

# PETROLEUM

## ADMINISTRATION REPORT OF THE PETROLEUM DEPARTMENT, 1948

HON. COLONIAL SECRETARY,

I have the honour to submit for the information of His Excellency the Governor, the following report on the Petroleum and Asphalt Industries of the Colony for the year 1948.

The report is set out in the sections, tables, Appendices and Maps as detailed below.

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## THE PETROLEUM INDUSTRY

### SUMMARY OF ACTIVITIES DURING 1948

2. There was little change during the year in the conditions governing the tempo of the industry ; allocations of steel and dollars continuing to be the main factors limiting activity.

3. Both drilling and production were maintained at the same level as during 1947, but more attention was given to exploration than formerly since diminishing crude reserves is a cause of concern to more than one Company.

4. In 1948 the Oil Industry contributed 75.7 per cent. of the value of the Colony's total exports and in direct taxation \$13,227,663 or over twenty-six per cent. of the Colony's total revenue.

5. Income Tax and Oil Royalties were the two main sources of revenue and both showed considerable increases over the previous year, owing to the higher average prices for crude oil and its products which prevailed during 1948.

### OUTLOOK FOR 1949

6. Allowing for profits Tax paid in the United Kingdom over 65 per cent. of the Industry's gross profits were absorbed by taxation in 1948 and an even higher percentage will be absorbed in this way during 1949. It is most probable that the oil industry's contribution to revenue in 1949 will remain an all time peak unless exploratory drilling discovers new reservoirs.

7. Fuel Oil prices have fallen rapidly since Mid-November, 1948 and crude oil prices may also fall during 1949 ; the aggregate earnings of the industry will be less, consequently the revenue from Income Tax and possibly also from royalties collectible in 1950 will be adversely affected.

8. In view of the possibility of falling crude prices, of diminishing crude reserves and of certain disquieting trends in production, an economy such as Trinidad's, which is dependant to such a large extent on the exploitation of a single wasting asset must give rise to considerable anxiety for the future.

9. This anxiety can only be relieved by successful exploratory drilling which, at the depths of 10,000 feet and more now required, costs in excess of \$400,000, per well.

10. An exploratory effort at \$400,000 per well on a scale adequate to maintain the present crude reserve figure is not concomitant with a taxation level draining 65% of the industry's gross profits in the present circumstances. A detailed report follows :—

### EXPLORATION

11. Geophysical survey work, which came to a standstill early in the War, was resumed late in 1946. Trinidad Northern Areas Ltd. employed the Gravimeter Exploration Company to make an extensive survey covering the whole island south of the Northern Range. The territorial waters from Claxton Bay round the Cedros Peninsula to Islote Point and an area at high seas in the gulf of Paria were also covered by this surf survey.

12. The Trinidad Petroleum Development Co. Ltd. also employed the Gravimeter Exploration Company during the first half of 1947 to make a survey over 241 square miles in the south of the Island covering the area from the Erin basin eastwards to Tableland and Moruga. Observations were made at 1,225 stations. During the latter part of 1948, this survey was extended to cover 270 square miles of marine area on the south coast and round the Cedros Peninsula, a further 476 stations being used.

13. Reflection seismograph surveys were carried out by Seismic Services Ltd. (U.K.) north of the Forest Reserve field and at Barrackpore for Trinidad Leaseholds Limited, also in the Erin Basin, North Ortoire and Penal Areas for United British Oilfields of Trinidad Ltd. Apex (Trinidad) Oilfields Ltd., and Kern Trinidad Oilfields Ltd., both employed Seismic Services Ltd. (U.K.) for reflection surveys over the synclinal portion of the Apex Field and over the south flank of the Central Range respectively.

14. The Oscar Weiss Geophysical Survey Company had both Seismic and gravimeter parties in the field. This Company conducted a gravimeter survey in the Lizard Spring and Guayaguayare areas for Trinidad Leaseholds Limited and over the Pitch Lake Area on behalf of Antilles Petroleum Co. A reflection and refraction survey was also made for the latter company over the Oropouche area. The National Mining Corporation also employed the Oscar Weiss Company for surveys in the Palo Seco-Erin Area, also in the areas of Otaheite and South Penal.

15. A considerable sum of money has already been spent by the Trinidad Oil Companies on Geophysical survey work. This work helps to locate deep structures not revealed by surface geology and so tends to reduce the chances of drilling a dry hole.

16. Thirteen exploratory wells were drilled during the year. Several of these obtained commercial production from comparatively shallow depths. In one case good production was obtained from the Herrera sand at a depth of over 9,500 feet. While the reservoir from which this well is producing may not add much to the Island's crude reserve figure, the discovery of commercial production at this depth is encouraging.

17. The Oil Companies exploratory drilling programmes show that at least four drilling rigs will be in continuous operation on exploratory work for the next two years. No exploratory drilling in deep water in Marine areas is expected before 1952 since it is most unlikely that the very expensive equipment required will be available before then. A few Marine locations near shore outstepping from existing fields may be drilled during 1950.

## DRILLING

18. During the year twenty-two (22) drilling rigs were in continuous operation, the total footage drilled being 638,681 as compared to 644,689 feet in 1947.

19. Statistics relative to drilling will be found in Table I item 14-21 inclusive ; the annual footage, item 18, and the average depth per well, item 21, being shown in graph form in Appendix " C ". A monthly analysis is given in Table II.

20. One hundred and forty-five (145) Oil Wells were commenced during the year and 141 were completed, the comparable figures for 1947 being 162 and 157 respectively. The completion figures for the two years are somewhat misleading since the footage of uncompleted wells drilling on 31st December, 1947 was only 66,682 whereas the comparable figure at 31st December, 1948 was 95,625 feet the average completion depths for the two years being practically the same. The total number of wells completed in the Colony to the end of 1948 was 4,684 of which 3,145 are on Crown Oil Rights and 1,539 are on private lands.

21. During the year Trinidad Leaseholds Limited used a weighted oil base mud for drilling nineteen exploitation wells. Inability of the electrical logging device to operate in oil base mud limits the use of this mud at present to interspaced wells. It is expected that this inability will shortly be overcome. The improved production performance of wells completed with oil base mud as compared to those completed with ordinary mud was notable. United British Oilfields of Trinidad Ltd. used an oil emulsion mud in most of their wells drilled during the second half of the year. This proved most successful in overcoming certain difficulties normally encountered when drilling in Trinidad.

22. The depth record for the Colony of 11,042 feet was not broken during the year but three wells were completed at depths of 10,000 feet and four others at more than 9,000 feet. Three new heavy deisel rigs arrived in the Colony and two were operating at the end of the year.

23. The number of oilfield operators during the year was reduced by 2 ; the assets of Zenith Trinidad Oilfields Ltd. being taken over as from the 31st March, 1948 by Trinidad Consolidated Oilfields Ltd., while Ramessar Partap's oilfield was taken over by United British Oilfields of Trinidad Ltd. A list of operators is given in Table VIII.

## PRODUCTION OF CRUDE OIL

24. The total production of crude for the year 1948 was 20,110,901 barrels, an average of 54,948 barrels per day. This represents a decrease of 2.0 per cent. compared to last year's figure. This decrease is a normal fluctuation and is not significant of any trend.

25. Statistics relative to crude oil production are shown under item numbers 0, 1, and 22-27 inclusive on Table I, items 1 and 25 being reproduced in graph form in Appendix " A ". In Table IIIA detailed monthly breakdown of production methods is given, the annual production contributed by the principal producing methods being graphed as a percentage of total production in Appendix " B ".

26. In this Department's Report for 1947, attention was called to the steady fall in the average daily production per producing well (Table I, item 25). This figure which reached a maximum of 41 barrels per day in 1940 had declined to 30 barrels per day in 1947 and again dropped in 1948 to 27.3 barrels per day. The drop was due to the operation of the same two principal causes noted in para. 10 of last year's report, namely, a further reduction in the ratio of the number of flowing wells to artificial lift wells, and a further reduction in the daily average production per flowing well, 50.7 barrels a day as compared to 54.2 for 1947. The ratio of the number of flowing wells to the number of pumping wells was 1 : 2.2 for 1948 as compared to 1 : 2.0 for 1947. The further fall in the daily average production per flowing well was largely due to there being fewer productive completions, only 134 as compared to 141 in the previous year, but drilling into partially depleted reservoirs was a contributory factor.

27. Attention should be called to the increasing production of salt water which is shown in graph form in Appendix " F ". Individual wells producing water are carefully examined and when the condition warrants it, repair work is done to exclude the water. The steady increase in salt water production is due to up-dip movement of edge water and is a normal feature of ageing reservoirs.

## REFINERIES

28. Eight permits for the refining of oil were issued under the Oil Mining and Refining Ordinance, five of these being for small field topping plants. No addition was made during the year to either the topping capacity or cracking capacity of the refineries which totalled about 95,000 barrels a day and 50,000 barrels a day respectively.

29. During the year Trinidad Leaseholds Limited modified certain existing equipment to recover Hydrogen Sulphide from the gas produced in the cracking plants. The Hydrogen Sulphide recovered will be converted into sulphur in a Claus Kiln Unit, now under construction, the output of which estimated at about 10 tons a day of sulphur, should be sufficient for the manufacture of the company's present requirement of sulphuric acid. Other existing equipment was being modified in order to produce Tetramer to be used in the formation of detergent Alkylate. Permission was also given to this company to extend its storage facilities by the installation of eleven additional tanks totalling 474,000 barrels capacity.

30. The completion of the Vacuum asphalt plant of the Point Fortin Refinery of United British Oilfields of Trinidad, Ltd. was delayed by certain equipment not being available and this plant was not able to start up during the year.

31. Crude run to stills (item 13 of Table I) amounted to 27,074,000 barrels, an increase of 7.1 per cent. on last year's figure. The increase is entirely due to the bigger volume of foreign crude imported in 1948. (item 8 of Table I).

## NATURAL GASOLENE RECOVERY PLANTS

32. Two plants for the recovery of natural gasolene were in operation during the year. The charcoal adsorption plant operated by Apex (Trinidad) Oilfields, Ltd. processed 78% of the company's total production of gas, the average daily throughout being 9.1 million cubic feet for a recovery of 1.01 gallons per thousand cubic feet.

33. The oil absorption plant operated by Trinidad Petroleum Development Co. Ltd. was working throughout the year and handled 57% of the Company's total production of gas processing an average of 7.2 million cubic feet a day for a recovery of 1.04 gallons per thousand cubic feet.

34. The charcoal plant on the Guayaguayare field of Trinidad Leaseholds Ltd. and the oil absorption plant belonging to Kern Trinidad Oilfields, Ltd. were both shut down during the entire year.

35. A small amount of compression gasolene is made by Apex (Trinidad) Oilfields Ltd. and also by Trinidad Leaseholds Ltd. In both cases the gasolene is blended into crude oil before delivery to the Refinery.

## NATURAL GAS

36. During the year 53.5% of the total gas production of the Colony was used as fuel in steam plants on the fields or in the Refineries. It is gratifying to note that after considerable delay in the arrival of compressors and pipeline, Trinidad Leaseholds Ltd. are now able to purchase from United British Oilfields of Trinidad Ltd. and to collect from their own fields sufficient gas to meet the fuel requirements of the Refinery thus releasing for export an additional volume of fuel oil.

37. The repressuring experiment on the Forest Reserve Field of Trinidad Leaseholds, Ltd. was continued throughout the year, three input wells being used in one area and one in another area, an average of 3.4 million cubic feet of gas per day being returned to formation. After the installation of new compressors now on order it is hoped that the input volume will be doubled. Careful records are kept of the resultant changes in the bottom hole pressures and production of other wells drilled into the same reservoir as the input wells. Interesting effects have been obtained and it is expected that an increase in ultimate production will result which will considerably more than offset the cost of this work.

38. A monthly analysis of gas production and utilisation is shown in Table IV.

39. The quantities shown in this Table under the head "not collected" represent almost entirely gas produced at atmospheric pressure at the casing heads of pumping wells. A little gas from flowing wells too far away from a gas line to permit of economic collection is also included.

40. The quantity shown as "vented as surplus" is blown off from relief valves in the gas line systems at times when consumption falls below local peak demands.

41. Inter-company transfers to relieve temporary local demands are of great assistance in elimination of the wasteful use of fuel oil in field boiler stations.

## LOADING FACILITIES

42. Four deep water piers equipped for loading tank vessels with crude oil or its products are in use and are situated at Point Fortin, Brighton, Point D'Or and Pointe-a-Pierre respectively. Bunkering facilities are also available in Port-of-Spain Harbour.

## PIPELINES

43. No important addition to the crude oil pipeline system was made during the year, the total mileage of pipes authorised under the Pipelines Ordinance being 390.

## TANK STORAGE

44. The total main storage capacity for crude oil and refined products amounted to 8,621,437 barrels at December, 1948, an increase of 3.3% over last year. Preparations for the erection of additional storage were being made at the end of the year.

## CONTRIBUTION TO THE REVENUE OF THE COLONY

45. Direct contributions to revenue made by the Oil Industry amounted to \$13,227,663 or over 26% of the Colony's total revenue. Details are given in Table VI. Notable increases over last year's figures occurred in the two largest sources of revenue, namely, Income Tax (item 3), and Royalties on Oil (item 7).

46. Income Tax yielded \$7,441,508 in 1948 as compared to \$3,552,074 in the previous year. About \$11,000,000 may be collected under this head during 1949, the further increase being due to two causes :—

1. An increase from 40 to 45 per cent. in the Income Tax rate effective from 1st January, 1948.
2. An increase of about 40 per cent in the average value of crude oil during 1948 as compared to the average value for 1947 with a corresponding increase in profits.

47. Royalties paid on oil and gas (item 7 of Table VI) increased from \$1,976,989 in 1947 to \$4,030,076 in 1948. The increase is due partly to the royalty rate for 1948 being 40 per cent. higher than the average rate for 1947 and partly to a balance of \$1,254,824 collected in respect of the year 1946 and 1947. This balance is an adjustment from a provisional rate of 8 cents previously paid in respect of those two years to the new rates calculated under the Land (Oil Mining) Regulations, 1948.

48. The price of West Texas Sour Crude, from which the royalty rate is calculated, remained constant throughout the year at U.S. \$2.18 per barrel of 23.0-23.9 A.P.I., the corresponding royalty rate being 27.672,737 Trinidad cents per barrel.

49. While there has been no change in West Texas Crude prices, the rapid fall in fuel oil prices which commenced in Mid-November, 1948 and which has continued during January and February 1949 has thrown the price structure out of gear. The export price of Bunker "C" Fuel in cargo lots from Gulf Ports quoted at U.S. \$2.46 per barrel on 13th November, 1948 had fallen to U.S. \$1.35 per barrel by 7th March, 1949. The resulting abnormal condition of fuel oil selling at a considerably lower price than the cheapest U.S. crude cannot last long. Re-adjustment to a more normal condition may involve a general fall in crude prices and if this occurs the royalty collectable during 1950 will be substantially less than that collected during the past year.

50. The incomes of the local Refining Companies and of those local producing Companies whose realisations from crude oil sales depend on the U.S. prices of petroleum products are directly affected by the fall in fuel prices, and this circumstance coupled to the effect of reducing the Income Tax rate to 40% for 1949 will result in a considerable reduction in revenue under this head collectible during 1950.

51. Harbour dues on petroleum cargoes (item 13 Table VI) again showed an increase due to increase in the importation of foreign crude. A further increase is expected during 1949.

52. Customs receipts (item 1 of Table VI) which are mainly import duty, rose by nearly 20 per cent. Of the total value of materials imported by the industry, 60 per cent. was of U.K. Origin (item 6, Table VII) and 40 per cent. was from other countries (item 7, Table VII). This proportion was the same as in 1947. Revenue from Excise duty on petroleum products sold to the general public (18 cents a gallon on motor spirit, and 6 cents a gallon on kerosene) showed an increase of 11 per cent. over the figure for 1947. (See item 22 of Table VI).

#### LOCAL DISBURSEMENTS

53. The sum expended annually in the Colony by the Oil Industry other than in direct contributions to revenue is shown in Table VII. It will be noted that the amount has increased by 11 per cent. over the figure for 1947, while the average number of persons employed increased by 5.6 per cent. These two items are shown in graph form in Appendix "D".

54. Items 5 and 8 of Table VII and item 19 of Table VI when added together give some indication of the trend of the total outgoings of the industry. This figure, which was just over \$43,000,000 for 1947 exceeded \$54,000,000 in 1948, an increase of \$11,000,000 or 25 per cent. in one year. The increase is distributed roughly as follows:—

Direct taxation	...	...	...	...	\$6,000,000
Overseas purchases	...	...	...	...	3,000,000
Payments to employees and contractors	...	...	...	...	3,000,000
Total	...	...	...	...	<u>\$11,000,000</u>

#### EXPORTS OF PETROLEUM AND ITS PRODUCTS.

55. The quantity of petroleum and its products exported during the year (Table I, items 10-12) again showed a large increase due to increased importation of foreign crudes. A detailed breakdown of stocks, imports and exports of petroleum products is given in Table V. The export of local crude to Canadian refineries was nearly doubled, being 1,706,000 barrels as compared with 881,000 barrels in 1947.

The amounts and values of petroleum and its products exported during 1947 and 1948 based on Customs and Excise Department figures are:—

1947	22,926,397 barrels valued at	...	...	...	\$61,897,237
	Petroleum bitumen (Company's figure)	...	...	...	1,253,869
					<u>\$63,151,106</u>
1948	26,167,894 barrels valued at	...	...	...	\$93,425,393
	Petroleum bitumen	...	...	...	2,681,404
					<u>\$96,286,797</u>

56. Petroleum and Asphalt and their products continue to form the largest part, namely, 78.0 per cent. of the Colony's export during 1948.

The value of the leading staple products of the Colony exported during 1948 is shown in the following table:—

	Value	Percentage of Total
	\$	
Petroleum and Asphalt and their Products	99,232,778	78.07
Sugar, Molasses and Rum	15,395,575	12.11
Cocoa	8,353,312	6.57
Fruits and Fruit Juices	2,216,648	1.75
Coconuts, Copra and Coconut Oil	56,688	0.05
Bitters	409,542	0.32
Coffee	528	0.00
Other exports not enumerated	1,440,313	1.13
	<u>\$127,105,384</u>	<u>100.00</u>

57. The combined values of petroleum and asphalt together with their products exported annually is shown in Appendix "D" graphed as a percentage of the total annual value of the Colony's exports.

In spite of the increased value of petroleum products during the past two years the percentage of the Colony's exports contributed by the Oil and Asphalt Industries has already fallen from 82% in the peak year, 1943, to 78.0% in 1948 and a further drop will occur in 1949.

### The Asphalt Industry

58. In November, 1948, Government was notified that the Barber Oil Corporation of Philadelphia wished to relinquish its interest in the asphalt business in Trinidad. This interest consisted of the share capital of both the Trinidad Lake Asphalt Company Ltd and the Trinidad Lake Asphalt Operating Co. Ltd. The former company held the lease of the Pitch Lake while the latter company operated the Lake under licence and owned certain freehold lands and plant.

59. Approval was given to Previte & Co. Ltd., a London Company, which handles the Lake Asphalt business for most of Europe, to acquire U.S. currency to be paid to the Barber Oil Corporation for the shares in the Company which holds the lease, and the shares in the present operating company. The unexpired portion (seven years) of the term of the present lease of the Pitch Lake will accordingly be assigned to Previte & Co. Ltd.

The Barber Oil Corporation will continue to operate its other interests in the Colony.

60. The following Table shows the quantity of natural asphalt produced and exported :—

	1946	1947	1948
	<i>Production in Tons</i>		
Removed by Public Works Department ...	35,263	25,350	25,327
Removed by Company ...	58,588	61,996	103,666
	93,851	87,346	128,993
QUANTITY EXPORTED			
Crude Asphalt ...	585	342	16
Dried Asphalt ...	29,063	32,360	41,988
Asphalt cement ...	29,843	25,470	49,368
	59,491	58,172	91,372

### Administration

#### PERMIT TO IMPORT CRUDE OIL FREE OF DUTY

61. In order to protect and encourage the production of local crude oil, the Trinidad Customs tariff has included a duty on imported crude and refined petroleum products, but permits to import crude oils and charging stocks free of duty have been issued to the refining Companies for limited periods from time to time.

62. At the end of the war refining capacity in Trinidad was considerably in excess of that required to process indigenous production. Consequently, Government granted several applications by Trinidad Leaseholds, Ltd. to import crude oil free of duty, and at 31st December, 1948, these permits altogether covered an average volume of 1,100,000 barrels per month.

63. Since the war Trinidad Leaseholds, Ltd. decided on a policy of expansion which would involve considerable expenditure on refinery modernisation and enlargement. This expenditure would only be justified if the Company was assured of a supply of raw material for a sufficient period to amortise its capital outlay. Moreover the full range of petroleum products required to-day cannot be manufactured economically from local asphaltic crudes. The importation of paraffinic-based crudes is essential for the local manufacture of kerosenes, diesel oils and a base for lubricating oils.

64. The Company was therefore granted a permit to import duty free, for a period of 25 years commencing on the 1st January, 1949, crude oil and/or charging stocks and/or blending stocks for its own account or for processing and re-exportation in such quantities as will at any particular time be necessary to maintain the Companies refineries at full operating capacity.

65. This permit cancelled all previous permits and was subject to certain conditions which include :—

1. An undertaking to make every reasonable effort to maintain and increase its own indigenous production.
2. An undertaking to purchase indigenous crude offered on certain terms.
3. The maintenance on average of one drilling rig for exploration work during the first eight years of the permit.
4. An obligation to purchase Government's royalty oil derived from the Company's leases.

66. The permit is subject to cancellation by the Governor-in-Council in case of a breach of or non-compliance with any of the conditions attached to the permit.

67. The granting of this permit will enable the Company to enter into long term contracts for the purchase and processing of foreign crudes and will ensure the development of a refining industry in Trinidad on a larger scale than that which could be maintained by indigenous production only.

## METHOD OF ASSESSMENT OF ROYALTY

68. Under the terms of Clause 7 of Schedule II to the Land (Oil Mining) Regulations, 1934, either the Governor or any lessee (subject to a production qualification) may give six months' notice prior to the end of a triennial period requiring a new method of assessment of royalty for the next triennial period. A triennial period under the 1934 Regulation ended on the 31st December, 1948, the rate of royalty during this period being 10% of the value of the crude. The greatly increased profits earned by the Oil Companies during 1948 suggested that Government might be justified in asking for a new method of assessment of royalty for the new triennium commencing on the 1st January, 1949, which would yield more than 10% of the value of the crude. Moreover, with the increasing awareness of the Trinidad public that the overall economy of their Colony is entirely dependent on a flourishing oil industry and with a large number of private royalty owners here, it is inevitable that the local industry should be compared with that in other oil producing countries and the question asked why the royalty rate on crude oil is 12½% in one country, 16 2/3 in another, but only 10% in Trinidad.

69. In view of the above, a careful survey of all relevant factors was made by this Department. With regard to the variation in royalty rates between different countries it must be pointed out that royalty on oil is only a part of the total taxation borne by the oil industry and that the sum of other forms of taxation is greater in Trinidad than in any other oil producing country.

Recent legislation in one country in the Caribbean area, where the royalty rate is much higher than in Trinidad, has amended the law relating to income tax so that oil companies total direct contribution to revenue including customs dues, royalties, &c., is adjusted to approximately 50% of the balance left after deducting outgoings other than taxation from gross income. In Trinidad total taxation is not limited in this way so that during 1948 Oil Companies direct contributions to local revenue represented on average 60 per cent. of the balance from gross income after deducting the other outgoings. Taking into consideration the profits tax paid in the United Kingdom by the local oil companies their total taxation amounts to more than 65 per cent. of their gross profits.

70. It should also be pointed out that whereas in Trinidad the average production per well was only 27 barrels a day in 1948, the comparable figure for the Caribbean area was 160 barrels a day. Although drilling costs are not quite the same in the various countries concerned, these figures indicate that the return in barrels per dollar invested is considerably lower in Trinidad than in the Caribbean area as a whole. On the other hand, total taxation is higher in Trinidad than in other Caribbean countries.

71. Other points taken into consideration were :—

1. Operating and development costs still show an upward trend.
2. Drilling and production are still limited by availability of materials and hard currency.
3. Drilling and production costs are increasing with increasing depth of wells while average return in barrels per foot drilled is decreasing.
4. The prices of crude and its products appear to have reached a peak and may fall during 1949 and 1950.
5. A decrease in the ratio of the U.S. prices of products to the U.S. price of crude would result in those oil companies whose realisations are based on U.S. prices of products automatically paying a higher percentage royalty on their realisation since the value of crude oil for royalty purposes is calculated from U.S. crude prices.
6. The amount of profit which can be ploughed back into the industry is severely limited by existing taxation.

72. It appeared, therefore, that existing taxation, particularly customs dues, income tax, profits tax and royalties provided a revenue offtake from the industry which could not be safely exceeded under present conditions. Other conditions remaining unaltered, an increase in the average production per well per day such as might be occasioned by the discovery of prolific new pools in depth, would provide greater justification for asking for a royalty rate in excess of 10 per cent than simply an increase in the volume of profits which existing taxation appears to tap adequately. Accordingly, Government did not ask for a rate of royalty in excess of 10 per cent. of the value of the crude for the triennium commencing on 1st January, 1949.

## SALE OF OIL TAKEN BY GOVERNMENT AS ROYALTY IN KIND

73. The Lessees of the seven old type leases, under the provisions of which the Governor has exercised his option to take royalty in kind, continued throughout the year to buy the royalty oil back from Government at a fixed price of 40/- per ton (See paragraphs 44-46 of this Department's Report for 1947). This price, became more inadequate with each rise in the Gulf Export Price of Crude. Accordingly, after agreement had been reached with the oil companies on the new method of evaluating Trinidad crude for royalty purposes in connection with leases issued under the 1934 Regulations, Government gave the lessees of the old type leases 12 months' notice (required by the sales agreement) as from 1st May, 1948, of its decision to terminate the agreement on the 30th April, 1949.

A further notice was served on the lessees of the old type leases informing them that as from 1st May, 1949, the Governor would again exercise his option to take royalty in kind.

## RETAIL PRICE OF GASOLENE

74. On the 5th September, 1938 the retail price of gasoline was reduced from 36 cents to 35 cents per imperial gallon, the latter price remaining effective during the whole of the War. Early in February, 1948, the two distributing Companies submitted a joint memorandum to Government setting out their case for an immediate increase in Gasolene and Kerosene prices and the matter was referred to this Department.

75. The retail selling price of Gasolene and Kerosene in Trinidad is arrived at by taking the low quotation published in Platt's Oilgram for Gulf Export Cargoes of these products and adding thereto freight from refineries to Port-of-Spain, insurance, excise duties, distributing costs, dealers' margin, and a reasonable and fair profit to the marketing companies. This basis of arriving at selling prices is accepted the world over.

76. The Gulf price for 70 octane motor spirit rose from 5.00 U.S. cents per American gallon in December, 1938 to 8.75 U.S. cents per American gallon in October, 1947, equivalent to an increase of 5.4 Trinidad cents per Imperial gallon (due allowance being made for rates of exchange). In the same period the Gulf Export price of water white kerosene rose from 4 cents to 9 cents U.S. currency per American gallon, an increase of almost 6 cents Trinidad currency per Imperial gallon, allowing for the appropriate rates of exchange. The cost of production of local crude oil almost exactly doubled between 1938 and 1948, the local freight and distribution costs also rose in about the same proportion during that period. The only part of the retail prices which had remained constant during the period 1938-1948 was the Excise duty of 18 cents a gallon on gasolene and 6 cents a gallon on kerosene. As a result of these price rises the distributing companies were, early in 1948, operating at a loss of several hundred dollars per day.

77. Government while sympathising with the distributing Companies was most averse to allowing any increase in the price of kerosene which would have the effect of increasing the cost of living of the working man. After difficult negotiations, agreement was reached whereby in consideration of an increase of 5 cents a gallon in the price of gasolene the companies agreed that the price of kerosene should not be increased for the time being. It was further agreed that the future price of gasolene should rise or fall by 1 cent Trinidad currency per Imperial gallon for every rise or fall of not less than  $\frac{3}{4}$  United States cent per American gallon in the low quotation of Platt's Oilgram for the Gulf Export Price of the equivalent grade of motor gasolene to that marketed in Trinidad. The retail price of gasolene was therefore increased on the 20th May, 1948 from 35 to 40 cents per Imperial gallon.

#### RETURNS

78. Returns submitted by the oil companies under the various Ordinances and Regulations in respect of their operations have been regularly received and checked. The assessment of royalty under the Land (Oil Mining) Regulations, 1948 required the determination of the average specific gravity of crude oil over each half-yearly royalty period for each individual lease. This involved the examination of a large volume of statistical records and provided an opportunity to standardize the methods of reporting and checking production and royalty returns. I am glad to record the ready co-operation of the Oil Companies' technical staffs in this work.

#### INSPECTIONS AND ACCIDENTS

79. A large part of the inspection work and investigation of accidents formerly undertaken by this Department was transferred to the Inspectorate Staff of the Industrial Adviser's Department during the year.

#### LEGISLATION

80. The Land (Oil Mining) Regulations, 1948 were published on 7th October. These Regulations describe a new method of assessing royalty on crude oil and on natural gasolene. They were retro-active as from 1st January, 1946 and applied to all leases issued under the Land (Oil Mining) Regulations, 1934.

81. The Petroleum Office and Conservation Board (Amendment) Ordinance, 1948, was published on 25th November. This ordinance was designed to simplify accounting procedure. It provides that moneys raised under the ordinance shall be paid into the general revenue of the Colony.

82. The Re-organisation of the Mines Department Ordinance, 1948, effective as from 18th December, 1948, distributed the duties formerly imposed on the Inspector of Mines and Petroleum Technologist between the Senior Inspector of Factories and the Petroleum Technologist.

83. The Petroleum (Amendment) Ordinance, 1948, effective 4th December, 1948 provided that the Governor-in-Council should have power to make regulations under the principal ordinance for protection against fire or explosion.

84. The Petroleum (Amendment) Regulations, 1948, effective 16th December, 1948, revoked Part IV of the Principal Regulations and provided new regulations for controlling oil tankers when in port. Part I of the Principal Regulations which describes the flash point test was revoked and replaced by a more modern test in line with the Imperial Petroleum (Consolidation) Act, 1928.

85. The Oil Tank Regulations, 1935 which had been amended three times were considered by a technical sub-committee of the Petroleum Association and by this department and a new set of regulations were drawn up. These were accepted by the Governor and were published as the Oil Tanks Regulations, 1949.

86. On 11th December, a Proclamation was issued under section 22 of the Petroleum Ordinance directing that sections 11 to 14 inclusive, 16 and 17, 19 to 25 inclusive and 27 to 30 inclusive of the Petroleum Ordinance shall apply to all mixtures of petroleum as defined by the Petroleum Amendment Regulations, 1948.

#### LEASES AND LICENCES

87. No principal leases were issued during the year, but five exploration licences were renewed.

Details of land held under lease or licence by the individual operators will be found in Table VIII.

A summary of the leasing situation as at 31st December, 1948 is as follows :—

		ACREAGE CROWN OIL RIGHTS							
		Surface rights in private ownership			Surface rights vested in crown				
		A.	R.	P.	A.	R.	P.		
<i>A.—Leases Registered</i>									
Principal Mining Leases	...	82	...	56,809	2	32½	160,125	3	36
Exploration Licences	...	5	...	—	—	—	130,379	0	07
		87		56,809	2	32½	290,505	0	03



## ACREAGE

## CROWN OIL RIGHTS

		Surface Rights in private ownership			Surface rights vested in Crown		
		A.	R.	P.	A.	R.	P.
B.—Leases granted but not yet registered ...	—	—	—	—	—	—	—
<i>Principal Leases</i>							
To United British Oilfields of T'dad Ltd. ...	1	—	—	—	2,517	0	0
<i>Supplemental Leases</i>							
To United British Oilfields of T'dad Ltd. ...	2	47	1	12	—	—	—
To Trinidad Leaseholds Ltd. ...	1	9	3	35	—	—	—
	4	57	1	07	2,517	0	00
<i>C.—Notice of intention to exercise option to convert a portion of an exploration licence into a Mining Lease</i>							
From Antilles Petroleum Co. (T'dad Ltd.) ...	...	—	—	—	9,640	0	00
From Trinidad Northern Areas Ltd. ...	...	—	—	—	7,602	3	21
From United British Oilfields of Trinidad, Ltd. ...	...	—	—	—	48,692	1	01
					65,935	0	22

*D.—Marine Areas*

A portion of the area of the territorial waters of the Colony and also of the High Seas area in the Gulf of Paria have been allocated to certain companies.

No licences have yet been issued.

*E.—Private Oilrights*

Returns submitted by the Oil Companies show that 125,294 acres of private oil rights were under lease at the end of the year.

The total of the leased areas under heads A, B and E above is 472,692 acres or about 39.6 per cent. of the total area of the Colony.

**Staff**

88. Mr. W. N. Foster, Acting Inspector of Mines and Petroleum Technologist, returned from London on the 8th March, 1948, after the Negotiations with the Trinidad Oil Companies on royalty assessment had been concluded. He was appointed to the post of Petroleum Technologist with retro-active effect from the 2nd October, 1946.

Mr. I. S. Rutherford, Acting Assistant Petroleum Technologist, was appointed to the post of Assistant Petroleum Technologist as from the 18th December, 1948.

Major A. G. A. Sutton was appointed to the post of Geologist from the 1st October, 1948, and represented the Trinidad Government at the International Geological Conference held in London. He assumed duties in Trinidad on the 26th January, 1949.

Mr. J. D. Back, Chief Draughtsman, was granted 48 days Vacation Leave as from 1st November, 1948.

Mr. R. V. O'Neill, Senior Clerk of this Department who was transferred on promotion to the Department of Works and Hydraulics did not take up the duties of the new post until the 1st April, 1948.

Mr. C. Niles, Senior Clerk, Judiciary who was appointed to replace Mr. O'Neill, took up duties on the 12th January, 1948.

Mr. H. O. Roberts, 1st Class Clerk, was granted 180 days Vacation Leave as from 20th July, 1948.

Mr. P. B. Ramroop, 2nd Class Clerk, was appointed to act during the absence of Mr. Roberts.

Mr. H. A. Ramsankar, 2nd Class Clerk, was granted 60 days Vacation Leave as from 2nd January, 1948.

Miss E. E. A. Maule was appointed to act as 2nd Class Clerk as from 1st July, 1948.

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

W. N. FOSTER,  
*Petroleum Technologist.*

28th March, 1949.

**TABLE I—ANNUAL STATISTICS OF PRODUCTION, DRILLING, EXPORTS AND IMPORTS**

Item		Unit	1948	% difference 47/48	1947	1946	1945	1944	1943	1942	1941	1940
0	PRODUCTION											
	Crude Oil as per previous Administration Reports (see footnote)	1,000's Bbls.	20,110	— 2.0	20,520	20,233	21,093	21,635	21,385	22,069	20,506	22,227
1	Crude Oil	do.	20,107	— 1.6	20,433	20,142	21,000	21,543	21,286	21,962	20,393	22,128
2	Natural Gasoline	do.	182	+ 0.6	181	187	182	185	182	197	219	208
3	TOTAL CRUDE AND NATURAL GASOLINE		20,289	— 1.6	20,614	20,239	21,182	21,728	21,468	22,159	20,612	22,336
4	From Crown Oil-rights	do.	15,309	— 0.4	15,373	15,541	16,878	17,430	17,089	17,833	15,424	16,717
5	From Private Oil-rights	do.	4,980	— 5.0	5,241	4,788	4,304	4,298	4,379	4,326	5,188	5,619
6	IMPORTS (ALL OILS)		8,882	+ 50.1	5,917	2,933	3,394	3,188	1,101	1,365	4,048	830
7	Imports of Refined Products	do.	22	+ 4.8	21	40	409	840	365	—	—	—
8	Imports of Crude Oil for refining	do.	8,840	+ 49.9	5,896	2,893	2,119	1,082	—	83	241	399
9	Imports of Other Oils for refining and blending	do.	20	—	—	—	866	1,266	736	1,282*	3,807*	431*
10	EXPORTS (ALL OILS)		26,168	+ 14.1	22,926	20,432	20,651	19,754	15,860	19,063	15,851	20,173
11	Exports of Crude Oil	do.	1,706	+ 93.6	881	263	—	—	—	—	161	228
12	Exports of Refined Products	do.	24,462	+ 10.9	22,045	20,169	20,651	19,754	15,860	19,063	15,690	19,945
13	CRUDE RUN TO STILLS		27,074	+ 7.1	25,281	22,713	23,170	22,498	21,086	21,914	20,812	22,060
14	NO. OF WELLS COMMENCED		As stated	— 10.5	162	124	110	105	127	169	270	283
15	NO. OF WELLS COMPLETED		do.	— 10.2	157	108	100	100	136	163	285	276
16	No. of Wells completed as Oil Wells	do.	134	— 5.0	141	104	95	96	133	156	275	264
17	No. of Wells Completed as Dry holes	do.	7	— 56.3	16	4	5	4	3	7	10	12
18	FOOTAGE DRILLED (ALL WELLS)		Feet	— 1.0	644,689	533,209	453,872	456,957	493,731	623,398	935,254	1,021,287†
19	Footage drilled on Crown Oil-rights	do.	489,987	+ 9.7	446,798	406,017	345,071	352,988	389,527	546,233	785,487	824,222†
20	Footage drilled on Private Oil-rights	do.	148,694	— 24.9	197,891	127,192	108,801	103,969	104,204	77,165	149,767	197,065†
21	AVERAGE DEPTH OF WELLS COMPLETED IN EACH YEAR (Item 15)		do.	+ 2.5	4,155	4,772	4,586	4,535	3,620	3,750	3,276	3,684
22	NO. OF WELLS PRODUCING (Average during Year)		As stated	+ 7.3	1,876	1,820	1,735	1,637	1,591	1,630	1,516	1,483
23	No. of Wells producing (Average during year) by Flowing	do.	629	+ 0.6	625	615	634	642	628	618	561	530
24	No. of Wells producing (Average during year) by Artificial Lift	do.	1,384	+ 10.6	1,251	1,205	1,101	995	963	1,012	955	953
25	AVERAGE DAILY PRODUCTION DURING YEAR PER PRODUCING WELL		Barrels	— 9.0	30.0	30.4	33.3	36.1	36.8	37.1	37.1	41.0
26	AVERAGE DAILY PRODUCTION DURING YEAR PER FLOWING WELL		do.	— 6.5	54.2	55.0	59.5	63.9	64.8	67.8	69.8	79.0
27	AVERAGE DAILY PRODUCTION DURING YEAR PER ARTIFICIAL LIFT WELL		do.	— 6.2	17.8	17.9	18.2	18.3	17.5	18.3	18.2	19.7

The difference between Items 0 and 1 is due to Item 0 including about  $\frac{1}{3}$  of total production of Natural Gasoline which was not disposed of as such but blended with crude oil at field storage.

\* Include Refined Product.

† Figures do not include water well footage as in previous Administration Report.

Petroleum Office,  
San Fernando.  
28th March, 1949.

I. S. RUTHERFORD,  
Assistant Petroleum Technologist.

TABLE II—MONTHLY ANALYSIS OF DRILLING RETURNS FOR THE YEAR 1948

1948	Wells started	Completed as producers	Recompleted as producers	Abandoned while drilling	Old Wells abandoned	Number of rigs running	Footage drilled	Average Footage drilled per day
January ... ..	11	12	10	2	7	22	58,986	1,903
February ... ..	12	8	5	1	4	23	44,484	1,589
March ... ..	14	14	9	1	9	24	56,856	1,834
April ... ..	12	13	8	0	1	21	52,418	1,747
May ... ..	12	8	6	0	4	22	57,461	1,854
June ... ..	13	13	6	0	1	22	51,666	1,722
July ... ..	13	12	11	0	1	23	62,134	2,004
August ... ..	9	8	6	1	2	22	43,924	1,417
September ... ..	13	10	6	0	1	22	47,202	1,573
October ... ..	9	13	8	0	1	23	50,380	1,625
November ... ..	12	13	10	1	1	21	52,487	1,749
December ... ..	15	10	8	1	1	23	60,683	1,957
<b>TOTALS</b> ... ..	<b>145</b>	<b>134</b>	<b>93</b>	<b>7</b>	<b>33</b>	<b>—</b>	<b>638,681</b>	<b>1,745</b>

TABLE III  
ANALYSIS OF MONTHLY PRODUCTION FOR THE YEAR ENDING 1948

All figures are for Dry Oil in Barrels of 35 Imperial Gallons

MONTH	FLOWING				GAS/AIR LIFT				PUMPING				PLUNGER LIFT				OTHER METHODS				Daily Average per Well	Total No. Wells produced	Total No. Idle Wells	Total No. Wells Abandoned	No. of Wells Drilling at end of month	Total No. of Wells started	PRODUCTION: DRY OIL IN BARRELS OF 35 IMPERIAL GALLONS				Total
	No. of Wells	Production	Per Cent.	Daily Average per Well	No. of Wells	Production	Per Cent.	Daily Average per Well	No. of Wells	Production	Per Cent.	Daily Average per Well	No. of Wells	Production	Per Cent.	Daily Average per Well	No. of Wells	Production	Per Cent.	Daily Average per Well							No. of Wells	Crown	No. of Wells	Private	
January ...	618	1,040,669	60.0	54.3	57	67,782	3.9	38.4	991	533,994	30.7	17.4	226	92,822	5.3	13.2	51	1,196	0.1	0.8	1,943	1,218	833	18	4,012	28.8	1,347	1,308,601	596	427,562	1,736,163
February ...	615	934,619	59.4	52.4	59	53,948	3.4	31.5	1,009	493,617	31.4	16.9	223	90,257	5.7	13.9	53	1,037	0.1	0.7	1,959	1,206	838	21	4,024	27.7	1,353	1,187,367	606	386,111	1,573,478
March ...	632	1,016,728	59.3	51.9	56	56,650	3.3	32.6	1,017	541,955	31.6	17.2	230	97,397	5.7	13.7	57	1,370	0.1	0.8	1,992	1,178	848	21	4,039	27.8	1,379	1,296,313	613	417,757	1,714,070
April ...	653	956,176	58.3	48.8	52	47,900	2.9	30.7	1,051	535,600	32.7	16.9	230	98,868	6.0	14.3	57	1,318	0.1	0.8	2,043	1,140	850	18	4,051	26.7	1,409	1,241,064	634	398,807	1,639,871
May ...	628	967,610	57.6	49.7	53	51,220	3.0	31.1	1,046	558,535	33.2	17.2	226	102,340	6.1	14.6	39	1,141	0.1	0.9	1,992	1,196	854	21	4,063	27.2	1,382	1,262,157	610	418,739	1,680,896
June ...	616	937,359	58.4	53.8	49	43,217	2.7	23.4	1,041	526,467	32.9	16.9	225	95,145	5.9	14.1	51	1,645	0.1	1.0	1,982	1,218	855	21	4,076	27.0	1,364	1,205,952	618	397,881	1,603,833
July ...	627	985,331	57.8	50.7	55	51,144	3.0	30.0	1,060	571,881	33.6	17.4	220	94,148	5.5	13.8	55	1,297	0.1	1.0	2,017	1,195	856	22	4,090	27.2	1,382	1,284,872	635	418,929	1,703,801
August ...	624	975,778	57.1	52.1	55	56,713	3.3	34.3	1,066	578,625	33.9	18.0	221	95,143	5.6	14.3	53	1,351	0.1	0.8	2,019	1,202	859	18	4,098	28.2	1,386	1,283,914	633	423,696	1,707,610
September ...	631	950,929	57.5	50.2	56	53,699	3.6	34.9	1,066	544,408	32.9	17.0	223	97,180	5.9	14.5	53	1,265	0.1	0.8	2,029	1,202	860	17	4,108	27.1	1,390	1,238,034	639	414,447	1,652,481
October ...	635	971,612	56.9	49.3	62	69,525	4.1	34.6	1,083	565,701	33.1	19.7	224	99,564	5.8	14.3	52	1,123	0.1	0.7	2,056	1,184	861	16	4,117	26.8	1,418	1,295,910	638	411,615	1,707,525
November ...	634	933,595	56.5	49.1	58	72,406	4.4	41.6	1,094	547,709	33.1	16.7	224	97,137	5.9	14.4	55	1,189	0.1	0.7	2,065	1,186	863	15	4,129	26.7	1,435	1,260,981	630	391,055	1,652,036
December ...	629	995,265	57.2	51.0	64	70,397	4.1	35.5	1,086	570,957	32.8	17.0	223	100,865	5.8	19.1	54	1,653	0.1	1.0	2,054	1,208	865	18	4,145	27.3	1,421	1,338,470	633	400,667	1,739,137
TOTALS ...	Avg. 629	11,665,671	Avg. 58.0	51.1	56	699,601	Avg. 3.5	33.2	1,051	6,569,178	Avg. 32.7	17.4	225	1,160,866	Avg. 5.8	14.5	52	15,585	Avg. 0.1	0.8	Avg. 2,013					Avg. 27.4	1,389	15,203,635	Avg. 624	4,907,266	20,110,901*
DAILY AVERAGES		31,873				1,911				17,949				3,172			43											41,540	13,408	54,948	

\* 3,447 Bbls. C.H.P.S. (Nat. Gasoline) included in this total : 20,110,901 Bbls.  
Total Production of C.H.P.S. (Nat. Gasoline) for 1948 : 182,163 Bbls.

3rd February, 1949

I. S. RUTHERFORD,  
Acting Assistant Petroleum Technologist.

TABLE IV—PRODUCTION AND DISPOSAL OF NATURAL GAS

(All figures in thousands of cubic feet)

1948	GAS PRODUCTION (M.C.Ft.)		GAS DISPOSAL (M.C.Ft.)				
	Gas Production	Inter Company Sales and transfers	Used as Fuel	Replaced in formation	Losses unaccounted for	Not collected	Vented as surplus
January ... ..	2,560,620	740,164	1,309,527	111,956	141,875	530,389	466,873
February ... ..	2,451,839	679,356	1,214,193	101,849	141,594	492,584	501,619
March ... ..	2,629,914	715,646	1,256,735	100,608	207,897	492,115	572,559
April ... ..	2,550,880	691,346	1,279,719	101,860	205,000	490,531	473,770
May ... ..	2,545,683	681,657	1,288,507	121,000	206,370	496,007	433,799
June ... ..	2,432,794	716,861	1,311,699	133,300	106,632	479,625	401,338
July ... ..	2,554,554	798,490	1,433,006	105,000	155,896	502,498	358,154
August ... ..	2,564,899	859,150	1,496,917	105,000	168,652	476,318	318,012
September ... ..	2,549,652	887,554	1,491,604	98,000	178,663	458,239	323,146
October ... ..	2,652,309	912,922	1,509,569	95,300	211,490	474,102	361,648
November ... ..	2,585,854	854,377	1,424,269	89,300	194,267	462,808	415,010
December ... ..	2,617,569	836,310	1,413,838	77,500	223,636	453,994	448,581
TOTALS ... ..	30,696,567	9,373,833	16,429,603	1,241,273	2,141,972	5,809,210	5,074,509
Percentage of Total	—	—	53.5	4.0	7.0	19.0	16.5

TABLE IVa—PRODUCTION AND DISPOSAL OF NATURAL GAS

(All figures in thousands of cubic feet)

1947	GAS PRODUCTION (M.C.Ft.)		GAS DISPOSAL (M.C.Ft.)				
	Gas Production	Inter Company Sales and Transfers	Used as Fuel	Replaced in formation	Loss unaccounted for	Not collected	Vented as surplus
January ... ..	2,352,041	670,208	1,177,842	40,870	188,565	477,740	467,024
February ... ..	2,267,553	624,281	1,108,844	56,650	157,121	495,431	450,507
March ... ..	2,392,051	639,704	1,189,997	73,125	155,523	551,162	422,244
April ... ..	2,434,991	692,588	1,215,872	69,000	114,618	616,675	418,826
May ... ..	2,483,651	716,264	1,306,535	76,000	131,189	536,524	433,403
June ... ..	2,436,327	683,917	1,277,854	58,000	127,008	557,581	415,884
July ... ..	2,498,324	658,073	1,196,175	81,300	220,613	553,917	446,119
August ... ..	2,479,643	655,850	1,166,750	100,500	168,761	525,767	517,865
September ... ..	2,521,535	626,924	1,153,565	69,300	142,377	573,985	582,108
October ... ..	2,607,103	820,171	1,335,539	78,500	199,009	480,114	515,941
November ... ..	2,535,413	758,253	1,118,720	84,000	185,017	517,738	629,938
December ... ..	2,608,894	783,345	1,123,720	116,948	161,256	534,678	672,292
TOTAL ... ..	29,617,526	8,329,578	14,371,413	901,593	1,951,057	6,421,312	5,972,151
Percentage of Total	—	—	48.5	3.0	6.6	21.7	20.2

TABLE V—RETURN OF PRODUCTION, STOCKS AND DISPOSAL OF PETROLEUM DURING THE YEAR ENDED 1948

All figures in Tons of 2,240 lb.

	Crude and Process Oils	AVIATION SPIRIT		Motor Spirit	White Spirit	Burning Oil	Vapourising Oil	Gas and Diesel Oil	Fuel Oil All Grades	Lubricating Oil and Greases	Bitumen	Other finished products	Feed or Blending Stock for Transfer
		100 Octane	Other Grades										
1. OPENING STOCKS ... ..	160,320	13,288	1,777	67,623	50	6,827	14,262	68,506	120,987	2,120	5,773	1,225	32,953
2. CRUDE OIL PRODUCTION INCLUDING CASING HEAD PETROLEUM SPIRIT ... ..	2,882,460	—	—	—	—	—	—	—	—	—	—	—	—
3. IMPORTS : Venezuela ... ..	733,473	—	—	—	—	—	—	—	—	—	—	—	—
Columbia ... ..	474,331	—	—	—	—	—	—	—	—	—	—	—	—
United States of America, United Kingdom, Netherlands West Indies and Canada	—	—	—	—	—	—	—	—	—	3,096	—	—	—
TOTAL IMPORTS ... ..	1,207,804	—	—	—	—	—	—	—	—	3,096	—	—	—
4. RUNS TO STILLs ... ..	3,829,401	—	—	—	—	—	—	—	—	—	—	—	—
5. PRODUCTS OBTAINED ... ..	—	58,545	20,357	616,499	654	59,354	167,534	561,193	2,078,369	352	61,098	17,319	59,756
6. CONSUMPTION : Trinidad and Tobago ... ..	—	—	—	62,931	368	13,898	—	21,351	92,201	2,469	8,044	7,963	—
Bunkers ... ..	—	4,612	—	—	—	—	—	148,424	917,139	—	—	—	—
Refinery Fuel ... ..	—	—	—	—	—	—	—	—	14,041	—	—	—	—
TOTAL CONSUMPTION ... ..	—	4,612	—	62,931	368	13,898	—	169,775	1,023,381	2,469	8,044	7,963	—
7. SHIPMENTS : Exported ... ..	230,065	59,851	19,059	558,034	—	44,291	167,727	395,590	1,037,239	123	53,481	8,944	58,178
Re-Exported * ... ..	—	—	—	—	—	—	—	—	—	599	—	—	—
TOTAL SHIPMENTS ... ..	230,065	59,851	19,059	558,034	—	44,291	167,727	395,590	1,037,239	722	53,481	8,944	58,178
8. CLOSING STOCKS ON 31ST DECEMBER, 1948 ... ..	162,791	7,370	3,075	63,157	336	7,992	14,069	64,334	138,684	2,377	5,346	1,637	42,020
9. BALANCE NOT SPECIFICALLY ACCOUNTED FOR ... ..	† 28,327	—	—	—	—	—	—	—	—	—	—	—	† 7,489

\* Fuel Oils imported for transshipment are not included in this Return.

† Pipeline losses, &c.

‡ Stock Adjustment

38th March, 1949.

I. S. RUTHERFORD,

Assistant Petroleum Technologist,

Petroleum Department.

TABLE VI—STATEMENT SHOWING CONTRIBUTIONS TO REVENUE OF THE COLONY BY THE OIL INDUSTRY

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
1. Customs ... ..	\$ 580,189	\$ 730,626	\$ 598,563	\$ 565,176	\$ 578,030	\$ 709,372	\$ 636,035	\$ 370,193	\$ 650,525	\$ 778,276
2. Licences and Internal Revenue not otherwise specified ... ..	71,383	106,841	109,221	110,592	121,974	130,733	120,484	167,062	150,919	145,874
3. Taxes on Income ... ..	794,247	1,433,272	1,579,143	1,865,856	2,918,920	2,666,052	3,076,581	2,730,744	3,552,074	7,441,508
4. Re-imbursements ... ..	16,444	18,745	17,294	16,581	16,621	19,176	21,839	16,808	23,884	30,071
5. Earnings of Government Departments ... ..	2,163	1,568	283	514	491	760	555	1,319	2,079	1,934
6. Miscellaneous ... ..	13,256	17,498	29,242	21,881	35,129	15,472	10,351	7,658	13,190	5,204
7. Royalty on Oil ... ..	1,042,864	1,218,391	1,323,304	1,183,177	1,498,307	1,351,531	1,428,160	1,287,917	1,976,939	4,030,076
8. Forest—Sale of Timber, &c. ... ..	48,759	50,823	67,622	52,192	31,999	35,629	34,606	43,698	51,880	58,915
9. Extraordinary ... ..	—	—	—	120	—	—	—	—	—	—
10. Cocoa Subsidy—Special Taxation ... ..	64,974	—	—	—	—	—	—	—	—	—
11. Emergency Taxation—Oil Impost ... ..	—	428,758	391,004	436,925	414,348	—	—	—	—	—
12. Levy on Income ... ..	—	—	1,103,896	3,526	—	—	—	—	—	—
SUB-TOTALS ... ..	2,634,279	4,006,522	5,220,112	4,256,540	5,615,819	4,928,725	5,328,611	4,625,399	6,421,540	12,491,858
13. Harbour Dues (For Ships' a/c) ... ..	—	—	—	—	—	169,513	190,480	226,055	367,345	557,040
SUB-TOTALS ... ..	2,634,279	4,006,522	5,220,112	4,256,540	5,615,819	5,098,238	5,519,091	4,851,454	6,788,885	13,048,898
14. Fees and Payments for Specific Services ... ..	12,106	8,676	10,880	7,606	10,783	8,009	10,331	11,060	16,261	9,294
15. Post Office ... ..	7,887	9,861	15,825	18,758	23,520	19,166	19,424	25,405	28,066	25,061
16. Rent of Government Property ... ..	4,220	2,441	2,754	1,778	1,489	1,079	2,509	49,999	5,662	4,174
17. Government Railway and Telegraph ... ..	61,840	119,467	73,770	47,667	80,080	62,734	77,260	107,499	110,571	101,209
18. Wharves and Harbours ... ..	80,754	63,866	74,221	22,018	34,499	28,259	50,533	47,767	127,194	39,027
19. GRAND TOTAL ... ..	2,801,086	4,210,833	5,397,022	4,354,367	5,766,190	5,217,485	5,679,148	5,093,184	7,076,639	13,227,663
20. Total Revenue of Colony under the above Eighteen Heads ... ..	14,331,566	16,894,077	21,134,915	26,768,239	33,373,031	29,158,819	34,900,299	47,776,085	42,075,147	49,593,902
21. Percentage of total Revenue of Colony contributed by Oil Industry ... ..	19.5	24.9	25.5	16.3	17.3	17.9	16.3	10.7*	16.8	26.6
22. Excise collected on Petroleum Products (paid by General Public) ... ..	963,774	1,048,716	1,299,940	1,468,132	1,212,306	1,255,876	1,491,779	1,762,496	2,135,938	2,381,909

\*NOTE—Drop in percentage of total revenue contributed by Oil Industry in 1946 was due to total revenue of Colony being increased by repayment by H.M. Treasury of a loan of \$9,200,000.

TABLE VII—STATEMENT SHOWING THE AMOUNT OF MONEY DISBURSED IN THE COLONY (OTHER THAN CONTRIBUTIONS TO REVENUE) BY THE OIL INDUSTRY

	YEARS									
	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
1. Payment to Employees * ... ..	\$ 6,835,576	\$ 8,205,922	\$ 8,963,560	\$ 10,377,356	\$ 11,695,979	\$ 12,401,298	\$ 12,781,464	\$ 13,896,842	\$ 14,701,680	\$ 16,201,000
2. Payments to Contractors * ... ..	1,416,032	2,395,281	2,408,097	2,638,996	2,969,415	2,871,227	2,410,418	2,369,675	2,855,917	3,543,432
3. Local purchases of materials ... ..	2,808,972	4,337,145	4,239,161	3,946,405	3,095,691	3,955,870	3,813,021	3,494,215	4,005,478	3,929,831
4. Other local expenditure (Rents, Private Royalties, &c.)	2,906,226	3,265,395	2,919,486	3,084,130	2,316,201	2,273,991	2,609,726	2,619,541	3,181,947	3,817,212
5. TOTAL ... ..	\$13,996,806	\$18,203,743	\$18,530,304	\$20,046,887	\$20,077,286	\$21,502,386	\$21,614,629	\$22,380,273	\$24,745,022	\$27,491,475
OVERSEAS PURCHASES OF MATERIALS, C.I.F. DOLLARS TRINIDAD CURRENCY	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
6. Importations from the United Kingdom ...	2,506,672	3,553,756	2,472,714	1,583,702	1,303,615	1,019,965	1,438,971	4,425,954	6,822,090	8,515,146
7. Importation from other countries ... ..	3,466,893	5,492,537	4,557,249	4,773,440	3,679,393	5,085,790	5,136,245	2,322,331	4,758,800	5,690,016
8. TOTAL ... ..	\$5,973,565	\$9,046,293	\$7,029,963	\$6,357,142	\$4,983,008	\$6,105,755	\$6,575,216	\$6,748,285	\$11,580,890	\$14,205,162

\* These amounts include hidden contributions to the direct revenue of the Colony in the form of Customs Duties, Income Tax, Licences, &c.



TABLE VIII—LIST OF OIL AND ASPHALT OPERATIONS IN TRINIDAD, 1948

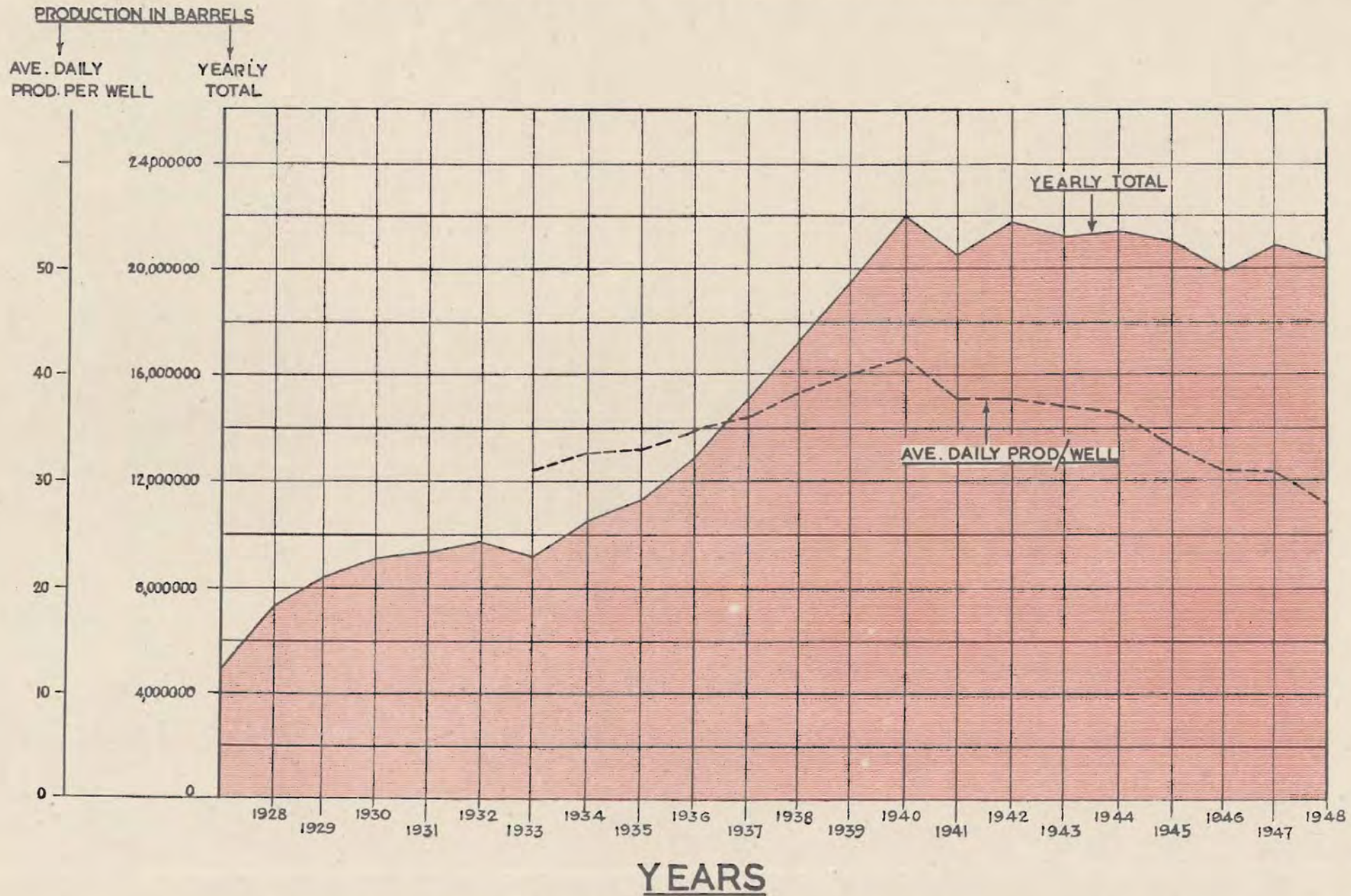
ITEM	OPERATORS	LANDS HELD UNDER MINING LEASE AT 31st DECEMBER, 1948									EXPLORATION LICENCES			DISPOSAL OF OIL OR PITCH
		A			B			C			A.	B.	P.	
		A.	B.	P.	A.	B.	P.	A.	B.	P.				
1	ANTILLES PETROLEUM CO. (TRINIDAD) LTD. ...	254	1	36	5,900	2	38	11,418	1	09	18,784	0	00	Exported
2	APEX (TRINIDAD) OILFIELDS LTD. ...	2,070	3	07	2,272	3	21	1,342	3	25	—	—	—	Sold to Trinidad Leaseholds Ltd.
3	KERN TRINIDAD OILFIELDS LTD. ...	331	1	12	592	3	37	13,449	1	18	—	—	—	Sold to United British Oilfields of Trinidad Ltd.
4	NATIONAL MINING CORPORATION LTD. ...	17,293	3	31	1,627	2	25	28,083	2	24	—	—	—	Sold to Trinidad Leaseholds Ltd.
5	PARTAP, RAMESAR* ...	—	—	—	—	—	—	—	—	—	—	—	—	Sold to United British Oilfields of Trinidad Ltd.
6	PREMIER (TRINIDAD) OILFIELDS LTD. ...	500	0	00	—	—	—	899	2	01	—	—	—	Sold to Trinidad Leaseholds Ltd.
7	ROODAL, TIMOTHY ...	—	—	—	9	2	12	—	—	—	—	—	—	Sold to Trinidad Leaseholds Ltd.
8	SIPARIA (TRINIDAD) OILFIELDS LTD. ...	1,900	1	10	10,976	3	28	79	2	17	—	—	—	Sold to Trinidad Leaseholds Ltd.
9	TRINIDAD CENTRAL OILFIELDS LTD. ...	6,996	2	31	—	—	—	35	2	00	—	—	—	Sold to Trinidad Leaseholds Ltd.
10	TRINIDAD CONSOLIDATED OILFIELDS LTD. ...	—	—	—	1,026	2	11	1,886	0	05	—	—	—	Sold to Trinidad Leaseholds Ltd.
11	TRINIDAD LAKE ASPHALT OPERATING CO. LTD. ...	109	0	00	—	—	—	—	—	—	—	—	—	Pitch refined and exported
12	TRINIDAD LEASEHOLDS LTD. ...	<del>9,776</del> 9,776	0	07	15,563	2	20	14,646 10,835	1 3	6 30†	—	—	—	Pumped to Company's Refinery at Pointe-a-Pierre
13	TRINIDAD PETROLEUM DEVELOPEMENT CO. LTD. ...	20,119	2	11	5,659	2	27	23,004	2	24	—	—	—	Sold to United British Oilfields of Trinidad Limited
14	UNITED BRITISH OILFIELDS OF TRINIDAD LTD. ...	18,882	3	11	13,179	0	13‡	12,918	1	26	48,596 45,901 2,790	0 1 3	00 01 25	Pumped to Company's Refinery at Point Fortin
15	ZENITH (TRINIDAD) OILFIELDS LTD. † ...	—	—	—	—	—	—	—	—	—	—	—	—	Sold to Trinidad Leaseholds Ltd.
16	TRINIDAD NORTHERN AREAS LTD. ...	—	—	—	—	—	—	2,568	2	20	14,306	3	21	
	TOTALS ...	160,234	3	36	56,809	2	32‡	121,168	3	05	130,379	0	07	

17

A. Crown Oil Mining Lease (Crown surface, Crown Oilrights)  
 B. Alienated Oil Mining Lease (Private surface, Crown Oilrights)  
 C. Private Oil Mining Lease (Private surface, Private Oilrights)  
 \* Leased to United British Oilfields of Trinidad Limited on 1st April, 1948.  
 † Held jointly by Trinidad Leaseholds Limited and United British Oilfields of Trinidad Limited  
 ‡ Purchased by Trinidad Consolidated Oilfields Limited on 31st March, 1948

W. N. FOSTER,  
 Petroleum Technologist, Petroleum Department

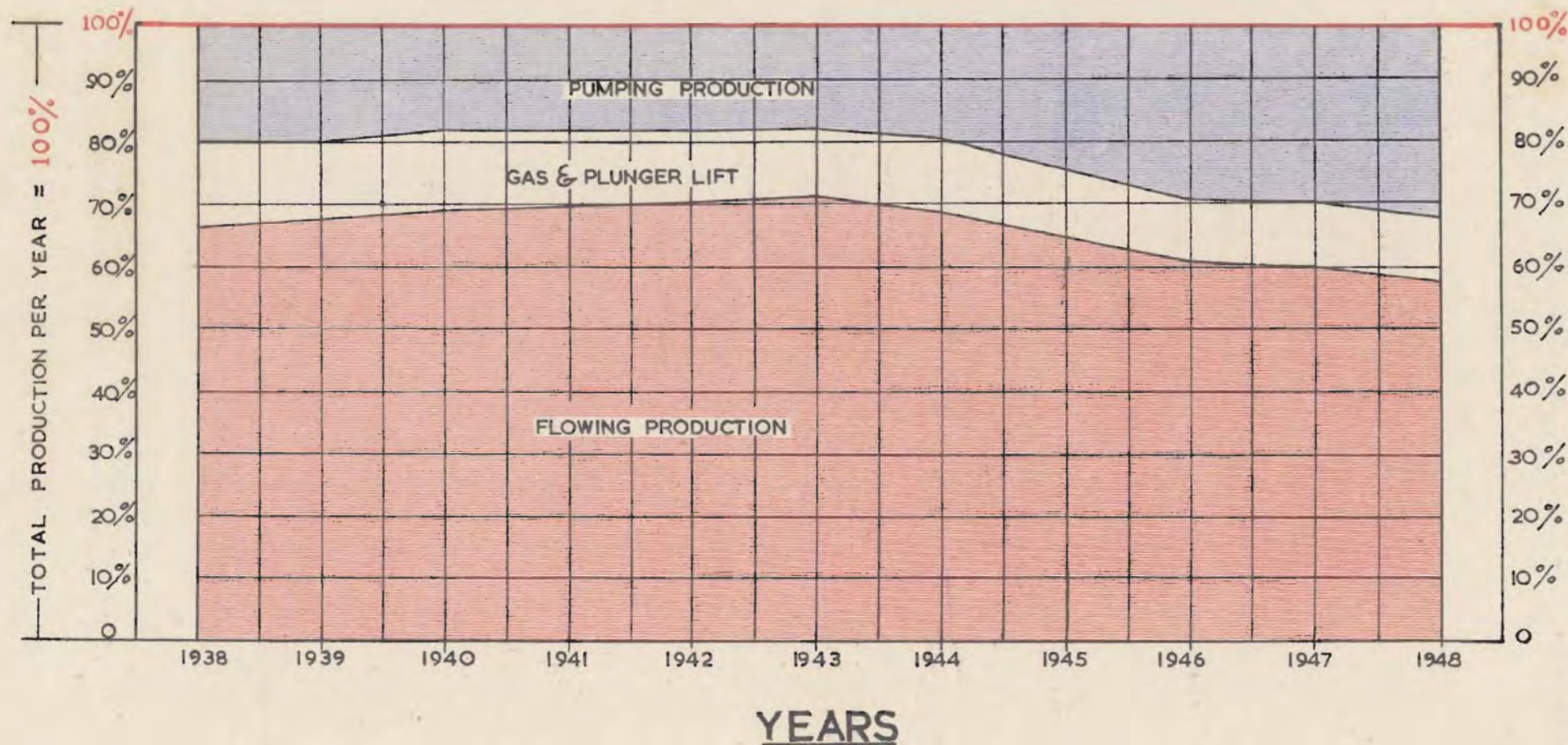
# ANNUAL CRUDE OIL PRODUCTION



FOR FIGURES USED IN CONSTRUCTING GRAPH SEE TABLE I ITEMS 1 AND 25

# CRUDE OIL PRODUCTION METHODS

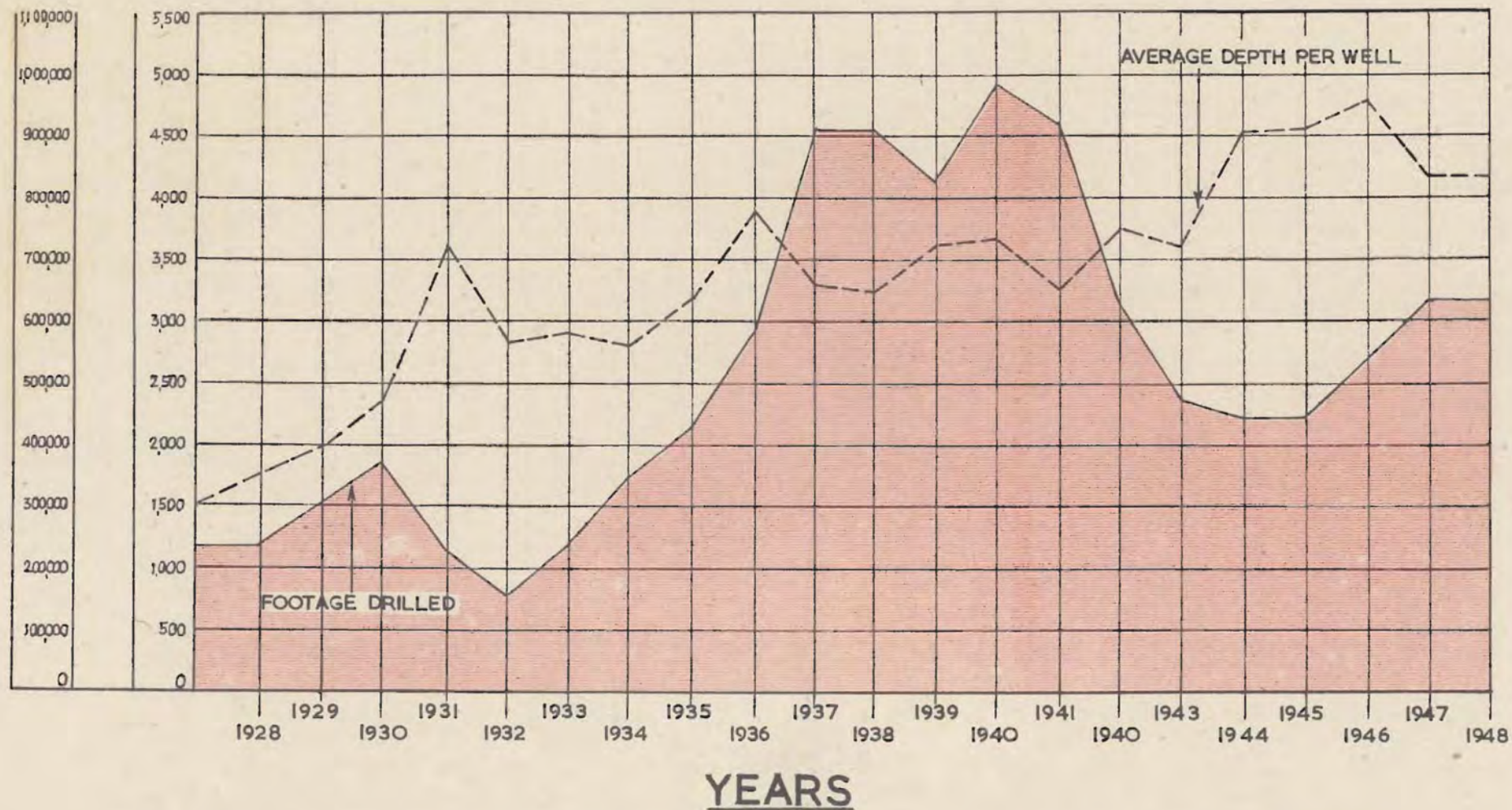
YEARLY %ages OF THE PRINCIPAL PRODUCING METHODS USED



SEE TABLE III FOR DETAILED FIGURES FOR 1948.

# ANNUAL DRILLING FOOTAGE

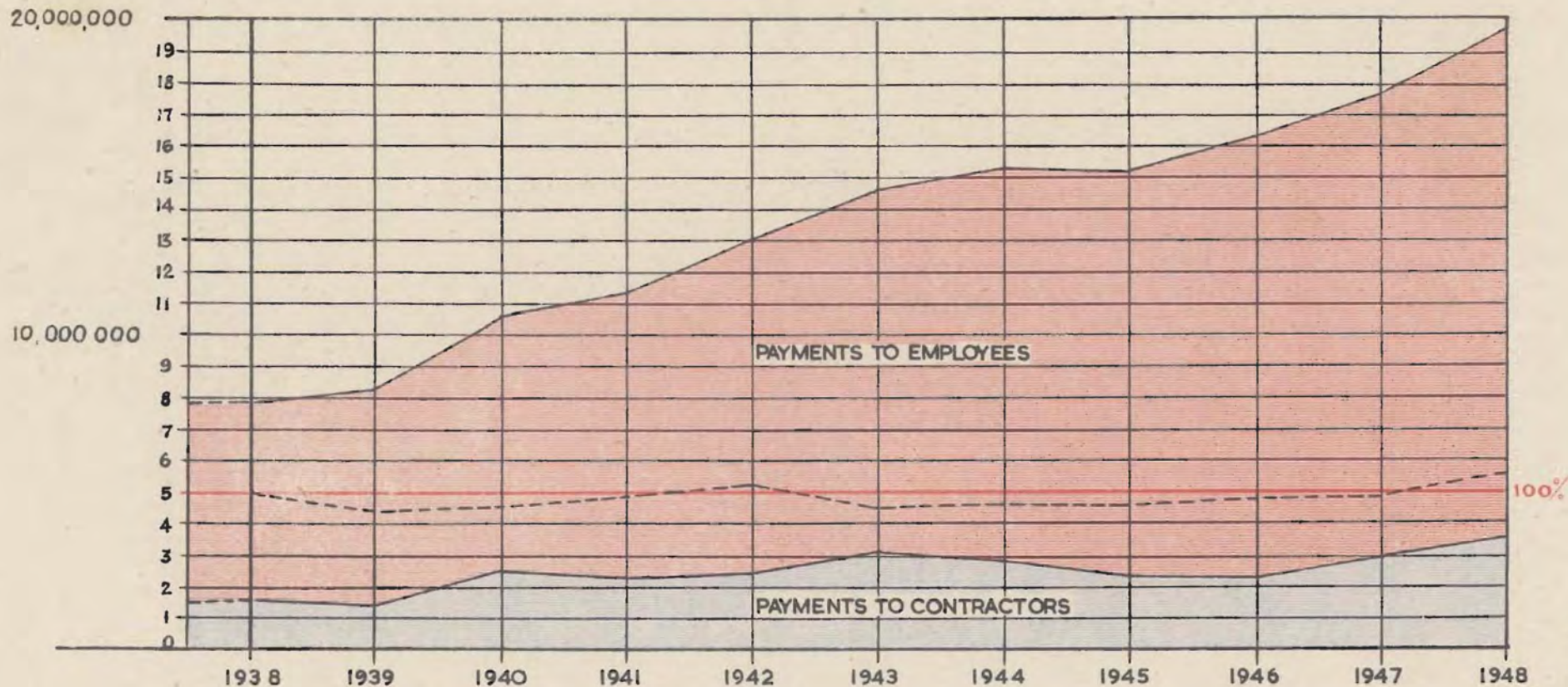
FEET DRILLED  
 ↓            ↓  
 YEARLY    AVERAGE DEPTH  
 TOTAL    PER WELL



FOR FIGURES USED IN CONSTRUCTING GRAPH SEE TABLE I ITEMS 19 AND 25

# OIL COMPANIES ANNUAL PAYMENTS TO CONTRACTORS AND EMPLOYEES

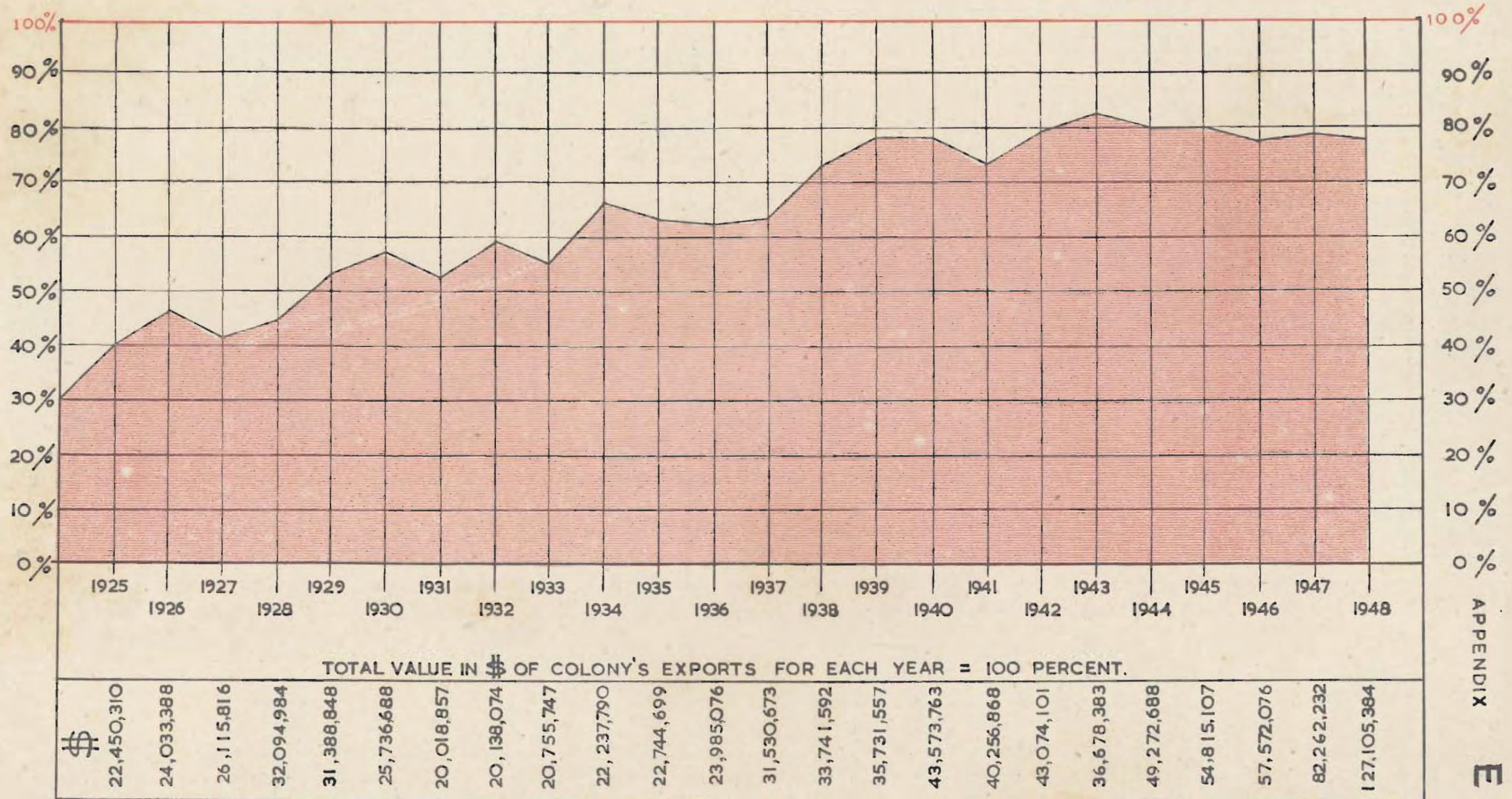
TRINIDAD CURRENCY



--- TREND LINE OF TOTAL NO. OF EMPLOYEES (INCLUDING CONTRACTORS LABOUR) 1938 FIGURE = 100%

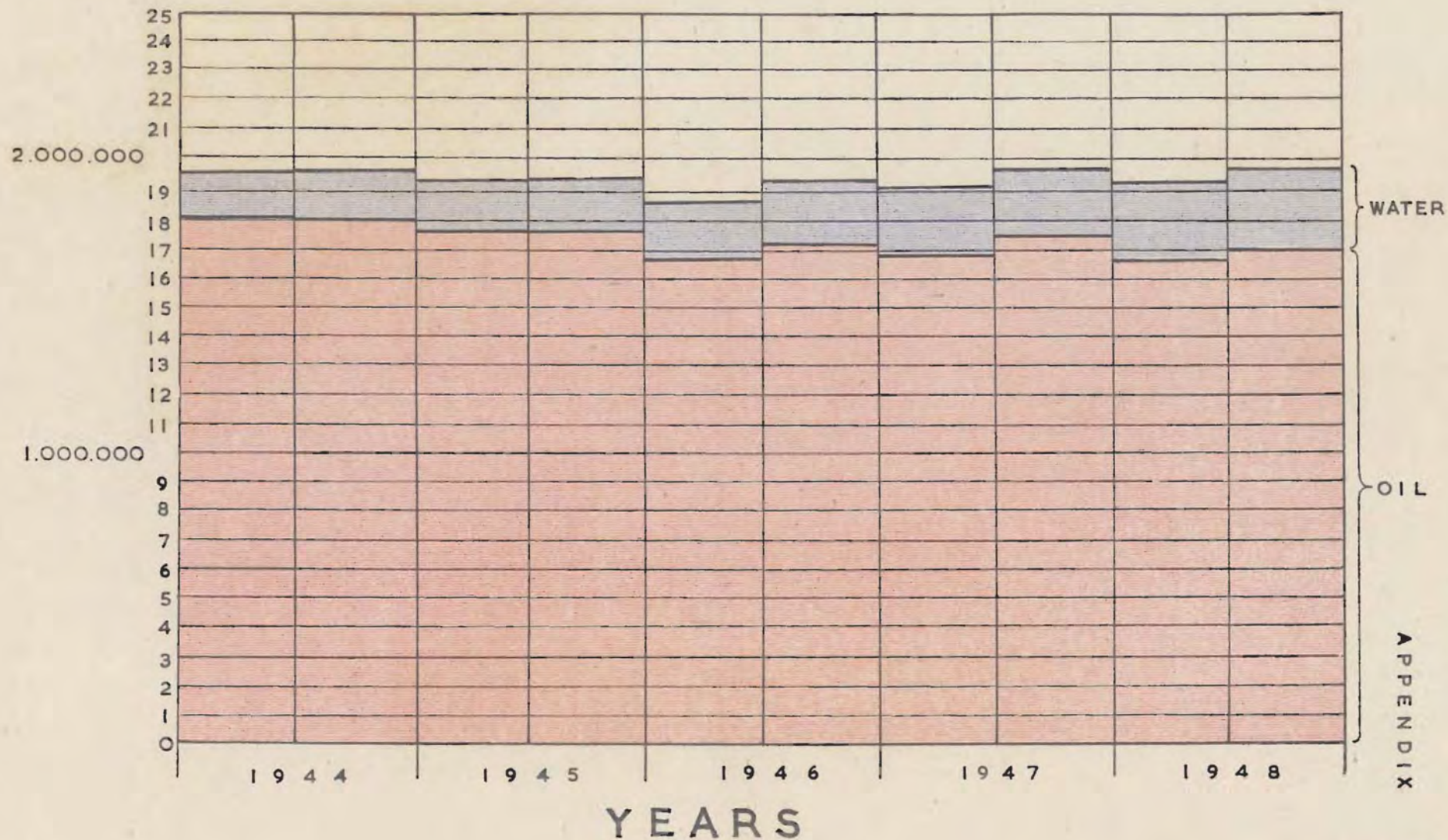
N.B. PAYMENTS TO CONTRACTORS ARE MAINLY ON WAGES ACCOUNT.

# VALUE OF PETROLEUM AND ASPHALT AND THEIR PRODUCTS EXPORTED COMPARED TO THE TOTAL VALUE OF COLONY'S EXPORTS



# PRODUCTION OF SALT WATER

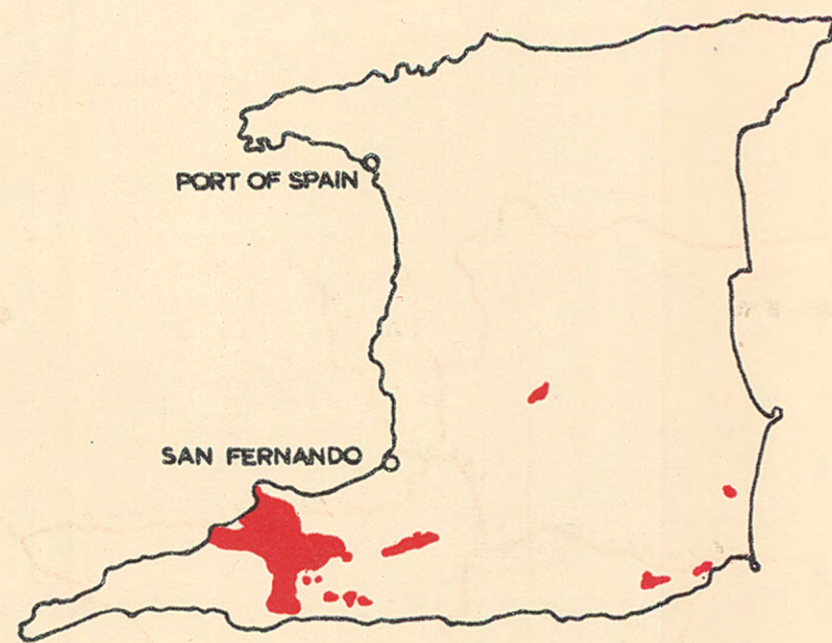
AVERAGE BARRELS  
PER MONTH



APPENDIX

F

# TRINIDAD



SCALE - 1:1,000,000

# SOUTH TRINIDAD

SHOWING LOCATION OF OILFIELDS

