

ADMINISTRATION
REPORTS

MINES



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Council Paper No. 130 of 1906.

MINES.

Report of the Inspector of Mines for the two years
ending 31st August, 1906.

*Laid before the Legislative Council on the
5th November, 1906.*

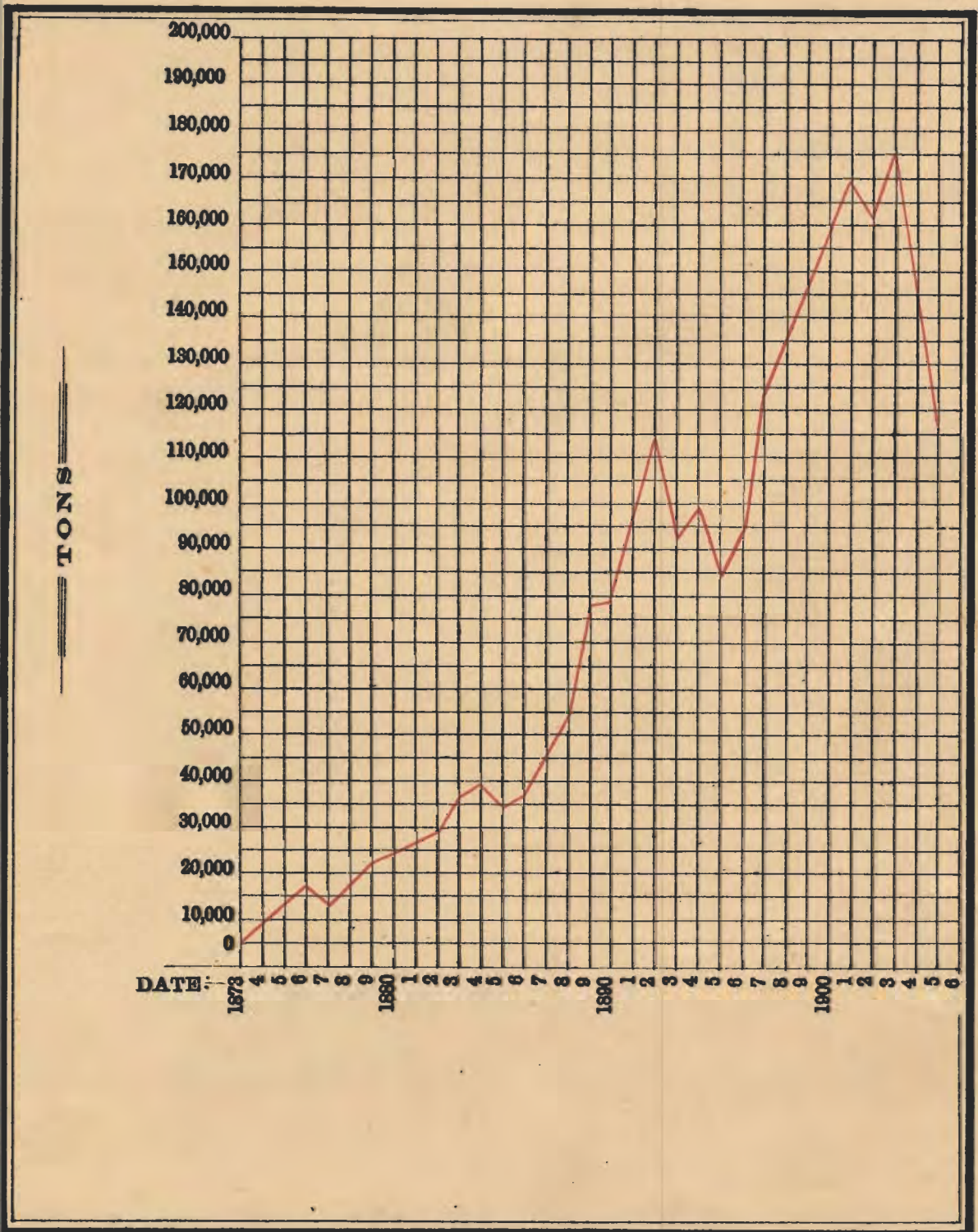
Previous Council Paper No.

Registered No. of Correspondence relating to the subject—M.P. No. 5775/1906.

TRINIDAD :
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1906.

FIG. 1.



asphalt reported.

NOTE—Diagram compiled from export returns, 1903 Statistics are for 13 months, and a deduction has been made for the diagram.

MINES.

Report of the Inspector of Mines for the two years ending 31st August, 1906.

Council Paper No. 130 of 1906.

M.P. No. 5775/1906.

MINES OFFICE,
30th September, 1906.

SIR,

I have the honour to submit for the information of His Excellency the Governor, a report on the work which has come under my direction during the period ending September 1st 1904, and September 1st, 1906.

2. The inauguration of a department of mines occurred soon after my arrival in the Colony, its object was primarily to carry out the technical adjustment of the asphalt industry, as laid down by the Asphalt Ordinance, and also to introduce and administer legislation to bring about the safe working and regulation of such industries as mines, borings, quarries and factories.

Such matters as the granting of Crown mining licenses and leases have not as yet received the attention of the department.

3. In future, I propose to submit an annual report, containing details of the work done during the calendar year. It is also intended to tabulate the statistics, (obtained under the Mines, Borings and Quarries Ordinance) of the quantity of minerals won, number of persons employed, and the number of accidents which have occurred during the year, with detailed information of those from which a lesson may be drawn, which may be of assistance in preventing similar accidents.

OFFICIAL DUTIES.

4. The official duties of the department have been carried out by myself, with the assistance of a surveyor where occasion demanded it. The work has included: the inspection of Mines, Borings, Quarries, Factories; inquiry into accidents which have come under notice; attending inquests; and legal proceedings against owners; the general supervision of exploration work in the Cunapo Coalfield; surveys and numerous inspections of the La Brea pitch deposits together with the inquiry into and reporting on legislation in connection with the asphalt industry.

The reporting on the proposed legislation for the regulation of mines, boring and quarries, the regulation of factories and other incidental matters have taken up considerable time

5. Special duties were undertaken as follows: A consultation was held with the Asphalt Commissioners in England. The manjak mines of Barbados were inspected. Some 14 days were taken up in assisting the Government Electrical Engineer in technical matters in connection with the installation of wireless telegraphy between Trinidad and Tobago, and during the illness and absence of the Government Geologist from the Colony, the routine work in connection with matters arising out of the survey were attended to.

MINING.

6. Asphalt mining, or more correctly speaking, asphalt digging, comprises the major portion of the mineral industry of the Colony.

Fig. 1 is a diagram of the asphalt exported from 1873. The curve, although not absolutely correct, gives a fair idea of the growth of the industry. An inaccuracy has crept into the curve, in that the shipments of crude and refined asphalts are totalled together without the necessary correction to reduce the refined to crude or *vice versa*. In recent years the amount of refined asphalt has increased.

7. Asphalt mining operations are confined to the district of La Brea, and are in the hands of comparatively few owners. The New Trinidad Lake Asphalt Company the concessioners of the Pitch Lake, are by far the largest shippers. During the last two years, 1904 and 1905, 87 per cent. of the asphalt worked has been extracted from the Pitch Lake; the remaining portion being mined from the asphalt bearing land, lying to the north-east of the Lake and known as the Village diggings.

8. The mining of a viscous deposit, such as asphalt, where excavations in the course of time, become filled and re-filled from the asphalt contained in the surrounding lands, has in the absence of suitable regulations been the cause of much litigation. The owners of asphalt land, who did not feel disposed to mine their property, used every means to enforce the

recognised mining law of ancient level and lateral support. Endless litigation ran hand in hand with the industry. On the petition of some of the asphalt owners, a Royal Commission made an inquiry into the matter, and after lengthy and searching investigation recommended legislation under the administration of a mining engineer.

9. The Asphalt Industry Regulation Ordinance was passed in May, 1906, and defines the mining rights of asphalt. It gives protection on the one hand to legitimate mining against the "harassing litigation" complained of; it provides, on the other hand, a means by which an injured owner may get assessment of any undue damage to his property. The Bill has now been in operation some four months, and although not long enough to enable me to report definitely on its practical application, I see no reason to doubt its bringing about a fair and equitable adjustment of the industry.

10. No mining has yet been carried on under permit as provided in the Bill, the owners at present preferring to dig under notice, without confining themselves to the regulations. Application for damage has already been made in respect of eight parcels of land, in connection with one digging, with the result that in two cases certificates were granted. In the administration of the Bill to date, no less than 3,300 level points have been recorded. The mode of procedure at the present time in the case of digging under notice, may be briefly stated as follows: On the receipt of notice of intention to dig any parcel of land, the levels of the adjoining properties are recorded. If subsequently an adjoining owner, applies for a certificate of depletion, and pays £5 the levels are again recorded. Upon inspection of the property, and comparison of the levels, assessment of undue damage is certified or not in accordance with the result of the investigation.

I am inclined to think, that after a little experience with this method of assessing damage, it will be possible to lay down the standard of subsidence. At present each case has to be dealt with upon its merits.

11. LA BREA MINING VILLAGE.—The boundaries of the properties in this area were found to be very uncertain and indefinite. There were no reliable plans in existence. Plans had been made from time to time, but unfortunately no attention was given to fixing the boundaries of the unstable asphalt area with relation to solid land in the district. Such an indefinite state of affairs, it will be readily understood, played no mean part in the many battles before the courts.

12. The necessity of definitely fixing the Asphalt properties by means of permanent marks on solid ground, from which the boundaries could be located, and the levels recorded, at once become obvious. Legislation was considered and the La Brea Survey Ordinance introduced. This Bill gave the necessary powers for making the plan and fixing monuments and bench marks on solid ground.

The work in connection with the Bill was entrusted to Mr. Hugo Massy, a surveyor of considerable repute and experience in the Colony. Although the work was not directly under my department, close attention has been paid to its progress, on account of its important bearing upon the Asphalt Industry. The plan is now complete and was posted in compliance with the Ordinance, for three months, before being declared the authentic plan of the area.

Fig. 2* is a photograph of the plan.

13. THE PITCH LAKE.—A survey of the Pitch Lake was made in 1902, which showed the lake to have an area of 127 acres. In this survey, the boundary was delineated where there was found to be a rise in level. On examination I found that the area so defined did not give an accurate idea of the extent of the lake, whose boundary, particularly at the south and north-east, is covered with a subsoil which is gradually sinking with the general fall in level of the lake. A re-survey has been undertaken by my department, in order to arrive at a more reliable estimate of this deposit, and in order to fix the position of the lake, with relation to the new monuments and bench-marks erected in preparing the plan of La Brea Village. The survey has been made jointly with Mr. F. R. Bartlett, the general agent of the Concessionaires. The location of the rim was a source of considerable anxiety and at numerous points, excavations and borings were resorted to. The survey shows the lake to be of greater area than hithertofore recorded. The matter will form the subject of a special report.

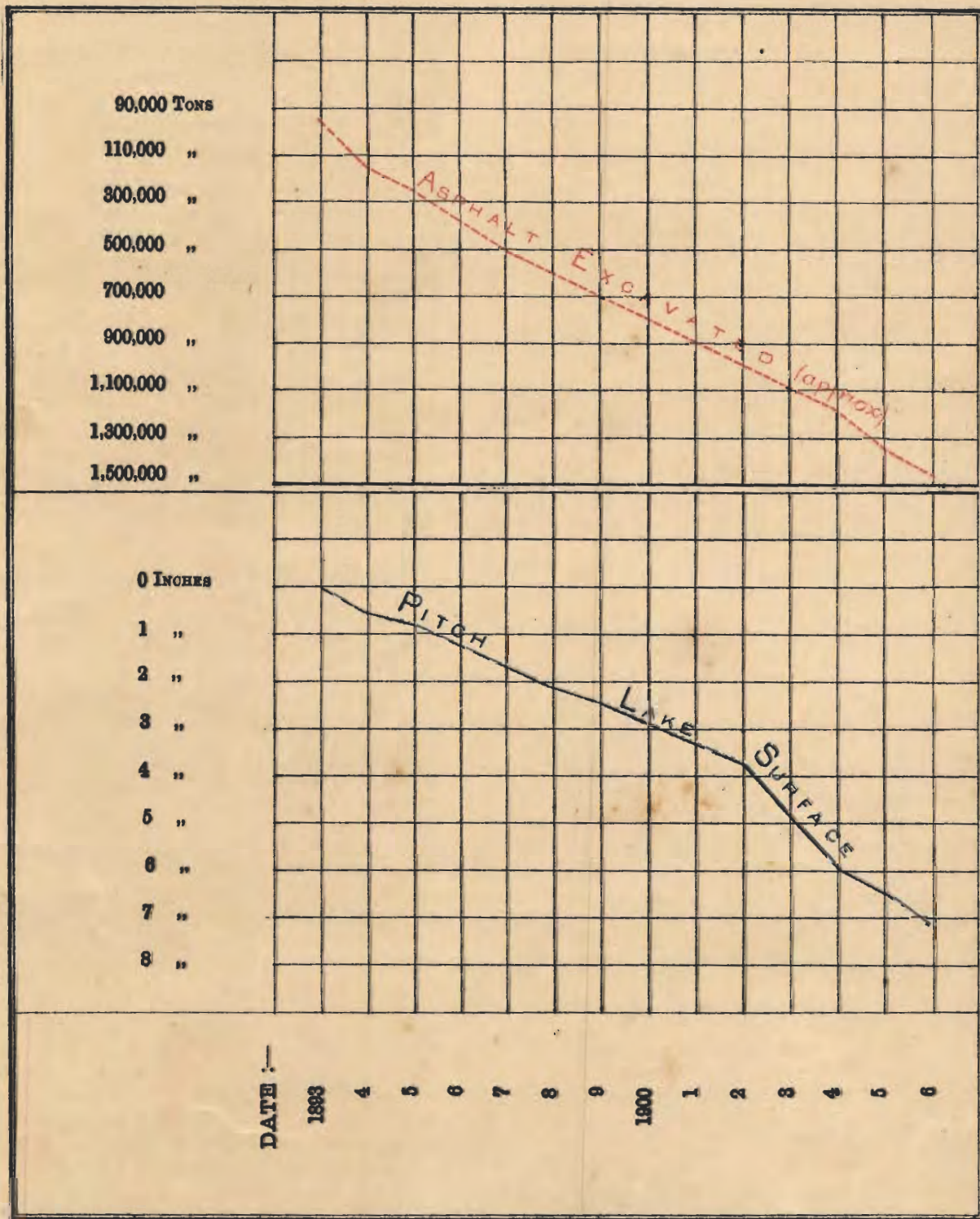
14. From levels made by the Asphalt Company, the level of the lake has been observed to fall between 1893 to 1906 a distance of 7.1 feet. During the period nearly $1\frac{1}{2}$ million tons of asphalt had been extracted. These figures are of considerable interest, in that they show the fallacy of the general accepted idea that the Pitch Lake is inexhaustible. The record also shows that for all practical purposes the reduction in level of the lake is in direct ratio with the amount of pitch extracted.

Fig. 3 shows the reduction in level of the Pitch Lake, and the corresponding output.

Fig. 4 is a photograph taken at the drain on the north side of the lake, which has been cut to allow the surface water from the lake to flow to the sea. The photograph shows the approximate position of the original and the present level.

15. MANJAK MINING.—This mineral bitumen is mined in the San Fernando district, and as only two mines are at present in operation it cannot be said to be extensively worked. A

FIG. 3.



geological survey has been made by the Government Geologist, and although little definite information as to the location of the deposits has been obtained, further than is afforded by the mapping of the area of the Tertiary rocks in which the manjak occurs, it must not be forgotten that much exploration work still remains and no doubt many valuable veins will yet be revealed.



ORIGINAL LEVEL

PRESENT LEVEL

16. The use of Trinidad manjak in the arts has up to the present time been somewhat limited. There is, however, little reason to doubt that in the near future a ready market will be found for this product, and that manjak mining will become a substantial industry in the Colony.

17. The industry has been much disturbed by a lamentable explosion which occurred at the end of December, 1904, causing the death of 17 miners. This took place at the Vista Bella mine, which had reached a depth of 200 feet, and was working on a lenticular deposit of manjak dipping at 70 degrees.

18. The workings of the mine were being carried on with naked lights, very meagre attention being given to supervision, and an outburst of inflammable gas occurred which, became ignited by a naked light. At the time there was no mining legislation in force, and a code of rules submitted to the mine owners by my department were unfortunately not enforced. At the inquest the Coroner returned a verdict of culpable negligence against the owners and manager. Proceedings were subsequently taken by the Crown against the owners and manager on a charge of manslaughter, which resulted in an acquittal. A qualified manager is now in charge of the mine.

19. A word of warning will not be out of place, to anyone contemplating entering any mining industry.

The cheese-paring policy of conducting a mine or any allied industry with inadequate and unqualified supervision, cannot be expected to end in anything but failure, and disappointment to the shareholders.

Efficient laying out of the workings, and patience during the development of the undertaking, are features which cannot be overlooked if ultimate success is desired. The digging of unnecessary levels, the "robbing of pillars" to meet an immediate order, are methods which will disturb the adjacent strata, and crush the sides of the workings to an extent as to render the work highly dangerous, and to cause continual expense otherwise be avoided. Further than this, by such methods, entirely the result of inexperience and inefficient supervision, much of the deposit will be placed in too dangerous and costly an environment ever to be worth working.

20. Investigation of the gases associated with manjak has thrown considerable light on an important point not only connected with manjak mining, but with reference to mine gases in general. During an inspection of the Barbados mines a cavity was found in the roof of a heading, containing a mixture of gases which extinguished a safety lamp when raised into it. Yet, only the faintest indication of a firedamp cap was visible, and even this, not in the least characteristic, and only discerned with great difficulty. A sample of gas was obtained in an

imperial quart bottle by water displacement, and was submitted to Professor P. Carmody, the Government Analyst, who was good enough to supply me with the following analysis:—

O ₂	14.00	} Air ... { O ₂ } 66.9
CH ₄	11.10	
H ₂	1.60	
N ₂	73.30		} Nitrogen ... N_{2} ... 20.4
		} Inflammable gas CH ₄ & H ₂ ... 12.7

The analysis proved the gas to be of a highly dangerous character, only requiring the addition of more air to render it an explosive mixture.

21. The discovery of such a mixture of gases, which defied this usual safety lamp test, is, of course, of considerable importance, and one which must not be lost sight of. I submitted the facts of the case to Dr. Haldane, F.R.S., who was kind enough to give me the benefit of his wide experience on these matters, and suggested that the cause of the deficiency of oxygen in the sample analysed was possibly due to the absorptive properties of the manjak. Samples of air from the Barbados and Trinidad mines were obtained for analysis, and clearly proved that oxygen was being absorbed more rapidly than under similar conditions in coal mines. At the same time the analyses invariably recorded the presence of oxidation products. (CO₂, SO₂, CO.)

22. The Government Analyst, Professor P. Carmody, with the assistance of Mr. B. C. Burt, was good enough to undertake some research in order to demonstrate the absorptive property of manjak.

The manjak used was of the lustrous variety, showing no trace of columnar jointing, breaking with conchoidal fracture and of the following composition:—

Water and volatile matter	...	...	4.56 per cent.
Organic matter	...	...	90.96 "
Mineral matter	...	...	4.48 "

The organic matter contained:

Bitumen	...	...	90.60 per cent.
Other than Bitumen	...	...	.36 "
and containing Petrolene	...	...	15.60 "

About 30 grammes of the sample, freshly taken from the mine, and broken to the size of small peas, was confined with 60cc. of air, and after a week's duration, the air was drawn off from the sample and found to have the following composition:—

CO ₂ and SO ₂	...	...	...	6
CO	...	...	...	6
CH ₄	...	...	...	Nil.
Unsaturated Hydrocarbons	...	...	...	1.2
O ₂	...	...	...	12.0
N ₂	...	...	...	85.6
Oxygen absorbed	...	...	...	9.00 per cent.
„ required CO ₂ and CO	...	...	...	0.09 "
„ absorbed and not used in forming gaseous oxidation products	...	...	...	8.01 "
Diminution in Petrolene	...	...	...	1.80 "

A similar sample, which had been exposed to the air of the Laboratory for a week, was enclosed for five weeks, and the analysis of the air drawn off was as follows:—

CO ₂ and SO ₂	...	...	...	75
CO less than	...	...	...	20
Unsaturated Hydrocarbon	...	...	...	35
CH ₄	...	...	...	1.00
O ₂	...	...	...	14.90
N ₂	...	...	...	83.00
				100.00
Oxygen absorbed	...	...	...	6.10 per cent.
Required for CO ₂ and SO ₂	...	...	...	.85 "
Oxygen absorbed and not used in forming gaseous oxidation products	...	...	...	5.02 "
Diminution of Petrolene	...	...	...	1.04 "

Although the experiments are only preliminary, I record them, as they clearly shew that manjak has the property of absorbing oxygen from the air, and confirms the conclusions drawn from the analysis before referred to.

23. The presence of carbon mon-oxide is important, since it has been repeatedly found in samples of gas collected from the manjak mines. Several complaints were received of the workmen suffering from head-aches, which might have been due to carbon mon-oxide poisoning. Since more attention has been paid to the ventilation, no such complaint has come to my notice. The presence of the gases sulphuretted hydrogen and sulphur di-oxide although only in very minute amounts, produce smarting of the eyes, which is particularly noticeable in working in badly ventilated ends, or removing water from disused sumps. The pungent smell of sulphuretted hydrogen is very evident when work is being vigorously conducted at the face. The remedy is

to be found in a better circulation of air, carried right up to the work, to ensure the gases being swept away immediately they are given off. The subject is still under investigation.

24. The result of the investigations already carried on may be briefly summarised as follows:—

- (a.) Inflammable gas is associated with manjak.
- (b.) Manjak possesses the property of readily absorbing oxygen.
- (c.) By the combination of (a) and (b) unventilated parts of a mine may become fouled with inflammable gas at the same time the oxygen in the air may be so diminished as to render the inflammable gas very difficult to detect by the ordinary safety lamp.

25. The following conclusions are drawn from:

- (a.) No lamps other than locked safety lamps should on any account be used in any mine working manjak.
- (b.) The ventilation should be continuous and adequate, and no part should be left unventilated unless it be securely fenced off.
- (c.) Great care should be exercised in removing any stagnant air, and this should only be done by competent men, after the workmen have been removed from the mine.

26. If dry manjak be ground to a very fine powder and thrown into the flame of a spirit lamp, it is found to be highly inflammable. The mines at present working in the Colony, are by no means dry and dusty, and little dust is ever to be found in the mines. This feature of the mineral should however be borne in mind, in the event of any of the working becoming dry and dusty.

Blasting has not, up to the present, been necessary in working the mineral.

27. CUNAPO COAL.—A special report on the Cunapo Coalfield was submitted at the conclusion of the exploration work.

A geological survey was made of the area. The seams (two in number) were dipping at a high inclination (over 40°), so that preliminary proof by boring had to be abandoned. An adit was driven into the side of the hill under which the seams passed, both seams were intersected, and levels driven along the strike of the seams. The coal was found to be somewhat erratic and variable in thickness, occurring in lenticular patches. Further exploration was not considered necessary as the available area has been proved sufficiently for the guidance of anyone desirous of working the coal.

28. The question of making patent fuel by washing and compressing into briquettes, was fully considered, and although impracticable on a large scale, may be well worth attention on a restricted output.

The coal is a Tertiary lignite of very fair quality, and had the thickness of the seam only been more uniform, it would have been of great commercial value.

The Cunapo Coal in the Sangre Grande district is the only coal that has been examined by my department.

29. GOLD.—It has been commonly supposed that Trinidad, being so near to Venezuela, where gold is supposed to be abundant, should be a veritable El Dorado. Such opinions are usually based upon mere empirical reasoning, without any attempt to prospect on the meanest scientific methods. During the period under review, several attempts have been made to find gold, but with little or no success. A mine was opened in one locality, in the northern range, on a supposed reef of quartz, but was abandoned before the reef was reached. The country rock in which this mine is situated is composed of a series of mica, talc-mica and quartzose schists, with schistose grit bands, well foliated and containing segregation veins of quartz.

The geological survey at present in progress has not yet extended to this portion of the Colony.

Whilst on a visit to Tobago, the locality of Little Englishman's Bay, which was said to contain gold was inspected. The investigation possibly in the short time at my disposal did not prove very encouraging.

30. QUARRIES.—The quarries in operation are chiefly engaged in working road-metal and limestone for lime-burning. Quarrying is carried on in a most "happy-go-lucky" fashion. Blasting, to a great extent proceeds, under conditions which have long proved highly dangerous; gunpowder and other explosives are frequently rammed into a short hole, with a steel drill or piece of iron, and if the shot happens to miss-fire—a not unfrequent occurrence—the hole is drilled out and another charge inserted in the same hole.

Many of the quarries which have come under my notice, are situated in very near proximity to public roads and private dwellings, and very little attention appears to be given to warning people in the neighbourhood when blasting is about to take place.

The tops of quarries, many in a highly dangerous state are frequently unfenced, and it appears that attention is barely given to this important matter.

31. The extraction of stone from the quarry itself is frequently carried on in blissful ignorance of the dangers of the undertaking. A good bed of stone is excavated under the face of broken overhanging debris, until a fall takes place, which temporarily stops work, or injures the unfortunate people working below.

Fig. 5 is a photograph taken at Rose Hill Quarry, Port-of-Spain, showing how John Pollard

was killed on the 5th of December, 1904. In this case, the quarry had been undermined to the extent of 15 feet, a highly unworkmanlike proceeding.

32. Where such dangerous methods came under my notice, immediate attention was called to them, and in many cases subsequent visits were paid to ascertain if the matter had been given attention. On the whole, I found the owners very willing to make any alteration which would tend to the greater safety of their employees; in fact they were generally ignorant of the dangers which they were allowing their workmen to run.

It is somewhat singular that so few accidents occur; there is, however, no record kept, and only fatal or very serious accidents get publicity as a rule. A scheme of legislation was considered and a special report on the subject submitted.

33. OILFIELDS.—The surface indications of oil are exceptionally promising throughout the southern portion of the Island. A geological survey has been made and a number of maps and reports issued, from which valuable information can be obtained by intended prospectors and drillers. The greater part of the ground has been mapped, and the general structure, with dips and thickness of oil-bearing rocks recorded. All that remains to be proved is the oil-bearing capacity of the oil sands within workable depths, which can only be done by actual boring.

Boring operations in the Guayaguayare district, have been resumed, and are now in active progress. A considerable quantity of oil has been bailed from one of the wells and there is every reason to believe that the prospecting stage in this area has passed, and that oil will shortly be an important industry in the Colony.

34. Special regulations, with a view to the safe working of borings, have been submitted by my department, with relation to the works at present in progress. It is proposed to extend the Mines Ordinance now under consideration to the regulation of borings. During the period under review little boring has been in progress, and few, if any, accidents occurred. A serious boiler explosion, however, occurred when work was active in 1903, but little information is available.

FIG. 5.



ROSE HILL QUARRY.

There were also 6 non-fatal accidents recorded, caused by falls from cane trucks whilst in motion, and one boiler explosion.

No statistics for 1905 have been obtained.

41. There being no obligation on the part of the owners or managers of works to report accidents, all the figures here referred to can only be considered as very approximate, and only then represent accidents of fatal or almost fatal nature. There is little doubt that there are many accidents which are not heard of beyond the locality in which they occur. The necessity of a complete record of all accidents needs no proof. The proposed Ordinance now under consideration, will make it compulsory for the owners to report all accidents where loss of life, or serious personal injury, has occurred. My department will thus be able to keep a complete record, which will be of invaluable assistance in bringing about the safe working of all Mines, Borings, Quarries and Factories.

42. LEGISLATION.—The details of the following legislation have received considerable attention during the period under review :—

- (a.) Asphalt Industry Regulation Ordinance.
- (b.) La Brea Survey Ordinance.
- (c.) Mines Ordinance.
 - (1.) Mines Regulation.
 - (2.) Borings Regulation.
 - (3.) Quarry Regulation.
- (d.) Factory Ordinance.

43. ASPHALT INDUSTRY REGULATION ORDINANCE.—This legislation came into operation on the 11th May, 1906. The Ordinance may be summarised as follows :—

- (a.) No digging operation can be commenced without giving 14 days notice.
- (b.) Digging operations may be carried on under Regulation by Permit, which frees the digger from actions by injunction.
- (c.) An owner of land adjacent to a digging may on payment of £5 obtain a certificate of the material lost by the digging operations complained of, whether conducted by Permit or otherwise.
- (d.) The certificate when granted is final and conclusive.

The regulations under the Ordinance are designed with a view to permit digging to be conducted without causing undue depletion of adjacent land. The digger must send to the Inspector of Mines a statement of the material excavated and must not cut or pare off the sides of his excavation after once it has been dug—in fact he must not do anything which will tend to produce an excessive flow of Asphalt into his lot.

44. LA BREA SURVEY ORDINANCE.—This legislation came into operation on 11th July, 1905, and was designed in order to give powers to a surveyor, to make a plan of the asphalt area at La Brea, which had been the cause of so much litigation.

The Bill requires every land-owner, either to supply a plan of his property, or to fix his boundaries on the ground. The Bill also requires the Surveyor to fix and establish marks in solid ground, and to locate by triangulation or accurate survey such fixed marks, and to lay down on the plan the bearings, cross-bearings, &c., of the streets and property. The plan when made to be published for three months and finally laid before the Legislative Council, after which it will become the authentic plan of this locality.

45. MINES ORDINANCE.—This Ordinance (now under consideration) is designed to regulate the safe working of all mines, borings and quarries. It provides powers to inspect the works enumerated for the appointment of Managers to take charge of all mines, borings and quarries, and further requires the Manager of a mine to be certificated. It provides also for notification of the opening and closing of such works, the supplying of statement of the quantity of mineral extracted, and of the accidents occurring therein. It further gives powers for the making of regulation for the safe working of each of the industries referred to.

46. FACTORY ORDINANCE.—This Ordinance is now under consideration, and is drafted with a view to the safe working of Factories and the machinery and boilers contained therein.

47. PERSONS EMPLOYED.—The following tables have been compiled, through the courtesy of the owners, and may be taken as a rough estimate of the number of persons employed. The figures do not include the persons employed at many of the smaller works.

Number of persons Employed.

1904.

Name of Mineral.	ABOVE GROUND.		BELOW GROUND.		TOTAL.
	Males.	Females.	Males.	Females.	
Asphalt	729	52	..	..	781
Manjak	31	...	70	...	101
Quarries	323	66	...	...	389
	1,083	118	70		1,271

1905.

Name of Mineral.	ABOVE GROUND.		BELOW GROUND.		TOTAL.
	Males.	Females.	Males.	Females.	
Asphalt	823	49	...	...	872
Manjak	14	...	31	...	45
Quarries	358	86	...	...	444
	1,195	135	31		1,361

48. The following tables are obtained through the courtesy of the owners:—

Quantity and Value of Minerals produced during the years ending December, 1903, 1904, and 1905.

MINERAL.	1903.		1904.		1905.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£
Asphalt—(Crude)	169,813	169,813	118,432	118,432	78,518	78,518
„ (Epurée)	(10,045)	...	(10,887)	...	(14,815)	
(Epurée equivalent to Crude)	20,090	20,090	21,774	21,774	29,630	29,630
Asphalt—Dried	(2,484)	...	(3,722)	...	(7,245)	
(Dried equivalent to Crude)	3,312	3,312	4,963	4,963	9,660	9,660
Total Asphalt	193,215	193,215	145,169	145,169	117,808	117,808
Manjak	587	880	3,023	4,534	1,077	1,615
Limestone and Road Material	31,513	3,885	36,107	3,984	37,423	4,000
Oil .. .. .	...	...	...	...	80 galls.	
Total	225,315	197,980	184,299	153,687	156,308	123,423

49. I herewith append a list of mines, openworks, borings, quarries, and factories, which has been compiled from information supplied by the Wardens.

I have the honour to be, Sir,

Your most obedient Servant,

JOHN CADMAN,
Inspector of Mines.

The Honourable
THE COLONIAL SECRETARY.

LIST OF MINES AND OPEN WORKS.

No.	Name.	Situation.	Owner and Address.	Manager.	Persons Employed.	Mineral Worked.	Remarks.
1	Vista Bella ...	San Fernando	The Vista Bella Manjak Company, Port-of-Spain	J. T. Raspass, C.C.M.	...	Manjak	Underground working.
2	Marbella No. 1	San Fernando	The Marbella Manjak Company, Port-of-Spain	J. Waddell	...	"	" "
3	Marbella No. 2	San Fernando	" " "	J. Waddell	...	"	Sinking.
4	Cunapo ...	Sangre Grande	The Government	C. Wilson	...	Coal	Underground.
5	Pitch Lake ...	La Brea	The New Trinidad Lake Asphalt Company, Limited, Brighton.	F. R. Bartlett, General Agent	...	Asphalt	Open work.
6	Pitch Lake ...	La Brea	Charles F. Stolineyer, Esq., Richmond Street, Port-of-Spain.	J. Briggs	...	"	"
7	La Brea ...	La Brea	Messrs. Ambard and Protheroe, Port-of-Spain	R. Fitzallen	...	"	Open work, steam pump used.
8	La Brea ...	La Brea	The New Trinidad Lake Asphalt Company, Limited, Brighton.	N. B. Smith	...	"	" "
9	La Brea ..	La Brea	The Heirs of Dundonald—Agents, Messrs. Gordon, Grant & Company, Port-of-Spain.	...	...	"	" "
10	Verdant Vale	Arima	The Trinidad Cocoa and Coffee Company	...	...	Gold	Sinking.
11	Glance Pitch Mine	Near Mayo Main Road	Messrs. Gordon, Grant & Co., Port-of-Spain	...	...	Asphalt	Not working.
12	Piparo Coal Mine	Piparo Settlement	H. J. Strong, Esq., Piparo Settlement	...	...	Coal	"
13	Crown Reserve	Pasqual Road, Piparo Settlement	The Government	...	...	Liquid Pitch	"

LIST OF QUARRIES.

No.	Name.	Situation.	Owner and Address.	Manager.	Persons Employed.	Mineral Worked.	Remarks.
1	Laventille, East	Champs Fleur	The Government	...	...	Limestone	...
2	" West	St. Joseph Road	...	...	...	"	...
3	" West	La Peña Valley	Heirs of Prizgar—R. M. T. Prizgar, Esq., Port-of-Spain.	...	...	"	...
4	Aricagua	St. Ann's Ward, Champs Fleur.	The Government—Hon. Director Public Works	...	...	Stone	...
5	Cimaronero	St. Ann's Ward, Champs Fleur.	" " " "	...	...	"	...
6	St. Ann's	St. Ann's	Heirs of Prizgar—R. M. T. Prizgar, Esq., Port-of-Spain.	...	...	"	...

LIST OF QUARRIES.—Continued.

No.	Name.	Situation.	Owner and Address.	Manager.	Persons Employed.	Mineral Worked.	Remarks.
7	Santa Cruz ...	Gasparillo ...	J. E. Coryat, Esq., Port-of-Spain ...	...	...	Stone	...
8	" ...	Cangrigal ...	C. F. Stollmeyer, Esq., Port-of-Spain ...	...	...	"	...
9	" ...	Gasparillo ...	E. Lange, Esq. ...	...	...	"	...
10	Carenage ...	Point Sinnett ...	Charles Lambert, Esq., St. Pierre ...	...	...	"	...
11	" ...	Tucker Valley ...	Trinidad Land and Finance Company, Limited, Port-of-Spain.	...	...	"	...
12	" ...	Point Cumana ...	M. E. Gillegan, Esq., Port-of-Spain ...	...	...	"	...
13	Maraval ...	Maraval, Perseverance Estate	J. J. de Boissière, Esq., Port-of-Spain ...	...	...	"	...
14	Mucurapo ...	Boissière Village ...	Heirs of J. J. de Boissière, Esq., Port-of-Spain ...	...	...	"	...
15	Diego Martin ...	Green Hill ...	Teresa Dolly, Diego Martin ...	...	...	"	...
16	" ...	" ...	A. Samuel, Esq., Diego Martin ...	...	...	"	...
17	Joseph Cooper ...	Indian Walk ...	Heirs of Joseph, Esq. ...	...	...	"	...
18	Dunmore Hill ...	Dunmore Hill ...	...	...	...	"	...
19	Jackson's ...	Monkey Town ...	...	...	...	"	...
20	Jack Ayers ...	Henderson Road ...	Jack Ayers, Esq., Savana Grande ...	...	...	"	...
21	Mayo Government Quarry	Near Mayo Main Road ...	The Government ...	...	...	Road metal	...
22	Morne Roche...	Between Mayo and Coolie Town.	" ...	...	...	"	...
23	Morichal ...	Morichal Local Road ...	" ...	...	...	"	...
24	Atagual (2) ...	Guaracara-Tabaquite Road ...	" ...	...	...	"	...
25	Piparo ...	Piparo Local Road ...	" ...	...	...	"	...
26	Guaracara ...	Guaracara Main Road ...	" ...	...	...	Stone	...
27	Tabaquite ...	Tabaquite-Mayaro Road...	" ...	...	...	"	...
28	Brasso ...	Brasso Road ...	" ...	...	...	"	...
29	" ...	Crown Reserve ...	" ...	...	...	"	...
30	Knox ...	Corosal-Maraval Road ...	Mrs. Knox, La Concordia Estate ...	...	...	"	...
31	Perry ...	Guaracara-Tabaquite Road ...	Mrs. William Perry, Tabaquite ...	...	...	"	...
32	La Coulée ...	San Fernando ...	Mrs. Oliviera ...	...	...	"	...
33	Bijou Cottage Quarry	" ...	Dr. Fakin, Port-of-Spain ...	...	...	"	...
34	Glendale ...	" ...	H. R. McLean, Esq. ...	...	...	"	...
35	Mon Nid ...	" ...	Major R. Johnstone ...	...	...	"	...
36	Circular Road ...	" ...	Heirs of Smith ...	...	...	"	...
37	Circular Road ...	" ...	Borough Council ...	...	...	"	...
38	Plum Road Quarry	Plum Road, Nariva ...	The Government—Public Works Department	...	...	Road metal	...
39	Upper Cunapo Quarry	Upper Cunapo ...	" " " "	...	...	Stone	...
40	" ...	Mochel Poorie -- Talparo Extension Road, Upper Caroni.	" " " "	...	...	"	...
41	Lapeyrouse ..	Arima ..	H. de Lapeyrouse, Esq., Mount Pleasant Estate, Arima.	...	...	"	...
42	Diego Martin...	River Estate ...	The Government—Hon. Director of Public Works ...	...	...	"	...
43	" ...	Sierra Leone Village ...	Joseph Stewart, Esq., Diego Martin ...	...	...	"	...
44	" ...	" ...	D. Superville, Esq., Diego Martin ...	...	...	"	...
45	" ...	Petit Valley ...	Caroline Gonzales, Port-of-Spain ...	...	...	"	...
46	Chaguaramas..	Carreras Island ...	The Government—Superintendent of Prisons, Royal Gaol, Port-of-Spain.	...	...	"	...
47	" ...	Gasparillo ...	F. Herrera, Esq., Port-of-Spain ...	...	...	"	...

LIST OF FACTORIES.

No.	Name.	Situation.	Owner and Address.	Manager.	Persons Employed.	Kind of Factory.	Remarks.
1	Breechin Castle	Savanetta, California	The Trinidad Estate Company—W. G. Kay, Esq., (Attorney), Caroni Estate.			Sugar.	
2	Esperanza	.. ..	Messrs. Henderson and Connell, Esperanza, California.	J. H. Connell, Esq.		.. ..
3	Forres Park	.. ..	The New Colonial Company, Limited, Port-of-Spain			.. ..
4	Waterloo	Carapichaima	Adam Smith, Esq., (Trustee), Port-of-Spain			.. ..
5	Woodford Lodge	Chaguamas	Hon. Samuel Henderson, Port-of-Spain			.. ..
6	Enterprise	.. ..	J. Cox-Fillian, Esq., (Dominica)			.. ..
7	St. Charles	.. ..	Heirs of John Hoadley, Esq., Port-of-Spain			.. ..
8	Cunupia Saw-mill	Cunupia	G. Macnair, Esq., Cunupia			.. ..	.. ..
9	Usine, St. Madeleine	San Fernando	The New Colonial Company, Limited, Eondon			.. ..	.. ..
10	Palmiste, Usine	.. ..	Norman Lamont, Esq., London			.. ..
11	La Fortuna	.. ..	Sir Charles Tennant, London			.. ..
12	Bronte, Usine	.. ..	Messrs. Arbutnot Lathon & Company			.. ..
13	St. Joseph	Mayaro	Louise Ganteanne, St. Joseph Estate, Mayaro			.. ..
14	Perseverance	.. ..	John Urich, Esq.	Paul Urich, Perseverance Estate, Mayaro		.. ..
15	.. ..	Cedros	D. Kemp-Welch, Esq., London. Agent—Hon. S. Henderson, Port-of-Spain.			.. ..
16	St. Marie	.. ..	W. Greig, Esq., Cedros			.. ..
17	L'Envieuse	.. ..	E. Nivet, Esq., Cedros			.. ..
18	St. Quintin	.. ..	A. Kernahan, Esq., Cedros			.. ..
19	Constance	.. ..	F. Agostini, Esq., Cedros			.. ..
20	Reform	Reform, Naparima	William Sanderson, Esq., Reform Estate, Naparima			.. ..
21	Malgré-Tout	Princes Town	Messrs. C. Tennant, Sons & Company, Agency, San Fernando.			.. ..
22	Buen Intento	.. ..	Messrs. C. Tennant, Sons & Company, Agency, San Fernando.			.. ..
23	Craignish	.. ..	George Liddelow, Esq., Craignish Estate, Princes Town			.. ..
24	Hindustan	Near Princes Town	W. S. Robertson & Co., San Fernando			.. ..
25	Mon Désir	Oropuche	W. Sanderson, Esq., Reform Estate, Naparima			.. ..
26	Brighton	La Brea	New Trinidad Lake Asphalt Company, Limited, Brighton, La Brea.			.. ..	Asphalt refining.
27	La Brea	.. ..	C. F. Stollmeyer, Esq., Richmond Street, Port-of-Spain.			.. ..
28	Cocoa-drying Machine	.. ..	Mrs. Murray	J. E. Lickfold, Esq., Sangre Grande.		.. ..
29	Orange Grove	Tacatigua	L. Bert de Lamare, Esq., Orange Grove, Estate, Tacarigua.			.. ..
30	Caroni	Caroni	The Trinidad Estates Company—W. G. Kay, Esq., (Attorney), Caroni Estate, Caroni.			.. ..
31	Mou Jaloux	.. ..	Messrs. J. F. and C. Schwann—Hon. S. Henderson (Attorney), Port-of-Spain.			.. ..

LIST OF FACTORIES.—Continued.

No.	Name.	Situation.	Owner and Address.	Manager.	Persons Employed.	Kind of Factory.	Remarks.
32	Waterworks ...	... St. Joseph and Tunapuna.	The Government—T. H. Warner, Esq. (Chairman) of Maintenance Authority, Warden's Office, Tunapuna				
33	Orange Hill ...	... Calder Hall ...	... J. A. Ward, Esq., (Receiver), Calder Hall, Tobago ...			... Sugar.	
34	Auchenskeoch ...	... Calder Hall ...	... J. A. Ward, Esq., (Receiver), Calder Hall, Tobago "	
35	Smithfield ...	... Smithfield ...	... W. S. Ward, Esq., Smithfield, Tobago "	
36	Cradley ...	... Cradley ...	... J. R. D. Punnett, Cradley, Tobago "	
37	The Whim ...	... St. David's ...	... Benjamin Lees, Esq., The Whim, Tobago "	
38	St. Mary's Hill ...	... Scarborough ...	... M. B. Crooks, Esq., Scarborough, Tobago "	
39	Courland ...	... Calder Hall ...	... Mrs. J. H. Ward and Others, Calder Hall, Tobago "	
40	Golden Grove ...	... Golden Grove ...	... Dr. G. L. Latour, Golden Grove, Tobago ...			... Cotton.	
41	St. Marie, Usine ...	... St. Patrick's ...	... W. S. Kernahan, Esq., Port-of-Spain, Trinidad ...			... Sugar.	
42	Indian Walk...	... Rockey Vale ...	... Geo. R. Agard, Esq., Rockey Vale, Tobago "	
43	Woodlands ...	... Scarborough ...	... James E. Roberts, Esq., Scarborough, Tobago "	
44	La Florisante ...	... Dabadie ...	... F. J. Le Blanc, Esq., Dabadie "	
45	Ice Factory ...	... Arima ...	... Mr. Doru, Arima ...			... Ice.	
46	Soda Factory...	... Arima ...	... H. de Nobriga, Esq., Arima ...			... Soda.	
47	Soda Factory	... Arima ...	... Kong, Esq., Arima "	
48	Soda Factory...	... Arima ...	... Bedes Buxoo, Esq., Arima "	
49	Diego Martin	... Diego Martin	... Water and Sewerage Department—E. V. Acton, Esq., (Engineer)			... Waterworks.	
50	Maravai ...	... Maravai ...	... Water and Sewerage Department, E. V. Acton, Esq.			... "	
51	Mucurapo ...	... St. James ...	... Water and Sewerage Department, E. V. Acton, Esq.			... Sewerage.	
52	San Fernando	... San Fernando	... Water and Sewerage Department, E. V. Acton, Esq.			... Waterworks.	
53	Ice Lactory ...	... Port-of-Spain	... Trinidad Shipping and Trading Co., Port-of-Spain ...			... Ice.	
54	Ice Factory ...	... Port-of-Spain	... Ellis Grell & Co., Port-of-Spain ...			... Ice.	
55	East End Foundry	... Port-of-Spain	... Messrs. Peet & Sons, Port-of-Spain ...			... Foundry.	
56	Trinidad Foundry	... Port-of-Spain	... Ellis Grell & Co., Port-of-Spain "	

TRINIDAD AND TOBAGO.

Council Paper No. 67 of 1909.

MINES.

Annual Report of the Inspector of Mines for 1908.

Circulated for the information of Members of the Legislative Council. To be laid at the next meeting.

Previous Council Paper No.

Registered No. of Correspondence relating to the subject—M. P. No. 2679/1909.

MINES.

Annual Report of the Inspector of Mines for 1908.

Council Paper No. 67 of 1908.

M.P. No. 2679/1908.

The HON'BLE COLONIAL SECRETARY.

In accordance with Section 35 of the Mines, Borings and Quarries Ordinance, No. 13 of 1907, I have the honour to submit the following report on the work which came under my direction during the year ended 1908.

A report of the proceedings under the Asphalt Industry Ordinance, No. 10 of 1906, has also to be submitted, and I therefore embody the transactions under it in this report.

OFFICIAL DUTIES.

The administrative work was attended to by myself in addition to my duties in the Public Works Department, with the exception of the time, 21st August to 21st September, that the Inspector of Mines, Dr. J. Cadman, was in the Colony.

The Assistant, Mr. Galt, left for St. Lucia in April to take up an appointment there and Mr. N. Betancourt succeeded him. The duties of the Assistant were mainly in connection with the survey work at La Brea, under the Asphalt Industry Ordinance, and the routine inspection of Quarries.

The work, generally speaking, has included inspection of Mines, Borings and Quarries; inquiry into many working details which came to notice: attendance at an inquest; and the general supervision of mining operations at La Brea.

On account of my dual office, it was found inconvenient to continue to carry on the Mines' work in the office at the Government Buildings, and with the consent of the Hon'ble Director of Public Works, and the approval of His Excellency the Governor, I performed, from October on, the Mines' work at my office in the Public Works Department. The change not only benefitted the work of the Department, but led to a saving in its working.

Mr. J. de Nobriga, Clerk in the Public Works Department, was temporarily appointed in September to do the Clerical work.

The following was the expenditure:—

Personal Emoluments	...	...	...	...	£281	1	4½
Surveys	...	...	...	...	150	13	11½
Travelling Expenses	...	...	...	...	26	10	2
Quarters, La Brea	...	...	...	...	37	10	0
Contingencies	...	...	...	...	12	5	0½
TOTAL	...	...	...	...	£508	0	6½

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCE, No. 13 OF 1907.

QUARRIES.—Though the Ordinance was proclaimed Law in July, 1907, it was not found possible to take immediate steps to bring it into operation. The Inspector of Mines unavoidably had to go on leave of absence from the Colony soon after its proclamation and before leaving he did some preparatory work to introduce its working. So soon as it was known that his special work in England at the time made it impossible for him to return within the time he had hoped to, steps were taken to bring it into force.

A copy was sent to every known Owner of a Mine, Boring or Quarry, and subsequently copies of the Regulations under it were supplied to the persons who were found actually carrying on work.

All the important Quarries in Port-of-Spain, San Fernando, and certain of those of the Out-Districts, were inspected, and, in many cases, the Managers, nominated under Section 4 of the Ordinance, were given detailed explanation on various matters connected with the Ordinance.

It was found that some Owners and Lessees were working Quarries in ignorance of the existence of the Law, and special notices were at once inserted in the *Royal Gazette* and Local Papers calling attention generally to the Ordinance and particularly to Sections 4 and 20. The parties concerned, on their attention being called to the Ordinance, took immediate steps to follow it.

Blasting operations are now being conducted with far greater care than before and no accidents of any serious nature have been reported. Care is taken to see that the Regulations are kept conspicuously posted up around the Quarries; and, I believe, workers now know the various safeguards and the regular hours and signals for blasting.

Two of the principal Quarries near Port-of-Spain were found with very dangerous overburdens and written notices of the danger were immediately given to the Managers under Section 23 of the Ordinance. Detailed instructions were also given them and they took early steps to carry them out. Work is now proceeding on a better basis.

The Boiler Certificates under Rule 16 of the Regulations have been obtained from the Owners who have engines. So far only three Quarries are provided with engines.

One fatal accident was reported. Investigation showed that a man in clearing a mound and in blasting some stones in it for the purpose of levelling a yard near Port-of-Spain worked in a way to cause his own unfortunate death. This was practically the Coroner's verdict. Not being a Quarry the work did not come under the Ordinance.

On the whole it may be said that work is now being carried on at all of the Quarries in a fairly satisfactory way, and that the "happy-go-lucky" manner of working, referred to by the Inspector of Mines in his last administration report, is a thing of the past.

BORINGS.—Borings for Oil, with what is looked upon as successful results, have been conducted by the New Trinidad Lake Asphalt Company, Limited, at La Brea, and the Trinidad Petroleum Company, Limited, at Guapo, and an aggregate of three thousand seven hundred and fifty-eight (3,758) feet of borings have been made. At both places oil from the wells is being used as fuel for the engines with very satisfactory results. The works at both places were inspected.

The Boiler Certificates under the Regulations were supplied by the Managers.

The Government Analyst, Professor P. Carmody, kindly analysed a sample of the oil obtained from one of the wells at Guapo. The following is his report:—

Specific gravity at 29° C. =	0.938
Mineral matter =	0.128%
Boiling point about 73° C.	

Results of Fractional Distillation—

Petroleum Spirit (Volatile below 150° C.) ...	...	=	6.4
Illuminating Oils („ between 150° and 300° C.) ...	...	=	27.6
Lubricating Oils („ above 300° C.) ...	...	=	58.0
Residual Bitumen ...	...	=	4.0
Loss ...	...	=	4.0
			100.0

At the Guayaguayare Oil Fields work was at a stand-still, and no special necessity arose to inspect the wells there.

Two applications for licenses to search Crown Lands for Petroleum, &c., under the Lands Regulations, were received and dealt with.

The provisions of the Ordinance and the Regulations under it have been followed by all concerned.

MINES.—Development work was only carried on by the Trinidad Vista Bella Manjak Company, Limited, at the Vista Bella Manjak Mine in the San Fernando District. Three underground inspections of the Mine were made, and a license, under the Regulations, permitting the use of explosives was issued. A qualified Mining Engineer is in charge and the provisions of the Ordinance have been followed. No accidents of any nature have been reported.

No necessity has as yet arisen for the appointment of the Board under Section 8.

RETURNS UNDER THE ORDINANCE.

The enclosed table (Appendix A), compiled from the Annual Returns made under Section 18 of the Ordinance, shows the average number of persons employed and minerals won from the various Mines, Borings and Quarries. Most of the returns were only got after inviting special attention to the Section, and in some cases several reminders had to be sent. Those concerned were apparently not aware of their obligations and in consequence the returns, I am afraid, are not altogether reliable. Failure to comply with the Section or any return which is knowingly false in any particular is an offence against the Ordinance and it is hoped that the necessity to enforce the Law will not arise in future.

Lists of the Mines, Borings and Quarries (Appendix B) worked during the year are also enclosed.

WORK UNDER THE ASPHALT INDUSTRY ORDINANCE, No. 10 OF 1906.

No additional land was declared Asphalt-bearing land, and the work under the Ordinance was therefore, as hitherto, confined to the digging operations by some of the private Owners of lots in the village of La Brea.

Comparatively speaking little work was done. Seven lots were excavated under "Notices to Commence" (Section 8).

Three Permits under Section 9 were applied for, but it was only found possible to issue one, and, as the Ordinance requires, the reasons for the refusal of the others were given to the applicants. The work for which the Permit was issued was carried out.

Four applications for certificates under Section 11 were applied for by the Sub-Intendant of Crown Lands. In two instances certificates, under Section 14, were granted, and in the other two no undue depletion was found. In some cases, I believe, the Sub-Intendant obtained injunctions from the Court to restrain digging. In all cases the parties in difference were heard before arriving at a final decision.

Work under the Notices and the Permits entailed the taking of 2,486 levels. There are now on record 13,086 levels in connection with work done by the Department since the introduction of the Ordinance. The twenty-three fixed bench marks were checked and found correct.

The information in regard to the amount of Asphalt won from the Pitch Lake by the New Trinidad Lake Asphalt Company, Limited, and the Private Owners in the Village of La Brea, and the average number of persons employed by them, is given in Appendix A.

No difficulty was experienced in locating the various boundaries of the lots worked from the plan prepared under Ordinance No. 18 of 1905.

There has been some difficulty in getting a few of the minor provisions of the Ordinance followed in some cases, but on the whole the work under the Ordinance during the year may be said to have been satisfactorily conducted.

In conclusion it gives me pleasure to say that from nearly all sides ready information and assistance were given to the Department to carry out its work under the Ordinances.

The Assistant and the Clerk performed their duties satisfactorily.

D. M. HAHN,
Acting Inspector of Mines.

APPENDIX A.

Average number of Persons employed and quantity and value of Minerals obtained from Mines, Borings and Quarries during the year ended 1908.

Mineral.	Average number of Persons, employed.		Total.	Quantity.	Approximate value.
	Males.	Females.			
Manjak	52	2	54	1,790 tons	£ s. d. 3,500 0 0
Oil	30	...	30	5,900 gals.	49 9 2
Asphalt	290	16	306	125,994½ tons	75,012 6 3
Private Quarries—(Stone, Boulders, Marl, Gravel, &c.)	211	165	376	71,686½ „	4,040 13 8½
Government Quarries—(Metal, Boulders and Limestone) ...	539	256	795	28,201 „	3,424 15 5

NOTE.—No return was received from the New Trinidad Lake Asphalt Company, Ltd., in respect of Oil, and the Superintendent is not at present in the Colony.

APPENDIX B.—List of Mines, Borings and Quarries worked during 1908.

No.	Name.	Situation.	Owner and Address.	Manager.	Average No. of Persons employed.	Mineral worked.
MINES.						
1	Vista Bella	Naparima	The Trinidad Vista Bella Manjak Company, Limited, Port-of-Spain.	J. C. T. Raspas, M.I.M.E.	54	Manjak.
2	Pitch Lake	La Brea	The New Trinidad Lake Asphalt Company, Limited, London, England.	Capt. R. K. Wright	306	Asphalt.
3	Do.	do.	Chas. F. Stollmeyer, Port-of-Spain	C. Phelps		
4	Do.	do.	L. F. Anbard and Protheroe, Port-of-Spain...	R. FitzAllen		
BORINGS.						
1	Oil Wells	La Fortunce Estate, Guapo	The Trinidad Petroleum Company, Limited, 41, Bishops-gate Street, London, E. C.	T. A. P. May, A.M.I.M.E.	30	Oil.
NOTE.—No return has been received from Messrs. The New Trinidad Lake Asphalt Company, Ltd., in respect of Oil. Their Superintendent is at present not in the Colony.						
QUARRIES.						
1	Clifton Hill	East of Port-of-Spain	J. W. McCarthy, St. Ann's Road	C. Burket	4	Limestone.
2	Basilon Street	East Dry River	J. T. Gittens, 25, Tragarete Road	N. Waterman	27	do.
3	Pall Mall Street	do.	do. do.	C. Burket	3	do.
4	Queen Street	Queen Street	The United Brothers	J. Griffith	2	do.
5	Campo ,,	San Juan	J. T. Gittens, 25, Tragarete Road	J. Anderson	3	do.
6	McShine's	Belle Eau Road	do. do.	C. Burket	1	do.
7	Graham	Laventille	H. A. Graham, 50, Belmont Circular Road	H. A. Graham	2	do.
8	St. John	East of Port-of-Spain	Heirs of Sorzano	J. T. Gittens	7	do.
9	Quarry Street	do.	do.	do.	20	do.
10	Rock River	Moruga Ward	F. Herrera, 40, South Quay	E. Herrera	4	Sandstone.
11	Prisoner's	Laventille	Trinidad Government...	Supt. of Prisons	83	Limestone.
12	Carrera	Carrera Islands	do.	W. Marsh		do.
13	Town Board	Quarry Street	Town Board, Town Hall	Town Engineer	30	do.
14	Duke Street	Duke Street	B. Sorzano, 47, Frederick Street	C. Prime	3	do.

APPENDIX B.—List of Mines, Borings and Quarries worked during 1908.—CONTINUED.

No.	Name.	Situation.	Owner and Address.	Manager.	Average No. of Persons employed.	Mineral worked.
15	Glendale	San Fernando	Helen McClean, San Fernando	H. R. McClean	5	Gravel.
16	Mon Repos	do.	The New Colonial Company, Limited, San Fernando	H. T. Cox	12	do.
17	Circular Pit and Carib Pit	Circular Road and Carib Street, San Fernando	Borough Council, San Fernando	J. J. Waddell	28	Marl.
18	La Coulée Pit	Carib Street, San Fernando	Pauline Oliverra	A. Pit	2	do.
19	Bonne Aventure	Bonne Aventure Road	The Trinidad Government	District Officer	12	Limestone.
20	Mayo	Mayo	do. do.	do.	12	do.
21	Mayo	5½ mile, Mayo Road	do. do.	do.	25	Metal and Boulders.
22	Corosal	Corosal Road	W. L. Knox, Salvador Estate, Montserrat	F. Scheult	25	do. do.
23	Morichal	Morichal Road	The Trinidad Government	District Officer	15	do. do.
24	Guaracara	Tabaquite	do. do.	do.	14	do. do.
25	Brasso	Brasso	do. do.	do.	12	Limestone.
26	Nariva	Tabaquite	do. do.	do.	24	do.
27	Siparia	San Fernando-Siparia- Erin Road	do. do.	do.	14	Metal and Boulders.
28	Moruga	Moruga Road	do. do.	do.	16	Limestone.
29	River Estate	Diego Martin	do. do.	do.	18	do.
30	Cutucupano	Santa Cruz	do. do.	do.	10	do.
31	Mocheel Poorie	Talparo Road	do. do.	do.	45	do.
32	Plum	Manzanilla	do. do.	do.	35	do.
33	Upper Cunapo	Guaico Tamana Road	do. do.	do.	17	do.
34	Eastern Quarry	Laventille	do. do.	J. de Nobriga	169	do.
35	Cooper	Savana Grande	J. Cooper, Indian Walk	S. Morris	7	Marl.
36	Ellen Grove	do.	A. Ayers, Hindustan Road, Savana Grande	A. Ayers	18	do.
37	Dunmore Hill	1st Company	Ramdin, Aldana Street, Princes Town	Ramdin	6	do.

TRINIDAD AND TOBAGO.

Council Paper No. 85 of 1910.

MINES DEPARTMENT.

Administration Report of the Inspector of Mines
for 1909-10.

*Circulated for the information of Members of the Legislative
Council. To be laid at the next meeting.*

Previous Council Paper No. 67 of 1909.

Registered No. of Correspondence relating to the subject—M.P. No. 4383/1910.

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1910.

MINES DEPARTMENT.

Administration Report of the Inspector of Mines for 1909-10.

Council Paper No. 85 of 1910.

M. P. No. 4383/1910.

1. I have the honour to submit for the information of His Excellency the following report on the work of the Mines department for the financial year 1909-10.

2. Ordinance No. 13 of 1907 having been amended by Ordinance No. 37 of 1909, in December, 1909, the returns under Section 18 have, since that amendment, to be furnished annually for the financial year and for this and other reasons this report is not for the calendar year as formerly. For the period 1st January, to 31st March, 1909, there is nothing special to record.

OFFICIAL DUTIES.

3. On the 1st July, 1909, I and Mr. D. M. Hahn, Engineer, Office and Works, of the Public Works department, were appointed Inspector and Deputy-Inspector of Mines, respectively, and on the 17th June, 1909, Professor J. Cadman, D.Sc., was appointed Expert Adviser. On the 1st April, 1909, Mr. N. Betancourt was appointed 2nd Assistant Inspector of Mines.

4. From the 1st of April to 30th June, Mr. Hahn acted as Inspector of Mines. From 23rd August to 6th December Mr. Hahn again acted in conjunction with his duties as Deputy-Inspector, while I was absent in England in connection with some special duty as Director of Public Works. All Mines' work was performed by me and the Deputy-Inspector of Mines in addition to our duties in the Public Works department.

5. The following was the expenditure:—

Personal Emoluments :

Deputy Inspector of Mines	...	...	£100	0	0	
Second Assistant Inspector	...	...	100	0	0	
Expert Adviser	...	...	78	17	9	
Clerk	...	...	25	0	0	
Messenger	...	...	5	0	0	£308 17 9

Other Charges :

Travelling Expenses	...	...	£ 73	17	1½	
Quarters, La Brea	...	...	Nil.			
Surveys	...	...	49	19	0	
Contingencies	...	...	9	16	8½	£133 12 10
Total	...	...				£442 10 7

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCE, No. 13 OF 1907, AND THE AMENDED ORDINANCE, No. 37 OF 1909.

6. MINES.—Mining work, under a qualified Mining Engineer, was continued by the Trinidad Vista Bella Manjack Company, Limited, at the Vista Bella Mine in the San Fernando district. The Mine was inspected and the provisions of the Ordinances are being complied with. Since the passing of the amended Ordinance the plans showing the location of the Mine and the workings were regularly produced under Section 16. No accidents of any nature were reported.

7. No necessity arose for the appointment of a Board under Section 8.

8. BORINGS.—Borings for oil were continued by the New Trinidad Lake Asphalt Company Limited, on their property at La Brea, and by the Trinidad Oilfields, Limited, (formerly the Trinidad Petroleum Company, Limited) under their lease at Guapo.

9. Operations at La Brea have been satisfactory. Apart from the actual borings several small settling pits: a covered one of some 800,000 gallons capacity; two large modern iron storage tanks, each of a capacity of 64,000 barrels; quarters for workmen; worksheds, &c., have been provided. The settling and storage tanks have all proper pipe connections and from the storage tanks a 10-inch pipe line has been run to a specially constructed pier from which vessels will shortly be able to load.

10. At Guapo, work was seriously interrupted by the late Manager's illness and unfortunate death. Litigation, too, in regard to the ownership of some lands has also impeded progress. Arrangements to again pursue active operations have been made and it is hoped that work will soon progress satisfactorily.

11. At Guayaguayare actual boring operations were only recommenced late in April, 1910. Active operations, however, were before conducted in other directions. Roads and tramways to open up the lands are being made, highwoods have been cleared, mosquito-proof and comfortable Bungalows have been erected for the European and Canadian employees; an Engineer and skilled drillers are at work; and drilling work is now proceeding.

12. The borings at La Brea and Guapo were regularly inspected and the provisions of the Ordinances and the regulations under them have been followed at both places. As work was started late at Guayaguayare no special necessity arose to inspect the wells there during the period under review. At all the above places, steam boilers are in use and oil from the wells is used as fuel.

13. The monthly abstract from the Logs, under Section 16 (Amended Ordinance), showing the working of the borings, their depths, strata bored through, quantity of oil extracted, and plans showing location of borings, have been regularly received. An aggregate of 5,927 feet of borings were drilled during the year. The total aggregate within recent years over the various oilfields is 17,625 feet. Generally speaking, oil was struck at fairly shallow depths.

14. The number of producing wells at the above places affords interesting proof of the value of the geological reports and the potentialities of the large oil bearing territory in the southern portion of the Island to which they particularly refer. Some of the parts of the region may be said to be practically out of the exploration stage.

15. Some of the most typical analyses made by the Government Analyst and others of oil samples from some of the wells have already been published and they are therefore not specially recorded here. It suffices to say that the qualities of the oils reported on are considered satisfactory in all cases, while some are exceptionally good.

16. An Ordinance (No. 15 of 1910) to facilitate the laying of pipe lines was before the Legislature and at the date of writing it is law.

17. QUARRIES.—The quarries worked during the year both by the Government and by private parties are given in Appendix B. Those in and near Port-of-Spain were inspected at least once monthly, and practically all those of the out-districts at least once quarterly. In some cases the attention of Managers had to be seriously drawn to the provisions of the Ordinances and to the regulations; but, generally speaking, work now is being conducted satisfactorily.

18. So far there are only four quarries provided with steam engines and the regulations governing steam boilers are being followed—In some cases steps towards this end had to be taken by the Department.

19. No accidents of any nature were reported.

20. Notices of the opening of five new quarries were received.

RETURNS UNDER THE ORDINANCES.

21. Appendix A., compiled from the returns received under Section 18, gives the average daily number of persons employed and the out-put from the various Mines, Borings and Quarries. Most of the returns were only received after inviting special attention to the termination of the period allowed in the Section and as the aggregates are made up from so many different sources they can only be looked upon as approximate. Some managers gave a great deal of unnecessary trouble in connection with the returns and should there be a recurrence next year it will be necessary to enforce the law.

22. A list of the Mines, Borings and Quarries (Appendix B) worked during the year is also attached.

WORK UNDER THE ASPHALT INDUSTRY ORDINANCE, No. 10 OF 1906.

23. No additional land was declared "Asphalt-bearing" under Section 7, and the work was therefore confined, as hitherto, to the digging of the various village lots at La Brea by private owners.

24. Eight lots were excavated under "Notices to Commence," (Section 8), and one under a "Permit," (Section 9).

25. Eight applications for certificates under Section 11 were received from the Sub-Intendant of Crown Lands and six awards under Section 14 were issued. In all cases the parties in difference were heard before arriving at a final decision. The work entailed the taking of 2,390 levels. There are now available for guidance 15,476 levels taken since the passing of the Ordinance. Work on each lot was inspected as necessity demanded and operations have been fairly satisfactorily conducted under the Ordinance by all parties.

26. No difficulty arose in correctly locating the boundaries of the various lots from the plan prepared under Ordinance No. 18 of 1905.

27. The fixed bench marks were checked and found intact.

PROSPECTING LICENSES.

28. At the end of the year we were on the eve of an important industrial awakening—The possibilities of the Southern Oilfields, to which Mr. Cunningham-Craig drew such marked attention in his reports when Government Geologist here, seem only then to have seriously attracted public notice. Towards the end of the year under review there was a rush for prospecting licenses for areas ranging from 50 to 5,000 acres, the total quantity of Crown lands thus applied for amounted by the close of the year to close on 50,000 acres, and has greatly increased since then. Practically the whole of the available Crown lands over and near the Central and Southern Anticlines have been petitioned for and several applications for large areas have also been received for supposed oil-bearing lands in other parts of the Central and Eastern Sections

of the Island. Some of the applicants have, in accordance with the decision of the Executive Council, given reasonable proof of their *bonâ fides* and of their capacity to carry out the terms imposed in the deeds and have been informed that His Excellency is prepared to issue the license prayed for; some applications have been refused: while a large number are still under consideration. When the year under review closed, one license over 500 acres had actually been issued and others were ripe for issue.

29. Licenses to prospect over and leases to work oil lands are governed by the published regulations but it may be of general interest to state briefly the basic conditions under which prospecting licenses have been dealt with up to now:—

Ordinary licenses to prospect under the Crown Lands Regulations are limited to areas of 500 acres, and the conditions attached thereto are the payment of a rental of one shilling per acre per annum, the drilling within two years of three wells to an aggregate depth of 3,000 feet (or in each well a lesser depth than 1,000 feet if satisfactory results are earlier acquired) and the giving a bond of £250 for satisfactory performance, Licensees being allowed to take 10 tons of oil free of royalty and above that quantity to pay a royalty to Government of 2/- per ton, or at the option of the Governor a royalty in kind at the rate of ten per cent. The cost of the survey of the land to be borne by the Licensee. The Government has decided that prospectors may in an application amalgamate their prospective licenses to cover blocks of up to 2,500 acres so as to save in the cost of survey. It has been further decided that in cases where an applicant or a syndicate is capable of giving satisfactory assurances of immediate ability to exploit the Government will give "Special" licenses to prospect in single areas of between 500 acres and 2,500 acres. The terms of these special licenses are as under:—

Area.	No. of Wells.	Aggregate depth.	Amount of Bond.	Oil allowed free of Royalty.	Royalty per ton.	Rent.
Above 500 acres and not above 1,500 acres	5	5,000 feet	£400	15 tons	2/- or ten % in kind	1/- per acre per annum
Above 1,500 acres and not above 2,500 acres	7	7,000 feet	£550	20 tons	do.	Do.

The Government will not grant more than one special license to any single person or syndicate nor will it grant licenses to prospect over an area totalling in excess of 5,000 acres except after very searching enquiries into the standing and ability of the prospective licensees at the date of writing however the receipt of applications has been stopped. When they are again to be received it will probably be on somewhat different lines.

Owners of lands sold out by Government but over which it still has mineral rights have up to a published date the first claim to prospecting licenses thereon provided they are able to give satisfactory proof of ability.

30. The possibility of meeting with Ozokerite in commercial quantities has been brought to the notice of the Department and the importance of the matter is borne in mind.

CONCLUSION.

31. In conclusion it gives me pleasure to say that from nearly all sides ready information and assistance were given to the department to carry out its work under the Ordinances.

32. Save in the matter of enquiry into the applications for licenses to prospect for oil practically all the detailed work of the department has fallen on the Deputy-Inspector, Mr. Hahn, to whose industry, tact and ability I am glad to bear tribute. He reports that the Second Assistant Inspector of Mines and the Clerk performed their duties satisfactorily.

33. Owing to the development of the work of the department it will be necessary shortly to increase the staff to provide proper supervision in the oilfields and in regard to this I will write specially.

ARCHIBALD G. BELL,
Inspector of Mines.

APPENDIX A.

Daily average number of Persons employed and quantity and value of minerals obtained from Mines, Borings and Quarries during the financial year ended 31st March, 1910.

Mineral.	Daily average number of Persons employed.		Total.	Quantity.	Approx. value.
	Males.	Females.			
Manjak	47	3	50	2,395 Tons	£ 4,989 11 8
Oil	107	...	107	*	*
Asphalt. (Crude, Epure, &c.) ...	517	25	542	141,924 Tons	£ 86,928 9 0
Private Quarries—(Limestone, Gravel, &c.)	106	38	144	42,510½ yds	£ 1,841 13 7
Government Quarries—(Limestone, &c.)	337	86	423	52,156½ „	£ 7,248 6 11

* Output and value not given as no correct aggregate can be compiled for the period.

APPENDIX B.—List of Mines, Borings and Quarries worked during the financial year 1909-10.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
<i>Mines.</i>						
1	Vista Bella ... ..	.. Naparima	.. The Trinidad Vista Bella Manjak Company, Limited, Port-of-Spain	J. C. T. Raspas	50	Manjak.
2	Pitch Lake ... ..	.. La Brea	.. The New Trinidad Lake Asphalt Company, Limited, London, England	W. G. Fraser	277	Asphalt.
3	Do. ... ..	.. Do.	.. Charles F. Stollmeyer, Port-of-Spain	C. Phelps	138	do.
4	Do. ... ..	.. Do.	.. L. F. Ambard and A. Protheroe, Port-of-Spain	R. FitzAllen	127	do.
<i>Borings.</i>						
1	Oil wells ... ..	.. Brighton	.. The New Trinidad Lake Asphalt Company, Limited, London, England	W. G. Fraser	52	Oil.
2	Do. ... ..	.. Guapo	.. The Trinidad Oil Fields, Limited, London, England	H. P. Ingram	4	do.
3	Do. ... ..	.. Guayaguayare	.. The General Petroleum Properties of Trinidad, Limited, London, England	H. A. Huggins	51	do.
<i>Quarries.</i>						
1	Champs Flours ... ..	.. St. Joseph	.. F. J. Gransaul, St. Joseph	E. Barnswell	12	Limestone.
2	Duke Street ... ..	.. Duke Street	.. B. Sorzano, 47, Frederick Street	Charles Prime	14	do.
3	Gloster Lodge ... ..	.. Gloster Lodge Road	.. Feddy Gonzalves, Gloster Lodge Road	Nathaniel Waterman	9	do.
4	Town Board ... ..	.. Quarry Street	.. The Port-of-Spain Town Board	Town Engineer	8	do.
5	Villaman ... ..	.. Gasparce	.. F. Herrera, 49, South Quay	Peter Charles	10	do.
6	Usine ... ..	.. San Fernando	.. The New Colonial Company, England	H. I. Cox	10	Gravel.
7	La Conlée ... ..	.. Do.	.. Heirs of Mary Joachin, San Fernando	Abraham Pitt	2	do.
8	Glendale ... ..	.. Do.	.. R. H. McClean, San Fernando	H. R. McLean	5	do.
9	Pickering ... ..	.. Do.	.. A. W. Harewood and P. P. Pickering, San Fernando	P. P. Pickering	2	do.
10	Basilon ... ..	.. Basilon Street	.. John T. Gittens, Tragarette Road, Port-of-Spain	William Gittens	26	Limestone.
11	Quarry Street ... ..	.. Quarry Street	.. Heirs of Sorzano	Do.	19	do.
12	Queen Street ... ..	.. Queen Street	.. The United Brothers	J. T. Gittens	4	do.
13	St. John ... ..	.. St. John Street	.. Heirs of Sorzano	William Gittens	9	do.
14	Campo Street ... ..	.. St. Juan	.. J. T. Gittens, Tragarete Road	John Anderson	5	do.

APPENDIX B.—List of Mines, Borings and Quarries worked during the financial year 1909-10.—CONTINUED.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
15	Circular Road	San Fernando	Borough Council, San Fernando	J. J. Waddell	3	Gravel and Stone.
16	Gasparce	Gasparce	J. T. Gittens	J. T. Gittens	6	Limestone
17	Bicho	Camapo Southern Road	The Trinidad Government	District Officer	20	do.
18	Tamaná	Guaico-Tamana Road	do. do.	do.	12	do.
19	Plum	Plum Road	do. do.	do.	15	do.
20	River Estate	Diego Martin	do. do.	do.	16	do.
21	Cutueaparo	Santa Cruz	do. do.	do.	10	do.
22	Providence	Tebago	do. do.	do.	4	Dead Rock.
23	Eastern	Laventille	do. do.	John De Nobriga	96	Limestone.
24	Mochel Poorie	Talparo Road	do. do.	District Officer	25	do.
25	Sanhelmu	Tamana Road	do. do.	do.	3	do.
26	El Cupan	Do.	do. do.	do.	40	Sandstone.
27	Carvera	Carvera Island	do. do.	The Supr. of Prisons	60	Limestone.
28	Prisoners'	Laventille	do. do.	do.	36	do.
29	Siparia	San Fernando-Siparia-Erin Road	do. do.	District Officer	24	do.
30	Guaracara	Guaracara-Tabaquite Road	do. do.	do.	9	do.
31	Morne Roche	Bonne Aventure Road	do. do.	do.	11	do.
32	Rock Hill	Moruga Road	do. do.	do.	12	do.
33	Atagual	Guaracara-Tabaquite Road	do. do.	do.	3	do.
34	Tabaquite-Nariva	Tabaquite-Nariva Road	do. do.	do.	8	do.
35	Brasso	Brasso Caparo Station Road	do. do.	do.	6	do.
36	Mayo	Mayo Village	do. do.	do.	6	do.
37	Monichal	Williamsville	do. do.	do.	7	do.

37. No return was received for the La Resource Quarry.

TRINIDAD AND TOBAGO.

Council Paper No. 142 of 1911.

MINES.

Administration Report of the Inspector of Mines for
the year 1910-11.

*Laid before the Legislative Council on the
6th November, 1911.*

Previous Council Paper No.

Registered No. of Correspondence relating to the subject—M.P. No. 6551/1911.

PRINTED AT THE GOVERNMENT PRINTING OFFICE, PORT-OF-SPAIN.

1911.

MINES.

Administration Report of the Inspector of Mines for the year 1910-11.

Council Paper No. 143 of 1911.

M.P. No. 6551/1911.

1. I have the honour to submit for the information of His Excellency the Governor the following report on the work of the Mines Department for the Financial Year 1910-11.

OFFICIAL DUTIES.

2. As before, all the Mines' Work was performed by me and Mr. D. M. Hahn as Inspector and Deputy Inspector of Mines respectively, in addition to our duties in the Public Works Department.

In October, 1910, Mr. N. Betancourt was appointed, temporarily, as First Assistant Inspector of Mines. Professor J. Cadman, D.Sc. Expert Adviser of the Department, left England to visit the Colony on the 5th of July, and returned to England on the 5th of September, 1910. During his stay he inspected many of the Oilfields and the Asphalt Lake at La Brea, and from time to time, during his stay and after, gave valuable advice on many important matters.

The following was the expenditure :—

Personal Emoluments :

Inspector of Mines	...	...	...
Deputy Inspector of Mines	...	...	...
Assistant Inspectors	...	...	...	£189 2 3
Expert Adviser	...	...	...	100 0 0
Clerk and Assistant Clerk	...	...	...	71 1 11
Messenger	...	...	...	4 17 0

Other Charges :

				£365 1 2
Travelling Expenses	...	...	...	96 11 11½
Surveys	...	...	...	39 1 10½
Contingencies	...	...	...	54 19 6
Salary and expenses in connection with Expert Adviser's visit	...	...	...	100 0 0
Total	...	...	...	£655 14 6

WORK UNDER THE MINES BORINGS AND QUARRIES ORDINANCES No. 13 OF 1907, AND THE AMENDED ORDINANCE No. 37 OF 1909.

4. MINES.—The Trinidad Vistabella Manjak Co., Ltd., continued operations at the Vistabella Mine in the San Fernando district during the year. The work was conducted under the supervision of the manager, Mr. J. C. T. Raspass, M.I.M.E. During the year a new seam of Manjak was located and shafts were sunk to test it.

5. Notice under Sub-section 3 of Section 20 of Ordinance No. 13 of 1907 was received in connection with the Marabella Manjak Mine, but nothing of immediate importance was done. Mr. Raspass was appointed manager under Section 4 of the Ordinance.

6. The plans under Ordinance No. 37 of 1909 were regularly received each quarter.

7. Both mines were inspected on different occasions and it was found that the provisions of the Ordinances were being followed. No accidents of any nature were reported.

8. So far no necessity has arisen for the appointment of a Board under Section 8 of Ordinance No. 13 of 1907.

9. BORINGS.—The General Petroleum Properties of Trinidad, Limited, continued operations on their Private Lands and to some extent on Crown Lands at Guayaguayare. In addition to the roads, tramways, and bungalows, referred to in my last administration report, several important additional works for the accommodation of their staff, skilled drillers, &c., were completed. Interim reports on the work at Guayaguayare were submitted during the year.

10. The Trinidad Lake Petroleum Company, Limited, carried on operation on their private lands at Brighton with satisfactory results. In addition to the storage tanks, quarters for workmen, workshops, settling pits, &c., referred to in my last Administration Report, a number of additional large storage tanks were erected. A large building for the staff, several bungalows for employees, lumber shed, barracks for labourers and their families, quarters for timekeepers, houses for electric plant, stables, and a number of other works were completed. Drilling operations were actively carried on. The pipe line and pier mentioned in my last Administration Report were completed, and a number of tank vessels have already loaded crude oil at the pier. An oil refinery capable of dealing with some 5,000 barrels of crude oil daily was completed. In addition to the foregoing, the following works were practically completed or nearing completion :—

Asphalt roads, electric power plant, electric pumps, telephone system, ice plant and storage reservoir for fresh water. In this case also interim reports were submitted giving details of the various works.

11. At Guapo the Trinidad Oilfields, Limited, continued operations on their private lands. No actual borings were made on the Crown Lands under their lease; but a light railway of some 2½ miles in length leading from a 230 feet pier with a depth of some 6 feet at low tide into the Crown Lands was practically completed. Bungalows for the staff, barracks for the labourers, sheds, workshops, machinery sheds, &c., were completed, and steel storage tanks were about to be erected. Oil gushes were obtained from two of the wells during boring operations.

12. The Trinidad Petroleum Options, Limited, commenced boring at Palo Seco in May. Bungalows and barracks were erected for the accommodation of the manager, drillers and workmen. Boring operations were at the close of the year being actively pursued and an application for a mining lease is under consideration.

13. The Guapo (Trinidad) Oilfields, Limited, started boring on their private lands in January last. Bungalows and barracks for staff and workmen, workshops, sheds, and a large sump were completed. Suitable roads were provided. Drilling operations are continuing.

14. The Trinidad Western Oilfields, Limited, commenced boring on their private lands at Siparia in February last. Borings were in progress when the year closed but have since been suspended.

15. The Trinidad Cedros Oil Company, Limited, started actual boring on their private lands at Cedros in January last and work is continuing.

16. Mr. C. C. Stollmeyer also commenced boring in January last on his private lands, Peseverence Estate, in the wards of La Brea and Guapo, and work is in progress.

17. During the year 22 wells were in progress at the above-mentioned places and an aggregate depth of 15,347 feet was drilled.

18. The Monthly Abstract from the Logs under Boring Regulation No. 16, showing the working of the borings, their depths, strata bored through, and quantity of oil extracted, and the plans showing the location of each boring under Ordinance No. 37 of 1909, have been fairly regularly received.

19. The total aggregate boring over the various Oilfields from the commencement of Prospecting work to the end of the year is 32,972 feet; and the total number of wells 44.

20. During the year 13 wells proved to be fair producers and drilling operations continue to afford proof of the potentialities of the Southern oil-bearing portion of the Island.

21. The Oilfields were inspected as occasion demanded and the provisions of the Ordinances are being followed.

22. No accidents of any serious nature were reported.

23. Oil from the wells is used as fuel in connection with all the boilers at the various Oilfields.

24. PROSPECTING LICENSES.—The rush for licenses to prospect for oil, referred to in my last Annual Report, continued during the year. A large number of applications were received and fifty nine, involving an area of 92,507 acres, were approved.

Sixty-three licenses, covering an area of 84,386 acres were issued. Companies and Syndicates have been and are being formed to work most of these licenses and the matters generally, as they arose, were given attention.

In view of the large number of applications for licenses and the licenses actually issued it was found necessary to cease receiving further applications for the present and the public notice to the effect was given in the *Royal Gazette* dated 9th June, 1910. Questions concerning licenses on lands sold since 1902 and on which the Crown has reserved mineral rights were considered and reported on.

25. QUARRIES.—Appendix B shows the Mines, Borings and Quarries worked both by the Government and private enterprise. The quarries in Port-of-Spain and its vicinity were again inspected practically monthly, and those in the out districts about once quarterly. Work generally is being carried on in accordance with the provisions of Ordinance No. 13 of 1907.

26. Under Sub-section 1 of Section 20 of Ordinance No. 13 of 1907 fifteen notices of the commencement of work were received. The usual notices of discontinuance and recommencement were fairly regularly received. Every care is taken to see that the law is correctly followed by the managers.

27.—Five quarries are provided with steam boilers and the regulations governing them were followed by all.

28. Two minor injuries were reported, one of which was caused by the disregard of regulations and instructions by the workmen concerned, the other was purely accidental.

RETURNS UNDER THE ORDINANCES.

29. Appendix A., compiled from returns received under Section 18 of Ordinance No. 13 of 1907, shows the number of persons employed daily and the output from the various mines, borings and quarries. The aggregate is made up from the returns supplied by a number of different

managers and must be looked upon as approximate only. It is difficult for the managers of some of the quarries to keep accurate records. Once again the Department has had a great deal of difficulty in getting some of the managers to comply with the section.

WORK UNDER THE ASPHALT INDUSTRY ORDINANCE No. 10 OF 1906

30. Digging operations were confined, as hitherto, to the different village lots at La Brea. No additional land was declared "Asphalt Bearing" under Section 7.

31. Under "Notices to Commence" (Section 8) seven lots were excavated, and in connection with them 2,069 levels were taken. This brings the total number of levels since the introduction of the Ordinance to 17,545.

32. No application for a "Permit" under Section 9 was received.

33. Six applications for "Certificates" under Section 11 were received from the Sub-Intendant of Crown Lands and two from the General Agent of the New Trinidad Lake Asphalt Company, Limited, and in all cases "Awards" under Section 14 were issued.

34. No difficulty arose in correctly locating the boundaries of the lots from the plans prepared under Ordinance 18 of 1905.

35. The provisions of the Ordinance do not for the present apply to the area of the Pitch Lake under lease to the New Trinidad Lake Asphalt Company, Limited.

IRON ORE.

36. Samples of iron ore from the Maracas and Santa Cruz Wards were brought to the notice of the Department. Mr. Cunningham Craig, late Government Geologist, in his report on the metamorphic rocks of Trinidad, Council Paper 76 of 1907, refers to the occurrence of the ore in the Northern Range somewhat in detail. The ore from Maracas was analysed by the Government Analyst and the following results obtained:—

			<i>Large Sample.</i>		<i>Small Sample.</i>
Specific gravity ...	...	...	4.61	...	4.81
			(1)		
Ferroso-ferric oxide ...	...	...	92.41		(2)
Ferric oxide ...	...	...	...	...	92.17
Aluminum oxide and phosphorus pentoxide			1.00	...	1.13
			(3)		
"Silica" ...	...	...	4.97	...	6.00
Not determined ...	...	...	1.62	...	.70
			100.0		100.0

(1) = 66.92 per cent. of iron.

(2) = 64.52 per cent. of iron.

(3) contains titanium.

37. A sample from the Ward of Santa Cruz on analysis gave an even higher percentage of iron oxide; viz. 96.86 of magnetic oxide = 70.14 per cent. of iron.

38. Whether there is any likelihood of the ore being found in paying quantities is a matter for consideration. In addition to the percentage of iron, the presence of titanium is a matter of importance. Attention is being given to the subject.

CONCLUSION.

39. It again gives me pleasure to say that, save in a few cases, ready information and assistance were given to the Department to carry out its duties under the various Ordinances, Licenses and Leases.

40. The work of the Officers of the Department was satisfactory and they all rendered me loyal assistance.

41. The work of the Department has developed fairly rapidly in many directions and the increase to the staff referred to in my last report has at date of writing been settled.

ARCHIBALD G. BELL,
Inspector of Mines.

APPENDIX A.

Daily average number of persons employed and quantity and value of minerals obtained from Mines, Borings and Quarries during the financial year ended 31st March, 1911.

Mineral.	Daily average number of persons employed.		Total.	Quantity.	Approximate value.
	Males.	Females.			
Manjak ...	55	8	63	1,910 tons	£ 3,979 3 4
Oil ...	488	20	508	4,378,942 imp. gals.	18,069 18 2
Asphalt (Crude, Epuré, &c.) ...	546	24	570	138,244 tons	81,311 9 9
Limestone, Gravel, &c. (Private Quarries)	86	60	146	67,816 "	1,801 14 1½
Limestone, &c. (Government Quarries)	308	122	430	65,204 "	7,608 14 5½

APPENDIX B.—List of Mines, Borings and Quarries worked during the Financial year 1910-11.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
<i>Mines.</i>						
1	Vista Bella	San Fernando	Trinidad Vista Bella Manjak Company, Limited	J. C. T. Raspass	55	Manjak.
2	Marabella	"	Marabella Manjak Company, Port-of-Spain	"	8	"
3	Pitch Lake	La Brea	Ambard & Protheroe, Port-of-Spain	R. Fitzallen	145	Asphalt.
4	Do.	"	New Trinidad Lake Asphalt Co., Ltd., London, England	L. J. Proctor	425	"
<i>Borings.</i>						
1	Oil Wells	Guayaguayare	General Petroleum Properties of Trinidad, Ltd., Port-of-Spain	J. H. Wallen	159	Oil.
2	Do.	Pointe Fortin	Trinidad Oilfields, Limited, Pointe Fortin	H. P. Ingram	116	"
3	Perseverance Estate	Guapo	C. C. Stollmeyer, Port-of-Spain	C. P. Griffith	6	"
4	Oil Wells	Palo Seco	Trinidad Petroleum Options, Ltd., 62, London Wall, E.C.	Alex. Covey	32	"
5	Do.	Cedros	Trinidad Cedros oil Company, Limited	J. D. Davis	40	"
6	Do.	Pointe Ligoure	Guapo (Trinidad) Oil Company, Limited	C. W. Davson	84	"
7	Do.	Siparia	Trinidad Western Oilfields, Limited, Wilsons (G & T) Limited, Port-of-Spain	Geo. Thom	11	"
8	Do.	Brighton	Trinidad Lake Petroleum Company, Limited, Brighton	Arthur Knapp	60	"
<i>Quarries.</i>						
1	Champ Fleurs	Champ Fleurs	F. J. Gransaul, St. Joseph	L. Brown	1	Limestone.
2	Campo street	St. Juan	J. T. Gittens	"	5	"
3	River Estate	Diego Martin	Trinidad Government	District Officer	6	"
4	Cutucupano	Santa Cruz	"	"	5	"
5	Carrera	Carrera Island	"	Supt. of Prisons	73	"
6	Villamar	Gasparec	F. Herrera	Peter Charles	5	"
7	Gasparee	Gasparee Island	J. T. Gittens	Joseph Gittens	5	"
8	Brasso	Brasso	Trinidad Government	District Officer	7	"
9	Nariva	Tabaquite	"	"	8	"
10	Atagual	"	"	"	4	"
11	Plum	Plum	"	"	13	"
12	Tamana	Tamana	"	"	10	"
13	Morichal	Morichal	"	"	4	"
14	Mayo	Mayo	"	"	13	"
15	Mochel Poorie	Talparo	"	"	10	"
16	Sanehuchu	Tamaua	"	"	4	"
17	Glendale	San Fernando	H. R. McClean	H. R. McClean	8	Gravel.
18	Circular road	"	Borough Council, San Fernando	J. J. Waddell	6	"
19	Usine	"	New Colonial Company	H. T. Cox	12	"
20	La Coulée	"	Heirs of Mary Joaquin, Coffee street, San Fernando	A. Pitt	2	"
21	Pickering	"	W. Harewood	P. P. Pickering	1	"
24	Siparia	Siparia	Trinidad Government	District Officer	31	Limestone.
25	Rock River	Moruga	"	"	9	Sandstone.
26	Biche	Biche	"	"	19	Limestone.

APPENDIX B.—List of Mines, Borings and Quarries worked during the Financial Year 1910-11.—CONTINUED

No.	Name.	Situation	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
30	Whim and Providence	... Tobago	... Trinidad Government ...	... District Officer ...	3 & 4	Dead Rock.
31	Morne Roche	... Bonne Aventure	... " " ...	... " ...	20	Limestone.
32	La Pique	... San Fernando	... Canadian Mission ...	... Rev. J. A. Seringour..	1	Gravel.
33	Bronos Ayres	... Erin	... Trinidad Government ...	... District Officer ...	7	Limestone.
34	Railway	... Champ Fleurs	... Trinidad Government Railway ...	... J. W. Stewart ...	18	"
36	Cumuto	... Cumuto	... Trinidad Government ...	... District Officer ...	12	"
37	Moruga	... Moruga	... " " ...	... " ...	15	Sandstone.
38	El Cupan	... Tamana	... " " ...	... " ...	7	Limestone.
43	Santa Maria	... Santa Cruz	... J. P. Bernard ...	... S. Barnswell ...	6	"
45	Morne Diabie	...	... Trinidad Government ...	... District Officer ...	25	"
A	Basilon street	... Basilon street	... J. T. Gittens ...	... J. Lashley ...	26	"
C	David street	... Gloster Lodge	... " ...	... " ...	7	"
D	Quarry street	...	... " ...	... " ...	19	"
E	St. John	...	... " ...	... " ...	9	"
F	Gloster Lodge	... Gloster Lodge	... F. Gonzales ...	... N. Waterman ...	7	"
G	Duke street	... Port-of-Spain	... F. Sorzano ...	... C. Prime ...	7	"
H	Queen street	... ..	... J. T. Gittens ...	... J. Lashley ...	4	"
I	Prisoners'	... Laventille	... Trinidad Government ...	... Supt. of Prisons ...	17	"
J	Clifton Hill	... ..	... J. W. McCarthy ...	... J. T. Gittens ...	4	"
K	Eastern	... ..	... Trinidad Government ...	... J. deNobriga ...	86	"
N	St. Joseph road	... ..	... J. W. McCarthy ...	... J. T. Gittens ...	5	"
P	Smart ...	... ..	... Albertina Smart ...	... Sonny Daniel ...	6	"

N.B. Reference letters extend to U. Numbers or reference letters left out denote quarries not worked during the year

TRINIDAD AND TOBAGO.

Council Paper No. 100 of 1912.

MINES DEPARTMENT.

Administration Report of the Inspector of Mines
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1912

MINES DEPARTMENT.

Administration report of the Inspector of Mines for 1911-12.

Council Paper No. 100 of 1912.

M.P. No. 5039/12.

HON. COLONIAL SECRETARY.

I have the honour to submit, for the information of His Excellency the Governor, the following report on the work of the Mines Department for the financial year 1911-1912.

OFFICIAL DUTIES.

2. I and Mr. D. M. Hahn have carried out our duties as Inspector and Deputy Inspector of Mines, respectively, in addition to our work in the Public Works Department.

On July 18th Mr. A. P. Catherall, B. Sc., arrived in the Colony and took up his appointment as 1st Assistant Inspector and from that date Mr. Betancourt resumed his substantive appointment as 2nd Assistant Inspector.

LEAVE AND ACTING APPOINTMENTS.

3. I was on leave of absence from the Colony from 2nd May to 25th September and Mr. Hahn from 21st August to 6th December. I was again on leave owing to ill health from 1st February to 6th April.

Mr. Hahn acted as Inspector of Mines from 2nd May to 21st August and from 1st February to 6th April. Mr. Catherall acted as Inspector of Mines from 22nd August to 25th September, and as Deputy Inspector from 26th September to 6th December. Mr. Betancourt acted as 1st Assistant Inspector from 22nd August to 25th September.

4. The following was the Expenditure :—

Personal Emoluments :—

Inspector of Mines							
Deputy Inspector							
Assistant Inspectors	...	...	...	...	£535	2	5
Expert Adviser	...	...	...	...	100	0	0
Clerical Assistance	...	...	...	...	100	0	0
Messenger	...	...	...	...	5	0	0
					£740	2	5

Other Charges :—

Travelling Expenses	...	...	...	...	161	9	9
Surveys	...	...	...	...	60	12	5½
Contingencies	...	...	...	...	34	19	7
					£997	4	2½

LEGISLATION.

5. The Pipe Lines Ordinance, No. 19 of 1911, was passed on the 12th June, and the Oil Mining and Refining Ordinance, No. 25 of 1911, on the 29th August.

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCES.

6. MANJAK.—Work was continued by the Trinidad Vistabella Manjak Company Limited, at the Vistabella Mine, San Fernando, under the supervision of Mr. J. C. T. Raspass, M.I.M.E.

7. A new mine near Williamsville was opened during the year; two shafts were sunk and development operations are in progress under the supervision of Mr. Raspass. Manjak was located and is now being exported.

8. No accidents were reported; and the work was carried on to the satisfaction of the department.

9. PETROLEUM.—Taken generally the progress of the petroleum industry has not been satisfactory during the year. This was due to the under capitalisation of several companies operating in the island and to other causes over which the Government had no control. I am glad, however, to think that the prospects are more promising now.

10. The General Petroleum Properties of Trinidad, Limited, continued boring on both Crown and Private lands at Guayaguayare, and on Private lands at Aripere. No great amount of work was done at either place and operations were suspended at both in December last.

11. The Trinidad Lake Petroleum Company have considerably extended operations on their Private lands at Brighton. Several cargoes of oil have been shipped and development operations are proceeding.

Apart from the fact that the houses have been removed from the pier and erected on shore no very great amount of actual constructional work has been done.

12. At Point Fortin the Trinidad Oilfields, Limited, have continued drilling operations on their Private lands. They also made a beginning to open up the Crown lands under their lease with fairly successful oil indications. In addition to drilling work the Company have carried out a considerable amount of constructional work in the field, including several large storage tanks with necessary pumping stations. They have also extended the light railway and increased the accommodation for the staff.

13. The Trinidad Petroleum Options, Limited, did little work on the lands held by them under prospecting license at Palo Seco. Operations were suspended early in the year pending settlement of the Mining Lease for which they applied.

14. The Trinidad Western Oilfields, Limited, continued boring on the lands held by them under prospecting license during the early part of the year and later closed operations entirely.

15. The Trinidad Cedros Oil Company, Limited, continued operations during the year; but, apart from boring, little work was done in the field.

16. The Guapo (Trinidad) Oil Company continued drilling operations on their Private lands. The chief work, apart from drilling, done during the year was the construction of storage arrangements.

17. Mr. C. C. Stollmeyer has actively continued work on his "Perseverance Estate" at Guapo and at the end of the year several wells were in progress.

18. The Trinidad Central Oilfields, Limited, commenced boring near Tabaquite on lands held by them under prospecting license. Oil was obtained and towards the close of the year they erected a small refinery for experimental purposes.

19. During the year, the following companies commenced drilling on Private lands :—

The South Naparima (Trinidad) Oil Company at Barrackpore ;

The Tobago Oil Syndicate, Limited, in Tobago and the Consolidated Oilfields of Trinidad, Limited, at Russillac near La Brea.

20. The number of additional wells during the year was 46. This brings the total number to 90. The aggregate depth drilled was 40,418 feet.

21. During the year, 8,786,871 Imperial Gallons of oil, valued at £57,475, were exported from the colony.

22. The monthly log abstracts of the wells and of the oil won and the manner in which it was disposed of have been received and filed with the records in the office.

23. The oilfields have been inspected regularly and in most cases the Ordinances have been satisfactorily followed.

24. Natural gas is used in one or two fields to fire the boilers and in most of the others oil from the wells was employed.

25. PROSPECTING LICENSES.—I mentioned in my last report that it was found necessary to cease receiving further applications for prospecting licenses for the time being. No change in this respect was made during the year. There are still several prospecting licenses under consideration and during the year seven covering an area of 9,367 acres were issued. Two exploration licenses covering an area of 61,922 acres were also issued.

26. OTHER MINING OPERATIONS.—Applications were received for the following :—

(a.) Two licenses to prospect for lignite.

(b.) An exploration license for gold and silver.

The latter was issued and the two former approved.

27. In my last report mention was made of Iron Ore which existed in the Maracas and Santa Cruz Wards. A detailed examination of the districts was made and at date of writing a report had been submitted.

28. QUARRIES.—The majority of the quarries in the towns of Port-of-Spain and San Fernando are worked by private enterprise, the others outside being chiefly Government quarries. On the whole the provisions of the Ordinances have been satisfactorily followed by the Managers of the various quarries; though in some of the smaller ones the men in charge are illiterate and seem to find much difficulty in understanding the Ordinance.

29. The quarries in Port-of-Spain were inspected as a rule about once monthly; those in the out-districts were only visited as occasion demanded.

30. Four quarries are provided with steam boilers to drive stone crushing machinery and the regulations governing them were followed by all.

31. Under Section 19 of Ordinance No. 13 of 1907 notice was received of accidents which resulted in the death of 4 persons.

RETURNS UNDER THE ORDINANCES.

32. Appendix A is compiled from returns received under Section 18 of Ordinance No. 13 of 1907, and shews the number of persons employed daily and the output from the various mines oilfields and quarries. In the case of two oilfields figures are not available as the responsible Managers had left the colony before the end of the financial year. Some of the Managers seem to have difficulty in keeping the records required by law and as the totals are compiled from quite a number of returns they must be looked upon as approximate only.

33. In appendix B will be found a tabulated list of accidents which have occurred at the various quarries and oilfields, during the past year.

WORK UNDER THE ASPHALT INDUSTRY ORDINANCE No. 10 of 1906.

34. No additional land was declared "Asphalt Bearing" under Section 7. Work was therefore confined to the various lots in the village of La Brea, by private owners as heretofore.

35. Thirteen lots were excavated under "Notice to Commence." These necessitated the taking of 2,612 levels. The total number taken since the introduction of the Ordinance is 20,157.

36. No application for a "Permit" under Section 9 was made.

37. Eight applications for Certificates of award were received from the Sub-Intendant of Crown Lands and one from the New Trinidad Lake Asphalt Company, Limited. In connection with seven, awards were issued.

CONCLUSION.

38. I wish to express my thanks to the various Managers who in most cases have willingly given every assistance possible to allow the Department to carry out its various duties.

ARCHIBALD G. BELL,

Inspector of Mines.

MINES DEPARTMENT,
19th July, 1912.

APPENDIX A.

Daily average number of persons employed and quantity and value of minerals obtained from Mines, Borings and Quarries during the financial year ended 31st March, 1912.

Mineral.	Daily average number of persons employed.		Total.	Quantity.	Approximate value.
	Males.	Females.			
Manjak	92	12	104	1,570 tons	£ 3,345 0 0
Oil	1,208	..	1,208	9,985,748 imp. gals.	39,665 8 4½
Asphalt (Crude, Epuree, etc.)	882	18	900	184,753 tons	93,772 1 0½
Private Quarries (Limestone, Gravel, etc.)	198	84	282	60,885 ,,	3,532 0 9¼
Government Quarries (Limestone, etc.)...	465	84	549	61,122 ,,	7,794 16 1

NOTE.—The difference in value between metal won from Private Quarries and Government Quarries is that the former consist of both Limestone and Gravel whilst the latter is chiefly Limestone.

APPENDIX B.

List of accidents which occurred at Mines, Borings and Quarries, during the Financial year 1911-1912 reported under Section 19 of Ordinance No. 13 of 1907.

Name or Number of Mine, Boring or Quarry.	Date 1911.	NUMBER OF ACCIDENTS REPORTED.			
		Minor.	Serious.	Fatal.	Total.
Quinan Government Quarry	May, 17th	1	..	1	2
Trinidad Oilfields, Limited	June, 9th	..	1	..	1
La Brea Asphalt Works	July, 18th	1	..	1	2
Basilon Street Quarry	September, 6th	..	1	..	1
Usine Quarry	September, 23rd	2	..	1	3
La Brea Asphalt Works	September, 23rd	..	1	..	1
La Brea Asphalt Works	March, 1st 1912	..	..	1	1
Total	..	4	3	4	11

APPENDIX C.—List of Mines, Borings and Quarries worked during the Financial year 1911-12.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
<i>Mines.</i>						
1	Vista Bella ...	San Fernando ...	Trinidad Vista Bella Maujak Company, Limited ...	J. C. T. Raspass ...	59	Manjak.
2	Williamsville ...	Williamsville ...	J. C. T. Raspass, San Fernando ...	" ...	54	"
3	Village Lots ...	La Brea ...	Ambard and Protheroe, Port-of-Spain ...	R. Fitzallen ...	167	Asphalt.
4	Pitch Lake ...	" ...	New Trinidad Lake Asphalt Company, Ltd., London, England ...	W. D. Fowler ...	483	"
5	Do. ...	" ...	La Brea Asphalt Works, La Brea ...	C. Phelps ...	250	"
<i>Borings.</i>						
1	Oil Wells ...	Guayaguayare ...	General Petroleum Properties of Trinidad, Limited, Port-of-Spain ...	" ...	103	Oil.
2	Do. ...	Point Fortin ...	Trinidad Oilfields, Limited, Point Fortin ...	T. L. Scott ...	227	"
3	Perseverance Estate ...	Guapo ...	C. C. Stollmeyer, Port-of-Spain ...	E. Pereira ...	12	"
4	Oil Wells ...	Palo Seco ...	Trinidad Petroleum Options, Limited, 62, London Wall, E.C. ...	Alex. Covey ...	5	"
5	Do. ...	Cedros ...	Trinidad Cedros Oil Company, Limited ...	W. Greig ...	24	"
6	Do. ...	Point Ligoure ...	Guapo (Trinidad) Oil Company, Limited ...	G. E. Pousonby ...	90	"
7	Do. ...	Siparia ...	Trinidad Western Oilfields, Limited, c/o Wilsons (G. & T.) Limited, Port-of-Spain.	" ...	8	"
8	Do. ...	Brighton ...	Trinidad Lake Petroleum Company, Limited, Brighton ...	W. D. Fowler ...	686	"
9	Do. ...	Tabaquite ...	Trinidad Central Oilfields, Limited, Tabaquite ...	H. P. Ingram ...	26	"
10	Do. ...	Tobago ...	Tobago Oil Syndicate, Limited, Tobago ...	R. W. Cater ...	15	"
11	Do. ...	Rousillac ...	Consolidated Oilfields of Trinidad, Limited, Rousillac ...	A. M. Scott ...	12	"
<i>Quarries.</i>						
1	Campo street ...	St. Juan ...	J. T. Gittens ...	I. Anderson ...	5	Limestone.
2	River Estate ...	Diego Martin ...	Trinidad Government ...	District Officer ...	6	"
3	Cutucupano ...	Santa Cruz ...	" " ...	" ...	5	"
4	Carrera ...	Carrera Island ...	" " ...	Supt. of Prisons ...	135	"
5	Villamar ...	Gaspatee ...	F. Herrera ...	N. Waterman ...	5	"
6	Nariva ...	Tabaquite ...	Trinidad Government ...	District Officer ...	13	"
7	Atagual ...	" ...	" " ...	" ...	4	"
8	Plum ...	Plum ...	" " ...	" ...	30	"
9	Tamana ...	Tamana ...	" " ...	" ...	16	"
10	Morichal ...	Morichal ...	" " ...	" ...	5	"
11	Mayo ...	Mayo ...	" " ...	" ...	7	"
12	Mochel Poorie ...	Talparo ...	" " ...	" ...	6	"
13	Sanchuchu ...	Tamana ...	" " ...	" ...	2	"
14	Glendale ...	San Fernando ...	H. R. McClean ...	H. R. McClean ...	6	Gravel.
15	Circular Road ...	" " ...	Borough Council, San Fernando ...	J. J. Waddell ...	2	"
16	Usine ...	" " ...	New Colonial Company ...	H. T. Cox ...	12	"
17	La Coulée ...	" " ...	Heirs of Mary Joaquin, Coffee Street, San Fernando ...	F. E. Oliveira ...	2	"
18	Pickering ...	" " ...	W. Harewood and P. P. Pickering ...	P. P. Pickering ...	1	"
19	Siparia ...	Siparia ...	Trinidad Government ...	District Officer ...	32	Limestone.
20	Biche ...	Biche ...	" " ...	" ...	35	"
21	Needham ...	Santa Cruz ...	Joseph Hyde, Santa Cruz ...	R. Williams ...	6	"
22	Pointe-à-Pierre ...	Pointe-à-Pierre ...	J. Glendinning, Port-of-Spain ...	H. R. McClean ...	112	"

APPENDIX C.—List of Mines, Borings and Quarries worked during the Financial year 1911-12.—Continued.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed	Mineral worked.
23	Guaracana ...	Guaracana ...	Trinidad Government ...	District Officer, San Fernando	11	Limestone.
24	Quinam ...	Quinam ...	" " ...	District Officer, Siparia	9	"
25	La Ressource ...	Erin ...	" " ...	" " ...	9	"
26	Whim and Providence	Tobago ...	" " ...	District Officer ...	3 and 4	Dead Rock.
27	Morne Roche ...	Bonne Aventure ...	" " ...	" " ...	10	Limestone.
28	La Pique ...	San Fernando ...	Canadian Mission ...	Rev. J. A. Seringeour	1	Gravel.
29	Railway ...	Champ Fleurs ...	Trinidad Government Railway ...	J. W. Stewart ...	17	Limestone.
30	Cumuto ...	Cumuto ...	Trinidad Government ...	District Officer ...	20	"
31	Moruga ...	Meruga ...	" " ...	" " ...	18	Sandstone.
32	Santa Maria ...	Santa Cruz ...	J. P. Bernard ...	S. Barnswell ...	6	Limestone.
33	Morne Diable ...	...	Trinidad Government ...	District Officer ...	14	"
A	Basilon Street ...	Basilon Street ...	J. T. Gittens ...	J. Lashley ...	40	"
C	David Street ...	Gloster Lodge ...	J. T. Gittens ...	J. T. Gittens ...	10	"
D	Quarry Street ...	...	J. T. Gittens ...	" ...	15	"
E	St. John ...	...	" " ...	J. Lashley ...	9	"
F	Gloster Lodge ...	Gloster Lodge ...	F. Gonzales ...	F. Gonzales ...	7	"
G	Duke street ...	Port-of-Spain ...	F. Sorzano ...	J. R. Lopez ...	9	"
H	Queen street ...	" ...	J. T. Gittens ...	J. Lashley ...	7	"
I	Prisoners' ...	Laventille ...	Trinidad Government ...	Supt. of Prisons ...	17	"
J	Clifton Hill ...	" ...	J. W. McCarthy ...	J. Lashley ...	9	"
K	Eastern ...	" ...	Trinidad Government ...	J. de Nobrega ...	122	"
N	St. Joseph Road ...	" ...	J. W. McCarthy ...	J. Lashley ...	5	"
O	Fort George ...	Fort George Road ...	J. T. Gittens ...	C. Valciant ...	6	"
P	St. Louis ...	Laventille ...	Alonso Richard, Port-of-Spain ...	T. St. Louis ...	6	"

TRINIDAD AND TOBAGO.

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MINES DEPARTMENT.

Administration Report of Inspector of Mines for 1912-1913.

Council Paper No. 103 of 1913.

M.P. No. 5109/1913.

HONOURABLE COLONIAL SECRETARY.

I have the honour to submit, for the information of His Excellency the Governor, the following report on the work of the Mines Department for the year 1912-1913.

OFFICIAL DUTIES.

2. There has been no change in the technical staff of the Department during the year. I and Mr. D. M. Hahn have carried out our duties as Inspector and Deputy Inspector of Mines, respectively, as in previous years, in addition to our work in the Public Works' Department. On the 7th June, 1912, Mr. H. A. Fuller, assistant clerk, was promoted to the post of third clerk in the Public Works Department and Mr. W. H. Clark was appointed in his place. The work and responsibilities of the Department are growing so rapidly that the time is approaching when the constitution of the Department as a whole will call for complete consideration.

LEAVE AND ACTING APPOINTMENTS.

3. On account of ill-health I obtained leave of absence from the Colony from July 24th to August 28th, but while in London my services were retained there by the Secretary of State on important matters connected with the oil industry of the Colony. I returned to the Colony on November 4th. During my absence Mr. D. M. Hahn acted as Inspector of Mines and also performed the duties of his substantive appointment.

Mr. Betancourt, the 2nd Assistant Inspector of Mines, was on leave of absence from the Colony from 2nd to 16th December, 1912, the performance of his duties being provided for departmentally.

4. The following was the expenditure:—

Personal Emoluments:—

Inspector of Mines	...	...	...	...	Nil.
Deputy Inspector	...	...	...	...	Nil.
Assistant Inspectors	...	...	...	£	590 19 7
Expert Adviser	...	...	...	...	100 0 0
Clerical Assistance	...	...	...	...	100 0 0
Messenger	...	...	...	...	5 0 0
				£	795 19 7

Other Charges:—

Travelling Expenses	...	...	...	...	313 10 2
Surveys	...	...	...	...	118 10 6½
Contingencies	...	...	...	...	71 71 1½
				£	1,299 17 5

LEGISLATION.

5. Ordinance No. 33 of 1912, to amend the Oil Mining and Refining Ordinance No. 25 of 1911, was passed on July 16th, 1912. Regulations under Section 8 of the Oil Mining and Refining Ordinance No. 25 of 1911, and Section 3 of the Oil Mining and Refining (Amendment) Ordinance No. 33 of 1912, were made by the Governor in Council and published on 26th August last.

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCES.

6. MANJAK.—Work was continued by the Trinidad Vistabella Manjak Company, Limited, during part of the year at the Vistabella Mine, San Fernando. No great amount of work was, however, done and in December the mine was closed. During the year two additional Manjak Mines were opened at Williamsville, and four shafts were sunk to exploit the mineral. In two of them Manjak in fair commercial quantities was found but in the other two the mineral was not in sufficient quantity to warrant further work and in fact one shaft was actually abandoned. The operations started at Williamsville last year have been continued. The operations at both places were conducted under the supervision of Mr. J. C. T. Raspas, M.I.M.E.

7. All the mines were inspected regularly and work so far as the law is concerned, was carried on to the satisfaction of the Department. No accidents were reported during the year.

8. PETROLEUM.—In my last report I stated that the petroleum industry had not made satisfactory progress during the year then under review. During the past year no great amount of field development work has been done, but that which has been done, and the negotiations with various corporations which have been now carried to a successful issue, will, I think, mark it as the most important, so far, in the history of the oil industry of the Colony. When and if the history of these negotiations come to be written in full, I think it will be gratefully recognized with what minute care and skill difficult and delicate situations have been treated and with what success the negotiations have been steered to a successful termination, and I hope the great services rendered to the Colony by the inter-departmental Committee, which acted for it in London and advised the Secretary of State, will be as fully recognized as they deserve. We are now in the position of knowing that at least three powerful corporations will be soon operating independently in the development of the oil fields of Trinidad, and we shall therefore shortly know what position it is going to take in the oil world.

Taken on the whole, the actual drilling work done by most of the companies cannot be said to have been satisfactory; the majority of them seem not to have had sufficient working capital and, consequently, have not been able to prove properly the oil bearing prospects of the lands upon which they have been working. Yet, though a great amount of drilling has not been done, several of the wells drilled have proved that the oil sands in certain districts hold large quantities of oil and that at no great depths. This has been proved at Guapo and also at the *Union Estate*, Brighton. Wells were drilled at both places into sands containing large quantities of oil with high gas pressure and in both cases the production was large and the wells flowed for several weeks. On cessation of gas pressure the wells continued to give a fair production by pumping and baling.

9. Eleven of the companies reported on in my last annual report carried on drilling operations during the year and four have now closed down. Two new companies started work during the year.

10. The General Petroleum Properties of Trinidad, Limited, did not resume operations either at Aripero or Guayaguayare during the year.

11. The Trinidad Lake Petroleum Company, Limited, have carried out some very important work in the period under review. They have now practically concentrated work on their *Union Estate* at Brighton and have drilled several wells which have given a very large production. In this field a great amount of additional plant in the shape of large boiler stations, pumping stations, pipe-lines, etc., has been provided to deal with the production and to pump the oil won to the large storage tanks at Brighton. Large earthen storage reservoirs have been dug, large dams built, and additional lengths of asphalt roads have been made. Though the company has had a fairly large production shipments have been comparatively small.

12. The Trinidad Oilfields, Limited, at Point Fortin have continued to open up the Crown Lands held by them under lease and they have also continued the drilling operations on their private lands. The chief constructional work, apart from drilling, has been the laying down of large central steam plants, a considerable extension of their light railway, and the laying down of additional pipe-lines.

A considerable amount of drilling has been done on their private lands with fair results. On Crown Lands the indications which I mentioned in my last report have been fulfilled and several successful wells have been drilled. A small experimental refinery was erected during the year and at the time of writing a larger one has been erected and is working.

13. The Trinidad Petroleum Options, Limited, were in negotiation with the Government, during a large part of last year, regarding the issue to them of a mining lease and also the transfer of additional areas under prospecting license. A road was made into these Crown Lands and a bungalow was erected for the accommodation of the staff. A large Galician rig was partially erected but no drilling was done.

14. No work has been done by the Trinidad Western Oilfields, Limited, during the year and the prospecting license, which they held, has now expired.

15. The Trinidad Cedros Oil Company, Limited, continued boring operations during the first part of the year and then closed down. Since then no further work has been done.

16. The Guapo (Trinidad) Oil Company, Limited, during the first half of the year, continued their drilling work; since then little has been done, with the exception of the extraction of a small quantity of oil.

17. During the early part of the year Mr. C. C. Stollmeyer continued prospecting work on his Perseverance Estate at Guapo. In June a well was drilled into an exceedingly prolific oil

sand; this well flowed for nearly two months and a very large quantity of oil was produced; but owing to the lack of storage arrangements a great proportion of this oil flowed down the ravines into the sea and was lost. Since then the work has mainly been in building earthen storage reservoirs and laying of pipe-lines to convey the oil to the shipping place.

18. The Trinidad Central Oilfields, Limited, have continued the development of the lands held by them under prospecting license at Tabaquite. A number of shallow wells have been drilled and in most of them a small production of very high grade petroleum has been obtained. The refinery was worked during the year and the petrol obtained has been sold locally. The chief work, apart from drilling, has been the erection of further accommodation for the staff the provision of a multiple pumping station for the wells, stores and some additional steel storage tanks.

19. The South Naparima (Trinidad) Oil Company, Limited, closed down work at the end of last financial year. During the latter half of this year the Venezuelan Oilfield Exploration Company, Limited, took over their wells and part of the properties belonging to them. This company then continued drilling operations during the rest of the year and have provided steel storage tanks, additional accommodation for the staff, store sheds, etc.

20. The Tobago Oil Syndicate, Limited, continued drilling operations until June and work was then abandoned.

21. The Consolidated Oilfields of Trinidad, Limited, continued work during the greater part of the year and then suspended operations. Apart from drilling little work was done in the field.

22. During the year the Icacos (Trinidad) Development Company, Limited, and the Trinidad Petroleum Developments, Limited, started drilling on Private Lands. Two shallow wells were also drilled with a hand boring machine by a cocoa proprietor at Erin.

23. In all 44 additional wells were drilled during the year and in 29 of them oil was struck. The total number of wells drilled in the Colony to the present is 134,—39 being on Crown Lands. The aggregate depth drilled during the year was 42,552 feet.

24. The monthly log abstracts of the wells drilled, of the oil won, and the manner in which it was disposed of, have been received and filed with the records in the office.

25. Regular inspections of the Oilfields have been made during the year and in most cases the Ordinances have been satisfactorily followed. In one case the Department took proceedings against an oilfield manager for a breach of the law and was successful. In addition to the regular inspections in connection with work under leases and licenses and for the purpose of ascertaining if the Ordinances are being followed numerous special inspections have been made in connection with refineries, dams, roads, etc.

26. PROSPECTING LICENSES.—Most of the licenses under consideration at the time of writing my last report have now been dealt with and there are very few now outstanding. Most of the prospecting licenses expired during the past year. In a number of cases these expired licenses were conditionally included in the schedule of lands to be issued under Exploration License to the United British West Indies Petroleum Syndicate, Limited. One prospecting license covering an area of 1,282 acres was settled during the year and three others covering an area of 6,867 acres were renewed for a further period of two years.

27. EXPLORATION LICENSES.—No further exploration licenses have been issued since writing my last report, but an agreement, published on Council Paper No. 29 of 1913, has been entered into with the United British West Indies Petroleum Syndicate, Limited, with regard to the taking up of an exploration license over large areas of Crown Lands.

In connection with the Exploration Licenses mentioned in my last report geological examinations have been made of the areas, and maps and reports have been submitted to the Government under Section 2 of the licenses.

28. OTHER MINING OPERATIONS.—In my last report I mentioned that 2 applications for licenses to prospect for manjak had been approved. They were, however, not taken up by the applicants. In the case of the exploration license for gold and silver some exploration work has been done and *interim* reports submitted to the Government. So far the search has not proved a promising one.

29. QUARRIES.—The work under this part of the Ordinance has been much the same as in previous years and there is nothing special to report. As in the past only four quarries so far are provided with boilers to drive the machinery.

RETURNS UNDER THE ORDINANCES.

30. Appendix A, compiled from the returns under Section 18 of Ordinance No. 13 of 1907, gives the average daily number of persons employed and the output from the various mines,

APPENDIX C.—List of Mines, Oilfields and Quarries worked during the financial year 1912-13.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral Worked.
<i>Mines.</i>						
1	Vista Bella ...	San Fernando	Trinidad Vista Bella Manjak Company, Limited ...	J. C. T. Raspass ...	20	Manjak.
2	Williamsville ...	Williamsville	J. C. T. Raspass, Williamsville ...	" ...	26	"
3	Village Lots ...	La Brea	Ambard & Protheroe, Port-of-Spain ...	R. Fitzallen ...	177	Asphalt.
4	Pitch Lake ...	"	New Trinidad Lake Asphalt Company, Ltd., London, England...	W. D. Fowler ...	223	"
5	Do. ...	"	La Brea Asphalt Works, La Brea ...	C. Phelps ...	240	"
<i>Oilfields.</i>						
1	Trinidad Oilfields, Limited ...	Point Fortin	Trinidad Oilfields, Limited, Point Fortin ...	T. L. Scott ...	184	Oil.
2	Trinidad Lake Petroleum Co., Limited	Brighton	Trinidad Lake Petroleum Company, Limited, Brighton	W. D. Fowler ...	424	"
3	Trinidad Central Oilfields, Ltd.	Tabaquite	Trinidad Central Oilfields, Limited, Tabaquite ...	H. P. Ingram ...	44	"
4	Guapo (Trinidad) Oil Co., Ltd.	Pointe Ligoure	Guapo (Trinidad) Oil Company, Limited ...	G. E. Ponsonby ...	30	"
5	Perseverance Estate ...	Guapo	C. C. Stollmeyer, Port-of-Spain ...	E. Pereira ...	18	"
6	Trinidad, Cedros Oil Co. Ltd....	Cedros	Trinidad Cedros Oil Company, Limited ...	W. Greig ...	18	"
7	Venezuelan Oilfields Exploration Co., Ltd.	Barrackpore	Venezuelan Oilfields Exploration Company, Limited	G. A. Peat ...	50	"
8	Consolidated Oilfields of Trinidad, Ltd.	Rousillac	Consolidated Oilfields of Trinidad, Limited ...	A. M. Scott ...	8	"
9	Icacos, Trinidad Development Company	Icacos	Icacos (Trinidad) Development Company ...	R. McCormick ...	10	"
10	Tobago Oil Syndicate, Ltd. ...	Tobago	Tobago Oil Syndicate, Limited ...	R. W. Cater ...	...	"
11	Trinidad Petroleum Developments, Ltd.	Oropuche	Trinidad Petroleum Developments, Limited ...	C. E. Burrows ...	12	"
12	Trinidad Petroleum Options, Limited	Palo Seco	Trinidad Petroleum Options, Limited, 62, London Wall, E. C....	A. Covey ...	...	"
13	La Gloria Estate ...	Erin	La Gloria Estate ...	E. Amoroso ...	3	"
<i>Quarries.</i>						
1	Campo Street ...	San Juan	J. T. Gittens, Port-of-Spain ...	J. Anderson ...	5	Limestone.
2	River Estate ...	Diego Martin	Trinidad Government ...	District Officer ...	6	"
3	Cutucupano ...	Santa Cruz	" ...	" ...	3	"
4	Carrera ...	Carrera Island	" ...	Sup. of Prisons ...	157	"
5	Villamar ...	Gasparee	F. Herrera, Port-of-Spain ...	J. Clarke ...	5	"
6	Plum ...	Plum	Trinidad Government ...	District Officer ...	20	"
7	Tamana ...	Tamana	" ...	" ...	18	"
8	Morichal ...	Morichal	" ...	" ...	6	"
9	Mayo ...	Mayo	" ...	" ...	11	"
10	Mochel Poorie ...	Talparo	" ...	" ...	8	"
11	Sanchuchu ...	Tamana	" ...	" ...	8	"
12	Glendale ...	San Fernando	H. R. McClean, San Fernando ...	H. R. McClean ...	8	Gravel.
13	Circular Road ...	"	Borough Council, San Fernando ...	J. J. Waddell ...	2	"
14	Usine ...	"	New Colonial Company, San Fernando ...	W. Robertson ...	12	"
15	La Coulée ...	"	Heirs of Mary Joaquim, Coffee Street, San Fernando ...	F. E. Oliveira ...	1	"
16	Pickering ...	"	W. Harewood & P. P. Pickering, San Fernando ...	P. P. Pickering ...	1	"

APPENDIX G.—List of Mines, Oilfields and Quarries worked during the financial year 1912-13.

No.	Name.	Situation.	Owner and address.	Manager.	Daily average No. of persons employed.	Mineral worked.
17	Siparia	Siparia	Trinidad Government	District Officer	27	Limestone.
18	Needham	Santa Cruz	Maude-Roxby, San Juan	R. Williams	6	"
19	Pointe-à-Pierre	Pointe-à-Pierre	J. Glendinning, Port-of-Spain	H. R. McClean	81	Sandstone.
20	Guaracara	Guaracara	Trinidad Government	District Officer, San Fernando	6	Limestone.
21	Quinam	Quinam	"	District Officer, Siparia	10	"
22	La Ressource	Erin	"	"	6	"
23	Whim and Providence	Tobago	Trinidad Government	District Officer	4 and 6	Dead Rock
24	La Pique	San Fernando	Canadian Mission	H. F. Kemp	1	Gravel
25	Railway	Champ Fleurs	Trinidad Government Railway	J. W. Stewart	17	Limestone
26	Cumuto	Cumuto	Trinidad Government	District Officer	4	"
27	Moruga	Moruga	"	"	24	Sandstone
28	Bernard	Santa Cruz	J. P. Bernard, St. Joseph	S. Barnswell	6	Limestone
29	Morne Diable	"	Trinidad Government	District Officer	28	"
30	Basilon Street	Basilon Street	J. T. Gittens, Port-of-Spain	J. Lashley	18	"
31	David Street	Gloster Lodge	"	J. T. Gittens	10	"
32	Quarry Street	"	"	J. Lashley	15	"
33	St. John	"	"	"	9	"
34	Gonzales	Gonzales Place	F. Gonzales, Belmonte	F. Gonzales	2	"
35	Duke Street	Port-of-Spain	F. Sorzano, Port-of-Spain	E. St. Rose	11	"
36	Queen Street	"	J. T. Gittens	J. Lashley	4	"
37	Prisoners	Laventille	Trinidad Government	Sup. of Prisons	36	"
38	Clifton Hill	"	J. W. McCarthy, Port-of-Spain	J. Lashley	8	"
39	Eastern	"	Trinidad Government	J. de Nobriga	132	"
40	Irving Lane	"	J. W. McCarthy, Port-of-Spain	J. Lashley	7	"
41	Fort George	Fort George Road	J. T. Gittens	T. M. Gittens	4	"
42	Pierre	San Fernando	E. Pierie, San Fernando	C. Lucas	1	Gravel.
43	Trelawne	Tabaquite	E. F. Stone, Tabaquite	E. Manohur	3	Marl.
44	Masson	Pointe Gourde	E. B. Masson, South Quay	F. B. Masson	9	Limestone.
45	Mahon	"	George Mahon, Pointe Gourde	I. Streath	5	"
46	Plum (M. L. Rd. Bd.)	Manzanilla	Trinidad Government	G. Cumberbatch	8	"
47	Domus	Monos	P. Gransaul, Port-of-Spain	O. Rivas	2	"
48	Shaw	Laventille	J. Rodriguez, Laventille	D. Shaw	3	"
49	Mottley	"	"	J. Alexander	10	"
50	Tennis Clas	"	J. T. Gittens, Port-of-Spain	M. Goveia	6	"
51	Phoenix Park	Couva	Messrs. Connel & Henderson, California	H. A. Lewis	4	"
52	Forres Park	"	New Colonial Company, San Fernando	"	6	"
53	St. Lucien	Diego Martin	Messrs. Croney & Company, Port-of-Spain	"	5	"
54	Pt. Radix	Mayaro	Trinidad Government	District Officer	8	"
55	Mt. Hope	Champ Fleurs	"	J. McInroy	6	"
56	Corosal	Corosal Road	"	District Officer	5	"
57	Champ Fleurs	Champ Fleurs	F. J. Gransaul, St. Joseph	L. Brown	1	"
58	Buenos Ayres	Erin	Trinidad Government	District Officer	7	"

TRINIDAD AND TOBAGO.

Council Paper No. 126 of 1914.

MINES DEPARTMENT.

**Administration Report of the Inspector of Mines
for the year 1913-14.**

*Circulated for information. To be laid before the
Legislative Council.*

Previous Council Paper No. 103 of 1913.

Registered No. of Correspondence relating to the subject - M.P. No. 4580/1914.

MINES DEPARTMENT.

Administration Report of the Inspector of Mines for the
year 1913-14.

Council Paper No. 126 of 1914.

M.P. No. 4580/1914.

HONOURABLE COLONIAL SECRETARY.

I have the honour to submit for the information of His Excellency the Governor the following report on the work of the Mines Department for the year 1913-14.

OFFICIAL DUTIES.

2. There was no change in the staff of the Department during the financial year. Mr. Bell and Mr. Hahn carried out their work as Inspector and Deputy-Inspector of Mines respectively, in addition to their duties in the Public Works Department, as formerly. In the last Administration Report it was mentioned that the time was approaching when the constitution of the Department as a whole would call for complete consideration. During the past year it was found that the work of the Department was increasing to such an extent that it was necessary that a separate Department should be formed; and accordingly a scheme was drawn up, submitted to the Government and approved by the Secretary of State. In this scheme provision was made for the appointment of a paid Inspector of Mines from 1st April, 1914—also for an additional technical officer whenever it was found that his services were required. Provision was also made for the necessary clerical assistance.

LEAVE.

3. Mr. A. P. Catherall, 1st Assistant Inspector, was on leave of absence outside the Colony from 21st January to 9th March, 1914; and Mr. D. Lenagan, Clerk, was on leave of absence outside the Colony from 9th to 20th July and also from 12th to 26th August, 1913.

4. The following was the expenditure:—

Personal Emoluments:—

Inspector of Mines	...	...	...	...	Nil.
Deputy Inspector	...	...	...	...	Nil.
Assistant Inspectors	...	...	...	...	£ 630 19 7
Expert Adviser	...	...	...	...	100 0 0
Clerical Assistance	...	...	...	...	100 0 0
Messenger	...	...	...	...	5 0 0
					£ 835 19 7

Other Charges:—

Travelling Expenses	...	...	...	...	142 5 7½
Surveys	...	...	...	...	94 3 7½
Instruments and Appliances	...	...	...	...	16 6 3
Contingencies	...	...	...	...	69 18 5
					Total £ 1,158 13 6

LEGISLATION.

5. No legislation in connection with the Department was undertaken during the year.

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCES.

6. MANJAK.—I mentioned in my last report that the Mine at Vistabella had been closed; no further work was done by the Trinidad Vistabella Manjak Company, and I understand that their connection with the Vistabella Estate has ceased. Towards the end of the year the Trinidad-Tarouba Oil Development Company, Limited, commenced operations on this estate and sank a shaft in which Manjak was struck. Development operations were in progress at the close of the year.

Prospecting work has been continued by Mr. J. C. T. Raspas, M.I.M.E., at Williamsville. Three of the shafts which were being worked at the close of last financial year have been abandoned, and four new shafts have been or are in the process of being sunk to prospect for

the mineral. Shafts were also sunk at Rio Claro but proved unsuccessful and were abandoned. The Mines were inspected regularly, and were found to be satisfactorily worked in accordance with the provisions of the Ordinance. No accidents were reported during the year.

7. PETROLEUM.—During the past year although somewhat less drilling has been done on private lands I am pleased to be able to report that more has been done on Crown Lands—the figures being as under:—

	1912-13.		1913-14.
Private lands	... 31,358 feet	...	...26,546 feet
Crown lands	... 11,111 ..	...	...15,387 ..

The actual number of wells drilled was 41 and in 18 of these oil was struck, bringing the total number of wells drilled in the Colony to 174 of which 63 are on Crown Lands. I am glad to state that there has been a marked increase in production—22,523,060 imperial gallons in 1913-14 as against 17,626,563 in 1912-13. The past year will I think prove to have been an exceedingly important one in the history of the Oil Industry of the Colony as at the time of writing three companies of the very highest standing have commenced drilling operations on Crown Lands.

8. At the close of the year under review there were eleven Oil Companies actively engaged in the winning of oil, of which three commenced operations during the year.

9. The General Petroleum Properties of Trinidad, Limited, did no work during the financial year, and the areas which they held under Lease from the Crown were included in a lease issued to the Trinidad Leaseholds, Limited. This Company has also taken up other areas of Crown Lands under lease and has commenced operations in the Morne L'Enfer Forest Reserve. A road which was built by the Forest Reserve Oil Company, Limited, has been extended some two miles, and bungalows and offices have been built. At the time of writing drilling operations had been commenced and oil struck.

10. The Trinidad Lake Petroleum Company, Limited have mainly confined their operations to their Union Estate: they have drilled several new wells in which oil has been struck. Their constructional work has been mainly confined to the various provisions to be made in connection with water and oil storage, and the extension of the roads. The Company have made regular shipments of Crude Oil during the year.

11. The work done by the Trinidad Oilfields, Limited, during the first half of the year was not as good as it might have been; this was due to the fact that negotiations were in progress regarding the taking over of their properties by the United British Oilfields of Trinidad, Limited. During August last this company assumed control of the properties, and since then work has been of a more satisfactory nature though the development work was rather confined to private lands, no great amount having been done on the Crown area.

Large earthen reservoirs for the storage of oil and water have been built, and the light railway used for conveying machinery to the field has been considerably extended. A road some two to three miles in length is being constructed so as to link up the field with the Southern Central Road.

12. The negotiations which were mentioned in the last report as being in progress between the Trinidad Petroleum Options, Limited, regarding the issue of a lease and the transfer of additional areas to them have continued during the whole of the year, and matters are not yet finally settled. No work has been done during this period.

13. No work has been done by the Trinidad Cedros Oil Company either on the Crown lands held under Prospecting License or on their private lands. The Prospecting License has expired and the lands have reverted to the Crown.

14. The Trinidad Oil Leases, Limited, have taken over the areas belonging to the Guapo (Trinidad) Oil Company, Limited. No work has been done with the exception of the extraction of a small quantity of oil which has been sold locally for fuel purposes.

15. Mr. C. C. Stollmeyer has continued drilling operations on his Perseverance Estate during the year. A small refinery was erected during the early part of the year, and this was replaced later by a somewhat larger one in which small quantities of petroleum spirit have been produced and sold locally. The pipe-line from the wells to the shipping place was extended; but apart from this little work has been done during the year.

16. The Prospecting Licenses held by the Trinidad Central Oilfields, Limited, over Crown lands in the Montserrat Ward were re-issued during the early part of the year, and development work has been continued on the same lines as before, small quantities of high grade petroleum being produced from the wells. A larger refinery has been erected and the bulk of the crude oil produced has been treated, the petrol and illuminating oil being disposed of locally.

17. The Venezuelan Oilfields Exploration Company, Limited, have successfully continued drilling operations during the whole of the year. A considerable part of the Crude Oil produced has been disposed of by this Company to sugar estates in the neighbourhood for fuel purposes.

The chief work apart from drilling has been the erection of a small refinery and the provision of steel tanks for storage purposes, and the laying down of an additional pipe-line.

18. The Icacos (Trinidad) Development Company, Limited, have continued drilling operations; but apart from this no work has been done.

19. The Trinidad Petroleum Developments, Limited, continued drilling during the early part of the year and then closed down; during the latter part of the year a new company called the Trinidad Silverstream Oilfields, Limited, took over the properties and have since continued drilling operations. Several wells have been drilled from most of which a moderate production was obtained. An earthen reservoir has been constructed for oil storage purposes, but no other work apart from this and drilling has been done.

20. A new Prospecting License was issued to the Petroleum Development Company, Limited, over Crown Lands in the Morne L'Enfer Reserve in June last, and since then a great deal of work has been done by this Company. A number of wells have been drilled, and from most of them a fairly large production has been obtained. About eight miles of Asphalt roads have been made into the property, and bungalows for the accommodation of the staff, stores, sheds, etc., have been erected, several earthen sumps have been made, and two steel storage tanks have been erected in order to deal with the production; a pipe-line has been laid from these storage tanks to connect with the main storage tanks at Brighton.

21. The Oil Concessions of Mayaro (Trinidad), Limited, commenced drilling operations during the early part of the year on Crown Lands formerly held under Prospecting License by Messrs. Liddelov and Wharton and which had been re-issued to this Company. A road some two miles long has been made into this property from the Naparima-Mayaro Road, and the usual bungalows for the accommodation of the staff, stores, etc., have been built. Wells are now in the process of being drilled.

22. The Cruse Syndicate, Limited, have commenced drilling operations under Prospecting License on Crown Lands in the Morne L'Enfer Reserve. A road about one and a half miles long was built into the property, and the usual bungalows, offices and stores were erected. The drilling operations were successful, a fair production of oil was obtained and stored in earthen reservoirs.

23. The Log Abstracts of the wells drilled and oil extracted have been received regularly each month and filed with the records in the office

24. PROSECUTIONS.—Inspections of the Oilfields have been made regularly by the Officers of the Department, and in some instances the Ordinances were found not to have been satisfactorily followed. In most cases the offenders were warned personally or by letter, and in one case proceedings were taken in the courts of the Colony and the offender punished.

25. In addition to the regular inspections made in connection with the carrying out of the Ordinances, special inspections were made in connection with refineries, pipe-lines, dams, etc., as occasion required.

26. EXPLORATION LICENSES.—Two exploration licenses covering 223,389 acres have been issued during the year; that to the United British West Indies Petroleum Syndicate, Limited, covering 204,362 acres being issued as from March 3rd, 1913, and renewed for a further year. Active exploration work has been in progress over these lands since the date of issue.

27. PROSPECTING LICENSES.—Only one prospecting license has been issued during the year, viz.: to the Trinidad Central Oilfields, Limited, over an area of 500 acres in the Ward of Turure. In addition 4 Prospecting Licenses, covering an area of 8,041 acres, have been re-issued or renewed.

28. OTHER MINING OPERATIONS.—Little further work was done under the Exploration License to prospect for Gold and Silver mentioned in my last report: the license expired and was not renewed. No other mining work of note has been undertaken in the colony during the past year.

29. QUARRIES.—There is little of interest to report under this head. As before, quarrying in Port-of-Spain and San Fernando is mostly undertaken by private owners for the sale of metal and gravel. In the country districts, with very few exceptions, the quarries are under the charge of the Public Works Department. During the year, 4 prosecutions were undertaken by the department for breaches of the Ordinance and Regulations thereunder.

30. RETURNS UNDER THE ORDINANCES.—In the last report mention was made of the difficulty experienced in getting the Managers to comply with the provisions of the Ordinances with regard to the furnishing of returns under Section 18 of Ordinance No. 13 of 1907. In 14 cases proceedings were taken against either the owner or the manager with respect to last year's returns, and I am glad to say no difficulty was encountered this year. Appendix A. is compiled from the returns under Section 18 of Ordinance No. 13 of 1907, and gives the average daily number of persons employed and the output from the various Mines, Borings and Quarries.

31. ACCIDENTS.—Appendix B gives the list of accidents which happened at the various Oilfields and Quarries. For the most part they were isolated cases of a purely accidental nature.

The most serious case was that which happened at the Trinidad Central Oilfields, Limited, on the 31st October last: well No. 8 was flowing to a considerable height at 6.45 a.m. on that date, and in some way that was not discovered the gas which was being given off caught fire at some 25 to 30 feet from the well and set it on fire. Eight men who were on the rig at the time were severely burnt, and four of them succumbed to their injuries. The enquiry held by the Coroner failed to discover that there was any blame to be attached to the company.

WORK UNDER THE ASPHALT INDUSTRY ORDINANCE No. 10 OF 1906.

32. As no additional land has been declared "Asphalt Bearing" under Section 7 of the Ordinance, all the work under this Ordinance has been carried on at La Brea as heretofore. There has however been a great diminution of work during the past year, only one "Notice to Commence" having been received as against nine during the financial year 1912-13.

The number of levels taken during the year was 500, against 2,589 in the previous year; the total number of levels taken now amounts to 22,273.

Three applications for Certificates of Award under Section 11 of the Ordinance were received, and in all cases it was found that the adjoining lands had been unduly depleted by digging operations, and certificates were accordingly issued.

No application for a permit under Section 9 has been received during the year.

33. As I only assumed the appointment of Inspector of Mines on 1st April last I am indebted to the present Deputy-Inspector of Mines (Mr. A. P. Catherall) for most of the information given in this report.

P. STEVENS.

APPENDIX A.

Daily average number of persons employed and quantity and value of Minerals obtained from Mines, Oilfields and Quarries during the financial year ended 31st March, 1914.

Mineral.	Daily average number of persons employed.		Total.	Quantity.	Approximate value.		
	Males.	Females.			£	s.	d.
Manjak	58	8	66	581 tons	1,402	10	5
Oil	1,194	15	1,209	22,523,060 Imp. gals.	95,560	16	11
Asphalt (Crude, Epurée, &c.)	848	20	868	226,634 tons	150,660	8	4
Private Quarries (Limestone, Gravel, &c.)	149	62	211	75,731½ "	7,069	9	2
Government Quarries (Limestone, &c.)	455	86	541	70,750½ "	8,537	11	10½

NOTE.—The difference in value between metal won from Private Quarries and Government Quarries is that the former consists of both Limestone and Gravel whilst the latter is chiefly Limestone.

APPENDIX B.

List of Accidents which occurred at Mines, Oilfields and Quarries, during the financial year 1913-14 reported under Section 19 of Ordinance No. 13 of 1907.

Name of Mine, Oilfield or Quarry.	Date.	No. of Accidents reported.			
		Minor.	Serious.	Fatal.	Total.
Carrera Quarry	14th April, 1913	..	1	...	1
	5th May, "	1	...	...	1
La Brea Asphalt Works	6th June, "	...	1	...	1
	26th February, 1914	1	...	...	1
	14th June, 1913	1	...	...	1
	20th " "	1	...	...	1
	8th July, "	1	...	...	1
	15th " "	1	...	...	1
New Trinidad Lake Asphalt Company, Ltd.	2nd August, "	...	1	...	1
	1st September, "	1	...	...	1
	4th November, "	2	...	...	2
	3rd March, 1914	1	...	...	1
	19th " "	1	...	...	1
Perseverance Estate	26th June, 1913	1	...	...	1
Trinidad Central Oilfields, Limited	31st October, "	...	4	4	8
Glendale Quarry	8th November, "	...	...	1	1
Venezuelan Oilfields Exploration Co., Ltd.	25th " "	...	...	1	1
	14th March, 1914	...	1	...	1
Trinidad Lake Petroleum Company, Ltd.	3rd Dec'mbr, 1913	...	...	1	1
	26th February, 1914	...	...	1	1
Champ Fleurs Quarry	9th January "	1	...	...	1
		13	8	8	29

APPENDIX C.—List of Mines, Oilfields and Quarries worked during the financial year 1913-14.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral Worked.
<i>Mines.</i>						
1	Williamsville ...	Savana Grande	J. C. T. Raspass, San Fernando	J. C. T. Raspass	22	Manjak.
2	Hardbargain ...	"	"	"	20	"
3	Guayanapa ...	"	"	"	9	"
4	Vistabella ...	San Fernando	Trinidad-Tarouba Oil Development Co., Philadelphia, U.S.A.	J. J. Waddell	15	"
5	Village Lots ...	La Brea	Ambard & Protheroe, Port-of-Spain	R. Fitzallen	140	Asphalt.
6	La Brea Asphalt Works ...	"	C. F. Stollmeyer, Port-of-Spain	C. Phelps	197	"
7	New Trinidad Lake Asphalt Company, Limited	Pitech Lake	New Trinidad Lake Asphalt Company, Ltd., London, England	W. D. Fowler	581	"
<i>Oilfields.</i>						
1	Oil Concessions of Mayaro (Trinidad), Limited	Rio Claro, Mayaro road	The Oil Concessions of Mayaro (Trinidad), Limited, 79 Bishopsgate, London, E.C.	A. Covey	40	Oil.
2	Perseverance Estate	Guapo	C. C. Stollmeyer, Port-of-Spain	E. Pereira	18	"
3	Venezuelan Oilfields Exploration Company, Limited	Barrackpore	Venezuelan Oilfields Exploration Co., Ltd., London & San F'do.	G. A. Peat	60	"
4	Trinidad Silverstream Oilfields, Limited	Oropuche	Trinidad Silverstream Oilfields, Limited, 6 Broad Street Place, London, E.C.	C. E. Burrows	14	"
5	The Cruse Syndicate, Limited	Guapo	Cruse Syndicate, Limited, 79 Bishopsgate, London, E.C.	H. D. Fletcher	88	"
6	Trinidad Leaseholds, Limited	Oropuche	Trinidad Leaseholds, Limited, 76 Marine Square, Port-of-Spain	H. Korkhaus	98.4	"
7	Petroleum Development Coy., Limited	Brighton	Petroleum Development Company, Limited, Brighton	W. D. Fowler	85	"
8	Trinidad Lake Petroleum Company, Limited	"	Trinidad Lake Petroleum Company, Limited, Brighton	G. W. McPherson	450	"
9	Icacos (Trinidad) Development Company, Limited	Icacos	Icacos (Trinidad) Development Company, Limited, London	F. S. Brack	20	"
10	Trinidad Oilfields, Limited	Point Fortin	The United British Oilfields of Trinidad, Limited, 32, Bishopsgate, London, E.C.	G. Bailward	278	"
11	Trinidad Central Oilfields, Ltd.	Tabaquite	Trinidad Central Oilfields, Limited, 79, Bishopsgate, London, E.C.	H. P. Ingram	40.85	"
12	Trinidad Oil Leases, Limited	Cap-de-Ville	Trinidad Oil Leases, Limited, 8, Drapers Gardens, London	G. Trestrail	1.5	"
<i>Quarries.</i>						
1	Needham	Santa Cruz	N. Maude Roxby, Santa Cruz	R. William	7	Limestone.
2	Villa Mar	Gaspree	F. Herrera, 40, South Quay	J. Hubert	4	"
3	Circular road	San Fernando	Borough Council, San Fernando	J. Waddell	3	Gravel.
4	Mon Repos	North Naparima	Ste. Madeleine Sugar Company, Limited, San Fernando	O. P. Bennett	4	"
5	Basilon street	East Dry River	J. T. Gittens, 25 Tragarete road	J. Lashley	10	Limestone.
6	Clifton Hill	Laventille	"	"	7	"
7	Irving Lane	"	"	"	5	"
8	Campo street	San Juan	"	J. T. Gittens	5	"
9	Quarry street	Port-of-Spain	"	J. Lashley	11	"
10	Tennis Class	Laventille	"	M. Goveia	8	"
11	Manzanilla Local Road Board	Manzanilla	Manzanilla Local Road Board, Sangre Grande	G. Cumberbatch	3	"
12	Champ Fleurs	St. Joseph	F. J. Gransaul, St. Joseph	L. Brown	3	"
13	Bon Accord	Pointe-à-Pierre	P. Glendenning, Port-of-Spain	W. B. Sammy	82	Sandstone.

'APPENDIX C.—List of Mines, Oilfields and Quarries worked during the financial year 1913-14.—CONTD.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral Worked.
14	Glendale	San Fernando	H. R. McClean, San Fernando	H. R. McClean	10	Gravel.
15	Trelawne	Montserrat	E. F. Store, Tabaquite	E. Manohur	3	"
16	La Coulée	San Fernando	Heirs of Mary Joaquin, San Fernando	F. E. Oliveira	1	"
17	Masson	Pointe Gourde	G. Dranguet, Port-of-Spain	F. B. Masson	8	Limestone.
18	Mahon	"	G. Mahon, Pointe Gourde	J. Streath	2	"
19	Harewood and Pickering	San Fernando	P. Pickering & A. Harewood, San Fernando	P. Pickering	2	Gravel.
20	Gonzales	Gloster Lodge road	P. Gonzales, Belmont	F. Gonzales	5	Limestone.
21	La Pique Gravel Pit	San Fernando	The Canadian Mission, San Fernando	H. F. Kemp	2	Gravel.
22	St. Louis	Laventille	A. Richards, 20A, Laventille road	T. St. Louis	Nil.	Nil.
23	Macaulay	Claxton's Bay	Huralal and Baboolal, Claxton's Bay	P. Pickering	3	Sandstone.
24	Duke street	Port-of-Spain	V. Prime, Port-of-Spain	C. Atwell	9	Limestone.
25	Pierre's	St. Joseph Village, San Fernando	L. Charles, San Fernando	C. Lucas	...	
26	Phoenix Park	Couva	Connell and Henderson	J. Hinkson	...	Sandstone.
27	Forres Park	"	Henderson Brothers	"	6	Shells.
28	River Estate	Diego Martin	Trinidad Government, Port-of-Spain	District Officer	5	Limestone.
29	Cutucupano	Santa Cruz	"	"	4	"
30	Trinidad Government Railway	St. Joseph	"	J. W. Stewart	18	"
31	Matchapoura	Talparo road	"	District Officer	9.5	"
32	El Cupano	Tamana road	"	"	...	"
33	Sanchuchu	"	"	"	6.9	"
34	Mayo	Mayo village	"	"	9	"
35	Morichal	Morichal	"	"	8	"
36	Guaracara	Guaracara	"	"	6	"
37	Corosal	Corosal road	"	"	5	"
38	Providence	Tobago	"	"	4	Dead Rock.
39	Sherwood Park	"	"	"	2	Limestone.
40	Whim	"	"	District Officer	4	Dead rock.
41	Morne Diable	Peñal	"	"	24	Limestone.
42	Mount Hope	Mount Hope	"	Manager, Govt. Farm	1	"
43	Eastern Quarry	Laventille	"	Asst. Engineer, Public Works Department.	96	"
44	Moruga	Moruga	"	District Officer	15	Sandstone.
45	La Ressource	Erin	"	"	4	Porcellanite.
46	Buenos Ayres	"	"	"	5.5	"
47	Siparia	Siparia	"	"	14	"
48	Southern Central road No. 1	"	"	"	12.1	Stone.
49	Quinam	"	"	"	9	Sandstone.
50	Cunapo Southern road	Cunapo	"	"	10	Limestone.
51	Prisoners'	Laventille	"	Supt. of Prisons	43	"
52	Point Radix	Mayaro	"	District Officer	8	"
53	Carrera	Carrera Island	"	Supt. Warder	161	"
54	Biche	Biche	"	District Officer	...	"
55	Plum	Plum	"	"	35	"
56	Guaico Tamana	Guaico Tamana	"	"	22	"
57	Cumuto	Cumuto	"	"	...	"

TRINIDAD AND TOBAGO.

Council Paper No. 98 of 1915.

MINES DEPARTMENT.

Report of the Inspector of Mines for the year 1914-15.

*Laid before the Legislative Council on the
9th August, 1915.*

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MINES DEPARTMENT.

Report of the Inspector of Mines for the year 1914-15.

Council Paper No. 98 of 1915.

M.P. No. 4290/15.

HONOURABLE COLONIAL SECRETARY.

I have the honour to submit for the information of His Excellency the Governor the following report on the work of the Mines Department for the year 1914-1915.

OFFICIAL DUTIES.

2. In my last report I mentioned that it had been found necessary to form a separate Mines Department. Accordingly, the new Department was created as from the 1st April, 1914, with the following personnel:—

Mr. P. Stevens, formerly Assistant Director of Public Works, was appointed Inspector of Mines; Mr. A. P. Catherall, B. Sc., formerly 1st Assistant Inspector of Mines, was promoted to the post of Deputy-Inspector of Mines; the post of 1st Assistant Inspector was left vacant; Mr. N. Betancourt retained his appointment of 2nd Assistant Inspector; Mr. F. M. Sorzano of the Crown Lands Department was appointed to the newly created post of Draughtsman and Tracer; Mr. J. de Nobriga, formerly 2nd Clerk, Public Works Department, was appointed to the post of Chief Clerk; and Mr. W. H. Clark, formerly Assistant Clerk, was appointed 2nd Clerk.

Professor Cadman, the Expert Adviser to the Department, arrived on an official visit to the Colony on the 14th of July, and remained until the 1st of September.

LEAVE.

3. No leave of absence from the Colony was applied for by any officer of the Department during the year.

4. The following was the expenditure:—

Personal Emoluments:—

Inspector of Mines	...	...	...	...	£ 800 0 0
Deputy-Inspector	...	...	...	...	418 9 7½
2nd Assistant Inspector	...	...	...	...	250 0 0
Draughtsman and Tracer	...	...	...	...	135 0 0
Expert Adviser	...	...	...	...	312 15 6
Clerical Assistance	...	...	...	...	325 0 0
Porter and Messenger	...	...	...	...	37 10 0

£2,278 15 1½

Other Charges:—

Travelling Expenses	...	...	...	...	464 15 3
Expenses of Surveys	...	...	...	...	44 9 9
Instruments and Appliances	...	...	...	...	19 7 0
Contingencies	...	...	...	...	163 12 10½

Total £2,971 0 0

LEGISLATION.

5. The Regulations made by the Governor in Council on the 23rd August, 1912, under Section 8 of the Oil Mining and Refining Ordinance, No. 25 of 1911, and Section 3 of the Oil Mining and Refining (Amendment) Ordinance, No. 33 of 1912, were amended during the year. At the time of writing there are several very important matters under consideration, as for example—An Ordinance to amend and consolidate the law relating to the carriage, storage and use of Petroleum; amendments to the Regulations made under the Mines Regulation Ordinance, No. 13 of 1907, and the Mines Regulation (Amendment) Ordinance, No. 37 of 1909, &c., &c.

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCES.

6. **MANJAK.**—The two companies engaged last year in the winning of this mineral have continued operations for a part of the year under review.

The Trinidad-Tarouba Oil Development Company sank two shafts, and was actively engaged in mining operations until the outbreak of war in August last when all work was suspended until the early part of January; since then operations have been resumed and a considerable quantity of manjak exported.

The Trinidad Manjak, Limited, under the management of Mr. J. C. T. Raspas, has suspended work in the mines near Williamsville, and has been engaged in prospecting operations some three miles away. Six shafts in all were sunk to exploit the mineral, but the Company was handicapped by the outbreak of war, and had to shut down for a considerable part of the year.

Regular inspections were carried out by the Officers of the Department, and the discovery, on one occasion, of the use of an unlocked safety lamp by the Foreman of one of the Mines led to his prosecution and subsequent well merited punishment.

7. **PETROLEUM.**—There has, I am pleased to say, been a considerable increase in the amount of drilling done during the past year.

The figures are as follows:—

	1912-13.	1913-14.	1914-15.
Private lands ...	31,358 feet	26,546 feet	19,516 feet.
Crown lands ...	11,111 „	15,387 „	38,453 „
Totals ...	<u>42,469 feet</u>	<u>41,933 feet</u>	<u>57,969 feet.</u>

The number of Wells drilled amounted to 65 as against 41 in the previous year (1913-14). Oil was struck in 38 of the 65 wells drilled. The total number of wells drilled in the Colony to 31st March, 1915, is 239, of which 112 are on Crown Lands.

In spite of the War there has been a satisfactory increase in the production of oil—36,753,931 imperial gallons in 1914-15 as against 22,523,060 imperial gallons in 1913-14 and 17,626,563 in 1912-13. This represents an increased production in 1914-15 of over 63 per cent. as compared with 1913-14, and of over 108 per cent. as compared with 1912-13.

8. At the close of the year there were ten Oil Companies engaged in the winning of oil, of which two commenced operations during the year.

9. The Trinidad Leaseholds, Limited, have carried out a great amount of work on their area in the Morne L'Enfer Reserve held under lease from the Crown. The roads have been considerably extended, new bungalows have been built, large earthen storage reservoirs have been constructed and a number of wells have been drilled. A good many of these wells are yielding considerable quantities of oil.

Towards the end of the year the Company started work on their Guayaguayare area, but, apart from general clearing up of the fields which had been abandoned since 1911, and clearing out some of the old wells, little work was done.

10. The Trinidad Lake Petroleum Company, Limited, have continued work on their Union Estate, but it has been mainly confined to getting a production from the old wells as no great amount of drilling has been done.

11. Negotiations regarding the lease to be issued to the United British Oilfields of Trinidad, Limited, have continued during the whole of the year, and, at the time of writing, are nearing completion.

A considerable amount of development work, both on Crown Lands and Private Lands, has been carried out, large areas have been cleared of bush, and a private road from the sea to connect with the Southern Central Road has been completed. Several wells have been drilled on the Crown Lands formerly held under Prospecting License by the Parry Syndicate, Limited.

12. The United British West Indies Petroleum Syndicate, Limited, commenced drilling operations towards the end of the year on Private Lands in San Fernando. In addition to this a Refinery was built by them at Point Fortin to deal with the oil produced by the United British Oilfields of Trinidad, Limited. At the time of writing additional works are being undertaken in other parts of the Colony.

13. The Trinidad Central Oilfields, Limited, continued work on the Crown Lands which they hold under Prospecting License. A considerable number of new wells have been drilled, from most of which a production has been obtained. The oil won by this Company has continued to be of the same quality as in former years, namely, a very light oil containing large percentages of petrol and kerosene.

Most of the oil won has been refined, part of the petrol and kerosene produced being sold locally. A fair quantity of petrol has also been exported to the United Kingdom and the neighbouring West Indian Islands.

14. The Venezuelan Oilfields Exploration Company, Limited, continued drilling operations until shortly after war broke out when attention was merely paid to the extraction of oil from wells already drilled. Additions have been made to the Refinery, and a considerable amount of crude oil has been refined, the petrol produced being sold locally whilst the residue has been sold to the local Sugar Factories. During the year this Company was taken over by the Trinidad Oil and Transport Company, Limited, which latter company also took over the properties of the Consolidated Oilfields of Trinidad, Limited.

15. The Petroleum Development Company, Limited, have during the whole of the year continued work under their Prospecting License over Crown Lands in the Morne L'Enfer Reserve. A considerable number of wells have been drilled, and a large production has been obtained. This production has been pumped to Brighton and disposed of to the Trinidad Lake Petroleum Company, Limited. The chief work, apart from the winning of oil, has been the extension of the roads.

16. Drilling has been continued on a comparatively small scale by Mr. C. C. Stollmeyer on his Perseverance Estate at Guapo. Fair quantities of oil have, however, been extracted from wells already drilled. Additions were made to the Refinery which was worked during a part of the year and then closed down.

17. Drilling operations were continued by the Cruse Syndicate, Limited, during the first half of the year, and oil was struck. A storage tank and an additional bungalow were built, and work was then suspended for the remainder of the year.

18. The oil Concessions of Mayaro (Trinidad), Limited, continued drilling operations during the greater part of the year.

19. The Trinidad Oil Leases, Limited, did no drilling during the period under review. From the wells already drilled they extracted small quantities of oil, some of which was used locally for fuel, and the remainder exported to the neighbouring Islands.

20. The Trinidad-Tarouba Oil Development Company, commenced drilling operations with a small portable rig on Springvale Estate at San Fernando, but, upon the outbreak of war, ceased operations.

21. Negotiations regarding the lease to be issued over Crown Lands formerly held under Prospecting License by the Petroleum Options, Limited, have continued during the whole of the year. At the time of writing, however, the matter seems likely to be completed in the near future. During the whole period work has been closed down.

22. Drilling work was carried on during the early part of the year by the Trinidad Silverstream Oilfields, Limited, and the Icacos (Trinidad) Development Company, Limited, but nothing has been done by either Company since the outbreak of war.

23. The amount of royalty collected on oil won from Crown Lands during the year amounted to £9,466 13 0½, of which £6,647 11 7½ was in respect of Prospecting Licenses and £2,819 1 5 in respect of Leases. In the latter amount is included the fixed certain rent of £2,000 paid by the Trinidad Oilfields, Limited.

24. The various returns in connection with the winning of oil have been received regularly from the Oil Companies, and have been carefully checked and filed with the records in the office.

25. INSPECTIONS.—The Oilfields have been regularly inspected by the Officers of the Department, and, in most cases, the Ordinances and Regulations have been found to be followed satisfactorily. In cases where breaches were discovered the offenders were warned, as it was not considered necessary to institute legal proceedings. In addition to the regular inspections it has been found necessary to pay a fairly large number of special inspections in connection with Royalty, Refineries, Pipe-lines, &c.

26. LICENSES.—Either Exploration or Prospecting Licenses have now been issued over practically the whole of the remaining Crown Lands available. During the year two Exploration Licenses aggregating 42,250 acres were issued—one to the Ortoire Syndicate in respect of the area of 42,216 acres originally licensed to the Anglo-Scottish Investment Corporation, Limited, and the other to the United British West Indies Petroleum Syndicate, Limited, in respect of 34 acres at San Fernando.

Only one new Prospecting License has been issued—this was to Sir W. Ingram, and covers an area of 5,429 acres.

In addition to the above 974 acres were added to the Prospecting License already held by the Cruse Syndicate, Limited.

Renewals of Prospecting Licenses over 6,867 acres received approval.

27. QUARRIES.—With the exception of some of the Government Quarries they are mostly very small. In all 71 quarries have been worked during the year. Of these 31 employ an average of 5 or less persons, 25 employ between 6 and 10 persons, and 15 employ more than 10 persons, daily. Five prosecutions were undertaken for breaches of the Ordinance and Regulations, and the offenders either fined or reprimanded.

**WORK UNDER THE ASPHALT INDUSTRY REGULATION ORDINANCE,
No. 10 OF 1906.**

28. There has been very little work carried out during the past year, only two "Notices to Commence" having been received, and, as far as one can judge, this industry has greatly declined in importance. No additional land has been declared "Asphalt Bearing" under Section 7 of the Ordinance, and, therefore, all digging has been confined to the village lots at La Brea.

The number of levels taken during the year was 303 as against 500 in the previous year, and 2,589 in the year 1912-13. The total number of levels taken to date is 22,576.

One application for a Certificate of Loss under Section 11 of the Ordinance was received, and, as the adjoining lands were found to have been unduly depleted, a certificate was issued.

No application to dig by permit under Section 9 was received during the year.

29. APPENDICES.—I am pleased to say that hardly any difficulty has been experienced this year in obtaining the returns under the Ordinances from which the appendices to this report are prepared.

Appendix A shows the average number of persons employed and the quantity and value of minerals obtained. The average number of persons employed is but very slightly less than last year. Owing to the War there has been a considerable falling off in the quantity of Asphalt extracted—110,289 tons as against 226,634 tons during the year 1913-14.

The list of accidents is given in Appendix B, and represents isolated cases of a purely accidental nature such as are incidental to all industrial operations.

Appendix C gives the list of Mines, Borings and Quarries worked during the year.

30. GENERAL REMARKS.—During the early part of the year the Oil Industry shewed promise of very rapid development, and although development work has been carried on very successfully by several Companies since, there is not the least doubt but that I should have been in a position to have submitted a much more favourable report had not War broken out in August.

In the beginning of the year a considerable quantity of Crude Oil in bulk was exported, but, since the outbreak of War, the export of Oil has been confined to small quantities in barrels.

In June the first cargo of Oil for the use of the Admiralty was shipped from the Point Fortin Oilfields by the S.S. "Aragaz"—a Tanker, chartered by the Admiralty. This steamer returned in July for a further supply which was despatched the day after War was declared.

It is never advisable to be unduly optimistic, but I cannot help thinking that so soon as the War is over and normal conditions are restored there is a bright future in store for the Oil Industry of Trinidad.

31. STAFF.—It affords me great pleasure to be able to place on record my appreciation of the very able and loyal assistance I have received from each and every Member of the Staff during the past year.

25th June, 1915.

P. STEVENS,
Inspector of Mines.

APPENDIX A.

Daily average number of persons employed and quantity and value of Minerals obtained from Mines, Oilfields and Quarries during the financial year ended 31st March, 1915.

MINERAL.	Daily average number of persons employed.		Total.	Quantity.	Approximate value.	
	Males.	Females.			£	s.	d.
Manjak	77	10	87	729 tons ...	2,976	5 0
Oil	1,252	24	1,276	36,753,931 Imp. gals.	136,336	8 4
Asphalt (Crude, Epurée, &c.) ...	601	11	612	110,289 tons ...	74,541	15 10
Private Quarries (Limestone, Gravel, &c.)	217	88	305	91,678.85 tons ...	5,194	11 5
Government Quarries (Limestone, &c.) ..	439	88	527	60,864.02 ,, ...	7,311	10 8½

NOTE.—The difference in value between metal won from Private Quarries and Government Quarries is that the former consists of both Limestone and Gravel whilst the latter is chiefly Limestone.

APPENDIX B.

List of accidents which occurred at Mines, Oilfields and Quarries during the financial year 1914-15 reported under Section 19 of Ordinance No. 13 of 1907.

Name of Mine, Oilfield or Quarry.	Date.	No. of Accidents reported.			
		Minor.	Serious.	Fatal.	Total.
Petroleum Development Company, Limited...	2nd April, 1914	1	...	...	1
Ram Sewdass Quarry	14th ,, "	...	...	1	1
The Pitch Lake	9th May, "	...	1	...	1
	1st June, "	...	1	...	1
	19th ,, "	...	2	...	2
	20th July, "	1	...	...	1
Trinidad Leaseholds, Limited ...	12th May, "	1	...	...	1
	8th August, "	1	...	...	1
	10th ,, "	...	1	...	1
	19th September, "	1	...	...	1
	18th November, "	1	...	...	1
	19th ,, "	1	...	...	1
	30th December, "	1	...	...	1
	7th January, 1915	...	1	...	1
La Brea Asphalt Works	26th May, 1914	...	1	...	1
Duke Street Quarry	2nd June, "	1	...	...	1
Trinidad Central Oilfields, Limited	30th July, "	...	...	1	1
	22nd September, "	...	...	1	1
Ramjohn Quarry	31st July, "	...	...	1	1
Trinidad Lake Petroleum Comp'y, Limited	10th August, "	1	...	...	1
	20th November, "	1	...	...	1
Sanchuchu Quarry	19th August, "	1	...	...	1
Trinidad Oilfields, Limited ...	6th March, 1915	...	1	...	1
		13	9	4	26

APPENDIX C.—List of Mines, Oilfields and Quarries worked during the financial year 1914-15.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
<i>Mines.</i>						
1	Williamsville ...	Savana Grande	Trinidad Manjak, Limited, San Fernando	J. C. T. Raspass	...	Manjak.
2	Hardbargain ...	"	" " " "	"	22	"
3	Gordon Pits ...	"	" " " "	"	24	"
4	Vistabella ...	San Fernando	Trinidad-Tarouba Oil Development Company, 27, Pine Street, New York, U.S.A.	J. J. Waddell	41	"
5	La Brea Asphalt Works ...	La Brea	C. F. Stollmeyer, Port-of-Spain	C. Phelps	136	Asphalt.
6	New Trinidad Lake Asphalt Company, Limited	Pitch Lake	New Trinidad Lake Asphalt Co., Ltd., London, England	W. D. Fowler	403	"
7	Roman Catholic Church Lands	La Brea	His Grace the Archbishop of Port-of-Spain	F. L. Savary	73	"
<i>Oilfields.</i>						
1	Oil Concessions of Mayaro (Trinidad), Limited	Rio Claro, Mayaro road	The Oil Concessions of Mayaro (Trinidad), Limited, 79, Bishopsgate, London, E.C.	H. D. Fletcher	48	Oil.
2	Perseverance Estate	Guapo	C. C. Stollmeyer, Port-of-Spain	E. Pereira	10	"
3	Trinidad Oil and Transport Company, Limited	Barrackpore	Trinidad Oil and Transport Company, Limited, London and San Fernando	G. A. Peat	74	"
4	Trinidad Oil and Transport Company, Limited	Rousillac	Trinidad Oil and Transport Company, Limited, London and San Fernando	"	10	"
5	Trinidad Silverstream Oilfields, Limited	Oropuche	Trinidad Silverstream Oilfields, Limited, 6, Broad Street Place, London, E.C.	C. E. Burrows	20	"
6	Cruse Syndicate, Limited	Guapo	Cruse Syndicate, Ltd., 79, Bishopsgate, London, E.C.	H. D. Fletcher	47	"
7	Trinidad Leaseholds, Limited	Oropuche	Trinidad Leaseholds, Limited, 76, Marine Square, Port-of-Spain	H. S. Fuller	166	"
8	Idem	Guayaguayare	Trinidad Leaseholds, Limited, 76, Marine Square, Port-of-Spain	"	22.68	"
9	Petroleum Development Company Limited	Brighton	Petroleum Development Company, Limited, Brighton	W. D. Fowler	195	"
10	Trinidad Lake Petroleum Company, Limited	"	Trinidad Lake Petroleum Company, Limited, Brighton	"	309	"
11	Icacos (Trinidad) Development Company, Limited	Icacos	Charles Henry Smallwood, "Receiver for Debenture Holders." 7, Martin Lane, London	J. H. Smith	5	"
12	Trinidad Oilfields, Limited	Point Fortin	United British Oilfields of Trinidad, Limited, 32, Bishopsgate, London, E.C.	F. J. Fleming	301	"
13	Trinidad Central Oilfields, Ltd.	Tabaquite	Trinidad Central Oilfields, Limited, 79, Bishopsgate, London, E.C.	H. P. Ingram	51.27	"
14	Trinidad Oil Leases, Limited	Cap-de-Ville	Trinidad Oil Leases, Limited, 6, Drapers Gardens, London	G. Trestrail	2.5	"
15	Trinidad-Tarouba Oil Development Company	San Fernando	Trinidad-Tarouba Oil Development Company, 27, Pine Street, New York	C. E. Burrows	2	"

APPENDIX C.—List of Mines, Oilfields and Quarries worked during the financial year 1914-15.—CONTD.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral Worked.
16	United British West Indies Petroleum Syndicate, Ltd...	San Fernando	United British West Indies Petroleum Syndicate, Limited, Port-of-Spain and London	F. J. Fleming	13	Oil.
	<i>Quarries.</i>					
1	Trelawne ...	Montserrat ...	E. F. Stone, Tabaquite ...	E. Manohur ...	4	Gravel.
2	Alexander ...	Carapichaima ...	J. Alexander, Carapichaima ...	J. Alexander ...	5	"
3	Ramjohn ...	San Juan ...	Ramjohn, Tunapuna ...	Kalban ...	20	"
4	Villamar ...	Gaspree ...	F. Herrera, 40, South Quay ...	H. James ...	4	Limestone.
5	Chickland Road ...	Chickland, Caparo ...	Chawarram, Todd's Road ...	Bagwandeem ...	4	Gravel.
6	Chawarram ...	Montserrat...	"	M. Sutton ...	3	"
7	Hansai ...	San Juan ...	Hansai, San Juan ...	Jugdeo ...	9	"
8	Bandhoo ...	Santa Cruz ...	Bandhoo, San Juan ...	T. Jeffra ...	5	Gravel & Boulders.
9	Shaw ...	North of Eastern Quarry	D. Shaw, 50, Gloster Lodge ...	D. Shaw ...	2	Limestone.
10	Low ...	Carapichaima ...	E. Low, Upper Carapichaima ...	J. Loshin ...	2	Gravel.
11	Usine ...	San Fernando ...	St. Madeleine Sugar Company, Limited, San Fernando	O. P. Bennett ...	6	"
12	Nagaralee ...	Todd's Road ...	Nagaralee, Todd's Road ...	H. David ...	5	"
13	Duke Street ...	Port-of-Spain ...	V. Prime, Port-of-Spain ...	C. Attwell ...	10	Limestone.
14	Havering Estate ...	Cumuto ...	W. H. Carpenter, Cumuto ...	W. H. Carpenter ...	4	"
15	Mahabir ...	San Juan ...	Mahabir, San Juan ...	Jonwa ...	2	Gravel.
16	St. Ann's ...	St. Ann's ...	L. Veerasawmy, St. Ann's ...	N. Charles ...	4	Limestone.
17	Smith ...	San Juan ...	J. T. Gittens, 25, Tragarete Road	W. W. Smith ...	2	Gravel.
18	Rassule ...	Montserrat ...	Rassule, Carapichaima ...	H. David ...	7	"
19	Perseverance Estate	Guapo ...	C. C. Stollmeyer, Port-of-Spain	E. Pereira ...	8	Oil sand.
20	Ram Sewdass ...	Montserrat ...	Ram Sewdass, Todd's Road ...	B. Sewdass ...	7	Gravel.
21	La Pena ...	Clifton Hill ...	Mrs. Blackman, 5, Duke Street	A. Forbes ...	4	Limestone.
22	La Coulée ...	San Fernando ...	Heirs of Mary Joaquin, San Fernando	F. E. Oliveira ...	2	Gravel.
23	Las Champs Elysees	Maraval ...	P. de Boissière, Maraval ...	C. Mohan ...	10	Gravel and sand.
24	St. Joseph ...	San Fernando ...	A. Harewood and P. Pickering, San Fernando	P. P. Pickering ...	2	Gravel & boulders.
25	St. John Street ...	St. John Street ...	J. T. Gittens, 25, Tragarete Road	J. Lashley ...	7	Limestone.
26	La Pastora ...	Santa Cruz ...	Charles Pegus, Santa Cruz ...	C. Pegus ...	18	"
27	Basilon Street ...	East Dry River ...	J. T. Gittens, 25, Tragarete Road	J. Lashley ...	12	"
28	Quarry Street ...	Port-of-Spain ...	"	"	8	"
29	Circular ...	Circular Road, San F'do	Borough Council, San Fernando	J. J. Waddell ...	2	Gravel.
30	Tennis Class ...	Laventille Road ...	J. T. Gittens, 25, Tragarete Road	J. Lashley ...	7	Limestone.
31	Pierre's ...	San Fernando ...	L. Charles, San Fernando ...	C. Lucas ...	1	Gravel.
32	Prizgar ...	St. Joseph Road ...	J. T. Gittens, 25, Tragarete Road	J. T. Gittens ...	9	Gravel.
33	Kanhai ...	Carapichaima ...	Kanhai, Upper Carapichaima ...	Chalitar ...	4	"
34	Clifton Hill ...	Laventille ...	J. T. Gittens, 25, Tragarete Road	J. Lashley ...	9	Limestone.
35	Hermitage ...	Claxton's Bay ...	C. Stollmeyer, Port-of-Spain ...	P. P. Pickering ...	6	"
36	Cassim ...	San Juan ...	Cassim, San Juan ...	E. Francis ...	8	Gravel.
37	Forres Park ...	Forres Park Estate lands	Messrs. Henderson Brothers, Claxton's Bay	J. P. C. Hinkson ...	20	Stones and shells.
38	Masson ...	Chaguaramas ...	Geo. Dranguet, Port-of-Spain	F. B. Masson ...	5	Limestone.

APPENDIX C.—List of Mines, Oilfields and Quarries worked during the financial year 1914-15.—CONTD.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral worked.
39	Campo Street ...	San Juan ...	J. T. Gittens, 25, Tragarete Road ...	C. H. Gittens ...	7	Limestone.
40	Champ Fleurs ...	Champ Fleurs ...	F. J. Gransaul, St. Joseph ...	L. Brown ...	5	"
41	Bon Accord ...	Pointe-à-Pierre ...	P. Glendinning, Port-of-Spain ...	A. Jamadhar ...	28	Sandstone.
42	Queen Street ...	East Dry River ...	W. Park, Basilon Street ...	J. Hinds ...	6	Limestone.
43	La Pique ...	San Fernando ...	Canadian Presbyterian Mission, San Fernando ...	A. Jamadhar ...	3	Gravel.
44	Glendale ...	"	H. R. McClean, San Fernando ...	H. R. McClean ...	8	"
45	San Juan ...	San Juan ...	F. J. Gransaul, St. Joseph ...	L. Brown ...	3-50	"
46	River Estate ...	Diego Martin ...	Trinidad Government, Port-of-Spain ...	District Officer ...	10	Limestone.
47	Cutucupano ...	Santa Cruz ...	" " " " ...	" " " " ...	6	"
48	Trinidad Government Railway	St. Joseph ...	" " " " ...	J. W. Stewart ...	11	"
49	Matchapoorie ...	Talparo Road ...	" " " " ...	District Officer ...	9-4	"
50	Sanchuchu ...	Tamana Road ...	" " " " ...	" " " " ...	13-2	"
51	Mayo ...	Mayo Village ...	" " " " ...	" " " " ...	10	"
52	Morichal ...	Morichal ...	" " " " ...	" " " " ...	8	"
53	Guaracara ...	Guaracara Village ...	" " " " ...	" " " " ...	4	"
54	Corosal ...	Corosal Road 3rd mile ...	" " " " ...	" " " " ...	4	"
55	Morne Diable ...	Morne Diable Road ...	" " " " ...	" " " " ...	17	"
56	Plum ...	Manzanilla ...	" " " " ...	G. Cumberbatch ...	5	"
57	Whim ...	Tobago ...	" " " " ...	District Officer ...	4	Dead rock.
58	Grange Main Road ...	" ...	" " " " ...	" " " " ...	5	Limestone.
59	Providence ...	" ...	" " " " ...	" " " " ...	5	Dead rock.
60	Moruga ...	Moruga Road ...	" " " " ...	" " " " ...	9	Sandstone.
61	Prisoners ...	Laventille ...	" " " " ...	Supt. of Prisons ...	45-35	Limestone.
62	Plum Road ...	Sangre Grande ...	" " " " ...	District Officer ...	55	"
63	Guaioco-Tamana Road, 8th, 10th, 11th and 14th miles ...	" " " " ...	" " " " ...	" " " " ...	22	"
64	Pointe Radix Road ...	Mayaro ...	" " " " ...	" " " " ...	12	"
65	Carrera Island ...	Carrera Island ...	" " " " ...	Supt. of Prisons ...	141-9	"
66	Mount Hope ...	San Juan ...	" " " " ...	J. McInroy ...	2	"
67	Eastern Quarry ...	Laventille ...	" " " " ...	Asst. Engineer, Public Works Department ...	96	"
68	Southern Central Road, 7-1/4 mile ...	Siparia ...	" " " " ...	District Officer ...	4-87	Porcellanite.
69	Siparia ...	" ...	" " " " ...	" " " " ...	16	"
70	Buenos Ayres ...	Erin ...	" " " " ...	" " " " ...	6	"
71	La Ressource ...	" ...	" " " " ...	" " " " ...	6	"

TRINIDAD AND TOBAGO.

Council Paper No. 88 of 1916.

MINES DEPARTMENT.

Administration Report of the Inspector of Mines for
the nine months ended 31st December, 1915.

*Laid before the Legislative Council on the
26th May, 1916.*

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1916.

MINES DEPARTMENT.

Administration Report of the Inspector of Mines for the nine months ended
31st December, 1915.

Council Paper No. 88 of 1916.

M.P. No. 3412/16.

HONOURABLE COLONIAL SECRETARY.

I have the honour to submit for the information of His Excellency the Governor the following report on the work of the Mines Department for the nine months ended 31st December, 1915.

OFFICIAL DUTIES.

2. The only change in the staff has been the addition of the post of 3rd Clerk which was found necessary owing to the increase of clerical work in the Department. Mr. G. E. Robinson was appointed to this post on 1st April, 1915, but I regret to say only held it for a few weeks as this promising young Officer's career was cut short by an illness which terminated fatally on the 20th May. Mr. Robinson was succeeded by Mr. F. O. Rooks, promoted from the post of Assistant Clerk, Public Works Department. On the 1st October last Mr. Rooks was granted leave for the purpose of joining His Majesty's Forces in England, and Mr. E. Lamy was appointed to act for him as from 16th November, 1915.

LEAVE.

3. No officer of the Department has been on leave of absence from the Colony during the period under review.

4. The following was the expenditure:—

Personal Emoluments:—

Inspector of Mines	...	...	...	...£	600	0	0
Deputy-Inspector	...	...	...	...	330	19	7½
2nd Assistant Inspector	...	...	...	...	202	10	0
Draughtsman and Tracer	...	...	...	...	108	15	0
Expert Adviser	...	...	...	...	150	0	0
Clerical Assistance	...	...	...	...	306	11	2
Porter and Messenger	...	...	...	...	28	2	6
					£1,726	18	3½

Other Charges:—

Travelling Expenses	...	...	...	...	305	3	5
Expenses of Surveys	...	...	...	...	25	6	1½
Instruments and Appliances	...	...	...	...		5	4
Contingencies	...	...	...	...	42	9	11½
Total	...	...	...	...	£2,100	3	1½

LEGISLATION.

5. Two new Ordinances were passed—one for the prevention of accidents due to the use of boilers and machinery in factories and other places, and the other to amend and consolidate the law relating to the carriage, storage and use of Petroleum.

Amendment Ordinances amending the Mines Regulation Ordinances, the Petroleum (Pipe Lines) Ordinance, 1911, and the Petroleum Spirit and Petroleum Oil Excise Ordinance, 1914, were also passed.

Regulations under the Mines Regulation Ordinances (No. 13 of 1907, No. 37 of 1909 and No. 9 of 1912) were made by the Governor in Executive Council on the 7th October, 1915, and those previously in force were revoked.

Regulations under Section 28 of the Petroleum Ordinance, No. 20 of 1915, were made by the Governor in Executive Council on the 9th of September, 1915.

WORK UNDER THE MINES, BORINGS AND QUARRIES ORDINANCES.

G. MANJAK.—This is the only mineral for which actual mining operations are carried on, and, as before, there were two companies engaged in winning the mineral during the period under review.

The Trinidad Tarouba Oil Development Company continued operations during the early part of the period and then temporarily closed down. A considerable quantity of Manjak was won whilst operations were in progress.

The Trinidad Manjak, Limited, continued operations during the whole of the period at their Mines in Montserrat and have won a fair quantity of the mineral.

The Mines have been regularly inspected by the Officers of the Department and the provisions of the Ordinances as well as the Regulations have been found to have been satisfactorily carried out.

7. **PETROLEUM.**—During the nine months under review the amount of drilling done was somewhat less in proportion than for the twelve months ended 31st March, 1915, although it compares very favourably with the number of feet drilled during the year ended 31st March, 1914.

The following are the figures :—

	12 months ended March 31st, 1914.	12 months ended March 31st, 1915.	9 months ended Dec. 31st, 1915.
Private Lands ...	26,546 feet.	19,516 feet.	21,324 feet.
Crown Lands ...	15,387 „	38,453 „	18,729 „
Totals ...	41,933 feet.	57,969 feet.	40,053 feet.

The number of Wells drilled during the nine months was 38 (21 on Crown and 17 on Private Lands) as against 65 during the twelve months ended 31st March, 1915, and 41 during the year ended 31st March, 1914. Oil was struck in 23 of the 38 Wells drilled. The total number of Wells drilled in the Colony to 31st December, 1915, is 277, of which 133 are on Crown Lands. The quantity of Oil extracted during the nine months ended 31st December, 1915, amounted to 23,489,362 Imperial Gallons as against 36,753,931 for the 12 months ended 31st March, 1915, and 22,523,060 for the 12 months ended 31st March, 1914.

8. On the 31st December, 1915, there were ten Oil Companies engaged in the winning of Oil, the same number as on the 31st March, 1915.

9. The Trinidad Leaseholds, Limited, have continued development work on the area of Crown Lands held by them under Lease in the Morne L'Enfer Forest Reserve. In addition to actual drilling work new Offices and Stores have been built and a well equipped Machine Shop is under construction. A small experimental refinery as well as a number of storage tanks have been erected. Since my last report was penned this Company has laid a 6-inch pipe line from the Morne L'Enfer Forest Reserve area to their shipping place at Pointe-à-Pierre—a distance of 26½ miles. This line runs along the side of Public Roads as far as Peñal Railway Station and thence on Railway Lands alongside the Trinidad Government Railway. Two 3-inch branch lines for the conveyance of Oil Fuel have been laid from the main line to La Fortunée and Malgretoute Sugar Factories. At Pointe-à-Pierre extensive preparations have been made for the laying out of a Shipping and Refinery Depôt. An island jetty is now under construction to allow of the loading of tank vessels; an 8-inch pipe line is being laid from this jetty to the storage tanks; and at the time of writing two large storage tanks are nearing completion. ✓

A well constructed metalled road has been laid into the Company's property at Pointe-à-Pierre from the Southern Main Road, as well as a siding from the Trinidad Government Railway. Several bungalows for the housing of the staff have been built—also the necessary Offices, Stores, etc.

Work on the Guayaguayare area was closed down early in April, 1915. ✓

10. The Trinidad Lake Petroleum Company, Limited, have done additional drilling work on their private lands at Brighton, and have also extracted oil from the old wells. New wells have been drilled in the vicinity of the Pitch Lake and have proved successful. ✓

11. In my last report I mentioned that the negotiations regarding the lease to be issued to the United British Oilfields of Trinidad, Limited, were nearing completion; they were completed toward the end of the period under review and the lease has now been forwarded to England for signature. ✓

Development work has been continued both on Crown and Private Lands. Additional Wells have been drilled on the Crown Lands formerly held by the Parry Syndicate, Limited, under Prospecting License, and a pipe line has been laid from them to the storage tanks at Point Fortin.

12. The United British West Indies Petroleum Syndicate, Limited, continued drilling on the Well at San Fernando during a portion of the period under review, but, at the time of writing, the well is not completed. In addition to this, operations were commenced under Prospecting Licences on Crown Lands in two other localities. One well is being drilled on Lands formerly under Prospecting Licence to Mr. J. G. Rust, and the other on lands originally licensed to Mr. Dreyfus. So far oil in paying quantities has not been struck. The Refinery erected by this Company at Point Fortin has been operated during the period under review, and oil fuel which complies with the Admiralty Specification has been produced. ✓

13. The Trinidad Central Oilfields, Limited, continue to hold a Prospecting Licence over the Crown Lands in the Montserrat district, but negotiations have been proceeding with regard to their taking up a lease over such portions of the land as are likely to prove oil bearing. During the nine months under review drilling has proceeded steadily, additional territory has been opened up, and considerable quantities of petrol and kerosene have been produced for local consumption and exportation. ✓

14. The Trinidad Oil and Transport Company, Limited, have chiefly confined their attention to the production of oil from their private lands in the Barrackpore district. The Refinery has been enlarged, and practically the whole of the oil produced has been treated therein. Both the petrol and residue find a ready sale locally. No drilling has been done on the properties formerly held by the Consolidated Oilfields of Trinidad, Limited. ✓

15. The Petroleum Development Company, Limited, took up a lease as from 1st July last over the Crown Lands in the Morne L'Enfer Reserve, which they formerly held under Prospecting Licence. ✓

16. Mr. C. C. Stollmeyer has done very little work on his Perseverance Estate. It has been confined to a small amount of drilling and the extraction of small quantities of oil. ✓

17. No work has been done by the Cruse Syndicate, Limited, since my last report. ✓

18. Work was closed down by the Oil Concessions of Mayaro (Trinidad), Limited, at the end of the last financial year, and since then nothing has been done. ✓

19. No drilling has been done by the Trinidad Oil Leases, Limited, and nearly all the oil extracted from the wells already drilled has, I believe, been exported to the neighbouring Islands. ✓

20. The Trinidad-Tarouba Oil Development Company have, as previously reported, ceased operations since the outbreak of War. ✓

21. The Trinidad United Oilfields, Limited, took up a Lease over the Crown Lands formerly held by the Petroleum Options, Limited, as from the 1st March, 1915. A few shallow wells have been drilled, and the small quantity of oil extracted used for fuel purposes on the field. ✓

22. No work has been done by either the Trinidad Silverstream Oilfields, Limited, or the Icacos (Trinidad) Development Company, Limited. ✓

23. The amount of royalty earned during the period under review amounted to £4,430 7 5 of which £868 2 9½ was in respect of Prospecting Licences and £3,562 4 7½ in respect of Leases.

24. The various returns in respect of drilling work and the extraction and disposal of the oil have been received regularly from the Companies concerned, and, after being checked, have been filed with the records in the Office.

25. INSPECTIONS.—Regular inspections of the Oilfields have been made by the Officers of the Department, and in most cases the Ordinances and Regulations have been found to have been satisfactorily carried out. In other cases it was considered sufficient to warn the offenders without taking legal proceedings. In addition to the regular inspections it has been necessary to carry out a considerable number of inspections in connection with Royalty, Refineries, Pipe Lines, etc.

26. LEASES AND LICENCES.—Two leases were issued during the nine months—one to the Trinidad United Oilfields, Limited, as from the 1st March, 1915, in respect of 611 acres at Pa'o Seco which were originally held under Prospecting Licence by I. J. Bernstein (500 acres) and the Petroleum Options, Limited, (111 acres); and the other to the Petroleum Development Company, Limited, as from the 1st July, 1915, in respect of 1,999 acres originally held by them under Prospecting Licence. No new licences were issued during the period, but several extensions were granted.

The Exploration Licence issued to the Trinidad Leaseholds, Limited, was extended for six months from 27th November, 1915.

The Exploration Licence issued to the United British West Indies Petroleum Syndicate, Limited, over a small area at San Fernando was extended for six months from 12th November, 1915. Three applications from this Company for Prospecting Licences in respect of certain portions of the large area held by them under Exploration Licence were received and are receiving attention.

The time allowed to the Trinidad Grand River Oil Company, Limited, to take up their Prospecting Licence lapsed, and, therefore, the area of 2,319 acres reverted to the Crown.

27. QUARRIES.—My remarks on the subject of quarries in my last report still hold good. With the exception of a few of the Government Quarries they are mostly unimportant. There were 60 quarries worked during the period as against 71 during the previous financial year.

It was not found necessary to undertake any prosecutions in respect of quarry owners or managers.

WORK UNDER THE ASPHALT INDUSTRY REGULATION ORDINANCE, NO. 10 OF 1906.

28. As in previous years, digging has been confined to the village lots at La Brea.

During the period under review only one "Notice to commence" was received, and the number of levels taken was 210, which brings up the total number taken to date to 22,786.

Neither application for Certificate of Loss under Section 11 of the Ordinance, nor to dig by permit, under Section 9, was received.

29. APPENDICES.—I have pleasure in stating that most of the returns under the Ordinances from which the Appendices to this report are prepared have been obtained without trouble.

Appendix A shews the average number of persons employed and the quantity and value of minerals obtained.

The list of Accidents is shewn in Appendix B, they are chiefly of a minor nature and are such as are incidental to all industrial operations.

The Mines, Borings and Quarries worked during the period are shewn in Appendix C.

30. GENERAL REMARKS.—As was to have been expected the War has seriously hampered the development of the Oil Industry. Several promising undertakings are awaiting its close so as to be able to raise the necessary capital. At one time the export of oil had practically ceased, but latterly I am pleased to say it has been resumed on a fairly extensive scale. Considerable quantities of Oil Fuel are used at Sugar factories as well as for many of the local industries. And the trade in Oil fuel for bunkering purposes is now rapidly on the increase.

31. STAFF.—I am very pleased to be again able to record my sincere appreciation of the loyal and capable assistance rendered by the several members of the Staff.

17th May, 1916.

P. STEVENS,
Inspector of Mines.

APPENDIX A.

Daily average number of persons employed and quantity and value of Minerals obtained from Mines, Oilfields, and Quarries, during the nine months ended 31st December, 1915.

MINERALS.	Daily average number of persons employed.		Total.	Quantity.	Approximate value. £ s. d.
	Males.	Females.			
Manjak	31	4	35	503 tons ...	1,917 10 0
Oil	1,227	64	1,291	23,489,362 Imp.gals.	96,020 15 8½
Asphalt	61	...	61	5,511 tons ...	5,511 0 0
Private Quarries (Limestone, Gravel, &c.)	188	54	192	71,574·27 tons...	3,448 10 11½
Government Quarries (Limestone, &c.) ...	377	78	455	42,637·07 „ ...	5,061 8 4
				115 511·36	

NOTE. The difference in value between metal won from Private Quarries and Government Quarries is that the former consists of both Limestone and Gravel whilst the latter is chiefly Limestone.

APPENDIX B.

List of accidents which occurred at Mines, Oilfields and Quarries during the nine months ended 31st December, 1915, reported under Section 19 of Ordinance No. 13 of 1907.

Name of Mine, Oilfield or Quarry.	Date.	No. of Accidents reported.			
		Minor.	Serious.	Fatal.	Total.
Petroleum Development Company, Limited ...	6th April, 1915	...	...	1	1
	26th „ „	1	...	...	1
	3rd October „	1	...	...	1
	12th „ „	1	...	...	1
	15th November „	1	...	...	1
	24th „ „	1	...	...	1
Trinidad Leaseholds, Limited ...	26th „ „	1	...	...	1
	30th „ „	2	...	...	2
	2nd December „	1	...	...	1
	5th „ „	1	...	...	1
	15th „ „	1	...	...	1
	17th „ „	1	...	...	1
Trinidad Lake Petroleum Company, Limited	17th June „	1	...	...	1
	9th September „	...	...	1	1
Gordon Pits	8th July „	1	...	...	1
Trinidad Central Oilfields, Limited	22nd September „	...	1	...	1
Eastern Quarries	25th October „	1	...	...	1
St. Joseph Quarry	5th November „	1	...	...	1
	28th December „	...	1	...	1
La Brea Asphalt Works ...	3rd December „	...	...	1	1
		16	2	3	21

APPENDIX C.—List of Mines, Oilfields and Quarries worked during the nine months ended 31st December, 1915.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral Worked.
<i>Mines.</i>						
1	Gordon Pits ...	Savana Grande ...	Trinidad Manjak Limited, San Fernando ...	J. C. T. Raspass ...	10	Manjak.
2	Vistabella ...	San Fernando ...	Trinidad-Tarouba Oil Development Company, New York, U.S.A.	J. J. Waddell ...	24.77	"
3	La Brea Asphalt Works ...	La Brea ...	Chas. F. Stollmeyer, Port-of-Spain ...	Claude Phelps ...	61	Asphalt.
<i>Oilfields.</i>						
1	Trinidad United Oilfields Limited ...	Palo Seco ...	Trinidad United Oilfields Limited, Finsbury Court, London, E. C.	F. E. Cherry ...	18.45	Oil.
2	Trinidad Central Oilfields Limited ...	Tabaquite ...	Trinidad Central Oilfields, Limited, 79, Bishopsgate, London, E.C.	H. P. Ingram ...	97.80	"
3	Trinidad Oil and Transport Company, Limited ...	Barrackpore ...	Trinidad Oil and Transport Company, Limited, 48, Canon Street, London, E.C.	G. A. Peat ...	51	"
4	Perseverance Estate ...	Guapo ...	C. C. Stollmeyer, Port-of-Spain ...	E. Pereira ...	8	"
5	Petroleum Development Company, Limited ...	Brighton ...	Petroleum Development Company, Limited, Brighton ...	W. D. Fowler ...	101	"
6	Trinidad Lake Petroleum Company, Limited ...	Brighton ...	Trinidad Lake Petroleum Company, Limited, Brighton ...	W. D. Fowler ...	174	"
7	United British West Indies Petroleum Syndicate, Limited ...	San Fernando, Siparia and Moruga ...	United British West Indies Petroleum Syndicate, Limited, 32, Bishopsgate, London, E.C.	F. J. Fleming ...	33	"
8	United British Oilfields of Trinidad, Limited ...	Point Fortin ...	United British Oilfields of Trinidad, Limited, 32, Bishopsgate, London, E.C.	F. J. Fleming ...	299	"
9	Trinidad Leaseholds, Limited...	Pointe-à-Pierre ...	Trinidad Leaseholds, Limited, 1, London Wall Buildings, London, England and Port-of-Spain	H. S. Fuller ...	280	"
10	Trinidad Leaseholds, Limited...	Oropuche ...	Trinidad Leaseholds, Limited, 1, London Wall Buildings, London, England and Port-of-Spain	H. S. Fuller ...	225	"
11	Trinidad Leaseholds, Limited...	Guayaguayare ...	Trinidad Leaseholds, Limited, 1, London Wall Buildings, London, England and Port-of-Spain	H. S. Fuller ...	1.50	"
12	Trinidad Oil Leases, Limited...	Cap-de-Ville ...	Trinidad Oil Leases, Limited, 6, Drapers Gardens, London	Vernon Collins ...	2.40	"
<i>Quarries.</i>						
1	River Estate ...	Diego Martin ...	Trinidad Government, Port-of-Spain ...	District Officer ...	4	Limestone.
2	Cutucupano ...	Santa Cruz ...	" " " "	" " " "	4	"
3	Matchapoorie ...	Talparo ...	" " " "	" " " "	9.30	"
4	Siparia ...	Siparia ...	" " " "	" " " "	9.36	Porcellanite.
5	Buenos Ayres ...	Erin ...	" " " "	" " " "	7.03	"

APPENDIX C. List of Mines, Oilfields, and Quarries worked during the nine months ended 31st December, 1915.—CONTD.

No.	Name.	Situation.	Owner and Address.	Manager.	Daily average No. of persons employed.	Mineral Worked.
<i>Quarries.—Contd.</i>						
6	La Ressource ...	Erin ...	Trinidad Government, Port-of-Spain ...	District Officer ...	6.95	Porcellanite.
7	Whim ...	Tobago ...	" " " " ...	" " " " ...	4	Dead Rock.
8	Grange Main Road ...	Tobago ...	" " " " ...	" " " " ...	5	Limestone.
9	Providence ...	Tobago ...	" " " " ...	" " " " ...	5	Dead Rock.
10	Mayo ...	Mayo Village ...	" " " " ...	" " " " ...	6	Limestone.
11	Guaracara ...	Guaracara Village ...	" " " " ...	" " " " ...	7	"
12	Morichal ...	Morichal ...	" " " " ...	" " " " ...	6	"
13	Corosal ...	Corosal Road ...	" " " " ...	" " " " ...	5	"
14	Morne Diable ...	San Fernando ...	" " " " ...	" " " " ...	13	"
15	Southern Central Road, Quarry No. 1 ...	Cedros ...	" " " " ...	" " " " ...	8.37	Porcellanite.
16	Moruga ...	Moruga ...	" " " " ...	" " " " ...	10	Sandstone.
17	Eastern Quarries ...	Laventille ...	" " " " ...	F. J. Horsford ...	122	Limestone.
18	Carrera Island ...	Carrera Island ...	" " " " ...	Albert H. Phillips ...	99	"
19	Prisoners ...	Laventille ...	" " " " ...	Supt. of Prisons ...	49	"
20	Trinidad Government Railway	St. Joseph ...	" " " " ...	Hillary Aug. Sharpe... ..	11	"
21	Cumuto Road, 17th mile ...	Sangre Grande ...	" " " " ...	District Officer ...	14	"
22	Cunapo Southern Road, 13th mile ...	" " " " ...	" " " " ...	" " " " ...	4	"
23	Guaico-Tamama Road, 8th, 10th, 11th and 14th mile...	" " " " ...	" " " " ...	" " " " ...	14	"
24	Plum Road ...	" " " " ...	" " " " ...	" " " " ...	24	"
25	Pointe Radix ...	" " " " ...	" " " " ...	" " " " ...	6	"
26	Mount Hope ...	St. Joseph ...	" " " " ...	J. McInroy ...	2	"
27	Low ...	Carapichaima ...	E. Low, Upper Carapichaima ...	John Loshin ...	4	"
28	Woodford Farm ...	St. Ann's ...	Heirs of H. Furgurson, 22, Bedford Lane, Belmont ...	F. M. Thorne ...	3	"
29	Usine ...	San Fernando ...	Ste. Madeleine Sugar Company Limited, San Fernando ...	O. P. Bennett ...	6	Gravel.
30	Choroman ...	Upper Carapichaima ...	Choraman, Upper Carapichaima ...	Benjamin Pandohie... ..	2	Limestone.
31	Chickland Road ...	Chickland, Caparo ...	Chowaram, Todd's Road ...	Bagwandeem ...	2	"
32	Plum ...	Manzanilla ...	Manzanilla Local Road Board, Sangre Grande... ..	A. P. William ...	2	"
33	Duke Street ...	12, Duke Street ...	Virginia Prime, 12, Duke Street, Port-of-Spain... ..	Chas. Atwell ...	10	"
34	St. Ann's ...	St. Ann's ...	L. Veerasammy, Belmont ...	Norman Charles ...	9	"
35	Perseverance Estate ...	Guapo ...	C. C. Stollmeyer, Port-of-Spain ...	E. Pereira ...	9	Oil Sand.
36	Clifton Hill ...	Laventille ...	J. T. Gittens, 25, Phillip Street, Port-of-Spain... ..	J. Lashly ...	6	Limestone.
37	Quarry Street ...	Port-of-Spain ...	" " " " ...	" " " " ...	9	"
38	Basilon Street ...	" " " " ...	" " " " ...	" " " " ...	18	"
39	Tennis Clas ...	Laventille ...	" " " " ...	" " " " ...	5	"
40	Campo Street ...	San Juan ...	" " " " ...	C. H. Gittens ...	5	"

