

MINES

Report of the Inspector of Mines and Petroleum Technologist for the year 1939.

HONOURABLE COLONIAL SECRETARY,

I have the honour to submit, for the information of His Excellency the Governor, the following report on the work of the Mines Department for the year 1939.

THE PETROLEUM INDUSTRY.

2. Although the results for the year 1939 show that there has been a decrease in drilling operations as compared with the previous year the production of crude oil in the Colony has continued to show a most satisfactory increase and a new production record has been established. This increase production is due to the exceptionally satisfactory results which have obtained from new wells drilled the initial yields of which have been higher than usual. Low prices for oil products continued during the period under review although a slight rise took place on the outbreak of war. The prevalence of low prices, however, coupled with higher drilling and production costs due to various causes resulted in a decrease in the number of wells completed and the footage drilled. Consequent upon the outbreak of war on 3rd September, 1939, a considerable increase in the production of oil took place which increase was well maintained during the concluding months of the year. This rapid increase was made possible by opening up certain reserve wells which had been wholly or partially closed in.

On account of the increasing production further considerable extensions to the larger refining installations in this Colony have been in course of erection during the year.

3. The important work of searching for new oil bearing areas remote from existing known fields has been actively pursued and the drilling of exploration test wells in five different areas has been in progress.

4. *Production of Crude Oil*—The total production of crude oil for the year 1939 amounted to 19,741,616 barrels, which is 2,004,415 barrels of 11.3 per cent. more than the production for 1938 and is the highest yet recorded in the Colony.

The Fyzabad structure continues to maintain its supremacy as the largest producing structure in the Colony and during the year under review it contributed 52.17 per cent. of the total production as compared with 45.5 per cent. for the previous year.

5. *Drilling*.—During the year 1939—244 new wells were commenced, compared with 279 during 1938. The total number of wells commenced in the Colony to the end of 1939 is 3,228 of which 2,024 are on lands the oil rights of which are vested in the Crown and 1,204 are on private lands.

The number of feet drilled during 1939 amounted to 834,096, which represents a decrease of 71,812 feet, or 7.92 per cent. on the footage for 1938.

The depth of the deepest well completed in the Colony at the end of the year was 10,015 feet.

6. The following table shows comparatively, the number of feet drilled and the quantity of oil produced during the years 1937, 1938 and 1939:

	Number of Feet Drilled.			Production in Barrels of 35 gallons.		
	1937	1938	1939	1937	1938	1939
Crown Oil Rights ...	508,197	592,042	585,835	9,743,292	11,640,696	13,894,725
Private Oil Rights ...	403,378	313,866	249,011	5,759,697	6,096,505	5,846,891
Total ...	911,575	905,908	834,846	15,502,989	17,737,201	19,741,616

7. *Oilfield Operators*.—The number of oilfield operators during the year was 18 as compared with 16 during 1938.

8. *Persons employed*.—The average number of persons employed in the Petroleum industry during 1939 amounted to 12,321 per day as compared with 14,199 during 1938.

9. *Leases and Licences*.—During the year 15* applications for mining leases and licences were received and four Principal and four Supplemental Mining Leases and one Exploration Licence were registered. The total number of mining leases and exploration licences in force at the end of the year amounted to 90, the details of which are as follows:—

	AREA.					
	Crown.			Alienated.		
	A.	R.	P.	A.	R.	P.
33 Mining Leases ...	116,629	0	25	—	—	—
29 Mining Leases ...	—	—	—	41,116	1	11
20 Composite Mining Leases on Crown and Alienated Lands ...	17,447	3	04	24,201	0	00
8 Exploration Licences ...	212,892	3	25	—	—	—
90 Total ...	346,969	3	14	65,317	1	11

* This includes supplemental applications.

10. *Total area under lease or licence*: The total area under Crown and private leases on the 31st December, 1939, amounted to 537,330 acres (or 45.05 per cent. of the total area of Trinidad) made up as follows:—

	A.	R.	P.
Area of Crown Lands under Exploration Licence.. ..	212,892	3	25
Area of Crown Lands under Mining Lease	134,076	3	29
Area of Alienated Lands under Mining Lease, the oil rights of which are vested in the Crown	65,317	1	11
Area of privately owned oil rights under lease, according to details supplied by the oil companies	125,043	0	29
Total	537,330	1	14

11. *Revenue from Royalties, Wayleaves and Fees*.—The revenue collected under these heads amounted to \$1,072,070.21 as compared with \$912,109.18 collected during the year 1938. For purposes of comparison, the following table shows the amounts collected under each head for the years 1937, 1938 and 1939:

Heads.	Amounts Collected.		
	1937	1938	1939
	\$ c.	\$ c.	\$ c.
(a) Royalties in respect of oil produced from Crown and Alienated Lands	720,857 06	907,695 00	1,066,233 30
(b) Wayleaves in respect of oil pipelines laid along public roads	1,759 50	1,774 18	—*
(c) Fees charged for pipelines along and across the Trinidad Government Railway and Public Roads	3,936 00	2,640 00	5,836 91
Totals	726,552 56	912,109 18	1,072,070 21

* Now included in (c).

12. *Refineries*.—Eight permits for the refining of oil were issued during the year under the Oil Mining and Refining Ordinance, Cap. 143. Of these permits three were issued in respect of small field topping plants the operations of which are of relative unimportance.

The total capacity of the refineries operating in the Colony amounts to approximately 23,900,000 barrels per annum. During 1939 a total quantity of 19,414,920 barrels of crude oil was refined, compared with 17,596,932 barrels during 1938.

13. *Gasolene Extraction Plants*.—Three Gas Absorption Plants and two Gas Adsorption Plants for the recovery of gasolene from natural gas were in operation during the year.

14. *Loading Facilities*.—Four deep water piers equipped for loading tank steamers with petroleum and its products are in use. Facilities for bunkering vessels in the harbour of Port-of-Spain are also available.

15. *Pipelines*.—Approximately 290 miles of main oil pipelines have been laid down in the Colony. During the year sixteen new permits under the Pipe lines Ordinance, No. 29 of 1933 were issued and the total number of permits issued to date amounts to 213.

16. *Tank Storage*.—The total main tank storage capacity for petroleum in the Colony is approximately 5,137,705 barrels.

17. *Exports of Petroleum and its Products*.—The quantity of petroleum and its products exported during the year increased substantially as compared with the year 1938, the amounts and values for the two years being as follows:—

1938—16,417,020 barrels valued at \$23,656,561.00.

1939—17,600,222 barrels valued at \$26,762,296.00.

Petroleum and its products continued to form the largest part of the Colony's exports in 1939, the value being more than five times that of the products of the next most important of its industries *viz.*: sugar (including molasses and rum). Of the total exports petroleum and its products (including asphalt) formed 78.18 per cent.

The value of the leading staple products of the Colony exported during 1939 is shown in the following table:—

<i>Staple Products Exported.</i>	<i>Value.</i>	<i>% of Total.</i>
Petroleum and its Products	\$26,762,296	74.90
Sugar, Molasses and Rum	5,364,383	15.01
Cocoa	1,212,682	3.39
Asphalt	1,170,585	3.28
Fruits and Fruit Products	315,717	0.88
Coconuts, Copra and Coconut Oil	204,947	0.57
Bitters	96,280	0.27
Coffee	41,905	0.12
Other Exports not enumerated	562,762	1.58
	\$35,731,557	100.00

18. *Returns.*—The various returns submitted by the oil companies under the various Ordinances and Regulations in respect of their operations have been regularly received and after being checked have been filed with the records of the Department.

19. *Inspections.*—The operations on the various oilfields were inspected by officers of this Department as frequently as possible, and I have pleasure in recording that the Managers have readily co-operated in ensuring that the provisions of the Ordinances and Regulations were effectively carried out.

20. Included in this Report as Appendix "B" will be found some interesting notes and statistics relating to the progress of the petroleum industry which have been prepared by the Assistant Petroleum Technologist.

THE ASPHALT INDUSTRY.

21. The production of asphalt during the year amounted to 130,315 tons as compared with 127,859 tons for the year 1938, an increase of 2,456 tons. The following table shows, comparatively, the quantity of asphalt produced and exported during the years 1937, 1938 and 1939:

	1937.	1938.	1939.
Production (in tons)	145,904	127,859	130,315
Export (in tons)	90,872	85,089	86,033

FACTORIES.

22. During the period under review 246 factories exclusive of oilfield machinery were in operation in Trinidad and Tobago. During the inspections of these factories by officers of this Department recommendations were made for ensuring the safety of the workmen, and such recommendations were at all times readily carried out by the Managers concerned.

QUARRIES.

23. The number of quarries worked during the past year was 150 as compared with 124 quarries in operation during the year 1938. Most of these quarries are very small and relatively unimportant. As a result of inspection it was found that, as a general rule, the quarries were being worked in a careful manner. The various recommendations made by officers of this Department for increasing the safety of the workman were usually carried out without delay.

ACCIDENTS.

24. All fatal and serious accidents which occurred on oilfields and in refineries, factories and quarries during the period under review have been investigated, as in the past, by officers of this Department under the Mines, Borings and Quarries Ordinance, Cap. 142 and the Prevention of Accidents Ordinance, No. 28 of 1934, and, where necessary, recommendations have been made to the employers with the object of reducing the incidence of such accidents to a minimum. During the year 1939 six fatal accidents occurred in the Petroleum Industry compared with nine for the year 1938 and seven occurred in other industries. Practically all these accidents were due to carelessness on the part of the workmen concerned or were unavoidable.

PETROLEUM ORDINANCE, CAP. 145.

25. The premises where dangerous petroleum products are stored have been inspected, and all possible care has been taken to ensure safety. During the year 625 licences were issued for the storage and sale of petroleum and its products. The revenue actually collected from such licences during 1939 was \$1,996.80.

LEGISLATION.

26. On the 15th December, 1939, the Emergency Taxation Ordinance, No. 32 of 1939, was passed by Legislative Council which provides for the raising of funds to defray the expenses of the Colony consequent upon the war. Included in this Ordinance is the provision that during the period of the war and for one year thereafter every person operating for oil in the Colony shall pay an impost at the rate of two cents for every barrel of oil won by him commencing from 1st October, 1939.

APPENDICES.

27. Appendix "A" shows the list of oil and asphalt operators in the Colony during the year 1939.

28. Appendix "B" gives notes and statistics relating to the Petroleum Industry.

29. Appendix "C" is a statement of the quantity and value of minerals obtained and the daily average number of persons employed in the petroleum, asphalt and quarry industries.

30. Appendix "D" gives the Rates of Wages and Hours of Labour employed in the oilfields for the year 1939.

31. A statement of oil produced and exported is shown as Appendix "E".

32. Appendix "F" shows the amount of oil refined year by year.

33. On account of the war and the need for economy in paper, the series of charts depicting in graphic form the progress in the various industries during the past years have not been included in this Report.

STAFF.

34. Mr. H. O. Roberts, 3rd Class Clerk, was granted 90 days vacation leave with effect from the 1st August, 1939, and during his absence Miss G. Lumsden was appointed to carry out his duties.

I have great pleasure in recording the very able and willing assistance I have received from all members of the staff.

15th June, 1940.

R. S. MACKILLIGIN,
Inspector of Mines and Petroleum
Technologist.

APPENDIX "A."

No.	Company.	Nature of tenure of lands on which operations took place.	District in which operations took place.	Disposal of Oil.	Remarks.
1	Antilles Petroleum Company (Trinidad) Ltd.	Private Lands	Vessigny, Point Ligoure	Crude exported	A little drilling done. Production decreased as compared to 1938.
2	Apex (Trinidad) Oilfields, Ltd.	Private Lands, Crown Lands and (Crown Oil-rights under lease)	Fyzabad and Siparia	Crude sold to Trinidad Leaseholds, Ltd. Casing Head Gasolene sold to United British Oilfields of Trinidad, Ltd.	Production maintained by increased drilling.
3	Cory Bros. & Co., Ltd.	Crown Lands under Lease	Moruga	...	Prospecting in Moruga Area.
4	Golding, C. B.	Private Lands	Boodoosingh	Sold to Kern Trinidad Oilfields, Ltd.	A small production obtained. No footage drilled.
5	Kern Trinidad Oilfields, Ltd.	Private Lands, Crown Lands and (Crown Oil-rights under Lease)	Guapo	Sold to United British Oilfields of Trinidad, Ltd.	Increased footage drilled, but slight drop in production.
6	Partap-Ramesar	Private Lands	Fyzabad	Sold to United British Oilfields of Trinidad, Ltd.	Formerly New Dome Oilfields, Ltd. No drilling during year. Field was shut down for first 3 months of year.
7	Petroleum Options (1925) Ltd.	Private Lands	San Francique, Moruga	Sold to Trinidad Leaseholds, Ltd.	Moruga area abandoned. Small footage drilled at San Francique with considerable increase in production.
8	Premier (Trinidad) Oilfields, Ltd.	Crown Lands under Lease	Palo Seco	do. do.	Less footage drilled, but production increased.
9	Siparia Trinidad Oilfields, Ltd.	Crown Lands and Crown Oil rights under Lease	Palo Seco, Morne Diablo	do. do.	Production maintained with slightly less footage than in 1938.
10	Trinidad Central Oilfields, Ltd.	Crown Lands under Lease	Barrackpore, Guapo, Lizard Springs, Tabaquite	do. do.	Tabaquite and Lizard Springs Fields were both shut down during the year. Slight increase in footage drilled on, and production obtained from, Guapo and Wilson Fields.
11	Trinidad Consolidated Oilfields, Ltd.	Private Lands, Crown Oil rights under Lease	Fyzabad	do. do.	Considerable reduction in footage drilled, and corresponding fall in new production.

APPENDIX "A".—Continued.

No.	Company.	Nature of tenure of lands on which operations took place.	District in which operations took place.	Disposal of Oil.	Remarks.
12	Trinidad Lake Asphalt Operating Company, Ltd.	Crown Lands under Lease	La Brea	Pitch refined and exported ...	Operate for and refine pitch only.
13	Trinidad Leaseholds, Ltd.	Crown Lands and Crown Oil rights under Lease. Private Lands	Barrackpore, Fyzabad, Guayaguayare	Pumped to Company's Refinery at Pointe-a-Pierre. Most of refined products exported in bulk	Markets locally in conjunction with Shell. Largest producers and refiners in the Colony. Less footage drilled but production increased.
14	Trinidad Oil Lands, Ltd.	Private Lands	Point Ligoure	Sold to U. B. O. T., Ltd.	No drilling. A small production obtained.
15	Trinidad Oil Fields Operating Company, Ltd.	Crown Oil rights under Lease. Private Lands	Palo Seco, San Francique, Sobó	Sold to Trinidad Leaseholds, Ltd.	No drilling done, but production maintained.
16	Trinidad Petroleum Development Company, Ltd.	Crown Lands, Crown Oil rights under Lease. Private Lands	Coora, Los Bajos, Palo Seco	Sold to United British Oilfields of Trinidad, Ltd.	A little more footage drilled than in 1938, but production fell slightly.
17	Trinidad Northern Areas, Ltd.	Private Lands, Crown Lands, and Crown Oil rights under Lease	Talparo, Barroncones, Tortuga	... ..	Prospecting only.
18	United British Oilfields of Trinidad, Ltd.	Crown Lands and Crown Oil rights under Lease. Private Lands	Cedros, Morne L'Enfer, Forest Reserve, Point Fortin, Penal	Pumped to Company's Refinery at Point Fortin and refined there	Slight increase in footage drilled, large increase in production.
19	Zenith Trinidad Oilfields, Ltd.	Private Lands	Fyzabad	Sold to Trinidad Leaseholds, Ltd.	A little footage drilled. Production increased.

APPENDIX "B".

HON. INSPECTOR OF MINES AND PETROLEUM TECHNOLOGIST,

The production of crude oil for the year reached a new high record of 19,741,616 barrels, an increase of 2,004,415 barrels, or 11.30 per cent. over the figure for 1938.

The footage drilled amounted to 834,096 feet, a decrease of 71,812 feet, or 7.92 per cent. compared to last year. The decreased footage was largely due to the low prices for oil products obtained during the period under review.

The increased production is, for the most part, due to larger initial productions of new wells.

A comparison of footage and production figures for 1938 and 1939 is given below :—

	Footage.		Production.	
	1938	1939	1938	1939
Crown	384,103	377,737	8,165,149	9,724,193
Alienated	207,939	208,098	3,475,547	4,170,532
Private	313,866	249,011	6,096,505	5,846,891
	<u>905,908</u>	<u>834,846</u>	<u>17,737,201</u>	<u>19,741,616</u>

Drilling.—During the year 244 wells were started, as compared with 279 in 1938, bringing the total number of wells started in the Colony to 3,228 by the end of the year.

The following table gives an analysis of drilling operations carried out during the year :—

	On			Total	
	Crown Lands	Alienated Lands	Private Lands	1939	1938
Unfinished at end of 1938	23	1	21	45	64
Started during 1939	105	66	73	244	279
	<u>128</u>	<u>67</u>	<u>94</u>	<u>289</u>	<u>343</u>
Completed as Oil Producers	95	61	55	211	255
Completed as Fresh Water Wells	3	1	1	5	10
Completed Dry Holes	—	—	2	2	2
Abandoned while drilling	2	1	12	15	31
Unfinished at end of 1939	28	4	24	56	45
Old Wells abandoned in 1939	8	3	7	18	14
Old Wells Recompleted in 1939	11	9	28	48	29

The depth of the deepest well completed in the Colony at the end of the year was 10,015 feet.

The average number of rigs employed on drilling or deepening work was 30, giving an average annual footage of 27,803 feet per rig, as compared with 21,568 feet per rig during 1938.

There was no outstanding addition or change in field technique during the year.

Production.—The number of producing wells ranged from 1,318 to 1,391 per month, the average per month for the year being 1,357.

The following table gives an analysis of the average number of producers per month, and a comparison with the three previous years. In addition, the quantity of production obtained by various methods during 1939 is shewn :—

	1936	1937	1938	1939	Production
					(Bbls.)
					1939
Wells flowing	273	357	405	478	13,310,856
Wells Pumping	469	491	507	572	4,025,554
Wells on Plunger Lift	38	68	108	138	1,552,713
Wells on Air Gas Lift	107	100	75	69	734,058
Wells on Displacement Pumps	14	15	8	9	37,299
Wells Bailing or Swabbing or Collected from Sumps	140	139	157	91	19,914
Casing Head Gasolene returned to Crude	—	—	—	—	61,222
	<u>1,041</u>	<u>1,170</u>	<u>1,260</u>	<u>1,357</u>	<u>19,741,616</u>

The Fyzabad Structure still continues to be the main producing structure, and contributed 52.17 per cent. of the total production of the Colony.

Accidents.—Six fatal accidents occurred in the Petroleum Industry during the period under review as compared with nine during 1938.

The following tables are attached :—

No. 1—Showing drilling summary for 1939,

No. 2—Showing Production Summary for 1939.

No. 3—Showing number of wells started and footage drilled since the commencement of the industry in 1867.

No. 4—Showing the Annual Production since returns were first sent to the Government in 1908.

No. 5—Showing the number of wells started annually, and the status of these wells on the 31st of December, 1939

22nd May, 1940

W. N. FOSTER,
Assistant Petroleum Technologist.

TABLE I.
Drilling Summary for the Year 1939.

	Wells Started.			Completed as Producers.			Completed Water Wells.			Completed Dry Holes.			No. of Wells Recompleted			Wells Abandoned.			FOOTAGE DRILLED.			
	C.	A.	P.	C.	A.	P.	C.	A.	P.	C.	A.	P.	C.	A.	P.	C.	A.	P.	Crown Ft.	Alienated Ft.	Private Ft.	Total Ft.
January	1	5	6	8	3	3	—	—	—	—	—	—	1	—	2	1	—	1	41,241	12,149	17,822	71,212
February	10	4	4	11	1	4	—	—	—	—	—	—	—	—	2	—	—	—	29,529	12,909	17,059	59,497
March	8	6	9	10	8	4	1	—	—	—	—	—	1	—	2	—	1	—	26,615	22,604	22,401	71,620
April	6	5	5	4	3	7	—	—	—	—	—	—	—	—	2	—	—	2	27,601	15,814	29,868	73,283
May	11	6	6	12	6	6	—	—	—	—	—	—	—	—	3*	1	1	4	31,880	20,645	17,720	70,245
June	5	4	6	4	4	5	1	—	—	—	—	1	—	—	2	—	1	—	29,135	13,297	25,037	67,469
July	8	5	11	8	5	7	—	—	—	—	—	1	5	—	1	—	—	2	23,994	17,613	25,585	67,192
August	11	7	7	6	5	6	—	—	—	—	—	—	1	6	2	—	1	—	32,960	15,901	15,980	64,841
September	8	5	2	8	5	5	—	—	—	—	—	—	2	3	2	2	—	1	33,003	22,268	17,253	72,524
October	9	9	7	7	8	1	1	1	1	—	—	—	1	1	3	—	1	2	37,608	20,563	16,929	75,100
November	10	6	5	8	6	4	—	—	—	—	—	—	1	2	—	4	—	3	37,150	17,082	23,392	77,624
December	9	4	5	9	7	3	—	—	—	—	—	—	—	2	3	—	—	3	26,271	17,253	19,965	63,489
TOTALS	105	66	73	95	61	55	3	1	1	—	—	2	11	9	28	10	4	19	376,987	208,098	249,011	834,096
	244			211			5						48 *Includes one Fresh Water Well.			33						

C=Crown Lands and Crown Oil rights.
A.=Private Lands and Crown Oil rights.
P.=Private Lands and Private Oil rights.

W. N. FOSTER,
Assistant Petroleum Technologist.

TABLE No. 2.
ANNUAL PRODUCTION SUMMARY BY MONTHS DURING 1939.
(Production given in Barrels of 35 Imperial Gallons).

MONTH.	Casing Head Gasolene returned to Crude.	Per Cent	FLOWING.			AIR/GAS LIFT.			PUMPING.			FLUNGER LIFT.			DISPLACEMENT PUMP.			OTHER METHODS.			Total Producing	Total started in Colony	Per Cent. Wells producing.	CROWN.		ALIENATED.		PRIVATE.		TOTAL (Barrels).
			Wells	Production.	Per Cent.	Wells	Production.	Per Cent.	Wells	Production.	Per Cent.	Wells	Production.	Per Cent.	Wells	Production.	Per Cent.	Wells	Production.	Per Cent.				No.	Production.	No.	Production.	No.	Production.	
Jan. ...	3,120	.19	443	1,135,458	68.72	76	62,665	3.78	557	385,209	20.29	119	111,289	6.73	8	2,366	.14	159	2,275	.14	1,342	3,005	44.66	565	800,300	253	330,527	524	521,585	1,652,412
Feb. ...	2,685	.18	457	1,012,420	67.04	77	65,180	4.34	562	314,915	21.49	121	100,211	6.70	7	2,128	.14	136	1,660	.11	1,361	3,023	45.02	560	736,436	251	289,456	550	473,305	1,499,197
March ...	3,779	.23	459	1,088,826	66.77	71	61,991	3.80	567	343,443	21.06	128	128,304	7.87	7	2,267	.14	149	2,159	.13	1,381	3,047	45.52	571	803,011	249	312,976	561	514,802	1,630,789
April ...	3,161	.20	462	1,053,973	67.16	70	61,185	3.90	556	321,865	20.52	132	125,240	8.00	7	2,177	.14	133	1,597	.10	1,360	3,062	44.42	552	753,983	254	324,076	554	491,239	1,569,298
May ...	3,674	.22	471	1,116,610	67.88	64	55,457	3.37	561	336,382	20.45	133	128,847	7.83	7	2,297	.14	113	1,773	.11	1,349	3,085	43.73	544	784,412	256	357,426	549	503,202	1,645,040
June ...	6,882	.44	472	1,050,117	66.06	67	55,369	3.51	559	329,082	20.89	136	129,868	8.25	7	2,218	.14	78	1,685	.11	1,319	3,100	42.55	507	754,796	258	344,567	554	475,958	1,575,321
July ...	7,025	.43	480	1,081,429	66.74	63	54,173	3.34	568	333,280	20.57	144	140,416	8.66	8	2,460	.15	55	1,781	.11	1,318	3,124	42.19	489	779,568	258	358,167	571	482,829	1,620,564
Aug. ...	7,777	.48	487	1,083,126	67.00	61	55,500	3.44	569	329,249	20.37	145	135,550	8.38	9	3,571	.22	55	1,839	.11	1,326	3,149	42.11	494	765,011	275	360,550	557	491,057	1,616,618
Sept. ...	7,552	.47	501	1,081,855	66.83	57	53,088	3.28	581	323,970	20.01	148	146,187	9.03	11	4,551	.28	55	1,646	.10	1,353	3,164	42.76	510	808,623	276	341,811	567	468,412	1,618,846
Oct. ...	7,490	.42	504	1,190,052	67.32	70	60,922	3.45	594	347,706	19.67	156	155,367	8.79	11	4,501	.25	55	1,703	.10	1,390	3,189	43.59	524	905,151	294	379,306	572	483,284	1,767,741
Nov. ...	4,073	.24	504	1,172,318	68.24	72	60,203	3.50	602	348,751	20.30	149	127,350	7.41	11	4,407	.26	53	812	.05	1,391	3,210	43.33	524	894,174	293	363,940	574	459,800	1,717,914
Dec. ...	4,006	.22	490	1,244,672	68.10	84	88,322	4.83	605	361,572	19.78	146	123,984	6.78	11	4,336	.24	53	984	.05	1,389	3,228	43.03	522	939,173	297	407,285	570	481,418	1,827,876
TOTALS :	61,222	.31	Avg. 478	13,310,856	67.43	Avg. 69	734,058	3.72	Avg. 572	4,025,554	20.39	Avg. 138	1,552,713	7.86	Avg. 9	37,299	.19	Avg. 91	19,914	.10	Avg. 1,357	3,228	42.05	Avg. 530	9,724,193	268	4,170,532	Avg. 559	5,846,891	19,741,616

W. N. FOSTER,
Assistant Petroleum Technologist.

Table 3.
COLONY OF TRINIDAD.
Number of Wells started and Footage Drilled Annually.

YEAR.	WELLS STARTED.								FOOTAGE DRILLED.						YEARLY TOTALS.	CUMULATIVE.
	CROWN.		ALIENATED.		PRIVATE.		TOTALS.		CROWN.		ALIENATED.		PRIVATE.			
	Annual.	Cum.	Annual.	Cum.	Annual.	Cum.	Annual.	Cum.	Annual.	Cum.	Annual.	Cum.	Annual.	Cum.		
1867	—	—	—	—	1	1	1	1	—	—	—	—	964	964	964	964
1900	—	—	—	—	1	2	1	2	—	—	—	—	600	1,564	600	1,564
1902	1	1	—	—	2	4	3	5	600	600	—	—	1,315	2,879	1,915	3,479
1903	1	2	—	—	—	4	1	6	1,172	1,772	—	—	1,060	3,939	2,232	5,711
1904	1	3	—	—	—	4	1	7	860	2,632	—	—	—	3,939	860	6,571
1905	—	3	—	—	—	4	—	7	—	2,632	—	—	—	3,939	—	6,571
1906	1	4	—	—	2	6	3	10	1,104	3,736	—	—	1,499	5,438	2,603	9,174
1907	1	5	—	—	2	8	3	13	798	4,534	—	—	1,563	7,001	2,361	11,535
1908	—	5	—	—	4	12	4	17	—	4,534	—	—	2,352	9,353	2,352	13,887
1909	—	5	—	—	6	18	6	23	—	4,534	—	—	5,362	14,715	5,362	19,249
1910	5	10	—	—	7	25	12	35	3,771	8,305	—	—	4,319	19,034	8,090	27,339
1911	8	18	—	—	38	63	46	81	4,902	13,207	—	—	34,010	53,044	38,912	66,251
1912	10	28	—	—	35	96	45	126	6,839	20,046	—	—	32,881	85,925	39,720	105,971
1913	25	53	—	—	18	114	43	169	13,813	33,859	—	—	26,388	112,313	40,201	146,172
1914	50	103	—	—	16	132	66	235	35,146	69,005	—	—	23,283	135,596	58,429	204,601
1915	31	134	—	—	19	151	50	285	29,208	98,213	—	—	25,652	161,248	54,860	259,461
1916	28	162	—	—	20	171	48	333	30,866	129,079	—	—	28,035	189,283	58,901	318,362
1917	38	200	—	—	6	177	44	377	41,227	170,306	—	—	9,557	198,840	50,784	369,146
1918	38	238	—	—	4	181	42	419	47,700	218,006	—	—	6,796	205,636	54,496	423,642
1919	40	278	—	—	13	194	52	471	49,741	267,747	—	—	16,769	222,405	66,510	490,152
1920	43	321	1	1	23	217	68	539	53,002	320,749	1,665	1,665	24,009	246,414	78,676	568,828
1921	49	370	4	5	32	249	85	624	71,318	392,067	2,896	4,561	44,631	291,045	118,845	687,673
1922	68	438	4	9	20	269	91	715	88,299	480,366	8,701	13,262	39,463	330,508	136,463	824,136
1923	70	508	5	14	33	302	108	823	79,507	560,273	7,060	20,322	58,805	389,313	145,772	969,908
1924	67	575	8	22	34	336	110	933	90,141	650,414	6,190	26,512	55,197	444,510	151,528	1,121,436
1925	46	621	16	38	37	373	99	1,032	86,904	737,318	18,446	44,958	63,543	508,053	168,893	1,290,329
1926	69	690	13	51	46	419	128	1,160	109,234	846,552	18,732	63,690	72,691	580,744	200,657	1,490,986
1927	73	763	13	64	73	492	159	1,319	101,920	948,472	17,288	80,978	122,465	703,209	241,673	1,732,659
1928	43	806	33	97	64	556	139	1,458	71,481	1,019,953	58,842	139,820	112,863	816,072	243,186	1,975,845
1929	52	858	58	155	48	604	159	1,617	92,590	1,112,543	118,583	258,403	96,309	912,381	307,482	2,283,327
1930	76	934	31	186	56	660	163	1,780	170,389	1,282,932	85,561	343,964	116,706	1,029,087	372,656	2,655,983
1931	9	943	25	211	26	686	60	1,840	42,972	1,325,904	95,410	439,374	80,260	1,109,347	218,642	2,874,625
1932	21	964	20	231	20	706	61	1,901	44,568	1,370,472	67,162	506,536	61,557	1,170,904	173,287	3,047,912
1933	36	1,000	22	253	23	729	81	1,982	85,946	1,456,418	87,550	594,086	62,206	1,323,110	235,702	3,382,614
1934	56	1,056	30	283	38	767	124	2,106	167,952	1,624,370	88,503	682,589	95,328	1,328,438	351,783	3,635,397
1935	55	1,111	46	329	38	805	139	2,245	185,788	1,810,158	142,722	825,311	107,789	1,436,227	436,299	4,071,696
1936	59	1,170	39	368	73	878	171	2,416	235,804	2,045,962	145,554	970,865	213,171	1,649,398	594,529	4,666,225
1937	92	1,262	46	414	151	1,029	289	2,705	345,393	2,391,355	162,804	1,133,669	403,378	2,052,776	911,575	5,577,800
1938	110	1,372	67	481	102	1,131	279	2,984	384,103	2,775,458	207,939	1,341,608	313,866	2,366,642	905,908	6,483,708
1939	106	1,478	66	547	73	1,204	245	3,229	377,737	3,153,195	208,098	1,549,706	249,011	2,615,653	834,846	7,318,554
		1,478		547		1,204		3,229		3,153,195		1,549,706		2,615,653		7,318,554

Cum = Cumulative.

W. N. FOSTER,
Assistant Petroleum Technologist.

TABLE 4.

Yearly Trinidad Production.

Year.	Crown.	Cumulative Total.	Alienated.	Cumulative Total.	Private.	Cumulative Total.	Yearly Totals.	Grand Cumulative Total.
1908	—	—	—	—	37	37	37	37
1909	—	—	—	—	47,295	47,332	47,295	47,332
1910	55	55	—	—	105,023	152,355	105,078	152,410
1911	3,994	4,049	—	—	217,298	369,653	221,292	373,702
1912	9,104	13,153	—	—	476,801	846,454	485,905	859,607
1913	52,153	65,306	—	—	-533,029	1,379,483	585,182	1,444,789
1914	512,299	577,605	—	—	480,917	1,860,400	993,216	2,438,005
1915	392,389	969,994	—	—	512,330	2,372,730	904,719	3,342,724
1916	478,815	1,448,809	—	—	449,060	2,821,790	927,875	4,270,599
1917	1,065,945	2,514,754	—	—	536,357	3,358,147	1,602,302	5,872,901
1918	1,588,805	4,103,559	—	—	493,115	3,851,262	2,081,920	7,954,821
1919	1,539,973	5,643,532	—	—	301,063	4,152,325	1,841,036	9,795,857
1920	1,758,039	7,401,571	—	—	325,071	4,477,396	2,083,110	11,878,967
1921	1,751,943	9,153,514	300	300	601,916	5,079,312	2,354,159	14,233,126
1922	1,534,796	10,688,310	147	447	909,727	5,989,039	2,444,670	16,677,796
1923	1,847,118	12,535,428	63,334	63,781	1,140,335	7,129,374	3,050,787	19,728,583
1924	2,410,737	14,946,165	76,467	140,248	1,570,856	8,700,230	4,058,060	23,786,643
1925	2,647,095	17,593,260	200,781	341,029	1,538,634	10,238,864	4,386,510	28,173,153
1926	2,630,100	20,223,360	310,953	651,982	2,030,426	12,269,290	4,971,479	33,144,632
1927	2,039,363	22,262,723	297,761	949,743	3,043,676	15,312,966	5,380,800	38,525,432
1928	2,652,981	24,915,704	1,470,333	2,420,076	3,561,273	18,874,239	7,684,587	46,210,019
1929	2,987,795	27,903,499	1,627,439	4,047,515	4,100,554	22,974,793	8,715,788	54,925,807
1930	3,429,030	31,332,529	1,831,338	5,878,853	4,158,589	27,133,382	9,418,957	64,344,764
1931	2,795,572	34,128,101	2,530,175	8,409,028	4,417,751	31,551,133	9,748,498	74,088,262
1932	3,200,083	37,328,184	2,410,813	10,819,841	4,515,225	36,066,358	10,126,121	84,214,383
1933	3,684,148	41,012,332	1,606,595	12,426,436	4,270,610	40,336,968	9,561,353	93,775,736
1934	4,586,366	45,598,698	1,805,178	14,231,614	4,502,819	44,839,787	10,894,363	104,670,099
1935	5,288,943	50,887,641	2,255,484	16,487,098	4,126,797	48,966,584	11,671,224	116,341,323
1936	5,982,993	56,870,634	2,199,025	18,686,123	5,055,012	54,021,596	13,237,030	129,578,353
1937	7,128,085	63,998,719	2,615,207	21,301,330	5,759,697	59,781,293	15,502,989	145,081,342
1938	8,165,149	72,163,868	3,475,547	24,776,877	6,096,505	65,877,798	17,737,201	162,818,543
1939	9,724,193	81,888,061	4,170,532	28,947,409	5,846,891	71,724,689	19,741,616	182,560,159

W. N. FOSTER,
Assistant Petroleum Technologist.

Table 5.

Table showing number of wells started in each year and status of Wells at 31st December, 1939.

YEAR	WELLS STARTED			PRODUCING			IDLE			ABANDONED			UNFINISHED			TOTALS.			
	C	A	P	C	A	P	C	A	P	C	A	P	C	A	P	Prod.	Idle	Aban.	Unf.
1867			1									1							1
1900			1									1							1
1902	1		2								1		2						3
1903	1										1								1
1904	1										1								1
1905																			
1906	1		2								1		2						3
1907	1		2								1		2						3
1908			4			1							3			1			3
1909			6			3			1				2			3	1		2
1910	5		7			1	3		1	2		5			1	4			7
1911	8		38	1		5	3		7	4		26			6	10			30
1912	10		35	1		7	4		5	5		23			8	9			28
1913	25		18	3		6	11		2	11		10			9	13			21
1914	50		16	8		8	19		1	23		7			16	20			30
1915	31		19	2		8	19		10	10		1			10	29			11
1916	28		20	4		11	14		5	10		4			15	19			14
1917	38		6	10		2	13		1	15		3			12	14			18
1918	38		4	9			18			11		4			9	18			15
1919	40		13	9		1	19		2	12		10			10	21			22
1920	43	1	23	7		4	22		4	14	1	15			11	26			30
1921	49	4	32	5		9	29		7	15	4	16			14	36			35
1922	68	4	20	5	1	4	42		5	21	3	11			10	47			35
1923	70	5	33	9	1	9	33		6	27	4	18	1		19	39			49
1924	67	8	34	17		9	30	1	13	20	7	12			26	44			39
1925	46	16	37	21	2	11	12	3	10	13	11	16			34	25			40
1926	69	13	46	17	1	19	32	3	15	21	8	12			37	50			41
1927	73	13	73	10	1	32	33	9	17	30	3	24			43	59			57
1928	43	33	64	11	18	24	20	11	26	12	4	14			53	57			30
1929	52	58	48	14	21	30	23	30	8	15	7	10			65	61			32
1930	76	31	56	23	9	22	40	16	19	12	6	14	1		54	75			32
1931	9	25	26	4	13	18	3	10	3	2	2	5			35	16			9
1932	21	20	20	8	10	13	11	10	4	2		3			31	25			5
1933	36	22	23	15	10	12	13	12	6	6		4	3		37	31			10
1934	56	30	38	31	20	26	17	8	9	5	2	3	3		77	34			10
1935	55	46	38	32	30	22	17	13	12	3	3	3	3	1	84	42			9
1936	59	39	75	42	26	43	12	8	15	4	5	11	1	4	111	35			20
1937	92	46	151	65	33	104	26	10	29	1	3	14		4	202	65			18
1938	110	67	102	79	55	63	20	7	21	10	5	13	1	5	197	48			28
1939	105	66	73	75	57	44	15	4	8	1	1	11	15	4	176	27			13
	1,477 547 1,204			537 308 571			572 155 273			342 79 335			28 4 24			1,416 1,000 756 56			
	3,228			1,416			1,000			756			56			3,228			

W. N. FOSTER,
Assistant Petroleum Technologist.

APPENDIX C.

Statement of the Quantity and Value of Minerals obtained and the Daily Average Number of Persons employed in the Petroleum, Asphalt and Quarry Industries during the years 1938 and 1939.

Industry.	1938.					1939.				
	Quantity.	Approximate Value *	Daily average number of persons employed.			Quantity.	Approximate Value*	Daily average number of persons employed.		
			Males.	Females.	Total.			Males.	Females.	Total.
Petroleum	17,737,201 bbls.	\$ c. 12,741,566 12	14,039	160	14,199	19,741,616 bbls.	\$ c. 14,181,853 51	12,116	205	12,321
Asphalt (a)	104,880 tons	314,040 00	614	3	617	104,259 tons	312,777 00	552	6	558
Private Quarries (Limestone, Gravel, &c.)	412,366 tons	160,401 57	665	239	904	422,778 tons	174,022 87	728	208	936
Government Quarries (Limestone, Gravel, &c.)	84,797 tons	59,259 93	265	91	356	90,460 tons	63,382 15	287	73	360

* The values given are those returned by owners and managers and represent value at place of production.

(a) In addition to the figure shown against this item, the following quantities were extracted from the Pitch Lake by the Public Works Department for use on the roads of the Colony, viz. :

193823,179 tons.

193926,056 tons.

APPENDIX D.

Rates of Wages and Hours of Labour employed on the Oilfields

Class of Worker	HOURLY WAGE		DAILY WAGE		Normal Weekly hours of Labour.	Explanatory Notes.
	Min. (Cents per hour.)	Max.	Min.	Max.		
Rigmen employed in Drilling ...	19	26	—	—	48-56 hrs.	<p><i>General Remarks.</i></p> <p>1. <i>Housing.</i></p> <p>Accommodation is sometimes provided for those employees whose presence is required on the fields.</p> <p>2. <i>Medical Attention.</i></p> <p>In the case of accidents arising from employment medical attention is usually free. In other cases the practice varies from Company to Company.</p>
Rigmen employed in Production ...	18	28	—	—	do.	
Production men ...	13	19	—	—		
Rig Builders ...	14	28	—	—		
Blacksmiths ...	16	28	—	—		
Boilersmiths ...	16	28	—	—		
Cabinet Makers ...	16	28	—	—		
Carpenters ...	16	28	—	—		
Chauffeurs ...	16	28	—	—		
Electricians ...	16	28	—	—		
Firemen ...	14	22	—	—		
Fitters (Bench, Engine or Pump) ...	16	28	—	—		
Masons ...	13	24	—	—	45-48 hrs.	
Motor Mechanics ...	16	28	—	—		
Moulders ...	13	24	—	—		
Painters ...	12	19	—	—		
Plumbers ...	12	28	—	—		
Riveters ...	16	28	—	—		
Tinsmiths ...	13	28	—	—		
Turners ...	16	28	—	—		
Welders ...	16	28	—	—		
Semi-skilled ...	11	24	—	—		
Un-skilled ...	11	16	—	—		

APPENDIX E.

Statement of Oil produced and exported year by year since the inception of the Petroleum Industry in the Colony.

Year.	Production in barrels.	Quantity of crude oil and refined oil exported in barrels.
1908	37	...
1909	47,295	46
1910	105,078	...
1911	221,292	219,582
1912	485,905	122,734
1913	585,182	387,719
1914	993,216	348,351
1915	904,719	408,188
1916	927,875	975,142
1917	1,602,302	1,079,369
1918	2,081,920	1,305,407
1919	1,841,036	1,406,264
1920	2,083,110	1,034,907
1921	2,354,159	1,223,346
1922	2,444,670	1,615,740
1923	3,050,787	2,432,470
1924	4,058,060	3,224,529
1925	4,386,510	3,606,608
1926	4,971,479	3,988,308
1927	5,380,800	4,456,770
1928	7,684,587	6,361,675
1929	8,715,788	8,243,023
1930	9,418,957	7,678,807
1931	9,743,498	8,964,303
1932	10,126,121	9,637,474
1933	9,561,353	8,909,298
1934	10,894,363	9,981,774
1935	11,671,224	10,993,540
1936	13,237,030	12,405,222
1937	15,502,989	14,124,056
1938	17,737,201	16,417,020
1939	19,741,616	17,600,222
	182,560,159	159,151,894

APPENDIX F.

Comparative Statement of Oil refined in the Colony.

Previous to 1920 ...	...	...	...	...	...	...	...	4,051,373 barrels.
1920 ...	...	...	...	...	...	...	...	1,395,487 do.
1921 ...	...	...	...	...	...	...	...	1,806,016 do.
1922 ...	...	...	...	...	...	...	...	1,820,018 do.
1923 ...	...	...	...	...	...	...	...	2,360,279 do.
1924 ...	...	...	...	...	...	...	...	3,433,902 do.
1925 ...	...	...	...	...	...	...	...	3,790,343 do.
1926 ...	...	...	...	...	...	...	...	3,786,876 do.
1927 ...	...	...	...	...	...	...	...	4,796,223 do.
1928 ...	...	...	...	...	...	...	...	6,725,383 do.
1929 ...	...	...	...	...	...	...	...	7,642,726 do.
1930 ...	...	...	...	...	...	...	...	7,989,679 do.
1931 ...	...	...	...	...	...	...	...	6,899,144 do.
1932 ...	...	...	...	...	...	...	...	7,635,296 do.
1933 ...	...	...	...	...	...	...	...	9,129,810 do.
1934 ...	...	...	...	...	...	...	...	10,846,584 do.
1935 ...	...	...	...	...	...	...	...	11,148,285 do.
1936 ...	...	...	...	...	...	...	...	13,028,161 do.
1937 ...	...	...	...	...	...	...	...	15,111,046 do.
1938 ...	...	...	...	...	...	...	...	17,596,932 do.
1939 ...	...	...	...	...	...	...	...	19,414,920 do.
Total ...	...	...	...	...	...	...	...	<u>160,408,483</u> do.