

COLONY OF TRINIDAD AND TOBAGO



**ADMINISTRATION REPORT OF THE  
PETROLEUM DEPARTMENT  
FOR THE YEAR 1950**

# ADMINISTRATION REPORT OF THE PETROLEUM DEPARTMENT, 1950

HONOURABLE 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 1950.

The Report is set out in the sections, tables, appendices and maps as detailed below.

## THE PETROLEUM INDUSTRY

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## THE PETROLEUM INDUSTRY

### SUMMARY AND COMMENT

2. During 1950 the expenditure on deep drilling amounted to almost \$8,000,000 or more than double the average annual amount similarly spent in the preceding five (5) years.

3. While the necessity of establishing a satisfactory crude reserve has maintained exploration at a high level since the war, the incentive behind this greatly increased effort is the prospect of an increasing demand for several years. An increase in income due to a rise of 43 per cent. in the sterling value of oil sales consequent upon devaluation has partly financed this increased effort.

4. This increase in income which has been absorbed by the exploratory effort, by inevitable increases in working expenses (as sterling prices move toward gold values), and by taxation, may be of a very temporary nature in view of possible future adjustment of the Sterling/Dollar rate of Exchange.

5. In spite of the incentive to find and produce more oil which has been provided by the prospect of greater demand at satisfactory prices, the Industry was only just able to maintain production at the level of the previous year, namely 20.6 million barrels.

6. The overall effect of maintaining production at the present level and of increasing exploration in face of the inflationary trend which has been in evidence since the war in both sterling and dollar areas has been to reduce the cash resources of the eight British-owned oil companies operating in Trinidad by about 6½ million dollars in the past three (3) years, in spite of restriction of dividends and some additions to working capital.

7. The Oil Industry now contributes over 30 per cent. of the total revenue of the Colony. The Government of Trinidad, as sleeping partner in the oil business, takes over 60 per cent. of the Industry's profits by means of taxation. Revenue at the present level can only be maintained by the successful outcome of exploration. Diminishing cash resources, however, indicate that inflation and taxation have established a trend which places a short term limit on the present rate of expenditure on exploration.

## SECTION I.—ACTIVITIES OF THE OIL INDUSTRY

### DRILLING

8. During the year twenty-five (25) drilling rigs were in continuous operation. Of these, fifteen (15) were steam rigs employed on exploitation mostly on infilling locations on producing fields. Three (3) other steam rigs were used for outstepping or semi-exploration, one by Apex Trinidad Oilfields Limited in their synclinal area and two by United British Oilfields of Trinidad Limited at Penal, while seven (7) modern heavy diesel outfits were used for wildcatting at widely scattered locations.

9. One hundred and forty-nine (149) wells were commenced during the year. Six (6) of these being pure wild cat locations. One hundred and thirty-six (136) wells were completed. These figures compare with 146 wells commenced and 130 completed during the previous year, 1949.

10. During the year, eight (8) wells were abandoned while drilling on account either of technical difficulties or of non-commercial production. This compares favourably with the fourteen (14) abandoned last year for the same reasons.

11. Trinidad Leaseholds Limited continued to develop their oil base mud and all wells drilled on their Forest Reserve and Morne Diablo fields during the year were completed with this mud. Other companies did not make much use of oil base mud.

12. Two wells passed the previous year's depth record; Trinidad Leaseholds Limited drilling to 12,604 feet at their Morne Diablo 34 Location and Trinidad Petroleum Development Company Limited drilling to 13,471 feet at Coora 188.

13. The year's footage was 659,565 as compared to 630,209 in 1949. The graph in Appendix G shows the ratio of cumulative production to cumulative footage at the end of each year. A number of factors effect this ratio and it is hoped to publish a detailed historical breakdown of this graph in next year's Report. For the moment it is noted that the ratio has remained practically constant at 28.7 barrels/feet for the past four years. The annual increments in footage also being practically constant at an average of 643,000 feet.

14. Statistics relative to drilling will be found in Table I, Items 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.

### EXPLORATION

15. No geophysical parties were in the field during the year. Geological field work was carried out by Trinidad Leaseholds Limited, Trinidad Petroleum Development Company Limited and The United British Oilfields of Trinidad Limited.

16. The exploratory drilling programme kept seven (7) rigs in continuous operation and no less than nineteen wells with objectives in excess of 8,000 feet were in process of drilling during the year.

17. Details of these wells are given in Table IX, the locations of each one is shown on the map at the back of this Report.

18. In the Report for 1949, Table IX listed 38 wells which had been commenced in the five-year period—1st January, 1945 to 31st December, 1949—with objectives in excess of 8,000 feet. (Average depth of exploitation wells drilled in the past three years is 3,900 feet). Of these wells, eighteen (18) or nearly 50 per cent. have been abandoned as dry holes. Nine (9) encountered oil sands but will not produce enough oil to pay for the cost of drilling while only eleven (11) were completed as commercial producers.

19. Table IX of this Report lists 21 wells with objectives in excess of 8,000 feet which were worked on during the year. Excluding two on which drilling had not commenced at 31st December, 1950, and four others which were shown in last year's list of 38 wells, leaves 15 new deep wells commenced during 1950. Of these 15, already three (3) have been abandoned, eight (8) others at present unfinished have little expectation of commercial success while only four (4) have been completed as producers.

20. The great cost of deep drilling is most clearly demonstrated by the following figures taken from Companies' audited accounts :

#### EXPENDITURE ON DEEP WELLS

|   | <i>For the period</i><br>1st January, 1945–<br>31st December, 1949 | <i>For the</i><br>year<br>1950 | <i>Total at</i><br>31st December<br>1950 |
|---|--|--------------------------------|--|
| 1. Expenditure on deep wells ...                                    | \$14,133,000   | \$7,978,000                    | \$22,111,000                             |
| 2. Investment in capital equipment ...                              | 6,226,000  | 833,000                        | 7,059,000                                |
| 3. Orders placed but not delivered at<br>31st December ...          | 438,000  | 247,000                        | 247,000                                  |
| 4. Depreciation ...   | 815,000  | 931,000                        | 1,746,000                                |
| 5. Unamortised portion of the investment<br>as at 31st December ... | 5,411,000  | 5,313,000                      | 5,313,000                                |
| 6. Total expenditure on deep drilling<br>during period ...          | 19,544,000   | 7,880,000                      | 27,424,000                               |

21. The greater part of the seven million dollars spent on equipment represents modern heavy diesel rigs acquired during the past two years. This accounts for the large amount, \$931,000 shown for depreciation in 1950.

22. Details of the equipment used may be of interest for comparison with those in other oilfields and are given in Table X. It will be seen by reference to this Table that the equipment used in Trinidad includes the heaviest and most modern machinery capable of drilling to 20,000 feet if need be.

23. In spite of the large amount of geological and geophysical work done in past years and the use of the most modern machinery, exploration drilling has continued to give disappointing results.

#### PRODUCTION OF CRUDE OIL

24. The total production of crude oil for the year 1950 was 20,632,421 barrels, an average of 56,527 barrels per day. This represents an increase of 0.076 per cent. above last year's figure.

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

26. The average daily production per producing well (Table I, Item 25) again dropped, being 25.7 barrels per day in 1950 as compared to 27.0 barrels per day in 1949. This was partly due to a reduction in the ratio of the number of flowing wells to the number of pumping wells and partly to a drop in the daily average production per flowing well which fell from 51.9 barrels per day in 1949 to 50.2 barrels per day in 1950. During the year 52.8 per cent. of total production was produced by natural flow as compared to 56.6 per cent. in 1949.

27. The percentage of salt water in the total fluid produced increased slightly, being 15.1 per cent. as compared to 13.7 per cent. in 1949. This is shown in graph form in Appendix F.

#### REFINING

28. Five (5) permits for the refining of oil were issued under the Oil Mining and Refining Ordinance, three of these being for small topping plants operated respectively by Apex Trinidad Oilfields Limited, Brighton Terminal Limited and Trinidad Petroleum Development Company Limited.

29. No additions were made during the year to the main refineries at Point Fortin and Pointe-a-Pierre, but at the latter work was started on clearing the site for the new catalytic cracking plant.

30. Brighton Terminal Limited commenced the erection of an extension to their topping plant at Brighton. This was nearly completed at the end of the year.

31. Refinery input (Item 13, Table I) again showed an increase over the previous year, being 29,813,245 barrels as compared to 29,617,000 barrels in 1949. Of this total 8,849,096 barrels were processed by United British Oilfields of Trinidad Limited at Point Fortin and 20,958,096 by Trinidad Leaseholds Limited at Pointe-a-Pierre.

32. It is interesting to note that during the year Trinidad Leaseholds Limited imported ten (10) different types of crude. Eight of these imported crudes were processed in addition to three (3) types of local crude. Importation of these foreign crudes is essential in order to enable the refinery to produce the large range of products to precise specification which is now required. During the month of December the Trinidad Leaseholds Limited refinery input reached the record figure of 2,000,000 barrels while the loading jetty handled over half a million tons both in and out.

#### NATURAL GASOLINE RECOVERY PLANTS

33. Two plants for the recovery of natural gasoline were in operation during the year. The charcoal adsorption plant operated by Apex Trinidad Oilfields Limited processed 83.9 per cent. of the Company's total production of gas, the daily average throughput being 9.62 million cubic feet per day as compared to an average of 8.26 million cubic feet per day in 1949. This increase in throughput increased production by 16.4 per cent., the average yield being 1.06 gallons per thousand cubic feet treated, the same as the previous year. This yield includes compression gasoline the production of which amounted to almost exactly twenty-five per cent. of the total plant production.

34. The oil adsorption plant operated by the Trinidad Petroleum Development Company Limited handled 62.0 per cent. of the Company's total production of gas processing an average of 8.28 million cubic feet per day for an average recovery of 0.706 gallons per thousand cubic feet treated. These figures compare with an average daily throughput of 7.3 million cubic feet in 1949 for a recovery of 0.93 gallons per thousand cubic feet.

35. A small amount of compression gasoline was made by Trinidad Leaseholds Limited on its Guayaguayare field and was returned to crude storage.

#### NATURAL GAS

36. Details of the production and utilization of natural gas in 1949 and 1950 are given in Table IV. It will be noted that the only important change in 1950 was the increase in gas replaced in formation.

37. Trinidad Leaseholds Limited increased the input of gas for repressuring at Forest Reserve from an average of 6.5 million cubic feet per day in 1949 to an average of 6.82 million cubic feet per day in 1950. The same Company started putting gas back into formation on their Guayaguayare field in October, 1950.

38. Apex Trinidad Oilfields Limited started repressuring at Fyzabad in February, 1950, and at the end of the year were returning an average of 300,000 cubic feet per day to formation.

#### TRANSPORT AND STORAGE

39. The main pipeline system was not extended during the year. All four of the deep water piers were in use.

40. There was a further increase in main storage capacity during the year, the total tankage available for crude oil and refined products amounting to 9,550,131 barrels at 31st December, 1950.

41. One 168,000 barrel tank, the largest single tank in the island, was completed by Brighton Terminal Limited for transshipment fuel oil storage. Trinidad Leaseholds Limited completed two 80,000 barrel tanks and two 25,000 barrel tanks at Pointe-a-Pierre and had further tankage building at the end of the year.

#### IMPORTS AND EXPORTS OF PETROLEUM AND ITS PRODUCTS

42. Foreign crude oil imported for refining in the Colony decreased by one per cent., being 11,214,025 barrels as compared to 11,333,209 barrels in 1949. A slight increase may be expected in 1951 since the topping plant now being erected by Brighton Terminal Limited should be completed early in 1951.

43. This Company has been given a permit to import free of Customs duties for twenty-five (25) years from 1st November, 1950, up to 300,000 barrels a month of foreign crude for refining and re-export of the refined products. Importation under this permit may average 100,000 barrels a month during 1951.

44. In addition to the import of crude oil for refining, a considerable trade has been built up in fuel oil imported duty free for transshipment. Brighton Terminal Limited received 2,524,360 barrels of Tucupita fuel oil on behalf of Texas Petroleum Company for bunkering or re-export to South American destinations, while Esso Standard Oil (Antilles) S.A. transhipped 217,936 barrels of Bunker "C" grade and 112,066 barrels of diesel oil in Port-of-Spain Harbour.

45. Exports of local crude amounted to 2,193,612 barrels of which 1,613,193 barrels were exported by Trinidad Leaseholds Limited to their refinery at Port Credit, while 580,419 barrels were sent by Antilles Petroleum Company (Trinidad) Limited to their parent Company, the McColl Frontenac Company of Montreal.

46. Total exports of petroleum and its products (local crude plus refined products of both local and foreign crudes) decreased slightly, being 28,700,000 barrels as compared to 29,379,945 barrels in 1949.

47. A ten-year record of total imports and exports of petroleum is given in Table I, Items 6-12 while a detailed breakdown for 1950 is given in Table V.

## SECTION II—THE OIL INDUSTRY IN RELATION TO THE LOCAL ECONOMY

## LOCAL EXPENDITURE

48. In 1946 the Oil Industry paid out over 27 million dollars in the Colony. By 1950 the local outgoings of the Industry had increased to over 54 million dollars. This rapid growth since the end of the war in the importance of the Oil Industry in the local economy is clearly brought out by the figures given in Tables VI and VII which should be studied in connection with this section.

49. It will be noted from these tables that in 1950 nearly 17 million dollars was paid to Government in the form of Taxes while a further 37 million dollars was put into circulation in the form of wages, local purchases of materials, private rents and royalties, legal fees, compensation, &c.

## TAXATION OF THE OIL INDUSTRY

50. Direct contribution to revenue in 1950 made by the Oil Industry amounted to \$16,875,640 or over 30 per cent. of the Colony's revenue, a decrease of \$2,439,592 on the comparable figure for 1949. The percentage change under each Head of Revenue in the figures for 1950 as compared to those for 1949 is shown in Table VI. The more important changes, which are discussed individually in the succeeding paragraphs are listed below :—

| <i>Source of Revenue</i>                           | <i>Increase</i><br>\$ | <i>Decrease</i><br>\$ |
|--|-----------------------|-----------------------|
| Excise on petroleum products paid by Oil Companies | 78,727                | —                     |
| Sundry Heads ... ..                                | 99,929                | —                     |
| Customs Import duties ... ..                       | —                     | 264,308               |
| Royalty on Oil and Gas ... ..                      | 2,233,991             | —                     |
| Income Tax ... ..                                  | —                     | 4,587,931             |
|  | <hr/>                 | <hr/>                 |
| Net decrease in revenue (balance) ... ..           | 2,412,647             | 4,852,239             |
|  | 2,439,592             | —                     |
|  | <hr/>                 | <hr/>                 |
|  | \$4,852,239           | \$4,852,239           |

In comparing the Industry's contribution to revenue in 1950 with that made in the previous year, it must be remembered that while devaluation of sterling in September, 1949 increased all royalty assessments by about 43 per cent. after that date it had no appreciable effect on the amount of income tax collected during 1950 on the 1948/49 incomes.

51. Income Tax yielded only \$8,704,846 as compared to \$13,292,777 in the previous year, a drop of \$4,587,931 corresponding to a decrease in taxable income of 11½ million dollars since the tax rate was the same, namely 40 per cent., for both years.

52. The rate of crude oil production having been almost constant for several years, this drop in taxable income is the result of an increase in operating expenses of 2½ million dollars and a decrease in revenue of about 8½ million dollars, the latter being due to the rapid fall in fuel prices during the first half of 1949 and to the low prices prevailing during the remainder of that year.

53. Royalties collected in 1950 in respect of assessments for the period 1st July, 1949 to 30th June, 1950, on crude oil produced, on gas sold, and for dead rent (minimum royalty on non-productive leases) amounted to \$5,904,450 as compared to \$3,670,468 collected in 1949.

54. Two main factors contributed to this increase :—

i. the new buy-back agreement for royalty crude was in operation for the whole of the period 1st July, 1949 to 30th June, 1950, as compared to only two months in the previous twelve-month period—1st July, 1948 to 30th June, 1949.

The fixed buy-back price under the old agreement (40 shillings per ton) yielded \$1.38 per barrel, the average price for the period 1st July, 1948 to 30th June, 1949, the last two months of which came under the new agreement, being \$1.46½ per barrel. The average buy-back price under the new agreement for the period 1st July, 1949 to 30th June, 1950 was \$2.86. Details will be found in paragraphs 77-82 of this Department's Report for 1949.

ii. the effect of devaluation of sterling which increased the sterling value of all oil sales and therefore of all royalty assessments after 19th September, 1949, by about 43 per cent.

55. Customs Import duties (Item 1 of Table VI) paid by the Oil Industry decreased by twenty-one per cent. falling from \$1,238,426 in 1949 to \$974,118 in 1950. This fall is largely due to a drop of twenty-six per cent. in the imports of U.S. origin which were valued, c.i.f. at \$7,766,696 in 1949 but at only \$5,469,200 in 1950. The total c.i.f. value of oil industry imports fell by seven per cent. from \$23,456,411 to \$21,831,730. Details are given under Items Nos. 6, 7 and 8 of Table VII.

56. This drop in Customs Import duties is not due to any reduction in the Oil Industry's activities. It is accounted for by an unusually high expenditure on capital equipment (chiefly drilling rigs) of U.S. origin made during 1949.

57. Excise duty paid by the Oil Companies amounted to \$115,637 as compared to \$36,910 in 1949. This increase is due to the amount for 1949 being in respect of the period 29th October-31st December only. Prior to 29th October, 1949, petroleum products used in connection with the winning or refining of petroleum were free of duty. Details of the oil industry's contribution to the revenue of the Colony are given in Table VI, Items 1-13 referring to direct taxation.

## LOCAL DISBURSEMENTS

58. The annual expenditure in the Colony by the Oil Industry other than direct contribution to revenue was \$37,367,253, an increase of \$4,380,154 or 13.3 per cent. over the figure for 1949. Details will be found in Table VII, Items 1-5. It will be noticed from the figures given that the amount paid out in Wages and Salaries increased by over 10 per cent.

59. This increase is due to three main causes :—

- i. An increase of 2.10 per cent. in the average daily number of registered employees (13,689 as compared to 13,407 in 1949);
- ii. The addition of  $\frac{1}{2}$ c. per hour in the wages of all workmen was made when the cost of living index rose to the figure of 231 in July, 1950. (A cost of living bonus is given of  $\frac{1}{2}$ c. per hour for every 5 complete points rise in the Government's official cost of living index number above the basic figure of 111 ascertained in January, 1938).
- iii. An adjustment on and from 4th March, 1950 of the standard wage rates of all hourly paid workmen of a minimum increase of three cents an hour on the rates of pay effective on 3rd March, 1950. (Weekly paid men receive a minimum increase of \$1.50 per week).

60. The amount paid to contractors rose by over 36 per cent. Contractors' labour received the same two adjustments to wage rates noted in paragraph 59 (ii) and (iii) above as in the case of Company employed labour. In addition the average daily number employed through contractors increased by 5 per cent. (2,736 as compared to 2,626 in 1949).

61. Item 4 of Table VII "Other Local Cash Expenditure" rose by 19 per cent. to \$8,456,079. Under this head are included such items as insurance, legal expenses; transport, staff passages, compensation, private rents and royalties, &c.

62. Overseas purchases of Stores and Materials dropped by 7 per cent. due to a substantial reduction in the imports of U.S. origin which were unusually high in 1949 due to the purchase of heavy drilling equipment.

63. The figure given as Item No. 9 of Table VII which is closely related to the total outgoings of the Industry, increased by only 0.4 per cent., the increase in local disbursement having been nearly offset by decreases in contributions to Government revenue and in overseas purchases.

## EXPORTS OF PETROLEUM AND ITS PRODUCTS

64. The amounts and values of petroleum and its products exported during 1949 and 1950 based on Customs and Excise Department figures are :—

|                                   |     |     |     |     |               |
|-----------------------------------|-----|-----|-----|-----|---------------|
| 1949—29,379,945 barrels valued at | ... | ... | ... | ... | \$ 97,328,440 |
| Petroleum Bitumen                 | ... | ... | ... | ... | 1,837,816     |
|                                   |     |     |     |     | \$ 99,166,256 |
| 1950—28,756,907 barrels valued at | ... | ... | ... | ... | \$126,309,236 |
| Petroleum Bitumen                 | ... | ... | ... | ... | 2,873,982     |
|                                   |     |     |     |     | \$129,183,218 |

65. Petroleum and Asphalt and their products continue to form the largest part, namely 78.7 per cent. of the Colony's export during 1950, an increase of 1.2 per cent. over the figure for 1949.

The value of the leading staple products exported from the Colony during 1950 is shown in the following table :—

|                                 | <i>Value</i>  | <i>Percentage of<br/>Total</i> |
|---------------------------------|---------------|--------------------------------|
| Petroleum and its products      | \$129,183,218 | 77.10                          |
| Lake Asphalt and its products   | 2,668,684     | 1.59                           |
| Sugar, Molasses and Rum         | 20,085,013    | 11.99                          |
| Cocoa                           | 8,360,678     | 4.99                           |
| Fruits and Fruit Juices         | 2,819,316     | 1.68                           |
| Coconuts, Copra and Coconut Oil | 334,562       | 0.20                           |
| Bitters                         | 619,962       | 0.37                           |
| Coffee                          | 860,226       | 0.51                           |
| Other exports not enumerated    | 2,630,838     | 1.57                           |
|                                 | \$167,562,497 | 100.00                         |

66. The value given above for petroleum products exported, namely \$129,183,218, includes the value of products obtained from imported crude which amounts to about 38 per cent. of the total. This figure is therefore not on a strictly comparable basis with the export values given for other products which are all wholly of local origin.

67. The value of each of the following, namely, petroleum and its products; Lake Asphalt and its products; Sugar; and other products exported annually is shown in Appendix E, graphed as a percentage of the total annual value of the Colony's exports.

68. Harbour Dues on petroleum cargoes (14 cents per ton) increased slightly from \$585,901 in 1949 to \$587,516 and will probably remain steady at about that figure in the future.

## FINANCIAL POSITION OF THE OIL INDUSTRY

69. The accounts of the principal oil companies for the year 1949-1950 show an increase in income. This increase is due almost wholly to devaluation of sterling in September, 1949, and not to any increase in production, which in fact has remained almost constant for several years.

70. Since all local sales and purchases of oil are based on U.S. Gulf Coast values the immediate effect of devaluation was to increase the sterling value of oil sales by about 43 per cent. Any future re-valuation, other than a further devaluation, will have a reverse effect.

71. This increase in income may therefore be of a very temporary nature. On the other hand the deferred effects of devaluation coupled with a continuation of the inflationary trend have resulted in increased wages, and increased cost of materials and plant.

72. Inadequate wear and tear allowances for income tax purposes, which do not recognise the fact that when plant and equipment comes to be replaced it costs two or three times as much as originally, are maintaining a steady drain on capital.

73. Examination of the audited accounts of the eight principal oil companies for the past three years shows that the combined effect of the above-mentioned factors has been that in spite of some additions to issued capital, the cash resources of the eight companies have shrunk by about \$6,500,000 in the period in question.

The figures relevant to the above are :—

|   |     |             |              |  |              |
|---|-----|-------------|--------------|--|--------------|
| Cash expended on Renewals, Replacements, and modernisation of plant and equipment and on other capital items during the three years | ... |             |              |  | \$37,531,416 |
| Financial position :—   |     |             |              |  |              |
| (a) Amount put to reserve or added to carry forward   | ... |             | \$29,041,853 |  |              |
| (b) Additional capital raised   | ... | \$5,862,566 |              |  |              |
| Less Repayment of loan  | ... | 3,861,979   | 2,000,587    |  | 31,042,440   |
| Net reduction in cash resources   | ... |             |              |  | \$ 6,488,976 |

74. Devaluation has produced an apparent prosperity which serves to disguise the true state of affairs, namely, that, as a result of high taxation and inflation the Trinidad Oil Companies as a whole, are in fact poorer in cash resources today than they were three years ago.

## INDUSTRIAL RELATIONS

75. The past year was the third in succession during which no stoppages of work occurred on the oilfields. Excellent relations continued to exist between the Oilfield Workers Trade Union and the Employers.

76. In February, 1950, the Oilfield Workers Trade Union gave notice to the Oilfields Employers Association of Trinidad of its decision to amend the Agreement between them dated 15th March, 1948, relating to wages and conditions of employment.

77. The various amendments proposed by the Union were discussed and a number of them were incorporated in a new Agreement to be effective for a minimum period of two years and three months, from 25th May, 1950, with retroactive effect to 4th March, 1950.

The more important provisions of the new Agreement are :—

1. Six cents (6c.) per hour of the cost of living bonus was consolidated and added to the standard wage rates of all hourly, daily and weekly paid workmen.
2. A minimum increase of three cents (3c.) per hour in the wages of all hourly paid workers aged 18 years and over.
3. A minimum increase of one dollar and fifty cents (\$1.50) per week in the wages of all weekly paid workmen aged 18 years and over.
4. A minimum increase of one dollar and twelve cents (\$1.12) per week in the wages of all weekly paid workmen under 18 years of age.

78. Under the new Agreement, wage rates now vary from a minimum of 33 cents per hour in the unskilled class to a maximum of 54 cents per hour for some classes of skilled workers.

79. The trade schools maintained by United British Oilfields of Trinidad Limited, and by Trinidad Leaseholds Limited as part of their apprentice training schemes continued to operate to capacity. A new trade school was being equipped by Trinidad Petroleum Development Company Limited and is expected to be in operation by the middle of 1951. Increased housing for employees was provided during the year by all the larger Companies. The construction of a new health centre was decided on by Apex (Trinidad) Oilfields Limited.



## SECTION III—ADMINISTRATION

## ROYALTY ASSESSMENT

80. No changes were made during the year either to the method of evaluating crude oil taken as royalty in kind and sold back to the Lessees or to the method of royalty assessment described in the Land (Oil Mining) Regulations, 1949.

The production of Crown oil and the revenue obtained from royalty on it are as follows:—

81. *Old Type Leases*: Ten per cent. of the net crude oil produced on these leases is taken as royalty in kind and is sold back to the Lessees at a price determined by the sum of the values of its fuel oil, gas oil and gasoline components less a refining charge. Certain fuel used in drilling, producing and refining is allowed free of royalty (F.O.R.).

The following tables give a record of the total sales of royalty oil made in each half-yearly period since the new sales agreements started on 1st May, 1949.

| Period               | BARRELS AS PER STATISTICAL RECORDS |        |                 | Actual quantity sold (1)* barrels | Average value per Bbl. \$ B.W.I. | Revenue \$ B.W.I.    |
|----------------------|------------------------------------|--------|-----------------|-----------------------------------|----------------------------------|----------------------|
|                      | Gross production                   | F.O.R. | Nett production |                                   |                                  |                      |
| <b>1949</b>          |                                    |        |                 |                                   |                                  |                      |
| May-June ... ..      | 1,336,234                          | 20,317 | 1,315,917       | 131,639                           | 1.90.70                          | 251,030.81           |
| July-December ... .. | 4,053,306                          | 59,002 | 3,994,304       | 399,560                           | 2.73.05                          | 1,091,009.75         |
| <b>1950</b>          |                                    |        |                 |                                   |                                  |                      |
| January-June ... ..  | 4,092,464                          | 73,344 | 4,019,120       | 402,046                           | 3.22.99                          | 1,298,598.08         |
| July-December ... .. | 4,120,061                          | 70,337 | 4,049,724       | 405,099                           | 3.55.56                          | 1,440,380.48<br>*(2) |

82. *1934 Type Leases*: Crude oil produced on these leases is valued at the price of West Texas Sour Crude of the same A.P.I. gravity plus 14.3 U.S. cents per barrel. Royalty is on a sliding scale from 10 to 12½ per cent. according to the size of the well. All crude assessable for royalty during 1950 under these leases paid royalty at 10 per cent. *ad valorem*. There was no change in the price of West Texas Sour Crude during 1950, the price for 22.0-22.9 A.P.I. gravity crude being U.S. \$2.16 per barrel.

The free of royalty concession (F.O.R.) under these leases is restricted to certain oil used in drilling and production operations only:—

| Period               | BARRELS AS PER STATISTICAL RECORDS |        |                 | Actual quantity valued (1)* barrels | Average value per Bbl. \$ B.W.I. | Revenue \$ B.W.I.    |
|----------------------|------------------------------------|--------|-----------------|-------------------------------------|----------------------------------|----------------------|
|                      | Gross Production                   | F.O.R. | Nett Production |                                     |                                  |                      |
| <b>1949</b>          |                                    |        |                 |                                     |                                  |                      |
| July-December ... .. | 4,183,632                          | 15,795 | 4,167,837       | 4,168,379                           | 3.43.66                          | 1,432,506.36         |
| <b>1950</b>          |                                    |        |                 |                                     |                                  |                      |
| January-June ... ..  | 3,960,141                          | 15,061 | 3,945,080       | 3,945,478                           | 3.96.71                          | 1,565,191.49         |
| July-December ... .. | 4,016,615                          | 15,788 | 4,000,827       | 4,001,350                           | 3.96.91                          | 1,588,158.18<br>*(2) |

83. Apart from the above royalties on crude oil, the following tables show the amounts collected on natural gas sold, casing head petroleum spirit recovered and minimum royalties paid on leases with small or no production.

| Period                   | NATURAL GAS SOLD |            | C.H.P.S. RECOVERY  |            |                      |
|--------------------------|------------------|------------|--------------------|------------|----------------------|
|                          | Volume (M.C.Ft.) | Royalty \$ | Volume (Imp. gals) | Royalty \$ | Minimum Royalties \$ |
| <i>Old Type Leases:</i>  |                  |            |                    |            |                      |
| <b>1949</b>              |                  |            |                    |            |                      |
| July-December ... ..     | 270,728          | 5,440.16   | 161,055            | 1,570.48   | —                    |
| <b>1950</b>              |                  |            |                    |            |                      |
| January-June ... ..      | 179,844          | 3,620.56   | 148,463            | 1,534.33   | —                    |
| July-December ... ..     | 114,192          | 2,302.04   | 158,185            | 1,689.15   | —                    |
| <i>1934 Type Leases:</i> |                  |            |                    |            |                      |
| <b>1949</b>              |                  |            |                    |            |                      |
| July-December ... ..     | 1,282,411        | 36,567.24  | 1,363,764          | 20,729.57  | 169,031.68           |
| <b>1950</b>              |                  |            |                    |            |                      |
| January-June ... ..      | 1,342,428        | 37,240.50  | 1,475,290          | 26,352.75  | 166,894.58           |
| July-December ... ..     | 1,717,017        | 51,920.36  | 1,767,150          | 32,441.43  | 172,124.28           |

FOOTNOTE: \*(1) Royalty oil sold on old type leases or valued for royalty on the 1934 type leases is calculated at 34.9726 Imperial gallons per barrel.

Statistical volumes of gross production, F.O.R., &c., include some volumes reported at 34.973 Imperial gallons per barrel and some at 35 Imperial gallons per barrel. Standardization is proceeding slowly.

\*(2) Revenue figures for the period July-December, 1950 are provisional only and are subject to slight adjustment.

*Total Royalties:*

84. The total royalty collected during the year 1950 in respect of the half-yearly royalty periods ended 31st December, 1949 and 30th June, 1950, in respect of crude oil, natural gas and casing-head petroleum spirit amounted to \$5,856,287.53. In addition, a further sum of \$3,311.82 was collected in respect of previous half-yearly royalty periods the accounts of which were not finally settled. The total royalty collected during the year amounted therefore, to \$5,859,599.35.

85. The production of crown oil is remaining very steady so that the only factors likely to affect the revenue from royalty in the near future are changes in the prices of crude and of oil products and a possible change in the Sterling/Dollar rate of Exchange.

86. The price of West Texas Sour Crude on which royalty in respect of the 1934 Type Leases is now calculated has remained unchanged for over three years, the present price having been effective since 6th December, 1947. During the same three-year period the price of fuel oil has fluctuated considerably and during the first half of 1949 fell heavily with the result that a royalty of 10 per cent. calculated on West Texas Crude prices represented at July, 1949, an actual rate of over fourteen per cent. on producers realizations which are dependent on the price of products, mainly on the price of fuel oil.

87. Although rising prices of products since June, 1949, have resulted in producers realizations increasing to somewhere near West Texas crude prices it is unlikely that the valuation for royalty purposes of crude oil produced on the 1934 Type Leases will remain based on U.S. domestic crude prices for much longer.

88. The fact that West Texas Crude prices have not altered at all during the past three years whereas products prices have varied widely in the same period indicates that there is an element of artificiality about U.S. domestic crude prices which was not foreseen at the time when West Texas Sour Crude was chosen as an indicator of price change for royalty valuation.

89. Under the provisions of Clause 7 to Schedule II of the Land (Oil Mining) Regulations, 1934, notice requiring a new method of assessment may be given either by the Governor or by the Lessees at any time after the 1st March, 1951. It is not improbable that such notice will be given during 1951.

## SAMPLING AND TESTING OF ROYALTY OIL

90. In this Department's Administration Report for 1949, the sale of oil taken by Government as royalty in kind is discussed in detail. (Paragraphs 72-82). The agreed method of determining the purchase price of this oil (paragraph 77) necessitated the introduction of a sampling system in order to obtain analyses of representative samples of the crude from which the sales prices could be calculated.

91. Royalty in kind amounting in all to about 400,000 barrels in each half-yearly royalty period, is taken on seven old type mining leases. Collecting and storage conditions vary from lease to lease so that in order to obtain a truly representative sample from each lease it was found necessary to use 14 sampling points as follows:—

|                                  |     |     |          |
|----------------------------------|-----|-----|----------|
| Continuous line samples taken at | ... | ... | 5 points |
| Well head samples taken at       | ... | ... | 3 points |
| Tank samples taken at            | ... | ... | 6 points |

92. Every month a sample is collected from each of the 14 points under the supervision of an officer of this Department and a representative of the purchasing Company. Each sample is divided into two portions of 4 gallons each which are officially sealed. One portion of each sample is subsequently analysed under official supervision while the other portion is kept as a referee sample in case of loss of or disagreement as to the analysis of the first portion. A typical sample analysis is given in Table XII.

93. In practice the sampling and analysis procedure has worked very satisfactorily and the required accuracy has been obtained. As experience has been gained several improvements and minor alterations to the original procedure have been introduced by both the Companies and this Department in order to simplify both field work and statistical calculations.

94. The accumulating data on monthly analyses suggests that in most cases variation is sufficiently small to justify a longer period than one month between samplings without loss of accuracy.

95. The sampling and analysis under supervision of fuel oil and diesel oil delivered to vessels for Admiralty account was continued during the year. An officer of this Department (Mr. Back) carries out part-time duties as Admiralty Inspecting Officer.

## RETAIL PRICE OF GASOLINE AND KEROSENE

96. The formula agreed in May, 1948, between Government and the Distributing Companies for determining the retail price of gasoline and kerosine (see paragraph 83 of Administration Report for 1949) was upset by the devaluation of sterling in September, 1949.

97. A new pricing formula was agreed upon and put into operation on the 1st February, 1950. Under this formula a Price Stabilization Fund held by the Accountant General is used to prevent small changes in the various components of the cost of gasoline and kerosine having any immediate effect on the retail price.

98. The Stabilization Fund is operated in the case of gasoline as follows :—

For any day after the 31st January, 1950, on which the retail price of gasoline exceeds the sum of the following five price components, namely :—

- i. Platt's low quotation in United States cents per United States gallon for 79 Octane (R) Regular Gasoline in cargo lots from Gulf ports converted into Trinidad currency per Imperial Gallon. The conversion shall be made by using the current daily middle rate of exchange which is today quoted at \$1.71½ Trinidad currency to \$1.00 United States currency and a volume conversion factor of one Imperial Gallon to 1.2009 United States gallon.
- ii. The marketing expenses per Imperial gallon.
- iii. A Distributors margin of four (4) cents per Imperial gallon.
- iv. The excise tax.
- v. A fixed profit approved by Government.

then the excess is credited to a Gasoline Price Stabilization Account by the Distributing Company for each gallon of gasoline sold on that day.

99. For any day after the 31st January, 1950, on which the retail price falls short of the sum of the above five price components then the shortfall is debited to the gasoline price stabilization account in respect of each gallon of gasoline sold on that day.

100. The gasoline price stabilization account is balanced at the end of every month and such balance, if a credit, is paid by the Distributing Company to the Accountant General who credits it to the Stabilization Fund; but, if a debit, such balance is paid to the Distributing Company by the Accountant General, the Stabilization Fund being debited accordingly.

101. A similar account is kept for kerosine, the first cost of which has been agreed as Platt's low quotation in United States cents per United States gallon for 41-43 Gravity Water White Kerosine in cargo lots from Gulf Ports converted into Trinidad currency per Imperial gallon.

102. Government's intention is so to adjust the retail price that there will always be a credit balance in the Gasoline and Kerosine Stabilization Funds, but in the event that it may not be practicable to alter the retail price in time to ensure that the Fund will be sufficient to meet a monthly debit from the Gasoline and/or Kerosine Stabilization Accounts, then Government will advance to the Fund sufficient moneys to meet such debit or debits and shall be entitled to repayment of the amount of such advance as soon as there is sufficient money in the Fund, but subject to any subsequent monthly debit or debits from the Gasoline and/or Kerosine Stabilization Accounts being a prior charge against the Fund.

103. During 1950 several changes occurred in the retail prices. Kerosine was increased from 24 cents to 26 cents per Imperial gallon on 19th September, while the price of gasoline fell from 41 to 40 cents per gallon on the 2nd April, increased again to 41 cents per gallon on 14th June and to 42 cents per gallon on 12th August. Without a Stabilization Fund the price of kerosine would have increased several months before it actually did and the temporary drop in the price of gasoline between 2nd April and the 14th June would not have been possible.

#### ACCIDENTS

104. Fifty-two accidents on the oilfields were investigated and reported on by an officer of this department during the year. Two of these accidents were fatal. The larger companies continue to devote considerable attention towards safety precautions and training their employees in the safe handling of tools and equipment. This effort is steadily improving the accident rate as carefully kept and detailed records show. Accidents other than those on drilling rigs, producing wells and oilfield installations were dealt with by the Senior Factory Inspector.

#### LEGISLATION

105. The Drilling (Amendment) Regulations, 1950, effective 12th October, 1950, amended section 2 of the Drilling Regulations, 1940. This section specifies the conditions subject to which permission may be given to drill a well at a lesser distance than 150 feet from a boundary of oilrights.

106. The wording of the original regulation had resulted in Government receiving less than the current rate of royalty in certain cases where the drainage area of a well encroached on the Old Type Crown Leases. This anomaly has been removed by the amendment.

#### *Interpretation of Drilling Regulations 1 and 2.*

##### *Determination of the drainage area of wells drilled at an inclination to the vertical.*

107. Under regulation 1 of the Drilling Regulations, 1940, the drainage area of a well is defined as a circular area of one hundred and fifty feet radius having the centre of the borehole of the well at the surface as its centre except when the well is inclined from the vertical in which case the centre of the circular area shall be at a point at the surface approved by the Technologist.

108. In order to apportion, between the owners of the oilrights concerned, the royalty from a well drilled at an inclination from the vertical in cases where the drainage area of the well is intersected by a boundary between different oilrights it became necessary to devise a formula by which the centre of the drainage area might be determined.

109. A technical sub-committee of the Petroleum Association of Trinidad investigated the matter and, after discussions with the Assistant Petroleum Technologist, a formula was agreed between the Petroleum Association of Trinidad and this department which has provided an equitable method of apportioning royalty between interested royalty holders in all cases which have so far arisen.

110. The method consists of two steps :—

- i. The calculation of the share of royalty due to each royalty holder in proportion to the volume of sand underneath his property which is being drained by the directionally drilled well, and
- ii. Plotting on to the surface plans the conventional drainage circle of 150 feet radius in such a way that the boundary line between the two leases divides the circle into two segments, the areas of which are proportional to the royalties due to each royalty holder.

While the formula is not of general interest it is described here in full for purposes of record. The procedure is as follows :—

111. The perforated intervals measured on the well axis are projected on to a vertical line giving the "conventional thickness" of the sand produced (*see Appendix H*). This conventional thickness is divided into 10 feet intervals beginning from the top, leaving the interval of less than 10 feet (if any) at the bottom. The volume of the drained oil sand is considered to be represented by a set of elementary cylinders, each having a circular base of radius 150 feet, a height of ten feet (with the exception of the lowest one), and placed so that their axes are bisected by the axis of the oblique drainage cylinder.

112. The projection of the elementary cylinders on to the horizontal plane at the surface is a set of circles. The vertical plane of a boundary line which intersects the drainage circles will cut the elementary cylinders in parts which are proportional to the areas of the segments of the respective circles.

113. The royalties due to the royalty holders are therefore proportional to the sum of the areas of those parts of each circle which fall on their lands.

*Example (see Appendix H).*

$$114. \text{ Total drainage area} = 3 \text{ circles} \times \pi \times 150^2 \\ = 3 \times 70,667 = 212,000 \text{ sq. ft.}$$

|              |     |     |     | <i>Land Owner "A"</i> | <i>Land Owner "B"</i>       |
|--------------|-----|-----|-----|-----------------------|-----------------------------|
| Circle No. 1 | ... | ... | ... | —                     | 70667                       |
| Circle No. 2 | ... | ... | ... | a                     | 70667—a                     |
| Circle No. 3 | ... | ... | ... | b                     | 70667—b                     |
| TOTAL        | ... | ... | ... | (a + b) sq. ft.       | {212,000 — (a + b)} sq. ft. |

If there is another cylinder at the bottom with a height h, smaller than 10 feet, the areas of the circles will be weighted as follows :—

|                          |     | <i>Land Owner "A"</i>   | <i>Land Owner "B"</i>  |
|--------------------------|-----|---|--|
| Circle No. 1 (Weight 10) | ... | —   | 70667  |
| Circle No. 2 (Weight 10) | ... | a   | 70667—a  |
| Circle No. 3 (Weight 10) | ... | b   | 70667—b  |
| Circle No. 4 (Weight h)  | ... | $c \times \frac{h}{10}$   | $(70667 - c) \times \frac{h}{10}$  |
| TOTALS                   |     | $\left\{ a + b + \left( c \times \frac{h}{10} \right) \right\}$ sq. ft. | $\left\{ 70667 \times \left( 3 + \frac{h}{10} \right) - \left( a + b + c \times \frac{h}{10} \right) \right\}$ sq. ft. |

The royalty holders will therefore receive

First Case

|   |  |
|---|--|
| <i>"A"</i>                              | <i>"B"</i>   |
| $R \times \frac{a + b}{3 \times 70667}$ | $R \times \frac{3 \times 70667 - (a + b)}{3 \times 70667}$ |

Second Case

|  |   |
|--|---|
| $R \times \frac{\left( a + b + c \times \frac{h}{10} \right)}{70667 \times \left( 3 + \frac{h}{10} \right)}$ | $R \times \frac{70667 \times \left( 3 + \frac{h}{10} \right) - \left( a + b + c \times \frac{h}{10} \right)}{70667 \times \left( 3 + \frac{h}{10} \right)}$ |
|--|---|

115. Let us assume for the sake of illustration that the royalty shares of the two royalty holders, calculated as under (1), are proportional to 9,187 sq. ft. and 61,480 sq. ft. or 13 per cent. and 87 per cent. respectively. Taking into account that the centre of the conventional drainage circle should fall somewhere on the surface projection of the well bore and with the aid of Table XI which give the heights of segments of a circle of 150' radius corresponding to the areas of the segments, the position of the drainage circle relative to the boundary line is readily determined.

116. Appendix H shows in its lower part the phases of the calculation of royalties, and in its upper part the plotting of the derived conventional drainage circle with its two segments proportional to the drained sand and royalty shares.

#### LICENCES AND LEASES

117. Seven exploration licences were issued and one exploration licence was renewed over a reduced area for the period of one year as from the 1st January, 1950. No principal leases were issued during the year but one supplemental lease was issued. Two principal oil mining leases were surrendered with effect from 30th June, 1950. A summary of the leasing situation as at 31st December, 1950, is as follows :—

##### A.—Leases registered:

|                            |     |     |     |     | ACREAGE                             |    |     |                                |    |    |
|----------------------------|-----|-----|-----|-----|-------------------------------------|----|-----|--------------------------------|----|----|
|                            |     |     |     |     | Surface rights in private ownership |    |     | Surface rights vested in Crown |    |    |
|                            |     |     |     |     | A.                                  | R. | P.  | A.                             | R. | P. |
| Principal Mining Leases—79 | ... | ... | ... | ... | 55,986                              | 0  | 04½ | 159,244                        | 2  | 15 |
| Exploration Licences —8    | ... | ... | ... | ... | —                                   | —  | —   | 54,825                         | 1  | 22 |
|                            |     |     |     |     | 55,986                              | 0  | 04½ | 214,069                        | 3  | 37 |

##### B.—Leases granted but not yet registered:—

###### (i) Principal Leases:

| Company  |                            | Locality |                                   |       |        | ACREAGE                             |       |         |                                |    |    |
|----------|----------------------------|----------|-----------------------------------|-------|--------|-------------------------------------|-------|---------|--------------------------------|----|----|
|          |                            |          |                                   |       |        | Surface rights in private ownership |       |         | Surface rights vested in Crown |    |    |
|          |                            |          |                                   |       |        | A.                                  | R.    | P.      | A.                             | R. | P. |
| Antilles | 3                          | ...      | Mayaro                            | ...   | ...    | —                                   | —     | —       | 8,400                          | 0  | 00 |
|          |                            | ...      | Cocal                             | ...   | ...    | —                                   | —     | —       | 1,240                          | 0  | 00 |
|          |                            | ...      | Ortoire                           | ...   | ...    | —                                   | —     | —       | 9,144                          | 0  | 00 |
| Apex     | 2                          | ...      | Central Range                     | ...   | ...    | 16,510                              | 3     | 22      | —                              | —  | —  |
|          |                            | ...      | Arena Reserve                     | ...   | ...    | —                                   | —     | —       | 200                            | 0  | 00 |
| T.L.L.   | 5                          | ...      | Savana Grande, Siparia and Moruga | ...   | ...    | 290                                 | 0     | 00      | 953                            | 0  | 00 |
|          |                            | ...      | Do.                               | ...   | ...    | —                                   | —     | —       | 634                            | 0  | 00 |
|          |                            | ...      | Moruga                            | ...   | ...    | 16                                  | 0     | 33      | —                              | —  | —  |
|          |                            | ...      | Siparia                           | ...   | ...    | —                                   | —     | —       | 79                             | 1  | 32 |
| T.N.A.   | 5                          | ...      | Naparima                          | ...   | ...    | 308                                 | 0     | 00      | 20                             | 0  | 00 |
|          |                            | ...      | Turure                            | ...   | ...    | —                                   | —     | —       | 507                            | 0  | 31 |
|          |                            | ...      | Nariva                            | ...   | ...    | —                                   | —     | —       | 7,603                          | 0  | 00 |
|          |                            | ...      | Central Range                     | ...   | ...    | —                                   | —     | —       | 6,704                          | 0  | 00 |
|          |                            | ...      | Soldado and Los Gallos            | ...   | ...    | —                                   | —     | —       | 1                              | 0  | 00 |
| T.P.D.   | 11                         | ...      | Central Range                     | ...   | ...    | 12,507                              | 0     | 00      | —                              | —  | —  |
|          |                            | ...      | Moruga                            | ...   | ...    | 13                                  | 1     | 37      | 223                            | 0  | 38 |
|          |                            | ...      | Do.                               | ...   | ...    | —                                   | —     | —       | 115                            | 0  | 00 |
|          |                            | ...      | Cedros                            | ...   | ...    | 1,553                               | 1     | 17      | 1,653                          | 2  | 00 |
|          |                            | ...      | Pointe-a-Pierre                   | ...   | ...    | 181                                 | 3     | 12      | —                              | —  | —  |
|          |                            | ...      | Siparia                           | ...   | ...    | 10                                  | 1     | 19      | —                              | —  | —  |
|          |                            | ...      | Moruga                            | ...   | ...    | 1,503                               | 0     | 00      | 64                             | 0  | 09 |
|          |                            | ...      | Coora                             | ...   | ...    | 60                                  | 1     | 19      | —                              | —  | —  |
|          |                            | ...      | Moruga                            | ...   | ...    | —                                   | —     | —       | 159                            | 0  | 00 |
|          |                            | ...      | Central Range                     | ...   | ...    | 179                                 | 1     | 30      | —                              | —  | —  |
| U.B.O.T. | 7                          | ...      | Nariva                            | ...   | ...    | 159                                 | 3     | 32      | —                              | —  | —  |
|          |                            | ...      | Naparima                          | ...   | ...    | 123                                 | 3     | 22      | 65                             | 2  | 12 |
|          |                            | ...      | Ortoire                           | ...   | ...    | —                                   | —     | —       | 45,901                         | 0  | 00 |
|          |                            | ...      | Do.                               | ...   | ...    | —                                   | —     | —       | 2,791                          | 0  | 00 |
|          |                            | ...      | Nariva                            | ...   | ...    | —                                   | —     | —       | 26,100                         | 0  | 00 |
|          |                            | ...      | Rousillac                         | ...   | ...    | 189                                 | 3     | 29      | 845                            | 2  | 27 |
|          |                            | ...      | La Brea                           | ...   | ...    | 156                                 | 3     | 19      | 14                             | 2  | 08 |
| ...      | Cocal, Charuma and Ortoire | ...      | ...                               | 3,311 | 0      | 29                                  | 2,289 | 1       | 34                             |    |    |
| ...      | Do.                        | ...      | ...                               | —     | —      | —                                   | 425   | 0       | 00                             |    |    |
|          |                            |          |                                   |       | 36,975 | 3                                   | 00    | 116,132 | 2                              | 31 |    |

(ii) *Supplemental Leases:*

| Company    | Locality  | ACREAGE                                    |   |   |   |   |  |
|------------|---|--|---|---|---|---|--|
|            |   | Surface rights in private ownership        |   |   | Surface rights vested in Crown                                  |   |  |
|            |   | A.   | R.  | P.  | A.  | R.  | P.   |
| K.T.O. 3   | Pointe-a-Pierre ...<br>Guapo (2) ...  | 17   | 0   | 18  | Not surveyed  |   |  |
| S.T.O.L. 1 | Siparia ...   | —  | —   | —   | 108   | 1   | 30   |
| T.L.L. 1   | Moruga ...  | 206  | 1   | 30  | 29  | 1   | 23   |
| T.P.D. 1   | Siparia ...   | 11   | 3   | 34  | 31  | 3   | 35   |
| U.B.O.T. 9 | Siparia ...<br>Cocal ...<br>La Brea ...<br>Cocal ...<br>Naparima and Siparia ...<br>La Brea ...<br>Siparia ...<br>Erin ...<br>Siparia ... | —<br>40<br>—<br>—<br>—<br>—<br>—<br>—<br>4 | —<br>3<br>—<br>—<br>—<br>—<br>—<br>—<br>2 | —<br>31<br>—<br>—<br>—<br>—<br>—<br>—<br>27 | 34<br>—<br>Not surveyed<br>do.<br>do.<br>do.<br>do.<br>do.<br>— | 1<br>—<br>—<br>—<br>—<br>—<br>—<br>—<br>— | 24<br>—<br>—<br>—<br>—<br>—<br>—<br>—<br>— |
|            |   | 281  | 0   | 20  | 204   | 0   | 32   |

Total acreage of areas granted but not yet registered:—

| A.      | R. | P. |
|---------|----|----|
| 153,593 | 3  | 03 |

C.—*Exploration Licences effective for one year from 1st January, 1950.*

| Company  | Locality             | Crown Oil Rights |    |    |
|--|----------------------|------------------|----|----|
|  |                      | A.               | R. | P. |
| Trinidad Leaseholds, Ltd. 1                    | Moruga ...           | 2,360            | 0  | 00 |
| Trinidad Northern Areas, Ltd. 3                | Central Range ...    | 19,500           | 0  | 00 |
|  | Cedros ...           | 816              | 1  | 22 |
|  | Manzanilla ...       | 1,148            | 0  | 00 |
| Trinidad Petroleum Development Co., Ltd. 1     | Nariva ...           | 5,664            | 0  | 00 |
| United British Oilfields of Trinidad Limited 3 | Cocal ...            | 906              | 0  | 00 |
|  | Cedros ...           | 802              | 0  | 00 |
|  | Nariva (Renewal) ... | 23,629           | 0  | 00 |
|  | Total acreage ...    | 54,825           | 1  | 22 |

D.—*Marine Areas in Territorial Waters:*

Two licences were issued during the year; one to the Antilles Petroleum Company (Trinidad) Limited over an area of approximately 12,544 acres and the other to the Kern Trinidad Oilfields Limited over an area of approximately 5,760 acres.

E.—*Private Oil Rights:*

Returns submitted by the Oil Companies show that 103,718 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 527,367 acres or about 44.2 per cent. of the total acreage of the Colony.

## GEOLOGICAL WORK IN 1950

118. At the request of the Government of the Windward Islands, the Government Geologist, Major A. G. A. Sutton visited St. Vincent and Grenada with the object of looking for radio-active rocks. A thorough survey of each of these Islands was made with the Geiger Counter which had been supplied by the Atomic Energy Commission. Nothing of interest was discovered. A separate report on each Island was made and published as Council Papers Nos. 35 and 36 of 1950.

119. A short visit was paid to Tobago in connection with the Stone quarry near the Hillsborough Dam for the Works and Hydraulics Department. A number of rock samples were collected and sent to British Guiana where there is a Petrological Laboratory for igneous rock examination. A report is awaited.

120. Much time was spent visiting the various geological departments of the Oilfields gathering information and reports for the compilation of a Geological Map and Report of Trinidad. This important work is progressing slowly but it is hoped to be able to finish it by the end of 1951.

121. A report of the water supply situation in Trinidad together with two (2) maps and full appendices listing particulars of every known water well and Dam in Trinidad was published.

122. Field work has been undertaken in various parts of the island particularly in the foothills of the Northern Range, in connection with a report now in preparation on the water resources of the Island. This report will be published in 1951.

## THE ASPHALT INDUSTRY

123. The following table shows the quantity of Natural Asphalt extracted from the Pitch Lake and the quantity of derived products exported :—

|  | 1948<br><i>Tons</i> | 1949<br><i>Tons</i> | 1950<br><i>Tons</i> |
|--|---------------------|---------------------|---------------------|
| Extracted by Works and Hydraulics Department | 25,327              | 46,466              | 40,564              |
| Extracted by Company                         | 103,666             | 98,694              | 92,282              |
|  | <u>128,993</u>      | <u>145,160</u>      | <u>132,846</u>      |
| <i>Exported :—</i>                           |                     |                     |                     |
| Crude Asphalt                                | 16                  | 27                  | —                   |
| Dried Asphalt                                | 41,988              | 47,961              | 46,659              |
| Asphalt Cement                               | 49,368              | 37,288              | 23,433              |
|  | <u>91,372</u>       | <u>85,276</u>       | <u>70,092</u>       |

124. The Trinidad Lake Asphalt Company were granted a new lease of the Pitch Lake for a period of thirty years commencing on the first of February, 1956.

125. The terms of the new lease are similar to those of the current lease, the royalty and export duty being the same. These are a royalty of sixty cents and an export duty of one dollar and twenty cents on each ton of crude pitch exported, while on pitch products exports the royalty per ton of dry asphalt contents is eighty-four cents and the export duty one dollar and sixty-six cents.

## STAFF

126. Mr. W. N. Foster, Petroleum Technologist, proceeded to Sarawak via the United Kingdom on the 26th March, in order to undertake certain work on behalf of the Government of Sarawak. On completion of this work, he was granted 132 days leave in the United Kingdom as from 22nd May. He finally resumed duties on the 21st October. Mr. I. S. Rutherford, Assistant Petroleum Technologist, was appointed to act as Petroleum Technologist during his absence.

Mr. John Burslem was appointed to the post of 2nd Assistant Petroleum Technologist for a period of three years with effect from 3rd June. He was stationed in the Port-of-Spain Office until the 19th July, on which date he assumed duties at the San Fernando Office.

Mr. J. G. A. Roe, 3rd Assistant Petroleum Technologist, was granted 174 days vacation leave with effect from 29th March. He resumed duties on the 16th October.

Mr. Cyril Niles, Principal Officer, was granted special sick leave as from 17th August to the end of the year.

Mr. H. O. Roberts, Senior Clerk, was transferred to this Department from the Secretariat as from 1st March. He was appointed to take charge of the San Fernando Office, from the date of Mr. Roe's departure until Mr. Burslem's assumption of duty on the 19th July, and was further appointed to act as Principal Officer as from 17th August to the end of the year during the absence of Mr. Niles on special sick leave.

Miss W. Samlalsingh, 1st Class Clerk, was transferred from the San Fernando Office to the Port-of-Spain Office on the 9th January due to a minor re-organisation of the Department. She was appointed to act as Senior Clerk as from 17th August to the end of the year.

Mr. P. B. Ramroop, 2nd Class Clerk, was granted 118 days vacation leave with effect from 12th April to 7th August to attend the Civics Course sponsored by the Extra-Mural Department of the University College of the West Indies and the British Council. During his absence Mr. M. D'Heureux acted as 2nd Class Clerk in the Department. Mr. Ramroop was also appointed to act as a 1st Class Clerk as from the 17th August to the end of the year.

Mr. R. E. Alexander, 2nd Class Clerk, San Fernando Office, was granted 50 days vacation leave with effect from 3rd November to 22nd December. Miss S. Allen was appointed to act as a 2nd Class Clerk during his absence.

Miss E. E. Maule was appointed as Shorthand-Typist in the Department as from 1st January.

Mr. N. Joseph continued to act as a 2nd Class Clerk in the Department during the year. He was granted 14 days vacation leave as from 14th August, 1950.

Miss Z. Rafeek was appointed to act as a 2nd Class Clerk, in the Department with effect from 12th August to the end of the year.

Mr. Haniff Ali, Messenger in the San Fernando Office, was granted 35 days leave as from 20th November to 24th December. Mr. W. Sampson was appointed to act as messenger during his absence.

Mr. R. Huggins, Messenger in the Port-of-Spain Office, was granted 42 days leave with effect from 27th December. Mr. A. Henry was appointed to act as messenger during his absence.

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.*

15th June, 1951.

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

| Item  | Unit         | 1950    | % difference<br>50/49 | 1949    | 1948    | 1947    | 1946    | 1945    | 1944    | 1943    | 1942    |
|---|--------------|---------|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| PRODUCTION  |              |         |                       |         |         |         |         |         |         |         |         |
| 0 Crude Oil as per previous Administration Reports<br>(see footnote)  | 1,000's bls. | —       | —                     | —       | 20,110  | 20,520  | 20,233  | 21,093  | 21,635  | 21,385  | 22,069  |
| 1 Crude Oil ... ..  | do.          | 20,632  | + 0.1                 | 20,617  | 20,107  | 20,433  | 20,142  | 21,000  | 21,543  | 21,286  | 21,962  |
| 2 Natural Gasoline ... ..   | do.          | 185     | + 10.1                | 168     | 182     | 181     | 187     | 182     | 185     | 182     | 197     |
| 3 TOTAL CRUDE OIL AND NATURAL GASOLINE ... ..                         | do.          | 20,817  | + 0.2                 | 20,785  | 20,289  | 20,614  | 20,239  | 21,182  | 21,728  | 21,468  | 22,159  |
| 4 From Crown Oil Rights ... ..  | do.          | 16,308  | + 0.1                 | 16,288  | 15,309  | 15,373  | 15,541  | 16,878  | 17,430  | 17,089  | 17,833  |
| 5 From Private Oil Rights ... ..                                      | do.          | 4,509   | + 0.3                 | 4,497   | 4,980   | 5,241   | 4,788   | 4,304   | 4,298   | 4,379   | 4,326   |
| 6 TOTAL IMPORTS (ALL OILS) ... ..                                     | 1,000's bls. | 11,258  | — 3.6                 | 11,678  | 8,882   | 5,917   | 2,933   | 3,394   | 3,188   | 1,101   | 1,365   |
| 7 Imports of Refined Products (as per Customs) ... ..                 | do.          | 23      | — 8.0                 | 25      | 22      | 21      | 40      | 409     | 840     | 365     | —       |
| 8 Imports of Crude Oil for Refining ... ..                            | do.          | 11,214  | — 1.1                 | 11,333  | 8,840   | 5,896   | 2,893   | 2,119   | 1,082   | —       | 83      |
| 9 Imports of Other Oils for Refining and Blending ... ..              | do.          | 21      | — 93.4                | 320     | 20      | —       | —       | 866     | 1,266   | 736     | 1,282*  |
| 10 TOTAL EXPORTS (ALL OILS) (as per Customs) ... ..                   | 1000's bls.  | 28,757  | — 2.4                 | 29,458  | 26,168  | 22,926  | 20,432  | 20,651  | 19,754  | 15,860  | 19,063  |
| 11 Exports of Crude Oil do. ... ..                                    | do.          | 2,194   | + 7.7                 | 2,037   | 1,706   | 881     | 263     | —       | —       | —       | —       |
| 12 Exports of Refined Products do. ... ..                             | do.          | 26,563  | — 3.1                 | 27,421  | 24,462  | 22,045  | 20,169  | 20,651  | 19,754  | 15,860  | 19,063  |
| 13 Refinery throughput (Crude Oil and Natural Gasoline)               | 1,000's bls. | 29,813  | + 0.7                 | 29,617  | 27,074  | 25,281  | 22,713  | 23,170  | 22,498  | 21,086  | 21,914  |
| 14 No. of Wells Started ... ..  | As stated    | 149     | + 2.1                 | 146     | 145     | 162     | 124     | 110     | 105     | 127     | 169     |
| 15 TOTAL NO. OF DRILLING WELLS COMPLETED ... ..                       | As stated    | 144     | —                     | 144     | 141     | 157     | 108     | 100     | 100     | 136     | 163     |
| 16 No. of Drilling Wells completed as oil wells ... ..                | do.          | 136     | + 4.6                 | 130     | 134     | 141     | 104     | 95      | 96      | 133     | 156     |
| 17 No. of Drilling Wells abandoned while drilling<br>(Dry holes, &c.) | do.          | 8       | — 42.9                | 14      | 7       | 16      | 4       | 5       | 4       | 3       | 7       |
| 18 TOTAL FOOTAGE DRILLED (ALL WELLS) ... ..                           | Feet         | 659,565 | + 4.7                 | 630,209 | 638,681 | 644,689 | 533,209 | 453,872 | 456,957 | 493,731 | 623,398 |
| 19 Footage Drilled on Crown Oil Rights ... ..                         | do.          | 524,374 | + 16.1                | 451,624 | 489,987 | 446,798 | 406,017 | 345,071 | 352,988 | 389,527 | 546,233 |
| 20 Footage Drilled on Private Oil Rights ... ..                       | do.          | 135,191 | — 24.3                | 178,585 | 148,694 | 197,891 | 127,192 | 108,801 | 103,969 | 104,204 | 77,165  |
| 21 AVERAGE DEPTH OF COMPLETED DRILLING WELLS<br>(Item 15)             | Feet         | 4,436   | + 9.1                 | 4,065   | 4,259   | 4,155   | 4,772   | 4,586   | 4,535   | 3,620   | 3,750   |
| 22 TOTAL NO. OF WELLS PRODUCING (Average during year)                 | As stated    | 2,197   | + 5.2                 | 2,039   | 2,013   | 1,876   | 1,820   | 1,735   | 1,637   | 1,591   | 1,630   |
| 23 No. of Wells producing by flowing (Average during year)            | do.          | 594     | — 3.6                 | 616     | 629     | 625     | 615     | 634     | 642     | 628     | 618     |
| 24 No. of Wells producing by Artificial Lift (Average<br>during year) | do.          | 1,603   | + 8.8                 | 1,473   | 1,384   | 1,251   | 1,205   | 1,101   | 995     | 963     | 1,012   |
| 25 AVERAGE DAILY PRODUCTION DURING YEAR PER<br>PRODUCING WELL         | Barrels      | 25.7    | — 4.8                 | 27.0    | 27.3    | 30.0    | 30.4    | 33.3    | 36.1    | 36.8    | 37.1    |
| 26 Average daily production during year per flowing well ...          | Barrels      | 50.2    | — 3.3                 | 51.9    | 50.7    | 54.2    | 55.0    | 59.5    | 63.9    | 64.8    | 67.8    |
| 27 Average daily production during year per artificial lift<br>well   | do.          | 16.6    | —                     | 16.6    | 16.7    | 17.8    | 17.9    | 18.2    | 18.3    | 17.5    | 18.3    |
| 28 TOTAL VALUE OF DOMESTIC EXPORTS ... ..                             | 000 \$       | 167,562 | + 27.1                | 131,790 | 127,105 | 82,262  | 57,572  | 54,815  | 49,273  | 36,678  | 43,074  |
| 29 TOTAL VALUE OF PETROLEUM AND ITS PRODUCTS ... ..                   | do.          | 129,183 | + 30.3                | 99,166  | 96,287  | 63,050  | 43,046  | 44,085  | 39,811  | 29,441  | 34,300  |
| 30 TOTAL VALUE OF ASPHALT AND ITS PRODUCTS ... ..                     | do.          | 2,669   | — 11.4                | 3,011   | 2,946   | 1,773   | 1,739   | 477     | 859     | 729     | 377     |

Differences between Items 0 and 1 are due to Item 0 previously including a part of total production of Natural Gasoline which was not disposed of as such but blended with crude oil at field storage.

\*Includes some Refined Products.

I. S. RUTHERFORD  
Assistant Petroleum Technologist



TABLE II—MONTHLY ANALYSIS OF DRILLING WELLS FOR THE YEAR 1950

| MONTH        | Average No. of Rigs Running | No. of New Wells Started | No. of Old Wells Abandoned | No. of Oil Wells Recompleted | DRILLING WELLS COMPLETED |                         |                          |                         |                  |                         | MONTHLY FOOTAGE DRILLED |                    |         | Average footage drilled per day |
|--------------|-----------------------------|--------------------------|----------------------------|------------------------------|--------------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|-------------------------|--------------------|---------|---------------------------------|
|              |                             |                          |                            |                              | Completed as Oil Wells   |                         | Abandoned while drilling |                         |                  |                         | Crown Oil Rights        | Private Oil Rights | Total   |                                 |
|              |                             |                          |                            |                              | No.                      | Aggregate Depth in Feet | Dry holes                |                         | Technical causes |                         |                         |                    |         |                                 |
|              |                             |                          |                            |                              |                          |                         | No.                      | Aggregate Depth in Feet | No.              | Aggregate Depth in Feet |                         |                    |         |                                 |
| JANUARY      | 25                          | 16                       | —                          | 14                           | 15                       | 78,947                  | —                        | —                       | —                | —                       | 49,224                  | 10,592             | 59,816  | 1,930                           |
| FEBRUARY     | 26                          | 12                       | —                          | 15                           | 9                        | 38,792                  | —                        | —                       | —                | —                       | 44,228                  | 8,404              | 52,632  | 1,880                           |
| MARCH        | 25                          | 14                       | 2                          | 13                           | 11                       | 54,007                  | 1                        | 2,359                   | —                | —                       | 44,204                  | 19,411             | 63,615  | 2,052                           |
| APRIL        | 26                          | 12                       | 2                          | 11                           | 8                        | 36,463                  | 4                        | 17,555                  | —                | —                       | 33,486                  | 14,672             | 48,158  | 1,605                           |
| MAY          | 25                          | 10                       | 3                          | 18                           | 13                       | 54,568                  | —                        | —                       | —                | —                       | 32,337                  | 9,738              | 42,075  | 1,357                           |
| JUNE         | 22                          | 13                       | 2                          | 12                           | 9                        | 41,399                  | 1                        | 3,702                   | —                | —                       | 39,141                  | 11,577             | 50,718  | 1,691                           |
| JULY         | 25                          | 14                       | 3                          | 12                           | 11                       | 44,879                  | —                        | —                       | —                | —                       | 48,977                  | 12,042             | 61,019  | 1,968                           |
| AUGUST       | 25                          | 12                       | —                          | 16                           | 12                       | 40,200                  | 1                        | 4,531                   | —                | —                       | 52,926                  | 8,369              | 61,295  | 1,977                           |
| SEPTEMBER    | 26                          | 11                       | 1                          | 17                           | 12                       | 52,233                  | —                        | —                       | —                | —                       | 46,216                  | 8,373              | 54,589  | 1,820                           |
| OCTOBER      | 27                          | 14                       | 1                          | 14                           | 14                       | 62,839                  | —                        | —                       | —                | —                       | 42,268                  | 14,607             | 56,875  | 1,835                           |
| NOVEMBER     | 27                          | 12                       | 1                          | 16                           | 9                        | 36,957                  | 1                        | 2,930                   | —                | —                       | 54,986                  | 10,864             | 65,850  | 2,195                           |
| DECEMBER     | 28                          | 9                        | 1                          | 12                           | 13                       | 66,444                  | —                        | —                       | —                | —                       | 36,381                  | 6,542              | 42,923  | 1,385                           |
| YEAR'S TOTAL | —                           | 149                      | 16                         | 170                          | 136                      | 607,728                 | 8                        | 31,077                  | —                | —                       | 524,374                 | 135,191            | 659,565 | 1,807                           |

Average depth of drilling wells completed 4,436 feet.

(Sgd.) I. S. RUTHERFORD  
Assistant Petroleum Technologist

TABLE 1  
ANALYSIS OF MONTHLY PRODUCTION FOR THE YEAR ENDING 1950  
All crude oil quantity figures are for dry oil—1 barrel (bbl.) = 35 Imperial gallons

| MONTH  | FLOWING      |                |                |                              | Gas/Air Lift |                |                |                              | PUMPING      |                |                |                              | PLUNGER LIFT |                |                |                              | OTHER METHODS    |                   |                |                              | SALT WATER   |              |              |              | No. of Wells produced | No. of Idle Wells | Total No. of Wells Abandoned | No. of Wells drilling at end of month | Total No. of Wells started | CROWN OIL RIGHTS |              | PRIVATE OIL RIGHTS |              | Total Oil produced Bbls. |              |              |              |              |              |              |
|--|--------------|----------------|----------------|------------------------------|--------------|----------------|----------------|------------------------------|--------------|----------------|----------------|------------------------------|--------------|----------------|----------------|------------------------------|------------------|-------------------|----------------|------------------------------|--------------|--------------|--------------|--------------|-----------------------|-------------------|------------------------------|---------------------------------------|----------------------------|------------------|--------------|--------------------|--------------|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  | No. of Wells | Production     |                |                              | No. of Wells | Production     |                |                              | No. of Wells | Production     |                |                              | No. of Wells | Production     |                |                              | No. of wet Wells | Produced with oil |                |                              | No. of Wells | No. of Wells | No. of Wells | No. of Wells |                       |                   |                              |                                       |                            | No. of Wells     | No. of Wells | No. of Wells       | No. of Wells |                          | No. of Wells | No. of Wells | No. of Wells | No. of Wells | No. of Wells | No. of Wells |
|  |              | Quantity Bbls. | % of total Oil | Daily average per Well Bbls. |              | Quantity Bbls. | % of total Oil | Daily average per Well Bbls. |              | Quantity Bbls. | % of total Oil | Daily average per Well Bbls. |              | Quantity Bbls. | % of total Oil | Daily average per Well Bbls. |                  | Quantity Bbls.    | % of total Oil | Daily average per Well Bbls. |              |              |              |              |                       |                   |                              |                                       |                            |                  |              |                    |              |                          |              |              |              |              |              |              |
| January ...  | 629          | 963,014        | 55.8           | 49.4                         | 82           | 69,090         | 4.0            | 27.2                         | 1,190        | 591,522        | 34.2           | 16.0                         | 228          | 102,320        | 5.9            | 14.5                         | 58               | 1,533             | 0.1            | 0.8                          | 793          | 293,472      | 14.5         | 11.9         | 2,187                 | 1,202             | 894                          | 19                                    | 4,302                      | 25.5             | 1,510        | 1,364,114          | 677          | 363,365                  | 1,727,479    |              |              |              |              |              |
| February ...                                       | 598          | 882,821        | 55.3           | 52.7                         | 91           | 91,333         | 5.7            | 35.8                         | 1,190        | 525,715        | 32.9           | 15.8                         | 227          | 95,691         | 6.0            | 15.1                         | 49               | 1,264             | 0.1            | 0.9                          | 807          | 255,766      | 13.8         | 11.3         | 2,155                 | 1,242             | 894                          | 22                                    | 4,313                      | 26.5             | 1,498        | 1,262,099          | 657          | 334,725                  | 1,596,824    |              |              |              |              |              |
| March ...  | 610          | 961,982        | 54.5           | 50.9                         | 101          | 103,161        | 5.8            | 32.9                         | 1,207        | 595,499        | 33.7           | 15.9                         | 221          | 103,495        | 5.9            | 15.1                         | 54               | 1,599             | 0.1            | 0.9                          | 823          | 291,463      | 14.2         | 11.4         | 2,193                 | 1,215             | 896                          | 22                                    | 4,326                      | 26.0             | 1,524        | 1,393,776          | 669          | 371,960                  | 1,765,736    |              |              |              |              |              |
| April ...  | 585          | 876,367        | 52.0           | 49.9                         | 113          | 117,329        | 7.0            | 34.6                         | 1,203        | 592,586        | 35.2           | 16.4                         | 224          | 96,644         | 5.7            | 14.4                         | 46               | 1,229             | 0.1            | 0.9                          | 807          | 280,732      | 14.3         | 11.6         | 2,171                 | 1,245             | 902                          | 19                                    | 4,337                      | 25.9             | 1,505        | 1,323,080          | 666          | 361,075                  | 1,684,155    |              |              |              |              |              |
| May ...  | 611          | 917,514        | 52.2           | 48.4                         | 104          | 116,101        | 6.6            | 36.0                         | 1,221        | 625,746        | 35.6           | 16.5                         | 224          | 97,864         | 5.6            | 14.1                         | 51               | 1,752             | —              | 1.1                          | 821          | 292,919      | 14.3         | 11.5         | 2,211                 | 1,215             | 905                          | 17                                    | 4,348                      | 25.7             | 1,527        | 1,380,166          | 684          | 378,811                  | 1,758,977    |              |              |              |              |              |
| June ...   | 582          | 883,755        | 52.1           | 50.6                         | 104          | 114,044        | 6.7            | 36.6                         | 1,221        | 603,890        | 35.6           | 16.5                         | 233          | 93,986         | 5.5            | 13.4                         | 52               | 1,287             | 0.1            | 0.8                          | 808          | 294,006      | 14.8         | 12.1         | 2,192                 | 1,242             | 908                          | 18                                    | 4,360                      | 25.8             | 1,509        | 1,329,370          | 683          | 367,592                  | 1,696,962    |              |              |              |              |              |
| Production 1st Jan., to 30th June, 1950 Totals ... | —            | 5,485,453      | —              | —                            | —            | 611,058        | —              | —                            | —            | 3,534,958      | —              | —                            | —            | 590,000        | —              | —                            | —                | 8,664             | —              | —                            | Av. 810      | 1,708,358    | 14.3         | 11.7         | —                     | —                 | —                            | —                                     | —                          | —                | —            | 8,052,605          | —            | 2,177,528                | 10,230,133   |              |              |              |              |              |
| July ...   | 591          | 901,404        | 51.6           | 49.2                         | 103          | 118,218        | 6.8            | 37.0                         | 1,239        | 628,940        | 36.0           | 16.4                         | 229          | 96,101         | 5.5            | 13.5                         | 54               | 1,301             | 0.1            | 0.8                          | 831          | 317,955      | 15.4         | 12.3         | 2,216                 | 1,226             | 911                          | 21                                    | 4,374                      | 25.4             | 1,518        | 1,362,330          | 698          | 383,634                  | 1,745,964    |              |              |              |              |              |
| August ...   | 584          | 897,644        | 51.8           | 52.8                         | 103          | 109,420        | 6.3            | 34.3                         | 1,233        | 629,729        | 36.3           | 16.5                         | 223          | 96,257         | 5.5            | 13.9                         | 53               | 1,515             | 0.1            | 0.9                          | 804          | 311,887      | 15.2         | 12.5         | 2,196                 | 1,256             | 912                          | 22                                    | 4,386                      | 25.5             | 1,506        | 1,358,939          | 690          | 375,626                  | 1,734,565    |              |              |              |              |              |
| September ...                                      | 581          | 867,980        | 52.5           | 49.8                         | 102          | 103,044        | 6.2            | 33.7                         | 1,237        | 591,695        | 35.8           | 15.9                         | 221          | 89,688         | 5.4            | 13.5                         | 51               | 1,030             | 0.1            | 0.7                          | 819          | 311,874      | 15.9         | 12.7         | 2,192                 | 1,272             | 913                          | 20                                    | 4,397                      | 25.1             | 1,498        | 1,297,898          | 694          | 355,539                  | 1,653,437    |              |              |              |              |              |
| October ...  | 588          | 940,350        | 53.1           | 51.6                         | 107          | 113,912        | 6.4            | 34.3                         | 1,239        | 620,880        | 35.1           | 16.2                         | 223          | 94,759         | 5.3            | 13.7                         | 54               | 1,290             | 0.1            | 0.8                          | 828          | 330,481      | 15.7         | 12.9         | 2,211                 | 1,266             | 914                          | 21                                    | 4,412                      | 25.8             | 1,518        | 1,384,605          | 693          | 386,586                  | 1,771,191    |              |              |              |              |              |
| November ...                                       | 586          | 885,010        | 51.6           | 50.3                         | 99           | 105,824        | 6.1            | 35.6                         | 1,257        | 626,592        | 36.6           | 16.6                         | 220          | 95,233         | 5.6            | 14.4                         | 53               | 1,182             | 0.1            | 0.7                          | 809          | 337,391      | 16.4         | 13.9         | 2,215                 | 1,270             | 916                          | 23                                    | 4,424                      | 25.8             | 1,509        | 1,334,536          | 706          | 379,305                  | 1,713,841    |              |              |              |              |              |
| December ...                                       | 579          | 914,340        | 51.3           | 50.9                         | 107          | 104,349        | 5.8            | 31.5                         | 1,268        | 666,130        | 37.3           | 16.9                         | 229          | 97,359         | 5.5            | 13.7                         | 52               | 1,112             | 0.1            | 0.7                          | 827          | 350,413      | 16.4         | 13.7         | 2,235                 | 1,262             | 917                          | 19                                    | 4,433                      | 25.7             | 1,533        | 1,398,368          | 702          | 384,922                  | 1,783,290    |              |              |              |              |              |
| Production 1st July, to 31st Dec., 1950 Totals ... | —            | 5,406,728      | —              | —                            | —            | 654,767        | —              | —                            | —            | 3,783,966      | —              | —                            | —            | 569,397        | —              | —                            | —                | 7,430             | —              | —                            | Av. 820      | 1,960,001    | 15.9         | 13.0         | —                     | —                 | —                            | —                                     | —                          | —                | —            | 8,136,676          | —            | 2,265,612                | 10,402,288   |              |              |              |              |              |
| Year's Production Totals ...                       | —            | 10,892,181     | —              | —                            | —            | 1,265,825      | —              | —                            | —            | 7,298,924      | —              | —                            | —            | 1,159,397      | —              | —                            | —                | 16,094            | —              | —                            | —            | 3,668,359    | —            | —            | —                     | —                 | —                            | —                                     | —                          | —                | —            | 16,189,281         | —            | 4,443,140                | 20,632,421   |              |              |              |              |              |
| Daily averages ...                                 | —            | 29,842         | —              | 50.2                         | —            | 3,468          | —              | 34.3                         | —            | 19,997         | —              | 16.3                         | —            | 3,176          | —              | 14.1                         | —                | 44                | —              | 0.8                          | —            | 10,050       | —            | 12.3         | —                     | —                 | —                            | —                                     | —                          | —                | —            | 44,354             | —            | 12,173                   | 56,527       |              |              |              |              |              |
| Average during year                                | 594          | —              | 52.8           | —                            | 101          | —              | 6.1            | —                            | 1,225        | —              | 35.4           | —                            | 225          | —              | 5.6            | —                            | 52               | —                 | 0.1            | —                            | 815          | —            | 15.1         | —            | —                     | —                 | —                            | —                                     | —                          | —                | —            | 1,512              | —            | 685                      | —            |              |              |              |              |              |

| Natural Gasoline Production 1950 |     |     |     | Barrels |
|----------------------------------|-----|-----|-----|---------|
| From Crown Oil Rights            | ... | ... | ... | 111,059 |
| From Private Oil Rights          | ... | ... | ... | 73,599  |
|                                  |     |     |     | 184,658 |

23rd March, 1951

(Sgd.) I. S. RUTHERFORD  
Assistant Petroleum Technologist

TABLE IV  
 PRODUCTION AND DISPOSAL OF NATURAL GAS  
 (All Figures in thousands of cubic feet)

| 1950                    | GAS PRODUCTION (M.C.Ft.) |  | GAS DISPOSAL (M.C.Ft.) |                       |                            |               |                   |
|-------------------------|--------------------------|--|------------------------|-----------------------|----------------------------|---------------|-------------------|
|                         | Gas Production           | Inter Company Sales and Interfield transfers | Used as Fuel           | Replaced in formation | Losses and unaccounted for | Not collected | Vented as surplus |
| January ...             | 2,812,757                | 858,856                                      | 1,458,424              | 240,151               | 228,123                    | 342,579       | 543,480           |
| February ...            | 2,601,913                | 793,346                                      | 1,364,480              | 187,085               | 187,980                    | 314,708       | 547,660           |
| March ...               | 2,806,238                | 826,048                                      | 1,434,994              | 206,589               | 228,695                    | 366,351       | 569,609           |
| April ...               | 2,758,604                | 746,289                                      | 1,317,698              | 319,233               | 221,834                    | 352,833       | 547,006           |
| May ...                 | 2,731,973                | 741,923                                      | 1,355,186              | 209,954               | 197,130                    | 559,479       | 410,224           |
| June ...                | 2,573,048                | 798,747                                      | 1,334,600              | 201,357               | 246,784                    | 545,359       | 244,948           |
| July ...                | 2,703,944                | 882,957                                      | 1,435,878              | 228,019               | 195,590                    | 435,171       | 409,286           |
| August ...              | 2,725,186                | 923,426                                      | 1,443,291              | 196,830               | 232,796                    | 402,350       | 449,919           |
| September ...           | 2,509,053                | 916,218                                      | 1,370,849              | 189,900               | 189,413                    | 394,062       | 364,829           |
| October ...             | 2,719,681                | 972,519                                      | 1,456,587              | 238,985               | 196,820                    | 409,950       | 417,339           |
| November ...            | 2,602,018                | 883,868                                      | 1,392,736              | 223,728               | 179,882                    | 409,954       | 395,718           |
| December ...            | 2,767,236                | 918,709                                      | 1,405,836              | 232,181               | 212,767                    | 419,598       | 496,854           |
| TOTALS ...              | 32,311,651               | 10,262,906                                   | 16,770,559             | 2,674,012             | 2,517,814                  | 4,952,394     | 5,396,872         |
| Percentage of Total ... | 100.0                    | —  | 51.9                   | 8.3                   | 7.8                        | 15.3          | 16.7              |

TABLE IVA  
 PRODUCTION AND DISPOSAL OF NATURAL GAS  
 (All figures in thousands of cubic feet)

| 1949                    | GAS PRODUCTION (M.C.Ft.) |  | GAS DISPOSAL (M.C.Ft.) |                       |                            |               |                   |
|-------------------------|--------------------------|--|------------------------|-----------------------|----------------------------|---------------|-------------------|
|                         | Gas Production           | Inter Company Sales and Interfield transfers | Used as Fuel           | Replaced in formation | Losses and unaccounted for | Not collected | Vented as surplus |
| January ...             | 2,562,522                | 784,253                                      | 1,432,238              | 111,500               | 169,813                    | 467,425       | 381,546           |
| February ...            | 2,374,658                | 771,552                                      | 1,385,440              | 105,000               | 157,298                    | 429,403       | 297,517           |
| March ...               | 2,647,821                | 836,869                                      | 1,526,377              | 164,500               | 170,310                    | 452,917       | 333,717           |
| April ...               | 2,666,397                | 868,917                                      | 1,401,637              | 194,670               | 180,278                    | 447,220       | 442,592           |
| May ...                 | 2,716,099                | 851,667                                      | 1,366,529              | 211,500               | 184,201                    | 482,167       | 471,702           |
| June ...                | 2,647,082                | 836,674                                      | 1,362,749              | 240,069               | 135,086                    | 463,014       | 446,164           |
| July ...                | 2,791,900                | 919,819                                      | 1,460,900              | 220,536               | 208,550                    | 552,179       | 349,735           |
| August ...              | 2,788,496                | 867,020                                      | 1,416,908              | 228,476               | 168,077                    | 553,866       | 421,169           |
| September ...           | 2,697,383                | 843,140                                      | 1,419,461              | 235,678               | 194,755                    | 506,056       | 341,433           |
| October ...             | 2,800,120                | 837,484                                      | 1,500,572              | 205,224               | 222,644                    | 537,372       | 334,308           |
| November ...            | 2,748,619                | 825,847                                      | 1,482,978              | 215,933               | 191,557                    | 499,829       | 358,322           |
| December ...            | 2,845,697                | 867,587                                      | 1,514,314              | 253,394               | 248,325                    | 331,592       | 498,072           |
| TOTALS ...              | 32,286,794               | 10,110,829                                   | 17,270,103             | 2,386,480             | 2,230,894                  | 5,723,040     | 4,676,277         |
| Percentage of Total ... | 100                      | —  | 53.5                   | 7.4                   | 6.9                        | 17.7          | 14.5              |

TABLE V  
RETURN OF PRODUCTION, STOCKS AND DISPOSAL OF PETROLEUM DURING THE YEAR ENDED 1950

(All figures in tons of 2,240 lb.)

|   | Crude and Process Oils | AVIATION SPIRIT |              | Motor Spirit | White Spirit | Burning Oil | Vapourizing Oil | Gas and Diesel Oils | Fuel Oils (All grades) | Lub. Oil and Grease | Bitumen | Other finished products | Feed or blending stock for Transfer |
|---|------------------------|-----------------|--------------|--------------|--------------|-------------|-----------------|---------------------|------------------------|---------------------|---------|-------------------------|-------------------------------------|
|   |                        | 100 Octane      | Other Grades |              |              |             |                 |                     |                        |                     |         |                         |                                     |
| 1. OPENING STOCKS ... ..  | 206,014                | 6,565           | 7,638        | 67,335       | 184          | 12,307      | 18,663          | 48,836              | 145,954                | 1,745               | 8,705   | 4,453                   | 39,283                              |
| 2. CRUDE OIL PRODUCTION INCLUDING CASING HEAD PETROLEUM SPIRIT                      | 2,966,974*             | —               | —            | —            | —            | —           | —               | —                   | —                      | —                   | —       | —                       | —                                   |
| 3. IMPORTS : Venezuela ... ..   | 1,404,624              | —               | —            | —            | —            | —           | —               | —                   | —                      | —                   | —       | —                       | —                                   |
| Columbia ... ..   | 197,384                | —               | —            | —            | —            | —           | —               | —                   | —                      | —                   | —       | —                       | —                                   |
| United States of America, United Kingdom, Netherlands West Indies and Canada ... .. | 817                    | —               | —            | 1,513        | —            | 4           | —               | 479                 | —                      | 3,952               | —       | —                       | —                                   |
| TOTAL IMPORTS ... ..  | 1,602,825              | —               | —            | 1,513        | —            | 4           | —               | 479                 | —                      | 3,952               | —       | —                       | —                                   |
| 4. RUNS TO STILLs ... ..  | 4,256,487              | —               | —            | —            | —            | —           | —               | —                   | —                      | —                   | —       | —                       | —                                   |
| 5. PRODUCTS OBTAINED ... ..   | —                      | 44,197          | 129,955      | 569,187      | 338          | 60,317      | 163,891         | 599,359             | 2,359,050              | 367                 | 66,361  | 37,897                  | 32,613                              |
| 6. CONSUMPTION : Trinidad and Tobago ... ..   | —                      | —               | —            | 49,424       | 396          | 14,727      | —               | 18,132              | 85,689                 | 3,717               | 1,958   | 8,765                   | —                                   |
| Bunkers ... ..  | —                      | 7,273           | 787          | —            | —            | —           | —               | 153,958             | 899,928                | —                   | —       | —                       | —                                   |
| Refinery Fuel ... ..  | —                      | —               | —            | —            | —            | —           | —               | —                   | 7,600                  | —                   | —       | —                       | —                                   |
| TOTAL CONSUMPTION ... ..  | —                      | 7,273           | 787          | 49,424       | 396          | 14,727      | —               | 172,090             | 993,217                | 3,717               | 1,958   | 8,765                   | —                                   |
| 7. SHIPMENTS : Exported ... ..  | 313,374                | 38,080          | 123,749      | 524,636      | —            | 49,926      | 167,526         | 400,950             | 1,381,017              | 40                  | 65,560  | 29,559                  | 15,669                              |
| Re-Exported† ... ..   | —                      | —               | —            | 8,374        | —            | —           | —               | —                   | —                      | 521                 | —       | —                       | —                                   |
| TOTAL SHIPMENTS ... ..  | 313,374                | 38,080          | 123,749      | 533,010      | —            | 49,926      | 167,526         | 400,950             | 1,381,017              | 561                 | 65,560  | 29,559                  | 15,669                              |
| 8. CLOSING STOCKS ON 31ST DECEMBER, 1950 ... ..                                     | 203,041                | 5,409           | 13,057       | 55,601       | 126          | 7,975       | 15,028          | 75,634              | 130,770                | 1,786               | 7,548   | 4,026                   | 56,227                              |
| 9. BALANCE NOT SPECIFICALLY ACCOUNTED FOR ... ..                                    | ‡2,911                 | —               | —            | —            | —            | —           | —               | —                   | —                      | —                   | —       | —                       | —                                   |

\*Crude Oil = 2,947,489  
Natural Gasoline = 19,485  
Total = 2,966,974

† Fuel Oils imported for transshipment not included in this Return.  
‡ Pipeline Losses, &c.

(SGD.) I. S. RUTHERFORD  
Assistant Petroleum Technologist

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

|   | 1950       | % difference<br>1950/1949 | 1949         | 1948        | 1947       | 1946       | 1945       | 1944       | 1943       | 1942       | 1941       |
|---|------------|---------------------------|--------------|-------------|------------|------------|------------|------------|------------|------------|------------|
| 1. Customs ... ..   | \$ 974,118 | — 21.3                    | \$ 1,238,426 | \$ 778,276  | \$ 650,525 | \$ 370,193 | \$ 636,035 | \$ 709,372 | \$ 578,030 | \$ 565,176 | \$ 598,563 |
| Excise Duty on Petroleum Spirit ... ..                                    | 115,637    | + 213.3                   | 36,910       | —           | —          | —          | —          | —          | —          | —          | —          |
| 2. Land and Building Taxes ... ..   | 101,203    | + 19.4                    | 84,754       | } 145,874   | 150,919    | 167,062    | 120,484    | 130,733    | 121,974    | 110,592    | 109,221    |
| Vehicles, Licences and Registration ... ..                                | 107,647    | + 55.2                    | 69,371       |             | —          | —          | —          | —          | —          | —          | —          |
| 3. Taxes on Income ... ..   | 8,704,846  | — 34.5                    | 13,292,777   | 7,441,508   | 3,552,074  | 2,730,744  | 3,076,581  | 2,666,052  | 2,918,920  | 1,865,856  | 1,579,143  |
| 4. Reimbursements—Petroleum Office ... ..                                 | 32,151     | + 30.6                    | 24,611       | 30,071      | 23,884     | 16,808     | 21,839     | 19,176     | 16,621     | 16,581     | 17,294     |
| 5. Earnings of Government Departments ... ..                              | 10,504     | + 108.2                   | 5,045        | 1,934       | 2,079      | 1,319      | 555        | 760        | 491        | 514        | 283        |
| 6. Miscellaneous ... ..   | 31,917     | — 50.4                    | 64,386       | 5,204       | 13,190     | 7,658      | 10,351     | 15,472     | 35,129     | 21,881     | 29,242     |
| 7. Royalty on Oil ... ..  | 5,823,226  | + 61.9                    | 3,596,251    | } 4,030,076 | 1,976,989  | 1,287,917  | 1,428,160  | 1,351,531  | 1,498,307  | 1,183,177  | 1,323,304  |
| Royalty on Gas ... ..   | 81,233     | + 9.5                     | 74,217       |             | —          | —          | —          | —          | —          | —          | —          |
| 8. Forests—Sale of Timber, &c. ... ..                                     | 68,899     | + 78.0                    | 38,715       | 43,693      | 37,924     | 22,667     | 23,849     | 19,569     | 16,490     | 36,563     | 52,397     |
| Exploration Licences... ..  | 9,797      | + 153.5                   | 3,864        | 15,222      | 13,956     | 21,031     | 10,757     | 16,060     | 15,509     | 15,629     | 15,225     |
| 9. Extraordinary ... ..   | —          | —                         | —            | —           | —          | —          | —          | —          | —          | 120        | —          |
| 10. Cocoa Subsidy—Special Taxation ... ..                                 | —          | —                         | —            | —           | —          | —          | —          | —          | —          | —          | —          |
| 11. Emergency Taxation—Oil Impost ... ..                                  | —          | —                         | —            | —           | —          | —          | —          | —          | 414,348    | 436,925    | 391,004    |
| 12. Levy on Income ... ..   | —          | —                         | —            | —           | —          | —          | —          | —          | —          | 3,526      | 1,103,896  |
| SUB-TOTALS ... ..   | 16,061,178 | — 13.3                    | 18,529,327   | 12,491,858  | 6,421,540  | 4,625,399  | 5,328,611  | 4,928,725  | 5,615,819  | 4,256,540  | 5,219,572  |
| 13. Harbour Dues on Crude Oil and Products ... ..                         | 587,516    | + 0.3                     | 585,901      | 557,040     | 367,345    | 226,055    | 190,480    | 169,513    | —          | —          | —          |
| SUB-TOTALS ... ..   | 16,648,694 | — 12.9                    | 19,115,228   | 13,048,898  | 6,788,885  | 4,851,454  | 5,519,091  | 5,098,238  | 5,615,819  | 4,256,540  | 5,219,572  |
| 14. Fees and Payments for Specific Services ... ..                        | 26,146     | + 112.4                   | 12,308       | 9,294       | 16,261     | 11,060     | 10,331     | 8,009      | 10,783     | 7,606      | 10,880     |
| 15. Post Office ... ..  | 30,529     | — 11.9                    | 34,656       | 25,061      | 28,066     | 25,405     | 19,424     | 19,166     | 23,520     | 18,758     | 15,825     |
| 16. Rent of Government Property ... ..                                    | 5,588      | — 49.9                    | 11,161       | 4,174       | 5,662      | 49,999     | 2,509      | 1,079      | 1,489      | 1,778      | 2,754      |
| 17. Government Railway and Telegraph ... ..                               | 137,501    | + 19.0                    | 115,539      | 101,209     | 110,571    | 107,499    | 77,260     | 62,734     | 80,080     | 47,667     | 73,770     |
| 18. Wharves and Harbours (rentals and other services) ... ..              | 27,182     | + 3.2                     | 26,350*      | 39,027      | 127,194    | 47,767     | 50,533     | 28,259     | 34,499     | 22,018     | 74,221     |
| 19. GRAND TOTAL ... ..  | 16,875,640 | — 12.6                    | 19,315,232   | 13,227,663  | 7,076,639  | 5,093,184  | 5,679,148  | 5,217,485  | 5,766,190  | 4,354,367  | 5,397,022  |
| 20. Total Revenue of Colony under the above eighteen Heads                | 56,014,588 | — 4.1                     | 58,391,567   | 49,593,902  | 42,075,147 | 47,776,085 | 34,900,299 | 29,158,819 | 33,373,031 | 26,768,239 | 21,134,915 |
| 21. Percentage of Total Revenue of Colony contributed by the Oil Industry | 30.1       | — 3.0                     | 33.1         | 26.6        | 16.8       | *10.7      | 16.3       | 17.9       | 17.3       | 16.3       | 25.5       |
| 22. Excise collected on Petroleum Products (paid by General Public)       | 1,367,860  | — 42.9                    | 2,394,109    | 2,381,909   | 2,135,938  | 1,762,496  | 1,491,779  | 1,255,876  | 1,212,306  | 1,468,132  | 1,299,940  |

\*NOTE—Drop in percentage of total revenue contributed by Oil Industry in 1946 was due to total revenue of Colony being increased by re-payment by His Majesty's Treasury of a loan of \$9,200,000.  
\*Corrected figure from 1949 Report.

TABLE VII

STATEMENT SHOWING THE AMOUNT OF MONEY DISBURSED IN THE COLONY (OTHER THAN CONTRIBUTION TO REVENUE) BY THE OIL INDUSTRY

|  | 1950       | %<br>diff.<br>1950/1949 | 1949       | 1948       | 1947       | 1946       | 1945       | 1944       | 1943       | 1942       | 1941       |           |
|--|------------|-------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|
|  | \$         |                         | \$         | \$         | \$         | \$         | \$         | \$         | \$         | \$         | \$         |           |
| 1. Payments to Employees* ... ..                                     | 18,839,945 | + 10.3                  | 17,081,804 | 16,201,000 | 14,701,680 | 13,896,842 | 12,781,464 | 12,401,298 | 11,695,979 | 10,377,356 | 8,963,560  |           |
| 2. Payments to Contractors* ... ..                                   | 6,125,164  | + 36.5                  | 4,488,089  | 3,543,432  | 2,855,917  | 2,369,675  | 2,410,418  | 2,871,227  | 2,969,415  | 2,638,996  | 2,408,097  |           |
| 3. Local Purchases of materials ... ..                               | 3,946,065  | - 9.0                   | 4,336,776  | 3,929,831  | 4,005,478  | 3,494,215  | 3,813,021  | 3,955,870  | 3,095,691  | 3,946,405  | 4,239,161  |           |
| 4. Other local expenditure (rents, Private Royalties, &c.) ...       | 8,456,079  | + 19.4                  | 7,080,430  | 3,817,212  | 3,181,947  | 2,619,541  | 2,609,726  | 2,273,991  | 2,316,201  | 3,084,130  | 2,919,486  |           |
| 5. Sub-total ... ..  | 37,367,253 | + 13.3                  | 32,987,099 | 27,491,475 | 24,745,022 | 22,380,273 | 21,614,629 | 21,502,386 | 20,077,286 | 20,046,887 | 18,530,304 |           |
| OVERSEAS PURCHASES OF MATERIALS, C.I.F.<br>DOLLARS TRINIDAD CURRENCY |            |                         |            |            |            |            |            |            |            |            |            |           |
| 6. Importations from the United Kingdom ... ..                       | 14,690,802 | + 3.7                   | 14,161,158 | 8,515,146  | 6,822,090  | 4,425,954  | 1,438,971  | 1,019,965  | 1,303,615  | 1,583,702  | 2,472,714  |           |
| 7. Importation from :  |            |                         |            |            |            |            |            |            |            |            |            |           |
| Canada ... ..  | 724,216    | + 40.3                  | 516,130    | {          | 5,690,016  | 4,758,800  | 2,322,331  | 5,136,245  | 5,085,790  | 3,679,393  | 4,773,440  | 5,457,249 |
| United States of America ... ..                                      | 5,469,200  | - 29.6                  | 7,766,696  |            |            |            |            |            |            |            |            |           |
| Other Sources ... ..   | 947,512    | - 6.4                   | 1,012,427  |            |            |            |            |            |            |            |            |           |
| 8. Sub-total ... ..  | 21,831,730 | - 6.9                   | 23,456,411 | 14,205,162 | 11,580,890 | 6,748,285  | 6,575,216  | 6,105,755  | 4,983,008  | 6,357,142  | 7,029,963  |           |
| 9. Total (Items 5 and 8 of this Table and Item 19 of Table VI)       | 76,074,623 | + 0.4                   | 75,758,742 | 54,924,300 | 43,402,551 | 34,221,742 | 33,868,993 | 32,825,626 | 30,826,484 | 30,758,396 | 30,957,289 |           |

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

TABLE VIII

LIST OF OIL OPERATORS IN TRINIDAD SHOWING THE AREAS HELD UNDER MINING LEASE AND EXPLORATION LICENCE

| ITEM | OPERATORS                                      | LANDS HELD UNDER REGISTERED MINING LEASE ON 31ST DECEMBER, 1950 |        |          |                                 |    |     |                                   |        |           | LANDS HELD UNDER EXPLORATION LICENCE ON 31ST DECEMBER, 1950 |    |    | DISPOSAL OF OIL                                    |
|------|--|---|--------|----------|---------------------------------|----|-----|-----------------------------------|--------|-----------|---|----|----|--|
|      |  | Crown Surface Crown Oilrights                                   |        |          | Private Surface Crown Oilrights |    |     | Private Surface Private Oilrights |        |           | Crown Surface Crown Oilrights                               |    |    |  |
|      |  | A.  | R.     | P.       | A.                              | R. | P.  | A.                                | R.     | P.        | A.  | R. | P. |  |
| 1    | ANTILLES PETROLEUM CO. (TRINIDAD), LTD. ...    | 254<br>*12,544  | 1<br>0 | 36<br>00 | 5,900                           | 2  | 38  | 12,070                            | 0      | 16        | —   | —  | —  | Exported   |
| 2    | APEX (TRINIDAD) OILFIELDS, LTD. ...            | 9,194   | 0      | 06       | 2,272                           | 3  | 21  | 1,342                             | 3      | 25        | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 3    | KERN TRINIDAD OILFIELDS, LTD. ...              | 331<br>*5,760   | 1<br>0 | 12<br>00 | 592                             | 3  | 37  | 13,447                            | 1      | 03        | —   | —  | —  | Sold to United British Oilfields of Trinidad, Ltd. |
| 4    | NATIONAL MINING CORPORATION, LTD. ...          | 10,139  | 0      | 10       | 1,608                           | 3  | 02  | 6,128                             | 1      | 35        | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 5    | PREMIER (TRINIDAD) OILFIELDS, LTD. ...         | 500   | 0      | 00       | —                               | —  | —   | 899                               | 2      | 01        | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 6    | TIMOTHY ROODAL ...                             | —   | —      | —        | 9                               | 2  | 12  | —                                 | —      | —         | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 7    | SIPARIA (TRINIDAD) OILFIELDS, LTD. ...         | 1,900   | 1      | 10       | 10,976                          | 3  | 28  | 79                                | 2      | 17        | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 8    | TRINIDAD CENTRAL OILFIELDS, LTD. ...           | 6,996   | 2      | 31       | —                               | —  | —   | 35                                | 2      | 00        | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 9    | TRINIDAD CONSOLIDATED OILFIELDS, LTD. ...      | —   | —      | —        | 1,026                           | 2  | 11  | 1,886                             | 0      | 05        | —   | —  | —  | Sold to Trinidad Leaseholds, Ltd.                  |
| 10   | TRINIDAD LEASEHOLDS, LIMITED ...               | 91,002  | 3      | 24       | 15,573                          | 2  | 15  | 12,802<br>9,013                   | 2<br>0 | 36<br>03† | 2,360   | 0  | 00 | Pumped to Company's Refinery at Pointe-a-Pierre    |
| 11   | TRINIDAD PETROLEUM DEVELOPMENT Co., LTD. ...   | 20,119  | 2      | 11       | 5,659                           | 2  | 27  | 26,992                            | 1      | 29        | 5,664   | 0  | 00 | Sold to United British Oilfields of Trinidad, Ltd. |
| 12   | UNITED BRITISH OILFIELDS OF TRINIDAD, LTD. ... | 18,806  | 0      | 35       | 12,364                          | 1  | 13½ | 12,343<br>532                     | 2<br>2 | 06<br>28† | 25,337  | 0  | 00 | Pumped to Company's Refinery at Point Fortin       |
| 13   | TRINIDAD NORTHERN AREAS, LTD. ...              | —   | —      | —        | —                               | —  | —   | 6,144                             | 3      | 11        | 21,464  | 1  | 22 |  |
|      | TOTALS ...                                     | 177,548   | 2      | 15       | 55,986                          | 0  | 04½ | 103,718                           | 2      | 15        | 54,825  | 1  | 22 |  |

1 \*Submarine Oil Mining Licence

2 †Held jointly by Trinidad Leaseholds and United British Oilfields of Trinidad, Ltd.

(SGD.) I. S. RUTHERFORD  
Assistant Petroleum Technologist

TABLE IX

INFORMATION REGARDING WELLS DRILLED TO A DEPTH OF  $\pm$  8,000 FEET DURING THE YEAR 1950

| Company                                   | Well No.                                  | Total depth feet                            | Result                               | Remarks  |
|---|---|---|--------------------------------------|--|
| Apex (Trinidad) Oilfields Ltd.            | 496                                       | 8,567                                       | Abandoned ...                        | Unproductive   |
|   | 504                                       | 8,388                                       | Producer                             |  |
|   | 510                                       | 6,733                                       | Results incomplete                   | Drilling in progress   |
|   | 511                                       | 8,100                                       | Results incomplete                   | Drilling in progress   |
| Trinidad Leaseholds Ltd.                  | Barrackpore 341                           | 10,018<br>(9,732' included in 1949 return)  | Completed as shallow pumping well    | Shallow Herrera sands wet. Deep Herrera sands not encountered  |
|   | Barrackpore 342                           | 10,509<br>(6,124' included in 1949 return)  | Completed as Herrera sand producer   |  |
|   | M.D. 34                                   | 12,604                                      | Testing Upper Cretaceous at year end | Well to be deepened after first Upper Cretaceous testing. Herrera sands at 8,700 feet the primary target of the well remain to be tested |
|   | Barrackpore 344                           | 10,766                                      | Results incomplete                   | Drilling in progress   |
|   | Barrackpore 345                           | 9,040                                       | Results incomplete                   | Drilling in progress   |
| Trinidad Northern Areas Ltd.              | Mt. Harris 1                              | 7,970                                       | Results incomplete                   | Drilling in progress   |
| Trinidad Petroleum Development Co., Ltd.  | Moruga 1                                  | 7,906<br>(3,292' included in 1949 return)   | Abandoned ...                        | No production  |
|   | Moruga 2                                  | —   | Preparatory work in progress         | Objective 14,000 feet  |
|   | Moruga Bouffe 1                           | —   | Preparatory work in progress         | Objective 12,000 feet  |
|   | Coora 188                                 | 13,471                                      | Results incomplete                   |  |
|   | Palo Seco 303                             | 5,424                                       | Drilling in progress                 | Objective 8,000 feet   |
|   | Marabella 1                               | 3,076                                       | Drilling in progress                 | Objective 11,000 feet  |
| United British Oilfields of Trinidad Ltd. | Point Fortin FW-214                       | 10,875<br>(10,525' included in 1949 return) | Results incomplete                   | Testing  |
|   | Penal P-152<br>P-160                      | 10,000<br>9,534                             | Small Producer<br>Producer           |  |
|   | Catshill Reserve CO-1                     | 8,478                                       | Results incomplete                   | Testing  |
| T.C.O.                                    | Balata C-2<br>(Joint Venture with T.C.O.) | 5,423                                       | Results incomplete                   | Drilling. Originally programmed for 11,000 feet abandoned February, 1951 at 7,643 feet on account of wet sands                           |



TABLE X

EQUIPMENT USED ON EXPLORATION WELLS DURING 1950

| Company  | Field               | Well No.         | Derrick                             | Drilling Engine   | Draw-works                          | Rotary Machine  | Crown Block  | Travelling Block                                  | Pumps (All pumps power-operated)                       |
|----------|---------------------|------------------|-------------------------------------|---|-------------------------------------|-----------------|--|---|--|
| U.B.O.T. | Catshill            | Co-1             | 136'                                | 3 Paxman Diesel<br>400 HP. each                           | Ideal 100 OWE                       | Oilwell 27½"    | M-50, 6-50" sheaves, 1¼" line,<br>350 tons                       | M-50, 5-50" sheaves, 1¼" line                     | 2 Wilson Snyder 200 P<br>8" x 20"<br>1 E-700 8½" x 16" |
|          | Nariva              | Nc-1             | 129'                                | 3 Buda Diesel   | Cardwell EC 88                      | Emsco 20½"      | Ideal 5-76" sheaves, 1½" line,<br>150 tons                       | 4-62" sheaves, 1½" line                           | 1 C-150 6½" x 12"<br>1 C-250 7¼" x 15"                 |
|          | Balata              | C-1 and<br>C-2   | 136'                                | 3 Davy Paxman<br>400 HP.                                  | OWS 96                              | Emsco 20½"      | Emsco 6-50" sheaves, 1¼" line,<br>350 tons                       | M-50, 5-50" sheaves, 1¼" line                     | 2 Wilson Snyder 200 P<br>8" x 20"<br>1 E-700 8½" x 16" |
| T.P.D.   | Coora               | C-188            | 178'                                | 3 Superior Type PTD<br>Super-charged<br>8-cyl. 550-620 HP | Ideal-Consoli-<br>dated<br>Type 125 | Ideal M.S. 27½" | Ideal 748 TU, 7-48" sheaves,<br>1¼" line, 300 tons               | Type 648 TC, 6-48" sheaves,<br>1¼" line           | 2 E-700 8½" x 16"                                      |
|          | Marabella<br>Moruga | MI-1 }<br>Ma-1 } | 136'                                | 3 PTD 6-cyl.<br>260-280 HP.                               | Ideal Consoli-<br>dated<br>Type 100 | Ideal M F 20½"  | Ideal CO 26, 6-48" sheaves,<br>1¼" line Double deck,<br>200 tons | Ideal 548 T, 5-48" sheaves,<br>1¼" line, 300 tons | 1 C-350 7¾" x 18"<br>1 C-250 7¼" x 15"                 |
| T.L.L.   | Morne Diablo        | MD-34            | Ideco 136' rated<br>for 952,000 lb. | 3-GM Quads<br>500 HP at<br>1,600 r.p.m.                   | O W S 96                            | Ideal 20½"      | Ideal TU, 6-48" sheaves,<br>1¼" line, 350 tons                   | Oilwell 5-46" sheaves, 1¼" line<br>300 tons       | 2 OWS P 220 8" x 20"                                   |
|          | * Mount Harris      | 1                | 195' rated for<br>952,000 lb.       | 2-PTD 8-cyl., 400 HP<br>at 900 r.p.m.                     | National 100                        | Ideal 20½"      | Ideal TU, 6-48" sheaves,<br>1¼" line, 350 tons                   | Ideal TC, 5-48" sheaves,<br>1¼" line              | 1 E-700 8½" x 16"<br>1 C-350 7¾" x 18"                 |
|          | † Barrackpore       | 344              | 195' rated for<br>952,000 lb.       | 3-PTD 8-cyl., 600 HP<br>at 900 r.p.m.                     | National 125                        | Ideal 20½"      | Ideal TU, 7-48" sheaves,<br>1¼" line                             | Ideal TC, 6-48" sheaves,<br>1¼" line              | 1 E-700 8½" x 16"<br>1 C-350 7¾" x 18"                 |

\* This rig also drilled Solomon No. 1.

† Barrackpore No. 344 is not really an Exploration Well, but this rig is essentially the T.L.L. exploration rig and is now moving to the Marac location.

TABLE XI

ALLOCATION OF ROYALTY ON THE PRODUCTION FROM DIRECTIONALLY WELLS

*Area and Height of Segment of Circle. Radius 150 feet*

| Centre Angle<br>(degree) | Height<br>(H) of<br>Segment<br>(feet) | Area of<br>Segment<br>(feet <sup>2</sup> ) | Centre Angle<br>(degree) | Height<br>(H) of<br>Segment<br>(feet) | Area of<br>Segment<br>(feet <sup>2</sup> ) | Centre Angle<br>(degree) | Height<br>(H) of<br>Segment<br>(feet) | Area of<br>Segment<br>(feet <sup>2</sup> ) | Centre Angle<br>(degree) | Height<br>(H) of<br>Segment<br>(feet) | Area of<br>Segment<br>(feet <sup>2</sup> ) |
|--------------------------|---------------------------------------|--|--------------------------|---------------------------------------|--|--------------------------|---------------------------------------|--|--------------------------|---------------------------------------|--|
| 1                        | 0.006                                 | 0.01                                       | 46                       | 11.925                                | 940  | 91                       | 44.865                                | 6,620                                      | 136                      | 93.810                                | 18,899                                     |
| 2                        | 0.023                                 | 0.08                                       | 47                       | 12.435                                | 1,001                                      | 92                       | 45.795                                | 6,822                                      | 137                      | 95.025                                | 19,246                                     |
| 3                        | 0.051                                 | 0.27                                       | 48                       | 12.975                                | 1,064                                      | 93                       | 46.740                                | 7,027                                      | 138                      | 96.240                                | 19,588                                     |
| 4                        | 0.092                                 | 0.64                                       | 49                       | 13.500                                | 1,131                                      | 94                       | 47.700                                | 7,234                                      | 139                      | 97.470                                | 19,933                                     |
| 5                        | 0.143                                 | 1.35                                       | 50                       | 14.055                                | 1,199                                      | 95                       | 48.660                                | 7,445                                      | 140                      | 98.700                                | 20,278                                     |
| 6                        | 0.206                                 | 2.25                                       | 51                       | 14.610                                | 1,271                                      | 96                       | 49.635                                | 7,661                                      | 141                      | 99.930                                | 20,627                                     |
| 7                        | 0.279                                 | 3.48                                       | 52                       | 15.180                                | 1,345                                      | 97                       | 50.610                                | 7,880                                      | 142                      | 101.160                               | 20,975                                     |
| 8                        | 0.365                                 | 5.28                                       | 53                       | 15.765                                | 1,422                                      | 98                       | 51.585                                | 8,102                                      | 143                      | 102.405                               | 21,329                                     |
| 9                        | 0.462                                 | 7.31                                       | 54                       | 16.350                                | 1,501                                      | 99                       | 52.590                                | 8,327                                      | 144                      | 103.650                               | 21,682                                     |
| 10                       | 0.670                                 | 10.01                                      | 55                       | 16.950                                | 1,584                                      | 100                      | 53.580                                | 8,557                                      | 145                      | 104.895                               | 22,040                                     |
| 11                       | 0.690                                 | 13   | 56                       | 17.565                                | 1,669                                      | 101                      | 54.585                                | 8,789                                      | 146                      | 106.140                               | 22,397                                     |
| 12                       | 0.822                                 | 17   | 57                       | 18.180                                | 1,757                                      | 102                      | 55.605                                | 9,023                                      | 147                      | 107.400                               | 22,736                                     |
| 13                       | 0.965                                 | 22   | 58                       | 18.810                                | 1,848                                      | 103                      | 56.625                                | 9,263                                      | 148                      | 108.660                               | 23,099                                     |
| 14                       | 1.118                                 | 27   | 59                       | 19.440                                | 1,942                                      | 104                      | 57.645                                | 9,504                                      | 149                      | 109.920                               | 23,461                                     |
| 15                       | 1.283                                 | 34   | 60                       | 20.100                                | 2,038                                      | 105                      | 58.680                                | 9,749                                      | 150                      | 111.180                               | 23,828                                     |
| 16                       | 1.460                                 | 41   | 61                       | 20.760                                | 2,138                                      | 106                      | 59.730                                | 9,999                                      | 151                      | 112.440                               | 24,194                                     |
| 17                       | 1.647                                 | 49   | 62                       | 21.420                                | 2,241                                      | 107                      | 60.780                                | 10,251                                     | 152                      | 113.715                               | 24,563                                     |
| 18                       | 1.847                                 | 58   | 63                       | 22.110                                | 2,346                                      | 108                      | 61.830                                | 10,505                                     | 153                      | 114.990                               | 24,935                                     |
| 19                       | 2.057                                 | 68   | 64                       | 22.800                                | 2,455                                      | 109                      | 62.895                                | 10,764                                     | 154                      | 116.250                               | 25,306                                     |
| 20                       | 2.279                                 | 79   | 65                       | 23.490                                | 2,567                                      | 110                      | 63.960                                | 11,027                                     | 155                      | 117.540                               | 25,679                                     |
| 21                       | 2.511                                 | 92   | 66                       | 24.195                                | 2,682                                      | 111                      | 65.040                                | 11,293                                     | 156                      | 118.815                               | 26,055                                     |
| 22                       | 2.756                                 | 105  | 67                       | 24.915                                | 2,800                                      | 112                      | 66.120                                | 11,561                                     | 157                      | 120.090                               | 26,431                                     |
| 23                       | 3.011                                 | 120  | 68                       | 25.650                                | 2,921                                      | 113                      | 67.215                                | 11,833                                     | 158                      | 121.380                               | 26,809                                     |
| 24                       | 3.278                                 | 137  | 69                       | 26.385                                | 3,045                                      | 114                      | 68.310                                | 12,107                                     | 159                      | 122.670                               | 27,187                                     |
| 25                       | 3.555                                 | 154  | 70                       | 27.120                                | 3,173                                      | 115                      | 69.405                                | 12,384                                     | 160                      | 123.960                               | 27,567                                     |
| 26                       | 3.845                                 | 173  | 71                       | 27.885                                | 3,304                                      | 116                      | 70.515                                | 12,665                                     | 161                      | 125.250                               | 27,950                                     |
| 27                       | 4.145                                 | 194  | 72                       | 28.650                                | 3,438                                      | 117                      | 71.625                                | 12,949                                     | 162                      | 126.540                               | 28,332                                     |
| 28                       | 4.455                                 | 216  | 73                       | 29.415                                | 3,575                                      | 118                      | 72.750                                | 13,237                                     | 163                      | 127.830                               | 28,717                                     |
| 29                       | 4.778                                 | 240  | 74                       | 30.210                                | 3,716                                      | 119                      | 73.875                                | 13,527                                     | 164                      | 129.120                               | 29,099                                     |
| 30                       | 5.111                                 | 266  | 75                       | 30.990                                | 3,860                                      | 120                      | 75.000                                | 13,820                                     | 165                      | 130.425                               | 29,486                                     |
| 31                       | 5.456                                 | 293  | 76                       | 31.800                                | 4,007                                      | 121                      | 76.140                                | 14,114                                     | 166                      | 131.715                               | 29,873                                     |
| 32                       | 5.811                                 | 322  | 77                       | 32.610                                | 4,157                                      | 122                      | 77.280                                | 14,414                                     | 167                      | 133.020                               | 30,260                                     |
| 33                       | 6.177                                 | 352  | 78                       | 33.435                                | 4,311                                      | 123                      | 78.420                                | 14,725                                     | 168                      | 134.325                               | 30,647                                     |
| 34                       | 6.554                                 | 385  | 79                       | 34.260                                | 4,468                                      | 124                      | 79.575                                | 15,021                                     | 169                      | 135.630                               | 31,037                                     |
| 35                       | 6.942                                 | 419  | 80                       | 35.100                                | 4,629                                      | 125                      | 80.745                                | 15,337                                     | 170                      | 136.920                               | 31,426                                     |
| 36                       | 7.341                                 | 456  | 81                       | 35.940                                | 4,793                                      | 126                      | 81.900                                | 15,648                                     | 171                      | 138.225                               | 31,815                                     |
| 37                       | 7.752                                 | 495  | 82                       | 36.795                                | 4,960                                      | 127                      | 83.070                                | 15,963                                     | 172                      | 139.530                               | 32,207                                     |
| 38                       | 8.172                                 | 535  | 83                       | 37.650                                | 5,131                                      | 128                      | 84.240                                | 16,278                                     | 173                      | 140.850                               | 32,598                                     |
| 39                       | 8.604                                 | 578  | 84                       | 38.535                                | 5,305                                      | 129                      | 85.425                                | 16,597                                     | 174                      | 142.155                               | 32,990                                     |
| 40                       | 9.047                                 | 623  | 85                       | 39.405                                | 5,483                                      | 130                      | 86.610                                | 16,917                                     | 175                      | 143.460                               | 33,381                                     |
| 41                       | 9.500                                 | 670  | 86                       | 40.290                                | 5,664                                      | 131                      | 87.795                                | 17,241                                     | 176                      | 144.765                               | 33,773                                     |
| 42                       | 9.983                                 | 719  | 87                       | 41.190                                | 5,848                                      | 132                      | 88.995                                | 17,567                                     | 177                      | 146.070                               | 34,166                                     |
| 43                       | 10.437                                | 771  | 88                       | 42.105                                | 6,036                                      | 133                      | 90.195                                | 17,898                                     | 178                      | 147.375                               | 34,558                                     |
| 44                       | 10.923                                | 824  | 89                       | 43.005                                | 6,227                                      | 134                      | 91.395                                | 18,228                                     | 179                      | 148.695                               | 34,949                                     |
| 45                       | 11.418                                | 881  | 90                       | 43.935                                | 6,422                                      | 135                      | 92.595                                | 18,561                                     | 180                      | 150.000                               | 35,343                                     |

TABLE XII

## TYPICAL EXAMPLE OF ANALYSIS OF ROYALTY OIL

REPORT ON EVALUATION OF HIGH OCTANE CRUDE OIL REPRESENTING PRODUCTION AT FOREST RESERVE UNDER  
MINING LEASES NOS. 167/14 AND 1115/26 DURING NOVEMBER, 1950

|  |     |     |     |     |                                  |
|--|-----|-----|-----|-----|----------------------------------|
| <i>Crude Oil</i>                                 |     |     |     |     |                                  |
| Specific Gravity at 60°F. of sample              | ... | ... | ... | ... | 0.9266 (21.2°API)                |
| Specific Gravity at 60°F. dry oil                | ... | ... | ... | ... | 0.9263 (21.3°API)                |
| Water (by distillation), vol. %                  | ... | ... | ... | ... | 0.4                              |
| Sand, vol., %                                    | ... | ... | ... | ... | Trace                            |
| Pour Point, °F.                                  | ... | ... | ... | ... | 0 or lower                       |
| Viscosity at 100°F.                              |     |     |     |     |                                  |
| Kinematic, centistokes                           | ... | ... | ... | ... | 25.8                             |
| Saybolt Universal, sec. (1)                      | ... | ... | ... | ... | 122.4                            |
| <i>Distillation of Crude Oil—Method R.L.E.—1</i> |     |     |     |     |                                  |
| Light Fractions (including loss)                 | ... | ... | ... | ... | % by vol.<br>9.7                 |
| Gas Oil  | ... | ... | ... | ... | 23.3                             |
| Fuel Oil   | ... | ... | ... | ... | 67.0                             |
|  |     |     |     |     | <hr/> 100.0                      |
| Distillation loss and error                      | ... | ... | ... | ... | 0.9                              |
| <i>Analysis of Products</i>                      |     |     |     |     |                                  |
| Specific Gravity at 60°F.                        | ... | ... | ... | ... | <i>Light Fractions</i><br>0.7465 |
|  |     |     |     |     | <i>Gas Oil</i><br>0.8535         |
|  |     |     |     |     | <i>Fuel Oil</i><br>0.9775(2)     |
| <i>ASTM Distillation, °C.</i>                    |     |     |     |     |                                  |
| I.B.P.   | ... | ... | ... | ... | 50                               |
| F.B.P.   | ... | ... | ... | ... | 162                              |
| 10% at   | ... | ... | ... | ... | 83                               |
| 30   | ... | ... | ... | ... | 99                               |
| 50   | ... | ... | ... | ... | 110                              |
| 90   | ... | ... | ... | ... | 134.5                            |
| Recovery, %                                      | ... | ... | ... | ... | 98.0                             |
| Residue, %                                       | ... | ... | ... | ... | 1.0                              |
| Loss, %  | ... | ... | ... | ... | 1.0                              |
| Evap. at 100°C., %                               | ... | ... | ... | ... | 32.0                             |
| Aniline Point, °C.                               | ... | ... | ... | ... | —                                |
| Colour, N.P.A.                                   | ... | ... | ... | ... | —                                |
| Cetane Number                                    | ... | ... | ... | ... | —                                |
| Diesel Index                                     | ... | ... | ... | ... | —                                |
| Flash Point (P.-M.), °F.                         | ... | ... | ... | ... | —                                |
| Knock Rating (ASTM Motor)                        |     |     |     |     |                                  |
| Octane Number                                    | ... | ... | ... | ... | 72.1                             |
| Pour Point, °F.                                  | ... | ... | ... | ... | —                                |
| Sulphur, Total, wt %                             | ... | ... | ... | ... | —                                |
| Viscosity at 100°F.                              |     |     |     |     |                                  |
| Kinematic, centistokes                           | ... | ... | ... | ... | —                                |
| Saybolt Universal, sec. (1)                      | ... | ... | ... | ... | —                                |
| Viscosity, Saybolt Furol at 122°F, sec.          | ... | ... | ... | ... | —                                |

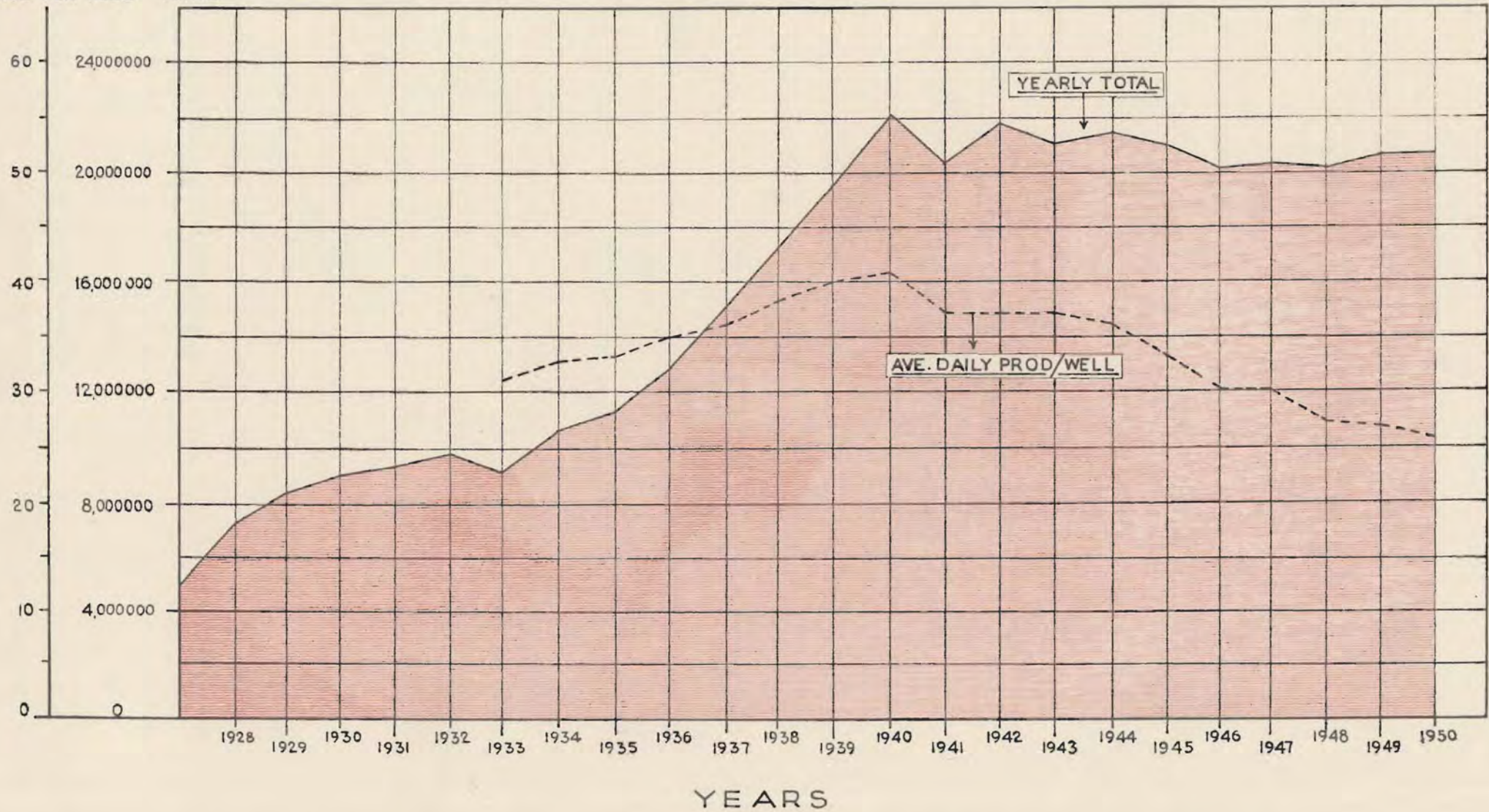
(1) Converted from Kinematic viscosity.

(2) By Interpolation.

*Note:* Specific Gravity and water of crude and distillation of Light Fractions referred by a representative of Petroleum Department.

# ANNUAL CRUDE OIL PRODUCTION

PRODUCTION IN BARRELS  
 ↓  
 AVE. DAILY  
 PROD PER WELL      YEARLY  
 TOTAL

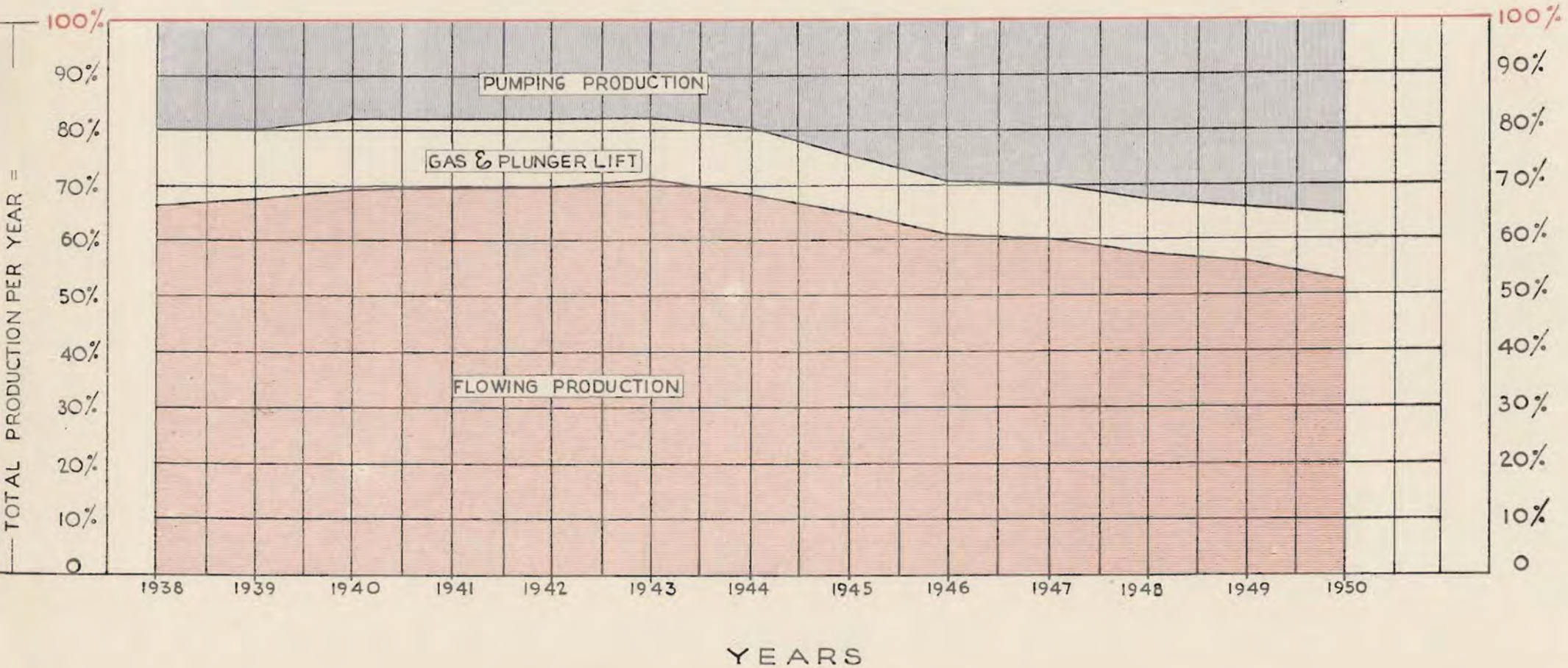


FOR FIGURES USED IN CONSTRUCTING GRAPH SEE TABLE 1 ITEMS 1 AND 25



# CRUDE OIL PRODUCTION METHODS

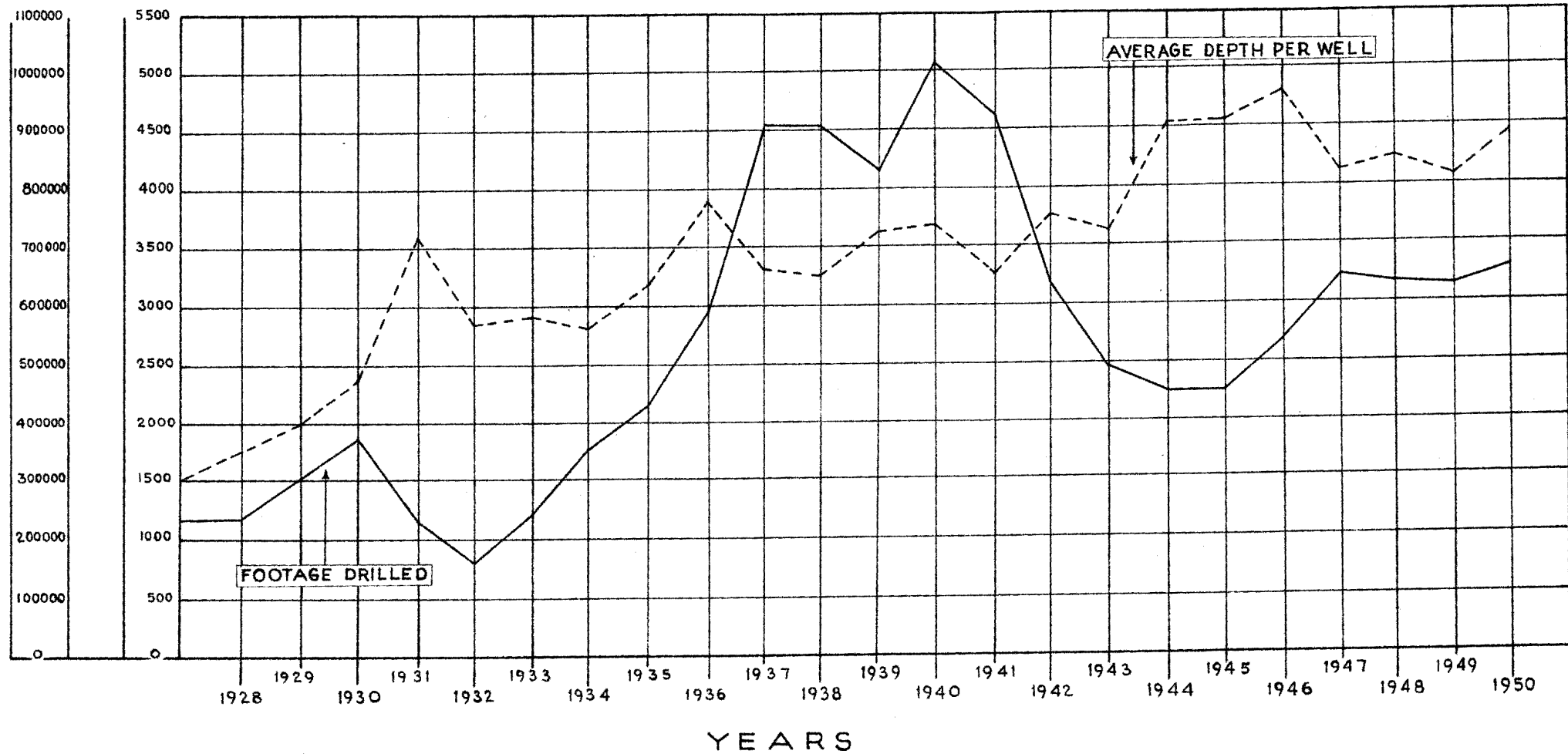
RELATIVE PROPORTIONS OF ANNUAL PRODUCTION (100%) OBTAINED BY THE THREE PRINCIPAL PRODUCING METHODS



SEE TABLE III FOR DETAILED FIGURES FOR 1950

# ANNUAL DRILLING FOOTAGE

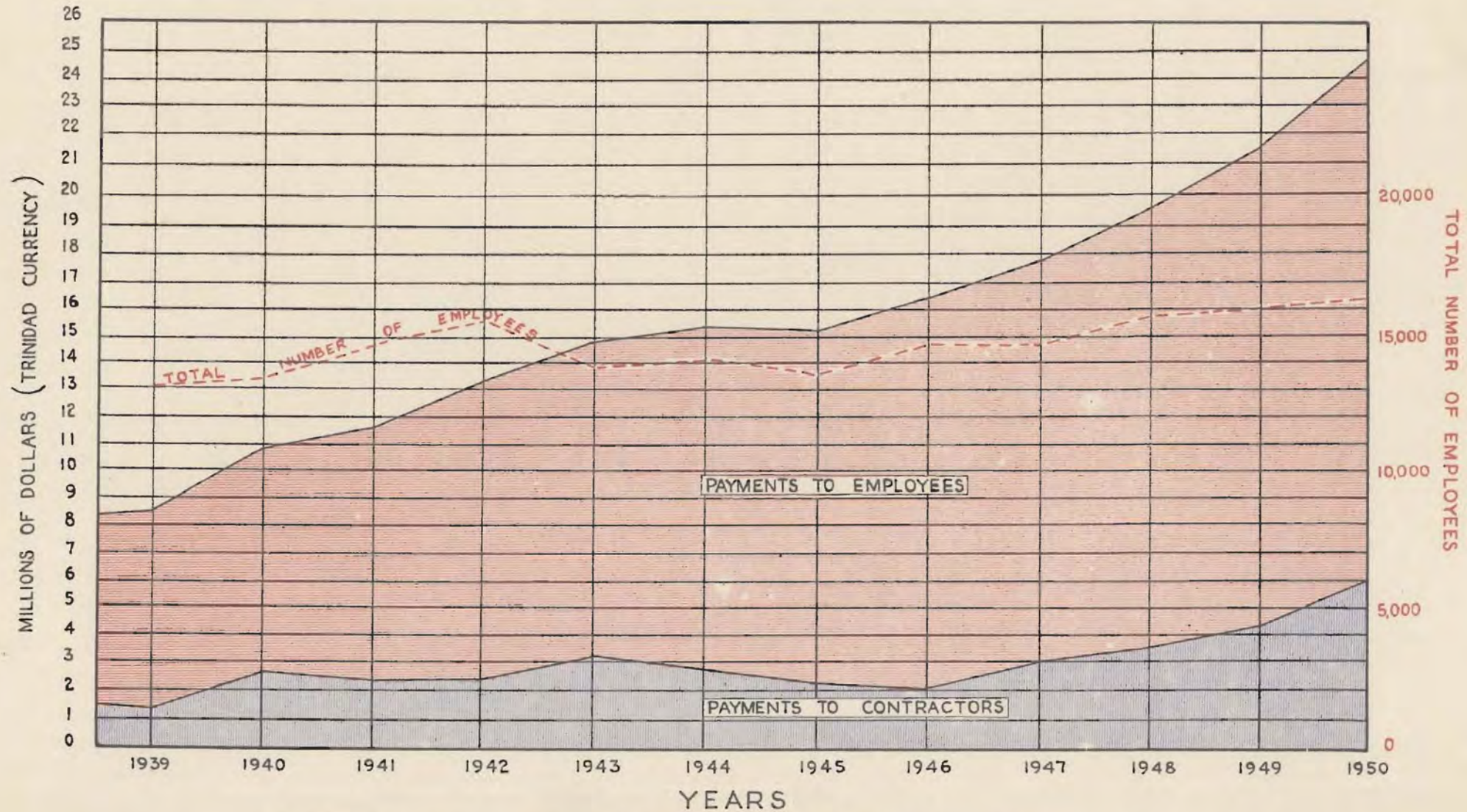
FEET DRILLED  
 ↓            ↓  
 YEARLY    AVERAGE DEPTH  
 TOTAL    PER WELL



FOR FIGURES USED IN CONSTRUCTING GRAPH SEE TABLE 1 ITEMS 18 AND 21



# OIL COMPANIES ANNUAL PAYMENTS TO CONTRACTORS AND EMPLOYEES

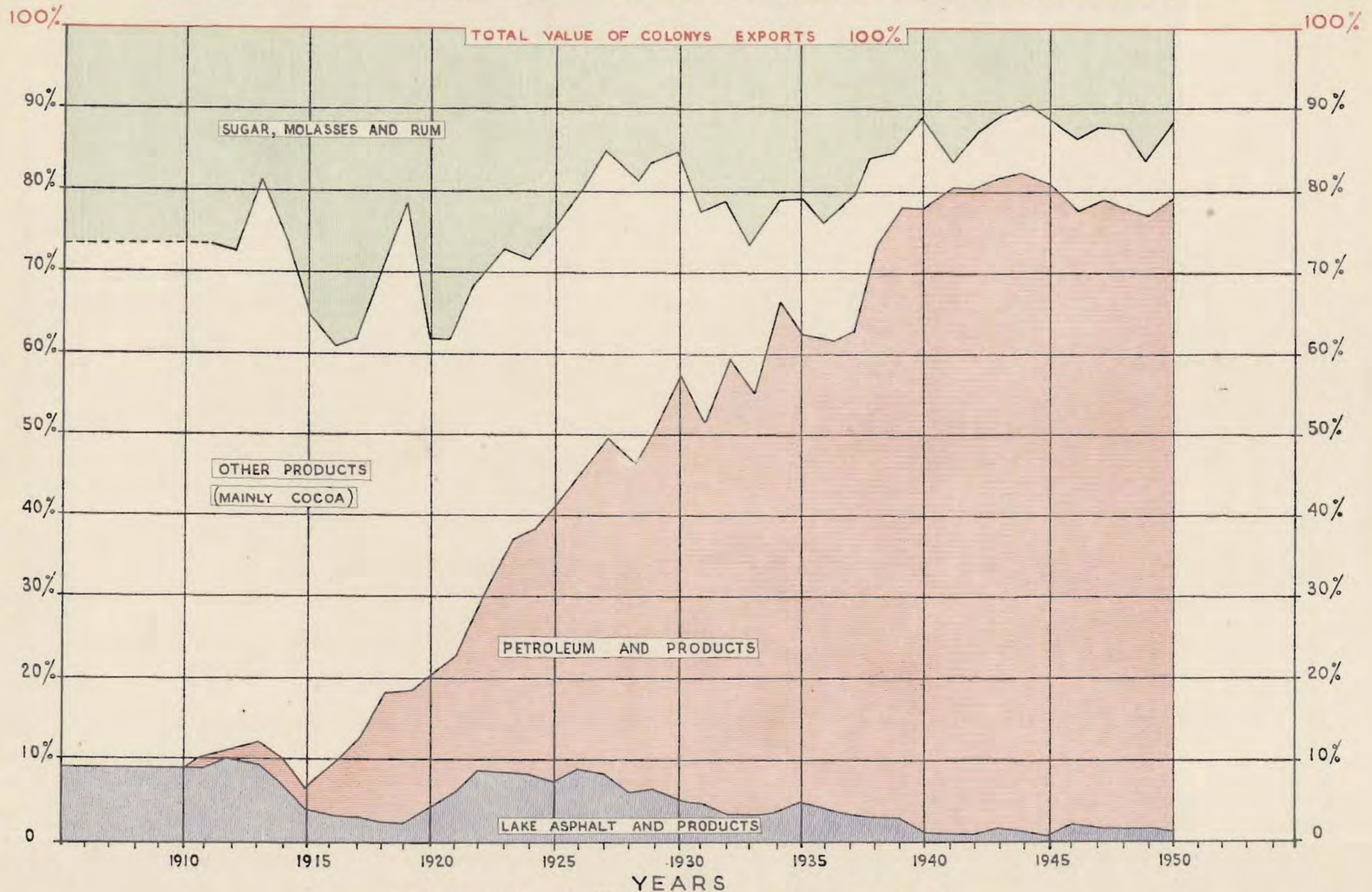


FOR FIGURES USED IN CONSTRUCTING GRAPH SEE TABLE VII ITEMS 1 AND 2

N.B. PAYMENTS TO CONTRACTORS ARE MAINLY WAGES



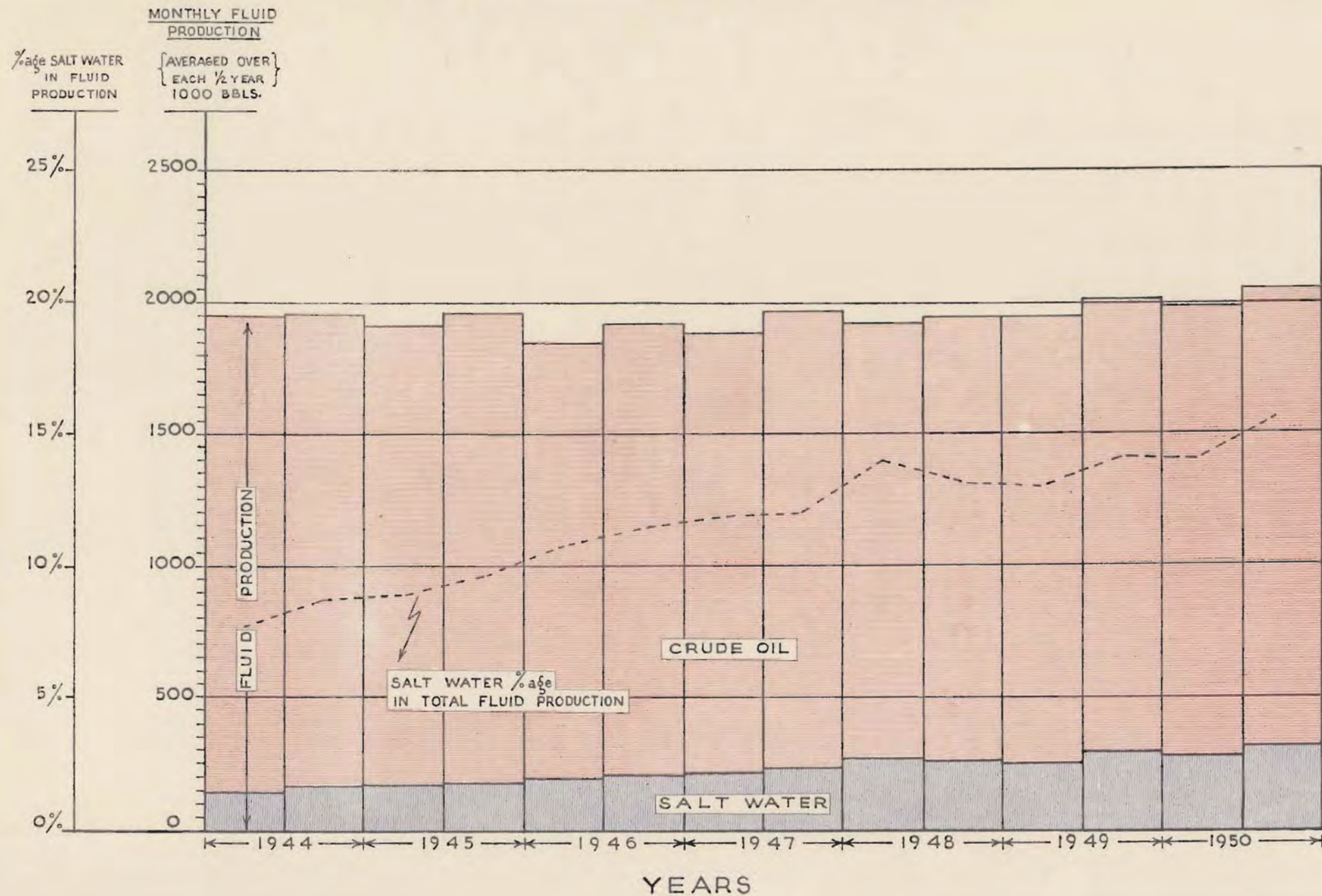
# PERCENTAGE DISTRIBUTION OF TOTAL VALUES OF COLONY'S EXPORTS



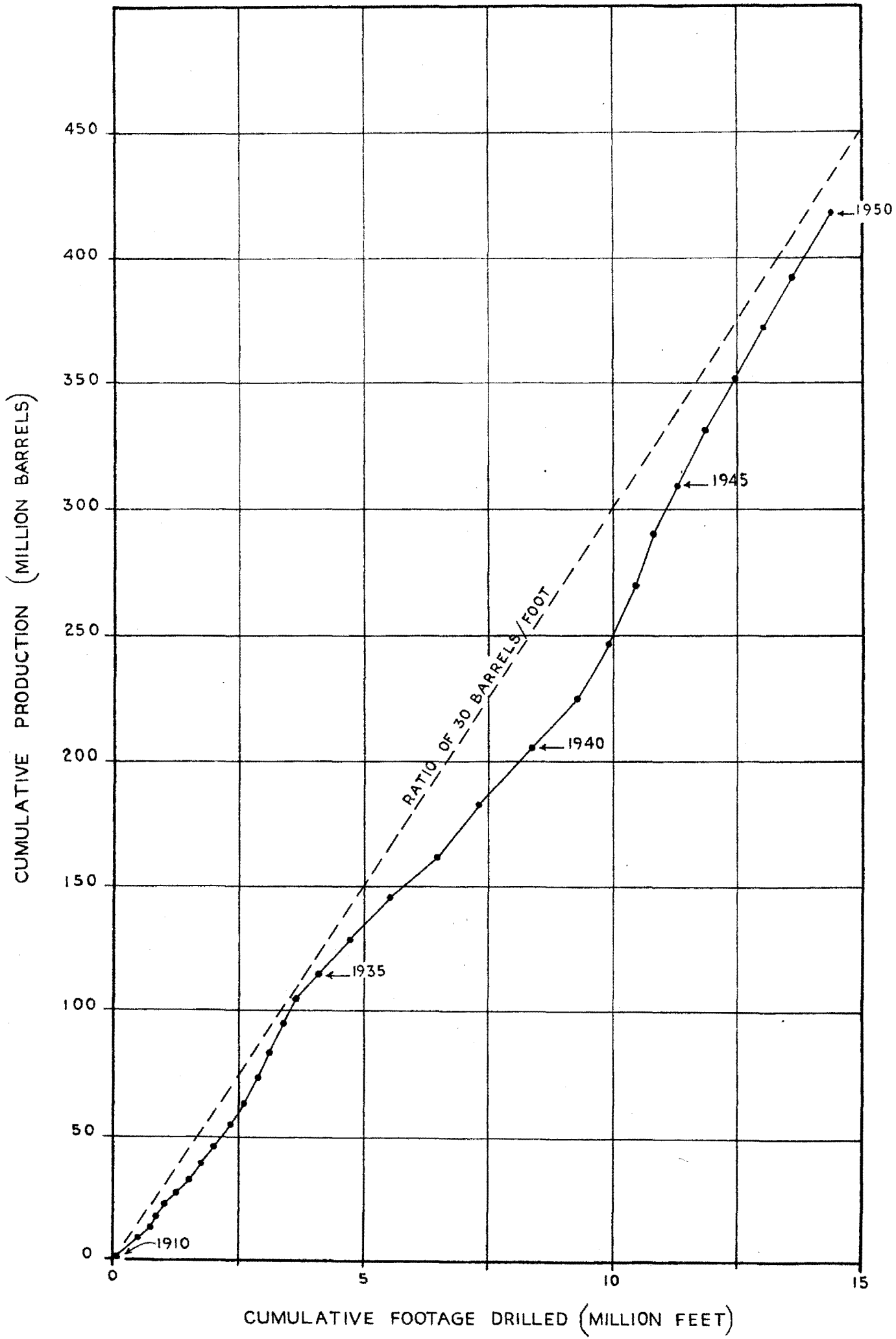
FOR VALUES IN \$<sup>s</sup> SEE TABLE 1 ITEMS 28, 29 AND 30



# PRODUCTION OF SALT WATER



# CUMULATIVE PRODUCTION & FOOTAGE



# EXAMPLE OF ALLOCATION OF ROYALTY ON THE PRODUCTION FROM DIRECTIONALLY DRILLED WELLS

9,187 sq. ft. = 13% of  $\pi \cdot 150^2$ ;  $H = 56.3'$   
61,480 sq. ft. = 87% of  $\pi \cdot 150^2$

