
1928.....	42	873.97	346,717	174,794	47,428	7,310	4.90	7.53
1929.....	42	912.28	369,360	182,456	54,801	6,740	4.66	7.11
1930.....	48	1,247.84	288,367	249,568	54,372	5,304	4.71	5.62

¹In good engineering practice it is considered that leakage of 200,000 cubic feet per mile of 3-inch pipe is allowable.

Transmission line leakage shows almost a parallel case. The 3-inch pipe equivalent shows the increase in pipe line capacity, whereas the percentage of leakage shows an improvement of nearly 50 per cent. in ten years (see Table VII).

TABLE VII—LEAKAGE IN TRANSMISSION LINES IN ONTARIO, 1922-1930

Year	No. of lines	Size of pipe lines	Equivalent miles of 3-inch pipe	Actual leakage	Average pressure on pipe lines, lbs. per sq. in.	Percentage of leakage
				M cu. ft.		
1922.....	6	.....	1,396.2	955,746	.....	16.60
1925.....	7	6- to 12-inch	1,397.4	432,728	12-120	8.17
1926.....	8	4- to 12-inch	1,402.1	534,324	5-120	8.01
1927.....	8	4- to 12-inch	1,403.3	573,144	12-120	10.45
1928.....	7	4- to 18-inch	1,519.04	394,805	25-100	6.86
1929.....	7	4- to 18-inch	1,589.63	578,962	25-100	8.78
1930.....	7	4- to 18-inch	1,700.19	413,619	25-100	7.09

The rural lines show the greatest improvement. Some shocking examples of lack of engineering advice were in evidence, especially in privately owned lines. By taking up many of these and relaying others with larger sized pipe, the improvements have been effected. In many lines the leakage has been reduced below that set as allowable in good engineering practice. The 10-year comparison is shown in Table VIII.

TABLE VIII—LEAKAGE ON RURAL LINES IN ONTARIO, 1922-1930

Year	No. of townships	No. of lines	Equivalent feet of 3-inch pipe	Leakage		Average No. of consumers	Leakage per consumer	Percentage of leakage
				Actual	Allowable			
				M cu. ft.	M cu. ft.		cu. ft.	
1922.....	6	24	68,276	11,346	2,586	239	47,472	30.60
1923.....	11	102	585,655	69,476	22,184	2,114	32,864	14.33
1924.....	12	91	680,620	80,739	25,780	2,155	37,465	20.50
1925.....	14	81	502,631	64,285	19,039	1,748	36,776	23.03
1926.....	14	90	420,284	41,482	15,920	2,071	20,030	14.14
1927.....	15	90	558,295	51,692	21,147	2,275	22,721	17.98
1928.....	14	86	560,605	33,954	21,235	2,171	15,639	11.65
1929.....	11	76	545,486	17,313	20,663	1,886	9,180	7.09
1930.....	12	74	546,918	15,881	20,717	2,124	7,476	6.97

The annual tabulation of leakage in distributing plants, transmission lines, and rural lines is shown in Tables IX, X, and XI.

TABLE IX—LEAKAGE IN DISTRIBUTION PLANTS, 1930

Cities and towns	Company	Equivalent miles of 3-inch pipe in distribution plants	Volume received M cu. ft.	Volume delivered M cu. ft.	Leakage for year		Average No. of consumers	Leakage per consumer cu. ft.	Pressure distribution plants, pounds per sq. in.
					Actual M cu. ft.	Allowable M cu. ft.			
Alvinston.....	Union Natural Gas Co.....	5.40	3,649	3,619	30	1,080	144	208	5
Belle River.....	Union Natural Gas Co.....	4.16	18,644	17,884	760	832	174	4,367	6
Belmont.....	Ontario Salt Co.....	1.67	8,531	3,022	5,509	334	70	78,700	6
Blenheim.....	Union Natural Gas Co.....	12.58	18,419	18,363	56	2,516	567	6,098	5
Bothwell.....	Union Natural Gas Co.....	5.30	3,603	2,892	711	1,060	107	6,645	5
Brantford.....	Brantford Gas Co.....	91.59	176,957	164,916	12,041	18,318	4,052	2,971	4
Brigden.....	Union Natural Gas Co.....	3.68	15,990	15,015	975	736	157	6,210	5
Cainsville.....	Dominion Natural Gas Co.....	5.23	26,460	25,907	553	1,046	132	4,189	4
Chatham.....	Union Natural Gas Co.....	78.93	532,775	526,342	6,433	15,786	4,115	1,563	6
Comber.....	Union Natural Gas Co.....	3.42	18,419	18,363	56	684	141	397	5
Courtright.....	Union Natural Gas Co.....	3.76	14,117	13,356	761	752	123	6,187	5
Dorchester.....	Southern Ontario Gas Co.....	2.86	9,902	9,020	882	572	111	7,946	4
Dresden.....	Union Natural Gas Co.....	12.55	55,744	55,464	280	2,510	498	562	4
Dundas.....	Dominion Natural Gas Co.....	12.27	74,311	70,222	4,089	2,454	1,161	3,521	5
Dunville.....	Dominion Natural Gas Co.....	13.17	111,107	102,792	8,315	2,634	997	8,340	4
Fenwick.....	Dominion Natural Gas Co.....	1.37	6,874	6,383	491	274	99	4,959	4
Florence.....	Union Natural Gas Co.....	1.80	1,499	1,425	74	360	56	1,321	5
Galt.....	Dominion Natural Gas Co.....	30.69	75,137	66,858	8,279	6,138	1,034	8,016	4
Hagersville.....	Dominion Natural Gas Co.....	7.24	45,027	35,362	9,665	1,448	416	23,233	4
Ingersoll.....	Dominion Natural Gas Co.....	22.25	53,336	46,754	6,582	4,450	964	6,827	4
Inwood.....	Union Natural Gas Co.....	2.32	1,662	1,628	34	464	68	500	5
Kingsville.....	Southern Ontario Gas Co.....	14.71	103,251	96,566	6,685	2,942	698	9,577	4
Leamington.....	Leamington Corporation.....	25.47	228,181	202,055	26,126	5,094	1,465	17,883	10
Merlin.....	Union Natural Gas Co.....	2.78	20,132	19,352	780	556	147	5,306	6
Mount Hamilton.....	Dominion Natural Gas Co.....	23.44	74,787	57,788	16,999	4,688	2,500	6,799	4
Paris.....	Dominion Natural Gas Co.....	13.56	34,585	29,346	5,239	2,712	595	8,805	4
Petrolia.....	Union Natural Gas Co.....	16.22	93,993	85,054	8,939	3,244	745	12,025	6
Port Burwell.....	Dominion Natural Gas Co.....	3.84	7,575	5,952	1,623	768	148	10,662	4
Port Lambton.....	Union Natural Gas Co.....	1.94	6,716	6,268	448	388	70	6,400	5
Ridgetown.....	Union Natural Gas Co.....	18.16	77,608	70,262	7,346	3,632	645	11,389	5
St. Catharines.....	Dominion Natural Gas Co.....	53.38	308,622	280,202	28,420	10,676	4,734	6,003	4
St. George.....	Dominion Natural Gas Co.....	2.11	4,057	3,727	330	422	98	3,367	4
Sarnia.....	Union Natural Gas Co.....	95.05	405,045	371,820	33,225	19,010	4,583	7,249	5
Shedden-Fingal.....	Southern Ontario Gas Co.....	6.11	15,003	11,238	3,765	1,222	133	28,308	4

TABLE IX—LEAKAGE IN DISTRIBUTION PLANTS, 1930—Continued

Cities and towns	Company	Equivalent miles of 3-inch pipe in distribution plants	Volume received M cu. ft.	Volume delivered M cu. ft.	Leakage for year		Average No. of consumers	Leakage per consumer cu. ft.	Pressure distribution plants, ounces per sq. in.
					Actual	Allowable			
Simcoe	Dominion Natural Gas Co.	29.33	217,247	200,358	16,889	5,866	1,664	10,149	4
Sombra	Union Natural Gas Co.	2.50	9,737	9,028	709	500	85	8,341	5
South London	Southern Ontario Gas Co.	8.34	17,873	14,084	3,789	1,668	161	23,534	4
Straffordville	Dominion Natural Gas Co.	1.34	7,717	7,161	556	268	80	6,950	4
Thamesville	Union Natural Gas Co.	6.51	5,624	5,100	524	1,302	190	2,757	5
Thorold	Dominion Natural Gas Co.	12.79	48,093	43,501	4,592	2,558	990	4,638	4
Tillsonburg	Dominion Natural Gas Co.	23.15	91,828	83,541	8,287	4,630	1,003	8,262	4
Vienna	Dominion Natural Gas Co.	1.04	1,601	1,440	161	208	19	8,473	4
Wallaceburg	Union Natural Gas Co.	22.82	135,079	129,470	5,609	4,564	1,175	4,773	6
West Hamilton	Southern Ontario Gas Co.	3.81	8,508	7,529	979	762	225	4,351	4
Wheatley	Southern Ontario Gas Co.	3.61	26,626	23,859	2,767	722	242	11,433	4
Windsor	Union Natural Gas Co.	480.88	1,802,822	1,776,413	26,409	96,176	14,779	1,786	5
Woodstock	Dominion Natural Gas Co.	47.83	99,244	88,715	10,529	9,566	1,910	5,512	4
Wyoming	Union Natural Gas Co.	4.88	2,366	2,320	46	976	102	450	5
Total			5,126,083	4,837,716	288,367				

TABLE X—LEAKAGE IN TRANSMISSION LINES, 1930

Transmission line	Size of pipe line	Equivalent miles of 3-in. pipe	Volume received M cu. ft.	Volume delivered M cu. ft.	Actual leakage M cu. ft.	Average pressure on pipe lines lbs. per sq. in.
Gas field to Sarnia and Petrolia	6-, 8-, 10-, 12-in.	388.59	1,472,577	1,383,783	88,794	40-80
Dunnville to St. Catharines	8-inch	57.1	369,780	356,589	13,191	50
Kingsville to Hamilton	8-, 10-, 12-inch	710.5	1,524,633	1,316,897	207,736	85
Gas field to Windsor	8-, 10-, 12-, 18-in.	422.9	2,042,142	1,982,225	59,917	30-100
Gas field to Ridgetown	6-, 8-inch	81.08	267,759	237,493	30,266	30-80
Gas field to Bothwell	4-, 6-inch	31.42	12,684	11,344	1,340	30-50
Total			5,827,770	5,414,151	413,619	

TABLE XI—LEAKAGE ON RURAL LINES, 1930

Township	Equivalent feet of 3-inch pipe in all rural lines	Volume received	Volume delivered	Leakage for year		Average No. of consumers	Leakage per consumer	Average pressure on pipe lines	
				Actual	Allowable			Low pressure	High pressure
	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.	cu. ft.	ozs.	lbs.	
Chatham.....	7,450	5,314	5,278	36	283	52	5	.....
Dover.....	100,910	43,628	40,431	3,197	3,822	368	6	.....
Enniskillen.....	16,394	3,556	3,380	176	621	39	6	7	
Harwich.....	100,370	37,565	35,502	2,063	3,800	390	5	.....
Howard.....	17,770	10,688	9,943	745	673	97	5	.....
Moore.....	38,819	13,566	12,386	1,180	1,471	218	5	4	
Raleigh.....	139,713	47,937	45,234	2,703	5,293	381	6	.....
Raleigh (Blake system).....	23,126	5,937	3,774	2,163	876	79	4	.....
Rochester.....	34,180	20,475	19,990	485	1,296	186	5	.....
Sandwich, East.....	1,432	1,153	1,081	72	54	14	5	20	
Sandwich, South.....	8,667	7,931	7,402	529	328	77	5	16	
Sombra.....	1,929	881	861	20	73	10	5	6	
Tilbury, East.....	56,158	28,942	26,430	2,512	2,127	213	6	.....
Total.....	546,918	227,573	211,692	15,881	20,717	2,124	.....	.....

Licenses Issued in 1930

The Natural Gas Conservation Act, 1921, and the Well Drillers' Act, 1925, provide that all operations connected with natural gas and the drilling of oil wells shall be carried on under license. Tables XII, XIII, XIV, XV, and XVI list the names of those to whom these licenses were issued in 1930.

TABLE XII—OPERATORS LICENSED TO LEASE AND PROSPECT FOR NATURAL GAS, 1930

License No.	Name	Address
353	Acme Gas and Oil Co., Ltd.	Toronto, Ont.
337	Ajax Oil and Gas Co., Ltd.	Toronto, Ont.
359	American Engineering Co., Ltd.	Chatham, Ont.
343	Annett, Stan. C.	Chatham, Ont.
352	Baker, John	Buckingham, Que.
373	Blain, Dr. E. B.	Hamilton, Ont.
374	Brighton, Percy Lawrence	London, Ont.
427	Burdick, Lyle D.	Hamilton, Ont.
379	Cameron, J. A.	Toronto, Ont.
430	Carter, Lawrence	Brantford, Ont.
356	Central Development Co., Ltd.	Chatham, Ont.
497	Central Oil Co., Ltd.	Waterloo, Ont.
334	Cherry, Robert	Collingwood, Ont.
381	Clive, George	Chatham, Ont.
392	Comfort, Alex.	Blackheath, Ont.
421	Cooper, E. J.	Burlington, Ont.
423	Cowley, H. H.	Port Colborne, Ont.
428	Culver, Gordon	Simcoe, Ont.
405	Culver, Rupert	Dunnville, Ont.
408	Davies, Jos. R.	Buffalo, N.Y.
348	Dodd, J. G.	Haileybury, Ont.
335	Dominion Natural Gas Co., Ltd.	Buffalo, N.Y.
346	Doran, Benj.	Meaford, Ont.
377	Ellwood, John	Chatham, Ont.
429	Fischer, E. F.	Dunnville, Ont.
416	Flood, William	Brantford, Ont.
351	Flynn, E. Miles	Toronto, Ont.
354	Freeman, George	Toronto, Ont.
342	Geddes, Earl W.	Chatham, Ont.
369	Gillies, Arthur	Selkirk, Ont.
338	Glenn, S. J.	Long Branch, Ont.
368	Gray, Ira	Merlin, Ont.
418	Greenwood, J. W.	Ingersoll, Ont.
372	Gregory, F. R.	Petrolia, Ont.
410	Grierson, Andrew	Toronto, Ont.
387	Hoover, A. E.	Selkirk, Ont.
365	Hottinger, E. C.	Toronto, Ont.
370	Howard, W. C.	Leamington, Ont.
411	Hurst, Clifford	Simcoe, Ont.
434	Hussey, W. J.	Petrolia, Ont.
375	Industrial Natural Gas Co., Ltd.	Port Robinson, Ont.
420	Ironside, E. H.	Hamilton, Ont.
394	James, Francis Leigh	Tillsonburg, Ont.
361	Jaspersen, Bon.	Kingsville, Ont.
339	Joyce, Joseph	Chatham, Ont.
390	Kohler, Jacob	Cayuga, Ont.
431	Lambier, Chas. Nelson	Echo Place, Ont.
412	Leitch, W. S.	Brantford, Ont.
407	Lewis, James R.	Buffalo, N.Y.
395	Lewis, Wm. J.	Brantford, Ont.
371	Lynch, Jas. B.	Batavia, N.Y.
435	MacPherson, G. A.	Toronto, Ont.
400	McChesney, Jas. G.	Selkirk, Ont.
376	McCrimmon, J. E.	Brantford, Ont.

TABLE XII—OPERATORS LICENSED TO LEASE AND PROSPECT FOR
NATURAL GAS, 1930—Continued

License No.	Name	Address
347	McGill, Joseph	Petrolia, Ont.
414	McMillan, R. R.	Brantford, Ont.
397	McNinch, S. E.	Canborough, Ont.
382	Mahaffy, A. M.	Toronto, Ont.
388	Mehlenbacher, L. B.	Cayuga, Ont.
349	Messer, Julius	Kirkland Lake, Ont.
396	Miller, R. F.	Selkirk, Ont.
424	Murdock, J. T.	St. Catharines, Ont.
425	Naylor, A. G.	St. Catharines, Ont.
341	Neath, Charles	Chatham, Ont.
345	Newton, Roy	Sarnia, Ont.
350	Norrington, R. W.	Toronto, Ont.
422	O'Brien, W. L.	Hamilton, Ont.
355	Patterson, W. C.	Jamestown, N.Y.
360	Pattinson, R. L.	Chatham, Ont.
419	Penfold, A. G.	Hamilton, Ont.
384	Port Colborne-Welland Natural Gas and Oil Co., Ltd.	Port Colborne, Ont.
358	Pure Gas and Oil Co., Ltd.	Chatham, Ont.
404	Rahn, Clayton	Dunnville, Ont.
386	Raven, Christopher	Chatham, Ont.
340	Robinson, Henry	Chatham, Ont.
380	Rodgers, Alex.	Tillsonburg, Ont.
385	Schier, Frank	Stevensville, Ont.
433	Shanahan, M. J.	Buffalo, N. Y.
406	Simpson, Charles	Simcoe, Ont.
409	Smith, C. E. J.	London, Ont.
363	Smith, Harry B.	Windsor, Ont.
366	Smith, Dr. Luke	Oakville, Ont.
398	Smith, R. H.	Lowbanks, Ont.
393	Smiley, Thomas	Blackheath, Ont.
417	Snell, R. U.	Woodstock, Ont.
336	Southern Ontario Gas Co., Ltd.	Buffalo, N.Y.
364	Stephens, Hugh	Aylmer, Ont.
399	Stover, F. C.	Chatham, Ont.
402	Sullivan, Geo. F.	Sarnia, Ont.
367	Thomson, W. Grant	Chatham, Ont.
391	Topp, Nathan	Cayuga, Ont.
357	United Development Co., Ltd.	Chatham, Ont.
413	Vanderlip, W. J.	Brantford, Ont.
344	Vidler, Walter R.	Toronto, Ont.
415	Wallis, E. C.	Brantford, Ont.
378	Walter, H. A.	Buffalo, N.Y.
362	Welland County Gas Syndicate	Stevensville, Ont.
432	Westman, W. H.	Chatham, Ont.
426	Whittaker, John	Leamington, Ont.
401	Wilson, Leo	Sarnia, Ont.
389	Winger, S. W.	Hagersville, Ont.
403	Wood, J. George	Tillsonburg, Ont.

TABLE XIII—OPERATORS LICENSED TO DRILL OR BORE FOR
NATURAL GAS, 1930

License No.	Name	Address
353	Baker, John	Buckingham, Que.
423	Cherry, Robert	Collingwood, Ont.
329	Culver and Bloomfield	Dunnville, Ont.
356	Erie Gas and Oil Syndicate	Fisherville, Ont.
399	Francis, Mrs. M. E.	Bothwell, Ont.
326	Gregory, G. F.	Petrolia, Ont.
357	Hoover, A. E.	Selkirk, Ont.
358	Hoover, A. E.	Selkirk, Ont.
359	Hoover, A. E.	Selkirk, Ont.
373	Hoover, A. E.	Selkirk, Ont.
410	Hussey, W. J.	Petrolia, Ont.
363	Industrial Natural Gas Co., Ltd.	Port Robinson, Ont.
367	Jackson, Percy L.	Dunnville, Ont.
337	Jasperson, Bon.	Kingsville, Ont.
370	Josh, Thomas	Petrolia, Ont.
413	Kervin and Dawson	Merlin, Ont.
339	Kiser Bros.	Chatham, Ont.
340	Kiser Bros.	Chatham, Ont.
341	Kiser Bros.	Chatham, Ont.
342	Kiser Bros.	Chatham, Ont.
352	Lauer, D. G.	Tillsonburg, Ont.
387	Lauer, D. G.	Tillsonburg, Ont.
343	Lentz and Miller	Muskegon, Ont.
330	Lymburner Bros. and Webber	Dunnville, Ont.
333	McCutcheon, Thos. J.	Dunnville, Ont.
334	McCutcheon, Thos. J.	Dunnville, Ont.
335	McCutcheon, Thos. J.	Dunnville, Ont.
336	McCutcheon, Thos. J.	Dunnville, Ont.
368	McKechnie, Sam.	Dunnville, Ont.
369	McKechnie, Sam.	Dunnville, Ont.
349	McKillop, Wm.	Brantford, Ont.
338	McLister, J. J.	Dunnville, Ont.
424	Mason, Chester F.	Courtright, Ont.
365	Pattinson, R. L.	Chatham, Ont.
366	Pattinson, R. L.	Chatham, Ont.
362	Penn-Ryan Oil and Gas, Ltd.	Toronto, Ont.
364	Penn-Ryan Oil and Gas, Ltd.	Toronto, Ont.
332	Perkins, J. E.	Dunnville, Ont.
372	Port Colborne-Welland Natural Gas and Oil Co., Ltd.	Port Colborne, Ont.
419	Randall, A. E.	Onondaga, Ont.
420	Randall, A. E.	Onondaga, Ont.
344	Schafer and Benner	Delhi, Ont.
331	Seynuck, Tony	Acton, Ont.
360	Smith, Harry B.	Windsor, Ont.
345	Stover, F. H., and Son	Chatham, Ont.
346	Stover, F. H., and Son	Chatham, Ont.
347	Stover, F. H., and Son	Chatham, Ont.
348	Stover, F. H., and Son	Chatham, Ont.
355	Sundy, Basil K.	Selkirk, Ont.
351	Wicks, Frank	Sarnia, Ont.
402	Willits, G. E.	Bothwell, Ont.
361	Wilson, Anthony	Thornhill, Ont.

TABLE XIV—OPERATORS LICENSED TO PRODUCE NATURAL GAS, 1930

License No.	Name	Address
498	Acme Gas and Oil Co., Ltd.	Toronto, Ont.
448	Ajax Oil and Gas Co., Ltd.	Toronto, Ont.
511	American Engineering Co., Ltd.	Chatham, Ont.
493	Canboro Gas and Oil Co., Ltd.	Cayuga, Ont.
500	Canfield Natural Gas Co.	Canfield, Ont.
459	Central Pipe Line Co., Ltd.	Chatham, Ont.
496	Cliff Gas Co., Ltd.	Rochester, N.Y.
461	Coleman, J. A.	Wellandport, Ont.
446	Dominion Natural Gas Co., Ltd.	Buffalo, N.Y.
455	Dunn Natural Gas Co.	Dunnville, Ont.
490	Enterprise Gas Co.	Cayuga, Ont.
463	Erie Gas and Oil Syndicate	Fisherville, Ont.
462	Fisherville Gas Co.	Fisherville, Ont.
509	Gifford, Arthur, and Son	Cayuga, Ont.
502	Grimsby Natural Gas Co., Ltd.	Ridgway, Pa.
464	Haldimand Gas Fields Syndicate	Cayuga, Ont.
469	Industrial Natural Gas Co., Ltd.	Port Robinson, Ont.
450	Jasperson, Bon.	Kingsville, Ont.
504	Lincoln Gas Co., Ltd.	Toronto, Ont.
467	Midfield Natural Gas Co., Ltd.	Hamilton, Ont.
465	Niece, Hosea, and Son	Lowbanks, Ont.
449	Oil Springs Oil and Gas Co., Ltd.	Oil Springs, Ont.
458	Patterson, W. C.	Jamestown, N.Y.
454	Petrol Oil and Gas Co., Ltd.	Toronto, Ont.
471	Port Colborne-Welland Natural Gas and Oil Co., Ltd.	Port Colborne, Ont.
451	Provincial Natural Gas Co.	Niagara Falls, Ont.
456	Rainham Gas and Oil Syndicate	Fisherville, Ont.
491	Seneca Gas Syndicate	Cayuga, Ont.
515	Smith, Robt. H.	Lowbanks, Ont.
476	Smith Oil and Gas Syndicate	Windsor, Ont.
473	South Cayuga Gas Syndicate	Cayuga, Ont.
447	Southern Ontario Gas Co., Ltd.	Buffalo, N.Y.
468	Springvale Gas and Oil Co., Ltd.	Hagersville, Ont.
460	Stevensville Natural Gas and Fuel Co.	Stevensville, Ont.
475	Stony Creek Gas and Oil Syndicate	Selkirk, Ont.
452	Union Natural Gas Co., Ltd.	Chatham, Ont.
506	Vacuum Gas and Oil Co., Ltd.	Toronto, Ont.
453	Yager, J. J.	Selkirk, Ont.

TABLE XV—OPERATORS LICENSED TO DISTRIBUTE NATURAL GAS, 1930

License No.	Name	Address
353	Brantford Gas Co.	Buffalo, N.Y.
368	Central Pipe Line Co., Ltd.	Chatham, Ont.
361	Chatham Gas Co., Ltd.	Chatham, Ont.
369	Coleman, J. A.	Wellandport, Ont.
352	Dominion Natural Gas Co., Ltd.	Buffalo, N.Y.
370	Fisherville Gas Co.	Fisherville, Ont.
366	Grimsby Natural Gas Co., Ltd.	Grimsby, Ont.
372	Industrial Natural Gas Co., Ltd.	Port Robinson, Ont.
367	Lake Shore Natural Gas Co., Ltd.	Fort Erie, Ont.
357	Leamington, Town of	Leamington, Ont.
354	Manufacturers Natural Gas Co., Ltd.	Buffalo, N.Y.
394	Midfield Natural Gas Co., Ltd.	Hamilton, Ont.
356	Oil Springs Oil and Gas Co., Ltd.	Oil Springs, Ont.
386	Ontario Salt Co., Ltd.	Hamilton, Ont.
374	Port Colborne-Welland Natural Gas and Oil Co., Ltd.	Port Colborne, Ont.

TABLE XV—OPERATORS LICENSED TO DISTRIBUTE NATURAL GAS, 1930—*Continued*

License No.	Name	Address
358	Provincial Natural Gas Co.	Niagara Falls, Ont.
355	Southern Ontario Gas Co., Ltd.	Buffalo, N.Y.
371	Springvale Gas and Oil Co., Ltd.	Hagersville, Ont.
359	Union Natural Gas Co., Ltd.	Chatham, Ont.
360	Windsor Gas Co., Ltd.	Windsor, Ont.

TABLE XVI—OPERATORS LICENSED TO OPERATE PIPE LINES, 1930

License No.	Name	Address
81	Central Pipe Line Co., Ltd.	Chatham, Ont.
78	Dominion Natural Gas Co., Ltd.	Buffalo, N.Y.
79	Southern Ontario Gas Co., Ltd.	Buffalo, N.Y.
80	Union Natural Gas Co., Ltd.	Chatham, Ont.

Logs of Wells

The logs of oil and gas wells drilled in Ontario in 1930 are given on the pages following. They show the formation, total depth, and occurrences of gas, oil, and water as reported by the drillers.

These logs are on file in the office of the Natural Gas Commissioner, and they give the length of casing used as well as other information regarding the texture of formations. In many cases samples of drill cuttings are available to the public. The source of the information for the logs that follow is the company or person whose name appears at the top of each log.

ABBREVIATIONS

Tp.....	Township.
Con.....	Concession.
Pt.....	Part.
E. ½.....	East half.
N. ½.....	North half.
N.....	North.
S.E.....	Southeast.
B.F.....	Broken Front.
E.P.R.....	East of Plank Road.
E.S.C.R.....	East of Stoney Creek Road.
M.I.R.....	Moravian Indian Reserve.
N.T.R.....	North of Talbot Road.
R.R.....	River Range.
S.L.R.....	South of Longwoods Road.
S.T.R.....	South of Talbot Road.
T.R.....	Talbot Road.
W.F.C.....	West of Fairchilds Creek.
W.S.C.R.....	West of Stoney Creek Road.

Brant County

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 30, con. II, W.F.C., Onondaga tp.

Completed December 20, 1930.

Open flow: 75,000 cu. ft.

Rock pressure: 132 lbs.

Formation	Thickness, ft.
Surface.....	90
Shale.....	26
Niagara.....	251
Shale.....	47
Clinton.....	24
Red Medina.....	20
Grey shale.....	60
White Medina.....	11
Red shale.....	35

Total depth..... 564

Gas at 417, 426, and 522 feet.

Water at 91 and 110 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 54, R.R., Onondaga tp.

Completed October 16, 1930.

Open flow: 190,000 cu. ft.

Rock pressure: 155 lbs.

Formation	Thickness, ft.
Surface.....	49
Salina.....	20
Guelph and Niagara.....	256
Rochester.....	49
Clinton.....	26
Red Medina.....	16
Cabot Head.....	57
White Medina.....	17
Queenston.....	50

Total depth..... 540

Gas at 374 and 483 feet.

Water at 49 and 330 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 53, R.R., Onondaga tp.

Completed November 1, 1930.

Open flow: 53,280 cu. ft.

Rock pressure: 145 lbs.

Formation	Thickness, ft.
Surface.....	50
Salina.....	30
Guelph and Niagara.....	245
Rochester.....	45
Clinton.....	17
Red Medina.....	22
Cabot Head.....	59
White Medina.....	22
Queenston.....	60

Total depth..... 550

Gas at 372 and 486 feet.

Water at 50 and 331 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 53, R.R., Onondaga tp.

Completed November 20, 1930.

Open flow: 101,500 cu. ft.

Rock pressure: 145 lbs.

Formation	Thickness, ft.
Surface.....	47
Salina.....	39
Guelph and Niagara.....	234
Rochester.....	54
Clinton.....	24
Red Medina.....	17
Cabot Head.....	65
White Medina.....	12
Queenston.....	51

Total depth..... 543

Gas at 374 and 486 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 49, R.R., Onondaga tp.

Completed December 7, 1930.

Open flow: 53,280 cu. ft.

Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface.....	40
Salina.....	40
Guelph and Niagara.....	247
Rochester.....	44
Clinton.....	19
Red Medina.....	22
Cabot Head.....	58
White Medina.....	23
Queenston.....	50

Total depth..... 543

Gas at 373 and 484 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 48, R.R., Tuscarora tp.

Completed August 25, 1929.

Open flow: 71,000 cu. ft.

Formation	Thickness, ft.
Clay.....	74
Salina.....	15
Guelph and Niagara.....	246
Rochester.....	43
Clinton.....	14
Red Medina.....	20
Cabot Head.....	76
White Medina.....	24
Queenston.....	103

Total depth..... 615

Gas at 493 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 48, R.R., Tuscarora tp.

Completed July 25, 1929.

Open flow: 82,680 cu. ft.

Formation	Thickness, ft.
Clay.....	139
Salina.....	15
Guelph and Niagara.....	246
Rochester.....	49
Clinton.....	30
Red Medina.....	16
Cabot Head.....	10
White Medina.....	60
Queenston.....	110

Total depth..... 675

Gas at 395, 510, and 523 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 48, R.R. Tuscarora tp.

Completed November 27, 1930.

Open flow: 92,160 cu. ft.

Rock pressure: 125 lbs.

Formation	Thickness, ft.
Clay.....	119
Salina.....	15
Guelph and Niagara.....	246
Rochester.....	35
Clinton.....	25
Red Medina.....	15
Cabot Head.....	25
White Medina.....	105

Total depth..... 640

Gas at 416 and 525 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 46, R.R., Tuscarora tp.

Completed January 17, 1929.
Open flow: 63,000 cu. ft.
Rock pressure: 160 lbs.

Formation	Thickness, ft.
Sand	20
Clay	52
Salina	15
Guelph and Niagara	256
Rochester	55
Clinton	23
Red Medina	20
Cabot Head	63
White Medina	18
Queenston	101

Total depth..... 623

Gas at 398, 504, and 540 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 48, R.R., Tuscarora tp.

Completed June 18, 1930.
Open flow: 50,000 cu. ft.
Rock pressure: 125 lbs.

Formation	Thickness, ft.
Sand	15
Clay	75
Salina	5
Guelph and Niagara	253
Rochester	52
Clinton	21
Red Medina	20
Cabot Head	61
White Medina	20
Queenston	51

Total depth..... 573

Gas at 400 and 507 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 48, R.R., Tuscarora tp.

Completed August 22, 1929.
Dry hole.

Formation	Thickness, ft.
Clay	88
Salina	15
Guelph and Niagara	260
Rochester	57
Clinton	30
Red Medina	17
Cabot Head	58
White Medina	29
Queenston	108

Total depth..... 662

Gas at 422 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 38, R.R., Tuscarora tp.

Completed July 11, 1930.
Open flow: 150,000 cu. ft.
Rock pressure: 140 lbs.

Formation	Thickness, ft.
Clay	63
Salina	15
Guelph and Niagara	257
Rochester	55
Clinton	20
Red Medina	30
Cabot Head	45
White Medina	21
Queenston	53

Total depth..... 559

Gas at 393 and 505 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 45, R.R., Tuscarora tp.

Completed January 30, 1930.
Open flow: 33,600 cu. ft.
Rock pressure: 135 lbs.

Formation	Thickness, ft.
Sand	18
Clay	46
Salina	15
Guelph and Niagara	259
Rochester	55
Clinton	21
Red Medina	20
Manitoulin	65
White Medina	18
Queenston	99

Total depth..... 616

Gas at 395 feet.
Water at 64 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 48, R.R., Tuscarora tp.

Completed October 14, 1930.
Open flow: 4,331 cu. ft.
Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface	64
Salina	15
Guelph and Niagara	242
Rochester	36
Clinton	33
Red Medina	25
Cabot Head	44
White Medina	26
Queenston	50

Total depth..... 535

Gas at 358 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 40, R.R., Tuscarora tp.

Completed June 18, 1930.
Open flow: 89,920 cu. ft.
Rock pressure: 125 lbs.

Formation	Thickness, ft.
Clay	69
Salina	20
Guelph and Niagara	256
Rochester	45
Clinton	20
Red Medina	20
Cabot Head	65
White Medina	20
Queenston	58

Total depth..... 573

Gas at 390, 500, and 525 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 37, R.R., Tuscarora tp.

Completed September 16, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	101
Salina	24
Guelph and Niagara	265
Rochester	50
Clinton	30
Red Medina	12
Cabot Head	53
White Medina	25
Queenston	50

Total depth..... 610

PETROL OIL AND GAS CO., TORONTO

Lot 24, con. V, Tuscarora tp.

Completed November 29, 1930.
Open flow: 70,500 cu. ft.

Formation	Thickness, ft.
Surface	86
Salina	83
Guelph and Niagara	248
Rochester	49
Clinton	22
Red Medina	20
Cabot Head	52
White Medina	15
Queenston	64
Total depth	639

Gas at 466 feet.

PETROL OIL AND GAS CO., TORONTO

Lot 24, con. V, Tuscarora tp.

Completed December 17, 1930.
Open flow: 16,849 cu. ft.
Rock pressure: 205 lbs.

Formation	Thickness, ft.
Surface	75
Salina	73
Guelph and Niagara	265
Rochester	31
Clinton	22
Red Medina	20
Cabot Head	50
White Medina	24
Total depth	560

Queenston at 560 feet.
Gas at 446 feet.

Dundas County

MRS. SARAH ARMSTRONG, CHESTERVILLE

Lots 4 and 5, con. VII, Williamsburgh tp.

Completed 1912.
Open flow: Strong.
Small flow in 1930.

Formation	Thickness, ft.
Trenton limestone	130
Total depth	130

Gas at 130 feet.
Water at 130 feet.

WALTER CARR, CHESTERVILLE

Lot 6, con. VII, Williamsburgh tp.

Completed 1913.
Open flow: Strong.
Small flow in 1930.

Formation	Thickness, ft.
Trenton limestone	120
Total depth	120

Gas at 100 feet.
Water at 100 feet.

Elgin County

WESTERN PENINSULA OIL AND GAS CO., PORT BRUCE

Lot 5, con. I, Malahide tp.

Completed May 28, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	146
Hardpan	11
Soapstone	10
Top rock	6
Lower lime	127
Total depth	300

Show of oil at 235 to 247 feet.
Water at 145 feet.

WESTERN PENINSULA OIL AND GAS CO., PORT BRUCE

Lot 5, con. I, Malahide tp.

Completed November 28, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	175
Clay and hardpan	125
Hardpan	6
Total depth	306

WESTERN PENINSULA OIL AND GAS CO., PORT BRUCE

Lot 5, con. I, Malahide tp.

Completed July 12, 1930.
Dry hole.

Formation	Thickness, ft.
Surface clay	197
Hardpan	8
Soapstone	12
Top rock	6
Corniferous lime	82
Total depth	305

Oil and gas at 57 feet.

Essex County

CANADIAN STEEL CORP., OJIBWAY

Lot 29, con. I, Anderdon tp.

Commenced June 10, 1914.
Dry hole.

Formation	Thickness, ft.
Surface	48
Limestone	152
White sandstone	70
Limestone	49
White sandstone	10
Limestone	246
Light soft limestone with gypsum	15
Dark limestone with bands of gypsum	404
Salt	101
Salt and limestone	100
Brown and grey limestone	90
Limestone and gypsum	53
Brown limestone	22
White crystal limestone	12
Brown limestone	16
Total depth	1,388

Water at 1,360 feet.

CANADIAN STEEL CORP., OJIBWAY

Lot 7, con. I, Anderdon tp.

Completed 1914.
Dry hole.

Formation	Thickness, ft.
Surface	11
Brown and grey lime	97
White sandstone	25
Brown and grey lime	199
White sandstone	66
Grey limestone	23
White sandstone	10
Brown and grey lime	262
Dark calcareous shale with gypsum	18
Light-grey limestone with gypsum	529
Limestone	160
Fine "sandy" limestone	210
Grey limestone	24
Slate (Rochester)	11
Red shale (Cabot Head)	13
(Slate)	62
Manitoulin Limestone and shale	70
Red shale (Queenston)	97
Dark-grey shale and limestone	505
Trenton limestone	174
Total depth	2,566

Show of gas at 1,450 feet.
Show of oil at 2,396 and 2,494 feet.
Salt water at 1,291, 1,325, 1,350, 2,445, 2,530, and 2,566 feet.
Gypsum beds at 502, 520, 570, 628, and 633 feet.

OLGA GAS AND OIL Co. (COMMUNITY WELL), TORONTO

Lot 32, con. I, Gosfield South tp.

Completed April 8, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	850
Lime	90
Lime	120
Niagara lime (hard)	245
Shale	95
Red and grey shale	485
Grey shale	80
Brown shale	210
Trenton (hard and dark)	428
Total depth	2,603

CANADIAN STEEL CORP., OJIBWAY

Lot 10, con. I, Sandwich West tp.

Commenced June 20, 1914.

Dry hole.

Formation	Thickness, ft.
Surface	58
Limestone	129
White sandstone	130
Limestone	65
White sandstone	8
Limestone	200
Gypsum	5
Grey limestone with gypsum at points	165
Total depth	760

CANADIAN SALT Co., SANDWICH

City of Sandwich.

Completed 1930.

Dry hole.

Formation	Thickness, ft.
Surface	90
Limestone	355
White sandstone	65
Lime	30
Sandstone	5
Lime	10
Sandstone	45
Limestone	125
Dark lime	35
Blue lime	220
Salt	20
Salt and lime	110
Brown lime	260
Salt	130
Lime	10
Salt	82
Grey lime	8
Total depth	1,600

Haldimand County

DOMINION NATURAL GAS Co., DUNNVILLE

Lot 8, con. I, Canborough tp.

Completed November 19, 1930.

Open flow: 28,000 cu. ft.

Rock pressure: 154 lbs.

Formation	Thickness, ft.
Surface	73
Lime and shale	60
Niagara	227
Guelph	20
Shale	25
Clinton	30
Red Medina	32
Grey shale	60
White Medina	13
Big red	35
Total depth	575

Gas at 425, 450, and 532 feet.

Water at 75 and 275 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 4, con. I, Dunn tp.

Completed July 8, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	35
Flint	30
Lime and shale	375
Niagara	225
Shale	58
Clinton rock	28
Red Medina	40
Grey shale	55
White Medina	14
Red shale	1
Total depth	861

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 4, con. I, Dunn tp.

Completed August 14, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	35
Flint	40
Lime and shale	346
Niagara	225
Shale	58
Clinton rock	30
Red Medina	40
Grey shale	55
White Medina	18
Red shale	3
Total depth	850

W. C. PATTERSON, JAMESTOWN, N.Y.

Lots 3 and 4, con. II and III, Dunn tp.

Completed January 18, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	51
Lime and shale	259
Niagara	225
Shale	55
Clinton rock	35
Red Medina	40
Grey shale	55
White Medina	15
Red shale	3
Total depth	738

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 3, con. I, Dunn tp.

Completed June 4, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	34
Flint	30
Lime and shale	366
Niagara	225
Shale	58
Clinton rock	30
Red Medina	43
Grey shale	55
White Medina	15
Red shale	3
Total depth	859

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 6, con. I, north of Dover road, Dunn tp.

Completed November 15, 1930.

Open flow: 60,000 cu. ft.

Formation	Thickness, ft.
Surface	86
Lime and shale	254
Niagara	225
Shale	55
Clinton rock	30
Red Medina	40
Grey shale	51
White Medina	14
Red shale	26
Total depth	781

Gas at 622, 660, and 746 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 8, second range from Grand River, Moulton tp.

Completed December 30, 1930.

Open flow: 15,000 cu. ft.

Rock pressure: 225 lbs.

Formation	Thickness, ft.
Surface.....	98
Lime and shale.....	236
Niagara.....	230
Shale.....	55
Clinton.....	25
Red Medina.....	41
Grey shale.....	50
White Medina.....	20
Red shale.....	27

Total depth..... 782

Gas at 621 and 750 feet.

Water at 100, 160, and 400 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 13, con. I, North Cayuga tp.

Completed May 25, 1929.

Open flow: 60,000 cu. ft.

Rock pressure: 300 lbs.

Formation	Thickness, ft.
Surface.....	53
Lime and shale.....	209
Niagara.....	225
Shale.....	50
Clinton rock.....	27
Red Medina.....	38
Grey shale.....	55
White Medina.....	18
Red shale.....	102

Total depth..... 777

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 24, con. I, North Cayuga tp.

Completed January 31, 1929.

Open flow: 285,000 cu. ft.

Rock pressure: 265 lbs.

Formation	Thickness, ft.
Surface.....	41
Lime and shale.....	249
Niagara.....	225
Shale.....	53
Clinton rock.....	27
Red Medina.....	40
Grey shale.....	55
White Medina.....	16
Red shale.....	30

Total depth..... 736

Gas at 575 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 15, con. I, North Cayuga tp.

Completed July 23, 1929.

Open flow: 65,000 cu. ft.

Rock pressure: 258 lbs.

Formation	Thickness, ft.
Surface.....	60
Lime and shale.....	204
Niagara.....	230
Shale.....	50
Clinton rock.....	27
Red Medina.....	38
Grey shale.....	55
White Medina.....	18
Red shale.....	119

Total depth..... 801

Gas at 579 and 676 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 25, con. I, North Cayuga tp.

Completed February 27, 1929.

Open flow: 225,000 cu. ft.

Rock pressure: 250 lbs.

Formation	Thickness, ft.
Surface.....	40
Lime and shale.....	257
Niagara.....	225
Shale.....	53
Clinton rock.....	30
Red Medina.....	40
Grey shale.....	55
White Medina.....	12
Red shale.....	31

Total depth..... 743

Gas at 583 and 605 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 19, E. 1/4 of N. 1/4, con. I, North Cayuga tp.

Completed November 4, 1929.

Open flow: 60,000 cu. ft.

Rock pressure: 250 lbs.

Formation	Thickness, ft.
Surface.....	45
Lime and shale.....	203
Niagara.....	230
Shale.....	49
Clinton rock.....	27
Red Medina.....	38
Grey shale.....	52
White Medina.....	18
Red shale.....	123

Total depth..... 785

Gas at 564, 587, and 659 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 25, con. I, North Cayuga tp.

Completed March 19, 1929.

Open flow: 260,000 cu. ft.

Rock pressure: 245 lbs.

Formation	Thickness, ft.
Surface.....	47
Lime and shale.....	243
Niagara.....	230
Shale.....	53
Clinton rock.....	27
Red Medina.....	40
Grey shale.....	53
White Medina.....	12
Red shale.....	14

Total depth..... 719

Gas at 583 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 18, con. I, North Cayuga tp.

Completed October 10, 1929.

Open flow: 106,000 cu. ft.

Rock pressure: 275 lbs.

Formation	Thickness, ft.
Surface.....	54
Lime and shale.....	204
Niagara.....	230
Shale.....	50
Clinton rock.....	27
Red Medina.....	38
Grey shale.....	51
White Medina.....	18
Red shale.....	123

Total depth..... 795

Gas at 563 and 669 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 18, N. $\frac{1}{2}$, con. I, North Cayuga tp.

Completed December 18, 1929.

Open flow: 116,000 cu. ft.

Rock pressure: 345 lbs.

Formation	Thickness, ft.
Surface	66
Lime and shale	205
Niagara	230
Shale	50
Clinton rock	27
Red Medina	38
Grey shale	55
White Medina	18
Red shale	27
Total depth	716

Gas at 576 and 593 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 20, con. I, North Cayuga tp.

Completed January 3, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	73
Lime and shale	216
Niagara	225
Shale	50
Clinton rock	27
Red Medina	40
Grey shale	53
White Medina	18
Red shale	3
Total depth	705

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 13, con. I, North Cayuga tp.

Completed June 27, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	46
Lime and shale	199
Niagara	230
Shale	55
Clinton rock	27
Red Medina	38
Grey shale	55
White Medina	18
Red shale	3
Total depth	671

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 16, con. I, North Cayuga tp.

Completed August 17, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	63
Lime and shale	204
Niagara	230
Shale	50
Clinton rock	27
Red Medina	38
Grey shale	55
White Medina	18
Red shale	5
Total depth	690

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 12, con. I, North Cayuga tp.

Completed November 23, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	40
Lime and shale	202
Niagara	230
Shale	50
Clinton rock	28
Red Medina	40
Grey shale	55
White Medina	18
Red shale	5
Total depth	668

UNION NATURAL GAS CO., CHATHAM

Lot 28, Jones tract, North Cayuga tp.

Completed December 18, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	26
Flint	60
Lime and shale	367
Niagara	240
Casing shale	38
Clinton	29
Red Medina sand	30
Red Medina shale	7
Grey shale	50
White Medina	16
Red shale	6
Total depth	869

Gas at 795 feet.

Sulphur water at 65 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.

Lot 19, E. $\frac{1}{2}$ of N. $\frac{1}{2}$, con. I, North Cayuga tp.

Completed September 10, 1929.

Open flow: 38,000 cu. ft.

Rock pressure: 245 lbs.

Formation	Thickness, ft.
Surface	50
Lime and shale	210
Niagara	230
Shale	50
Clinton rock	27
Red Medina	38
Grey shale	51
White Medina	18
Red shale	100
Total depth	774

Gas at 658 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 28, con. I, S.T.R., North Cayuga tp.

Completed November 28, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	56
Lime and shale	248
Niagara	225
Shale	50
Clinton	27
Red Medina	40
Grey shale	51
White Medina	20
Red shale	3
Total depth	720

Water at 60 and 335 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 24, con. I, North Cayuga tp.

Completed December 22, 1930.

Open flow: 76,000 cu. ft.

Rock pressure: 225 lbs.

Formation	Thickness, ft.
Surface	41
Lime and shale	250
Niagara	230
Shale	50
Clinton	30
Red Medina	40
Grey shale	50
White Medina	13
Red shale	4
Total depth	708

Gas at 577 feet.

Water at 80 and 350 feet.

DOMINION NATURAL GAS CO., DUNNVILLE
Lot 8, con. I, S.T.R., North Cayuga tp.
Completed November 22, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	43
Lime and shale	210
Niagara	225
Shale	30
Clinton	32
Red Medina	37
Grey shale	53
White Medina	18
Red shale	3
Total depth	681

Gas at 675 feet.
Water at 48 and 260 feet.

DOMINION NATURAL GAS CO., DUNNVILLE
Lot 3, Jones tract, North Cayuga tp.
Completed November 21, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	15
Lime and shell rock	123
Lime and shale	254
Niagara	220
Blue shale	53
Clinton	29
Red Medina	42
Grey shale	55
White Medina	17
Red shale	5
Total depth	813

Water at 104 and 400 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 42, con. I, North Cayuga tp.
Completed November 1, 1930.
Open flow: 34,000 cu. ft.
Rock pressure: 360 lbs.

Formation	Thickness, ft.
Surface	49
Lime and shale	263
Niagara	230
Shale	53
Clinton	28
Red Medina	40
Grey shale	49
White Medina	12
Red shale	2
Total depth	726

Gas at 599 and 613 feet.
Water at 55 and 400 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 10, con. I, North Cayuga tp.
Completed October 13, 1930.
Open flow: 50,000 cu. ft.
Rock pressure: 290 lbs.

Formation	Thickness, ft.
Surface	54
Lime and shale	205
Niagara	252
Shale	34
Clinton	31
Red Medina	38
Grey shale	52
White Medina	18
Red shale	4
Total depth	688

Gas at 548 and 568 feet.
Water at 57 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 42, con. I, North Cayuga tp.
Completed October 1, 1930.
Dry hole.

Formation	Thickness, ft.
Clay	41
Gravel	39
Lime and shale	256
Niagara	230
Grey shale	53
Clinton	28
Red Medina	40
Blue shale	50
White Medina	12
Red shale	2
Total depth	751

Water at 42 and 422 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 11, con. I, S.T.R., North Cayuga tp.
Completed August 30, 1930.
Open flow: 18,000 cu. ft.
Rock pressure: 260 lbs.

Formation	Thickness, ft.
Surface	62
Lime and shale	190
Niagara	252
Shale	34
Clinton	30
Red Medina	40
Grey shale	51
White Medina	18
Red shale	20
Total depth	697

Gas at 562, 578, and 673 feet.
Water at 65 and 260 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 40, con. I, N.T.R., North Cayuga tp.
Completed August 9, 1930.
Open flow: 43,000 cu. ft.
Rock pressure: 350 lbs.

Formation	Thickness, ft.
Surface	32
Gravel	28
Lime and shale	255
Niagara	230
Shale	50
Clinton	26
Red Medina	40
Grey shale	48
White Medina	12
Red shale	3
Total depth	724

Gas at 600 and 656 feet.
Water at 40 and 410 feet.

DOMINION NATURAL GAS CO., SELKIRK
Lot 40, con. I, North Cayuga tp.
Completed September 3, 1930.
Open flow: 16,000 cu. ft.
Rock pressure: 354 lbs.

Formation	Thickness, ft.
Surface	42
Lime and shale	254
Niagara	230
Shale	50
Clinton	28
Red Medina	40
Gray shale	47
White Medina	12
Red shale	3
Total depth	706

Gas at 614 feet.
Water at 55 and 400 feet.

DOMINION NATURAL GAS CO., SELKIRK

Lot 36, con. I, N.T.R., North Cayuga tp.

Completed July 9, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	12
Shell rock	12
Hard rock	40
Shell rock	6
Gravel	13
Lime and shale	258
Niagara	230
Shale	50
Clinton rock	28
Red Medina	38
Grey shale	50
White Medina	12
Red shale	3

Total depth..... 752

Water at 95, 180, and 425 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 12, con. I, S.T.R., North Cayuga tp.

Completed June 27, 1930.
Open flow: 60,000 cu. ft.
Rock pressure: 300 lbs.

Formation	Thickness, ft.
Surface	51
Lime and shale	218
Niagara	243
Shale	34
Clinton	31
Red Medina	39
Grey shale	48
White Medina	16
Red shale	42

Total depth..... 722

Gas at 589 and 668 feet.
Water at 60 and 295 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 38, con. I, N.T.R., North Cayuga tp.

Completed June 6, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	20
Gravel	3
Shell rock	57
Lime and shale	262
Niagara	230
Grey shale	50
Clinton	28
Red Medina	40
Blue shale	52
White Medina	12
Red shale	5

Total depth..... 759

Water at 80 and 450 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 11, con. I, S.T.R., North Cayuga tp.

Completed June 2, 1930.
Open flow: 78,000 cu. ft.
Rock pressure: 288 lbs.

Formation	Thickness, ft.
Surface	50
Lime and shale	220
Niagara	260
Shale	24
Clinton	32
Red Medina	38
Grey shale	56
White Medina	17
Big red	7

Total depth..... 704

Gas at 556 and 578 feet.
Water at 66 and 308 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 11, con. I, S.T.R., North Cayuga tp.

Completed April 21, 1930.
Open flow: 13,000 cu. ft.
Rock pressure: 297 lbs.

Formation	Thickness, ft.
Surface	58
Lime and shale	232
Niagara	238
Shale	31
Clinton	28
Red Medina	37
Grey shale	48
White Medina	13
Big red shale	5

Total depth..... 690

Gas at 569 feet.
Water at 80 and 311 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 41, con. I, N.T.R., North Cayuga tp.

Completed May 5, 1930.
Open flow: 55,000 cu. ft.
Rock pressure: 375 lbs.

Formation	Thickness, ft.
Surface	15
Shell rock	15
Lime and shale	289
Niagara	230
Grey shale	50
Clinton	28
Red Medina	40
Blue shale	50
White Medina	12
Red shale	13

Total depth..... 742

Gas at 640 feet.
Water at 30 and 425 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 40, con. I, N.T.R., North Cayuga tp.

Completed March 12, 1930.
Open flow: 50,000 cu. ft.
Rock pressure: 375 lbs.

Formation	Thickness, ft.
Surface	23
Shell rock	20
Gravel	10
Lime and shale	282
Niagara	230
Grey shale	50
Clinton	27
Red Medina	40
Blue shale	50
White Medina	12
Red shale	3

Total depth..... 747

Gas at 641 feet.
Water at 60 and 400 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 41, con. I, N.T.R., North Cayuga tp.

Completed April 10, 1930.
Open flow: 83,000 cu. ft.
Rock pressure: 375 lbs.

Formation	Thickness, ft.
Surface	18
Hard rock	19
Shell rock	31
Lime and shale	285
Niagara	230
Shale	50
Clinton	27
Red Medina	40
Grey shale	50
White Medina	12
Red shale	4

Total depth..... 766

Gas at 656 and 660 feet.
Water at 68, 90, and 425 feet.

DOMINION NATURAL GAS CO., BLACKHEATH
 Lot 10, con. I, North Cayuga tp.
 Completed January 30, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface	58
Lime and shale	158
Niagara	224
Shale	52
Clinton	28
Red Medina	43
Shale	60
White Medina	10
Red shale	4
Total depth	637

DOMINION NATURAL GAS CO., BLACKHEATH
 Lot 42, con. I, Oneida tp.
 Completed November 28, 1930.
 Open flow: 44,800 cu. ft.
 Rock pressure: 400 lbs.

Formation	Thickness, ft.
Surface	61
Lime and shale	256
Niagara	230
Shale	53
Clinton	28
Red Medina	40
Grey shale	52
White Medina	14
Red shale	6
Total depth	740

Gas at 626 and 646 feet.
 Water at 65 and 410 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
 Lot 40, con. I, N.T.R., North Cayuga tp.
 Completed February 10, 1930.
 Open flow: 46,000 cu. ft.
 Rock pressure: 352 lbs.

Formation	Thickness, ft.
Surface	21
Flint	55
Lime and shale	293
Niagara	230
Grey shale	50
Clinton	27
Red Medina	40
Blue shale	50
White Medina	12
Red shale	5
Total depth	783

Gas at 674 feet.
 Water at 440 feet.

DOMINION NATURAL GAS CO., BLACKHEATH
 Lot 42, con. I, N. of Cayuga, Oneida tp.
 Completed December 29, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface	42
Lime and shale	260
Niagara	230
Shale	52
Clinton	28
Red Medina	40
Grey shale	48
White Medina	11
Red shale	4
Total depth	715

Gas at 626 feet.
 Water at 90 and 400 feet.

DOMINION NATURAL GAS CO., BLACKHEATH
 Lot 10, con. I, N.T.R., North Cayuga tp.
 Completed January 2, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface	48
Lime and shale	170
Niagara	230
Shale	52
Clinton	26
Red Medina	41
Shale	60
White Medina	10
Red shale	5
Total depth	642

DOMINION NATURAL GAS CO., BLACKHEATH
 Lot 37, B.F., Oneida tp.
 Completed November 27, 1930.
 Open flow: 11,000 cu. ft.
 Rock pressure: 198 lbs.

Formation	Thickness, ft.
Surface	41
Lime and shale	144
Niagara	245
Shale	36
Clinton	22
Red Medina	32
Shale	57
White Medina	12
Red shale	5
Total depth	594

Gas at 470 feet.
 Water at 43 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
 Lot 37, con. I, N.T.R., North Cayuga tp.
 Completed January 6, 1930.
 Open flow: 30,000 cu. ft.
 Rock pressure: 360 lbs.

Formation	Thickness, ft.
Surface	5
Hard lime	50
Lime and shale	292
Niagara	230
Grey shale	50
Clinton	28
Red Medina	40
Blue shale	54
White Medina	12
Red shale	6
Total depth	767

Gas at 651 feet.
 Water at 125 and 425 feet.

DOMINION NATURAL GAS CO., BLACKHEATH
 Lot 36, Andross estate and R.R., Oneida tp.
 Completed November 13, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface	49
Lime and shale	156
Niagara	240
Shale	32
Clinton	30
Red Medina	34
Shale	53
White Medina	12
Red shale	5
Total depth	611

Gas at 481, 497, and 604 feet.
 Water at 295 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 47, con. I, N. of Cayuga, Oneida tp.

Completed October 10, 1930.

Dry hole.

Formation	Thickness, ft.
Lime and shale.....	380
Niagara.....	200
White shale.....	50
Casing shale.....	30
Clinton.....	25
Red Medina.....	35
Grey shale.....	60
White Medina.....	10
Red shale.....	5

Total depth..... 795

Gas at 662 feet.

Water at 150 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 26, con. III, Oneida tp.

Completed November 27, 1930.

Dry hole.

Formation	Thickness, ft.
Surface.....	30
Lime and shale.....	290
Niagara.....	200
White lime.....	50
Casing shale.....	30
Clinton.....	33
Red Medina.....	35
Grey shale.....	65
White Medina.....	12
Red shale.....	5

Total depth..... 750

RAINHAM GAS AND OIL SYNDICATE, FISHERVILLE

Lot 2, N. ½, con. II, Rainham tp.

Completed November 27, 1929.

Cry hole.

Formation	Thickness, ft.
Surface.....	19
Flint.....	96
Lime and shale.....	364
Niagara.....	272
Casing shale.....	42
Clinton.....	30
Red Medina sand.....	18
Red Medina shale.....	20
Grey shale.....	56
White Medina.....	18
Red shale.....	5

Total depth..... 940

Water at 45 feet.

RAINHAM GAS AND OIL SYNDICATE, FISHERVILLE

Lot 5, S. ½, con. III, Rainham tp.

Completed September 9, 1929.

Dry hole.

Formation	Thickness, ft.
Surface.....	23
Flint.....	87
Lime and shale.....	350
Niagara.....	257
Casing shale.....	40
Clinton.....	33
Red Medina sand.....	22
Red Medina shale.....	16
Grey shale.....	58
White Medina.....	14
Red shale.....	5

Total depth..... 905

Water at 60 feet.

RAINHAM GAS AND OIL SYNDICATE, FISHERVILLE

Lot 4, S. ½, con. II, Rainham tp.

Completed October 17, 1929.

Open flow: 92,000 cu. ft.

Rock pressure: 410 lbs.

Formation	Thickness, ft.
Surface.....	32
Flint.....	88
Lime and shale.....	340
Niagara.....	280
Casing shale.....	42
Clinton.....	28
Red Medina sand.....	25
Red Medina shale.....	13
Grey shale.....	52
White Medina.....	23
Red shale.....	5

Total depth..... 928

Gas at 782 and 810 feet.

Water at 80 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 12, con. IV, Rainham tp.

Completed December 11, 1930.

Dry hole.

Formation	Thickness, ft.
Surface.....	10
Flint.....	90
Lime and shale.....	362
Niagara.....	240
Grey shale.....	52
Clinton.....	28
Red Medina.....	40
Blue shale.....	53
White Medina.....	20
Red shale.....	4

Total depth..... 899

Water at 54 and 525 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 11, con. III, Rainham tp.

Completed October 8, 1930.

Dry hole.

Formation	Thickness, ft.
Surface.....	27
Flint.....	69
Lime and shale.....	366
Niagara.....	237
Shale.....	55
Clinton.....	29
Red Medina.....	42
Grey shale.....	55
White Medina.....	17
Red shale.....	6

Total depth..... 903

Water at 30, 115, and 472 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 12, con. IV, Rainham tp.

Completed November 1, 1930.

Open flow: 43,000 cu. ft.

Rock pressure: 458 lbs.

Formation	Thickness, ft.
Surface.....	10
Flint.....	90
Lime and shale.....	361
Niagara.....	240
Shale.....	52
Clinton rock.....	28
Red Medina.....	43
Grey shale.....	55
White Medina.....	15
Red shale.....	3

Total depth..... 897

Gas at 757, 789, and 803 feet.

Water at 25 and 525 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 10, con. III, Rainham tp.

Completed August 23, 1930.
Open flow: 45,000 cu. ft.
Rock pressure: 278 lbs.

Formation	Thickness, ft.
Surface	28
Flint	65
Lime and shale	370
Niagara	222
Grey shale	64
Clinton	31
Red Medina	42
Blue shale	55
White Medina	19
Red shale	6

Total depth..... 902
Gas at 752 and 783 to 810 feet.
Water at 556 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 12, con. III, Rainham tp.

Completed September 13, 1930.
Open flow: 15,000 cu. ft.
Rock pressure: 279 lbs.

Formation	Thickness, ft.
Surface	19
Flint	90
Lime and shale	355
Niagara	240
Grey shale	52
Clinton	28
Red Medina	40
Blue shale	56
White Medina	16
Red shale	4

Total depth..... 900
Gas at 761 and 803 feet.
Water at 35 and 555 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 8, con. III, Rainham tp.

Completed July 25, 1930.
Open flow: 15,000 cu. ft.
Rock pressure: 335 lbs.

Formation	Thickness, ft.
Surface	37
Flint	78
Lime and shale	357
Niagara	228
Grey shale	54
Clinton	29
Red Medina	42
Blue shale	55
White Medina	16
Red shale	7

Total depth..... 903
Gas at 779 and 798 to 803 feet.
Water at 42 and 473 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 11, con. III, Rainham tp.

Completed August 9, 1930.
Open flow: 104,000 cu. ft.
Rock pressure: 300 lbs.

Formation	Thickness, ft.
Surface	21
Flint	90
Lime and shale	353
Niagara	240
Shale	52
Clinton	28
Red Medina	40
Grey shale	57
White Medina	20
Red shale	4

Total depth..... 905
Gas at 761, 786, and 902 to 907 feet.
Water at 25 and 552 feet.

DOMINION NATURAL GAS CO., SELKIRK
Lot 13, con. II, Rainham tp.

Completed June 30, 1930.
Open flow: 21,000 cu. ft.
Rock pressure: 252 lbs.

Formation	Thickness, ft.
Surface	14
Flint	85
Lime and shale	360
Niagara	240
Grey shale	52
Clinton	28
Red Medina	40
Blue shale	54
White Medina	16
Red shale	2

Total depth..... 891
Gas at 789 feet.
Water at 21, 98, and 500 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 7, con. II, Rainham tp.

Completed June 23, 1930.
Open flow: 82,000 cu. ft.
Rock pressure: 350 lbs.

Formation	Thickness, ft.
Surface	17
Flint	78
Lime and shale	400
Niagara	231
Grey shale	59
Clinton	30
Red Medina	42
Blue shale	55
White Medina	15
Red shale	6

Total depth..... 933
Gas at 790 to 810 feet and 835 feet.
Water at 98 and 520 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 8, con. II, Rainham tp.

Completed May 9, 1930.
Open flow: 90,000 cu. ft.
Rock pressure: 415 lbs.

Formation	Thickness, ft.
Surface	10
Flint	93
Lime and shale	385
Niagara	241
Grey shale	48
Clinton	30
Red Medina	42
Blue shale	56
White Medina	17
Red shale	7

Total depth..... 929
Gas at 792 and 825 to 837 feet.
Water at 96 and 510 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
Lot 13, con. II, Rainham tp.

Completed May 21, 1930.
Open flow: 115,000 cu. ft.
Rock pressure: 278 lbs.

Formation	Thickness, ft.
Surface	13
Flint	90
Lime and shale	349
Niagara	240
Grey shale	52
Clinton	28
Red Medina	40
Blue shale	57
White Medina	16
Red shale	53

Total depth..... 938
Gas at 766, 790, and 879 feet.
Water at 19 and 500 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lots 9 and 10, con. II, Rainham tp.

Completed April 1, 1930.
Dry hole.

Formation	Thickness, ft.
Surface.....	24
Flint.....	88
Lime and shale.....	371
Niagara.....	255
Grey shale.....	34
Clinton.....	28
Red Medina.....	44
Blue shale.....	52
White Medina.....	15
Red shale.....	6
Total depth.....	917

Water at 140 and 535 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 14, con. II, Rainham tp.

Completed April 14, 1930.
Open flow: 42,000 cu. ft.
Rock pressure: 225 lbs.

Formation	Thickness, ft.
Surface.....	16
Flint.....	90
Lime and shale.....	357
Niagara.....	240
Grey shale.....	52
Clinton.....	29
Red Medina.....	40
Blue shale.....	57
White Medina.....	16
Red shale.....	5
Total depth.....	902

Gas at 780 and 796 feet.
Water at 30 and 480 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 8, con. II, Rainham tp.

Completed February 19, 1930.
Open flow: 24,000 cu. ft.
Rock pressure: 418 lbs.

Formation	Thickness, ft.
Surface.....	10
Flint.....	96
Lime and shale.....	379
Niagara.....	233
Grey shale.....	67
Clinton.....	29
Red Medina.....	42
Blue shale.....	54
White Medina.....	12
Red shale.....	2
Total depth.....	924

Gas at 819 feet.
Water at 510 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 5, con. II, Rainham, tp.

Completed February 20, 1930.
Dry hole.

Formation	Thickness, ft.
Surface.....	22
Flint.....	97
Lime and shale.....	376
Niagara.....	246
Grey shale.....	57
Clinton.....	27
Red Medina.....	40
Blue shale.....	54
White Medina.....	15
Red shale.....	4
Total depth.....	938

Total depth..... 938

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 9, con. II, Rainham tp.

Completed January 23, 1930.
Open flow: 63,000 cu. ft.
Rock pressure: 325 lbs.

Formation	Thickness, ft.
Surface.....	13
Flint.....	81
Lime and shale.....	367
Niagara.....	251
Grey shale.....	60
Clinton.....	30
Red Medina.....	42
Blue shale.....	58
White Medina.....	12
Red shale.....	3
Total depth.....	917

Gas at 827 feet.
Water at 460 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 13, con. II, Rainham tp.

Completed January 29, 1930.
Open flow: 71,000 cu. ft.
Rock pressure: 305 lbs.

Formation	Thickness, ft.
Surface.....	15
Flint.....	90
Lime and shale.....	355
Niagara.....	240
Shale.....	52
Clinton.....	29
Red Medina.....	40
Grey shale.....	57
White Medina.....	16
Red shale.....	51
Total depth.....	945

Gas at 892 feet.
Water at 500 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 2, con. I, E.P.R., Seneca tp.

Completed November 12, 1930.
Open flow: 39,000 cu. ft.
Rock pressure: 140 lbs.

Formation	Thickness, ft.
Surface.....	97
Lime and shale.....	26
Niagara.....	190
White lime.....	19
Shale.....	46
Clinton.....	24
Red Medina.....	41
Shale.....	43
White Medina.....	10
Red shale.....	47
Total depth.....	543

Gas at 381, 408, and 492 feet.
Water at 85, 100, and 125 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 1, con. I, 3rd range, Seneca tp.

Completed December 22, 1930.
Dry hole.

Formation	Thickness, ft.
Surface.....	100
Shale and lime.....	29
Niagara.....	196
White lime.....	15
Shale.....	40
Clinton.....	20
Red Medina.....	32
Grey shale.....	51
White Medina.....	14
Red shale.....	5
Total depth.....	502

Gas at 484 and 493 feet.
Water at 80 and 115 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 14, con. I, W.S.C.R., Seneca tp.
Completed September 9, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	80
Shale	58
Niagara	210
Shale	57
Clinton	32
Red Medina	41
Shale	35
White Medina	12
Red shale	3

Total depth..... 528
Gas at 425 and 519 feet.
Water at 70 and 138 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 3, con. II, W.S.C.R., Seneca tp.
Completed July 4, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	73
Shale	52
Niagara	210
Grey shale	25
Shale	27
Clinton	27
Red Medina	41
Shale	47
White Medina	9
Red shale	4

Total depth..... 515
Gas at 503 feet.
Water at 76 and 140 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 14, con. I, W.S.C.R., Seneca tp.
Completed October 2, 1930.
Open flow: 30,600 cu. ft.
Rock pressure: 134 lbs.

Formation	Thickness, ft.
Surface	82
Shale	54
Niagara	205
Guelph	35
Shale	39
Clinton	35
Red Medina	42
Shale	34
White Medina	10
Red shale	49

Total depth..... 585
Gas at 425 and 534 feet.
Water at 76 and 140 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 10, con. III, Seneca tp.
Completed June 23, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	80
Lime and shale	64
Niagara	230
Shale	50
Clinton	24
Red Medina	44
Shale	58
White Medina	10
Red shale	51

Total depth..... 611
Gas at 429, 552, and 557 feet.
Water at 76 and 95 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 12, con. V, E.S.C.R., Seneca tp.
Completed July 8, 1930.
Open flow: 50,000 cu. ft.
Rock pressure: 95 lbs.

Formation	Thickness, ft.
Surface	42
Lime and shale	32
Niagara	233
Shale	35
Clinton	21
Red Medina	43
Shale	55
White Medina	10
Red shale	52

Total depth..... 523
Gas at 349, 370, 380, and 468 feet.
Water at 42 and 45 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 13, con. I, W.S.C.R., Seneca tp.
Completed May 30, 1930.
Open flow: 73,500 cu. ft.

Formation	Thickness, ft.
Surface	84
Grey shale	51
Niagara	204
Guelph	42
Shale	35
Clinton	25
Red Medina	40
Shale	52
White Medina	10
Red shale	46

Total depth..... 589
Gas at 436 and 539 to 543 feet.
Water at 190 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 11, con. V, Seneca tp.
Completed August 2, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	40
Shale	16
Niagara	224
Shale	40
Clinton	24
Red Medina	42
Shale	60
White Medina	10
Red shale	5

Total depth..... 461
Gas at 361 and 452 feet.
Water at 40 and 50 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 15, con. I, Seneca tp.
Completed May 29, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	44
Lime and shale	186
Niagara	230
Shale	54
Clinton	26
Red Medina	42
Shale	56
White Medina	10
Red shale	2

Total depth..... 650
Gas at 517 and 555 feet.
Water at 43 and 60 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 8, con. I, E.S.C.R., Seneca tp.

Completed May 6, 1930.

Open flow: 21,000 cu. ft.

Rock pressure: 126 lbs.

Formation	Thickness, ft.
Surface.....	48
Lime and shale.....	118
Niagara.....	228
Shale.....	52
Clinton.....	24
Red Medina.....	41
Shale.....	60
White Medina.....	10
Red shale.....	44
Total depth.....	625

Gas at 486 and 576 feet.

Water at 48 and 55 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 13, con. II, W.S.C.R., Seneca tp.

Completed May 3, 1930.

Open flow: 12,000 cu. ft.

Formation	Thickness, ft.
Surface.....	77
Shale.....	56
Niagara.....	206
Guelph.....	40
Shale.....	53
Clinton.....	26
Red Medina.....	40
Shale.....	46
White Medina.....	10
Red shale.....	5
Total depth.....	559

Gas at 447 and 449 feet.

Water at 81 and 135 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 13, con. I, W.S.C.R., Seneca tp.

Completed April 9, 1930.

Open flow: 75,500 cu. ft.

Rock pressure: 120 lbs.

Formation	Thickness, ft.
Surface.....	85
Lime and shale.....	45
Niagara.....	205
Guelph lime.....	40
Shale.....	41
Clinton.....	25
Red Medina.....	40
Grey shale.....	55
White Medina.....	10
Red shale.....	50
Total depth.....	596

Gas at 430, 457, and 541 feet.

Water at 90 and 130 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 6, con. II, Seneca tp.

Completed April 5, 1930.

Open flow: 28,800 cu. ft.

Rock pressure: 110 lbs.

Formation	Thickness, ft.
Surface.....	41
Lime and shale.....	100
Niagara.....	230
Shale.....	51
Clinton.....	25
Red Medina.....	43
Grey shale.....	60
White Medina.....	10
Red shale.....	50
Total depth.....	610

Gas at 442, 467, and 556 feet.

Water at 40 and 90 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Nelles tract, W.S.C.R., Seneca tp.

Completed March 6, 1930.

Open flow: 18,000 cu. ft.

Rock pressure: 110 lbs.

Formation	Thickness, ft.
Surface.....	64
Lime and shale.....	95
Niagara.....	210
Guelph and lime.....	28
Shale.....	37
Clinton.....	23
Red Medina.....	41
Shale.....	60
White Medina.....	12
Red shale.....	50
Total depth.....	620

Gas at 566 feet.

Water at 82 and 165 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 7, con. I, Seneca tp.

Completed March 15, 1930.

Open flow: 38,700 cu. ft.

Rock pressure: 100 lbs.

Formation	Thickness, ft.
Surface.....	54
Lime and shale.....	118
Niagara.....	228
Shale.....	47
Clinton.....	25
Red Medina.....	43
Shale.....	60
White Medina.....	10
Red shale.....	5
Total depth.....	590

Gas at 480 and 484 feet.

Water at 53 and 58 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 3, Nelles tract, south of and fronting on
Stoney Creek Road, Seneca tp.

Completed January 13, 1930.

Dry hole.

Formation	Thickness, ft.
Surface.....	89
Shale.....	105
Niagara.....	206
Guelph and lime.....	28
Shale.....	38
Clinton.....	27
Red Medina.....	41
Grey shale.....	51
White Medina.....	9
Red shale.....	4
Total depth.....	598

Total depth..... 598

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 9, con. I, Seneca tp.

Completed February 18, 1930.

Dry hole.

Formation	Thickness, ft.
Surface.....	32
Lime and shale.....	163
Niagara.....	225
Shale.....	59
Clinton.....	25
Red Medina.....	41
Shale.....	60
White Medina.....	10
Red shale.....	25
Total depth.....	640

Total depth..... 640

DOMINION NATURAL GAS CO., DUNNVILLE
 Lot 9, con. II, Sherbrooke tp.
 Completed September 3, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface.....	71
Lime and shale.....	146
Brown lime.....	218
Niagara.....	230
Shale.....	57
Clinton.....	37
Red Medina.....	40
Grey shale.....	60
White Medina.....	10
Red shale.....	3
Total depth.....	872

Gas at 724 and 863 feet.
 Water at 71 and 80 feet.

DOMINION NATURAL GAS CO., DUNNVILLE
 Lot 6, con. I, Sherbrooke tp.

Completed December 10, 1930.
 Open flow: 27,000 cu. ft.
 Rock pressure: 370 lbs.

Formation	Thickness, ft.
Surface.....	39
Flint.....	46
Lime and shale.....	374
Niagara.....	222
Shale.....	57
Clinton.....	31
Red Medina.....	42
Grey shale.....	57
White Medina.....	14
Red shale.....	52
Total depth.....	934

Gas at 752 and 875 feet.
 Water at 38, 80, and 670 feet.

DOMINION NATURAL GAS CO., DUNNVILLE
 Lot 8, con. III, Sherbrooke tp.

Completed September 25, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface.....	167
Lime and shale.....	258
Niagara.....	222
Shale.....	57
Clinton.....	36
Red Medina.....	44
Grey shale.....	55
White Medina.....	10
Red shale.....	1
Total depth.....	850

Water at 165 and 175 feet.

DOMINION NATURAL GAS CO., DUNNVILLE
 Lot 6, con. I, Sherbrooke tp.

Completed November 15, 1930.
 Open flow: 58,000 cu. ft.
 Rock pressure: 400 lbs.

Formation	Thickness, ft.
Surface.....	44
Flint.....	46
Lime and shale.....	373
Niagara.....	222
Shale.....	59
Clinton.....	31
Red Medina.....	41
Grey shale.....	56
White Medina.....	15
Red shale.....	52
Total depth.....	939

Gas at 775, 816, and 887 feet.
 Water at 43 feet.

UNION NATURAL GAS CO., CHATHAM
 Lot 5, con. XII, Walpole tp.

Completed December 26, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface.....	17
Lime and slate.....	30
Sharp sand.....	57
Lime and gypsum.....	333
Niagara.....	215
White lime and slate.....	40
Black shale.....	39
Clinton.....	36
Red Medina.....	30
Grey shale.....	50
White Medina.....	5
Red shale.....	19
Total depth.....	871

Gas at 747 feet.
 Fresh water at 40 feet.

RAINHAM GAS AND OIL CO., FISHERVILLE
 Lot 24, con. III, Walpole tp.

Completed October 29, 1930.
 Open flow: 36,000 cu. ft.

Formation	Thickness, ft.
Surface.....	8
Flint.....	132
Lime and shale.....	369
Niagara.....	247
Casing shale.....	44
Clinton.....	33
Red Medina sand.....	20
Red Medina shale.....	17
Grey shale.....	67
White Medina.....	16
Red shale.....	8
Total depth.....	961

Gas at 842 feet.
 Fresh water at 78 feet.

DOMINION NATURAL GAS CO., DUNNVILLE
 Lot 4, con. II, Walpole tp.

Completed November 26, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface.....	22
Flint.....	158
Lime and shale.....	355
Niagara.....	291
Grey shale.....	39
Clinton.....	26
Red Medina.....	45
Blue shale.....	66
White Medina.....	10
Red shale.....	3
Total depth.....	1,015

Total depth..... 1,015

DOMINION NATURAL GAS CO., DUNNVILLE
 Lot 9, con. IV, Walpole tp.

Completed November 29, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface.....	43
Flint.....	90
Lime and shale.....	385
Niagara.....	262
Grey shale.....	55
Clinton.....	28
Red Medina.....	38
Blue shale.....	55
White Medina.....	15
Red shale.....	1
Total depth.....	972

Water at 83 and 542 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 8, con. II, Walpole tp.

Completed October 15, 1930.

Open flow: 23,000 cu. ft.

Rock pressure: 207 lbs.

Formation	Thickness, ft.
Surface	26
Flint	164
Lime and shale	345
Niagara	255
Grey shale	86
Clinton	25
Red Medina	40
Blue shale	65
White Medina	15
Red shale	50

Total depth..... 1,071

Gas at 896, 919, and 1,019 feet.

Water at 102 and 585 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 10, con. IV, Walpole tp.

Completed October 24, 1930.

Open flow: 203,000 cu. ft.

Rock pressure: 462 lbs.

Formation	Thickness, ft.
Surface	28
Flint	95
Lime and shale	389
Niagara	263
Grey shale	52
Clinton	28
Red Medina	41
Blue shale	62
White Medina	12
Red shale	5

Total depth..... 975

Gas at 842, 861 to 867, and 966 feet.

Water at 73 and 568 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 13, con. III, Walpole tp.

Completed September 19, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	22
Flint	118
Lime and shale	389
Niagara	275
Shale	53
Clinton	26
Red Medina	45
Shale	55
White Medina	15
Red shale	6

Total depth..... 1,004

Water at 55, 78, and 560 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 3, con. I, Walpole tp.

Completed October 14, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	26
Flint	158
Lime and shale	354
Niagara	317
Grey shale	36
Clinton	26
Red Medina	45
Blue shale	68
White Medina	10
Red shale	3

Total depth..... 1,043

Water at 90 and 550 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 23, con. VIII, Walpole tp.

Completed August 25, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	25
Flint	70
Lime and shale	385
Niagara	250
Grey shale	37
Clinton	25
Red Medina	35
Blue shale	65
White Medina	10
Red shale	4

Total depth..... 906

Water at 50 and 510 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 3, con. I, Walpole tp.

Completed September 8, 1930.

Open flow: 160,000 cu. ft.

Rock pressure: 429 lbs.

Formation	Thickness, ft.
Surface	24
Flint	155
Lime and shale	361
Niagara	313
Grey shale	34
Clinton	25
Red Medina	47
Blue shale	68
White Medina	12
Red shale	60

Total depth..... 1,099

Gas at 907, 922 to 927, and 1,033 feet.

Water at 93 and 600 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 16, con. III, Walpole tp.

Completed August 2, 1930.

Open flow: 56,000 cu. ft.

Rock pressure: 276 lbs.

Formation	Thickness, ft.
Surface	19
Flint	130
Lime and shale	375
Niagara	257
Grey shale	57
Clinton	29
Red Medina	40
Blue shale	58
White Medina	14
Red shale	58

Total depth..... 1,037

Gas at 853, 885, and 975 feet.

Water at 86 and 530 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 15, con. I, Walpole tp.

Completed September 1, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	47
Flint	113
Lime and shale	365
Niagara	230
Grey shale	97
Clinton	27
Red Medina	40
Blue shale	60
White Medina	15
Red shale	5

Total depth..... 999

Water at 65 and 565 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 22, con. II, Walpole tp.

Completed July 22, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	14
Flint	11
Lime and shale	405
Niagara	230
Grey shale	90
Clinton	25
Red Medina	35
Blue shale	60
White Medina	15
Red shale	5

Total depth..... 990

Water at 48 and 542 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 22, con. VII, Walpole tp.

Completed June 12, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	15
Flint	73
Lime and shale	390
Niagara	250
Grey shale	38
Clinton	27
Red Medina	35
Blue shale	62
White Medina	13
Red shale	5

Total depth..... 908

Water at 80 and 500 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 3, con. II, Walpole tp.

Completed July 28, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	31
Flint	156
Lime and shale	353
Niagara	307
Grey shale	33
Clinton	26
Red Medina	45
Blue shale	65
White Medina	10
Red shale	2

Total depth..... 1,028

Water at 50, 115, and 548 feet.

DOMINION NATURAL GAS CO., SELKIRK

Lot 23, con. III, Walpole tp.

Completed June 25, 1930.

Open flow: 15,000 cu. ft.

Rock pressure: 300 lbs.

Formation	Thickness, ft.
Surface	23
Flint	90
Lime and shale	382
Niagara	230
Grey shale	88
Clinton	24
Red Medina	38
Blue shale	55
White Medina	15
Red shale	4

Total depth..... 949

Gas at 828 feet.

Water at 60 and 510 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 17, con. III, Walpole tp.

Completed June 23, 1930.

Open flow: 25,000 cu. ft.

Rock pressure: 318 lbs.

Formation	Thickness, ft.
Surface	18
Flint	132
Lime and shale	368
Niagara	266
Grey shale	55
Clinton	25
Red Medina	40
Blue shale	60
White Medina	16
Red shale	5

Total depth..... 985

Gas at 864 and 888 feet.

Water at 43 and 540 feet.

DOMINION NATURAL GAS CO., SELKIRK

Lot 17, con. III, Walpole tp.

Completed May 20, 1930.

Open flow: 42,000 cu. ft.

Rock pressure: 273 lbs.

Formation	Thickness, ft.
Surface	18
Flint	130
Lime and shale	367
Niagara	272
Grey shale	48
Clinton	25
Red Medina	45
Blue shale	60
White Medina	15
Red shale	60

Total depth..... 1,040

Gas at 880 and 978 feet.

Water at 52 and 528 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 22, con. VIII, Walpole tp.

Completed July 17, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	11
Flint	78
Lime and shale	392
Niagara	250
Grey shale	40
Clinton	25
Red Medina	35
Blue shale	62
White Medina	12
Red shale	3

Total depth..... 908

Water at 60 and 486 feet.

DOMINION NATURAL GAS CO., SELKIRK.

Lot 3, con. II, Walpole tp.

Completed June 12, 1930.

Open flow: 82,000 cu. ft.

Rock pressure: 322 lbs.

Formation	Thickness, ft.
Surface	22
Flint	158
Lime and shale	355
Niagara	312
Grey shale	33
Clinton	24
Red Medina	45
Blue shale	64
White Medina	10
Red shale	2

Total depth..... 1,025

Gas at 883 to 904 feet and 924 feet.

Water at 62, 110, and 580 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 22, con. VIII, Walpole tp.

Completed May 5, 1930.

Open flow: 41,000 cu. ft.

Rock pressure: 423 lbs.

Formation	Thickness, ft.
Surface.....	18
Flint.....	67
Lime and shale.....	390
Niagara.....	250
Grey shale.....	38
Clinton.....	25
Red Medina.....	35
Blue shale.....	65
White Medina.....	10
Red shale.....	59

Total depth..... 957

Gas at 894 to 898 feet.

Water at 50 and 490 feet.

DOMINION NATURAL GAS CO., SELKIRK

Lot 23, con. III, Walpole tp.

Completed May 22, 1930.

Open flow: 113,000 cu. ft.

Rock pressure: 408 lbs.

Formation	Thickness, ft.
Surface.....	13
Flint.....	92
Lime and shale.....	385
Niagara.....	230
Grey shale.....	103
Clinton.....	29
Red Medina.....	38
Blue shale.....	57
White Medina.....	14
Red shale.....	5

Total depth..... 966

Gas at 826 and 860 feet.

Water at 65 and 510 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 23, con. III, Walpole tp.

Completed April 18, 1930.

Open flow: 221,000 cu. ft.

Rock pressure: 347 lbs.

Formation	Thickness, ft.
Surface.....	22
Flint.....	85
Lime and shale.....	392
Niagara.....	230
Grey shale.....	99
Clinton.....	25
Red Medina.....	38
Blue shale.....	55
White Medina.....	15
Red shale.....	4

Total depth..... 965

Gas at 831 to 845 feet.

Water at 65 and 518 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 2, con. I, Walpole tp.

Completed May 1, 1930.

Open flow: 16,000 cu. ft.

Rock pressure: 452 lbs.

Formation	Thickness, ft.
Surface.....	28
Flint.....	152
Lime and shale.....	360
Niagara.....	323
Grey shale.....	40
Clinton.....	25
Red Medina.....	40
Blue shale.....	65
White Medina.....	9
Red shale.....	2

Total depth..... 1,044

Gas at 933 feet.

Water at 69, 100, and 580 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 2, con. I, Walpole tp.

Completed March 25, 1930.

Open flow: 85,000 cu. ft.

Rock pressure: 457 lbs.

Formation	Thickness, ft.
Surface.....	25
Flint.....	155
Lime and shale.....	358
Niagara.....	328
Grey shale.....	35
Clinton.....	25
Red Medina.....	45
Blue shale.....	64
White Medina.....	10
Red shale.....	2

Total depth..... 1,047

Gas at 946 to 956 feet.

Water at 40, 60, and 560 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 22, con. I, Walpole tp.

Completed April 10, 1930.

Open flow: 18,000 cu. ft.

Rock pressure: 235 lbs.

Formation	Thickness, ft.
Surface.....	8
Flint.....	130
Lime and shale.....	370
Niagara.....	251
Grey shale.....	66
Clinton.....	26
Red Medina.....	42
Blue shale.....	58
White Medina.....	12
Red shale.....	1

Total depth..... 964

Gas at 831 and 863 feet.

Water at 60 and 530 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 19, con. IX, Walpole tp.

Completed March 15, 1930.

Dry hole.

Formation	Thickness, ft.
Surface.....	3
Flint.....	63
Lime and shale.....	380
Niagara.....	250
Grey shale.....	35
Clinton.....	45
Red Medina.....	35
Blue shale.....	55
White Medina.....	10
Red shale.....	4

Total depth..... 880

Water at 50 and 480 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.

Lot 21, con. II, Walpole tp.

Completed March 21, 1930.

Open flow: 72,000 cu. ft.

Rock pressure: 390 lbs.

Formation	Thickness, ft.
Surface.....	11
Flint.....	100
Lime and shale.....	389
Niagara.....	230
Grey shale.....	111
Clinton.....	27
Red Medina.....	35
Blue shale.....	60
White Medina.....	15
Red shale.....	5

Total depth..... 983

Gas at 844, 876, and 881 feet.

Water at 65 and 540 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
 Lot 19, con. VIII, Walpole tp.
 Completed January 28, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface	25
Flint	45
Lime and shale	390
Niagara	250
Grey shale	41
Clinton	24
Red Medina	35
Blue shale	67
White Medina	10
Red shale	2
Total depth	889

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
 Lot 20, con. III, Walpole tp.
 Completed February 20, 1930.
 Open flow: 49,000 cu. ft.
 Rock pressure: 218 lbs.

Formation	Thickness, ft.
Surface	30
Flint	70
Lime and shale	370
Niagara	240
Grey shale	95
Clinton	22
Red Medina	38
Blue shale	65
White Medina	15
Red shale	7
Total depth	952

Gas at 849 feet.
 Water at 525 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
 Lot 1, con. I, Walpole tp.
 Completed January 30, 1930.
 Open flow: 46,000 cu. ft.
 Rock pressure: 348 lbs.

Formation	Thickness, ft.
Surface	22
Flint	145
Lime and shale	360
Niagara	321
Shale	45
Clinton	25
Red Medina	44
Blue shale	65
White Medina	10
Red shale	2
Total depth	1,039

Gas at 938 feet.
 Water at 570 feet.

DOMINION NATURAL GAS CO., BUFFALO, N.Y.
 Lot 21, con. III, Walpole tp.
 Completed January 21, 1930.
 Open flow: 31,000 cu. ft.
 Rock pressure: 410 lbs.

Formation	Thickness, ft.
Surface	26
Flint	74
Lime and shale	370
Niagara	240
Grey shale	96
Clinton	25
Red Medina	35
Blue shale	65
White Medina	15
Red shale	60
Total depth	1,006

Gas at 941 feet.
 Water at 560 feet.

Kent County

OLGA GAS AND OIL CO., TORONTO
 Lot 2, con. III, Dover East tp.

Completed May 29, 1930.
 Open flow: 500,000 cu. ft.
 Rock pressure: 1,200 lbs.

Formation	Thickness, ft.
Surface	60
Soapstone	140
Lime	1,610
Niagara lime	150
Grey shale	80
Shale and Medina	100
Red shale	285
Grey shale with lime shells	105
Grey shale	100
Brown lime	167
Trenton (grey and hard)	403
Total depth	3,200

Show of gas at 2,820, 2,890, 2,927, and 3,070 to 3,080 feet.
 Salt water at 460 feet.

ACME GAS AND OIL CO., TORONTO
 Lot 2, con. IV, Dover East tp.

Completed January 11, 1930.
 Open flow: show.

Formation	Thickness, ft.
Surface	73
Hamilton shale and lime	209
Onondaga lime	153
Detroit River	665
Salina	500
Guelph and Niagara	245
Rochester	150
Clinton	
Cabot Head	30
Manitoulin	
Queenston	350
Hudson River	240
Utica brown shale	140
Collingwood black shale	17
Trenton	423
Total depth	3,195

Gas at 2,900 feet.
 Water at 1,840 feet.

ACME GAS AND OIL CO., TORONTO
 Lot 2, con. IV, Dover East tp.

Completed April 23, 1930.
 Dry hole.

Formation	Thickness, ft.
Surface	74
Soapstone	194
Limestone	177
Water sand	430
Salina	535
Guelph	340
Niagara	206
Medina shales	101
White Medina	35
Red shale	308
Hudson River shale	267
Utica shale	120
Trenton lime	393
Total depth	3,180

Water at 445 and 1,780 feet.

OLGA GAS AND OIL CO., TORONTO

Pt. lot 3, con. III, Dover East tp.

Completed December 4, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	390
Lime	640
Salina lime	345
Lime	380
Niagara lime	140
Clinton and Red Medina shale	110
White Medina	50
Red shale	245
Grey shale	250
Brown shale	200
Black shale	32
Trenton	583

Total depth..... 3,365

*Show of gas at 1,580, 1,660, 3,220, and 3,270 feet.

Water at 710 and 1,660 feet.

Salt at 1,815 feet.

OLGA GAS AND OIL CO., TORONTO

Lot 5, con. III, Dover West tp.

Completed December 10, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	240
Lime	740
Salina lime	50
Lime and gypsum	30
Lime	680
Niagara lime	205
Grey shale	40
Red Medina shale	35
Grey shale	36
White Medina	114
Big red shale	250
Grey shale	30
Lime shell	10
Grey shale	180
Grey and blue shale	100
Utica brown shale	130
Trenton	445

Total depth..... 3,315

BASIC RESOURCES, LIMITED, TORONTO

Lot 2, M.I.R., Orford tp.

Completed March 8, 1930.

Dry hole.

Formation	Thickness, ft.
Sand	8
Gravel	2
Clay	24
Stones	11
Hardpan	46
Gravel	21
Hardpan	8
Gravel and boulders	33
Sand	32
Pipe clay	10
Soap proper	18
Middle lime	12
Lower soap	22
Dark streak	9
Lower lime	106

Total depth..... 362

Oil at 293 feet.

BASIC RESOURCES, LIMITED, TORONTO

Lot 3, M.I.R., Orford tp.

Completed April 2, 1930.

Dry hole.

Formation	Thickness, ft.
Sand	5
Gravel	5
Clay	40
Gravel	80
Upper soapstone	94
Middle lime	11
Lower soapstone	23
Dark streak	7
Onondaga limestone	158
Oriskany sand	3

Total depth..... 426

BASIC RESOURCES, LIMITED, TORONTO

Lot 3, M.I.R., Orford tp.

Completed January 27, 1930.

Small oil well.

Formation	Thickness, ft.
Surface	3
Gravel	8
Clay	19
Gravel	25
Hardpan	7
Gravel	60
Hardpan	4
Upper soapstone	103
Middle lime	6
Lower soapstone	25
Black lime	4
Soapstone	2
Onondaga limestone	37

Total depth..... 303

Oil at 297 and 300 feet.

BASIC RESOURCES, LIMITED, TORONTO

Lot 4, M.I.R., Orford tp.

Completed February 15, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	3
Gravel	6
Clay	22
Hardpan	90
Gravel	9
Shale	125
Black streak	4
Shale	3
Lower lime (Onondaga)	141

Total depth..... 403

Oil at 315 feet.

Oil and water at 380 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 131, T.R., Raleigh tp.

Completed August 1, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	160
Black shale	20
Soap	115
Shale and soap	77
Green lime	43
Lime sand	5
Grey lime	340
Sharp sand	110
Grey lime	163
Grey shale	5
Blue lime	312
Salt	150
Brown lime	360
Niagara lime	53

Total depth..... 1,913

Gas at 415, 1,520, and show of oil and gas at 1,630 feet.

AMERICAN ENGINEERING CO., CHATHAM

Lot 147, W. ½, S.T.R., Raleigh tp.

Completed June 24, 1930.

Rock pressure: 601 lbs.

Formation	Thickness, ft.
Drift and shale	195
Soap	70
Lime	305
Sharp sand	165
Lime	825

Total depth..... 1,560

Gas at 250, 700, 1,420, 1,490, 1,527, 1,538, 1,550, 1,555, and 1,560 feet.

Water at 195, 615, and 695 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 144, T.R., Raleigh tp.
Completed November 18, 1930.
Dry hole.

Formation	Thickness, ft.
Surface.....	182
Soap.....	92
Onondaga and Detroit River hard lime.....	136
Grey lime.....	170
Sharp lime.....	250
Brown lime.....	265
Slate and lime.....	100
Hard grey lime.....	128
Slate and lime.....	152
Grey lime.....	194

Total depth..... 1,669
Show of gas at 200 and 310 feet.
Water at 200, 310, 1,600, and 1,630 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 16, con. XV., Raleigh tp.
Completed October 24, 1930.

Formation	Thickness, ft.
Surface.....	185
Soap.....	30
Black shale.....	10
Soap.....	34
Onondaga and Detroit River limestone (brown).....	301
Sharp lime.....	235
Brown and grey lime.....	190
Grey lime and gypsum.....	10
Grey and brown lime.....	120
Blue shale.....	15
Blue and brown lime.....	311

Total depth..... 1,441
Gas at 950, 1,185, 1,414, and 1,425 feet.
Water at 185, 425, and 790 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 144, T.R., Raleigh tp.
Completed February 25, 1930.
Dry hole.

Formation	Thickness, ft.
Surface.....	181
Soap and shells.....	105
Onondaga and Detroit River brown lime.....	324
Brown and grey sharp lime.....	215
Brown lime.....	259
Lime and gypsum.....	21
Blue and brown lime.....	490

Total depth..... 1,595
Show of gas at 320, 1,430, and 1,569 feet.
Water at 320, 730, 815, and 1,595 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 144, T.R., Raleigh tp.
Completed February 7, 1930.

Formation	Thickness, ft.
Surface.....	195
Soap.....	30
Black shale.....	10
Soap.....	38
Onondaga and Detroit River brown lime.....	322
Brown and grey sharp lime.....	225
Brown lime.....	195
Lime and gypsum.....	70
Blue and brown lime.....	450
Grey lime.....	210

Total depth..... 1,745
Gas at 1,538 feet.
Show of oil at 440 feet.
Water at 305 and 1,740 to 1,745 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 146, T.R., Raleigh tp.
Completed March 10, 1930.

Formation	Thickness, ft.
Surface.....	195
Upper soap.....	60
Middle lime.....	3
Lower soap.....	14
Onondaga and Detroit River brown lime.....	298
Brown and grey sharp lime.....	195
Brown lime.....	215
Lime and gypsum.....	25
Blue and brown lime.....	560

Total depth..... 1,565
Gas at 1,410, 1,420, 1,480 to 1,485, 1,520, 1,528, 1,535,
1,541, and 1,555 feet.
Water at 305 and 720 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 15, con. XIV, Raleigh tp.
Completed May 17, 1930.
Dry hole.

Formation	Thickness, ft.
Surface.....	175
Soap.....	85
Onondaga and Detroit River grey and brown lime.....	310
Brown and grey sharp lime.....	185
Brown lime.....	230
Lime and gypsum.....	15
Blue and brown lime.....	290
Blue shale and brown lime.....	125
Brown and grey lime.....	270
Grey lime.....	175
Rochester blue shale.....	30
Clinton dolomite.....	7
Ca'ot Head Red shale.....	13
Blue shale.....	50
Red shale.....	20
Blue shale.....	25
Manitoulin blue shale and lime.....	50
Queenston red shale.....	10

Total depth..... 2,065
Gas at 1,215 to 1,220 feet.
Show of oil at 300 feet and 1,567 to 1,572 feet.
Water at 425, 1,740, 1,775, and 1,790 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 145, T.R., Raleigh tp.
Completed April 18, 1930.

Formation	Thickness, ft.
Surface.....	198
Soap.....	75
Onondaga and Detroit River brown lime.....	307
Grey and brown sharp lime.....	165
Hard brown lime.....	803
Grey lime.....	10

Total depth..... 1,558
Gas at 1,430, 1,493, 1,533, 1,538, and 1,544 feet.
Water at 198, 410, 675, and 1,573 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 16, con. XIV, Raleigh tp.
Completed June 12, 1930.

Formation	Thickness, ft.
Surface.....	177
Soap.....	83
Onondaga and Detroit River brown lime.....	330
Brown and grey sharp lime.....	230
Brown lime.....	195
Lime and gypsum.....	95
Hard grey lime.....	165
Grey lime and slate.....	160
Hard brown lime.....	283
White lime (bottom of Niagara).....	157

Total depth..... 1,875
Oil at 490 feet.
Water at 295, 305, 420, 490, 720, 770, 1,630, 1,795,
1,810, and 1,825 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 14, con. XV, Raleigh tp.

Completed July 3, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	180
Upper soap	71
Middle lime	4
Lower soap	22
Onondaga and Detroit River brown lime	273
Brown and grey sharp lime	130
Brown lime	265
Lime and gypsum	15
Blue and brown lime	720
Grey lime	75

Total depth..... 1,755

Water at 650, 1,730, and 1,755 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 15, con. XV, Raleigh tp.

Completed August 12, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	190
Soap	82
Onondaga and Detroit River brown lime	298
Brown and grey sharp lime	250
Brown lime	210
Blue and brown lime	675
Grey lime	81

Total depth..... 1,786

Gas at 306 and 1,350 feet.

Water at 306, 425, 820, 1,640, 1,760, and 1,786 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 147, T.R., Raleigh tp.

Completed July 22, 1930.

Formation	Thickness, ft.
Surface	190
Soap	75
Onondaga and Detroit River brown lime	345
Brown and grey sharp lime	136
Hard grey lime	803
Grey and brown lime	25

Total depth..... 1,574

Gas at 1,425, 1,495, 1,500, 1,534, 1,538, 1,542, 1,550,
1,560, 1,565, and 1,570 feet.

Water at 314, 675, and 690 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 147, T.R., Raleigh tp.

Completed August 29, 1930.

Formation	Thickness, ft.
Surface	223
Soap	46
Onondaga and Detroit River brown lime	311
Brown and grey sharp lime	170
Brown lime	280
Lime and gypsum	76
Grey and brown lime	474

Total depth..... 1,580

Gas at 1,501 and 1,543 feet.

Water at 570 and 770 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 142, T.R., Raleigh tp.

Completed September 23, 1930.

Formation	Thickness, ft.
Surface	180
Soap	78
Onondaga and Detroit River:	
Grey lime	72
Brown lime	220
Brown and grey sharp lime	245
Brown lime	190
Lime and gypsum	15
Blue and brown lime	525
Grey lime	35

Total depth..... 1,560

Gas at 1,220, 1,235, 1,400, 1,405 to 1,430, 1,475, 1,532,
1,547, 1,549, 1,552, and 1,555 feet.

Water at 180, 425, and 525 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 146, T.R., Raleigh tp.

Completed October 9, 1930.

Formation	Thickness, ft.
Surface	207
Soap	63
Onondaga and Detroit River lime	230
Brown and grey sharp lime	280
Hard grey and brown lime	543
Slate and lime	87
Blue and brown lime	115
Grey lime	45

Total depth..... 1,570

Gas at 183, 1,495, 1,530 to 1,542, 1,547, and 1,557 feet.
Water at 290, 700, and 760 feet.

SMITH OIL AND GAS SYNDICATE, WINDSOR

S.E. pt. gore A, con. 11, Romney tp.

Completed November 11, 1929.

Open flow: 300,000 cu. ft.

Rock pressure: 195 lbs.

Formation	Thickness, ft.
Surface	148
Hardpan	2
Top rock	13
Grey lime	277
Sharp sand	145
Grey lime	170
Dark lime	20
Grey lime and gypsum	45
Grey lime	340
Brown lime	15
Grey lime	125
White lime	10

Total depth..... 1,310

Gas at 1,171, 1,210, and 1,297 feet.

Water at 150, 615, and 760 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 178, T.R., Romney tp.

Completed May 14, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	170
Gravel and shale	10
Soap	21
Little lime	30
Soap	19
Big lime	20
Grey lime	15
Black lime	20
Grey lime	310
Grit or sharp sand	50
White lime	25
Grey lime	80
Gypsum	1
Grey lime	81
Blue lime	73
Grey lime	100
Broken lime and shale	150
Grey lime	40
Blue lime	95
Grey lime	15
White sand	24

Total depth..... 1,349

Gas at 1,203 feet.

Water at 180, 580, 675, 1,310, and 1,330 to 1,349 feet.

SMITH OIL AND GAS SYNDICATE, WINDSOR

S.E. pt. gore A, con. II, Romney tp.

Completed July 11, 1930.

Open flow: 150,000 cu. ft.

Rock pressure: 200 lbs.

Formation	Thickness, ft.
Surface (clay)	150
Top rock	8
Grey lime	200
Sharp sand	145
Lime	237
Gypsum and lime	20
Dark lime	415
Light brown lime	10
Grey lime	20
Brown lime	15
Grey lime	25
Brown lime	30
Grey lime	25
White lime	11

Total depth..... 1,311

Gas at 1,183 and 1,215 feet.

Water at 158, 260, 624, 685, and 1,311 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 185, T.R., Romney tp.

Completed October 21, 1930.

Open flow: 139,000 cu. ft.

Rock pressure: 150 lbs.

Formation	Thickness, ft.
Clay	142
Gravel	10
Big lime	158
Brown lime	115
Grey lime	50
Sharp sand	175
Grey lime	300
Dark-grey lime	340
Light water sand	5

Total depth..... 1,295

Gas at 1,128, 1,200, and 1,227 feet.

Water at 310, 500, and 1,295 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 187, T.R., Romney tp.

Completed December 1, 1930.

Open flow: 67,000 cu. ft.

Rock pressure: 162 lbs.

Formation	Thickness, ft.
Surface	167
Dark-grey lime	353
Sharp sand	170
Dark-grey lime	610
Light-grey lime	75
Water sand	4

Total depth..... 1,379

Gas at 1,175 and 1,300 feet.

Water at 240 and 690 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 177, T.R., Tilbury East tp.

Completed January 2, 1930.

Rock pressure: 200 lbs.

Formation	Thickness, ft.
Clay	179
Soap	20
Black shale	15
Soap	20
Black shale	10
Soap	16
Light-grey lime	300
Grey lime	15
Sharp sand	135
Light-grey lime	240
Brown lime	215
Dark-grey lime	201

Total depth..... 1,366

Gas at 1,355 feet.

Water at 560 and 715 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 173, T.R., Tilbury East tp.

Completed February 25, 1930.

Open flow: 221,000 cu. ft.

Rock pressure: 225 lbs.

Formation	Thickness, ft.
Clay	180
Quicksand and gravel	7
Soap	35
Dark lime	20
Soap and shale	21
Light-grey lime	262
Brown lime	293
Light-grey lime	87
Blue lime	50
Light-brown lime	133
Blue lime	102
Light-grey lime	15
Dark-grey lime	127

Total depth..... 1,332

Gas at 1,326 feet.

Water at 675 feet.

ACME GAS AND OIL CO., TORONTO

Lots 6 and 7, R.R., Zone tp.

Completed February 21, 1930.

Show of oil.

Formation	Thickness, ft.
Surface	160
Soapstone	40
Middle lime	15
Lower soapstone	24
Hard streak at 239 feet	
Lower soapstone	9
Big lime	48

Total depth..... 296

Oil at 265, 280, and 295 feet.

ACME GAS AND OIL CO., TORONTO

Lot 6 A, S.L.R., Zone tp.

Completed April 2, 1930.

Show of oil.

Formation	Thickness, ft.
Clay	30
Hardpan	90
Soapstone (hard streak at 178 and at 215 to 218 feet)	108
Middle lime	14
Lower soap	25
Dark streak	8
Lower lime	70

Total depth..... 345

Oil at 290 and 308 feet.

OLGA GAS AND OIL CO., TORONTO

Lot 12, R.R., Zone tp.

Completed June 14, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	148
Lime and soap	90
Big lime	752
Brown lime	80
Lime	280
Brown lime	120
Shale	85
Salt	155
Lime	70
Hard brown lime	200
White lime	35
Lime and shale	190
Red Medina	355
Grey shale	420
Utica black shale	115
Trenton	725
Brown lime	45
Grey lime	35
Brown lime	98
Top of Potsdam	

Total depth..... 3,998

Water at 250, 560, and 1,910 feet.

Lambton County

UNION NATURAL GAS CO., CHATHAM

Lot 18, con. I, Dawn tp.

Completed May 22, 1930.

Formation	Thickness, ft.
Surface	53
Black shale	222
Top rock	40
Upper soap	145
Middle lime	15
Lower soap	25
Onondaga and Detroit River brown lime	405
Brown and grey sharp lime	275
Brown lime	95
Lime and gypsum	5
Blue and brown lime	655
Grey lime	100
Rochester grey shale	11

Total depth..... 2,046

Gas at 1,783 feet.
Water at 573 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 19, con. I, Dawn tp.

Completed March 26, 1930.

Formation	Thickness, ft.
Surface	68
Black shale	202
Top rock	40
Top soap	125
Middle lime	18
Lower soap	32
Onondaga and Detroit River brown lime	400
Brown and grey sharp lime	255
Brown lime	80
Brown lime and gypsum	5
Brown and blue lime	793
Rochester blue shale	7

Total depth..... 2,025

Gas at 1,625, 1,740, and 1,843 feet.
Oil at 1,860 to 1,865 feet.
Water at 68, 520, and 1,745 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 19, con. I, Dawn tp.

Completed July 14, 1930.

Formation	Thickness, ft.
Surface	67
Black shale	198
Top rock	40
Upper soap	125
Middle lime	15
Lower soap	31
Onondaga and Detroit River brown lime	434
Brown and grey sharp lime	170
Brown lime	125
Lime and gypsum	50
Blue and brown lime	357
Brown lime	86
Grey lime	14

Total depth..... 1,712

Gas at 1,533, 1,612, 1,625, 1,650, 1,655, 1,659, 1,664,
1,669, 1,695, and 1,698 feet.
Water at 67, 605, and 650 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 23, con. XI, Dawn tp.

Completed December 5, 1930.

Dry hole.	Formation	Thickness, ft.
Surface		45
Upper soap		189
Middle lime		20
Lower soap		35
Onondaga and Detroit River brown lime		436
Brown and grey sharp lime		175
Brown lime		155
Lime and gypsum		100
Blue and brown lime		220
Salt and lime		215
Brown and grey lime		140
Brown and grey lime with gypsum		5
Brown and grey lime		87

Total depth..... 1,822

Show of oil at 1,730 feet.
Water at 380 and 1,745 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 18, con. I, Dawn tp.

Completed December 27, 1930.

Formation	Thickness, ft.
Surface	60
Black shale	205
Top rock	65
Upper soap	123
Middle lime	5
Lower soap	31
Onondaga and Detroit River brown lime	416
Brown and grey sharp lime	238
Brown lime	85
Lime and gypsum	145
Blue and brown lime	592
Grey lime	58
Rochester grey shale	8

Total depth..... 2,031

Gas at 1,605, 1,625, 1,635, 1,658, and 1,670 feet.
Water at 60, 545, and 1,815 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 20, con. I, Dawn tp.

Completed November 14, 1930.

Dry hole.	Formation	Thickness, ft.
Surface		62
Black shale		218
Top rock		75
Upper soap		107
Middle lime		15
Lower soap		28
Onondaga and Detroit River brown lime		395
Brown and grey sharp lime		285
Blue and brown lime		740
Grey lime		115
Rochester shale		7

Total depth..... 2,047

Show of gas at 1,660 feet.
Water at 62 and 545 feet.

UNION NATURAL GAS CO., CHATHAM

Lot 19, con. I, Dawn tp.

Completed October 4, 1930.

Formation	Thickness, ft.
Surface	66
Black shale	194
Top rock	40
Upper soap	130
Middle lime	15
Lower soap	26
Onondaga and Detroit River brown lime	404
Brown and grey sharp lime	210
Brown lime	20
Lime and gypsum	195
Blue and brown lime	418

Total depth..... 1,718

Gas at 500, 1,605, 1,623, 1,633, 1,660, 1,675, 1,680,
1,700, 1,705, 1,710, 1,713, and 1,718 feet.
Water at 66, 505, and 530 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 23, con. X, Dawn tp.

Completed October 21, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	40
Top rock	34
Upper soap	155
Middle lime	20
Lower soap	33
Onondaga and Detroit River brown lime	438
Brown and grey sharp lime	180
Brown lime	103
Lime and gypsum	142
Blue and brown lime	240
Lime and salt	215
Dark-brown and grey lime	307
Grey lime	95
Rochester shale	38
Clinton	10
Cabot Head shale	80
Manitoulin lime and shale	57
Queenston red shale	14

Total depth..... 2,201

Gas at 287 feet.
Oil at 1,745 feet.
Water at 425 and 1,772 feet.

MILLAR, HESS SYNDICATE, DETROIT, MICH.
Lot 68, Front con., Moore tp.

Completed July 21, 1930.
Dry hole.

Formation	Thickness, ft.
Blue clay	128
Sand	5
Brown shale and rock	7
Top rock	30
Brown shale	200
Middle lime	30
Lower soap	210
Lime	193

Total depth..... 803

Gas at 630 feet.
Water at 128 and 735 feet.

BRITISH PETROLEUM CO., HAMILTON
Lot 19, S. 1/2, con. X, Plympton tp.

Completed September 5, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	81
Shale	44
Upperwash lime	4
Soap and lime	204
Soap	50
Middle lime	5
Soap	55
Corniferous lime at 443 feet.	
Delaware and Onondaga	124

Total depth..... 567

Show of oil at 466 feet.

BRITISH PETROLEUM CO., HAMILTON
Lot 25, con. IX, Plympton tp.

Completed December 16, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	113
Shale with hard streaks	44
Soapstone	50
Hard limestone	2
Soapstone with streaks of lime	89
Soapstone	122
Limestone	4
Soapstone	51
Onondaga limestone	94

Total depth..... 569

Very small showing of gas at 555 feet.
Water at 63, 113, and 569 feet.

UNION NATURAL GAS CO., CHATHAM
Lot 30, con. IX, Sombra tp.

Completed August 29, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	65
Black shale	225
Top rock	20
Upper soap	160
Middle lime	15
Lower soap	25
Onondaga and Detroit River brown lime	415
Brown and grey sharp lime	265
Brown lime	80
Lime and gypsum	145
Blue and brown lime	545
Grey lime	68
Rochester grey shale	32
Clinton grey dolomite	8
Cabot Head red shale	17
Blue shale	20

Total depth..... 2,105

Gas at 1,635 and 1,790 to 1,795 feet.
Water at 610, 645, 760, and 1,815 feet.

Lincoln County

GRIMSBY NATURAL GAS CO., SMITHVILLE
Lot 8, con. II, Caistor tp.

Completed May 21, 1929.
Dry hole.

Formation	Thickness, ft.
Surface	50
Niagara	200
Guelph lime	50
Casing shale	19
Blue shale	34
Clinton	29
Red Medina	35
Grey shale	59
White Medina	14
Red shale	12

Total depth..... 502

GRIMSBY NATURAL GAS CO., SMITHVILLE
Lot 6, con. II and III, Caistor tp.

Completed October 10, 1929.
Open flow: 30,000 cu. ft.
Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface	63
Niagara	200
Guelph lime	39
Blue shale	45
Clinton	30
Red Medina	37
Grey shale	60
White Medina	15
Red shale	50

Total depth..... 539

Gas at 489 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE
Lot 7, con. III, Caistor tp.

Completed March 9, 1929.
Open flow: 35,000 cu. ft.
Rock pressure: 130 lbs.

Formation	Thickness, ft.
Surface	53
Niagara	200
Lime	50
Shale	65
Clinton	22
Red Medina	41
Grey shale	55
White Medina	15
Red shale	47

Total depth..... 548

Gas at 425 and 498 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 5, W. ½, con. III, Caistor tp.

Completed August 27, 1930.

Open flow: 14,000 cu. ft.

Rock pressure: 120 lbs.

Formation	Thickness, ft.
Surface.....	56
Niagara.....	200
Guelph lime.....	50
Shale.....	45
Clinton.....	30
Red Medina.....	37
Grey shale.....	60
White Medina.....	15
Red shale.....	50

Total depth..... 543

Gas at 381 and 441 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 8, con. III, Caistor tp.

Completed July 2, 1929.

Open flow: 45,000 cu. ft.

Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface.....	57
Niagara.....	200
Guelph lime.....	38
Shale.....	39
Clinton.....	29
Red Medina.....	35
Grey shale.....	60
White Medina.....	14
Red shale.....	51

Total depth..... 523

Gas at 458 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 6, con. I, Caistor tp.

Completed July 21, 1930.

Open flow: 100,000 cu. ft.

Rock pressure: 135 lbs.

Formation	Thickness, ft.
Surface.....	67
Niagara.....	200
Guelph lime.....	50
Shale.....	50
Clinton.....	29
Red Medina.....	35
Shale.....	56
White Medina.....	13
Red shale.....	52

Total depth..... 552

Gas at 487 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 5, con. II, Caistor tp.

Completed June 24, 1930.

Open flow: 25,000 cu. ft.

Rock pressure: 129 lbs.

Formation	Thickness, ft.
Surface.....	70
Niagara.....	200
Guelph lime.....	53
Blue shale.....	34
Clinton.....	30
Red Medina.....	39
Grey shale.....	58
White Medina.....	13
Red shale.....	37

Total depth..... 534

Gas at 499 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 6, con. III, Caistor tp.

Completed February 14, 1930.

Open flow: 58,000 cu. ft.

Rock pressure: 130 lbs.

Formation	Thickness, ft.
Surface.....	57
Niagara.....	200
Guelph lime.....	48
Blue shale.....	45
Clinton.....	31
Red Medina.....	37
Grey shale.....	60
White Medina.....	15

Total depth..... 493

Gas at 415 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 5, con. III, Caistor tp.

Completed July 25, 1930.

Open flow: 60,000 cu. ft.

Rock pressure: 130 lbs.

Formation	Thickness, ft.
Surface.....	56
Niagara.....	190
Guelph lime.....	50
Casing shale.....	12
Shale.....	30
Clinton.....	23
Red Medina.....	45
Grey shale.....	75
White Medina.....	13
Red shale.....	45

Total depth..... 539

Gas at 481 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 6, con. I, Caistor tp.

Completed August 7, 1930.

Open flow: 15,000 cu. ft.

Rock pressure: 120 lbs.

Formation	Thickness, ft.
Surface.....	72
Niagara.....	200
Guelph lime.....	57
Shale.....	50
Clinton.....	28
Red Medina.....	35
Shale.....	59
White Medina.....	12
Red shale.....	25

Total depth..... 538

Gas at 424 and 503 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 4, con. III, Caistor tp.

Completed August 9, 1930.

Open flow: 80,000 cu. ft.

Rock pressure: 120 lbs.

Formation	Thickness, ft.
Surface.....	66
Brown lime.....	20
Niagara.....	215
Blue shale.....	41
Clinton.....	35
Red Medina.....	39
Grey shale.....	59
White Medina.....	15
Red shale.....	45

Total depth..... 535

Gas at 387 and 480 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 6, con. I, Caistor tp.

Completed August 26, 1930.
Open flow: 44,000 cu. ft.
Rock pressure: 135 lbs.

Formation	Thickness, ft.
Surface.....	67
Niagara.....	200
Guelph lime.....	50
Shale.....	50
Clinton.....	31
Red Medina.....	35
Shale.....	55
White Medina.....	15
Red shale.....	48
Total depth.....	551

Gas at 370, 408, and 511 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 4, E. ½, con. III, Caistor tp.

Completed August 26, 1930.
Open flow: 48,000 cu. ft.
Rock pressure: 130 lbs.

Formation	Thickness, ft.
Surface.....	76
Niagara.....	206
Lime.....	25
Shale.....	35
Clinton.....	38
Red Medina.....	30
Shale.....	65
White Medina.....	16
Red shale.....	46
Total depth.....	537

Gas at 347, 399, and 485 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lots 1 and 2, con. I, Caistor tp.

Completed September 13, 1930.
Open flow: 34,000 cu. ft.
Rock pressure: 170 lbs.

Formation	Thickness, ft.
Surface.....	73
Brown lime.....	35
Niagara.....	210
Guelph lime.....	80
Blue shale.....	21
Clinton.....	29
Red Medina.....	38
Grey shale.....	60
White Medina.....	13
Red shale.....	45
Total depth.....	604

Gas at 461 and 549 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 6, con. II, Caistor tp.

Completed September 17, 1930.
Open flow: 48,000 cu. ft.
Rock pressure: 135 lbs.

Formation	Thickness, ft.
Surface.....	58
Niagara.....	200
Guelph lime.....	50
Shale.....	53
Clinton.....	25
Red Medina.....	35
Shale.....	56
White Medina.....	14
Red shale.....	50
Total depth.....	541

Gas at 485 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 8, con. II, Caistor tp.

Completed April 19, 1930.
Open flow: 65,000 cu. ft.
Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface.....	59
Niagara.....	210
Guelph lime.....	46
Grey shale.....	32
Blue shale.....	20
Clinton.....	30
Red Medina.....	35
Grey shale.....	46
White Medina.....	14
Red shale.....	50
Total depth.....	542

Gas at 420, 450, and 483 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 5, con. I, Caistor tp.

Completed June 9, 1930.
Open flow: 35,000 cu. ft.
Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface.....	70
Niagara.....	200
Guelph lime.....	50
Shale.....	41
Clinton.....	27
Red Medina.....	40
Shale.....	56
White Medina.....	13
Red shale.....	48
Total depth.....	545

Gas at 493 feet.

GRIMSBY NATURAL GAS CO., SMITHVILLE

Lot 6, con. I, Caistor tp.

Completed July 2, 1930.
Open flow: 125,000 cu. ft.
Rock pressure: 135 lbs.

Formation	Thickness, ft.
Surface.....	67
Niagara.....	200
Guelph lime.....	50
Shale.....	47
Clinton.....	30
Red Medina.....	35
Shale.....	58
White Medina.....	12
Red shale.....	50
Total depth.....	549

Gas at 499 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 4, con. 2, Caistor tp.

Completed October 7, 1930.
Open flow: 35,000 cu. ft.
Rock pressure: 130 lbs.

Formation	Thickness, ft.
Surface.....	78
Niagara.....	200
Lime.....	50
Shale.....	48
Clinton.....	26
Red Medina.....	38
Blue shale.....	56
White Medina.....	12
Red shale.....	40
Total depth.....	548

Gas at 412 and 501 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lots 1 and 2, con. I, Caistor tp.

Completed October 4, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	78
Brown lime	45
Shale	15
Niagara	217
Guelph lime	20
Blue shale	35
Clinton sand	33
Red Medina	38
Grey shale	60
White Medina	14
Total depth	555

GRIMSBY NATURAL GAS CO., GRIMSBY

Lot 1, con. IV, Caistor tp.

Completed October 29, 1930.

Open flow: 24,000 cu. ft.

Rock pressure: 130 lbs.

Formation	Thickness, ft.
Surface	54
Niagara	200
White lime	50
Shale	54
Clinton	26
Red Medina	37
Shale	58
White Medina	15
Red shale	54
Total depth	548

Gas at 394 and 485 feet.

GRIMSBY NATURAL GAS CO., GRIMSBY

Lots 1 and 2, con. I, Caistor tp.

Completed October 23, 1930.

Open flow: 19,000 cu. ft.

Rock pressure: 180 lbs.

Formation	Thickness, ft.
Surface	89
Brown lime	33
Niagara	209
White lime	30
Blue shale	37
Clinton	34
Red Medina	35
Grey shale	69
White Medina	14
Red shale	40
Total depth	590

Gas at 440 and 541 feet.

DOMINION NATURAL GAS CO., DUNNVILLE

Lot 9, con. I, Caistor tp.

Completed December 10, 1930.

Open flow: 71,000 cu. ft.

Rock pressure: 125 lbs.

Formation	Thickness, ft.
Surface	79
Brown shale	20
Niagara	224
Guelph	20
Blue shale	35
Clinton	40
Red Medina	35
Grey shale	58
White Medina	14
Red shale	1
Total depth	526

Gas at 383 and 400 feet.
Water at 68 and 250 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 23, con. II, Caistor tp.

Completed December 9, 1930.

Dry hole.

Formation	Thickness, ft.
Surface	72
Niagara	163
Lime and shale	50
Shale	40
Clinton	27
Red Medina	35
Blue shale	56
White Medina	13
Red shale	5
Total depth	461

Gas at 449 feet.
Water at 118 feet.

DOMINION NATURAL GAS CO., BLACKHEATH

Lot 9, con. I, Caistor tp.

Completed January 1, 1931.

Open flow: 44,800 cu. ft.

Rock pressure: 142 lbs.

Formation	Thickness, ft.
Surface	58
Shale	40
Brown lime	15
Niagara	222
Guelph	25
Blue shale	20
Clinton	35
Red Medina	36
Grey shale	56
White Medina	13
Red shale	1
Total depth	521

Gas at 398, 430, and 433 feet.
Water at 150 and 290 feet.

Manitoulin District

MANITOWANING OIL CO., MANITOULIN ISLAND

Lot 44, con. II, Assinack tp.

Completed November, 1928.

Formation	Thickness, ft.
Surface	10
Brown and grey dolomite	200
Dark-grey shale	170
Dark-grey bituminous shale	30
Light-grey dolomite	57
Total depth	467

MANITOWANING OIL CO., MANITOULIN ISLAND

Lot 4, con. XIV, Assinack tp.

Completed July 24, 1928.

Total depth of well 210 feet.

Middlesex County

A. TRELEAVEN, LONDON

Lot 16, con. 12, Metcalfe tp.

Completed August 22, 1929.

Dry hole.

Formation	Thickness, ft.
Surface	70
Sand and gravel	18
Hard pan	6
Soapstone	8
Shale	60
Top rock	25
Soapstone	140
Middle lime	32
Soapstone	5
Lime	5
Soap and lime	26
Lower lime	105
Total depth	500

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 15, con. III, Mosa tp.

Completed March 27, 1930.
Open flow: 1,048,000 cu. ft.
Rock pressure: 950 lbs.

Formation	Thickness, ft.
Surface	80
Grey shale	39
Soap and shale	136
Soap	33
Big lime	927
Salt	105
Shale break	5
Salt	55
Big lime	417
Grey shale	13
Grey lime and shale	20
Clinton	13
Pink shale	7
Clinton	13
Grey shale and lime	88
White Medina	30
Red shale	3
Total depth	1,984

Gas at 1,511 and 1,854 feet.
Water at 429, 650, and 1,630 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 14, con. III, Mosa tp.

Completed June 11, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	122
Soap and shale	190
Broken brown lime and grey shale	848
Blue lime and shale	45
Brown gypsum	5
Grey and blue gypsum	35
Broken salt and grey lime	145
Broken brown lime and grey lime	265
Dark-grey sand	30
Broken brown lime and grey lime	140
Grey shale	37
Clinton	8
Red Medina	14
Broken grey and pink shale	46
Blue shale	30
Light-grey or white Medina	28
Grey shale	12
Red shale	6
Total depth	2,006

Water at 435, 451, 1,660, 1,810 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 14, con. III, Mosa tp.

Completed August 29, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	130
Soap and shale	160
Broken brown and grey lime	140
White water sand	20
Broken brown and grey lime	405
Brown lime and gypsum	20
Broken brown and grey lime	270
Grey lime and shale	75
Salt and grey lime	165
Broken brown and grey lime	210
Grey shale	40
Broken brown and grey lime	200
Clinton	7
Red shale	5
Red Medina	13
Light sand	5
Broken pink and grey shale	60
Hard grey lime or white Medina	30
Grey lime	12
Total depth	1,967

Gas at 1,512, and 1,856 feet.
Water at 435, 1,624, 1,655 and 1,860 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 15, con. III, Mosa tp.

Completed November 6, 1930.
Dry hole.

Formation	Thickness, ft.
Clay	74
Shale and soap	207
Lime and shell	5
Grey lime	119
Brown and grey lime	470
Grey lime and gypsum	145
Broken grey and brown lime	195
Salt	155
Brown and grey lime	417
Blue lime	45
Grey and red shale	6
Grey lime and Clinton	6
Grey shale	35
Pink and grey lime	100
Big red shale	6
Total depth	1,986

Showing of gas at 1,515 feet.
Water at 75, 425, and 512 feet.

SOUTHERN ONTARIO GAS CO., MERLIN

Lot 15, con. III, Mosa tp.

Completed December 20, 1930.
Dry hole.

Formation	Thickness, ft.
Surface	80
Black shale	10
Brown lime	30
Soap	160
Big lime	365
Sharp sand	155
Broken brown and grey lime	420
Salt	175
Brown lime	235
Niagara lime	130
Clinton white water sand	33
Blue shale	47
Clinton Grimsby	6
Red shale or mud	18
Blue shale	115
White Medina	4
Big red shale	12
Total depth	1,995

Water at 430 and 1,620 feet.

Norfolk County

TILLSONBURG OIL AND GAS CO., TILLSONBURG

Lot 5, S.T.R., Middleton tp.

Completed December 30, 1930.
Dry hole.

Formation	Thickness, ft.
Sand and clay	15
Quick sand	175
Shale and clay	43
Onondaga	190
Flint and sharp sand	152
Big lime	388
Guelph and Niagara	265
Rochester shale	60
Clinton	32
Red Medina	28
Blue shale	62
Hard slate	12
Sharp sand and slate	4
Red shale	8
Total depth	1,434

Water at 245, 425, and 1,030 feet.
Small flow of salt water at 1,315 feet.

Welland County

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 16, con. X, Bertie tp.

Completed May 2, 1930.
Open flow: 30,000 cu. ft.
Rock pressure: 140 lbs.

Formation	Thickness, ft.
Surface	29
Salina	221
Guelph and Niagara	232
Rochester	65
Clinton	29
Red Medina sand	59
Red Medina shale	10
Manitoulin	40
White Medina	13
Queenston	40
Total depth	738

Gas at 585, 635, and 698 feet.
Water at 32 feet.

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 16, con. XI, Bertie tp.

Completed March 24, 1930.
Open flow: 40,000 cu. ft.
Rock pressure: 85 lbs.

Formation	Thickness, ft.
Surface	28
Salina	217
Guelph and Niagara	233
Rochester	66
Clinton	31
Red Medina sand	59
Red Medina shale	8
Manitoulin	43
White Medina	9
Queenston	56
Total depth	750

Gas at 550, 634, and 694 feet.
Water at 47 feet.

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 16, con. XI, Bertie tp.

Completed February 26, 1930.
Open flow: 23,000 cu. ft.
Rock pressure: 55 lbs.

Formation	Thickness, ft.
Surface	26
Salina	219
Guelph and Niagara	230
Rochester shale	57
Clinton	29
Red Medina sand	60
Red Medina shale	6
Manitoulin	35
White Medina	16
Queenston	54
Total depth	732

Gas at 540 and 678 feet.
Water at 38 feet.

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 16, con. XII, Bertie tp.

Completed September 26, 1930.
Open flow: 35,000 cu. ft.
Rock pressure: 120 lbs.

Formation	Thickness, ft.
Surface	38
Salina	210
Guelph and Niagara	228
Rochester	58
Clinton	33
Red Medina sand	67
Red Medina shale	15
Manitoulin	24
White Medina	15
Queenston	45
Total depth	733

Gas at 541, 570, and 687 feet.
Water at 61 feet.

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 14, con. XIII, Bertie tp.

Completed August 6, 1930.
Open flow: 23,000 cu. ft.
Rock pressure: 80 lbs.

Formation	Thickness, ft.
Surface	55
Salina	215
Guelph and Niagara	210
Rochester	63
Clinton	34
Red Medina sand	50
Red Medina shale	9
Manitoulin	38
White Medina	14
Queenston	5
Total depth	693

Gas at 550 and 590 feet.
Water at 58 feet.

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 13, con. XIII, Bertie tp.

Completed July 3, 1930.
Open flow: 35,000 cu. ft.
Rock pressure: 85 lbs.

Formation	Thickness, ft.
Surface	47
Salina	218
Guelph and Niagara	225
Rochester	54
Clinton	35
Red Medina sand	60
Red Medina shale	7
Manitoulin	49
White Medina	12
Queenston	48
Total depth	755

Gas at 553, 600, and 707 feet.
Water at 69 feet.

WELLAND COUNTY GAS SYNDICATE, STEVENSVILLE

Lot 13, con. XI, Bertie tp.

Completed June 4, 1930.
Open flow: 16,000 cu. ft.
Rock pressure: 85 lbs.

Formation	Thickness, ft.
Surface	25
Salina	231
Guelph and Niagara	229
Rochester	65
Clinton	34
Red Medina sand	44
Red Medina shale	20
Manitoulin	29
White Medina	17
Queenston	43
Total depth	737

Gas at 556, 585, and 594 feet.
Water at 33 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.
Lot 16, W. ½, con. IV, Crowland tp.
Completed October 25, 1929.
Dry hole.

Formation	Thickness, ft.
Surface.....	123
Lime and shale.....	75
Niagara.....	230
Shale.....	55
Clinton rock.....	33
Red Medina.....	56
Grey shale.....	28
White Medina.....	20
Red shale.....	1
Total depth.....	621

INDUSTRIAL NATURAL GAS CO., THOROLD
Lot 9, con. VII, Crowland tp.
Completed January, 1930.
Open flow: 14,500 cu. ft.
Rock pressure: 30 lbs.

Formation	Thickness, ft.
Surface.....	127
Salina.....	120
Guelph and Niagara.....	233
Rochester shale.....	60
Clinton.....	28
Red Medina.....	71
Manitoulin.....	25
White Medina.....	21
Queenston.....	30
Total depth.....	715

Gas at 545 and 684 feet.

W. C. PATTERSON, JAMESTOWN, N.Y.
Lot 15, con. V, Crowland tp.
Completed November 29, 1929.
Dry hole.

Formation	Thickness, ft.
Surface.....	117
Lime and shale.....	82
Niagara.....	230
Shale.....	55
Clinton rock.....	33
Red Medina.....	59
Grey shale.....	28
White Medina.....	20
Red shale.....	2
Total depth.....	626

York County
JOHN H. C. DURHAM, BOND LAKE
Lot 64, con. I, Whitchurch tp.
Completed 1926.
Dry hole.

Formation	Thickness, ft.
Surface.....	570
Hard clay.....	15
Black clay.....	15
Clay.....	10
Shaly clay.....	20
Clay.....	30
Collingwood.....	40
Trenton.....	580
Arkose.....	12
Granite.....	
Total depth.....	1,292

Water at 80, 112, and 1,145 feet.

Surface Gas

Several surface gas fields in this province have been producing gas for a number of years at Beeton, Tecumseth township; at the southern outskirts of the city of Sarnia; and in the district between the towns of Ridgetown and Blenheim, Howard and Harwich townships. Surface gas has also been observed, but not utilized extensively, north of the city of Toronto at the town of Richmond Hill; at Sherwood Park, North Toronto; in the brickyard on Greenwood Avenue, Toronto; south of Danforth Avenue at the C.N.R. crossing; in lot 30, concession II, in the northern part of Pickering township, just south of the C.N.R.-C.P.R. crossing; at St. Augustine Seminary, lot 25, concession B, Scarborough township, a few miles east of Toronto; at the city of Chatham; and in Russell county along the Ottawa river.

This surface gas is quite a different gas from that found in the sedimentary rocks. It is practically a pure methane and nitrogen, whereas the rock gases carry higher hydrocarbons than methane.¹ The surface gases carry only a trace of helium, while the rock gases carry up to 0.80 per cent. helium.² The surface gases run high in carbon dioxide, while the rock gases rarely have any, or, if they have, less than three-tenths of 1 per cent. The sample of gas from Caledon township is the outstanding exception to this. It is identical with the surface gas in all but the helium content in which it excels any of them in richness.³

¹G. R. Mickle, "The Chemical Composition of Natural Gas Found in Ontario," Ont. Dept. Mines, Vol. XXIII, pt. 1, 1914, p. 267; R. B. Harkness, Ont. Dept. Mines, Vol. XXXII, pt. 5, 1924, p. 13.

²Ont. Dept. Mines, Vol. XXXV, pt. 5, 1926, pp. 11-15.

³A recent analysis from a well near Bronte gave 1 per cent. helium in a gas from the same horizon as the gas in the eastern part of Caledon township.

This gas horizon is, however, only a hundred feet above the top of the Utica shales and may have its origin in these bituminous shales. These surface gases are, in most instances, found where there are a hundred feet or more of heavy clays over a gravel bed, which, in turn, rests on the bed rock; in almost every case, this underlying rock is a bituminous shale. This, in Kent and Lambton, is the Huron black shale, and in the district between Beeton village and Toronto and also in Russell county is the Utica shale. The Utica shale and probably the Collingwood shale are exposed between Beeton and Toronto by the deep wide trench cut by the ancient river joining the east end of Georgian bay through the central parts of Simcoe and York counties to Lake Ontario at Toronto. Judging from the depth of the surface south of Cherrywood and from the fact that the bottom of the ancient river valley at Bond lake, Whitchurch township, is found to be deep in the Collingwood shales at about sea level and within thirty feet of the top of the Trenton limestone, it is possible that an embayment in the ancient Lake Iroquois¹ or a tributary river valley might also be in the Utica. This, of course, is at best a deduction based on the fact that the river channel at Bond lake and Richmond Hill must drain into Lake Ontario and that the course of the channel would be along the Don river; but the recent work on the waterworks tunnel on the lake front at Toronto has shown that this great channel does not enter Lake Ontario between Scarborough and the Humber, although I am informed by the engineer in charge that two channels 400 feet wide, cut to a depth of 88 feet above sea level, were noted at the Don river and at Woodbine avenue. These might be a part of the delta mouth of such a river, and its main mouth might be immediately to the east of Scarborough. These channels do not reach the Utica shales, but it is possible that the main channel may. The surface gases at and near Toronto come from the interglacial gravels (Toronto formation) a hundred feet or more below the surface, with an unknown thickness of clays and till lying below and resting on the Dundas (or Utica?) shale.

The origin of this surface gas is a matter of speculation. Mickle² suggests that this is a marsh gas derived from the decomposition of vegetable matter. This may easily be the case, as Coleman³ finds in the Scarborough beds the remains of mosses and swamp plants and beetles, which are lacustrine deposits of laminated clays, including, in some places, the interglacial gravels and, in others, covering the lower boulder clay, which is, in most cases, a thin deposit resting on the bituminous Utica or Collingwood shales. The case against this is that any gas from these vegetable or animal remains must find its way down to the gravel bed and displace the water therein, while gas from these bituminous shales would, in the ordinary course of events, move upward. Of course, we have no certain knowledge that gas is generated in these black shales, but we do know that oil and gas can be and were distilled from the Collingwood shales in 1859.⁴ Evidence of sufficient heat during or since the ice age is certainly lacking, as is also the evidence that marsh gas is confined and stored, or that decomposition of vegetable matter goes on after it is buried under water and silt.

The origin of the gas in the interglacial gravels at Toronto, which may be separated from the Utica shales by three hundred feet or more, would seem to be inexplicable by the bituminous shale theory. In the Toronto area the ancient river channel previously mentioned cuts the Dundas shale at the horizon

¹A. P. Coleman, "Toronto and Vicinity," Ont. Bur. Mines, Twelfth Internat. Geol. Cong., Guide Book No. 6, 1913.

²G. R. Mickle, *op. cit.*

³A. P. Coleman, *op. cit.*

⁴W. E. Logan, Geol. Surv. Can., Rept. Prog. from Its Commencement to 1863, pp. 784, 785.

in which the gas is found in Caledon township, Peel county. This gas horizon in the Dundas shale covers the area from Georgian bay to Lake Ontario. As will be seen by reference to the table of analyses, the gases in Caledon and Scarborough are similar. Unfortunately, the helium content of the Scarborough gas was not taken, but the evidence is sufficiently strong to assign the Toronto surface gas to a seepage from the Dundas shales.

The commercial production tabulated below came from gravel beds overlying black shales. The Ridgetown field is by far the largest in the province and, so far as the writer is aware, the largest on record. The gas produced from this field is the equivalent of 12,000 tons of coal. The insert map facing page 52 shows the area underlain by black shales and indicates places where other gas fields may be found in the drift.

The following table shows the measured quantity and value of this surface gas used to date. The quantity unmeasured may easily exceed this, as it has been used in homes in these localities for thirty years and more.

GAS FROM SURFACE DRIFT SOLD IN ONTARIO

County	Field	Year	Production	Retail value at 60 cents per M cu. ft.
Kent.....	Ridgetown.....	1924-30	M cu. ft. 248,774	\$145,611
Lambton.....	Sarnia ¹	1926-29	10,632	6,379
Total.....			259,406	\$151,990

¹The life of this small pool as a commercial producer was finished in 1929. There is still considerable gas in it, but the pressure has been reduced until no more gas will enter the pipe line.

ANALYSES OF ONTARIO NATURAL GASES¹

Locality	H ₂ S	CO ₂	CH ₄	C ₂ H ₆	C ₃ H ₈	N	He(?)	Formation
Lot 7, con. I, Gosfield South tp., Essex co.....	0.30	.....	87.6	7.3	.....	4.8	0.15	Guelph.
Tilbury field, Kent co.....	.30	.....	87.3	5.5	1.4	5.5	.11	Guelph.
Tilbury field, Kent co. (purified).	trace	.....	86	10.9	(³)	3.1	(³)	Guelph.
Transmission line to Hamilton, Haldimand co.....		0.10	83.5	7.1	1.9	7.4	.31	Clinton & Medina.
Transmission line to Niagara Falls, Welland co.....			79.8	9	1.8	9.4	.24	Clinton & Medina.
Inglewood, Caledon tp., Peel co.....			86.7	.....	.....	13.3	.80	Dundas shales.
Beeton, Simcoe co.....		.90	77.9	.....	.....	21.2	.01	Surface.
Scarborough tp., York co.....		1.65	85.15	.....	.....	13.2	(³)	Surface.
Howard tp., Kent co.....			83	.....	.....	17	.03	Surface.
Sarnia, Lambton co.....		.2	95.9	1.4	.....	2.5	.03	Surface.

¹These analyses are from various reports of the Ontario Department of Mines already cited.

²The helium analyses are by R. J. Elworthy, Mines Branch, Ottawa, Bull. No. 679.

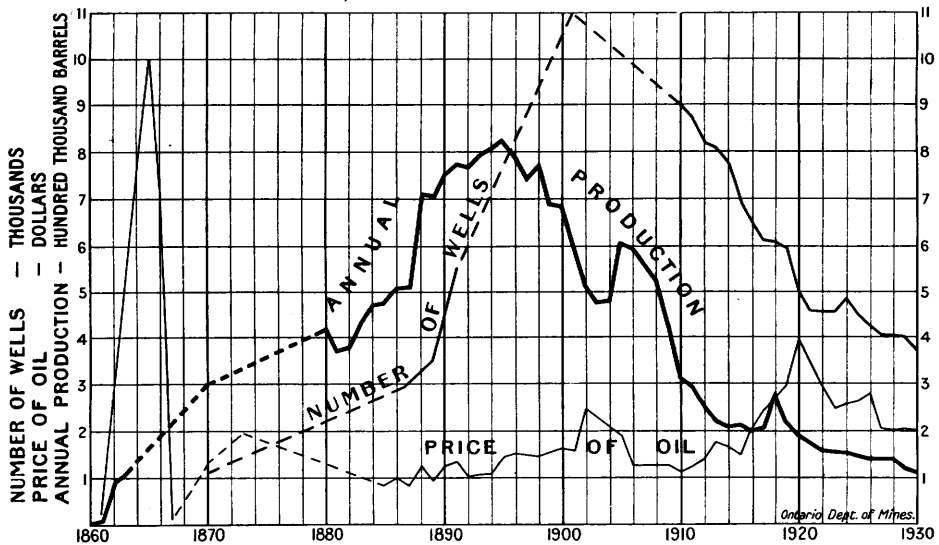
³Fraction not taken.

PETROLEUM IN 1930

By R. B. Harkness

General

The production of petroleum in Ontario has shown an annual decrease since the year 1907. In the year 1917 the production from the township of Dover and the field near the village of Thamesville brought up the rate for a few years, but no new fields of any importance have been found since that date and the decline has been uninterrupted. The production in 1930 shows a decrease of 3,823 barrels from that in 1929, the production in 1930 being 117,302



Graph of the crude oil industry in Ontario for the past seventy years.

barrels and the value \$235,746. The decline is just a little less than normal, in spite of the drop in the price of oil. The graph above shows that, if no new sources of petroleum are discovered, the petroleum industry will cease to exist within ten or twelve years. Most of the wells in the Petrolia, Oil Springs, and Bothwell fields are many years old; the casing and equipment are corroded, and when spring freshets put additional strains on the casing, many of them collapse. On account of the large percentage of unoperated wells, it is exceedingly difficult to find leaks. The price of oil has reached a level where the operators claim that there is no profit in operating wells; consequently, numbers of wells are abandoned that might otherwise be repaired. Unless some means of bringing oil to the surface for less money, or some means of increasing the flow of oil, is found, the old fields of Ontario will soon be a memory.

The production, value, and other information relating to the oil industry in Ontario will be found in the following tables:—

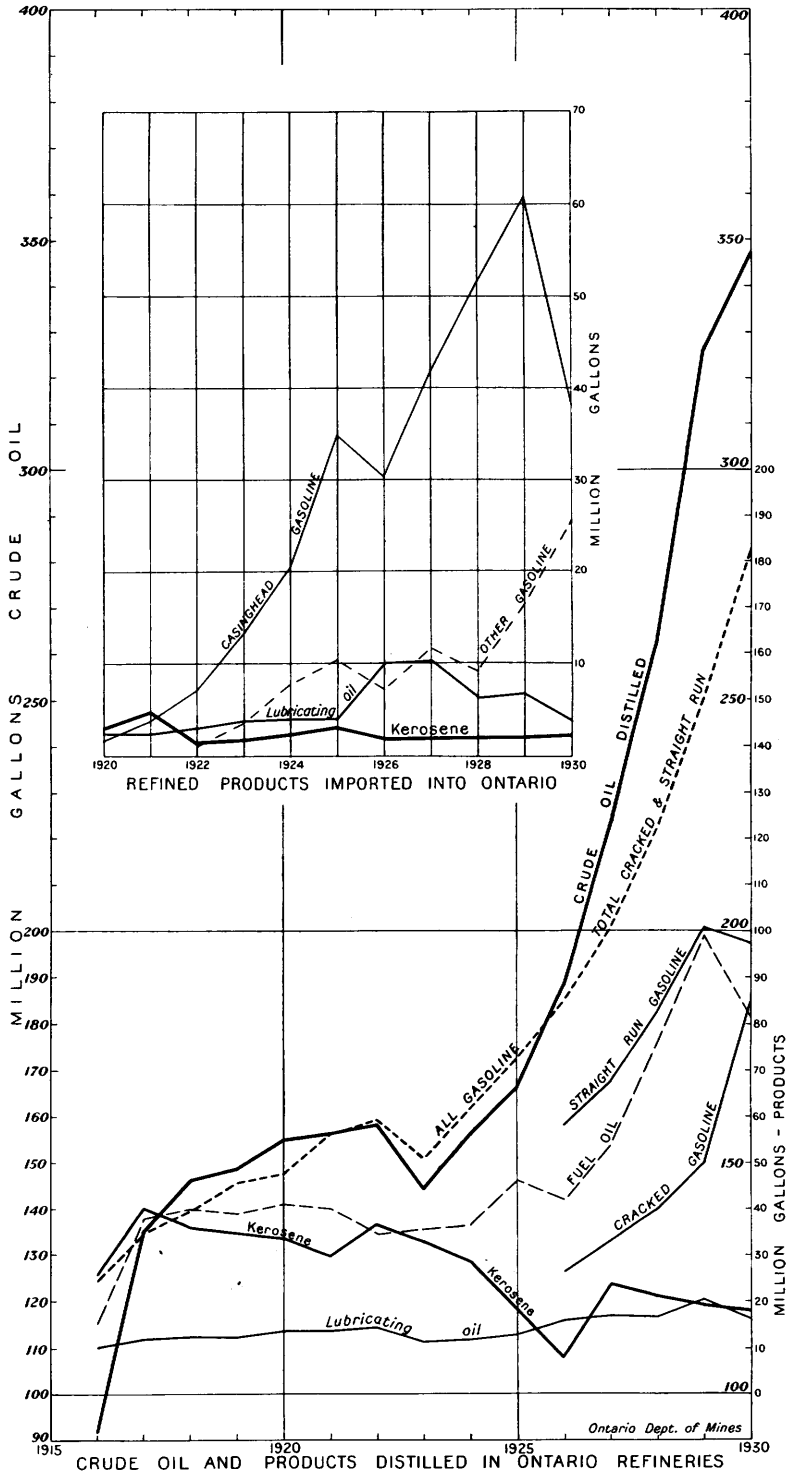
TABLE I—OIL PRODUCED IN ONTARIO BY FIELDS, 1923-1930

Field	1923	1924	1925	1926	1927	1928	1929	1930
	bbls.	bbls.	bbls.	bbls.	bbls.	bbls.	bbls.	bbls.
Petrolia and Ennis-killen	64,159	60,916	53,166	55,485	59,424	60,547	56,284	55,130
Oil Springs	39,090	41,320	39,137	38,349	37,281	35,653	30,737	29,160
Moore tp	4,790	4,483	8,195	2,438	2,112	2,148	1,230	1,576
Sarnia tp	2,387	2,068	1,905	1,890	1,590	1,221	749	1,149
Plympton tp	872	525	1,424	1,047	1,241	371	315	296
Bothwell	27,665	26,700	26,243	25,382	25,224	24,255	23,236	21,176
Tilbury East tp	1,950				60	736	138	149
Dover West tp	5,618	3,898	2,957	959	602	773	715	457
Raleigh tp	302	783	887	676	276			
Onondaga tp	237	456	261	361	210	186	243	231
Mosa tp	10,319	8,862	8,397	7,868	7,447	7,268	6,851	7,166
Thamesville	567		289	2,376	4,139	1,006	427	447
Euphemia tp			39					
Dunwich tp	594	1,351	1,001	139			148	365
Romney tp	849	2,955	1,235					
Brooke tp							52	
Total	159,399	154,317	145,136	136,971	139,606	134,164	121,125	117,302
Value	\$395,300	\$390,423	\$369,154	\$376,822	\$289,391	\$249,981	\$253,678	\$235,746
Average price	\$2.47	\$2.51	\$2.56	\$2.73	\$2.11	\$1.86	\$2.09	\$2.00

TABLE II—OIL WELLS AND THEIR PRODUCTION, 1930

Field	Wells			Wells drilled		Production	Gain or loss in 1930		Average production per well per year
	Operating	Not operating	Abandoned	Producing	Dry		Gain	Loss	
Petrolia and Ennis-killen	816	898	116			bbls. 55,130	gals. 16	bbls. 1,153	bbls. 67.19
Oil Springs	924	136	114			29,159	24	577	31.19
Moore tp	47	48	3			1,576	18	347	33.19
Sarnia tp	57	66	3			1,148	21	399	20.5
Plympton tp	13	18	2		2	296		18	22.26
Bothwell	261	34	10			21,175	30	2,061	81.4
Dover West tp	2					456	31	258	228.15
Raleigh tp		6							
Onondaga tp	11	26				230	25	12	20.34
Mosa tp	74	33	1			7,166	10	316	96.29
Thamesville	6	18	4			446	27	20	74.16
Euphemia tp		81	16						
Dunwich tp	10	89				365	19	217	36.19
Dawn tp		40							
Brooke tp		3							
Tilbury East tp	1					148	27	10	148.10
Other fields		1			6				
Total	2,222	1,497	269	0	8	117,302	3	1,309	4,079
								Net loss, 2,770	

Exploratory drilling has been dealt with in the Natural Gas section of this report. It is impossible to separate oil and gas in exploratory work, as it is not known which product will be encountered until the well is completed.



The capital invested in operating oil wells and the equipment pertaining to these is \$1,546,021. The number of men employed operating the wells shown in Table II is 125 and the wages paid to them \$94,952. This information has been supplied by the Dominion Bureau of Statistics, Ottawa.

Price of Crude Petroleum

The following prices are published through the kindness of the Imperial Oil Company, of Sarnia, and show the fluctuations in the market price of oil in Ontario during 1930. The prices follow those of the United States very closely, as the price of imported oil controls the market. The variation of the prices as between fields is due to the specific gravity of the oil; the lightest oil, or that containing most gasoline, commands the highest price.

January 1 to February 14.....	\$2.20
February 15 to April 10.....	2.05
April 11 to June 27.....	2.10
June 28 to December 31.....	1.95

The price of crude petroleum from Oil Springs is 7 cents higher than the above prices. The price of oil from the remainder of the fields, where most of the production is secured, is the same as Petrolia crude; some of the smaller fields have a slightly lower quality, and the price paid for it is a few cents less than Petrolia crude.

Petroleum Refining

Four refineries were in operation in the year 1930 and worked at full capacity.

PETROLEUM REFINERIES, 1930

Company	Location of refinery	Head office address
British American Oil Co., Ltd..	Foot of Cherry St., Toronto...	Royal Bank Bldg., Toronto.
Canadian Oil Companies, Ltd..	Petrolia.....	Excelsior Life Bldg., Toronto.
Imperial Oil Refineries, Ltd....	Sarnia.....	Sarnia.
McColl Bros.....	Foot of Cherry St., Toronto...	114 Don Esplanade, Toronto.

The total number of employees for the year was 2,449; the salaries and wages paid amounted to \$3,760,870; and the capital invested was \$26,761,273.

The graph (opposite) of the refining industry shows how petroleum refiners in Ontario in the last fifteen years have met the demand for petroleum products created by the motor vehicle. The annual increase in the production of gasoline over all other products reflects this, as well as the progress made in extracting more and more gasoline from a barrel of crude petroleum, which is most noticeable in the year 1930.

A study of the imports of refined petroleum products for ten years also emphasizes the increase in the demand for motor fuel above all other products.

Refined Petroleum Products Produced and Imported

An analysis of Tables III and IV will give an indication of the consumption of refined products in Ontario.

It is to be expected that the present industrial depression will be reflected in the petroleum refining industry. It is, however, apparent only in a reduction in the rate of increase and not in a loss. The products derived from crude oil show an actual loss in all items excepting cracked gasoline, in which there is

a decided increase. This is explained by the increased use of "cracked" gasoline, which, where necessary, has anti-knock fluids added to it. There is a drop, from 1929 to 1930, in the total recovery of products from crude.

As is to be expected, there is a corresponding decrease in the refined products imported, the greatest being in casing head or blending gasoline. There was an increase in the quantity of commercial gasoline imported, but a decrease of over twelve million gallons in the total of all grades. Fuel oil shows a slight increase. The grand total shows a decrease of over 10 per cent. from 1929 to 1930.

A glance at the values will show at once the decrease in the price of crude oil and all its products, whether manufactured in Ontario or imported. At the end of the year prices were much lower than at the beginning, and as all Canadian prices follow the price of crude oil in the United States, there is every evidence that 1931 prices will be lower still. At the time of writing (July, 1931), the price of crude oil and its products in the United States is the lowest on record in fifty years.

TABLE III—PETROLEUM REFINING OPERATIONS, 1926-1930

Schedule	Unit of measure	1926	1927	1928	1929	1930
Canadian crude produced.....	Gallons ¹ .. Value	4,693,999 \$376,822	4,886,199 \$289,391	4,695,714 \$266,346	4,239,383 \$253,678	4,105,570 \$235,746
Imported crude distilled.....	Gallons	183,347,749	218,200,977	257,929,514	321,687,678	343,372,124
	Value	\$16,940,505	\$15,900,079	\$17,617,756	\$23,341,514	\$23,273,547
Canadian crude distilled.....	Gallons	5,017,500	5,205,097	4,484,858	4,426,863	3,944,969
Percentage of total	Value	\$422,159	\$363,320	\$283,959	\$292,949	\$264,008
		2.66	2.33	1.71	1.35	1.13
PRODUCTS						
Gasoline:						
Straight run.....	Gallons	58,222,949	67,976,379	83,067,789	101,276,701	97,806,121
	Selling value	\$10,488,817	\$9,287,286	\$12,403,342	\$14,521,648	\$12,334,586
By cracking process.....	Gallons	26,659,563	32,968,207	39,724,303	49,884,248	84,496,056
	Selling value	\$4,483,731	\$4,354,802	\$5,803,963	\$7,176,654	\$11,066,369
Illuminating oil	Gallons	8,088,787	23,712,369	21,304,385	19,138,614	17,973,730
	Selling value	\$1,266,577	\$2,828,872	\$2,650,877	\$2,516,618	\$1,980,546
Lubricating oil	Gallons	16,025,753	17,040,724	16,822,292	20,452,106	16,451,717
	Selling value	\$3,540,786	\$3,237,375	\$2,813,371	\$3,707,592	\$2,756,579
Engine distillate and naphtha..	Gallons	53,869	4,045,416	3,062,787	5,845,447	4,272,751
	Selling value	\$10,774	\$510,960	\$445,526	\$811,240	\$504,206
Gas and fuel oil.....	Gallons	41,883,125	53,767,638	76,469,354	99,035,616	80,742,218
	Selling value	\$2,949,770	\$3,280,343	\$4,104,338	\$5,016,370	\$3,792,757
Tar and grease	Pounds.....	11,260,812	11,254,706	14,626,752	18,078,346	14,486,464
	Selling value	\$221,826	\$221,694	\$267,563	\$325,206	\$276,649
Paraffin wax and candles.....	Pounds.....	9,858,490	9,526,072	17,030,064	10,784,609	10,153,924
	Selling value	\$648,303	\$505,133	\$599,341	\$538,233	\$453,601
Acid and petroleum coke.....	Short tons..	45,774	44,768	49,409	67,599	56,946
	Value	\$265,481	\$282,828	\$314,794	\$396,565	\$316,180
Acid oil.....	Gallons	711,970	768,171	(²)	(²)	(²)
	Value	\$35,823	\$46,634	(²)	(²)	(²)
Still gas.....	M cu. ft.....	630,325	811,666	823,320	1,103,142	1,551,334
	Value	\$256,935	\$207,370	\$185,595	\$270,479	\$421,500
Asphalt.....	Gallons		1,060,761	1,276,098	2,664,199	6,029,624
	Selling value		\$58,919	\$65,003	\$137,714	\$285,460
Miscellaneous.....	Value	\$2,978	\$434,655	\$387,544	\$258,113	\$291,404
Total value of refined products.....		\$24,182,575	\$25,256,353	\$30,033,257	\$35,676,432	\$34,479,837
Employees.....	Average No.	2,241	1,871	1,853	2,313	2,449
	Wages	\$2,876,150	\$2,883,575	\$3,013,872	\$3,657,619	\$3,760,870
Capital invested.....		\$20,441,740	\$19,354,638	\$19,570,531	\$26,784,547	\$26,761,273

¹Gallons refer to Imperial gallons.²Included in acid coke.

TABLE IV—PETROLEUM AND REFINED PRODUCTS IMPORTED IN 1929 AND 1930¹

Import	1929		1930	
	Imperial gallons	Value	Imperial gallons	Value
CRUDE PETROLEUM:				
Petroleum, 0.790 specific gravity or heavier, for refining.....	328,662,742	\$15,857,155	323,627,779	\$12,862,300
REFINED PETROLEUM:				
For use in concentrating ores.....	3,762	\$2,406	51,132	\$24,689
Gasoline lighter than 0.725 specific gravity (casing head).....	60,813,222	6,083,445	38,787,934	3,451,969
Gasoline between 0.770 and 0.725 specific gravity.....	16,791,277	1,910,086	14,447,650	1,574,560
Gasoline higher than 0.8235 specific gravity.....			10,983,133	945,506
Gas oils, other than naphtha and gasoline, between 0.8235 and 0.775 specific gravity.....	11,736	1,188	91	13
Kerosene and illuminating oils.....	2,102,344	172,629	2,139,179	141,370
Fuel oil, 0.8235 specific gravity and heavier.....	7,317,164	447,084	9,556,454	496,559
Lubricating oils, consisting wholly or in part of petroleum, costing less than 25 cents a gallon.....	2,617,988	446,677	3,631,651	628,662
Lubricating oils, all other.....	4,009,183	1,706,904	3,018,605	1,290,951
All other oils.....	153,421	96,101	179,098	86,366
Total.....	93,820,097	\$10,866,520	82,794,927	\$8,640,645
PETROLEUM PRODUCTS:				
Axle grease..... lbs.	2,577,524	\$117,144	2,268,980	\$104,008
Vaseline, toilet and medicinal petroleum.....		153,117		114,973
Paraffin wax..... lbs.	1,554,440	64,444	1,428,383	50,759
Paraffin wax candles..... lbs.	305,700	54,474	327,221	65,153
Other petroleum products..... gals.	1,477,860	239,496	1,214,790	175,254
Total.....		\$628,675		\$510,147
Total value.....		\$27,356,350		\$22,013,092

¹These statistics are furnished through the courtesy of the Department of Customs and Excise.

Total net value of petroleum and refined products imported in 1930.....	\$22,013,092
Duty paid on the above, calculated on the existing tariff schedule.....	991,551
Sales tax at 1 per cent. on taxable items.....	225,104
Freight, approximately.....	11,000,000
Total value delivered in Ontario.....	\$34,229,747

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