

MINES.

Report of the Inspector of Mines and Petroleum Technologist for the year 1940.

THE 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 1940.

THE PETROLEUM INDUSTRY.

2. During the year under review the Petroleum Industry has continued to expand in all its branches and new records both in the quantity of oil produced and the footage drilled have been made. In addition, further important extensions and improvements to the principal refining installations have been completed and/or commenced upon. As will be obvious the operations of the Industry have been primarily determined by Government requirements for war purposes and it is satisfactory to record that the petroleum resources of the Colony have been able to fulfil, without difficulty and without departing from normal production methods, all demands made upon them. For the first ten months of the year under review the production of oil showed an upward trend but during the closing months the demand decreased with the result that available tank storage became congested necessitating a restriction in production. Up to the end of the year this restriction had only affected the Forest Reserve Field of the Trinidad Leaseholds, Limited.

3. At the beginning of the year 1940 the drilling of exploration test wells was in progress in five different areas. Owing to unsatisfactory results and other circumstances arising out of war conditions work had to be abandoned in three of these areas but drilling is continuing in the remaining two.

4. *Production of Crude Oil.* The total production of crude oil for the year 1940 amounted to 22,226,876 barrels, which is 2,485,260 barrels or 12.59 per cent. more than the production for 1939 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 47.20 per cent. of the total production as compared with 52.17 per cent. for the previous year.

5. *Drilling.*—During the year 1940—290 new wells were commenced, compared with 245 during 1939. The total number of wells commenced in the Colony to the end of 1940 is 3,519 of which 2,262 are on lands the oil rights of which are vested in the Crown and 1,257 are on private lands.

The number of feet drilled during 1940 amounted to 1,025,622 which represents an increase of 190,776 feet, or 22.85 per cent., on the footage for 1939.

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 1938, 1939 and 1940 :—

	Number of Feet Drilled.			Production in Barrels of 35 gals.		
	1938	1939	1940	1938	1939	1940
Crown Oil Rights ..	592,042	585,835	827,911	11,640,696	13,894,725	16,680,423
Private Oil Rights ..	313,866	249,011	197,711	6,096,505	5,846,891	5,546,453
Total ..	905,908	834,846	1,025,622	17,737,201	19,741,616	22,226,876

7. *Oilfield Operators.*—The number of oilfield operators in the Colony during the year was 18 which is the same as in 1939.

8. *Persons Employed.*—The average number of persons employed in the Petroleum Industry during 1940 amounted to 13,568 per day as compared with 12,321 during 1939.

9. *Leases and Licences.*—During the year three applications for supplemental leases were received. Two principal and six supplemental mining leases were registered and six exploration licences were renewed. The total number of mining leases and exploration licences in force at the end of the year amounted to 93, the details of which are as follows :—

	AREA.					
	Crown.			Alienated.		
	A.	R.	P.	A.	R.	P.
35 Mining Leases	125,130	3	38	..	..	..
29 Mining Leases .. .. .	..	..	..	34,245	0	26
20 Composite Mining Leases on Crown and Alienated Lands ..	17,743	2	00	24,515	1	18
9 Exploration Licences	217,892	3	25	..	..	..
93 Total	360,767	1	23	58,760	2	04

10. *Total area under lease or licence.*—The total area under Crown and private leases on the 31st December, 1940, amounted to 532,816 acres (or 44.67 per cent. of the total area of Trinidad) made up as follows :

	A.	R.	P.
Area of Crown Lands under Exploration Licence	217,892	3	25
Area of Crown Lands under Mining Lease	142,874	1	38
Area of Alienated Lands under Mining Lease, the oil rights of which are vested in the Crown	58,760	2	04
Area of privately owned oilrights under lease, according to details supplied by the oil companies	113,287	3	28
Total	532,815	3	15

11. *Revenue from Royalties, Wayleaves and Fees.*—The revenue collected under these heads amounted to \$1,310,334.50 as compared with \$1,072,070.21 collected during the year 1939. For purposes of comparison, the following table shows the amounts collected under each head for the years 1938, 1939 and 1940 :—

Heads.	Amounts Collected		
	1938	1939	1940
	\$ c.	\$ c.	\$ c.
(a) Royalties in respect of oil produced from Crown and Alienated Lands	907,695 00	1,066,233 30	1,306,506 02
(b) Wayleaves in respect of oil pipelines laid along public roads.	1,774 18	—*	—*
(c) Fees charged for pipelines along and across the Trinidad Government Railway and Public Roads	2,640 00	5,836 91	3,828 48
Total	912,109 18	1,072,070 21	1,310,334 50

* Included in (c).

12. *Refineries.*—Six 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 28,500,000 barrels per annum. During 1940 a total quantity of 22,060,110 barrels of crude oil was refined, compared with 19,414,920 barrels during 1939.

13. *Gasolene Extraction Plants.*—Four 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 293 miles of main oil pipelines have been laid down in the Colony. During the year eleven new permits under the Pipelines Ordinance, No. 29 of 1933, were issued, and the total number of permits in force at the end of 1940 amounts to 105.

16. *Tank Storage.*—The total main tank storage capacity for petroleum in the Colony is approximately 5,950,000 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 1939, the amounts and values for the two years being as follows :

1939—17,600,222 barrels valued at	\$26,762,296.00
1940—20,188,921 barrels valued at	33,650,359.00

Petroleum and its products, including Asphalt, continued to form the largest part, viz.: 78.64 per cent. of the Colony's total exports during 1940; the value being more than seven times that of the products of the next most important of its industries, viz.: Sugar (including molasses and rum).

The value of the leading staple products of the Colony exported during 1940 is shown in the following table :—

<i>Staple Products Exported.</i>	<i>Value.</i>	<i>Per cent. of Total.</i>
Petroleum and its Products	\$33,650,359	77.22
Sugar, Molasses and Rum	4,537,181	10.41
Cocoa	2,289,605	5.26
Fruits and Fruit Products	962,379	2.21
Asphalt	617,897	1.42
Coconuts, Copra and Coconut Oil	338,198	0.78
Bitters	87,717	0.20
Coffee	82,055	0.19
Other Exports not enumerated	1,008,312	2.31
	\$43,573,703	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 statistics relating to the progress of the petroleum industry which have been compiled by the Assistant Petroleum Technologist.

THE ASPHALT INDUSTRY.

21. This important industry has suffered severely as a result of the war, the main reason being the difficulty experienced in shipping the products to markets abroad. As a result the production of asphalt declined sharply during the year and amounted to only 78,652 tons as compared with 130,315 tons for the year 1939, a decrease of 51,663 tons or 39.64 per cent. The following table shows, comparatively, the quantity of asphalt produced and exported during the years 1938, 1939 and 1940 :—

			1938.	1939.	1940.
Production (in tons)	....	....	127,859	130,315	78,652
Export (in tons)	....	....	85,089	86,033	36,393

FACTORIES.

22. During the period under review 280 factories exclusive of oilfield machinery were in operation in Trinidad and Tobago. During the inspection 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 174 as compared with 150 quarries in operation during the year 1939. 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 workmen 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 1940 eight fatal accidents occurred in the Petroleum Industry compared with six for the year 1939 and three occurred in other industries. Of the accidents which occurred in the Petroleum Industry five occurred at refining installations and three during drilling operations.

PETROLEUM ORDINANCE, CAP. 145.

25. The premises where dangerous petroleum products are stored have been inspected, and all possible care has been taken to secure safety. During the year 595 licences were issued for the storage and sale of petroleum and its products. The revenue actually collected from such licences during 1940 was \$1,850.40.

LEGISLATION.

26. On the 12th July, 1940, the Drilling Regulations, 1940, made under Section 25 of the Mines, Borings and Quarries Ordinance, Cap. 142, were passed by Legislative Council and came into force as from the 25th July, 1940. Regulations Nos. 4 and 5 of the Regulations made under the authority of the Oil Mining and Refining Ordinance, Cap. 143 and the Petroleum Ordinance, Cap. 145 for the safe working of Oil Tanks and Gas Separators containing dangerous petroleum or dangerous petroleum products or gas were amended during the year.

APPENDICES.

27. Appendix "A" shows the list of oil and asphalt operators in the Colony during the year 1940.

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 1940.

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.

STAFF.

Mr. A. C. Francis-Lau, 1st Class Clerk, was granted 90 days vacation leave with effect from the 17th June, 1940.

Mr. R. V. O'Neill, 2nd Class Clerk, was granted 114 days vacation leave with effect from the 2nd December, 1940.

On the 7th October, 1940, Mr. L. E. McLearn, 3rd Class Clerk in the Petroleum Office, San Fernando, resigned his appointment and Mr. C. Ahwai was appointed on the 18th November, 1940, to fill this vacancy.

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

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

26th May, 1941.

APPENDIX "A".

No.	Company.	Nature of tenure of lands on which operations took place.	District in which operations took place.	Disposal of Oil.
1	Antilles Petroleum Co. (Trinidad), Ltd.	Private Lands	Vessigny, Roussillac ..	Crude Exported.
2	Apex (Trinidad) Oilfields, Ltd.	Private Lands, Crown Lands and Crown Oil rights under lease	Fyzabad and Siparia	Crude Oil sold to Trinidad Leaseholds, Ltd. Casing head gas sold to United British Oilfields of Trinidad Ltd.
3	Coldan Syndicate	Private Lands	Guapo	—
4	Cory Bros. & Co., Ltd. ..	Crown Lands under Mining Lease	Moruga Road ..	No production.
5	Golding Petroleum Field ..	Private Lands	Roussillac	Crude sold to Kern Trinidad Oilfields, Ltd.
6	Kern Trinidad Oilfields, Ltd.	Private Lands, Crown Lands and Crown Oil rights under Lease	Guapo	Crude sold to United British Oilfields of Trinidad, Ltd.
7	Partap, Ramesar	Private Lands	Fyzabad	Crude sold to United British Oilfields of Trinidad, Ltd.
8	Petroleum Options (1925) Ltd.	Private Lands	San Francique	Crude sold to Trinidad Leaseholds, Ltd.
9	Premier (Trinidad) Oilfields, Ltd.	Crown Lands under Lease ..	Palo Seco	do. do.
10	Siparia Trinidad Oilfields, Ltd.	Crown Lands and Crown Oil rights under Lease	Palo Seco, Morne Diablo	do. do.
11	Trinidad Central Oilfields, Ltd.	Crown Lands under Lease ..	Guapo, Barrackpore	do. do.
12	Trinidad Consolidated Oilfields, Ltd.	Private Lands, Crown Oil rights under Lease	Fyzabad	do. do.
13	Trinidad Lake Asphalt Operating Co., Ltd.	Crown Lands under Lease ..	La Brea	Pitch refined and exported.
14	Trinidad Leaseholds, Ltd. ..	Private Lands, Crown Lands and Crown Oil rights under Lease	Barrackpore, Forest Reserve, Guayaguayare, Quinam	Pumped to Company's Refinery at Pointe-a-Pierre.
15	Trinidad Oil Fields Operating Co., Ltd.	Private Lands, Crown Oil rights under Lease	Palo Seco, San Francique	Crude sold to Trinidad Leaseholds, Ltd.
16	Trinidad Petroleum Development Co., Ltd.	Private Lands, Crown Lands and Crown Oil rights under Lease	Coora, Los Bajos, Palo Seco	Crude sold to United British Oilfields of Trinidad Ltd.
17	Trinidad Northern Areas, Ltd.	Private Lands	Tortuga,	No production.
18	United British Oilfields of Trinidad Ltd.	Private Lands, Crown Lands and Crown Oil rights under Lease	Cedros, Parry Lands, Penal, Point Fortin	Refined locally.
19	Zenith Trinidad Oilfields, Ltd.	Private Lands	Fyzabad	Crude sold to Trinidad Leaseholds, Ltd.

APPENDIX " B. "

HONOURABLE INSPECTOR OF MINES AND PETROLEUM TECHNOLOGIST :

The production of crude oil for the year under review reached a further high record of 22,226,876 barrels, an increase of 2,485,260 barrels or 12.59 per cent. over the figure for 1939.

The footage drilled amounted to 1,025,622 feet, an increase of 190,776 feet or 22.85 per cent. more than the previous year's figure.

A comparison of footage and production figures for 1939 and 1940 is given below :—

	<i>Footage.</i>		<i>Production.</i>	
	1939.	1940.	1939.	1940.
Crown ...	377,737	556,120	9,724,193	11,448,511
Alienated ...	208,098	271,791	4,170,532	5,231,912
Private ...	249,011	197,711	5,846,891	5,546,453
Totals ...	834,846	1,025,622	19,741,616	22,226,876

Drilling.—During the year, 290 wells were started as compared to 245 during 1939, bringing the total number of wells started in the Colony to 3,519 by the end of the year.

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

	<i>On Crown Lands.</i>			<i>On Alienated Lands.</i>		<i>On Private Lands.</i>		<i>Total.</i>	
	1939.	1940.	1939.	1940.	1939.	1940.	1939.	1940.	
Unfinished at end of 1939 ...	27	4	24	55	45				
Started during 1940 ...	162	75	53	290	245				
	189	79	77	345	290				
Completed as Oil Producers ...	149	69	46	264	211				
Completed Fresh Water Wells ...	7	1	2	10	6				
Completed Dry Holes ...	—	—	—	—	2				
Abandoned while drilling ...	2	1	6	9	15				
Unfinished at end of 1940 ...	31	8	23	62	56				
	189	79	77	345	290				
Old Wells abandoned in 1940 ...	6	18	8	32	18				
Old Wells recompleted in 1940 ...	23	14	37	74	48				

The following tables are attached :—

No. 1—Showing drilling summary for 1940.

No. 2—Showing Production Summary for 1940.

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, 1940.

W. N. FOSTER,
Assistant Petroleum Technologist.

27th March, 1941.

TABLE I.
DRILLING SUMMARY FOR THE YEAR 1940.

Month.	Wells Started.			Completed as Producers.			Completed Water Wells.			Recompleted as Producers.			Abandoned.			FOOTAGE DRILLED.			
	C.	A.	P.	C.	A.	P.	C.	A.	P.	C.	A.	P.	C.	A.	P.	Crown.	Alienated.	Private.	Total.
January	12	5	4	10	3	3	1	—	—	—	—	5	—	1	1	43,498	20,017	17,895	81,410
February	10	7	5	13	7	2	—	—	—	1	2	2	—	—	2	35,394	22,739	13,239	71,372
March	8	8	3	7	6	6	2	—	—	1	—	3	—	—	1	26,985	23,892	15,540	66,417
April	10	4	4	7	5	3	—	—	—	—	2	5	—	3	1	42,430	22,589	17,938	82,957
May	11	8	5	13	8	4	—	—	1	4	1	2	—	—	—	32,657	20,554	16,557	69,768
June	16	6	4	9	5	4	1	—	—	2	2	7	1	—	2	46,421	19,125	12,397	77,943
July	11	6	4	10	8	2	1	—	—	3	—	2	—	—	2	40,748	26,636	16,268	83,652
August	13	7	5	11	6	6	—	1	—	4	3	3	—	2	1	51,491	21,972	14,459	87,922
September	12	8	5	12	4	5	1	—	—	2	2	4	—	1	1	55,350	21,451	15,898	92,699
October	17	4	7	16	5	4	—	—	—	—	—	3	—	1	—	53,771	24,680	24,901	102,752
November	18	4	3	20	5	4	—	—	—	4	—	—	1	—	1	64,089	25,397	13,372	102,858
December	24	8	4	21	7	3	1	—	1	2	2	1	6	11	2	63,286	23,339	19,247	105,872
TOTALS	162	75	53	149	69	46	7	1	2	23	14	37	8	19	14	556,120	271,791	197,711	1,025,622
		=290			=264			=10			=74			=41					

C.=Crown : A.=Alienated : P.=Private.

W. N. FOSTER,
Assistant Petroleum Technologist.

25th March, 1941.

TABLE No. 2.
ANNUAL PRODUCTION SUMMARY BY MONTHS DURING 1940.
(In Barrels of 35 Imperial Gallons).

MONTH.	Light Fractions returned to Crude.	Per Cent	FLOWING.			GAS/AIR LIFT.			PUMPING.			PLUNGER LIFT.			DISPLACEMENT PUMP.			BALING/SWABBING			Total No. Producing Wells.	Total No. of Wells drilled.	Prod. Wells Per cent. Wells Drilled.	PRODUCTION.					TOTAL.	
			No. of Wells	Production.	Per Cent.	No. of Wells	Production.	Per Cent.	No. of Wells	Production.	Per Cent.	No. of Wells	Production.	Per Cent.	No. of Wells	Production.	Per Cent.	No. of Wells	Production.	Per Cent.				No. of Wells.	Crown.	No. of Wells.	Alienated.	No. of Wells.		Private.
Jan. ...	4,035	.2	502	1,245,754	69.0	80	69,277	3.8	601	335,562	18.6	162	144,014	8.0	10	3,603	.2	51	2,139	.1	1,406	3,249	43.3	525	916,739	303	422,553	578	465,692	1,804,384
Feb. ...	4,809	.3	513	1,184,822	68.3	82	76,834	4.4	595	329,330	19.0	164	132,660	7.6	11	4,269	.2	61	2,013	.1	1,426	3,269	43.6	544	869,987	304	411,926	578	452,824	1,734,737
March ...	7,841	.4	517	1,240,816	67.7	88	95,327	5.2	605	348,458	19.0	165	134,331	7.3	10	4,688	.3	34	1,719	.1	1,419	3,290	43.1	548	890,336	309	460,951	562	481,893	1,833,180
April ...	6,972	.4	499	1,116,385	66.0	84	84,427	5.0	618	341,527	20.2	169	132,654	7.9	12	4,661	.3	51	3,614	.2	1,433	3,308	43.3	538	785,962	314	445,211	581	459,667	1,690,240
May ...	9,380	.5	528	1,244,466	67.0	92	97,910	5.3	611	346,360	18.9	169	128,797	7.9	13	4,760	.3	55	3,135	.1	1,468	3,332	44.1	559	888,559	326	462,018	583	484,231	1,834,808
June ...	8,178	.4	544	1,344,023	70.4	92	93,244	4.9	575	330,419	17.3	176	128,442	6.7	14	4,362	.2	52	1,495	.1	1,453	3,358	43.3	557	1,004,129	297	443,526	599	462,508	1,910,163
July ...	8,960	.5	534	1,355,763	69.6	100	98,322	5.0	609	348,305	17.9	179	128,324	6.6	14	5,220	.3	61	1,832	.1	1,499	3,389	44.2	573	1,034,330	322	442,734	604	469,662	1,946,726
Aug. ...	8,321	.4	546	1,375,224	69.8	108	109,910	5.6	603	344,041	17.5	181	124,494	6.3	15	6,271	.3	68	2,626	.1	1,521	3,404	44.7	587	1,066,700	330	436,720	604	467,467	1,970,887
Sept. ...	7,998	.4	547	1,336,402	69.3	117	106,253	5.5	618	339,900	17.6	183	130,483	6.8	15	5,767	.3	70	2,336	.1	1,550	3,429	45.2	593	1,028,627	345	448,774	612	451,738	1,929,139
Oct. ...	8,566	.4	544	1,366,199	69.7	112	98,381	5.0	624	345,783	17.7	190	131,619	6.7	15	5,703	.3	64	4,043	.2	1,559	3,457	45.1	597	1,075,422	352	420,885	610	463,987	1,960,294
Nov. ...	9,069	.5	544	1,219,778	68.7	93	98,761	5.6	615	319,741	18.0	192	120,829	6.8	15	5,416	.3	65	2,410	.1	1,524	3,482	43.8	563	932,460	356	403,622	605	439,922	1,776,004
Dec. ...	8,837	.5	549	1,250,116	68.1	107	111,290	6.1	613	341,259	18.6	192	116,896	6.4	14	5,162	.3	68	2,754	.1	1,543	3,518	43.9	573	955,260	360	432,992	610	448,062	1,836,314
TOTALS :	92,966	.4	Avg. 530	15,279,748	68.8	Avg. 96	1,139,936	5.1	Avg. 607	4,070,685	18.3	Avg. 177	1,553,543	7.0	Avg. 13	59,882	.3	Avg. 58	30,116	.1	Avg. 1,483	3,518	42.2	Avg. 563	11,448,511	Avg. 326	5,231,912	Avg. 594	5,546,453	22,226,876

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	79,907	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
1940	162	1,640	75	622	53	1,257	290	3,519	556,120	3,709,315	271,791	1,821,497	197,711	2,813,364	1,025,622	8,344,176
		1,640		622		1,257		3,519		3,709,315		1,821,497		2,813,364		8,344,176

Cum = Cumulative.

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Assistant Petroleum Technologist.

TABLE 4.
Yearly Trinidad Production.

Year.	Crown.	Cumu- lative Total.	Alienated.	Cumu- lative. Total.	Private.	Cumu- lative. 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	9,743,498	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
1940	11,448,511	93,336,572	5,231,912	34,179,321	5,546,453	77,271,142	22,226,876	204,787,035

Table 5.

Table showing number of wells started in each year and status of Wells at 31st December, 1940.

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.	Unt.
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	—	—	2	—	—	2	—	—	2	—	—	—	2	2	2	—
1910	5	—	7	—	—	1	3	—	1	2	—	5	—	—	—	1	4	7	—
1911	8	—	38	1	—	4	3	—	8	4	—	26	—	—	—	5	11	30	—
1912	10	—	35	2	—	6	3	—	6	5	—	23	—	—	—	8	9	28	—
1913	25	—	18	2	—	6	12	—	2	11	—	10	—	—	—	8	14	21	—
1914	50	—	16	9	—	7	17	—	2	24	—	7	—	—	—	16	19	31	—
1915	31	—	19	2	—	8	19	—	9	10	—	2	—	—	—	10	28	12	—
1916	28	—	20	6	—	11	12	—	5	10	—	4	—	—	—	17	17	14	—
1917	38	—	6	11	—	2	12	—	1	15	—	3	—	—	—	13	13	18	—
1918	38	—	4	12	—	—	15	—	—	11	—	4	—	—	—	12	15	15	—
1919	40	—	13	11	—	1	16	—	2	13	—	10	—	—	—	12	18	23	—
1920	43	1	23	5	—	5	22	—	3	16	1	15	—	—	—	10	25	32	—
1921	49	4	32	5	—	9	28	—	7	16	4	16	—	—	—	14	35	36	—
1922	68	4	20	4	1	4	41	—	4	23	3	12	—	—	—	9	45	38	—
1923	70	5	33	9	—	12	33	1	4	27	4	17	1	—	—	21	38	48	1
1924	67	8	34	10	—	9	37	1	14	20	7	11	—	—	—	19	52	38	—
1925	46	16	37	21	2	12	12	1	9	13	13	16	—	—	—	35	22	42	—
1926	69	13	46	14	2	22	34	1	12	21	10	12	—	—	—	38	47	43	—
1927	73	18	73	5	5	28	39	4	20	29	4	25	—	—	—	38	63	58	—
1928	43	33	64	9	15	2	21	13	23	13	5	14	—	—	—	51	57	32	—
1929	52	58	48	12	26	27	25	20	10	15	12	11	—	—	—	65	55	38	—
1930	76	31	56	19	9	25	44	13	16	12	9	14	1	—	1	53	73	35	2
1931	9	25	26	3	14	19	4	9	2	2	2	5	—	—	—	36	15	9	—
1932	21	20	20	4	12	15	15	8	2	2	—	3	—	—	—	31	25	5	—
1933	36	22	23	8	12	13	19	10	6	6	—	4	3	—	—	33	35	10	3
1934	56	30	38	26	22	25	22	6	9	5	2	4	3	—	—	73	37	11	3
1935	55	46	38	24	29	20	26	13	14	3	4	3	2	—	1	73	53	10	3
1936	59	39	73	30	26	41	24	6	17	4	7	11	1	—	4	97	47	22	5
1937	92	46	151	60	32	106	31	11	26	1	3	15	—	—	4	198	68	19	4
1938	110	67	102	65	57	65	36	5	19	8	5	13	1	—	5	187	60	26	6
1939	106	66	73	85	59	45	20	6	14	—	1	12	1	—	2	189	40	13	3
1940	162	75	53	118	56	37	24	10	4	2	1	6	18	8	6	211	38	9	32
TOTALS:	1,640	622	1,257	592	379	615	669	138	273	348	97	346	31	8	23	1,586	1,080	791	62
	3,519			1,586			1,080			791			62			3,519			

C.=Crown:

A.=Alienated:

P.=Private.

25th March, 1941.

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 1939 and 1940.

INDUSTRY.	1939.					1940.				
	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	19,741,616 bbls.	\$ c. 14,181,853 51	12,116	205	12,321	22,226,876 bbls.	\$ c. 17,311,199 37	13,374	194	13,568
Asphalt (a)	104,259 tons	312,777 00	552	6	558	48,151 tons	144,453 00	474	7	481
Private Quarries (Limestone, Gravel, &c.)	422,778 tons	174,022 87	728	208	936	466,727 tons	186,790 80	762	211	973
Government Quarries (Limestone, Gravel, &c.)	90,460 tons	63,382 15	287	73	360	89,680 tons	68,171 23	242	55	297

* 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.:

1939 26,056 tons. 1940 30,501 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	21	28	—	—	48/56 hrs.	<i>General Remarks.</i>
Rigmen employed in Production	20	30	—	—	do.	1. <i>Housing.</i>
Production men	15	21	—	—	do.	Accommodation is sometimes provided for those employees whose presence is required on the fields.
Rig Builders	16	30	—	—		
Blacksmiths	18	30	—	—		
Boilersmiths	18	30	—	—		
Cabinet Makers	18	30	—	—		2. <i>Medical Attention.</i>
Carpenters	18	30	—	—		(a) In the case of accident arising from employment medical attention is usually free. In other cases the practice varies from Company to Company.
Chauffeurs	18	30	—	—		
Electricians	18	30	—	—		
Firemen	16	24	—	—		
Fitters (Bench, Engine or Pump)	18	30	—	—	45/48 hrs. up to 56, when working on shift.	3 <i>War Bonus.</i> In addition to all the hourly rates stated there has been paid a "War Bonus Addition". This is payable at the of $\frac{1}{2}$ c. per hour for every 5 points increase in the Government cost of living index number. Such War Bonus additions during 1940 have been paid as follows: Effective 24th Jan., 1940— 1c. per hour. Effective 18th Feb., 1940— $1\frac{1}{2}$ c. per hour. Effective 15th Sept., 1940— 2c. per hour. the amount being paid at the close of the year is thus 2c. per hour additional on all rates.
Masons	15	26	—	—		
Motor Mechanics	18	30	—	—		
Moulders	15	26	—	—		
Painters	14	21	—	—		
Plumbers	15	30	—	—		
Riveters	18	30	—	—		
Tinsmiths	15	30	—	—		
Turners	18	30	—	—		
Welders	18	30	—	—		
Semi-skilled	13	26	—	—		
Un-skilled	13	18	—	—		

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
1940	22,226,876	20,188,921
	204,787,035	179,340,815

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.
1940 ...	...	...	...	...	...	...	...	22,060,110 do.
Total ...	...	...	...	...	...	...	...	<u>182,468,593</u> do.