MINES STATEMENT.

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1930.

NEW ZEALAND.

MINES STATEMENT,

BY THE HON. A. J. MURDOCH, MINISTER OF MINES.

MR. SPEAKER,—

I have the honour to present to Parliament the annual statement on the mining industry of the Dominion for the year ended 31st December, 1929.

During the year the Waikato Carbonization, Ltd., let a contract for the purchase, establishment, and installation of a carbonization plant, a tar-distillation plant, and a briquetting plant for the purpose of treating the slack produced from four of the principal collieries in the Waikato district. The works are being erected in the vicintity of Rotowaro, and it is intended to treat about 250 tons of slack a day. The company's enterprise in finding a substantial sum of money for such a plant is commendable, and if successful, as I hope it will be, should be most beneficial not only to the local miners, but also to the users of the fuel produced.

The quantity of gold-silver bullion produced during the year exceeded by 38,406 oz. the quantity obtained during the preceding year, but unfortunately the value obtained was less than in 1928.

Some months ago the rates provided in the regulations under the Mining Act, 1926, dealing with "assistance to prospecting" were increased by about 20 per cent. in as far as they apply to sinking in solid rock and for tunnelling or driving through hard rock where blasting is necessary. It is hoped that this will stimulate prospecting for minerals.

The gross output of coal for 1929 was a record one—viz., 2,536,864 tons—which is 99,111 tons in excess of the production during 1928. The quantity of coal imported during 1929 was, however, 32,205 tons less than during 1928.

The following statement shows the quantity and value of the production of metalliferous mines, stone-quarries under the Stone-quarries Act, and of coal-mines during 1929 and 1928:—

Mineral.	1929.		1928.	
	Quantity.	Value.	Quantity.	Value.
		£		£
Gold and silver*	571,320 oz.	527,340	532,914 oz.	551,242
Platinum	7 ,,	36	35 ,,	263
Osmiridium	..	..	10 dwt.	10
Tungsten-ore	22 1/20 tons	2,613	6 4/20 tons	432
Sulphur	967 ,,	13,918	719 ,,	8,200
Iron	4,393 ,,	21,965	6,362 ,,	31,802
Stone	..	479,199	..	461,890
Pumice	2,242 ,,	8,298	2,301 ,,	8,280
Coal	2,535,864 ,,	2,535,864	2,436,753 ,,	2,436,753
Silica-sand	318 ,,	159	..	..
Totals	..	£3,589,392	..	£3,498,872

* The gold-silver bullion is generally exported unseparated.

The value of minerals, including kauri-gum, exported and of the coal used in the Dominion, which is shown in Table No. 1 accompanying this Statement, amounted to £3,337,871, as compared with £3,222,137 during 1928. The total value of such minerals exported to the end of 1929 amounted to £172,803,266.

GOLD AND SILVER MINING.

The following statement shows the quantity and value of bullion-production, the dividends paid by registered companies, and the number of productive claims and gold-dredges during 1929 and 1928 :—

Class of Gold-mining.	Production of Bullion.				Dividends paid by Registered Companies.		Number of Productive Claims and Dredges.	
	1929.		1928.		1929.	1928.	1929.	1928.
	Oz.	£	Oz.	£	£	£		
Quartz	548,689	437,287	506,473	446,014	100,906	99,181	26	22
Alluvial	9,807	37,822	10,593	40,517	490	1,660	252	333
Dredging ..	12,824	52,231	15,848	64,711	1,641	3,283	5	5
Totals ..	571,320	527,340	532,914	551,242	103,037	104,124	283	360

COAL-MINING.

The output of the several classes of coal mined in each inspection district is summarized as follows :—

Class of Coal.	Output of Coal during 1929.				Total Output to the End of 1929.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Total.	
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and sub-bituminous	115,659	1,251,505	..	1,367,164	43,186,210
Brown	654,199	37,613	357,791	1,049,603	23,784,554
Lignite	..	890	118,207	119,097	4,327,935
Totals for 1929 ..	769,858	1,290,008	475,998	2,535,864	71,298,699
Totals for 1928 ..	781,889	1,200,839	454,025	2,436,753	68,762,835

PERSONS EMPLOYED IN OR ABOUT MINES AND STONE-QUARRIES.

The following table shows the number of persons employed in each inspection district during 1929 and 1928 :—

Classification.	Inspection District.			Totals.		
	Northern (North Island).	West Coast (of South Island).	Southern (rest of South Island).	1929.	1928.	Increase or Decrease.
Gold, silver, and tungsten ore	801	382	302	1,485	1,461	Inc. 24
Ironstone	..	20	..	20	21	Dec. 1
Cinnabar	57	..	2	59	12	Inc. 47
Sulphur	15	..	..	15	12	,, 3
Coal	1,539	3,032	926	5,497	5,376	,, 121
Stone-quarries under the Stone-quarries Act	1,478	195	457	2,130	2,161	Dec. 31
Oil	30	..	..	30	34	,, 4
Silica-sand	..	..	2	2	..	Inc. 2
Totals	3,920	3,629	1,689	9,238	9,077	Inc. 161

MINING AND QUARRY ACCIDENTS.

In metalliferous mines, at which 1,566 men were ordinarily employed, there were no fatal accidents, and but three serious accidents.

At stone-quarries under the Stone-quarries Act, employing 2,130 men, no persons were killed and only four persons met with serious injuries.

In coal-mines, where 5,497 persons were ordinarily employed, twelve persons were killed and thirty-seven persons seriously injured.

SOCIAL AMENITIES AT MINING TOWNSHIPS.

During last year additional grants from the State Coal-mines Account were authorized for improvements to the domain, croquet-lawn, bowling-green, tennis-courts, and swimming-pool, and for repairs to the gymnasium at Runanga.

The bowling-green at Millerton mentioned in the Statement for the year 1928 as nearing completion was finished during 1929, and is extensively used; and at Granity the work of improving the playing-field is still being carried on; an extensive swamp has been filled in, and the whole of the field is being top-dressed.

The amenities provided are extensively used and patronized by the miners, by their friends and families, and also the general public.

GEOLOGICAL SURVEY.

During the 1929-30 field season the Geological Survey continued the detailed examination of (1) the Te Kuiti district, (2) the volcanic region of the North Island, (3) the petroliferous area west of Gisborne, and (4) the Murchison district. With the exception of the Te Kuiti district, these explorations are now complete. An officer of the Geological Survey, lent to the Mineral Deficiency in Pastures Committee of the Research Council, also examined in considerable detail the substrata of many farms west of Te Kuiti, where, in recent years, stock have ceased to thrive, a condition thought to have been brought about by the deficiency of some element or elements in the soil.

As in former years, the Palæontological Branch of the Geological Survey carried out a large amount of useful work, chiefly directed to elucidate the fauna and sequence of the Tertiary bed of the Gisborne district. A great deal of money has been spent in that district in endeavours to obtain oil in commercial quantities, so far, unfortunately, without success. The palæontological work undertaken has been of great assistance, and will in the future be of still greater help, to those engaged in searching for petroleum.

In addition to the above-mentioned work, several examinations were made of mining properties in the Hauraki, Marlborough, and Reefton districts. Short accounts of these visits are published in the Annual Report of the Geological Survey.

Several officers explored the area affected by the earthquakes that did so much damage to property in, and caused so much distress to the inhabitants of, western Nelson. The examinations are not yet complete; but some short articles describing the observations already have appeared, and a comprehensive report is being prepared.

MINING PRIVILEGES.

During the year ended 31st March, 1930, 518 licenses for mining privileges were granted under the provisions of the Mining Act, 1926. Out of this number 53 were licenses for claims authorizing the holders to mine for gold. For the same period 315 mining privileges, including 50 licenses for claims, were struck off the registers under the provisions of section 188 of the said Act.

STATE AID TO MINING.

As in previous years, considerable use was made of the Government prospecting drills. They were hired by eight parties, and a total of 5,863 ft. was drilled.

For the year a total of £2,980 12s. 2d. was expended in subsidies for prospecting, and 118 persons were employed in connection therewith.

£2,815 17s. 1d. was expended by way of direct grants and subsidies for roads and tracks.

The expenditure on schools of mines amounted to £3,499 9s. 11d.

SCHOOL OF MINES SCHOLARSHIPS.

Seven scholarship candidates sat at the annual Schools of Mines Examinations, held in November and December of last year, for the six scholarships which are offered annually for competition by students attending the schools of mines within the Dominion.

Two candidates (one from the Huntly School and one from the Westport School) were successful in gaining scholarships, which are tenable for four years at the University of Otago.

MINERS' PENSIONS.

Miner's Phthisis Act, 1915.

(Now in Pensions Act, 1926.)

The benefits under this Act, which were extended by section 36 of the Finance Act, 1929, are administered by the Pensions Department. The definition of "miner's phthisis" has been widened, the requirement of total incapacity relaxed under certain conditions, and provision made for a pension of 10s. weekly for each child under fifteen years of age, subject to restriction on account of the income of the father.

The following is a statement supplied by the Commissioner of Pensions showing the amount and the number of pensions payable, in force, and granted to the 31st March, 1930:—

	£
Payments from 1st November, 1915, to 31st March, 1929	394,348
Payments, 1929–30	51,683
Total payments to 31st March, 1930	£446,031
Number of new grants for year 1929–30	86
Annual value of new grants	£6,533
Number of pensions in force at 31st March, 1930	779
Annual value of pensions in force at 31st March, 1930	£53,354
Average pension per annum	£68 9s. 10d.
Number of pensions granted to 31st March, 1930	1,627
Dissection of pensions in force at 31st March, 1930:—	
Unmarried miners	128
Married miners	266
Miners' widows	385
	779

INVESTIGATIONS, NEW ZEALAND COALS.

In conjunction with other colliery-owners in the Dominion, the Mines Department has taken its full share in the work of the Coal Research Association, carried out at the Dominion Laboratory. Up to the present this has consisted chiefly of the low-temperature carbonization in a Fischer retort of brown (or sub-bituminous) coals from the Waikato and Southland areas, and of Grey-King assays of other coals. Analyses of samples from new seams at Ohura, Ohai, Reefton, and from bores in the State coal reserve, have been obtained as required.

The Department has for some years past made every effort to encourage the use of New Zealand coals for gasmaking, and to still further this object investigations were made of the yields of gas and coke from a mixture of Liverpool and James coals, also from blends of Dobson with Linton and with Morrisvale (Reefton) coals.

COAL-MINERS' RELIEF FUND.

As mentioned in the Statement for the year 1927, all accident-relief payments are now made from the Coal-miners' Relief Fund, which is administered by the Public Trustee, the Miners' Sick and Accident Funds having been abolished as from the 1st April, 1926, and incorporated in the Coal-miners' Relief Fund.

Notwithstanding that the Public Trustee increased, as from the 1st April, 1927, the rate of interest on the funds by ½ per cent., the Relief Fund shows a diminution of £1,290 17s. 3d. for the year ended 31st March, 1930, as against a diminution of £685 7s. 4d. for the year ended 31st March, 1929. This has been caused by the payments for relief exceeding the receipts for the year.

The interest earned for the twelve months ended 31st March, 1930, was £1,311 13s. 9d., as against £1,364 14s. 2d. for the previous year, while for the same periods the receipts from the ½d. per ton contribution were £4,924 3s. 11d. and £4,893 10s. 7d. respectively.

The total expenditure for the year ended 31st March, 1930, amounted to £7,526 14s. 11d., as against £6,943 12s. 1d. for the previous year.

The amount standing to the credit of the Fund as at the 31st March, 1930, was £24,180 6s. 7d., as against £25,471 3s. 10d., at the 31st March, 1929.

STATE COLLIERIES.

Housing.

With the object of enabling miners and other employees working at the State collieries to erect and own their own homes, a housing scheme was introduced by the Government several years ago, but it was not until three years ago that the employees availed themselves of the opportunity thus offered.

To the 31st March, 1930, twenty-seven loans for financing the cost of the erection of houses have been sanctioned, the lowest advance being for £250 and the highest £300. Repayments are made at the rate of 3s. 3½d. per week for each £100 loaned, and at the end of twenty years' time the loan is liquidated.

Output and Sales.

The operations of the State coal-mines and State coal-depots for the year ended 31st March, 1930, are briefly reviewed hereunder.

Liverpool Colliery.—The gross output for the year was 141,420 tons, as compared with 129,126 tons for last year, an increase of 12,294 tons.

James Colliery.—The gross output for the year was 43,965 tons, as compared with 39,105 tons for last year, an increase of 4,860 tons.

A comparative statement for the two years is shown hereunder :—

Mine.	Output, in Tons, 1929–30.		Output, in Tons, 1928–29.	
	Gross.	Net.	Gross.	Net.
Liverpool	141,420	134,740	129,126	122,340
James	43,965	42,950	39,105	36,614

Note.—The difference between the gross and the net output is the allowance for mine consumption and waste. In addition to the above, 6,171 tons of coal were purchased for resale, of which 4,928 tons were purchased from co-operative parties on the West Coast.

The disposal, inclusive of stock on hand at the beginning of the year, was as follows : Supplied to—Depots, 56,271 tons ; railways, 13,142 tons ; other Government Departments, 4,997 tons ; shipping, 21,413 tons ; gasworks, 73,698 tons ; other consumers, 13,265 tons : total, 182,786 tons.

The total sales of State coal from the Liverpool Mine for the year amounted to 139,376 tons, value £189,569,* as compared with 123,974 tons, value £161,157,* for last year—an increase of 15,402 tons, with an increase in value of £28,412.

* These values include sales made c. and f. and f.o.b. as well as f.o.r.

The average price realized by the mine on the total sales for the year was £1 7s. 2·4d., an increase of 1s. 2·5d. on last year's average.

The total sales of State coal from the James Mine for the year amounted to 43,410 tons, value £55,609,* as compared with 36,942 tons, value £53,284,* for last year—an increase of 6,468 tons, with an increase in value of £2,325.

The average price realized by the mine on the total sales for the year was £1 5s. 7·4d. per ton, a decrease of 4·5d. on last year's average.

The sales of coal, &c., through the medium of the depots totalled 144,100 tons, value £271,269, as against 116,749 tons, value £220,505, for last year.

The profits at the mines were £1,236, and at the depots, &c., £14,620, making a net profit of £15,856. £7,321 was applied to the Sinking Fund Account.

Although more time was worked at both collieries, the output from the Liverpool Colliery was not sufficient to fulfil orders, thus causing a financial loss to be sustained in operating this colliery. Apart from this the financial results obtained in operating the State coal business were, on the whole, satisfactory.

Items from Balance-sheet.

The following items taken from the balance-sheet, which has been audited, will prove of interest as indicating the more important items of expenditure, and for reference in respect to the position of Capital Account, reserve funds, and other accounts shown therein :—

	£
The amount written off for depreciation for the year was	13,339
The payments for interest totalled	7,706
The payments for sea carriage of coal amounted to	62,792
The cost of railway haulage amounted to	41,894
The total wages paid for coal-winning were	108,165
The amount paid for management and office salaries (Head Office and mines) totalled	4,015
The gross capital expenditure on the whole undertaking to the 31st March last was	655,688
The total depreciation written off to date (equal to 61·67 per cent. on the gross capital expenditure) amounts to	404,336
The debenture and loan capital stands at	157,283†
The net profits of the State Coal-mines Account from inception to the 31st March, 1930, are	179,176
The net profit for the year ended 31st March, 1930, was	15,856
The sinking fund is in credit	7,945†
General reserve stands at	174,240
The amount at credit of Profit and Loss is	8,536
The cash in hand and in the Public Account at the 31st March last was (last year £5,672)	8,257
The present net book value of permanent or fixed assets is	251,352

* These values include sales made c. and f. and f.o.b. as well as f.o.r.

† During the year the sum of £5,318 was taken out of the Sinking Fund and applied in reduction of the loan capital.

TABLES TO ACCOMPANY MINES STATEMENT.

No. 1.

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD AND OTHER MINERALS AND ALLIED SUBSTANCES EXPORTED DURING THE YEARS ENDED THE 31ST DECEMBER, 1929 AND 1928, AND THE TOTAL VALUE SINCE THE 1ST JANUARY, 1853. THE COAL-OUTPUT IS ALSO INCLUDED.

Name of Metal or Mineral.	For Year ended the 31st December, 1929.		For Year ended the 31st December, 1928.		Total from the 1st January, 1853, to the 31st December, 1929.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Precious metals—	Oz.	£	Oz.	£	Oz.	£
Gold*	116,848	480,212	118,722	489,584	23,782,305	93,907,834
Silver	416,262	41,475	445,811	44,416	26,842,894	3,145,140
Total gold and silver ..	533,110	521,687	564,533	534,000	50,625,199	97,052,974
Mineral produce, including kauri-gum—	Tons.	£	Tons.	£	Tons.	£
Copper-ore	..	..	..	..	1,504	19,390
Chrome-ore	..	..	..	..	5,869	38,002
Antimony-ore	..	..	..	..	3,781	55,045
Manganese-ore	..	..	..	..	19,384 11/20	62,006
Hæmatite-ore	..	..	..	..	77	469
Tungsten-ore	33 9/20	3,468	5 1/20	328	2,435 14/20	309,740
Quicksilver	..	..	..	..	16 12/20	8,336
Sulphur (crude)	..	..	..	..	4,927	13,241
Mixed minerals†	2,322 12/20	9,052	2,313	8,830	83,651 12/20	349,505
Coal (New Zealand) exported	205,403	284,521	125,771	173,693	6,265,365	6,885,522
Coke exported	54	190	20	93	17,677	27,866
Coal, output of mines in Dominion (less exports)	2,330,461	2,251,343	2,310,982	2,263,060	65,033,334	45,325,216
Oil-shale	..	..	..	..	14,444	7,236
Kauri-gum	4,937	267,610	4,394	240,139	413,304	22,642,132
Pig iron	..	..	500	1,994	1,610	6,586
Total quantity and value of minerals	2,543,211 1/20	2,816,184	2,443,985 1/20	2,688,137	71,867,380 9/20	75,750,292
Value of gold and silver, as above	..	521,687	..	534,000	..	97,052,974
Total value of minerals, including gold and silver	..	3,337,871	..	3,222,137	..	172,803,266

*In respect of gold, ounces of the fineness of 20 carats and upwards. †Including pumice-sand, 2,242 tons.

No. 2.

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD EXPORTED FROM NEW ZEALAND FOR THE YEARS ENDED THE 31ST DECEMBER, 1929 AND 1928, AND THE TOTAL QUANTITY AND VALUE FROM 1857 TO THE 31ST DECEMBER, 1929.

District and County or Borough.	Year ended 31st December, 1929.		Year ended 31st December, 1928.		Total Quantity and Value from January, 1857, to 31st December, 1929.	
	Quantity.	Value.	Quantity.	Value.		
AUCKLAND—	Oz.	£	Oz.	£	Oz.	£
County of Ohinemuri ..	538	1,946	89	297		
County of Coromandel ..	115	419	..	..		
County of Thames	510	1,854	114	340		
Borough of Waihi	74,381	312,032	75,823	317,991		
Borough of Thames ..	12	46	..	..		
	75,556	316,297	76,026	318,628	7,549,805	29,386,824
WELLINGTON	..	..	..	..	188	706
MARLBOROUGH—						
County of Marlborough ..	1,208	4,683	329	1,308	108,550	422,586
NELSON—						
County of Collingwood ..	50	189	133	503		
County of Murchison ..	126	505	273	1,088		
County of Waimea ..	..	..	37	149		
	176	694	443	1,740	1,742,588	6,909,179
WEST COAST—						
County of Buller	86	330	62	241		
County of Inangahua ..	20,857	81,164	17,986	70,897		
County of Westland ..	12,635	51,190	15,471	62,924		
	33,578	132,684	33,519	134,062	6,590,842	26,162,481
CANTERBURY	..	..	..	..	157	620
OTAGO—						
County of Tuapeka ..	904	3,707	1,332	5,488		
County of Vincent	1,398	5,709	2,672	10,790		
County of Maniototo ..	996	4,066	727	2,978		
County of Waitaki ..	..	..	139	538		
County of Lake	653	2,635	861	3,456		
County of Wallace	764	3,026	756	2,977		
County of Southland ..	1,079	4,660	973	3,965		
County of Waihemo ..	22	90	19	79		
	5,816	23,893	7,479	30,271	7,778,932	30,980,272
Unknown	514	1,961	926	3,575	11,243	45,166
Totals	116,848	480,212	118,722	489,584	23,782,305	93,907,834

No. 3.

TABLE SHOWING THE OUTPUT OF COAL FROM THE VARIOUS COALFIELDS, AND THE COMPARATIVE INCREASE AND DECREASE, FOR THE YEARS 1929 AND 1928, TOGETHER WITH THE TOTAL APPROXIMATE QUANTITY OF COAL PRODUCED SINCE THE MINES WERE OPENED.

Name of Coalfield.	Output.		Increase.	Decrease.	Approximate Total Output up to 31st December, 1929.
	1929.	1928.			
	Tons.	Tons.	Tons.	Tons.	Tons.
North Auckland	116,109	179,460	..	63,351	5,097,814
Waikato (including Taranaki) ..	653,749	602,429	51,320	..	10,922,523
Nelson	19,202	13,528	5,674	..	470,778
Buller	657,533	656,706	827	..	22,007,806
Inangahua	36,798	30,324	6,474	..	675,455
Grey	576,475	500,281	76,194	..	13,592,979
Canterbury	9,449	9,145	304	..	963,868
Otago	182,515	192,746	..	10,231	12,026,409
Southland	284,034	252,134	31,900	..	5,541,067
Totals	2,535,864*	2,436,753	..	..	71,298,699

* Increase, 99,111 tons.

No. 4.

TABLE SHOWING THE OUTPUT OF DIFFERENT CLASSES OF COAL.

Class of Coal.	Output.		Increase.	Decrease.	Approximate Total Output to the 31st December, 1929.
	1929.	1928.			
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and semi-bituminous..	1,367,164	1,348,732	18,432	..	43,186,210
Brown	1,049,603	973,238	76,365	..	23,784,554
Lignite	119,097	114,783	4,314	..	4,327,935
Totals	2,535,864	2,436,753	99,111	..	71,298,699

No. 5.

TABLE SHOWING THE INCREASE OR DECREASE IN THE ANNUAL PRODUCTION OF COAL AND OIL-SHALE IN THE DOMINION, AND THE QUANTITY OF COAL IMPORTED SINCE 1878.

Year.	Coal and Shale raised in the Dominion.		Coal imported.		
	Tons.	Yearly Increase or Decrease.	Tons.	Increase over Preceding Year.	Decrease below Preceding Year.
Prior to 1878 ..	709,931	..	..	..	..
1878	162,218	..	174,148	..	..
1879	231,218	Inc. 69,000	158,076	..	16,072
1880	299,923	,, 68,705	123,298	..	34,778
1881	337,262	,, 37,339	129,962	6,664	..
1882	378,272	,, 41,010	129,582	..	380
1883	421,764	,, 43,492	123,540	..	6,042
1884	480,831	,, 59,069	148,444	24,904	..
1885	511,063	,, 30,232	130,202	..	18,242
1886	534,353	,, 23,290	119,873	..	10,329
1887	558,620	,, 24,267	107,230	..	12,643
1888	613,895	,, 55,275	101,341	..	5,889
1889	586,445	Dec. 27,450	128,063	26,722	..
1890	637,397	Inc. 50,952	110,939	..	17,124
1891	668,794	,, 31,397	125,318	14,379	..
1892	673,315	,, 4,521	125,453	135	..
1893	691,548	,, 18,233	117,444	..	8,009
1894	719,546	,, 27,998	112,961	..	4,483
1895	726,654	,, 7,108	108,198	..	4,763
1896	792,851	,, 66,197	101,756	..	6,442
1897	840,713	,, 47,862	110,907	9,151	..
1898	907,033	,, 66,320	115,427	4,520	..
1899	975,234	,, 68,201	99,655	..	15,772
1900	1,093,990	,, 118,756	124,033	24,378	..
1901	1,239,686	,, 145,696	149,764	25,731	..
1902	1,365,040	,, 125,354	127,853	..	21,911
1903	1,420,229	,, 55,189	163,923	36,070	..
1904	1,537,838	,, 117,609	147,196	..	16,727
1905	1,585,756	,, 47,918	169,046	21,850	..
1906	1,729,536	,, 143,780	207,567	38,521	..
1907	1,831,009	,, 101,473	220,749	13,182	..
1908	1,860,975	,, 29,966	287,808	67,059	..
1909	1,911,247	,, 50,272	258,185	..	29,623
1910	2,197,362	,, 286,115	232,378	..	25,807
1911	2,066,073	Dec. 131,289	188,068	..	44,310
1912	2,177,615	Inc. 111,542	364,359	176,291	..
1913	1,888,005	Dec. 289,610	468,940	104,581	..
1914	2,275,614	Inc. 387,609	518,070	49,130	..
1915	2,208,624	Dec. 66,990	353,471	..	164,599
1916	2,257,135	Inc. 48,511	293,956	..	59,515
1917	2,068,419	Dec. 188,716	291,597	..	2,359
1918	2,034,250	,, 34,169	255,332	..	36,265
1919	1,847,848	,, 186,402	391,434	136,102	..
1920	1,843,705	,, 4,143	476,343	84,909	..
1921	1,809,095	,, 34,610	822,459	346,116	..
1922	1,857,819	Inc. 48,724	501,478	..	320,981
1923	1,969,834	,, 112,015	445,792	..	55,686
1924	2,083,207	,, 113,373	674,483	228,691	..
1925	2,114,995	,, 31,788	572,573	..	101,910
1926	2,239,999	,, 125,004	483,918	..	88,655
1927	2,366,740	,, 126,741	378,090	..	105,828
1928	2,436,753	,, 70,013	247,861	..	130,229
1929	2,535,864	,, 99,111	215,656	..	32,205

No. 6.

TABLE SHOWING THE TOTAL QUANTITY AND VALUE OF COAL IMPORTED INTO AND EXPORTED FROM NEW ZEALAND FROM AND TO EACH COUNTRY DURING THE CALENDAR YEAR 1929.

Imports.

Country whence imported.	Tons.	Value.
		£
United Kingdom	1,388	1,643
Australia	214,268	275,028
Totals	215,656	276,671

The values shown are the current domestic values in countries of export plus 10 per cent.

Exports: Bunkers.

Country to which exported.	Produce of New Zealand.		Produce of other Countries.	
	Tons.	Value.	Tons.	Value.
		£		£
United Kingdom	60,188	119,960	..	..
Canada, via East Coast	3,064	6,527	..	..
Canada, via West Coast	1,455	1,509	..	..
Chile	4,062	4,646	..	..
Australia	32,104	37,475	4,690	7,085
Fiji	11,949	12,884	..	..
Nauru Island	5,212	5,212	..	..
Gilbert and Ellice Islands.. ..	6,059	6,725	..	..
India	300	684	..	..
United States of America, via East Coast	2,100	4,200	..	..
New Caledonia	2,944	3,016	..	..
United States of America, via West Coast	3,631	3,681	..	..
Tuamotu Archipelago	9,972	9,972	..	..
Whale-fisheries	1,324	3,376	..	..
Norway	1,413	2,755	..	..
Dutch East Indies	4,722	4,722	..	..
Society Islands	5,277	5,277	..	..
Totals	155,776	232,621	4,690	7,085

Exports: Cargo.

Country to which exported.	Produce of New Zealand.		Produce of other Countries.	
	Tons.	Value.	Tons.	Value.
		£		£
United Kingdom	538	1,125	..	..
Fiji	393	444	..	..
Western Samoa	1	6	..	..
Gilbert and Ellice Islands.. ..	1,769	1,770	..	..
Australia	33,668	35,194	..	..
Nauru Island	1,004	1,004	..	..
Norfolk Island	1	4	..	..
New Caledonia	4,015	4,115	..	..
Society Islands	8,238	8,238	..	..
Totals	49,627	51,900	..	..

No. 7.

NUMBER OF PERSONS ORDINARILY EMPLOYED AT OR ABOUT MINES OTHER THAN COAL-MINES DURING THE YEAR ENDED 31ST DECEMBER, 1929.

County or Borough.	Number of Persons ordinarily employed at				Total.	
	Gold-quartz Mines.	Gold Alluvial Mines.	Gold-dredges.	Mines other than Gold and Coal.	1929.	1928.
NORTHERN INSPECTION DISTRICT.						
County of Thames	28	..	..	..	28	18
,, Ohinemuri	100	..	..	..	100	58
,, Coromandel	48	..	..	..	48	36
Borough of Thames	52	..	..	..	52	33
,, Waihi	573	..	..	..	573	567
County of Wairoa	..	..	..	10	10	21
,, Taranaki	..	..	..	17	17	3
,, Waiapu	..	..	..	..	..	2
,, Tauranga	..	..	..	..	..	11
,, Whangamomona	..	..	..	3	3	6
,, Bay of Islands	..	..	..	57	57	10
White Island	..	..	..	15	15	12
WEST COAST INSPECTION DISTRICT.						
County of Marlborough	9	17	..	..	26	26
,, Collingwood	..	5	..	20	25	31
,, Murchison	..	12	..	..	12	25
,, Buller	5	6	..	..	11	14
,, Inangahua	198	6	..	..	204	216
,, Grey	..	4	8	..	12	20
,, Westland	..	5	68	..	73	111
Borough of Kumara	..	18	..	..	18	..
,, Hokitika	..	18	..	..	18	..
,, Ross	..	3	..	..	3	..
SOUTHERN INSPECTION DISTRICT.						
County of Ashburton	..	..	..	2	2	..
,, Tuapeka	..	48	..	2	50	54
,, Vincent	..	41	9	..	50	54
,, Maniototo	7	45	2	..	54	57
,, Waihemo	4	1	..	6	11	8
,, Waitaki	..	6	..	..	6	6
,, Lake	1	38	2	4	45	50
,, Wallace	..	27	..	..	27	33
,, Southland	..	61	..	..	61	58
Totals	1,025	361	89	136*	1,611	1,540

* Includes 15 persons employed in sulphur-mining, and 30 in oil-boring operations.

Summary of Persons ordinarily employed in or about New Zealand Mines during 1929 and 1928.

——	1929.	1928.	Increase or Decrease.
Gold, silver, and tungsten mines	1,485	1,461	Inc. 24
Other metalliferous mines	126*	79	,, 47
Coal-mines	5,497	5,376	,, 121
Totals	7,108	6,916	Inc. 192

* Includes 15 persons employed in sulphur-mining, and 30 in oil-boring operations.

APPENDICES TO THE MINES STATEMENT

APPENDIX A.

REPORTS RELATING TO METALLIFEROUS MINES AND STONE-QUARRIES.

The Inspecting Engineer of Mines to the Under-Secretary of Mines.

Sir,— Wellington, 18th June, 1930.

I have the honour to present my report on metalliferous mines and stone-quarries, together with statistical information, for the year ended 31st December, 1929.

In accordance with the usual practice, the tables showing expenditure on roads, bridges, tracks, prospecting operations, &c., are for the period covered by the financial year—viz., from the 1st April, 1929, to the 31st March, 1930.

The reports, &c., are divided into the following sections:—

I. Minerals produced and exported.
II. Persons employed.
III. Accidents.
IV. Gold-mining.
  (1) Quartz-mining.
  (2) Dredge Mining.
  (3) Alluvial Mining.
V. Minerals other than Gold.
VI. Stone-quarry Inspection and Statistics.
VII. State Aid to Mining.
  (1) Subsidized Prospecting.
  (2) Government Prospecting-drills.
  (3) Subsidized Roads on Goldfields.
  (4) Schools of Mines.

Annexures:—
(A) Summary of Reports by Inspectors of Mines.
(B) Summary of Report by Inspector of Quarries.
(C) Mining Statistics.

I. MINERALS PRODUCED AND EXPORTED.

The following statement shows the quantity and value of the production of metal-mines and of the value of the production from stone-quarries under the Stone-quarries Act during 1929 and 1928:—

Mineral.	1929.		1928.	
	Quantity.	Value.	Quantity.	Value.
	Oz.	£	Oz.	£
Gold and silver (estimated)	571,320	527,340	532,914	551,242
Platinum	7	36	35	263
Osmiridium	..	..	½	10
	Tons cwt.		Tons cwt.	
Tungsten-ore	22 13	2,613	6 4	432
Iron	4,393 0	21,965	6,362 0	31,802
Stone	..	479,199	..	461,890
Pumice	2,242 0	8,298	2,301 0	8,280
Sulphur	967 0	13,918	719 0	8,200
Silica-sand	318 0	159	..	..
Totals	..	1,053,528	..	1,062,119

The following statement shows the value of New Zealand minerals (other than coal and coke) and allied substances exported from the 1st January, 1853, to the 31st December, 1929 :—

—	1929.	1928.	Increase or Decrease.	Total from the 1st January, 1853, to the 31st December, 1929.
	£	£	£	£
Gold	480,212	489,584	Dec. 9,372	93,907,834
Silver	41,475	44,416	,, 2,941	3,145,140
Tungsten-ore	3,468	328	Inc. 3,140	309,740
Kauri-gum	267,610	240,139	,, 27,471	22,642,132
Pig iron	..	1,994	Dec. 1,994	6,586
Sand, lime, and building-stone	8,842	8,830	Inc. 12	553,230
Other minerals	210	..	,, 210	
Totals	801,817	785,291	Inc. 16,526	120,564,662

II. PERSONS EMPLOYED.

The following statement shows the number of persons ordinarily employed in or about the metalliferous mines* of the Dominion during the year :—

Classification.	Inspection District.			Total, 1929.
	Northern.	West Coast.	Southern.	
Gold, silver, and tungsten	801	382	302	1,485
Ironstone	..	20	..	20
Cinnabar	57	..	2	59
Silica-sand	..	..	2	2
Totals for 1929	858	402	306	1,566
Totals for 1928	733	441	320	1,494

* In addition, 15 persons were employed in sulphur-mining and 30 persons in oil-boring operations.

III. ACCIDENTS.

During 1929 no fatal and three serious but non-fatal accidents occurred in or about metalliferous mines, at which 1,566 persons were ordinarily employed.

Cause.	Fatal Accidents.		Serious Non-fatal Accidents.	
	Number of Separate Accidents.	Number of Deaths.	Number of Separate Accidents.	Number of Persons injured.
Falls of ground	..	..	..	..
Explosives	..	..	..	..
Miscellaneous, on surface	..	..	1	1
Miscellaneous, underground	..	..	2	2
Totals	..	..	3	3

IV. GOLD-MINING.

The following statement shows the value of the bullion-production, also the dividends declared, number of persons employed, and the number of gold-mines and dredges :—

—	Production of Bullion, 1929.* (All Mines.)		Dividends paid, 1929. (By Registered Companies only.)†	Number of Persons ordinarily employed at Productive and Unproductive Mines.	Number of Productive Quartz-mines, Alluvial Mines, and Dredges, 1929.
	Quantity.	Value.			
	Oz.	£	£		
Quartz-mining ..	548,689	437,287	100,906	1,025	26
Alluvial mining‡ ..	9,807	37,822	490	361	252
Dredge mining ..	12,824	52,231	1,641	89	5
Totals, 1929 ..	571,320	527,340	103,037	1,475	283
Totals, 1928 ..	532,914	551,242	104,124	1,458	360

* In addition to the gold produced from the gold-mines, silver was obtained from them, hence the word "bullion" is used in preference to "gold."

† The profits of privately-owned dredges and mines are unobtainable, which renders this statement incomplete.

‡ The bullion-production is from 252 alluvial claims, but the dividends are only obtainable from those few that are the property of registered companies.

The total value of the gold produced in 1929 was less by £23,902 than that produced in 1928. This decrease is made up of a decrease of £8,727 from quartz-mining, a decrease of £12,480 from dredging, and a decrease of £2,695 from alluvial mining.

(1) Quartz-mining.

Inspection District.	Statute Tons of Ore treated.		Value of Bullion.		Dividends paid (by Registered Companies only).	
	1929.	1928.	1929.	1928.	1929.	1928.
			£	£	£	£
Northern	194,401	205,271	356,359	366,937	100,906	99,181
West Coast	47,806	46,717	80,854	79,044	..	..
Southern	135	120	74	33	..	..
Totals	242,342	252,108	437,287	446,014	100,906	99,181

The average value per ton of ore treated during 1929 amounted to £1 16s. 1d., as compared with £1 15s. 5d. during 1928.

From the Waihi Mine 181,086 tons of ore were mined, against 181,479 tons for the previous year. The gold recovered amounted to 67,616 oz. and the silver to 370,455 oz., compared with 67,322 oz. of gold and 350,669 oz. of silver for the previous year; the total value of the bullion obtained was £321,032, an increase of £3,213 over that obtained during 1928. A large amount of development work was done and various ore-bodies located, with the result that the ore reserves are practically the same as at the beginning of the year; the new ore-bodies were located from No. 10 level upwards.

Work on the Waihi Grand Junction property is being carried on by the Waihi Gold-mining Co.; 9,878 tons of ore were mined and 79,127 oz. of bullion recovered, of a value of £30,753.

From the Blackwater Mine 37,744 tons of quartz were mined and yielded on treatment 16,201 oz. of gold, valued at £64,394. Compared with the previous year these figures show decreases of 2,163 tons of stone, 408 oz. of gold, and £6,131 in value. Less development work was done than in 1928.

(2) Dredge Mining.

The following is a statement showing the capacity, production, and profits of bucket gold-dredges during 1929. (Note.—The profits made by privately-owned dredges are not obtainable for publication.)

Name of Dredge.	Locality.	Capacity of Dredge-buckets, in Cubic Feet.	Number of Buckets discharged per Minute.	Nominal Horse-power of Engines.	S = Steam. E = Electrical. H = Hydraulic.	Average Depth of Ground dredged.	Value of Bullion obtained during 1929.	Dividends declared.	
								During 1929.	Total.
Otago and Southland.						Ft.	£	£	£
Nevis Crossing	Nevis River ..	3½	10	12	S	10	123	..	..
Upper Nevis	„ ..	7	10	205	E	25	2,653	..	..
Undaunted	Little Kyeburn ..	4½	10	60	H	15	38	..	..
West Coast.									
Rimu	Rimu Flat ..	10	19	450	E	38	46,970	1,641	24,622
New River	Dunganville ..	7	18	210	E	35	2,447	..	..
Totals, 1929 ..	..	..	..	..	..	..	52,231	1,641	Unknown
Totals, 1928 ..	..	..	..	..	..	..	64,711	3,283	Unknown

The Rimu dredge during the period under review handled 2,065,567 cubic yards of gravel and recovered gold to the value of £46,970, an increase of 184,720 yards dug, but a decrease of £10,755 in return when compared with the figures for the previous year. The dredge worked for 85·9 per cent. of the possible dredging-time, and the average depth of the ground dredged was just over 38 ft. The average value of the gravel treated was 5·46d. per cubic yard, compared with 7·37d. per cubic yard during 1928. The company owning this dredge has done a great deal of prospecting work, their Keystone drill having been in constant operation throughout the year. The dredge pontoons and superstructure are of timber; the work of replacing these in steel has been put in hand. Considerable improvements are also to be made in the dredge machinery, and the dredge when reconstructed will have a larger capacity and be able to dig deeper than at present.

The New River dredge was reconstructed and was put into operation in March. It was, however, unable to pay expenses, and was closed down in July, after which the company owning the dredge went into liquidation.

(3) Alluvial Mining.

The following is a statement showing the value of production and dividends declared from alluvial gold-mines during 1929:—

Name of Company.	Estimated Value of Gold produced.	Dividends declared.	
		During 1929.	Total to End of 1929.
	£	£	£
Kildare Gold-mining Co.	1,230	..	..
A. and G. Brown	1,010	..	..
Gabriel's Gully Sluicing Co.	1,277	..	20,215
W. R. Smyth	1,422	..	..
Sailor's Gully Sluicing Co.	1,369	..	9,410
Graham and party	949	370	4,833
Big Beach Gold-mining Co.	3,035	..	..
Moonlight Mining Syndicate	1,038	120	120
Nokomai Sluicing Co.	3,770	..	..
Round Hill Mining Co.	1,163	..	..
Mahakipawa Goldfields	1,515	..	..
Hohonu Sluicing Co.	1,196	..	..
Stubbs and Steel	841	..	..
All other claims	18,007	..	..
Totals	37,822	490	Unknown.

V. MINERALS OTHER THAN GOLD.

Iron.

The ironworks at Onakaka were shut down during the first half of the year. A pipemaking plant, a hydro-electric plant, and a new aerial tramway between the iron-ore quarry and the furnace were installed. In the second half of the year 8,043 tons of ore were smelted and produced 4,393 tons of pig iron.

Sulphur.

From the sulphur deposits on White Island 3,169 tons of crude sulphur were mined for use in the manufacture of fertilizer.

Quicksilver.

In 1928 an area of about 600 acres near Ngawha Springs, North Auckland, was taken up and prospected for quicksilver on behalf of the Imperial Chemical Industries, Ltd., of London. Numerous boreholes were put down with satisfactory results. During the past year a large amount of development work has been done on the property, and a reduction plant is now being installed.

Petroleum.

The Taranaki Oilfields, Ltd., continued drilling the Gisborne No. 2 well and reached a depth of 3,180 ft. in material which caved badly; at this depth the drilling was suspended pending the installation of a rotary drill. The same company put down two test bores on a supposed favourable structure near Kotuku; the first of these holes reached a depth of 420 ft. and the second a depth of 965 ft., both being stopped by reason of the soft caving strata encountered in the holes.

The Blenheim Oil-well Reclamation Co. continued without success its efforts to reclaim the No. 1 well and bring it into steady production. This well was abandoned in March, and attention turned to No. 2 well, which at the end of the year had been put in good order to a depth of over 1,600 ft.

The New Zealand Oil Syndicate, operating at Whangamomona, continued drilling in its No. 1 well to a depth of 931 ft., at which point the well was abandoned, nothing beyond a slight showing of gas or oil having been got. Near this well a second well is being drilled with better machinery, and at the end of the year it was down to a depth of 1,230 ft. without getting anything more than slight traces of oil.

VI. STONE-QUARRY INSPECTION AND STATISTICS.

By section 2 of the Stone-quarries Amendment Act, 1920, the application of the Act was extended to include every place, not being a mine, in which persons work in quarrying stone and any part of which has a face more than 15 ft. deep, and also in any tunnel in the construction of which explosives are used. The Act, however, does not apply to any Government operations, or any road or railway cutting, or excavations for buildings.

The following is a table showing the number of quarries under the Stone-quarries Act, also the number of persons ordinarily employed thereat, and the annual output and value of crude stone during 1929 :—

Provincial District.	Name and Address of Government Inspector of Stone-quarries.	Number of Working Quarries under the Act.	Number of Persons ordinarily employed.	Output of Stone.							
				Stone or Gravel for Macadamizing or Ballast.	Stone for Harbour-works.	Building or Monumental Stone.	Limestone for Agriculture.	Limestone for Cement or Mortar.	Phosphate for Agriculture.	Miscellaneous.	Value at Quarry.
				Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	£
Auckland ..	James Newton, Mines Dept., Auckland	145	945	501,676	..	..	47,338	247,683	..	..	187,735
	J. F. Downey, Mines Dept., Waihi (Hauraki Mining District only)	14	109	69,725	..	1,118	..	..	..	..	25,611
Hawke's Bay	James Newton, Mines Dept., Auckland	21	113	28,263	13,347	..	20,000	..	..	..	16,034
Taranaki ..	Ditto	7	49	12,784	1,148	..	2,671	..	..	..	11,249
Wellington	„	47	262	183,903	..	..	10,800	..	..	..	54,414
Canterbury	E. J. Scoble, Mines Dept., Reefton	12	115	95,705	24,017	..	5,531	..	..	..	49,014
Nelson .. Westland .. Marlborough	Ditto	16	195	12,050	24,416	416	4,087	36,249	..	11,408	22,186
Otago .. Southland ..	A. Whitley, Mines Dept., Dunedin	31	342	183,188	47,420	5,968	131,329	39,054	..	..	112,956
Totals, 1929	..	293	2,130	1,087,294	110,348	7,502	221,756	322,986	..	11,408	479,199
Totals, 1928	..	319	2,161	978,741	178,643	8,054	182,949	310,782	..	90,523	461,890

There were 31 fewer men employed than during the previous year, but an increase in the value of the stone produced of £17,309.

Quarry Accidents.

The following is a summary of serious accidents during 1929 at quarries under the Stone-quarries Act :—

Cause.	Number of Accidents.		Number of Sufferers.	
	Fatal.	Serious.	Killed.	Seriously injured.
Haulage	..	..	..	..
Machinery	..	1	..	1
Explosives	..	..	..	..
Falls of ground	..	2	..	2
Miscellaneous	..	1	..	1
Totals	..	4	..	4

Accounts of the accidents are given in the District Inspectors' reports attached hereto.

VII. STATE AID TO MINING.

(1) Subsidized Prospecting.

Upon subsidized prospecting operations 118 persons were intermittently employed during the year.

The following is a statement showing the results of prospecting operations as reported by the Inspectors of Mines :—

Name of Prospecting Party.	Number of Prospectors.	Locality of Operations.	Amount of Subsidy granted.*	Amount of Subsidy expended.	Distance driven or sunk.	Nature of Claim.	Character of Operations.	Remarks.
Northern Inspection District.			£ s. d.	£ s. d.	Ft.			
Muir's Gold-reefs	..	Te Puke	1,792 12 7	48 12 9	..	Quartz	Sinking, driving	No values found.
C. and W. Campbell	2	Thames	59 3 8	38 1 8	86	,,	Driving	On reef; prospects encouraging.
Caledonia - Kuranui - Moanatairi Gold-mining Co.	4	,,	66 5 0	66 5 0	100	,,	Sinking	Gold-bearing reef located.
J. Newdick	1	,,	86 13 4	57 4 0	132	,,	Driving	Nothing of value found.
Campbell and Lang	2	,,	87 2 0	87 2 0	..	,,	Prospecting	,,
Lloyd and Whitehead	3	Otanui	43 6 8	40 6 0	93	,,	Driving	,,
Lloyd and Whitehead	..	,,	33 2 6	24 10 3	37	,,	Sinking	Work in progress.
F. Sawyer	3	Thames	108 6 8	..	..	,,	..	No work yet done.
Father's Hope	1	Tokatea	17 6 8	..	..	..	..	No work; subsidy cancelled.
Hauraki Mines	5	Coromandel	1,500 0 0	250 0 0	..	Quartz	..	Work in progress.
H. and J. McKenzie	2	Mahakirau	43 6 8	24 5 4	56	,,	Driving	Nothing of value found.
Lindsay and Maling	2	Tokatea	35 2 0	35 2 0	..	,,	Prospecting	,,
Madill and Fremlin	2	Morepork Gully	50 14 0	50 14 0	..	,,	,,	,,
Madill and Fremlin	..	Tokatea	65 0 0	45 18 8	106	,,	Driving	,,
Anderson and Shelverton	2	,,	65 0 0	65 0 0	150	,,	,,	,,
Turner and Evans	2	Tiki	65 0 0	52 6 8	121	,,	,,	Gold-bearing reef located.
J. McNeil and Son	2	Tokatea	50 14 0	50 14 0	..	,,	Prospecting	,,
Ohinemuri Gold and Silver Mines	4	Maratoto	2 12 0	2 12 0	6	,,	Driving	On silver-bearing reef.
Maoriland Consolidated	2	Waitekauri	220 0 0	220 0 0	..	,,	Prospecting	Nothing of value found.
W. J. Cornes	..	Te Aroha	43 6 8	..	..	,,	Driving	No work yet done.
T. A. Black	..	Puhipuhi	350 0 0	..	..	Cinnabar	,,	,,
Ruahine Copper Syndicate	9	Maharahara	500 0 0	375 0 0	..	Copper	Geophysical prospecting	Results not yet known.
H. Meagher	2	Karangahake	42 9 4	42 9 4	98	Quartz	Driving	Nothing of value found.
West Coast Inspection District.								
Britannia Gold-mining Co., Ltd.	6	Waimangaroa	53 6 8	..	..	Quartz	Driving	No work reported.
H. F. Chaffey	2	Upper Takaka	50 14 0	..	..	Alluvial	Prospecting	Work in progress.
Davies and Hart	2	Wakamarina	152 2 0	101 8 0	..	,,	,,	Nothing of value found; work in progress.
Forrester and Berg	2	Collingwood	50 14 0	50 14 0	..	,,	,,	Gold-bearing gravels claimed to have been found.
Harrison and Absalom	2	Snowy River	40 0 0	..	..	Quartz	Driving	Work in progress.
R. G. and S. M. Honey	2	Callaghans	28 15 0	16 5 10	170	Alluvial	,,	Work temporarily suspended.
Hohonu Sluicing Co.	7	Greenstone	365 0 0	117 10 0	..	,,	..	Earthquake restoration; not completed.
Littlewood and Quinn	2	Wairau Valley	50 14 0	31 4 0	..	,,	Prospecting	Nothing of value found.
McQuilkin and Feeney	2	Blue Spur	5 16 8	..	..	,,	Sinking shaft	No work reported.
Charles Mills	2	Kanieri	15 0 0	15 0 0	..	,,	Restoration	A little gold found.
Nobles Sluicing Co.	1	Waipuna	67 10 0	33 15 0	..	,,	Building dam	Work suspended.
New Big River Gold-mining Co.	..	Big River	1,500 0 0	..	..	Quartz	..	No work reported.
Rimu United Sluicing Co.	4	Rimu	100 0 0	58 6 6	..	Alluvial	Prospecting	Gold recovered, but not payable.
Skippers Westland Gold-mining Co.	10	Skippers	300 0 0	300 0 0	..	,,	,,	Some payable gravels found.
Westland Prospecting Syndicate	4	Arahura	250 0 0	59 12 0	..	,,	Boring	Work in progress; values got in some holes.
Southern Inspection District.								
Reid and Lynch	2	Skippers	45 10 0	23 16 8	55	Quartz	Rising	No payable reefs found.
Golden Crescent Sluicing Co.	6	Lawrence	823 7 11	522 15 3	520	Alluvial	Driving	Prospects very encouraging.
Kawarau High Level Mining Co.	3	Kawarau Gorge	36 11 3	36 11 3	..	,,	Surface	No payable wash found.
Golden Progress Quartz-mining Co.	6	Oturehua	150 0 0	37 10 0	40	Quartz	Sinking	Work in progress.
Upper Nevis Gold-dredging Co.	..	Nevis	500 0 0	..	..	Alluvial	Boring	No boring done.
John Stevenson	3	,,	500 0 0	..	463	,,	,,	Work in progress.
E. Robertson	..	Preservation Inlet	16 0 0	..	..	,,	Surface	No work reported.
	118		..	2,980 12 2				

* Includes authorizations in previous years. The total of the subsidies granted during the year ended 31st March, 1930, amounted to £6,302 11s. 6d.

(2) Government Prospecting Drills.

The following table gives details of the drilling done and the results obtained for twelve months ended 31st December, 1929.

Drill Superintendents: W. H. Warburton, F. Carter, A. C. Vesey, D. Pettigrew, and B. F. Tyson.
Drills used: C. N. Sullivan and Schram-Harker diamond and Keystone drills.

Number of Holes drilled.	Total Depth, in Feet.	Diameter of Hole.	Mineral sought.	Character of Rocks drilled through.	To whom lent.	Cost per Foot of Drilling.	Cost per Foot of Transport.	Cost per Foot of Carbon's Wear.	Results.
	Ft.	In.				s. d.	s. d.	s. d.	
4	1,211	2⅜	Coal	Clay sandstone, mudstone, grits, and shales	State Coal-mines	3 2	2 1	0 8	Unsatisfactory.
2	1,385	2⅜	*	Gravels and sandstone	Taranaki (N.Z.) Oilfields (N.L.)	6 5	11 6	0 2	,,
8	335	6	Gold	Gravels and clay..	Terrace Gold-dredging Co., Ltd.	8 3	5 9	..	,,
15	369	6	,,	Gravels ..	Clutha Development, Ltd.	20s. 9d.		..	,,
8	430	6	,,	,, ..	E. W. Finch ..	19 1	..	..	Satisfactory.
10	440	6	,,	,, ..	J. Stevenson ..	22 6	3 0	..	,,
4	1,588	2	Coal	Sandstone, clay, &c.	A. C. Tattley ..	6 4	3 5	0 9	Unsatisfactory.
3	105	6	Water	..	Hokitika Mental Hospital	19 10	2 3	..	Satisfactory.
54	5,863								

* To ascertain oil structure of ground.

(3) Subsidized Roads on Goldfields.

The expenditure in the form of subsidies and direct grants upon roads on goldfields amounted to £2,816, as compared with 1,792 during the previous year.

(4) Schools of Mines.

The expenditure on schools of mines for the year ended 31st March, 1930, was £3,499, compared with £3,541 for the previous year. This includes a subsidy of £750 to the Otago School of Mines. The other schools to which grants were made were Thames, Waihi, Huntly, Westport, and Reefton Reefton School was reopened during the year after having been closed for two years. The schools as a whole have done excellent work, particularly those at Thames and Huntly.

I desire again to acknowledge the efficient help and co-operation which I have received during the year from the District Inspectors of Mines.

I have, &c.,
J. A. C. Bayne,
Inspecting Engineer of Mines.

ANNEXURE A.

SUMMARY OF REPORTS BY INSPECTORS OF MINES.

NORTHERN INSPECTION DISTRICT (J. F. Downey, Inspector of Mines).

Quartz-mining.

Waihi Gold-mining Co., Ltd. (J. L. Gilmour, Manager).—The following is a summary of the principal operations carried out:—

Shafts: No further shaft-sinking was done during the year, but all the working shafts were kept in good repair.

No. 15 level (1,880½ ft. below collar of No. 4 shaft): No further exploration was carried out at this level, but the breaking of ore in Cow block was completed on the Martha lode, north section, up to the floor of No. 14 level. At the end of the year the block contained 10,182 tons of broken ore, which is now being trucked out.

No. 14 level (1,752 ft.): No further exploration was carried out at this level, but the shrinkage stoping of the big low-grade Trout block on the Edward lode was continued throughout the period. The stope is now 60 ft. above the level. The top stope was sampled over the full length of 209 ft., and averaged £1 3s. 7d. per ton.

No. 13 level (1,578½ ft.): The shrinkage stoping of the Ellis block on the Empire lode, which is partly in the Grand Junction Co.'s ground, was continued in payable ore. Breaking of ore in the Trout block on the Edward lode was completed. At the end of the year the stope contained 17,618 tons of broken ore, which is being drawn off.

No. 12 level (1,447½ ft.): Operations were confined to stoping and trucking, and there is nothing special to report.

No. 11 level (1,301 ft.): Operations on this level were also confined to stoping and trucking mainly. The north branch of Royal lode was driven on for a distance of 59 ft. in a northerly direction from its junction with the Dreadnought lode, but it proved to be small and of little or no value. A small branch vein leaving the main Martha lode near Cow pass was followed in a south-westerly direction a distance of 38 ft., but also proved of no importance. Investigation was made of the junction of the main Martha lode and the south branch about 80 ft. above this point, and a payable block of good value was opened up (see No. 10 level, 70 ft. sublevel).

No. 10 level (1,152 ft.)—70 ft. sublevel: As mentioned above, the junction of the main Martha lode and the south branch was investigated at 70 ft. below No. 10 level. A stoping-block of a total length of 100 ft. was opened up on the main lode, and is calculated to contain 4,971 tons, of an average value of £2 10s. per ton; this will be known as Cow block. On the No. 10 level itself several important works were carried out. An investigation of the north leader, which runs northward from the west end of the Martha lode, was made. The leader had yielded valuable stoping-blocks at Nos. 7 and 8 levels, and is also being stoped at No. 9 level. The Lowrie north crosscut, situated at 182 ft. east of No. 2 shaft south-east crosscut, was extended 126 ft. to 304 ft. The leader was intersected at 257 ft. and was driven on eastward for 60 ft. and westward for 33½ ft. It was 7 ft. in width where intersected, but when driven on eastward was found to be only from 3 ft. to 5 ft. wide, and in the westward direction it was even smaller. Values were low throughout. The country rock surrounding the leader at this level is mostly brown oxidized country of a type that has proved unfavourable in the mine. Further investigation was made of the Regina section of the Martha lode on No. 10 level. A stoping-block, known as Cleave block, was opened up on promising ore, but unfortunately at 44 ft. up the lode proved to be small and mixed with country, and stoping was stopped. A test of the Dreadnought lode was made along a length extending from 18 ft. east to 120 ft. east of No. 5 shaft, north crosscut. Samples along the drive averaged £1 10s. per ton over a width of 5 ft., but at 28 ft. up the value fell and stoping had to be stopped. Following the opening-up of a run of payable sulphide ore in the southern or footwall part of the Empire lode at No. 9 level, just west of No. 4 shaft, north crosscut, London south-east crosscut at No. 10 level was extended into the footwall country. At 17 ft., measured from the north wall of the Empire lode, 4 ft. of sulphide ore was intersected, which assayed £2 8s. 9d. per ton; this body has still to be investigated. At 40 ft. the crosscut met a sulphide lode 6 ft. in width, which has been designated "south part of Empire lode"; this lode assayed £3 13s. 5d. where intersected. The crosscut was extended to 66 ft., the last 20 ft. being in country rock. At the end of the year a drive had been extended eastward on this southern part a distance of 61 ft. Samples taken over the full width of the drive assayed from £2 1s. 3d. to £5 5s. per ton. The reef is wider than the drive. 34 ft. was driven westward, samples assaying from £2 3s. 8d. to £4 1s. 6d. per ton. The face was still in good ore. In view of similar ore having been opened up above this area at No. 9 level, it was expected a valuable stoping-block would be opened up here. A promising run of sulphide ore has also been opened up on the southern or hanging-wall side of the Martha lode on No. 10 level, just west of the company's eastern boundary. Operations at this point started with an investigation of the north section of the Empire lode just across the Waihi Co.'s eastern boundary, in Grand Junction ground. The north section is much split up at this point. A small leader, known as "Boundary reef," which headed in a general north-westerly direction towards the Martha lode and back into Waihi Co.'s ground, was followed. At 107 ft. a body of sulphide ore was intersected, which proved to be 5 ft. in width, having the general strike and dip of the Martha lode. This assayed £2 18s. per ton. The boundary drive was then continued as a crosscut through the Martha lode, and a further 7½ ft. into the footwall country. The full width of the Martha lode at this point proved to be 37 ft., but the payable ore was confined to the 5 ft. on the hanging-wall. At the end of the year this ore had been followed westward for a distance of 10½ ft., assays showing £3 8s. 7d. per ton, and eastward 5 ft. in ore assaying £2 12s. 8d per ton. Both faces were in ore of very good quality, and driving was being continued. Considered in conjunction with a similar make of good sulphide ore some 200 ft. to the west, this discovery is looked upon as very encouraging.

No. 9 level: Further investigation of the footwall of the Empire lode just west from No. 4 shaft, north crosscut, was also carried out at this level. The original drives for 200 ft. west of the No. 4 shaft crosscut, and also the original crosscuts, failed to reveal any payable ore, although payable blocks were worked to the westward of this stretch. Starting at a point 62 ft. west of the main crosscut, a new level has been driven along the south wall of the lode. Sulphide ore was met with at 76 ft., and continued till connection was made with the old 200 ft. crosscut. Samples taken over the full width of the drive assayed well, averaging about £2 12s. per ton. Similar ore exists overhead at No. 8 level, and a stoping-block 135 ft. in length, and estimated to contain 25,607 tons, is now being opened up between the two levels; this is known as Rolker block. Unfortunately, although the footwall section is good, a great deal of the low-grade main reef must be

mined with it, and this brings the average value down to about £1 8s. per ton. Ore of this value when crushed as an addition to the existing output is payable. On the Dreadnought lode a stoping-block known as Cannon block, extending from 30 ft. east to 106 ft. west of the Empire 444 ft. east crosscut, has been opened up in good ore. In the same neighbourhood a stoping-block on the south branch of Dreadnought lode, known as Gun block, extending from 63 ft. east of the Empire 444 ft., east crosscut to 345 ft. east, has been opened up. On the eastern end, 117 ft. of this is in Grand Junction property. It is a narrow stope of good value. Investigation of the north leader at this level was also carried out. It was followed for a distance of 135 ft. in a north-easterly direction from Bulls north crosscut at the western end of the Martha lode. Starting as a small leader it opened out to 13½ ft. at the 50 ft. mark and then gradually decreased. At the distance of 86 ft. it split into small branches. A short shrinkage stope was opened up on it, between the 17 ft. and 68 ft. marks, which is yielding good ore. On the Regina section of Martha lode a considerable amount of investigation was carried out on the level over a length of about 450 ft. westward from its junction with the main lode at No. 4 shaft, main north crosscut. A good shrinkage stope, known as Riley's block, was worked between a point 50 ft. west of White north-west crosscut and 105 ft. east of the same, but operations had to be suspended at 40 ft. up owing to the ground not being considered safe. Investigation was then made of the northern part of this Regina section, and a stoping-block is being opened up between 168 ft. and 304 ft. west of White north-west crosscut. The records of a block of unstoped ground on the Royal lode, situated between 45 ft. east and 45 ft. west of No. 5 shaft, south-east crosscut, were reviewed, and calculations showed that it contained about 14,625 tons of an average value of £1 12s. per ton, and stoping was started on it. This block is known as Wurm block.

No. 8 level (852 ft.): Following the investigations made on the south part of the Empire lode at Nos. 9 and 10 levels, a drive was put out eastward from No. 4 shaft north crosscut on this level, a distance of 20½ ft. and connected to an old widening on the south wall, used for some years as a stable. Assays ranged from £1 12s. 7d. to £2 11s. per ton. Widening was also carried out along the south wall a distance of 31½ ft. in good ore to the eastern end of old stopes. A stoping-block, to be known as Ivy block, was commenced here, extending from 31 ft. west to 69 ft. east of No. 4 shaft, north crosscut. Partly with the object of obtaining ventilation for a stoping-block below at No. 9 level, and partly for further exploration, the drive on the Alexandra load eastward from No. 4 shaft, north-west crosscut, was extended 41½ ft., making its total length from the main crosscut 200 ft. At this point the drive was turned slightly towards the south and towards the Empire lode. The north section of the Empire lode was intersected at 84 ft. Where intersected its width was 12 ft., comprising a mixture of quartz, calcite, and country rock, and its average value was 6s. 6d. per ton. The lode dipped flatly at an inclination of 1 in 1 towards the north-west. This lode was followed in a north-easterly direction for a distance of 75 ft. The width proved to be small, and decreased as driving was continued eastward. Assays also were low. At 57 ft. in this drive on the north section a crosscut was put out to the north-west, where a winze was sunk to provide ventilation for Leather block underneath. Returning to the point of intersection of the Empire north section, the south-eastern crosscut was continued until it met the main Empire lode, along which driving is now in hand on the northern or hanging wall with a view of investigating a junction of the Empire and Dreadnought lodes which takes place some distance to the east. This drive is in payable ore, and is heading into an area which appears to warrant further investigation. On the north branch of Martha lode all the broken ore was drawn off from Dye block, which was close up against the company's eastern boundary on this lode. Immediately west of the Dye block another, known as Cowan block, has been opened up on the same lode. This block has a length of 150 ft. Samples up to 26 ft. in the stope have averaged £1 6s. 3d. per ton. On the Alexandra lode a short shrinkage stope known as Tawa block was opened up immediately north of No. 4 north-west crosscut. This block extended from 30 ft. east to 80 ft. west of the main crosscut. Unfortunately the lode pinched out at 52 ft. up and stoping had to be stopped.

No. 7 level: The only work on this level was the recovery of ore from arches on the Martha lode by means of sublevels. Very considerable quantities of ore were won.

No. 6 level: A good deal of ore was won by a caving system from the Martha lode from a sublevel 120 ft. below No. 6. From another sublevel, 40 ft. below No. 6, the stoping of Memmott block on the north branch of Martha lode in the eastern part of the mine was completed. Further investigation of this lode is being made. At a sublevel 34 ft. below No. 6 an arch of the Empire lode extending between 200 ft. and 360 ft. west of No. 4 shaft was opened up by means of a dip and footwall gangway, and ore is being won from it. A stoping-block about 162 ft. in length, known as Foster block, has been opened up on the level on the north branch of Martha lode at about 500 ft. east of the line of No. 2 shaft; this stope is now up 16 ft. in ore of good quality.

No. 5 level: In what is known as the 16 ft. sublevel a length of the Empire lode arch under No. 5 leve south from No. 2 shaft is being extracted by means of a footwall gangway and stoping on square sets. In the course of driving the footwall gangway the J lode, which runs north-east and south-west at about 350 ft. south of No. 2 shaft, was intersected, and was driven along in a south-westerly direction a distance of 55½ ft. The lode proved to be about 7 ft. in width, and as the values in it were payable further investigation of it will be carried out. On the north branch of Martha lode investigations was also carried out at this level for a length of about 350 ft. north of No. 2 shaft. A crosscut north from the Martha footwall gangway at 85 ft. east of No. 2 shaft, new north-west crosscut, disclosed 10½ ft. of sulphide ore and country rock mixed, of a value of £1 9s. 1d. per ton. Driving was carried out westward on this ore for 39½ ft., where connection was made to old workings. The lode along his length was wider than the drive, but the average value was only about 18s. per ton. In the eastward direction 74 ft. were driven. The value of the reef over the width of the drive was erratic, ranging from 15s. 11d. to over £3 per ton, with indications in places of exceptionally rich seams. Investigation was being continued in this part of the mine.

Surface workings: A certain amount of ore was won during the year from the Martha and Welcome lodes by a dip and surface drive respectively.

Diamond-drilling: No diamond-drilling was carried out during the year.

Exploration: The deadwork footage for the year amounted to 8,535 ft., of which 4,233 ft. represented general development, the remainder of the work being done in connection with arch and pillar operations.

The quantity of water raised from No. 15 level showed a considerable falling-off, being only 437,411,500 gallons, as compared with 439,218,100 during 1928 and 469,539,900 during 1927. The quantity raised, however, was equal to an average of 813 gallons for each minute of the 365 days in the year.

Output: A total of 181,085·71 tons of 2,240 lb. was won and treated, the tonnage from each lode being as follows: Martha, 56,844·64; Edward, 52,071·42; north branch, Martha, 17,239·29; Royal, 13,539·28; Empire, 9,123·21; north leader, 6,938·39; Regina section, 5,353·57; south branch, Dreadnought, 5,261·60; No. 2 reef, 4,505·35; North lode, 3,164·28; Mary, 2,559·82; north section, Empire, 1,500·89; Dreadnought, 1,319·62 Alexandra, 762·60; south branch, Martha, 231·25; Boundary, 219·64; right-hand branch, Welcome, 167·85 Surprise, 155·35; J lode, 123·21; north branch, Welcome, 4·46.

The total value of bullion recovered was £321,031 12s. 3d. The recovery of gold was 67,615 oz. 15 dwt., valued at £283,986 2s., and of silver 370,455 oz. 4 dwt., valued at £37,045 10s. 3d. The company paid dividends during the year to the amount of £99,181 8s., making the total disbursements to date £5,693,511 0s. 6d. The average number of men employed was 537.

The general position of the mine must, in the existing circumstances, be looked upon as very satisfactory. Development of the various newly-located ore-bodies referred to in the foregoing summary has enabled sufficient ore to be mined to keep the reserves in the mine at practically the same figures as last year, and the management is very hopeful that further investigation during 1930 will continue to yield as good results.

Grand Junction Mine (J. L. Gilmour, Manager).—The Waihi Co. has continued throughout the year to work the Grand Junction area. Exploration work, stoping, and trucking were carried out on five of the Waihi Gold-mining Co.'s levels extending into Junction Co.'s eastern section—namely, levels 9 to 13 inclusive. An exhaustive exploration of the ground on Waihi Co.'s No. 9 level extension above the Dominion lode blocks was carried out, but the ore-body was found not to live up to this level. It is thought possible, however, that other and separate ore-bodies may exist farther to the east, and investigation is being made in that direction. The "Weeks Dominion" block, on the Dominion lode, situated north of the Empire lode, continued to supply ore of excellent grade each month, and several other stopes were profitably worked. No work was done in the Grand Junction western section. The company's main shaft, situated in the eastern section, was kept in good repair. Under arrangement with the attorney of the company in New Zealand, all the pump columns, pipes, and electric cables were brought to the surface, as were the rails and pipes from all levels not in use.

A total of 1,219 ft. of driving, cross-cutting, rising, and winzing was done. At 31st December the ore reserves amounted to 14,778 tons.

Some 9,877·67 long tons of ore were won, which yielded bullion to the value of £30,753 2s. 2d. The amount of gold produced was 5,570 oz. 16 dwt. 14 gr., valued at £23,397 9s. 9d., and of silver 73,556 oz. 4 dwt. 5 gr., valued at £7,355 12s. 5d. The average number of men employed was thirty-six.

Rising Sun Mine, Owharoa.—No active mining was done during the year. The Rising Sun Co., having exhausted its finances and not being able to raise further funds, went into liquidation, and the mine and plant were sold to an Auckland syndicate, which has now in hand the formation of a new company, to be known as Gold Dawn Gold-mines, Ltd., to give the property another trial.

Crown Claim, Karangahake (A. H. Meagher, Owner).—The adit mentioned in last year's report, which was started with a view to cutting what was known as the Retreat reef, was continued to 200 ft. without any reef being located. A further adit was put in for 40 ft. at a higher elevation without any more satisfactory result. From a small leader near the top of the spur the claimholder took, however, some 5 tons of quartz, which on treatment at the Thames School of Mines yielded 22 oz. gold, valued at £43 16s. 4d.

New Talisman Claim, Karangahake (R. Schulzki, Owner).—The claimholder carried out a good deal of further work in the way of trenches and shallow drives without locating anything of value.

The *Imperial, Earl of Glasgow,* and *Macwall Claims* in the Karangahake area were all idle for the year.

New Zealand Crown Mine, Karangahake.—No mining was done, but a clean-up around the old battery yielded 6½ tons of material, which on treatment returned 160 oz. 14 dwt. 10 gr. gold, valued at £313 12s. 4d., and 62 oz. 4 dwt. silver, valued at £5 0s. 9d.

Maoriland Gold-mining Co., Waitekauri.—In the early part of the year stoping operations were continued on the small footwall leader of the Maoriland reef, and 24 tons of ore were won, which yielded on treatment 44 oz. 6 dwt. gold, valued at £128 17s. 1d. The leader having then been worked out, attention was turned to the reopening of the old United tunnel. This was put in repair to a point 924 ft. from the portal, and a start was made to pick up the north drive on a reef that had been intersected in the old days at that point and driven on for some distance to the north. It is believed that payable values were showing in the end of this drive when work was stopped years ago.

Ohinemuri Gold and Silver Mines, Ltd., Maratoto (W. M. McConachie, Manager).—Development in this mine was carried on energetically throughout the year. In the Silverstream adit, No. 3 level, the south drive on the Camoola reef was extended a further 440 ft., making a total distance of 897 ft. from the F crosscut, or 2,122 ft. from the main crosscut. It is claimed that payable values occurred intermittently during this driving. In the Telluride adit, No. 4 level, the drive southward on the Camoola reef was advanced a further 653 ft., making a total distance of 928 ft. from the main crosscut. At a point about 370 ft. from the main crosscut, a crosscut was projected westward with a view to locating the Silver Queen reef. This body was met with at about 125 ft., and was driven on in a south-westerly direction for about 170 ft., where the formation was cut off by a fault. This reef is said to have been up to 10 ft. in width and to contain high-grade hessite ore. From the fault a crosscut was put in westerly in search of the Julia reef, but this reef was not met with, although the crosscut was carried sufficiently far to reach it. Connection was made between Nos. 3 and 4 levels on the Camoola reef by means of two winzes, and on the Silver Queen reef a rise was also put up to connect with a winze from No. 3 level. A small stope was opened up on the Camoola reef in No. 3 level at a point about 750 ft. from the main crosscut, but was not more than about 30 ft. in length. On No. 4 level on the same reef another stope about 60 ft. in length was opened up near No. 1 winze. The renovation and bringing up-to-date of the treatment plant, consisting of twenty head of stamps, four tube mills, and cyanide plant, was completed about the end of October, and crushing was begun. During the last two months of the year some 2,020 tons of ore were treated for a return of 84 oz. 16 dwt. 6 gr. gold, valued at £356 4s. 3d., and 9,533 oz. 10 dwt. silver, valued at £953 7s. equal to an extraction of 12s. 11d. per ton. The whole of the ore treated came from the Camoola reef, being partly ore that had been saved and stacked during the driving on the reef on No. 3 level, and partly ore taken from the two small stopes referred to on Nos. 3 and 4 levels respectively.

Hauraki-Alaska Gold-mining Co., Ltd. (A. Bird, Manager).—The erection of the ten-stamp battery on this Neavesville Mine was completed during the year, and the treatment of some test parcels of ore, totalling 174 tons, quarried mainly from one face on the hillside, was carried out. The returns were not, however, very satisfactory, only 13 oz. 14 dwt. gold, valued at £26 4s. 3d., being recovered, which was equal to a return of only 3s. per ton. A further 37 oz. 16 dwt. gold, valued at £39 15s., were obtained by scaling the plates of the old battery. The tests referred to represented the only work done on the property for the best part of the year.

New Waiotahi Gold-mine, Thames.—The work in this mine for the year consisted mainly in carrying in, from a point about 200 ft. from the portal of the main adit, a branch drive in northerly direction towards the Moanataiari Co.'s boundary; nothing of any value was met with in this drive. Subsequently, 10 acres of ground was obtained on tribute from the adjoining Moanataiari Co., and, from the drive already referred to, a further 140 ft. was driven in a north-easterly direction into the area, but no reef of any value was located. From various parts of the mine some 5 tons of quartz were collected, which on treatment yielded 19 oz. 2 dwt. gold, valued at £48 6s. 1d. Five men on an average were employed.

Alburnia Gold-mining Co., Ltd., Thames (J. H. Benney, Manager).—On the Norwegian level the drive north on the main Orlando lode from the crosscut at the winze was driven 167 ft., making a total of 217 ft. The drive was on reef about 3 ft. in width and fairly heavily mineralized. Dabs of gold were seen in the ore for the whole distance, and a few pounds of picked stone were secured. The crosscut west from drive north on main Orlando lode to the drive north of hanging-wall branch, Orlando lode, was driven 15 ft., mainly for ventilation. No. 2 winze on hanging-wall branch of Orlando lode, 10 ft. south of No. 2 rise, was sunk for 10 ft. on reef averaging about 4 ft. in width and showing a little gold. No. 1 winze on cross-leader from drive north on main hanging-wall branch of Orlando lode was sunk 8 ft. A rise on the cross-leader from drive north on hanging-wall branch of Orlando lode was risen 68 ft. to total of 80 ft. on stone averaging 15 in. Dabs of gold were seen in the ore and a few pounds of picked stone secured. The crosscut east from top of rise on footwall dropper of Sons of Freedom reef was extended 24 ft. to total of 40 ft. At 30 ft. in, a leader 6 in. wide was cut and driven on for 35 ft., but no gold was seen. The drive south on main Sons of Freedom reef from crosscut east at top of rise on dropper was driven 5 ft., to total of 25 ft., on reef 4 ft. wide, but carrying no gold. The drive north on the same reef was driven 15 ft. on stone of the same width, but also valueless. A rise on the main Sons of Freedom reef was put up 30 ft. where it holed into

the 70 ft. level; the working was on reef about 4 ft. wide but carrying no gold. This rise was started from the face of the north drive on the main Sons of Freedom reef from a west crosscut. On the 70 ft. level a rise was put up on the hanging-wall leader of the main Sons of Freedom reef for 70 ft. on stone averaging 12 in. in width but carrying no gold. This rise was continued to the Whau level, where a crosscut east was driven 31 ft. to meet the Sons of Freedom reef. On the Whau level a good deal of cleaning out and retimbering was done, the level being picked up for 250 ft. south and 50 ft. north of the crosscut. Some stoping was done on three small leaders on the level, and a drive was put in hillward on the dropper from the Sons of Freedom for 14 ft. on reef averaging 15 in. wide but showing no gold. On the Norwegian level a leading stope, starting from a point 80 ft. north of crosscut at winze, was carried along for 108 ft. on reef averaging 3 ft. in width, in which dabs of gold were frequently seen. An underhand stope was also taken along on the main Orlando lode from the crosscut at winze in a northerly direction for 12 ft. on reef averaging about 4 ft., in which colours and dabs of gold were seen. On the hanging-wall branch of the Orlando a stope was also carried for 21 ft. on reef averaging 3 ft., in which a little gold was seen.

Caledonia-Kuranui-Moanataiari Gold-mining Co., Ltd., Thames (S. G. Baker, Manager).— For the greater portion of the year work on the property of this company was confined to making a series of tests of a number of small parcels of low-grade material taken from various places on the surface. Altogether some 484 tons of the material were put through the battery, but the return was not satisfactory, only a total of 12 oz. 4 dwts. of gold being recovered. As a number of head samples taken during the period of crushing averaged 5s. 6d. per ton for gold, it is clear that only a small portion of the gold was recoverable by amalgamation. From a clean-up of the battery a further 9 oz. 14 dwt. of gold were obtained. The total value of the gold for the year was £65 8s. Towards the end of the year a start was made to sink an inclined underground shaft from near the end of the main east crosscut with a view to picking up, at a depth about 80 ft. vertically below the level, the downward continuation of the small reef on which some work was done last year in the Cambria section of the mine. At the end of the year this shaft had been sunk 50 ft. On an average four men were employed.

Occidental Una United Gold-mining Co. (N.L.), Thames (J. W. O'Sullivan, Manager).—Work at this company's mine was confined during the year to stoping on the No. 2 reef, south of the shaft at No. 5 level. The reef here is a stock-work formation up to from 10 ft. to 12 ft. in width, consisting of quartz stringers intermixed with country rock. In stoping as much as possible of the country rock is picked out before the material is sent to the battery. Some 217 tons were crushed from the reef, and yielded 213 oz. 3 dwt. gold, valued at £523 6s. On an average five men were employed.

Lucky Shot Gold-mining Co., Ltd., Thames.—In the early part of the year the rise from the Half-moon tunnel to the intermediate level was put through. This rise was on a cross-reef which had been intersected by a drive on a branch of the Evening Star reef, about 900 ft. from the portal of the adit. After the completion of the rise the cross-reef was driven on a further 50 ft. to its junction with the Golden Age reef, which was cut through, being 23 ft. in width at this spot, but carried no values. The drive was then continued for a further 200 ft. to the Reuben Parr reef, which was found to be split into several branches where intersected and to have no pay values. The work on this level having been unsatisfactory, a return was made to the intermediate level, 90 ft. above, and a good deal of prospecting was done there, mainly on the Golden Age reef and a footwall dropper from it. Some crushings were taken from this dropper, and treated partly at the Moanataiari battery and partly at the Thames School of Mines. Some 130 tons were crushed for a yield of 221 oz. 8 dwt. gold, valued at £602 12s. 3d. On an average six men were employed.

Zeehan Mine, Waiomo (A. McGruer, Manager).—The new company, Waiomo Sulphide Corporation, Ltd., which was formed for the purpose of giving this mine a further trial, started active operations in the early part of the year. The drive on what was known as the No. 1 reef north was continued a short distance at a point about 165 ft. from the main crosscut it was turned easterly, and in another 20 ft. of driving it met a small reef now known as the North reef. The drive was continued along this reef in a north-north-easterly direction for about 158 ft., when the reef disappeared. The drive was extended a further 54 ft. but no stone was seen. At 54 ft. back from the face a crosscut was put out north-westerly for 70 ft., but failed to cut reef. At a point in the drive about 78 ft. from where the North reef was first met with a crosscut was then put out east-south-easterly for 40 ft., where it met another reef, known as the New reef, which was driven on 206 ft. northerly and 118 ft. southerly. Both the North reef and the New reef are comparatively small. They vary much in width but probably average between 2 ft. and 3 ft. Some 40 ft. to 50 ft. of driving was also done on the same level, No. 5, on what is known as the No. 3 reef, but this drive broke into old workings done some years before on No. 4 reef. The old No. 4 level was put in repair for its entire length, but the only new work done on it was the putting out of a crosscut for about 31 ft. westerly from a point about 70 ft. back from the old face. A rise was subsequently put up from near the point where the North reef was met with on No. 5 level, which connected with the end of this crosscut. The old battery was put in repair, and an oil-flotation plant which has been on the mine for several years but has not been erected is being installed. An aerial is also being constructed to connect the mill with the mine. At the end of the year the work on the battery was well advanced, but it was not expected to have the plant ready for treating ore for several months. On an average twenty-one men were employed.

Cambria Mine, Thames (A. F. Sawyer, Owner).—The efforts made to float a large company, to be known as Aotearoa Minerals Development Co., Ltd., for the working of this property did not meet with success. The old Mount Pleasant adit was, however, cleaned up and put in repair for about 400 ft. in to the Jupiter reef, as was also about 50 ft. of drive on that reef. Two other small levels, totalling about 150 ft. in length, were also driven higher up the hill, and a small amount of trenching was done on outcrops.

Tui Gold-mining Co., Ltd., Thames (W. G. Mouat, Manager).—This company was formed during the year to work a number of claims known as the Nana, King Solomon, and King Solomon Extended. An old adit on the Nana Claim was put in repair for its full length of about 1,400 ft., and an attempt was made to pick up old drives on what are known as the Nos. 1 and 2 reefs. These drives were reopened for several hundred feet each, and on the No. 2 reef a rise was put up for about 35 ft. So far as can be learned, nothing of any value was found.

North Star Mine, Thames.—During the latter part of the year a start was made to reopen this old mine, which has been idle for about thirty years, by a small party which had been given to understand some payable stone had been left in it when work last ceased. The old No. 4 level was cleaned up for upwards of 1,000 ft., and No. 3 level was also put in repair, but up to the end of the year nothing of any importance had been located.

Luxall Mine, Thames (J. Newdick, Owner).—On this claim, which is in the Upland block at Thames, well up Waiotahi Creek, a drive was put in for 132 ft., with the assistance of subsidy, with a view to picking up, at some depth, a gold-bearing reef said to have been located many years ago at surface. Several small reefs were cut in the drive, but they contained no values.

Golden Age Mine, Thames.—A little work in the nature of crosscutting and driving, totalling about 165 ft., was carried out on Fox's leader and another small reef, but nothing of any value was found.

Bendigo and Nonpareil, Thames (M. Britt, Owner).—These claims were protected for the best part of the year, but a little work, consisting of about 40 ft. of driving, was done on a small reef in the former mine. About 14 lb. of picked stone was got, which yielded 6 oz. 15 dwt. gold, valued at £17 15s.

Little Wonder Mine, Otanui.—During the year a small Thames syndicate took up the old Otanui Consols Mine, which they have renamed the Little Wonder. About 100 ft. of driving was done on the eastern end of the claim, with a view to seeing if the reef formerly worked towards the western end continued through the

claim in that direction. The result of this work was not satisfactory, no defined reef having been met with. The party then turned its attention to the western end of the claim, where, at the end of the year, a start was being made to pick up one of the old tunnels with a view to prospecting from it for the westerly continuation of the reef worked by the old company.

Hauraki Mines Consolidated, Ltd., Coromandel (H. F. Shepherd, Manager).—After some months of effort which proved very costly to the company, entailing as it did an expenditure of about £9,000, the water in the mine was again lowered early in the year to the 400 ft. level, in which operations were resumed and carried on continuously for the remainder of the period. Some further driving was done at the seaward end on the Stockwood reef, and a stoping-block 200 ft. in length was opened up on it. A rise was put up on the block for ventilation, and this made connection with a drive that had to be put out from the bottom of the Tangye winze. A winze was also put down on the block for 20 ft., at which point it had to be stopped pending the putting-in of a power pump. At 100 ft, on the seaward side of the winze referred to, a branch drive was put out which intersected the Green Harp reef, on which 32 ft. of driving were afterwards done. The branch drive was then continued on to the Venus reef, which was met in another 41 ft., and up to the end of the year had been driven on 28 ft., in the direction at which the Stockwood reef is expected to junction with it. Some stoping was done on the Stockwood reef. The reef varied from a few inches to 3 ft. in width, averaging perhaps 1 ft. Very nice specimen stone was got from time to time, but the general value of the stone was low. Some 282 tons were mined and treated for a return of 269 oz. 13 dwt. gold, valued at £830 13s. 2d. Tributers in the upper levels also recovered 4 tons of stone, which on treatment yielded 82 oz. 5 dwts. gold, valued at £243 6s. 6d., making the total output of the mine for the year 361 oz. 18 dwt. gold, valued at £1,073 19s. 8d. Two parties of two men each were engaged in the tributing, and the average number of men employed in the mine was thirty.

Father's Hope Claim, Tokatea.—The company did no work for the year, but a prospector recovered some 14 lb. of specimen stone, which on treatment yielded 14 oz. 1 dwt. gold, valued at £35 11s. 6d.

Four-in-hand Mine, Tokatea.—A small party of prospectors carried out a little work, recovering stone which yielded 7 oz. 13 dwt. gold, valued at £21 12s.

Pursefiller Mine, Kuaotunu. — This mine covers portions of the old Red Mercury and Great Mercury Mines. Towards the end of the year an Auckland syndicate cleared out and repaired the low level of the Red Mercury Mine, and at a point about 700 ft. in from the portal started a crosscut with a view to intersecting the western branch of the Red Mercury reef. At 25 ft. in the reef was met with, and is said to have carried payable values. The syndicate is now endeavouring to raise sufficient capital to enable systematic mining operations to be carried on.

Eclipse Mine, Mahakirau (H. and J. McKenzie, Owners).—A drive was put in for about 102 ft., about 50 ft. below the outcrop of a small reef which carried values near the surface, in the hope of picking it up at that depth, but no reef was met with in the drive. Another adit was put in for about 60 ft. a little lower down the hill, with equally unsatisfactory results.

Quicksilver-mines.

Kaikohe Development, Ltd., Ngawha Springs (R. H. Goodwin, Manager).—A certain amount of work by way of testing the quicksilver deposits in this locality by means of shallow bores was carried out, but the company's operations during the year have been mainly devoted to the erection of plant. During the year a metal road 126 chains in length was constructed by the company from the main highway to the reduction-plant site. Buildings were erected, consisting of store, blacksmith's shop, carpenter's shop, quarters for workmen and staff, and cookhouse. Two reservoirs were constructed to hold 16,000,000 gallons of water. A slack-line cable excavator with 90 ft. steel mast, with winch and boiler, was erected, also an aerial ropeway to connect the mineral area with the reduction plant. The remainder of the plant, consisting of the necessary bins, two Babcock and Wilcox boilers, main steam-engine, 100 kw. generator, two rotary dryers, pulverized-fuel units, four rotary furnaces, and pumping plant, was well advanced towards completion at the end of the year. The average number of men employed was fifty-seven.

No work of any consequence was done on the quicksilver areas in the Puhipuhi district.

Sulphur.

Operations were carried on as regularly as circumstances permitted on White Island, by White Island Products, Ltd., the sulphur being mainly used, as in previous years, for the manufacture of fertilizer. Some 2,930 tons of crude ore, containing 33 per cent. sulphur, were mined and disposed of for £13,917 10s., and a further 239 tons of similar ore, valued at £540, were mined and stacked. On the average fifteen men were employed.

Oil-wells.

Taranaki (N.Z.) Oil Fields (N.L.).—This company confined its operations during the year to the Gisborne district, where what is known as the Gisborne No. 2 well at Morere was continued from 1,967 ft. to 3,180 ft., which depth was reached on the 8th June. As it was found impossible to carry the well any deeper with cable tools, drilling was suspended on that date. In the middle of September work was commenced to dismantle the cable-tool rig and to install rotary equipment, and at the end of the year the hole had been cleared out to a depth of 3,097 ft.

Blenheim Oil-well Reclamation Co., Ltd.—Operations were continued at No. 1 well in the hope of bringing in a steady flow. Oil was struck in February and several flows occurred, some 14,000 gallons of crude oil being recovered. Early in March a violent blowout occurred which wrecked the well, and, as it was considered impossible to do any further good with it, the casing was withdrawn. A little later No. 2 well was started, and up to the end of the year had reached a depth of 1,627 ft.

Coal-oil (N.Z.), Ltd.—The geophysical survey of the Elbof group of this company's area at Omata having been completed, and a site selected for putting down the first well, the company proceeded to procure the necessary plant. A powerful rotary plant was brought from America, and at the end of the year a fine steel derrick, 110 ft. in height, had been erected, and a drill itself, as well as a good deal of the rest of the necessary machinery, was in place. Some further plant had still to be brought from overseas before drilling could be started, and it was not expected that active boring operations would begin for several months.

New Zealand Oil Syndicate.—This syndicate, operating at Whangamomona, continued the well known as Prospect Valley No. 1 from 893 ft. to 931 ft., when it was decided to abandon it, and another well was started alongside it, more powerful machinery being provided to enable it to be carried to a greater depth than the previous well. This second well is known as Prospect Valley Main No. 1 bore. To the end of the year it had been drilled to 1,230 ft. Down to 931 ft. the strata passed through were, of course, the same as those penetrated in the first well. From that point down the well was mainly in claystones, largely of an arenaceous nature. Traces of oil were got from 900 ft. to about 1,010 ft., but these were slight. No water-sands were met with.

Oil and Gasoline Syndicate.—This syndicate has been carrying out some tests at the old rotary well at Moturoa with a view to seeing if any economic use can be made of the gas given off. The well was cleared to 1,640 ft., at which depth a continuous flow of gas was given off. Condenser equipment for the production of oil from the gas was set up, and it is claimed that oil in satisfactory quantity could be obtained from the gas.

Accidents.

No fatal accidents occurred either in the mines or the quarries of the district, and there was only one accident that could be described as serious. This occurred at the Waihi Mine, where a man named H. Mills, employed in the fitting-shop, had his right leg fractured by the slipping of a tie-bolt forming part of a cramp with which a disk was being withdrawn from a shaft in the fitting-shop. The injured man was standing alongside, striking the disk with a heavy hammer in the effort to loosen it, and it is thought the jarring from the hammer blows caused the tie-rod between the yolks to loosen and slip out of place, striking him on the shin.

WEST COAST INSPECTION DISTRICT (E. J. Scoble, Inspector of Mines).

Quartz-mining.

Marlborough District.

Dominion Consolidated Mine.—This mine operated on stone of a steadily diminishing value until September, when work ceased (apart from that incidental to the advancing of one drive), as it was no longer possible to carry on at a profit. The drive referred to is being projected in a north-easterly direction from the north end of No. 3 level, with the object of endeavouring to intercept a small payable reef exploited on the intermediate level, midway between Nos. 2 and 3. Development over the period January to September consisted of the following: Intermediate level advanced 144 ft. north on reef 2 ft. in width over the whole distance driven; values low. No. 2 level: A rise put up from the north end connected with No. 1 level at a height of 70 ft.; stone carrying moderate values was penetrated over the full distance risen. The battery treated 2,525 tons of ore, which yielded 719 oz. 12 dwt. of gold, valued at £2,797 15s. Recoveries were obtained by amalgamation alone, cyanide equipment not being installed. Nine men were employed during the period January to September, and three men from then on.

Reefton District.

Blackwater Mine.—This mine continued active operations during the year, the average number of men employed being 154. Less development work was done than in 1928, the total footage being 1,661½ ft., of which 1,144½ ft. were on reef averaging 12·52 dwt. over 22·7 in. Of this 1,144½ ft., 929½ ft. were on pay-reef averaging 13·77 dwt. over 24 in., and 215 ft. on unpayable reef averaging 5·31 dwt. over 17·8 in., the remaining 517 ft. being off reef. The remainder of the development work consisted of 273½ ft. of rising, 230 ft. of winzing, and 154 ft. of crosscutting, of which 2 ft. were on reef with values giving 18·5 dwt. The following gives details of the work: No. 6½ level north advanced 200½ ft., of which 170½ ft. were on reef averaging 15·67 dwt. over 10·6 in. No. 7 level north advanced 103 ft., of which 56½ ft. were on reef averaging 15·63 dwt. over 20 in. No. 7 level north, branch drive, was advanced 20 ft., of which 5 ft. were on reef averaging 15·5 dwt. over 20 in. No. 7 level north, branch drive, was advanced 13 ft., all off reef. No. 8 level north extended 75½ ft., of which 71½ ft. were on reef averaging 18·12 dwt. over 24 in. No. 8 level, south branch, extended 11 ft., all on reef averaging 8·5 dwt. over 33 in. No. 9 level north extended 185½ ft., of which 168½ ft. were on reef averaging 14·88 dwt. over 34½ in. No. 10 level north extended 295½ ft., of which 212 ft. were on reef averaging 10·17 dwt. over a width of 20½ in. No. 11 level north driven 25 ft., all on reef averaging 18·9 dwt. over 24 in. No. 11 south driven 75 ft., of which 19 ft. were on reef averaging 19·94 dwt. over 22½ in.

The following rising was done: No. 7 level, rise 2,180 ft. north was put up 84 ft., of which 72 ft. were on reef averaging 13·3 dwt. over 16 in. No. 7 level, rise 2,360 ft. north, was extended 35 ft., all on reef averaging 15·4 dwt. over 20 in. No. 9 level, rise 1,990 ft. north, was put up 70 ft., all on reef averaging 9·18 dwt. over 18 in. No. 9 level, rise 2,250 ft. north, was extended 12 ft., all on reef averaging 15·67 dwt. over a width of 63 in. No. 10 level, rise 1,400 ft. north, was put up 72½ ft., of which 60 ft. were on reef averaging 7·5 dwt. over 40 in.

The winzing carried out was: No. 6 level, winze 2,180 ft. north, was sunk 29 ft., all off reef. No. 8 level, winze 1,990 ft. north, was sunk 77½ ft., all on reef averaging 7·7 dwt. over 26 in. No. 8 level, winze 2,250 ft. north, was sunk 45 ft., of which 17 ft. were on reef averaging 9·38 dwt. over 24 in. No. 9 level, winze 1,400 ft. north, was sunk 78½ ft., of which 60 ft. were on reef averaging 4·8 dwt. over 14 in.

No. 7 level crosscut, off rise 2,180 ft. north, advanced 25 ft., all on reef (height above No. 7, 80 ft.). No. 8 level crosscut, at 2,250 ft. north, advanced 5 ft., all off reef (winze chamber). No. 11 chamber, crosscut advanced 10 ft., all off reef (Platt cutting). No. 11 chamber, crosscut from Platt advanced 108 ft., 2 ft. of which were on reef averaging 18·5 dwt. over 24 in. No. 11 level, magazine crosscut, advanced 6 ft., all off reef.

At the battery 37,744 tons of quartz were crushed for a yield of 16,200 oz. 16 dwt. gold, of which 12,755 oz. 6 dwt. were obtained by amalgamation, 2,210 oz. 11 dwt. by cyanidation, and 1,234 oz. 19 dwt. by treatment of concentrates, the value of the whole recovery being £64,394 2s. 2d. As the quantity crushed was less than that of the previous year by 2,163 tons and the total value showed a decrease of £6,130 10s. 3d. for the same period, it is obvious that a slight fall in values has occurred. It is to be noted that development work mainly consisted of extending Nos. 6½, 7, 8, 9, and 10 levels in a northerly direction towards the North Blackwater (Prohibition) property. This is accounted for by the ore-shoots having a steep end-on pitch to the north. It is evident that the reef system must, with increasing depth, eventually carry into the North Blackwater ground altogether, thus adding considerably to transportation costs. The shaft (previously sunk to No. 11) was pumped clear of water towards the end of the year. Crosscutting was then commenced from the bottom, and at 120 ft. west the main lode, east branch, south section, was encountered. Driving to the north and south over moderate distances gave satisfactory values with widths averaging 24 in.

North Big River, South Blackwater, New Millerton, South Big River, Progress, and *Hercules Mines* have all been idle during the year.

Wealth of Nations Mine.—No work of any description has taken place at this company's mine during the year. The mill, however, continues to operate on residues formerly dumped on account of the difficulty attached to treating same. Sands from the old Progress mill are also treated at this plant, satisfactory returns being obtained in both cases. The material treated for the period amounts to 3,952 tons, from which 1,537 oz. 4 dwt. of gold were obtained having a value of £5,235 10s. 11d. Eight men were employed throughout the period.

Alexander Mines, Ltd.—Crushing at this mine was resumed in June, and operations have since been carried on steadily both in developing the various shoots of ore and in stoping on the McVicar block. The line of reef, which was first located on Bull Hill and afterwards worked in various sections, has received the following names: Bull, McVicar, Bruno, McKay, and Mullocky Creek blocks. A short account of the work done on each block is here given:—

Bull block: An intermediate was started from the prospectors winze (in December), at a depth of 32 ft. below the outcrop. On driving north 4 ft. the reef was cut off by a break. On driving south the reef widened out and became strong underfoot. A little free gold can be seen in the stone, which gives an average value of £1 12s. 6d. over a width of 36 in. McVicar block, No. 1 level: This level was advanced south 37 ft., of which 15 ft. were on reef averaging £2 11s. over 36 in., and the remainder mostly on reef-track averaging 14s. over a width of 15 in. Bruno block: This reef has been further tested by trenching, driving, and winzing in several places. It has a fair length laterally and gives good dish prospects. No. 1 level was advanced 102 ft. from the surface, the first 5 ft. being on reef 30 in. wide and the remainder on reef-track carrying small boulders of quartz, grit, and pug. No. 2 level was advanced 153 ft. from the surface. The first 30 ft. were on reef 2 ft. wide, the next 90 ft. were on reef formation 2 ft. in width, and the last 63 ft. on reef-track about 18 in. wide. From the outcrop a winze was sunk to meet No. 2 level. This followed solid quartz more than 2 ft. wide down for 20 ft., and for the last 9 ft. passed through boulders of quartz and reef-track. Values were low. McKay block: This shoot—discovered late in 1928—has been traced by surface trenching for a length of over 300 ft. For 180 ft. the reef is 30 in. to 90 in. wide, whilst the remaining portion decreases from 24 in. down to 6 in. in width. Gold can be seen in the stone, and samples taken have given satisfactory results. No. 1 crosscut was projected with the object of cutting the reef at depth. It has been advanced 142 ft. without doing so, the reef having evidently turned from a practically vertical position to that of an almost horizontal one. No. 1 winze was sunk from the outcrop for 49 ft. The reef is wider than the winze for the first 14 ft. and from there on becomes narrower with a flat dip. The stone is payable, a sample taken at the winze

bottom giving values of £1 12s. over a width of 24 in. No. 2 winze was sunk from the outcrop 100 ft. south of No. 1 winze, and followed the reef down for 27 ft., where sinking has been suspended, with good stone showing in the bottom. The reef has an average width of 36 in. and gives average values of £3 18s. 6d. per ton. Mullocky Creek block: On No. 1 level a crosscut put out 26 ft. back from the face in the east wall was advanced 16 ft. in country rock, when driving was suspended as nothing of importance had been got. On No. 2 level the main crosscut was extended to a total distance of 240 ft. from the surface. A reef formation, 36 in. wide, carrying two 4 in. stringers, was intercepted at the face. This may possibly prove to be the northern end of Downey's reef which shows strongly at the surface. A reef-track, encountered at 186 ft. from the surface, was followed south for 145 ft. with unsatisfactory results, the average width of quartz being less than 12 in., with poor values. Battery: The erection of 60 chains of aerial tramway from the hopper at No. 3 level (McVicar's block, 2,140 ft.), to the mill (1,150 ft.), was finished in May. This work coincided with the completion of a new ten-head battery and cyanide plant. Crushing was started about the middle of June, and since that date 2,871 tons of ore have been crushed for a yield of 1,817 oz. of gold, of which 1,579 oz. were obtained by amalgamation and 238 oz. by cyanidation, the value of the whole being £7,688 13s. 3d. No provision has yet been made for cyaniding the slimes, which are at present run to waste. The construction of a tram-line linking the battery and McKay block of ore is receiving the company's attention. Consideration is also being given to the erection of a small compressed-air plant, with a view to installing and operating rock power-drills, as the reef systems now being worked are much harder than those formerly exploited. An average of twenty-seven men was employed throughout the year.

New Big River Mine.—This mine has remained idle for the year. It is, however, expected that a limited resumption of operations will take place during the coming period, as negotiations are in progress to provide finance sufficient to cover such work. The programme submitted consists of prospecting operations, which are to be undertaken in connection with a block of stone located on No. 2 level. Some other reef matter lying closely adjacent thereto is to be tested also.

Murray Creek Mine.—A considerable amount of development work having been carried out, operations were resumed on the upper levels during the early part of the year and continued until July, when they were suspended as the stone being crushed failed to show a profit. This unsatisfactory state of affairs was probably largely due to the small tonnage treated and the inefficiency of the mill. 616 tons of ore was crushed during the period worked, the yield in gold being 154 oz. 17 dwt. by amalgamation and 18 oz. 10 dwt. by cyanidation, worth £608 19s. 1d. and £52 5s. 4d. respectively. An average of eight men was employed.

Westport District.

Britannia Mine.—Very little work was done on this company's property during the year. A rise was put up to a height of 45 ft., and a drive extended for a distance of 27 ft., both on No. 1 level; this was all the development work for the year. The mill commenced to crush during May, only to cease after a short run, as ore-values fell considerably below what was expected. The stone treated amounted to 98 tons, from which 19 oz. 11 dwt. of gold were obtained, valued at £76 15s. 4d. Earthquake shocks in June caused damage to the aerial ropeways and bins, and in the mine, necessitating the expenditure of moderate sums on work incidental to restoration. No. 2 level, insecure and partly closed previous to the earthquake, collapsed altogether, and remains closed, locking in, from reports made, a fair-sized block of stone. An average of five men was employed until August, when all work was suspended owing to shortage of finance.

DREDGES.

Rimu Flat Dredge.—This company's 10-cubic-foot dredge operated continuously throughout the year, a short period in February excepted during which time some very necessary repairs were effected. Actual dredging covered 310 working-days, or 6,390 hours out of 7,440, representing 85·9 of the possible digging-time. The dredge treated a total of 2,065,567 cubic yards of gravel from an area of 33·25 acres, and an average depth of 38·4 ft. From this material 11,500 ounces troy of gold, having a gross value of £46,970, were extracted, showing an average gravel value of 5·46d. per cubic yard. The gold content of the gravel throughout the year, as was to be expected from previous boring results, has been generally low. Indications are that the 1930 operations should yield a higher return per cubic yard. The company's Keystone drill was kept in constant use throughout the year, drilling being confined to the area in the immediate proximity of the dredge; the results obtained from the boring were used as a digging guide. Repairs and replacements incidental to the dredge's upkeep were made from time to time with no serious delay to operations. The process of digging has been a practically continuous one, neither breakdown nor mishap of a serious nature occurring. The plant was closed down in February for two weeks, during which time the digging-ladder was thoroughly overhauled and strengthened; the main longitudinal angles at the lower end were taken out and replaced by new and heavier ones, and new wearing-plates, together with reinforcing I beams, were built into the under side of the lower end to protect the ladder against undue wear from the buckets. The company definitely decided during the year to reconstruct the present dredge, replacing the pontoons and superstructure (both wooden) with an all-steel construction, and to replace many of the machine parts with a more powerful and efficient installation. The plans and specifications for the reconstruction work have been completed, and tenders are now being called. The reconstruction programme will involve the purchasing, fabrication, and erection of 800 tons of structural steel at an estimated expenditure of £40,000, all of which will be handled through New Zealand firms. The reconstructed dredge, when completed, will be larger and better equipped, and will have an increased capacity over that of the present dredge, thereby enabling it to treat at a profit gravel having a lower gold content than that at present worked. An average of fifty men was employed throughout the year.

Terrace Gold Dredge (New River).—This dredge, idle for some time on account of structural alterations, resumed operations on the 23rd March to cease again on the 15th July after an unsatisfactory run. The quantity of gravel treated for the period worked was 147,000 cubic yards, and from this amount a total of 616 oz. 15 dwt. of gold was obtained, worth £2,447. This represents a gold content of practically 3·9d. per cubic yard, a value considerably below requirements, and one probably falling a good deal short of the company's expectation. Subsequent to closing down several boreholes put down on the area failed to show any improvement as regards values, and it was therefore decided to suspend operations permanently; the company afterwards went into voluntary liquidation, and has since been wound up. An average of eight men was employed during the time the dredge worked.

Okarito Five-mile Beach Gold-dredging Co., Ltd.—The following is a general account covering the year's preparatory operations: Two and a half miles of 15 in. and 13 in. by 12-gauge iron pipes were delivered at Okarito Township by motor-lorries, and carted thence to the claim on wheeled sledges over a very indifferent road five miles in length. From the claim they were conveyed on a punt, towed by motor-boat, across the Five-mile lagoon for a distance of nearly two miles, and landed alongside a corduroyed roadway made through heavy bush over a length of two and a half miles. This roadway connects with Lake Alpine, from which the water-supply for working the claim is to be drawn. The machinery for the dredge has been delivered at Okarito by lorries, and waits to be sleighed to the claim later. A sawmill erected on the property has been cutting timber (silver-pine and rimu heart) out of which the dredge pontoons are being constructed. The dimensions of the pontoons are—length, 100 ft.; breadth, 29 ft.; and depth, 6 ft. The capacity of buckets is 4½ cubic feet. The dredge is to be operated hydraulically, and the water, after leaving the Pelton wheels, will pass on to the tables, thus ensuring constant supplies for gold-saving purposes. Lake Alpine is situated

at an elevation of 314 ft. above the ground to be worked. A spur on the western side of the lake has been pierced with a tunnel 60 ft. in length, the floor of which is 3 ft. 6 in. below normal water-level. A 7 ft. square chamber cut at the head of the tunnel is fitted with a penstock consisting of 6 in. by 4 in. framing, and 2½ in. silver-pine planking attached thereon, to which the intake pipe laid through the tunnel is bolted. The intake pipe is 22 in. in diameter and is fitted with a gate for shutting off the water when required. A weir is being built at the outlet of the lake for the purpose of providing extra storage. It is intended to commence operations with a hydraulic elevating plant immediately the water has been brought in to the claim, and to afterwards change over to dredging on completion of the dredge. Eighteen men are employed, and are comfortably housed on the claim in cottages built by the company.

Alluvial Mining.

Mahakipawa Goldfields, Ltd.—This company's mine, worked regularly until August, when operations were suspended and all pumping equipment drawn. The main south drive was extended a considerable distance in the gutter during the period worked. Values showed progressive improvements as the drive advanced, but the amount of development done did not add materially to the yardage that could be profitably extracted; the gold-bearing wash was found to be confined to a narrow channel. A fair amount of crosscutting to prove widths was also done, chiefly to the east of the gutter. Values up to £1 16s. 6d. per cubic yard were obtained when first blocking out, but these rapidly fell and averaged towards the end only £1 12s. per cubic yard, at which stage it was decided to close down. A programme of drilling was then put in hand by the company, the object being to ascertain the width and depth of gold-bearing gravels across the gutter south and ahead of the underground workings. Five holes were sunk altogether. Four of these were on unpayable ground, and one on rich gravels averaging £3 9s. 1d. per cubic yard (thickness of wash, 6 ft.), over a width of 120 ft. Three of the holes were purely speculative, as they were purposely sunk off the lead which had been worked. Finance would not permit of more than two holes being placed in the gutter, and one of these proved a blank though passing through 15 ft. of the best-looking gravel seen in any of the holes. The recoveries were 378 oz. 15 dwt., valued at £1,515. An average of fifteen men was employed during the period worked.

Collingwood (Rocky River, Takaka, &c.).—Five men were employed, winning 104 oz. 2 dwt. 20 gr. of gold, valued at £385 6s. 1d.

Marlborough (Mahakipawa and Deep Creek).—Seventeen men were employed, winning 408 oz. 19 dwt. 17 gr. of gold, valued at £1,632 13s. 6d.

Howard Diggings.—The returns to hand show that seven men were employed, winning 105 oz. 19 dwt. 17 gr. of gold, valued at £409 2s. 2d.

Murchison (Matakitaki, Maruia, and *Lyell).*—Five men were employed, winning 90 oz. 19 dwt. 13 gr. of gold, valued at £350 13s. 5d.

Westport (Charleston, Waimangaroa, &c.).—Six men were employed, winning 179 oz. 16 dwt. 5 gr. of gold, valued at £682 9s. 9d.

*Reefton (*including *Blackwater* and *Merrijigs).*—Six men were employed, winning 106 oz. 9 dwt. 21 gr. of gold, valued at £383 1s. 2d.

Grey (Ahaura, Barrytown, South Beach).—Four men were employed, winning 27 oz. 19 dwt. 2 gr. of gold, valued at £109 7s. 11d.

*Kumara (*including *Stafford, Greenstone,* and *Callaghans).*—Eighteen men were employed, winning 654 oz. 16 dwt. 4 gr. of gold, valued at £2,613 15s. 5d. The principal producers were the Hohonu Sluicing Co., at Greenstone, with 304 oz. 15 dwt. 21 gr., valued at £1,196 6s. 1d.; and Stubbs and Steel's claim at Maori Point, with 214 oz. 7 dwt. of gold, valued at £841 6s. 5d.

Hokitika (Rimu, Arahura, and *Blue Spur).*—Eighteen men were employed, winning 371 oz. 11 dwt. 12 gr. of gold, valued at £1,455 9s. 1d.

Ross.—Three men were employed, winning 127 oz. 4 dwt. 15 gr. of gold, valued at £501 18s.

*Okarito (*including *Waiho* and *Three-mile Beach).*—Five men were employed, winning 130 oz. 8 dwt. 13 gr. of gold, valued at £506 3s. 5d.

Quarries.

Throughout the district, including Canterbury, there was an increase in the number of men employed in and about the various quarries, the returns showing that 310 men were engaged as against 266 last year. The value of the output was high as a consequence, rising from £56,387 8s. 11d. in 1928 to £71,199 12s. 2d. in the period under review.

Minerals other than Gold.

Iron.—Operations at the Onakaka works during the greater part of the year were confined to the laying-down of a pipemaking plant, the installation of a hydro-electric scheme, and the erection of a large aerial tramway having double the capacity of that formerly in use. All of these works are now in operation. The furnace, idle for a considerable time, was blown in on the 29th June, and finished smelting on the 9th December for a temporary period. 8,043 tons of ore were used during the time mentioned, the resultant production of pig iron being 4,393 tons, valued at £21,965. Twenty men were employed on an average throughout the year.

Petroleum.—The only work worthy of mention carried out in connection with prospecting for mineral oil is that performed by the Taranaki (N.Z.) Oil Fields (N.L.) on the Kotuku-No Town area. Two holes were sunk, but they were test bores only, and were drilled to determine the structural nature of the strata. The first, No. 1A, reached a depth of 420 ft. and was then abandoned in loose caving sand. The second, No. 1, put down to a depth of 965 ft., reached badly caving soft sandstone and was then abandoned. Desultory investigations conducted in the Maruia district have revealed nothing of importance. Operations are still suspended on the Murchison Oil Co.'s property in the Mangles-Blackwater district.

Prospecting.

Increased activity has been shown in this branch of work. The Rimu Gold Dredging Co. uses its own Keystone drill constantly, and has put down a large number of holes during the year. The whole operation is intense in character and done according to system. The adoption of this method enables the company to forecast with accuracy values over given areas, and also actual returns to be expected. Some drilling carried out (on Government subsidy) at the Awatuna Beach has been moderately successful, though not completed. Areas at Blackwater (Reefton) and Warwick Junction (Maruia) were also tested with bores, but the results in both cases were unsatisfactory. Values were obtained from some of the bores at Blackwater, on freehold, but they were isolated, and not high, and drilling was abandoned as a consequence. At Skippers, near Hokitika, a number of shafts were put down with the aid of Government subsidy. The ground was heavy and troublesome to work on account of water. Values were obtained on a small area at the north-west end of the property; the remaining portion did not appear to be satisfactory. A moderate amount of field prospecting has taken place, but discoveries from this source have been nil.

Accidents.

Two non-fatal accidents occurred in connection with quartz-mining and one of a similar character at quarrying. In one of these a man named Laurie Kremmer was struck on the head with a falling piece of timber and sustained injuries which consisted of a fractured skull. He was an employee of the Murray Creek Gold-mining Co., and whilst working from a landing in a ladderway in that company's mine on the 20th March noticed that he had neglected to cover the opening. Under Kremmer's directions another man attempted to put the covering on, with the result that

it slipped and fell down the ladderway so causing the accident. In the second case a man named Gordon Ladner was working an air-winch in the Blackwater Mine on the 24th August when he accidentally became entangled with the winding-rope and bucket. Wanting to take a kink out of the rope, he evidently turned the air on instead of shutting it off. His injuries consisted of a fractured arm (broken above and below the elbow) and a badly contused finger. The quarry accident appeared to be a simple one. E. Dudley, employed by the Golden Bay Cement Co., was working at the marl-quarry, Tarakohe, on the 10th May when a stone on which he was standing began to move. On jumping clear he fell and was overtaken by the falling debris and suffered injuries consisting of a broken arm and badly contused hand.

General Remarks.

Mining.—Alluvial mining showed a falling-off when compared with the previous year, the value of gold won being £9,029 19s. 11d., as against £11,856 19s. 2d. won during the former period. There was a considerable decrease in the number of men employed, the figures being 94 as against 132 in 1928. This statement is somewhat offset by the fact that a number of men were employed on part-time at the industry.

Quartz-mining.—Quartz-mining, on the other hand, showed a gratifying though slight increase, the amount recovered being 20,467 oz. as against 18,724 oz. for 1928. The increase is no doubt due to a resumption of operations at the Alexandra Mine, where crushing had been suspended over a lengthy period.

SOUTHERN INSPECTION DISTRICT (Mr. A. Whitley, Inspector of Mines).

Quartz and Alluvial Mining.

Waitaki County.

Livingstone and Maerewhenua.—Returns from these localities show that six men were employed at ground sluicing in the greensand deposits. The gold won amounted to 210 oz., valued at £809.

Waihemo County.

Ounce Mine, Stoneburn.—The reefs in this mine are worked for gold and scheelite. During the year 135 tons of ore were crushed and concentrated for a yield of 19 oz. gold and 6 tons 15 cwt. of scheelite.

Golden Point Gold and Scheelite Mining Co., Macrae's.—This company was formed in Christchurch to reopen the low level of the old Golden Point Mine and prospect the reefs that were cut by former owners of the mine. Work commenced in October, and the level has been cleaned out and retimbered for a distance of 900 ft. from the surface.

Macrae's.—Three small parties of miners have been prospecting for scheelite in this locality. 28 tons of ore were treated at H. Fraser's battery for returns amounting to 1½ tons of scheelite.

Maniototo County.

Kildare Consolidated Gold-mining Co., St. Bathan's.—Sluicing and elevating has been in progress on the Kildare lead throughout the year. Two elevators were in operation lifting the gravel to a total height of 162 ft. A small vertical shaft was sunk to a depth of 55 ft. in the hanging-wall of the Kildare lead at the southern end of the elevating-paddock. The lead was cut and driven on for a distance of 75 ft. to the south. The gold won for the year amounted to 320 oz. 4 dwt., valued at £1,230 11s. 8d.

Cambrian.—Sluicing operations in this locality were carried on by four parties of miners. The gold won amounted to 242 oz., valued at £909.

Golden Progress Quartz-mining Co., Oturehua.—The Progress reef was cut in a drive from the inclined shaft and driven on for a distance of 100 ft. to the east. It averaged 2 ft. in width, and samples taken from it gave payable results by assay. A vertical shaft has been sunk 40 ft. from the surface, and sinking will be continued to a depth of 160 ft. before opening out to drive on the reef.

Naseby and Kyeburn.—Twenty-one men were employed at hydraulic sluicing and elevating. The gold won amounted to 844 oz. 13 dwt., valued at £3,242. The largest producers were A. and G. Brown, with 260 oz., valued at £1,010.

Tuapeka County.

Blue Spur.—The Lawrence Sluicing Co. ceased operations in the early part of the year and sold all water rights and mining plant to the Dunedin City Corporation. The Gabriel's Gully Sluicing Co. sold the water rights from the Beaumont and Waipori Rivers to the Dunedin City Corporation, but retained the water right from a number of small creeks nearer to the claim, and is working the tailings on the north-west boundary. The yield of gold for the year amounted to 328 oz. 19 dwt., valued at £1,277 4s. 2d.

Golden Crescent Sluicing Co., Wetherstones.—Driving in the auriferous cement deposit on the schist bottom has been in progress during the year, and a distance of 530 ft. has been driven in an easterly direction for the purpose of proving if the cement carries sufficient gold to pay for working it by driving and blocking out. For the first 300 ft. of driving the cement was not payable, but it improved as the drive was extended, and the last 90 ft. driven gave a yield of 11 oz. 13 dwt., or at the rate of 9s. per cubic yard.

Golden Rise Claim, Wetherstones (W. R. Smyth, Owner).—A block of ground on the Lawrence to Waipori Road was worked by hydraulic sluicing and elevating, permission having been obtained from the Tuapeka County Council for the diversion of the road. The yield of gold amounted to 369 oz., valued at £1,422.

Hogg and Eady, Evans Flat.—This party purchased the Evans Flat Claim from Treacy Bros. and continued to work it by ground sluicing. Two men were employed.

Paddy's Point Gold-mining Co., Forsyth.—The water-race from the Waitahuna River formerly owned by the Havelock Sluicing Co. was repaired and extended to the claim, where sluicing operations commenced on the 4th December.

Sailor's Gully Sluicing Co., Waitahuna.—Ground sluicing was in progress throughout the year in the weathered portions of the cement deposit. Returns show that 359 oz. of gold, valued at £1,369, were recovered.

Tallaburn Sluicing Co., Horseshoe Bend.—This company's workings are close to the Clutha River at the north end of the old channel, and the claim will soon be worked out. Elevating was carried on during the year for a return of 187 oz., valued at £718.

Holloway Bros., Commissioner's Flat.—Sluicing operations were carried on in this party's claim on the east bank of the Molyneux River. The gold won amounted to 31 oz. 12 dwt., valued at £122.

Murchison Bros., Fourteen Mile Beach.—This party's claim is situated in the gorge of the Molyneux River about half-way between Roxburgh and Alexandra. The ground is very rough and can only be worked when the river is low. Returns show that 102 oz. valued at £395, were recovered.

Vincent County.

Kawarau High Levels Mining Co., Waitiri.—Sluicing operations were carried on in a deep channel on the north side of the company's claim up till May, but it was found that the ground could not be profitably worked owing to its rough nature and the difficulty in shifting the numerous large stones.

Cornish Point Gold-mining Co., Cromwell.—This company was formed to take over the Cornish Point syndicate's claim and plant, and further prospect the claim at the junction of the Clutha and Kawarau Rivers. An inclined shaft has been sunk 72 ft. on a grade of 1 in 2, but the bedrock was not reached. The pumping

plant consists of one 15 h.p. three-phase motor coupled to a 4 in. centrifugal pump, one 5 h.p. motor to a 3 in. centrifugal pump, and one 1 h.p. motor to a 1½ in. centrifugal pump. The power is supplied by the Central Otago Electric-power Board. Haulage from the dip is done with a crab winch.

Nevis.—A falling-off is noticeable in the number of men employed and returns of gold from sluicing operations on this field. Four claims employing twelve men produced 367 oz. gold, valued at £1,415. Graham and party with 246 oz. 16 dwt., valued at £949 2s., were the largest producers. Boring operations were in progress on J. Stevenson's claim at Upper Nevis in the early part of the year with the Department's No. 2 Keystone drill. Ten holes were bored to depths of 32 ft. to 68 ft. The results were considered to be satisfactory.

Lake County.

Kawarau Gold-mining Co.—The gates of the company's dam were closed for three weeks during the month of August to enable the Cromwell Development Co. to repair its weir in the Kawarau River. No work was done on any of the company's claims.

Glenorchy Scheelite-mining Co., Ltd., Glenorchy.—The company's operations were confined to the Glenorchy Mine. Two men were employed at Kelly's level breaking out scheelite-ore which produced 13½ tons of concentrates. Since September seven to eight men have been engaged in repair and development work on the main lode at Nos. 1, 1A, and 7 levels. Repairs to the water-race and mill have also been carried out. The Mount McIntosh mine has been let on tribute.

Big Beach Gold-mining Co., Shotover River.—Sluicing operations were in progress throughout the year. Two nozzles were used for breaking down the terrace-gravels. Water under a pressure of 150 ft. was supplied by the company's races. The gold won amounted to 793 oz., valued at £3,035. Nine men were employed.

Moonlight Mining Syndicate, Moonlight Creek.—Returns from this company's claim show that 273 oz. 10 dwt. of gold, valued at £1,038 6s. 9d., were recovered by sluicing operations in the old channel of Moonlight Creek.

Sandhills Gold-mining Co., Upper Shotover.—The channel through the sandhills was deepened sufficiently by the end of May to allow a stream of water from the Shotover River to pass through. Operations were then suspended over the winter months until the end of September, when the water-races were cleaned out in readiness to resume work in the channel, but the weather broke and the river was in a continuous state of flood up to the end of the year, which prevented the final work of diversion being carried out. The fall in the river from inlet of the channel to the outlet is 20 ft. The length of river-bed to be laid bare by the diversion is 45 chains. The quantity of material removed in making the channel amounted to over 1,000,000 cubic yards, and was removed by sluicing and rushes of water from a dam which was built at the highest point in the centre of the cut, at a cost of under 1½d. per cubic yard. The permanent pipe-line has been laid to the mouth of the river-gorge, and the company intends to work the old river-bed on the beach above the gorge before working the bed of the river in the gorge.

Reid and Lynch, Sawyer's Creek.—The rise from the low level was continued to a height of 140 ft., where the lode formation that was met with in the crosscut from the rise was cut; but as there was no quartz in it and it did not carry any values the party ceased operations.

Oxenbridge and Party, Twelve-mile Creek.—This party's sluicing operations in the terrace gravels on the west bank of Twelve-mile Creek resulted in a return of 30 oz. 10 dwt. gold valued at £117 8s. 5d.

Dart River Prospecting Co., Ltd.—This company was formed in Queenstown for the purpose of prospecting the bed of the Dart River by boring. Six boreholes were put down to depths of 30 ft. to 40 ft., but nothing but drift, containing a few fine colours of gold, was disclosed.

Southland County.

Nokomai Sluicing Co., Nokomai.—Two elevators were in operation during the year lifting the gravel from the bed of Nokomai Creek to a height of 90 ft. The gold recovered amounted to 997 oz. 5 dwt., valued at £3,770 16s. 8d. Owing to the high lift and seepage of water into the workings from the creek, amounting to about six heads, the work of hydraulic elevating cannot be profitably carried on.

King Solomon Gold-mines, Ltd., Waikaia.—This company ceased operations in April owing to shortage of capital. The main shaft had then been sunk to a depth of 177 ft. At 162 ft. running sand was met with, and the method of timbering had to be altered from longitudinal planking to frame sets and laths. A new company, named the King Solomon Deep Lead, Ltd., has been formed in Gore for the purpose of working the claim.

Winding Creek Gold-mining Co., Waikaia.—This company took over the King Solomon Consolidated Claim in the early part of the year, and has been engaged in driving out auriferous gravel from an old channel of Winding Creek. The channel is 30 ft. wide, and the wash, which is 4 ft. deep, is payable throughout. A distance of about 300 ft. was driven, and at 250 ft. from the mouth of the drive a connection was made with a shaft from the surface to provide ventilation for the workings. The yield of gold amounted to 236 oz. 14 dwt. 21 gr., valued at £912 15s. 6d.

Stony Creek Gold-mining Co., Waikaia.—This company was formed in Gore to work H. Nelson's special alluvial claim at Winding Creek. An old elevating-paddock formerly worked by the Break-em-all Co. was pumped out, and a winch and Pelton wheel installed for haulage purposes. The company intends to drive out the wash from the bottom of the paddock.

Waimumu Gold-mines, Ltd., Gore.—Pumping plant, comprising a 75 horse-power motor, 7 in. single-stage centrifugal pump, and a line of 13 in. pipe, was installed for lifting three heads of water from Waimumu Stream to a height of 60 ft. for sluicing terrace-gravels on the east bank of the stream. Power for pumping was supplied by the Southland Electric-power Board. Sluicing commenced in October, and the gold won up to the end of the year amounted to 25 oz. 14 dwt. 20 gr.

Dome Creek Prospecting Syndicate.—Ten boreholes, ranging in depth from 15 ft. to 43 ft. to bedrock, were sunk in the first basin upstream from the main valley of Dome Creek by J. M. Stewart. The results showed that gold does not exist in payable quantities within the area prospected.

Athol.—Four men were employed at alluvial mining in this locality. The gold recovered amounted to 219 oz. 14 dwt. 12 gr., valued at £882 10s. 2d.

Wallace County.

Wakapatu Mining Co., Ltd., Wakapatu.—The company was unsuccessful in its efforts to work the sand and gravel deposits at the mouth of Ourewera Creek by means of a gravel-pump. Pumping operations ceased in the early part of the year, and some boring was then done to prospect the unworked area of the company's claim. The results of the boring were considered to be satisfactory.

Round Hill Mine.—Hydraulic elevating was carried on throughout the year with seven men. The gold recovered amounted to 294 oz. 10 dwt., valued at £1,163 16s.

Orepuki.—A few small parties of miners continue to work the alluvial and sea-beach deposits in this locality. The gold won amounted to 123 oz. 13 dwt. 19 gr., valued at £476 5s. 8d.

DREDGING.

Upper Nevis Gold-dredging Co., Nevis River.—The company's electrically-driven dredge was not powerful enough to work the deep ground, and dredging was only carried on to a depth of about 25 ft. The gold recovered amounted to 665 oz. 3 dwt. 12 gr., valued at £2,653 7s. 10d. Application has been made for the loan of the Department's No. 2 Keystone drill for the purpose of further prospecting the claim.

Nevis Crossing Dredge, Nevis River.—This dredge only worked for one month in the early part of the year. The gold won amounted to 32 oz. 10 dwt. 15 gr., valued at £123 4s. 10d.

Undaunted Dredging and Mining Co., Little Kyeburn.—The small water-power bucket dredge erected by this company could not dig the hard clay which overlies the wash on the terrace where it was operating. Dredging ceased early in May, and the company has gone into liquidation.

Golden Terrace Extended Gold-dredging Co., Lower Shotover.—The erection of the dredge for working the company's claim has been in progress during the year, and dredging operations should commence in March, 1930.

Minerals other than Gold.

Tungsten.—The scheelite produced during the year amounted to 22 tons 13 cwt. 2 qrs., valued at £2,613—an increase of 16 tons 9 cwt. 2 qr. in quantity and £2,181 in value over 1928. This increase has been brought about by the recovery in the tungsten market. The largest producers were the Glenorchy Scheelite Co. (13 tons 10 cwt.), and E. B. Callery (6 tons 15 cwt). A number of licenses to prospect for the mineral have been granted to miners at Glenorchy and Macrae's, and a further increase in production may be expected in 1930.

Cinnabar.—The Waitahuna Cinnabar Syndicate drove a crosscut a distance of 286 ft. from the surface and cut a small lode formation which was driven on 42 ft. to the west from the crosscut. Only traces of cinnabar were found.

Silica.—The Southern Cross Glass Co., Ltd., Ashburton: The output of silica-sand from the company's silica license at Mount Somers amounted to 318 tons, which was valued at 10s. per ton at the site of the deposit.

Platinum.—6 oz. 17 dwt. of platinum concentrates, valued at £35 12s. 2d., were recovered from alluvial and sea-beach claims at Round Hill and Orepuki.

Accidents.

No serious accidents occurred in the mines or dredges during the year.

ANNEXURE B.

STONE-QUARRIES.

SUMMARY OF REPORT BY INSPECTOR OF QUARRIES FOR THE NORTH ISLAND.

(Mr. James Newton.)

Taking into consideration the dangerous nature of the industry, I have to state that during inspection of the quarries I have, with very few exceptions indeed, found that reasonable care in operating the stone is being taken.

The quantity of stone won during the year under consideration in my inspection district has been 1,069,613 tons, which amount gives a decreased output when compared with last year of 76,751 tons. This may be accounted for when it is remembered that a less number of quarries has been worked, the decrease being forty-eight, besides which a few of the larger quarries have produced very little stone during the year—namely, the Wanganui and New Plymouth Harbour Board quarries—whilst the Auckland Harbour Board's quarry has been idle throughout the whole of the period. The number of persons employed in the production of the stone (1,369) has been less by eighty-nine than was employed last year, and the value of the stone won shows a decrease of £5,888. The greater number of quarries worked only won stone for a short period of the year, others intermittently, whilst a lesser number operated more or less permanently, consequently the employment to the persons engaged is not of a permanent nature.

The following accidents coming within the provisions of section 4 of the Stone-quarries Amendment Act, 1922, happened during the year under review:—

On the 22nd May an employee in Pascoe's quarry situated at Epsom, named J. Quickfall, was injured by being struck by a small stone falling from the quarry-face on to his shoulder, causing a slight fracture of the shoulder-blade.

On the 29th June Richard C. Flay had his leg broken, the result of falling foul of a travelling belt whilst employed at Guillard's quarry, situated in the Hunua Gorge.

On the 20th December a workman employed in the Cook County's quarry situated at Waerenga-o-Kuri had his hand hurt, the result of a rolling stone striking it, necessitating the amputation of his third finger.

Tunnel Quarries.—During the year a considerable amount of inspection has had to be given to underground work, tunnelling in the Auckland district having been continuous throughout the year. Most of them have been driven through hard basalt rock, necessitating very little timber support. I have generally found on inspection that this class of work has been satisfactorily undertaken. Care is taken in the handling and use of the necessary explosives, and the drives are adequately provided with ventilation. Other tunnel quarries that have been inspected are situated in Wellington and Wanganui districts.

During the year a large number of applications from persons wishing to be examined for quarry-manager's permits has been dealt with, the examinations being conducted at times and places most suitable both to the candidates and the examiner.

I desire again to mention the fact that the officers of the various public bodies have kindly extended to me every facility at their disposal in order to enable me to inspect their several quarries. At great inconvenience to themselves they have motored me considerable distances over rough roads into the back country, and so enabled me to inspect their quarries expeditiously.

ANNEXURE C.

MINING STATISTICS.

Table 1.

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE NORTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1929.

Locality and Name of Mine.	Average Number of Men employed.	Quartz crushed.	Bullion obtained.		Value.
			Amalgamation.	Cyanidation.	
WAIHI BOROUGH.					
Waihi—		Tons cwt. qr. lb.	Oz. dwt. gr.	Oz. dwt. gr.	£ s. d.
Waihi Gold-mining Co., Ltd. ..	537	181,086 0 0 0	..	438,070 19 0	321,031 12 3
Waihi Grand Junction Gold Co.	36	9,878 0 0 0	..	79,127 0 19	30,753 2 2
	573	190,964 0 0 0	..	517,197 19 19	351,784 14 5
OHINEMURI COUNTY.					
Karangahake—					
Crown Battery site	5	6 10 0 0	222 18 10	..	318 13 1
New Crown	2	5 0 0 0	22 0 0	..	43 16 4
Waitekauri—					
Maoriland	2	24 0 0 0	44 6 0	..	128 17 1
Maratoto—					
Ohinemuri Gold and Silver ..	85	2,020 0 0 0	..	9,618 6 6	1,309 11 3
Neavesville—					
Hauraki-Alaska	2	174 0 0 0	51 10 0	..	65 19 3
Waihi School of Mines	..	..	9 4 0	..	18 1 6
Prospectors	1	..	24 2 0	..	15 9 3
	97	2,229 10 0 0	374 0 10	9,618 6 6	1,900 7 9
THAMES BOROUGH.					
Thames—					
Caledonia - Kuranui - Moanatairi	4	484 0 0 0	21 18 0	..	65 8 0
Occidental-Una	5	217 0 0 0	213 3 0	..	523 6 0
Lucky Shot	6	130 0 0 0	221 8 0	..	602 12 3
New Waiotahi	5	5 0 0 0	19 2 0	..	48 6 1
Tui	3	15 0 0 0	6 16 0	..	15 6 0
Bendigo	2	0 0 0 14	6 15 0	..	17 15 0
White's	2	60 0 0 0	5 10 0	..	11 10 3
School of Mines Battery ..	..	6 0 0 0	40 5 0	..	40 2 8
McGregor's Battery	2	..	30 11 0	..	76 5 0
Prospectors	9	4 3 2 6	53 12 0	..	117 2 6
	38	921 3 2 20	619 0 0	..	1,517 13 9
COROMANDEL COUNTY.					
Tokotea—					
Father's Hope	1	0 0 0 14	14 1 0	..	35 11 6
Kuaotunu—					
Four-in-hand	2	..	7 13 0	..	21 12 0
Prospectors	9	0 4 0 0	8 18 0	..	22 9 0
Mahakirau—					
Eclipse	2	..	1 1 0	..	2 16 0
Coromandel—					
Hauraki	30	286 1 0 10	361 18 0	..	1,073 19 8
	44	286 5 0 24	393 11 0	..	1,156 8 2
SUMMARY.					
Waihi Borough	573	190,964 0 0 0	..	517,197 19 19	351,784 14 5
Ohinemuri County	97	2,229 10 0 0	374 0 10	9,618 6 6	1,900 7 9
Thames Borough	38	921 3 2 20	619 0 0	..	1,517 13 9
Coromandel County	44	286 5 0 24	393 11 0	..	1,156 8 2
Totals, 1929 ..	752	194,400 18 3 16	1,386 11 10	526,816 6 1	356,359 4 1
Totals, 1928 ..	626	205,270 12 1 0	1,343 3 0	486,397 5 22	366,937 5 10

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE WEST COAST INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1929.

Locality and Name of Mine.	Average Number of Men employed.	Quartz crushed.	Bullion obtained by		Values.
			Amalgamation.	Cyanidation and Concentration.	
MARLBOROUGH.					
Wakamarina—		Tons cwt. qr.	Oz. dwt. gr.	Oz. dwt. gr.	£ s. d.
Dominion Consolidated ..	9	2,525 0 0	719 12 0	..	2,797 15 0
NELSON.					
Waiuta—					
Blackwater Mine	154	37,744 0 0	12,755 6 0	3,445 10 0	64,394 2 2
Crushington—					
Wealth of Nations	6	3,280 0 0	..	464 14 0	1,598 14 6
Globe Hill—					
Progress	2	672 0 0	..	1,072 10 0	3,636 16 5
Alexander River—					
Alexander	27	2,871 0 0	1,579 0 0	238 0 0	7,688 13 3
Murray Creek—					
New Murray Creek	8	616 0 0	154 17 0	18 10 0	661 4 5
Waimangaroa—					
Britannia	5	98 0 0	19 11 0	..	76 15 4
Totals, 1929 ..	211	47,806 0 0	15,228 6 0	5,239 4 0	80,854 1 1
Totals, 1928 ..	211	46,717 0 0	14,369 12 4	4,354 6 0	79,044 5 6

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE SOUTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1929.

Locality and Name of Mine.	Average Number of Men employed.	Quartz crushed.	Bullion obtained by		Value.
			Amalgamation.	Concentration.	
WAIHEMO COUNTY.					
Stoneburn—		Tons cwt. qr.	Oz. dwt. gr.	Oz. dwt. gr.	£ s. d.
Ounce	2	135 0 0	19 0 0	..	73 12 6
Totals, 1929 ..	2	135 0 0	19 0 0	..	73 12 6
Totals, 1928 ..	4	120 0 0	8 6 0	..	32 13 10

SUMMARY OF INSPECTION DISTRICTS.

Inspection District.	Average Number of Persons employed.	Quartz crushed.	Bullion obtained.	Value.
		Statute Tons.	Oz. dwt. gr.	£ s. d.
Northern (North Island)	752	194,401	528,202 17 11	356,359 4 1
West Coast (South Island)	211	47,806	20,467 10 0	80,854 1 1
Southern (Otago and Southland) ..	2	135	19 0 0	73 12 6
Totals, 1929	965	242,342	548,689 7 11	437,286 17 8
Totals, 1928	841	252,108	506,472 13 2	446,014 5 2

In addition, 60 persons were employed at unproductive quartz-mining.

Table 2.

STATEMENT OF AFFAIRS OF MINING COMPANIES, AS PUBLISHED IN ACCORDANCE WITH THE COMPANIES ACT, 1908.

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Script given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold and Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
AUCKLAND DISTRICT.														
		£	£	£			£			Oz.	£	£	£	£
Alburnia Gold-mining Co., Ltd.	7/8/28	15,086	4,693	Nil	100,479	Various	355	243	8	Nil	Nil	4,530	Nil	1
Hauraki Mines Consolidated, Ltd.	28/11/25	86,403	50,715	28,750	345,614	Various	756	1,268	31	279	829	40,261	Nil	1,684
Hauraki-Alaska Gold-mining Co., Ltd.	1/8/27	6,644	6,640	Nil	172,895	1/– and 10d.	1	130	1	51	65	6,681	Nil	67
New Waiotahi Gold-mining Co. (No Liability)	31/8/22	31,397	11,311	4,000	125,590	2/4	215	111	Nil	230	615	11,339	Nil	54
Occidental Una United Gold-mining Co. (No Liability)	9/11/26	23,875	5,034	2,500	95,500	1/7	13	102	2	459	1,142	5,973	Nil	435
Golden Age Gold-mining Co., Ltd.	2/7/26	12,000	2,798	2,000	120,000	9d.	951	218	1	Nil	Nil	4,743	Nil	14
Lucky Shot Mines, Ltd.	12/6/28	21,853	3,250	10,000	109,267	1/3	454	235	9	140	382	13,481	Nil	Nil
Father's Hope Consolidated Gold-mining Co., Ltd.	14/10/27	1,490	740	650	14,900	2/–	Nil	30	Nil	Nil	Nil	686	Nil	24
Kuranui Gold-mining Co. (No Liability)	5/6/25	8,026	4,695	210	82,364	1/3	Nil	36	Nil	10	25	4,733	Nil	58
Mount Welcome Gold-mining Co., Ltd.	21/10/20	3,600	2,730	2,500	24,400	4/1 and 5/–	30	71	Nil	50	142	3,213	Nil	17
Tui Gold-mining Co., Ltd.	1/5/29	7,815	1,478	3,750	46,260	1/6 and 3/–	103	46	5	2	6	1,431	Nil	676
Caledonia-Kuranui-Moanataiari Consolidated Gold-mining Co., Ltd.	16/3/20	43,062	29,999	2,500	182,250	Various	291	..	6	347	1,030	34,612	Nil	2,313
Maoriland Consolidated, Ltd.	24/3/25	13,750	5,349	5,000	80,000	Various	..	55	2	149	444	5,515	Nil	57
Ohinemuri Gold and Silver Mines, Ltd.	1/6/14	110,000	62,744	55,275	220,000	10/–	Nil	323	69	19,858	2,663	111,534	Nil	42,538
Waiomo Sulphide Corporation, Ltd.	1/2/29	17,951	17,234	Nil	71,806	Various	630	139	37	Nil	Nil	15,625	Nil	2,432
Gold Seekers, Ltd.	27/8/28	1,237	937	300	2,475	10/–	Nil	29	Nil	7	21	953	Nil	162
NELSON DISTRICT (INCLUDING WEST COAST).														
Waikakaho Gold Leads, Ltd.	28/5/29	3,000	800	2,000	120	£20, £15, and £25	25	26	2	Nil	Nil	805	Nil	52
Skipper's Westland Gold-mining Co., Ltd.	1/3/28	7,933	5,183	2,700	7,933	20/–	Nil	21	12	89	352	5,661	Nil	1,580
North Big River Gold-mines, Ltd.	29/10/19	34,903	13,167	34,000	34,903	20/– and 15/10	Nil	77	Nil	Nil	Nil	10,123	Nil	55
New Murray Creek Gold-mines, Ltd.	25/7/23	15,000	4,821	10,000	15,000	20/– and 10/–	75	64	Nil	328	1,199	2,955	Nil	1,450
Murray Creek Gold-mines, Ltd.	14/12/26	35,007	6,965	25,000	35,007	15/– and 13/11	539	67	Nil	173	661	7,681	Nil	1,739
Okarito Five-mile Beach Gold-dredging Co., Ltd.	29/10/28	30,000	19,760	..	120,000	Various	690	206	16	Nil	Nil	18,636	Nil	757
Southern Mines Development Corporation, Ltd.	27/7/26	30,335	19,849	Nil	30,335	Various	5,397	307	Nil	Nil	Nil	..	Nil	328
Blackwater Oil (N.Z.) Exploration Co., Ltd.	27/7/26	15,507	929	Nil	15,507	Various	Nil	7	Nil	Nil	Nil	..	Nil	500
Hercules Mines Consolidated, Ltd.	27/7/26	15,007	6,475	Nil	15,007	Various	Nil	7	Nil	522	1,823	..	Nil	1,283
Mahakipawa Goldfields, Ltd.	12/10/23	37,779	28,445	15,603	780,089	Various	204	1,231	2	440	1,700	31,970	Nil	2,119
Rimu Gold-dredging Co., Ltd.	20/7/20	213,572	142,863	70,709	213,572	20/–	Nil	35	49	94,331	396,739	280,282	24,622	173
Ngahere Gold-prospecting Co., Ltd.	22/12/25	24,465	4,493	18,000	48,931	10/– and 2/–	Nil	32	Nil	Nil	Nil	4,395	Nil	65
Alexander Mines, Ltd.	9/3/26	75,000	30,331	29,000	75,000	13/–	Nil	292	25	4,107	18,267	35,214	Nil	3,736
Buller Diversion Gold-mining Co., Ltd.	13/3/28	10,233	5,766	3,125	47,932	Various	993	155	5	Nil	Nil	5,021	Nil	313
Britannia Gold-mining Co., Ltd.	21/12/27	8,937	3,810	4,642	8,937	20/–	100	55	1	Nil	Nil	3,810	Nil	1,004
Colossus Gold-mining Development Co., Ltd.	28/8/14	30,073	12,073	18,000	30,473	20/–	Nil	65	1	Nil	Nil	36,524	Nil	6,408

OTAGO DISTRICT.

Nokomai Sluicing Co., Ltd.	14/6/26	25,000	14,840	10,160	25,000	20/-	Nil	76	20	1,578	5,917	32,526	Nil	11,917
Hartley and Riley Consolidated Gold-dredging Co., Ltd.	30/7/27	43,220	13,853	8,841	864,402	Various	Nil	159	Nil	Nil	Nil	8,260	Nil	Nil
Kildare Consolidated Gold-mining Co., Ltd. ..	19/6/28	8,000	4,000	4,000	80,000	2/-	Nil	175	10	537	2,033	4,242	Nil	Nil
Temuka Gold-mining Co., Ltd.	11/12/24	2,000	1,200	Nil	2,000	12/-	Nil	10	Nil	Nil	Nil	1,186	Nil	Nil
Golden Point Gold and Scheelite Co., Ltd. ..	3/10/29	3,231	415	1,720	3,231	Various	150	51	3	Nil	Nil	405	Nil	93
Cornish Point Gold-mining Co., Ltd.	21/12/28	6,947	1,250	4,500	138,951	Various	585	120	3	Nil	Nil	1,255	Nil	183
Golden River Mining Co., Ltd.	21/1/25	3,869	2,179	1,257	3,869	20/- and 17/6	Nil	66	Nil	Nil	Nil	3,068	Nil	Nil
Golden Bed Mining Co., Ltd.	12/3/25	4,575	2,317	1,556	9,150	10/- and 9/-	Nil	104	Nil	Nil	Nil	3,047	Nil	Nil
Tallaburn Hydraulic Sluicing Co., Ltd.	3/12/04	1,200	1,200	Nil	12	£100	Nil	9	2	3,135	10,971	13,193	1,380	278
King Solomon Deep Lead, Ltd.	14/11/29	8,148	2,212	2,762	162,978	6d.	373	124	1	Nil	Nil	Nil	Nil	2,123
Central Treasure Gold-mining Co., Ltd.	15/7/25	5,442	4,823	1,500	13,884	Various	86	185	Nil	Nil	Nil	945	Nil	6
New Era Gold-mining Co., Ltd.	4/3/25	7,000	4,399	1,500	7,000	Various	13	194	Nil	Nil	Nil	706	Nil	2
Upper Nevis Gold-dredging Co., Ltd.	20/9/26	38,968	33,730	5,000	43,968	20/- and 12/6	Nil	153	7	1,945	7,774	43,851	Nil	2,376
Paddy's Point Gold-mining Co., Ltd.	4/8/28	13,812	11,221	2,500	55,250	Various	90	225	6	20	..	11,091	Nil	1,147
Kawarau Gold-mining Co., Ltd.	8/4/24	14,985	4,985	9,999	299,708	1/-	Nil	1,050	1	94*	366	7,012 108,096†	Nil	241 4,493†
Big Beach Gold-mining Co., Ltd.	7/12/26	22,500	13,071	9,125	22,500	20/-	303	164	9	1,705	6,516	7,345	Nil	6,681
Molyneux Electric Gold-dredging Co., Ltd. ..	23/7/25	10,947	8,447	2,500	10,947	20/- and 15/-	193	109	1	301	1,164	4,542	Nil	231
Skipper's Sluicing Co., Ltd.	20/11/11	3,450	345	3,105	3,450	20/-	Nil	31	‡	2,221	9,287	9,943	Nil	1,849
Lady Ranfurly Gold-mining Co. (Kawarau), Ltd. ..	12/6/28	6,748	Nil	6,748	134,976	1/-	Nil	45	1	Nil	Nil	157	Nil	Nil
McGeorge Bros., Ltd.	27/3/12	11,400	11,400	Nil	11,400	20/-	Nil	6	1	29,939	127,606	79,559	48,419	240
Kawarau High Level Mining Co., Ltd.	17/8/25	9,000	8,000	1,000	9,000	20/-	Nil	57	2	94	360	8,901	Nil	591
Lucky Chance Kawarau Claims, Ltd.	29/11/24	8,000	6,000	2,000	32,000	5/-	Nil	312	Nil	Nil	Nil	5,843	Nil	452
Another Chance Kawarau Gold, Ltd.	15/12/24	8,000	6,000	2,000	32,000	5/-	Nil	367	Nil	Nil	Nil	5,838	Nil	197
Dart River Prospecting Co., Ltd.	2/5/29	2,000	375	1,000	2,000	7/6	65	23	3	Nil	Nil	..	Nil	130
Golden Crescent Sluicing Co., Ltd.	26/11/98	3,500	3,500	Nil	3,500	20/-	Nil	20	6	13,720	54,831	47,616	14,175	1,359
Gabriel's Gully Sluicing Co., Ltd.	2/5/07	600	600	Nil	600	20/-	Nil	9	6	20,036	78,816	69,866	20,215	50
Natural Bridge Gold-mining Co., Ltd.	8/4/25	2,600	2,336	1,400	16,000	4/6	Nil	36	Nil	28	109	2,456	Nil	31
Golden Chance Mining Co., Ltd.	10/7/25	1,400	1,395	600	8,000	5/-	4	28	Nil	1	4	1,289	Nil	23
Sailors Gully (Waitahuna) Gold-mining Co., Ltd. ..	3/6/96	8,400	4,400	4,000	8,400	20/-	Nil	26	6	12,224	48,170	40,288	9,410	438
Wairarapa Gold Claims, Ltd.	18/11/24	10,200	6,546	500	10,200	13/6	Nil	138	Nil	Nil	Nil	6,684	Nil	120
St. Bathan's Channel Co., Ltd.	4/1/82	4,590	4,590	Nil	81	£100, £40, and £30	Nil	4	Nil	1,507	5,817	11,135	Nil	9
Golden Progress Quartz Mining Co., Ltd.	26/10/28	14,730	3,960	3,950	14,730	Various	186	128	10	Nil	Nil	3,047	Nil	Nil
Good Fortune Gold-mining Co., Ltd.	13/5/25	1,800	1,036	600	1,800	20/-	14	12	Nil	Nil	Nil	732	Nil	Nil
Vogels Vision Gold Co., Ltd.	19/11/24	16,020	13,642	600	100,000	4/3 and 5/-	Nil	261	Nil	46	181	13,547	Nil	Nil
Sandhills Gold-mining Co., Ltd.	19/12/13	7,000	2,000	5,000	7,000	20/-	Nil	20	5	1,192	4,562	20,683	Nil	9,121
Glenorchy Scheelite Mining Co., Ltd.	6/12/11	3,000	Nil	3,000	3,000	20/-	Nil	11	3	..	313§	86,577	7,125	2,254
Broken Hill Mining Co., Ltd.	2/8/26	2,291	1,945	1,200	13,966	5/- and 4/9	..	34	Nil	Nil	Nil	2,077	Nil	64
Nevis Junction Gold-mining Co., Ltd.	23/6/26	3,477	3,211	1,650	20,510	5/-	265	74	Nil	Nil	Nil	3,068	Nil	51

* Produced by company's lessees. † Claimholders' account. ‡ Let on tribute. § Scheelite, £88,165.

FOREIGN COMPANIES.

Name of Company.	Date of Registration of Office in Dominion.	Subscribed Capital.	Amount of Capital actually paid up in Dominion.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares on Dominion Register.	Amount paid up per Share, Dominion Register.	Arrears of Calls, Dominion Register.	Number of Shareholders on Dominion Register.	Number of Men employed in Dominion.	Quantity and Value of Gold and Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid in Dominion.	Amount of Liabilities of Company in New Zealand.
										Quantity.	Value.			
		£	£	£			£			Oz.	£	£	£	£
New Zealand Crown Mines Co., Ltd.	13/1/14	39,585	11,367	20,025	116,529	4/-, 3/6, and 3/-	285	159	8	17,678	16,939	48,440	Nil	Nil
Waihi Grand Junction Gold Co., Ltd.	22/12/97	41,437*	40,494	112,500	269,399	2/-	Nil	1,022	11	..	2,357,312	2,352,266	146,818	99
Waihi Gold-mining Co., Ltd.	7/12/87	247,953	4,803	53,333	442,525	5/-	Nil	1,845	557	23,677,285	16,286,100	9,734,568	1,206,575	32,611

* Written down from £384,375 to 2/- per share.

APPENDIX B.

REPORTS RELATING TO THE INSPECTION OF COAL-MINES.

THE INSPECTING ENGINEER AND CHIEF INSPECTOR OF COAL-MINES to the UNDER-SECRETARY OF MINES.

SIR,— Wellington, 14th June, 1930.

I have the honour to present my annual report, together with statistical information, in regard to coal-mines of the Dominion for the year ended 31st December, 1929, in accordance with section 42 of the Coal-mines Act, 1925. The report is divided into the following sections :—

I. Output.
II. Persons employed.
III. Accidents.
IV. Working of the Coal-mines Act—
  (*a*) Permitted Explosives.
  (*b*) List of Mines required by Law to use Permitted Explosives.
  (*c*) List of Mines required by Law to use Safety-lamps.
  (*d*) Dangerous Occurrences.
  (*e*) Electricity at Collieries.
  (*f*) Prosecutions.
V. Legislation affecting Coal-mining.
Annexures—
  A. Summary of Annual Reports by Inspectors of Mines.
  B. Report of Royal Commission on Linton Explosion.
  C. Colliery Statistics.

SECTION I.—OUTPUT.

The output of the several classes of coal mined in each inspection district is summarized as follows :—

Class of Coal.	Output of Coal during 1929.				Total Output to the End of 1929.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Totals.	
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and sub-bituminous	115,659	1,251,505	..	1,367,164	43,186,210
Brown	654,199	37,613	357,791	1,049,603	23,784,554
Lignite	..	890	118,207	119,097	4,327,935
Totals for 1929 ..	769,858	1,290,008	475,998	2,535,864	71,298,699
Totals for 1928 ..	781,889	1,200,839	454,025	2,436,753	68,762,835

The following is a table showing the annual production of coal and the quantity of coal imported since 1911 :—

Year.	Coal produced.	Coal imported.	Total Quantity of Coal produced and imported.	Year.	Coal produced.	Coal imported.	Total Quantity of Coal produced and imported.
	Tons.	Tons.	Tons.		Tons.	Tons.	Tons.
1911 ..	2,066,073	188,068	2,254,141	1921 ..	1,809,095	822,459	2,631,554
1912 ..	2,177,615	364,359	2,541,974	1922 ..	1,857,819	501,478	2,359,297
1913 ..	1,888,005	468,940	2,356,945	1923 ..	1,969,834	445,792	2,415,626
1914 ..	2,275,614*	518,070	2,793,684*	1924 ..	2,083,207	674,483	2,757,690
1915 ..	2,208,624	353,471	2,562,095	1925 ..	2,114,995	572,573	2,687,568
1916 ..	2,257,135	293,956	2,551,091	1926 ..	2,239,999	483,918	2,723,917
1917 ..	2,068,419	291,597	2,360,016	1927 ..	2,366,740	378,090	2,744,830
1918 ..	2,034,250	255,332	2,289,582	1928 ..	2,436,753	247,861	2,684,614
1919 ..	1,847,848	391,434	2,239,282	1929 ..	2,535,864	215,656	2,751,520
1920 ..	1,843,705	476,343	2,320,048				

* Includes 21 tons shale.

The gross output of coal for 1929 was 2,536,864 tons, an increase of 99,111 tons over the previous year, and is the highest yet recorded. The increase is made up of an increase of 18,432 tons of bituminous coal, 76,365 tons of brown coal, and 4,314 tons of lignite. Trade was good throughout the greater part of the year, partly on account of the strike in the Maitland field, New South Wales, and partly by reason of the increased quantities of New Zealand coals used by the Railways Department.

In the Northern District the output of bituminous coal decreased by 63,801 tons, accounted for by the fact that the Hikurangi Colliery was flooded and out of production for the greater part of the year, but the output of brown coal increased by 51,770 tons, so that the net decrease for the district was 12,031 tons.

In the West Coast District the output of bituminous coal increased by 82,233 tons, the output of brown coal increased by 6,205 tons, and the output of lignite increased by 731 tons, a total increase of 89,169 tons. The coal-mines in the West Coast District, and particularly those in the Buller County, suffered considerable damage from the earthquake of the 17th June. There were many large falls of roof and sides, and some damage to plant. Following the principal shock there was a succession of minor shocks at short intervals during the succeeding ten days. The apprehension of still another major earthquake caused by these after-shocks, and the damage done to roads, railways, and communications by the principal shock, rendered the mines in the Buller district idle for a fortnight, and greatly reduced the output for the months of June and July.

In the Southern District the output of brown coal increased by 18,390 tons and the output of lignite by 3,583 tons, a total increase of 21,973 tons.

The capacity of the mines operating in the Waikato is well ahead of the market, with the result that much short time is worked, particularly in the summer months. Through the increasing use of hydro-electricity for power purposes in the North Island it is becoming increasingly difficult to find a market for Waikato slack. The Waikato coalowners are attempting to solve this problem by erecting near Rotowaro a plant for the low-temperature carbonization of slack.

The number of co-operative parties working mines is increasing, likewise the output from these. They work areas where the coal is too thin or too faulted to be worked by a company, and a remarkable fact is the output per man produced under the adverse conditions under which they work.

Increased use is being made of coal-cutting machines, and excellent results are being obtained in some cases. Good examples of what can be done with arc-wall machines in rapidly opening out a mine are given in Inspector Barclay's report on the Renown and Rotowaro Collieries. This type of coal-cutting machine is also being installed in at least two mines in the Grey district.

The production from and the number of persons employed at the collieries of the Dominion are shown in the following table :—

Name of Colliery.	Locality.	Class of Coal.	Output for 1929.	Total Output to 31st December, 1929.	Total Number of Persons ordinarily employed.
			Tons.	Tons.	
Northern District.					
Hikurangi	Hikurangi	Sub-bituminous	8,227	347,989	45
Wilson's	,,	,,	66,468	487,355	187
Rotowaro	Huntly	Brown	155,521	1,359,939	271
Pukemiro	,,	,,	156,786	1,759,503	278
Waipa	,,	,,	56,438	1,038,275	124
Glen Afton	Glen Afton	,,	167,197	1,003,129	294
Renown	Waikokowai	,,	72,535	99,090	138
West Coast District.					
Westport-Stockton	Ngakawau	Bituminous	151,716	2,642,442	320
Millerton	Millerton	,,	203,071	7,903,371	465
Denniston	Denniston	,,	200,399	9,785,949	507
Westportmain	Westport	,,	36,227	128,068	55
Cardiff Bridge	Seddonville	,,	25,518	165,436	27
Paparoa	Roa	Semi-bituminous	20,436	624,845	35
Blackball	Blackball	Sub-bituminous	79,845	3,801,351	230
Liverpool (State)	Rewanui	Bituminous	137,593	2,031,397	346
James (State)	Rapahoe	Sub-bituminous	41,592	227,137	80
Dobson	Dobson	Bituminous	139,461	328,152	299
Wallsend	Brunnerton	,,	46,316	252,426	141
Southern District.					
Shag Point	Shag Point	Brown	13,290	263,160	48
Kaitangata and Castlehill (3 collieries)	Kaitangata	,,	89,194	4,690,364	269
Taratu	,,	Lignite	21,621	701,623	35
Linton (2 collieries)	Nightcaps	Brown	115,334	614,639	160
Wairaki (2 collieries)	,,	,,	52,809	326,926	110
Mossbank (2 collieries)	,,	,,	49,640	263,882	74
147 other collieries	All coalfields	Various	428,630	6,781,022	959
Collieries abandoned or suspended, &c.	Various	,,	..	23,671,249	..
Totals	..	..	2,535,864	71,298,699	5,497

SECTION II.—PERSONS EMPLOYED.

Inspection District.	Average Number of Persons employed during 1929.		
	Above Ground.	Below Ground.	Total.
Southern	227	699	926
West Coast	768	2,264	3,032
Northern	375	1,164	1,539
Totals, 1929	1,370	4,127	5,497
Totals, 1928	1,366	4,010	5,376

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1929.

Year.	Output, in Statute Tons.	Persons ordinarily employed.			Tons raised per each Person employed below Ground.	Lives lost by Accidents in or about Collieries.		
		Above Ground.	Below Ground.	Total.		Per Million Tons produced.	Per Thousand Persons employed.	Number of Lives lost.
Prior to 1900	13,444,437	*	*	*	*	*	*	165
1900 ..	1,093,990	617	1,843	2,460	593	3·65	1·62	4
1901 ..	1,239,686	688	2,066	2,754	600	2·42	1·09	3
1902 ..	1,365,040	803	2,082	2,885	655	1·46	0·69	2
1903 ..	1,420,229	717	2,135	2,852	665	2·81	1·40	4
1904 ..	1,537,838	763	2,525	3,288	609	2·60	1·21	4
1905 ..	1,585,756	833	2,436	3,269	651	3·78	1·83	6
1906 ..	1,729,536	1,174	2,518	3,692	687	3·46	1·62	6
1907 ..	1,831,009	1,143	2,767	3,910	662	6·55	3·07	12
1908 ..	1,860,975	992	2,902	3,894	641	2·68	1·28	5
1909 ..	1,911,247	1,159	3,032	4,191	630	3·66	1·67	7
1910 ..	2,197,362	1,136	3,463	4,599	634	7·28	3·48	16
1911 ..	2,066,073	1,365	2,925	4,290	706	6·77	3·26	14
1912 ..	2,177,615	1,130	3,198	4,328	681	4·13	2·08	9
1913 ..	1,888,005	1,053	3,197	4,250	590	3·18	1·41	6
1914 ..	2,275,614	1,176	3,558	4,734	639	21·53	10·35	49†
1915 ..	2,208,624	1,050	3,106	4,156	711	4·07	2·16	9
1916 ..	2,257,135	988	3,000	3,988	752	2·65	1·50	6
1917 ..	2,068,419	1,090	2,893	3,983	715	1·93	1·00	4
1918 ..	2,034,250	1,102	2,892	3,994	703	2·95	1·50	6
1919 ..	1,847,848	1,095	2,849	3,944	648	5·41	2·53	10
1920 ..	1,843,705	1,152	2,926	4,078	630	0·54	0·24	1
1921 ..	1,809,095	1,218	3,149	4,367	574	5·52	2·28	10
1922 ..	1,857,819	1,191	3,365	4,556	552	3·23	1·31	6
1923 ..	1,969,834	1,353	3,647	5,000	540	2·53	1·00	5
1924 ..	2,083,207	1,364	3,505	4,869	594	4·80	2·05	10
1925 ..	2,114,995	1,288	3,489	4,777	606	3·78	1·67	8
1926 ..	2,239,999	1,336	3,823	5,159	586	6·69	2·90	15
1927 ..	2,366,740	1,386	3,988	5,374	593	4·23	1·86	10
1928 ..	2,436,753	1,366	4,010	5,376	608	3·69	1·67	9
1929 ..	2,535,864	1,370	4,127	5,497	614	4·73	2·18	12
Totals ..	71,298,699	..	..	..	..	..	..	433

* For returns for previous years see page 32, Mines Statement, 1921. † Year of Ralph's (Huntly) explosion.

SECTION III.—ACCIDENTS.

The following is a summary of accidents in and about coal-mines during 1929, with their causes :—

—	Fatal Accidents.		Serious Non-fatal Accidents.	
	Number of Separate Fatal Accidents.	Number of Deaths.	Number of Separate Non-fatal Accidents.	Number of Persons injured, including those injured by Accidents which proved Fatal to their Companions.
Explosions of fire-damp or coal-dust ..	1	3	1	5
Falls of ground	7	7	7	8
Explosives	..	..	1	1
Haulage	..	..	7	7
Miscellaneous—Underground	2	2	4	4
On surface	..	..	1	12
Totals	10	12	21	37

The fatal accidents for the year under review were at the rate of 2·18 per thousand persons employed and at the rate of 4·73 per million tons of coal produced. Of the twelve fatalities two were directly caused by the great earthquake of the 17th June, and three occurred in a gas-explosion in the Linton Mine on the 15th November.

The following is a short account of the fatal accidents :—

In the Westportmain Mine, on the 28th February, a miner names James White was engaged in extracting a pillar. A shot had been fired, and he was trimming the coal roof when some coal fell from a greasy back and struck him ; he died very shortly afterwards. There was some doubt as to whether the place had been timbered according to the regulations, but the evidence given at the inquest was that the place had been timbered as required by law.

On the 6th March a shiftman named John Mitchell Bell was examining fire-stoppings in the Millerton Mine with the mine-manager. A sudden rush of water occurred, swept deceased off his feet, and inflicted injuries from the shock of which he died. Apparently in the sealed-off workings a fall had taken place which temporarily dammed up a large volume of water. As the water rose the dam gave way and the water swept down through the drainage-box in the stopping in abnormal quantity.

The accident was due to a peculiar combination of circumstances which could not have been anticipated and is very unlikely to recur.

On the 25th March, in the Blackball Mine, an elderly man named Andrew Watkinson engaged in light trucking-work was found lying on the haulage-road between the empty and full trucks. Apparently he had fallen and struck his head on the rails, sustaining a fractured skull, from which he died the same day.

In the Linton Mine, on the 13th June, a miner named John Howd was killed by a fall of coal. A shot had been fired in his usual working-place, and while the smoke was clearing away he went into another place in which he had been working some ten days previously in order to fill some loose coal, when a fall occurred which killed him instantly. An inquest was held with a jury of four, who found that no blame for the accident could be attached to the mine officials.

On the 17th June a severe earthquake occurred on the west coast of the South Island. The earthquake caused large falls in many of the mines, and some of the small mines near Seddonville were badly wrecked. In the Cardiff Bridge Mine William Chamley, and in the Glasgow Mine R. McAllister, were caught and killed by earthquake falls.

On the 26th July, in the Rotowaro Mine, a miner named Samuel Broadbent was buried under a fall of small coal, and died of asphyxiation before he was released. The place had apparently been well timbered. It was in pillar workings, and the roof fell without any warning.

On the 3rd September, in the Wairaki Mine, a miner named R. J. Dixon was killed by a sudden large fall of coal. He was engaged in extracting a pillar. The working-place had been properly inspected, was apparently well timbered, and was thought to be safe. The Coroner's verdict at the inquest was that no blame was attachable to any one.

David Auld, a miner, was killed by a small fall of coal in the Millerton Mine on the 17th October. In his working-place the seam is 25 ft. thick or more, and at the time of the accident he was engaged in dropping tops in pillar work in pillars that had been formed many years before with wide and high bords that are difficult to timber securely.

On the 15th November an explosion occurred in the No. 1 Mine of the Linton Colliery, which caused the deaths of Anthony McCoy, Henry Kitto, and Robert Johnston, and seriously injured four others. The No. 1 Mine consists of two sections, named respectively the Horse Level section and the North-west Dip section, both ventilated by the same fan, which is a pressure fan. The Horse Level section is a small pillar section in which the available pillars are nearly all extracted. The North-west Dip section is the newest and principal developing section of the Linton Colliery. The main drive into the North-west Dip section, which is also the haulage-road and return airway, has a length of about 19 chains, and dips from the mine-mouth at an average gradient of about 1 in 5. At a point about 10 chains from the mine-mouth and at right angles to the main dip there is a level driven to the south-west called No. 2 level. From this level there are some rise workings. At the highest point of these workings an incline had been driven, crosscutting from the floor to the roof of the seam at a gradient of about 1 in 3; from the top of this incline a rise, through the rocks overlying the seam, was being put up to the surface, and on the day of the explosion was up 64 ft., and had only another 15 ft. to go before it would hole through. It was intended, when the rise had been completed, to install at the top of it a new and larger ventilating-fan of the exhausting type. Compressed air was used for operating rock-drills in the rise and also for pumping and haulage in other parts of the section. Inflammable gas had been found occasionally in small quantities in the section, and consequently only electric safety-cap lamps and permitted explosives were used underground by the miners. The seam gives off a considerable amount of water, with the result that there were pools of water on many of the roadways, and the roadways were damp where not actually wet. Stone-dusting had been done in the drier portions of the section. The coal in the Linton seam is hard, and great difficulty had been experienced in compelling the miners to properly prepare their places prior to shot-firing. There are normally about forty men employed underground in the Linton No. 1 Mine, and this was the number at work on the day of the explosion. The explosion occurred about 9.30 a.m. on the 15th November, and to the men in the mine at the time it appeared to originate in the rise workings. Some of the miners in the workings to the rise of No. 2 level actually saw the flame of the explosion but were able to escape. The North-west heading speedily filled with smoke and hot gases and vapour. With great difficulty most of the men were able to make their way to the surface, the men working below No. 2 level being led by the underviewer. Rescue parties were organized, and entered the mine as soon as possible. Three bodies were found, those of A. McCoy, H. Kitto, and R. Johnston. The first was found, badly burnt, half-way up the incline going to the foot of the rise already mentioned; the two last on or near the rope-road, and showing no signs of violence but that the cause of their death was afterdamp poisoning. A searching examination was made of the mine immediately after the explosion. The evidence was conclusive that the explosion had originated as an explosion of firedamp, that the point of ignition was at the place where the body of A. McCoy was found, and that the ignition was very probably due to some act by him, and that the gas-explosion was afterwards carried on into the other parts of the mine as a coal-dust explosion. Nowhere had the explosion been a violent one, and the inspection of the workings furnished clear evidence as to how it had been damped out by wet roads and stone drives.

An inquest was held on the 19th November, and the evidence went to show that the rise had been inadequately ventilated, that there had been laxity in the issue of detonators and in shot-firing, and that the search for matches and other prohibited materials had been perfunctory.

A Commission of inquiry was appointed to inquire into the explosion, and took evidence at Nightcaps during the second week of December. The report of the Commission is contained in Annexure B.

In February of this year the manager and four other officials of the mine were prosecuted for breaches of the Coal-mines Act and Regulations with respect to ventilation, search, and shot-firing, and were convicted and fined in each case.

SECTION IV.—WORKING OF THE COAL-MINES ACT.

(*a*) Permitted Explosives.

(Regulations 233 to 237 inclusive.)

The following is a table showing the quantity of permitted explosives used and the number of shots fired at New Zealand coal-mines during 1929 :—

Inspection District.	Quantity of Permitted Explosives used (lb.).			Number of Shots fired.	Number of Misfired Shots.				Approximate Quantity of Coal produced
	A2 Monobel.	Ligdynite.	Samsonite.		By Defective Explosive.	By Defective Detonators.	By Defective Leads.	Total.	
									Tons.
Northern (*i.e.*, North Island) ..	119,091	..	..	130,959	10	85	15	110	452,857
West Coast (of South Island) ..	183,029	..	171,701	441,895	28	650	301	1,081*	1,266,810
Southern (*i.e.*, Canterbury, Otago, and Southland)	7,737	..	73,366½	135,345	..	109	16	128†	263,395
Totals	309,857	..	245,067½	708,199	38	844	332	1,319	1,983,062

* Includes 102 "cause unknown." † Includes 3 "cause unknown."

Seventy-eight per cent. of the coal produced in the Dominion during 1929 was broken down by permitted explosive, and the average production of coal per pound of explosive used was 3·57 tons, and per shot fired 2·80 tons.

(*b*) List of Mines required by Law to use Permitted Explosives.

The following is a list of mines as at the 31st December, 1929, required by law to use permitted explosives :—

Northern Inspection District.

Pukemiro Collieries, Pukemiro—Throughout South Mine.
Rotowaro Colliery, Rotowaro—Throughout No. 1 and No. 3 Mines.
Glen Afton Colliery, Glen Afton—All sections of the mine, with the exception of A section.
Waikato Extended Colliery, Huntly—All sections.
Renown Colliery, Rotowaro—All sections.

West Coast Inspection District.

North Cape Mine, Puponga.
Puponga, Puponga.
O'Rourke's, Murchison.
Bennett and party's, Seddonville.
Cardiff Bridge, Seddonville.
Westport-Stateville, Seddonville.
Chester's, Seddonville.
Clydevale, Seddonville.
Coal Creek, Seddonville.
Glasgow, Seddonville.
Quinn and party's, Seddonville.
Westportmain, Granity.
Westport-Mokihinui, Seddonville.
Westport Coal Co.'s Denniston mines.
Westport Coal Co.'s Millerton mines.
Westport-Stockton Ngakawau.
Wynn's, Seddonville.
Rocklands, Berlin's.
Whitecliffs, Berlin's.
Archer's, Capleston.
Clele, Merrijigs.
Coghlan's, Capleston.
Collins, Murray Creek.
Morrisvale, Reefton (Perfection Valley, Matchless, and Surprise).
Reefton Coal Co.'s, Reefton.
Waitahu Colliery, Reefton.
Lankey's Creek, Crushington.
White Rose, Merrijigs.
Armstrong's, Dunollie.
Baddeley's, Runanga.
Bellvue, Runanga.
Blackball Coal Co.'s, Blackball.
Brae Head, Dunollie.
Cain's, Rapahoe.
Castle Point, Runanga.
Cox's Creek, Runanga.
Dobson, Brunnerton.
Duggan's, Rewanui.
Hunter's, Dunollie.
Briandale, Ten-mile.
Moody Creek, Dunollie.
Old Runanga Co-operative party, Rewanui.
Schultz Creek, Runanga.
Scott and Kerry's, Twelve-mile.
Smith's, Runanga.
Spark's, Rewanui.
State Coal-mines (Liverpool Collieries and James Colliery).
Paparoa, Roa.
Wallsend, Brunnerton.
Allan's, Brunnerton.
Dennehy's, Barrytown Road.
New Point Elizabeth, Dunollie.
Goldlight, Dunollie.
Fiery Cross, Dunollie.
Jubilee, Rapahoe.
Bellbird, Ten-mile Road.

Southern Inspection District.

Castle Hill Mine, Kaitangata.
Kaitangata No. 1 Mine.
Kaitangata No. 2 Mine.
Wairaki Mine, Ohai.
Birchwood Mine, Ohai.
Linton Mine, Ohai.
Black Diamond.
Black Lion.

(*c*) List of Mines required by Law to use Safety-lamps.

The following is a list of the mines as at the 31st December, 1929, required by law to use safety lamps :—

Northern Inspection District.

Pukemiro Collieries, Pukemiro—Main north heading section (now abandoned).
Rotowaro Colliery, Rotowaro—Throughout No. 1 and No. 3 Mines.
Glen Afton Colliery, Glen Afton—No. 1 heading section.
Renown Colliery, Rotowaro—Main north section.

West Coast Inspection District.

Westport Coal Co.'s (one section, Millerton Mine).
Dobson, Brunnerton.
Hunter's, Dunollie.
Spark's, Rewanui.
State Mine (Liverpool No. 2).
Paparoa, Roa.
Wallsend, Brunnerton.

Southern Inspection District.

Castle Hill Mine, Kaitangata.
Kaitangata No. 1 Mine.
Kaitangata No. 2 Mine.
Wairaki Mine, Ohai.
Birchwood Mine, Ohai.
Linton Mine, Ohai.
Black Diamond.
Black Lion.

(*d*) Dangerous Occurrences reported.

(Regulation 82.)

A full account of these is given in the District Inspectors' reports. The most serious was the flooding of the Hikurangi Shaft Colliery early in February. In the dip heading a fault was struck which gave off a large quantity of water—too much for the pumps to deal with—and consequently the pumps had to be withdrawn. The influx of water into the mine was accompanied by subsidences along the Hikurangi Swamp. The level of the water in the swamp was lowered by drains, and a more powerful pumping plant installed at the mine in October, with the result that the mine was unwatered in December and coal-production resumed. While the mine was idle the water rose up the shafts a height of 167 ft. Wilson's Colliery adjoins Hikurangi Shaft Colliery. There is a narrow coal barrier between them, but the barrier had been weakened by pillar-extraction on both sides. The rise of water in Hikurangi shafts increased the flow of water into Wilson's Colliery, and in June the influx of water into the latter was more than the pumps there could deal with and the dip portion of that mine was flooded out. The two companies came to an arrangement by which pumping was resumed at Hikurangi shafts with the old plant there and the water lowered and kept at a level which would prevent it flowing into Wilson's Colliery. This was successful, and the dip workings in Wilson's Colliery were gradually recovered.

(*e*) Electricity at Collieries.

(Regulation 243.)

The following is a summary of the annual returns, in accordance with Regulation 243 (*c*), regarding electrical apparatus at collieries :—

Number of collieries at which electrical apparatus is installed	38
Number of continuous-current installations	11
Number of alternating-current installations	30
Number of collieries electrically lighted	25
Number of collieries using electrical ventilating-machines	32
Number of collieries using electrical pumping plants	26
Number of collieries using electrical haulage plants	28
Number of collieries using electrical screening plants	11
Number of collieries using electrical miscellaneous plants	17
Number of collieries using electrical locomotives	1
Total horse-power employed from motors on surface	5,475
Total horse-power employed from motors below ground	4,217

(*f*) Prosecutions.

There were thirty informations laid by the Inspectors during the year for breaches of the Coal-mines Act and Regulations. Two of these were withdrawn, one was dismissed, and in all twenty-seven convictions were obtained. Accounts of these individual prosecutions are given in the reports of the District Inspectors (Annexure A).

SECTION V.—LEGISLATION AFFECTING COAL-MINES.

There were no amendments to the Coal-mines Act or to the Regulations during the year.

I desire to again acknowledge the efficient help and co-operation which I have received from the District Inspectors throughout the year. Efforts to get better methods of working adopted, in order to reduce the loss of coal and improve the safety of the mines, have been continued, and still meet with a considerable measure of success. Changes made in previous years at some of the mines are now giving results which demonstrate conclusively the increased efficiency and safety of the newer methods. It is pleasing to be able to report that in this work the Inspectors can in almost all cases rely on receiving the active co-operation of the mine-managers concerned.

I have, &c.,
J. A. C. Bayne,
Inspecting Engineer and Chief Inspector of Coal-mines.

ANNEXURE A.

SUMMARY OF REPORTS BY INSPECTORS OF MINES.

NORTHERN INSPECTION DISTRICT (Mr. WILLIAM BARCLAY, Inspector).

OUTPUT OF COAL.

The Northern Inspection District produced 769,858 tons of coal during the year 1929. Coal is being worked in three separate districts—namely, North Auckland, Waikato, and Taranaki. The bulk of the output, 651,771 tons, came from the Waikato district, and is the largest yearly output so far achieved from this brown-coal field. The North Auckland district produced 116,109 tons, a decrease of 63,351 tons, due to the cessation of mining operations in the Hikurangi Shaft Colliery for a period of ten months as a result of the flooding of the mine-workings. The Taranaki district yielded 1,978 tons from two small coal-mines which are under course of development to market larger outputs in the future. The coal-seams in the Waikato district are economically worked. They vary from 5 ft. to 20 ft. in thickness and lie at shallow depths with outcrops to the surface, thus affording easy means of access to the moderately inclined seams whose gradients vary from 1 in 8 to 1 in 40. The mines are equipped with electrically driven endless-rope haulages. The ordinary method of working is bord-and-pillar on the approved panel system, with bords 14 ft. wide and 10 ft. high and pillars not less than 60 ft. square. Some 20 to 30 per cent. of the coal is got in the first working, and during recent years 60 per cent. has been got from the extraction of the pillars under ideal pillaring conditions. The Hikurangi field in the North Auckland district at deep levels is rather a difficult one to work owing to troublesome faults, and to the fact that large feeders of water are encountered when the faults are cut; water is also released from the cavities and fissures occurring in the 400 ft. stratum of limestone roof cover. The seam is sub-bituminous, and the coal got from the deep levels is in popular demand for use in locomotives. The water problem confronting the management of the two largest collieries in the North has been relieved to some extent by the Government constructing a large drain channel to drain the water lying on the low surfaces of the Hikurangi Swamp area.

STONE-DUSTING.

Samples of road-dust have been taken and analysed systematically in all the principal mines, and generally when a sample was found to contain more than the statutory limit of 50 per cent. of combustible matter the affected part was retreated with incombustible dust of regulation fineness. Coal-dust is very rarely seen on the sides of the roadways, or upon the timbers or other elevated surfaces, where it could be dislodged to remain in suspension with the air-current. The coal-dust on the roads is produced in actual mining by the breaking of the coal, and by a process of grinding by the passage of men over coal-ballasted roads, and also, to a larger extent, by the fretting and disintegration of spilled coal from inadequately-sized pillars. Under normal working-conditions the dust on the floors is not readily raised in suspension in the air unless by the agency of exploding shots, or by violence caused by gas-ignitions. In prevention of fine coal-dust we are advocating due compliance with section 126 (*c*) of the Coal-mines Act to the effect that all disused roadways should be cleared of coal-dust and treated with incombustible dust before the rails are removed. The use of clay or stone ballast on the haulage-roads is also recommended, as its effectiveness in producing a suitable inert dust under traffic and mine conditions has been amply proved by the sampling and testing of dust from roadways so treated.

TREATMENT OF SLACK COAL.

A low-temperature carbonization plant of a capacity of 250 tons per day is being installed near Rotowaro Colliery as a solution of the problem of the disposal of small coal from Rotowaro, Pukemiro, Renown, and Waipa Collieries. The directors of the Carbonization Co. have collected much valuable technical data in connection with trial shipments of brown-coal slack submitted abroad to low-temperature tests, and are hopeful regarding the ultimate commercial success of the process adopted for recovering oil and other by-products from the slack coal.

SUMMARY OF OPERATIONS AT EACH COLLIERY FOR THE YEAR 1929.

Hikurangi Coal Co., Ltd. (Shaft Colliery).—Operations during the year were affected by a serious flooding of the whole of the mine-workings. During the month of January an upthrow fault was encountered at the end of McKenzie's dip which released a volume of water estimated at 100,000 gallons per hour. The flow of water rapidly covered the installed pumping machinery both in the dip and at the bottom of the winding-shaft. An attempt was made to hold the water at a point 30 ft. from the bottom of the shaft, but, owing to the effects of the mineralized water upon the impellers of the pumps and the joints of the pipes, the emergency pumps had to be withdrawn above the rising water. The flooding of the workings was primarily due to the drainage of surface water into the mine through the fault break under the Hikurangi Swamp area. A comprehensive drainage scheme, with drains designed to remove the standing surface water from the swamp to the Jordan River, was in course of development, and after the flooding of the colliery Government aid was successfully secured for the purpose of expediting the work in connection with the construction of relief drains ahead of the major scheme. By the month of June the water had risen 167 ft. up the shaft; at that point it found access into the neighbouring colliery (Wilson's) through the barrier at No. 8 fault. The roof cover at the barrier between the collieries had been weakened by the extraction of the pillars on both sides to such an extent that the subsidences afforded channels for water-percolation. Wilson's Colliery was seriously inundated, but the respective coal companies subsequently agreed to a resumption of pumping in the shaft colliery, Wilson's company paying the expenses of pumping so long as the water was kept lowered to a point where it would not flow into Wilson's Colliery. Two additional pumps of a combined capacity of 95,000 gallons per hour were installed during the month of October, together with a new electric generator of 130 k.v.a. capacity, and the increased power resulted in the workings being unwatered early in the month of December. The recovered workings were in good order. Mining operations were resumed on the 18th December, and a daily output of 350 tons is being got from the rise sections.

Wilson's Collieries, Ltd.—In common with other mines in this district, the company experienced a rather anxious year, due to the water inrushes and to the fact that the installed pumps were unable to cope with an additional flow of water, estimated at 50,000 gallons per hour, from the Hikurangi Colliery. Early in the month of June the whole of the available generating and pumping machinery was pressed into action for the purpose of holding the inrush at No. 8 pumping-station. Frequent drops in the steam-pressure resulted in the dip pumps being withdrawn up the main dip before the rising water. On the 21st June the main dip, slope dip, and No. 7 sections were flooded, leaving only No. 6 section and the stone-drive pillar section available for coal-production. Relief was obtained by a resumption of pumping in the Hikurangi shaft, and when the water was lowered 10 ft. in the shaft normal water conditions prevailed in Wilson's Colliery. Two pumps were operated intermittently when power could be spared for lowering the accumulation of water in the flooded dip sections, and the working-places were recovered towards the end of the year. The pillars have been successfully extracted from the stone-drive section. In No. 6 section north the seam has thickened from 4 ft. to 6 ft., and the stone band has disappeared from the seam in places to the rise. Approximately one-half of the 9 ft. seam

being worked in the dip sections contains an intervening band of fireclay from 1 ft. to 2 ft. in thickness, and only the top portion of the seam (5 ft.) has so far been worked. The management is contemplating the use of coal-cutting machines for the purpose of recovering the bottom seam by means of machine mining, either by holing on the floor, or by a machine designed with a scrapper attachment to cut and hole out the clay band. Should the operation be practicable it would result in prolonging the life of the mine by six or seven years. The parallel return airways from the working sections in No. 1 junction have been rewidened and reheightened during the year to provide more roomy passages for the air-current and to facilitate travelling by means of the return airway to the shaft-exit.

Silverdale (Foot's Crown Lease).—Operations during the year were confined to working out the shallow coal. The seam is 4 ft. in thickness. The roof is supported with abundance of timber, and generally the workings have been maintained in good order.

Northern Co-operative Colliery (Cunningham's Crown Lease).—Several drives have been driven to provide water-free roadways for the working of isolated blocks of pillar coal. The workings are of small dimensions, and have been safely timbered during the year. Seventy tons per week are carted to Hikurangi.

Glen Nell Colliery (Crown Lease).—This mine was formerly worked by McIntyre and party. Subsequent to a cessation of operations for ten months S. Foot secured a sublease with the right to win the remaining coal on the property. A new drive was driven to reach the coal-seam at a lower level where the exposed seam is 4 ft. in thickness overlain by a strong limestone roof. The output is conveyed over three miles of county road to Hikurangi Station.

Belton's Colliery.—Pillars remaining from a working of the field by the Hikurangi Coal Co., Ltd., have been successfully recovered by drives directed by advance boring. Thirty chains of ground tramway connects the mine to the county road from where the output is carted to Hikurangi Station.

Christie's Colliery.—An output of 40 tons per day has been maintained from two mine-sections connected by tramways to a private railway-siding at Hikurangi Station. The pillars have been extracted from the Hill Mine under good pillaring conditions. The section on the flat has been flooded several times during the year, due to inrushes of water from an old creek-bed. The roof cover is composed of gravel and boulders of stone.

Phœnix Colliery (McKinlay's Crown Lease).—After several months of idleness a new mine was opened out from the eastern boundary of the lease. A 4 ft. seam has been proved over 3 acres. The roof is remarkably strong, requiring few timber supports in bords driven 6 ft. in width. An output of 60 tons per week is removed by motor-lorry to Hikurangi for use in railway-locomotives.

Ruatangata Colliery.—The workings are still proceeding through the pillars of the old abandoned Kamo Colliery. A larger ventilating-fan was installed during the year with beneficial effects at the faces. Thirty tons of coal are produced from splits driven through the pillars, and ten miners are steadily employed in the mine.

Harrison's Waro Colliery.—A new fan-drift, constructed in brick, with arrangements for reversing the air-current, has been completed, and affords a marked improvement in the ventilation of the dip places. The seam has been recovered through the fault in the north section. In the south section it thinned to 3 ft., resulting in the suspension of the workings. The mine worked intermittently during the year, averaging less than three days per week.

Muir's Colliery, Tauranga Block (Sublease Wilson's Collieries, Ltd.).—One mile of private road was formed to afford a passage for motor-lorries from the county road to a thin seam outcropping on the western boundary of the block. A drive on water-free course drained the Northern Coal Co.'s old workings, and several pillars have been extracted.

Clark and Party's Colliery, Tauranga Block (Sublease Wilson's Collieries, Ltd.).—A party of three miners was engaged in winning isolated blocks of coal from a seam 3 ft. in thickness. One of the miners sustained a fracture of his right leg through falling in front of a coal-skip which was being drawn by a horse along a surface tramway.

Nesbitt and Party's Colliery (Sublease Hikurangi Coal Co., Ltd.).—A dip 2 chains in length through stone was driven to a coal-seam proved ahead by boring. The drive was properly timbered with heavy sets well covered with lathes on top and sides. A connecting-drive to a ventilating-shaft was also constructed for ventilating purposes. Plant, comprising steam boiler, winch, pump, and pipes, was also installed.

The May Mine (Newby and Party; Sublease Hikurangi Coal Co., Ltd.).—This is another small colliery opened out in a thin seam on the fringe of an area abandoned in the early days of mining. Four miners produced an average output of 12 tons per day for the use of the Hikurangi Coal Co., Ltd., in dewatering the flooded Shaft Colliery. The workings were maintained in good order, and the ventilation was satisfactory.

Fearnley's Colliery (Sublease Hikurangi Coal Co., Ltd.).—Two mine-sections were worked. At the beginning of the year several hundred tons were got from under an unformed road under lease from the Crown. Subsequent prospecting revealed an area of coal 4 ft. in thickness north of the Rocks Mine workings. Eight miners were employed during the stoppage of work in the Hikurangi Shaft Colliery.

Coutt's Colliery (Sublease Hikurangi Coal Co., Ltd.).—An isolated block of coal is being worked by a party of miners. A surface tramway, haulage winch, and boiler were assembled to operate the mine and place the output on the Marua Road for road transport to Hikurangi Railway-station. Due consideration was paid to the support of the roof by the miner owners.

Jackson's Rocks Colliery (McLeod's Freehold).—Pillars were recovered from an area abandoned during a former working. The seam is 10 ft. in thickness, and of good quality. The output is carted to Hikurangi along the main road.

Glenbervie Colliery.—This is situated on Douglas's Estate, a few chains off the main Whangarei–Kiripaka Road. Boring operations proved the continuity of the seam over several acres of rise ground. A stone drive 110 ft. in length has been driven to reach the seam under free drainage conditions. The quality of the coal is good. The output is carted seven miles to the railway-station for use in railway-locomotives.

New Kiripaka Colliery.—This is a small mine operating on J. Webber's land by a party of Hikurangi miners. The workings are on the Ngungaru Hill, three miles from the main metalled road. Ten chains of tramway have been laid down an incline to a drive on water-level. The output is conveyed over ten miles of county road to Mair Railway-station.

Avoca Colliery.—A small area was worked during the years 1912 and 1913, and subsequently abandoned due to faults and the inaccessibility of the field. A party of Hikurangi miners bored an area in close proximity to the county road and proved the seam to exist to the rise of the old workings. A winding-engine was installed, and 12 chains of surface tramway were laid down to connect the mine to the county road. The coal-seam is crushed and friable, and is intermixed with clay and stone. It has also a high-water content, and is only marketable within a radius of twelve miles from the mine.

Rotowaro Collieries (Taupiri Coal-mines, Ltd., Owners).—The mine equipment has been maintained at a high standard of efficiency, and during the year many additions have been made to the surface machinery. The pillars have been successfully extracted from several sections in Nos. 1 and 2 Mines, and, where the depth of the seam from the surface does not exceed 200 ft., little crushing of the supporting pillars has been experienced. The working-seams are of moderate thickness, depth, and gradient. Variable natural conditions, such as undulations of the floor, faults, and stone bands, present difficulties in the way of keeping haulage-roads on straight courses, and many deviations have to be made from the predetermined directions. The bord-and-pillar method of mining on the panel system is practised throughout the mine, with areas varying from 3 to 5 acres for each district. Work in the main dip of No. 3 mine is temporarily stopped pending results ascertained from a slant dip set off to prospect the eastern side of the field. Inflammable gas has been frequently detected in advance places in No. 3 Mine section. In No. 2 Mine the dip heading has proved the continuity of the seam along the ridge towards Pukemiro. The average daily output during the winter months was 840 tons. The average daily output per miner engaged was as follows: Machine miners, 12·1 tons; hand miners, 7·3 tons; total miners, 8·1 tons. An increasing quantity of surface water is flowing into the mine through the crevices caused by pillar extraction, and during periods of heavy rainfall the pumps are run almost continuously.

Pukemiro Collieries (Pukemiro Collieries, Ltd., Owners).—Mechanical appliances, transport within the mine, ventilation, inspections, and working of the coal have been maintained in accordance with the regulations. The plan adopted for the arrangement of panels and roads to develop the first workings has contributed largely to the economic and safe production of coal from the remaining pillars. In the North Mine sections the pillars are being removed from three separate districts, and along the lines of retreat several incipient fires in the goaf have been isolated by means of brick stoppings erected before the fires became troublesome. Three rows of new props are generally set in support of the roof and maintained within 60 ft. of the faces before the pillars are attacked, and the gradual roof-movement tends to tighten the props and hold the roof while the second weight, due to the removal of the pillar, is causing the roof-stone to fill up the excavated spaces. This method of timbering the roadways in close proximity to the pillars under extraction should be adopted throughout the Waikato Coalfield. In the South Mine section the pillars are being extracted from the boundary of the southern fault. The seam is 12 ft. in thickness, and contains clean coal from the floor to 6 ft.; the upper 6 ft. of coal is interspersed with stone balls which render it unmarketable. Several pillars have also been extracted from the East Mine section which had reached the boundary of the workable coal. Dust-sampling, analysis, and treatment of excess coal-dust have been conducted in accordance with the requirements of the Act and regulations in respect to the limit of 50 per cent. of combustible matter.

Glen Afton Collieries (Glen Afton Collieries, Ltd., Owners).—There are five working sections in the mine, and the first workings are still being advanced in workable coal of an average thickness of 12 ft. Operations in A section are confined to the extraction of the pillars under fair working conditions considering the unconformity of the roof cover. In E section an extensive area of coal has been opened out on the panel system, and as each section is worked to its predetermined boundary it is replaced by another one turned away from the headings which are driven many chains in advance of the bord sections. K, L, and J sections, formed from headings turned off the main haulage-road at the farthest inbye section, have been extended to provide places for seventy miners working under good conditions in respect to ventilation and security of roof. Well-thought-out plans are in operation to secure a required output from each section, and to balance the weight of the skips on the main haulage-rope. The total output from the open sections is 800 tons per day. Requisite attention has been paid to the condition of the main roads in respect to the amount of stone-dust applied in treatment of the fine coal-dust. Subsidiary rope haulages are in operation to the faces of the headings. The main return airway from E section to fan exit has been widened to afford a cross-sectional area of 60 ft. throughout a constricted part. New screens and railway sidings are in course of erection and formation to deal with an output of 1,000 tons of coal per day. A considerable amount of exploratory work by boring from the surface to prove the continuity of the seam ahead of the main headings has been carried out during the past two years. The result of such work has, I believe, been quite satisfactory, and an extensive field of coal has been proved under a roof cover of 500 ft. The main headings on the east side have been extended to within a distance of 12 chains of McDonald State Coal-mine Reserve. The mine worked full time during the past year.

Graham's Colliery (Party of Miner Owners).—Operations during the year were confined to the extraction of pillars on the east side, where bords of small dimensions were driven in the first working. The seam to the west has thinned down to 4 ft. of coal. The roof is friable, necessitating the use of bars and close timbering. An output of 70 tons per day has been maintained and loaded into railway-wagons at the extension of the Glen Afton Railway.

Pukemiro Junction Colliery (Crown Lease).—Two separate mine-sections have been worked during the year. In both sections the pillars have been removed to the main roads under safe conditions as regards timbering and widths of splits taken from the pillars. An output of 60 tons per day has been loaded into railway-wagons at Pukemiro Junction Railway-station. Bathhouse and first-aid appliances are provided for the benefit of the workmen.

Waipa Collieries.—There are three working-sections in the mine. No. 1 and No. 2 sections have been extended to the fault, from where the pillars are being extracted under a slight crushing movement. The pillars in No. 3 section have been removed to within 2 chains of the main haulage-road. Exploration to the dip by the main heading has proved the seam to be thin (5 ft.) through the downthrow fault. No boring has been done to test the ground in advance of the main headings. The workings to date have exposed considerable faulting of the seam on the west side of the main haulage-road. It is the usual practice to open out large working-sections varying from 8 to 12 acres, which are frequently subjected to crush, creep, and heating before the pillars can be extracted back to suitable positions for stoppings, and in some sections the roadways have been continuously under repair during the lengthy period required for the extraction of the remaining pillars. The management is considering the advisability of forming smaller sections in the new ground to the dip, and to follow on with pillar-extraction immediately the first workings are completed in the panels.

Waikato Extended Colliery (Roose Shipping Co., Ltd., Owners).—Operations have been confined to the extracting of the barrier of coal lying between the old Waikato Mine workings and the Waikato Extended Colliery. Places of small dimensions have been driven to provide safe roadways for the extraction of the pillars later on. Several of the fire stoppings in the company's mine sagged from the top and could not be repaired, as the fire had evidently attacked the innner walls of the stoppings. A new line of stoppings put in at sites 2 chains outbye enclosed the fire area. The roof falls in lumpy condition to the surface, leaving avenues for the breathing of air to the fire in the goaf. The output is distributed along the Waikato River for the use of river-bank settlers.

Huntly Brickworks.—The output of fireclay from the opencast face has been fully maintained during the past year. The face and endless-rope-haulage road are in good order, and the local company continues to market building bricks, firebricks, and tiles, &c.

Taupiri East Colliery (Auckland University Council Endowment Lease; John Holland, Owner).—This is a small coal-mine being opened up to supply local requirements. A considerable amount of prospecting has been done to prove the existence of a seam to the rise of the old Kimihia Mine drive. The seam is 20 ft. in thickness in places. The output is carted to Huntly, a distance of three miles.

Campbell Colliery (Whatawhata Crown Lease).—The mine is worked by the Campbell Whatawhata Coal Co., Ltd. The main roadway has been extended 20 chains to the west of the field in coal of good quality, which finds a ready market in Hamilton and surrounding districts. A dip is being driven from the mine-entrance, and electric power is being obtained to operate a pump and winch. A considerable amount of boring has been carried out on the property which has proved the continuity of the seam over a fairly large area.

Renown Colliery (Renown Collieries, Ltd., Owners).—In addition to producing an output of 72,535 tons for the first year of working, the company carried out a considerable amount of development work, and has also shown enterprise in the introduction of coal-cutting machines in almost the whole of the winning-places. The development of the top seam was first carried out, as it was easily reached by headings turned off the main haulage-road. This upper seam covers a considerable area, but the workings were suspended during the month of May, as it had been proved that the quality of the coal was not good enough to compete in the market with other Waikato coals. In this connection the company had no alternative but to commence intensive machine-mining operations in the bottom seam of superior coal, in order to develop sections for the maintenance of an output of at least 250 tons per day. The bottom seam was intersected by a dip 10 chains in length driven 14 ft. wide through the fireclay occurring between the seams. Three headings, to the north, east, and west respectively, were carried forward in three shifts by machine mining for a production of a daily output equal to almost double the tonnage obtained from hand mining in the top seam. Two machines were subsequently employed in the section for an output of 400 tons per day, got principally from headings driven 12 ft. wide by 7 ft. in height. Under ordinary working-conditions each machine is capable of cutting eight places per eight-hour shift for a production of 15 tons per cut from headings and 20 tons from bords.

Under ideal flitting conditions twelve places have been cut in eight hours by a single machine. The following figures supplied by the manager in June, 1929, demonstrate the results that can be obtained from the use of coal-cutting machines:—

Percentages of various sizes of coal through screens—

	House.	Kitchen.	Chips.	Slack.
Machine-mined coal (per cent.)	25	26	16	33
Hand-mined coal (per cent.)	18	29	16	37

Daily output for machine miner—top seam, 12·2 tons; bottom seam, 10 tons.
Daily output for hand miner—both seams, 6·1 tons.

From the miners' point of view the machines have considerably reduced the laborious pick-work required on the faces in preparation of shots, and owing to the rapid advancement of the faces they are always working under freshly made roofs formed by well-balanced shots over machine-cut coal. The workings are naturally damp in almost all the places. Apparatus for sampling the dust and testing its composition has been procured, and attention is being paid to the necessity of cleaning up the slack on the roadways. A commodious bath-house has been erected for the use of workmen. A road has been formed for a village settlement in close proximity to the mine, and upwards of twenty cottages have been erected on freehold sections.

Wilton Collieries (Wilton Collieries, Ltd., Owners).—Extensive plans are being prepared for the surface and underground arrangements to connect this new coalfield to the terminus of the Waipa Colliery Co.'s railway. A considerable amount of boring is being done for the purpose of determining the lie of the elevated seam in relation to water-free drainage and endless-rope haulage. The colliery is to be equipped with electrical haulages and coal-cutting machines.

Old Stockman Mine, Mokau.—An average output was obtained from the mine for the requirements of settlers residing along the banks of the Mokau River.

Paparata Colliery (Crown Lease; formerly Coal Creek Colliery; Owners, Taranaki Coal Mining Co., Ltd.).—Operations at the mine were confined to the opening-out of several bords in the 3 ft. seam. A fault of unknown displacement was encountered in the north heading, leaving a narrow strip of coal available to be worked from the present drive. Six huts have been erected near the entrance to the mine for the accommodation of the workmen. The aerial ropeway of 12 chains from the mine to the loading-bank has been remodelled. The output obtained during the summer months was conveyed over eleven miles of county roads to Ohura or Tahora, the distance to both places being almost equal.

Egmont Collieries (Egmont Collieries, Ltd., Owners; Crown Leases).—Development work during the year consisted of the formation of 3 miles 57 chains of tramway to connect the mine to the Tangarakau Station on the Stratford–Okahukura main railway under course of construction. Screening plant, railway-sidings, electric-power machinery, and ventilating-fan have also been assembled for the production of an output early in the year 1930. Seventy men were employed on mine construction work, and generally the working and living conditions were satisfactory in this remote locality.

Rangitoto Colliery, Tahaia (near Te Kuiti).—This is a small mine opened out on Native land under right from the Maori Land Board. The area was formerly worked by Shields and Co. during the year 1921, when it was abandoned due to the dip of the seam. The existing owners (Mr. Morgan and party) have metalled 1 mile 20 chains of access road to connect with the Te Kuiti–Otorohanga stock-route road.

Fatal Accident.

On the 26th July an accident with fatal result occurred in No. 3 pillar section of the Rotowaro Colliery. Two miners—namely, Samuel Broadbent and Joseph O'Brien—were engaged in removing a pillar stump in a place 6 ft 6 in. high, supported with a double row of props, set to the face, when a "bump" dislodged the top coal over a row of props. Samuel Broadbent was knocked down and covered with 4 ft of small coal, and was dead when extricated fully an hour after the accident. The cause of death was asphyxiation. Joseph O'Brien sustained slight injuries to his right leg.

Serious Non-fatal Accidents.

On the 22nd April J. Powell received serious burns on his arms and neck by the ignition of some powder he was replacing in a powder-tin while working in Waipa Colliery.

On the 21st May George Smith, miner, Waipa Colliery, received a wound on his left eye from coal from the pick-point, which resulted in loss of vision to the affected eye.

On the 22nd June Henry Dobbs, miner, of Renown Colliery, sustained contusions of both thighs by being crushed between skips. He was off work for 170 days.

On the 28th August W. Hawson sustained a fracture to his leg by being run down by a skip on the surface tramway of the Tauranga Block Mine, Hikurangi.

On the 11th December Thomas Williams, miner, Rotowaro Colliery, sustained an eye accident whilst engaged in hewing coal, resulting in the loss of 100 per cent. of the vision of his right eye.

Prosecutions.

On the 20th September four miners engaged in Wilson's Colliery were prosecuted for travelling on an unauthorized travelling roadway. Each was convicted and fined 10s. and costs 10s.

Dangerous Occurrences (Regulation 82).

On the 2nd February there was an inrush of water into Hikurangi Shaft Colliery and subsequent flooding of the whole of the workings. The mine was dewatered on the 15th December. Mining operations were resumed at the end of the year.

On the 5th March a fire was reported in No. 2 pillar workings in Waipa Colliery. The affected part was isolated by the erection of stoppings.

On the 8th May a heating in the goaf was reported in Shank's Spur section, Pukemiro North Colliery. Brick stoppings were erected at several bord entrances.

On the 22nd June it was reported that the dip workings of the Wilson's Colliery were being flooded as a result of the percolation of water from the flooded Hikurangi Shaft Colliery. Complete flooding was arrested by the resumption of pumping in the shafts.

Huntly School of Mines.

The average attendances of students at the classes held at Pukemiro, Glen Afton, Rotowaro, and Huntly respectively were maintained, and the school continues to extend every facility in the way of mining education to those aspiring to official positions in the mines. In like manner the results of the school are beneficial to the industry and employing companies by reason of the fact that the standard of education afforded to students is reflected in the manner in which they carry out their responsible duties.

WEST COAST INSPECTION DISTRICT (Mr. C. J. STRONGMAN, Inspector).

During 1929 the coal-output for the combined Nelson, Buller, Reefton, and Grey districts was 1,290,008 tons, or an increase of 89,169 tons over the year 1928. The output from the Nelson district shows an increase of 5,674 tons, Reefton an increase of 6,474 tons, Grey district an increase of 76,194 tons, and Buller an increase of only 827 tons. The total number of men employed during the year was 3,032, or an increase of 188 men over 1928. The severe earthquake which occurred on the 17th June seriously interfered with coal-production in the Buller district. The mines were closed for a period of fourteen days, and it was some months before conditions in the mining-field again became normal.

BULLER DISTRICT.

Denniston Colliery – Coalbrookdale Mine.—In Waterloo section, Wareatea, the main headings have been advanced in a north-westerly direction for a distance of 12 chains, and panels opened out to the right and left of the headings. No. 1 panel (left) is in good coal 15 ft. to 20 ft. thick. No. 1 panel (right) is in clean coal of fair quality which appears to be thinning going towards Wareatea Creek, where the coal is 9 ft. thick. Two stone bands have made their appearance in the headings; one band is 15 in. thick and one is 5 in. thick. The centre portion of the seam (8 ft. of coal) is being worked between the stone bands. Seven pairs of men are engaged in this section. In McIllwain's section the solid work is nearing completion within the No. 1 (left) panel. In Openshaw's section the third and fourth panels are being formed off the main south headings; the coal is clean and hard, and varies in height from 7 ft. to 12 ft. In the Extended section panels are being formed to the left and right of the main rope-road. Pillar-extraction: Some five pairs of men have been employed extracting pillars from within No. 1 right and left panels, McIllwain's section, where the coal is hard and from 18 ft. to 20 ft. thick. In Openshaw's section pillar-extraction has commenced in No. 2 panel (right), west of the main south heading, in coal from 4 ft. to 14 ft. Pillars are being extracted in the old Extended section towards the outcrop. The coal is of good quality, 16 ft. thick. A start has also been made with the extraction of pillars in the Stone-drive section in coal 7 ft. thick. In No. 8 Cascade the coal is of good quality but is somewhat crushed. In order to lessen the fire risk and safeguard the mine, panels are being formed by building concrete stoppings at strategic positions in the old bords. The pillars are being extracted by driving the places very narrow. In the majority of cases the drives are 6 ft. wide and 5 ft. 6 in. in height, closely timbered. The adoption of the panel system, together with the driving of narrow places, having proved successful, the method is now being adopted throughout. Pumping: With the exception of two electric pumps in Waterloo section and some small hand-pumps in the dips, the coal won is water-free. The field is drained by a tunnel driven from the escarpment.

Ironbridge and Deep Creek Mines.—In the new horse-road, Deep Creek, the bottom seam is being developed. The coal varies from 8 ft. to 12 ft. An average of ten pairs of colliers has been producing coal from this section throughout the year. In the 24-acre section most of the output was obtained from pillars of which only a few remain. In Young's drive some ten to sixteen pairs of colliers have been employed forming and working a panel. Two headings are being extended to form a second panel in the bottom seam towards and underneath Kruger's section; the coal is 16 ft. thick. In Garing's dip during the year two headings were started to develop the bottom seam under Port Arthur section. It is proposed to drive these headings to the boundary and win all the coal on the retreating-panel system. Three shifts of men have been constantly employed at this work, but progress has been somewhat retarded by large quantities of water and faulting. A lodgment of water known to exist between two faults in the top seam was successfully drained off by boreholes. A water drive in coal will provide drainage for the section. The coal, as proved by boreholes, is 12 ft. thick, lying 40 ft. to 80 ft. below the upper seam. In the Kiwi section pillar-extraction is nearing completion. The fire having stopped coal-winning operations in Kruger's section, the old shaft section was reopened to find employment for the men displaced. Eight pairs of colliers are employed extracting pillars. The coal is thick, and as the first workings were wide pillar-extraction is difficult. In the Bluff section the coal thinned and the section was stopped. In Port Arthur section work throughout the year consisted mainly of cleaning up and retimbering old roadways. Prospecting by boring: Three boreholes were put down in the Deep Creek section, and a bottom seam proved to exist 50 ft. to 70 ft. below the top seam. It appears to be soft in places and somewhat limited in extent. A borehole in the 2-acre block was stopped in sandstone at a depth of 227 ft. Ventilation: The old fans at Kiwi were dismantled and a 40 in. sirocco fan installed, thus improving the ventilation throughout the mine. The fire stopping of Kruger's section having done away with the necessity of Druery's fan it was dismantled. Numerous air-samples from the vicinity of the fire stoppings were taken during the year to determine if any leakage was taking place; the results were satisfactory. Stonedusting has been carried out in an efficient manner. A light self-acting endless rope, 20 chains in length, was installed in the Wareatea Extended. The main and tail rope in the Waterloo section was extended for a distance of 10 chains. No fatal accident occurred at the Denniston mines for the year, although there were a number of non-fatal and minor accidents. Earthquake damage: Considerable damage was caused in and about the mine by a severe earthquake on the 17th June, which kept the mine idle for fourteen days. At the brakehead a large slip blocked the top incline. The main haulage plant was completely buried with debris. The brick chimney at the brakehead boiler-house was demolished. New tension gear had to be constructed before haulage could be recommenced, and a temporary chimney was built from iron sheets. The chimney was connected with a small sirocco fan to supply the necessary draught. A number of cast-iron columns supporting the new bin were badly broken, and some fifty had to be electrically welded before the bin could be again used. Several houses near the bin were badly damaged and have since been removed to new sites. On the underground haulage roads heavy falls occurred, and considerable damage was done to the fire stoppings around the Snapps area. Temporary repairs were effected preparatory to the erection of large concrete stoppings.

Millerton Colliery.—During the year the major portion of the output was won from pillar-extraction. In the north-east section pillar-extraction was continued throughout the year. In addition, a small area of bottom coal that had been left behind in the first workings was opened out. In the Mangatina section work was confined to pillar-extraction. Prior to the earthquake the coal was won from narrow drives in the bottom coal, but the earthquake so shattered the drives on the western side of the main heading that they had to be abandoned. It is now proposed to work the full height of the seam, which varies from 25 ft. to 35 ft. In the sixth west and second Mangatina sections the workings having reached the barren area the pillars are being extracted. The first west section has been formed into an artificial panel by the erection of concrete stoppings. The uniform extraction of pillars is causing the roof to break evenly; this should minimize the risk from spontaneous combustion, more especially as the roof-falls pack tightly. In the second west section the work of stoping the top coal and filling in the drive adjacent to the fire area is proceeding steadily. The artificial barrier thus formed has materially checked the progress of the fire. In the third west dip the work of pillar-extraction has proceeded steadily. Towards the end of the year signs of heating became evident in the goaf. Stoppings were erected and pillar-extraction restarted on a line outbye from the heated area. The roof-falls have now reached the surface, and any fresh outbreak of fire will be more difficult to control. The section is now completely enclosed with concrete stoppings, so that in case of emergency the closing of two doors will seal off the entire section from the remainder of the mine. In the middle section a small area of pillars in the western portion of the Mine Creek area is now being divided into artificial panels by concrete stoppings. Doors left in the stoppings provide a ready means of sealing off the sections. The coal at this point is 35 ft. thick. In the fourth west section coal-winning operations have been confined to driving winning-places in the top seam. The coal thins going south and west. In No. 2 dip section work throughout the year has been confined to pillar-extraction in a line with Evans's fire area. In the third west extended, in the southern portion of the field pillar-extraction has commenced. To the west a small block of solid coal is being worked towards the Millerton

fault-line. Southern area beyond barren belt: The crosscut haulage has been continued through the barren belt to a point between two boreholes. The coal is 9 ft. thick at this point. The work of dividing up the mine into artificial panels has been continued steadily through the year. The completion of this work will enable large areas at present standing on pillars to be more safely exploited. Ventilation: Every effort is being made to increase the efficiency of the ventilation system so that the cooling effects of the air may be utilized to prevent spontaneous combustion. Fire area: A staff of men has been kept constantly employed on the surface filling in the breaks to exclude the air from the underground fire. The position is now much more secure than formerly. Earthquake damage: The earthquake on the 17th June caused considerable damage, mainly in the underground workings. Fortunately no loss of life occurred. The main haulage-road suffered severely. In the various fire areas the concrete-block stoppings were severely damaged.

Stockton Colliery.—During the year the main levels in the new east area were extended a distance of 20 chains in good coal. The headings are now within 6 chains of St. Patrick's Creek. On the western side coal-winning operations have been confined to Nos. 1 and 2 dips. In No. 1 dip only a small area remains to be exploited. No. 2 dip has opened up a large block of coal. This area is very wet. Surface indications having proved favourable, preparations are being made to penetrate the Webb fault. To the south the main fault has been pierced with a dip drive. Progress has been hampered by water and adverse roof conditions. The quality of coal in this direction is improving. The new substation at Fly Creek was put into operation early in the year, and has greatly assisted both in power-factor correction and in giving additional direct-current power in the mine. A considerable amount of renewal work has been done during the year; a mile of the locomotive track has been relaid with new rails, and Mumm's Bridge and the bridge on the bottom incline have been reconditioned. During March, a train conveying workmen to their homes, after passing over the brow of No. 3 loop got out of control and ran away. Twelve men were injured more or less seriously while attempting to leave the fast-moving train. The earthquake on the 17th June rendered the mine idle for one fortnight, and greatly reduced the output during the following two months. A considerable amount of damage was done to the tunnels, loco.-track, and mine generally. The ventilating-fan was destroyed by a subsidence of the hillside. The boiler-walls at the power-house were badly damaged, so that three had to be entirely rebuilt.

Westportmain Colliery.—This small colliery is working in the seam adjacent to the Millerton Colliery. During the year the coal won has been largely got from pillar-extraction. To the east across the creek the new section opened up has proved somewhat disappointing. The main heading was abandoned after reaching a slip. Towards the escarpment opencast workings are being developed in broken country.

Clydevale Colliery.—Operations ceased during the year, and the mining plant has since been sold for removal.

Cardiff Bridge Mine.—Work during the year has been mainly confined to pillar-extraction. Coal is flumed from the face to a bin at the mouth of the mine. The system of fluming from the face is high pillar workings results in the saving of considerable quantities of coal that would otherwise be lost. The top coal is frequently covered by falls of roof-stone. The coal is sluiced from under the falls by the workmen, who are enabled to take shelter some distance back from the dangerous ground. The severe earthquake caused several heavy falls in the roadways, under one of which a workman was buried, with fatal results.

Coal Creek Mine, Upper Mokihinui.—The new area to the east of the old mine has opened out well. The main level proceeding south-westerly was extended a distance of 18 chains. To the east of the main level the coal dipped, and as no pumping appliances were available the places were driven level in the thick coal. It may be possible to recover this coal later by putting in a drainage tunnel at a lower level. As a result of experience gained in the old mine, the width of the working-places has been reduced to 12 ft. and the height to 8 ft.

Chester and Party's Mine.—This small mine worked regularly through the year, four men being employed. The work done has been in the nature of prospecting. No definite line of development has been followed.

Quinn and Party's Mine.—The earthquake on the 17th June caused heavy falls on the main level, and the work of retimbering the roads has seriously interfered with coal-production.

Westport Stateville Mine.—The main headings have been advanced in a southerly direction towards the old State Mine. The coal in the main level has been split by a stone band which divides the main seam into two separate seams. Lack of a proper ventilation plant has hampered mining operations.

Glasgow Co-operative Party's Mine.—Development work is being carried out in the direction of the old State Mine. No definite plan of working has been followed. A number of pillars to the dip have been extracted. Owing to the nature of the roof the earthquake on the 17th June was severely felt at this mine. The breaking of the timbers allowed the shale roof to fall. One of the workmen was trapped and smothered whilst attempting to escape. Fortunately the rest of the men employed were able to reach the surface safely. Numerous small earthquakes following after the main quake rendered rescue work both dangerous and difficult.

Westport Mokihinui Mine.—This property is situated in exceedingly rough country consisting of a series of sharp spurs, and is traversed by numerous faults, so that development on systematic lines is difficult. To the south-east the workings have been cut off by faults and rolls, and pillar-extraction has commenced. To the north-east at an elevation of 50 ft. above the old mine a small section was opened up under favourable conditions. The coal, however, thinned as the crest of the ridge was approached, and work in this portion of the field was suspended.

Charming Creek Colliery.—During the year the tramways from the railway-siding to the mine were completed. Pending the erection of the permanent structure a temporary loading-chute has been erected. Two-ton trucks are being used between the mine and the loading-chute. The adit level proceeding east was driven 10 chains in stone and 3 in coal before the main seam was reached. Two levels were broken off in a southerly direction. All the faces in the southern section are in clean hard coal 8 ft. thick. A rise has been put up to the surface for ventilation purposes. It is proposed to put down several diamond-drill holes to prove the field ahead of the present workings.

Westport Cascade Mine.—The earthquake on the 17th June, followed later by a flood, seriously hampered operations at this mine. Portions of the flume by which the coal is conveyed from the mine to the railway were destroyed. A new section to the west of the Cascade Creek was opened up. All places are being driven not more than 12 ft. wide and 8 ft. high.

Bennett's Mine.—During the year a number of boreholes were put down, and the coal proved to the rise of the old workings. No development work was done.

Rocklands Mine, Buller Gorge.—This mine worked only intermittently during the year.

Whitecliffs Mine.—Two men were employed intermittently during the year.

Grey District.

Liverpool State Colliery.—Operations at this colliery have been carried out on similar lines to those of the previous year—viz., the development of the Morgan, Anderson, and Kimbell seams in the No. 2 Mine, and the extraction of pillars from the No. 1 Mine. In No. 1 Mine only a few pillars remain to be extracted. In No. 2 Mine two seams are being worked in three sections. In the Morgan seam the east level has been extended a total distance of 35 chains from the main rope-road. The coal gradually thinned in this direction to a thickness of 11 ft. The western level was stopped on a fault. Development to the rise was carried to within a few chains of the No. 1 Mine workings in coal of a friable nature, 20 ft. thick. In the Kimbell seam the main levels were continued east and west with inclines to the rise. In the main east level the coal thinned

and became stony. Prospecting operations proved the seam to live beyond the thinning, and it is proposed to continue the east level in this direction. In the Anderson section pillar-extraction was continued throughout the year. The dip proceeding south-easterly continued in good coal. With a view of increasing the quantity of air in the No. 2 Mine, a double inlet sirocco fan capable of producing 160,000 cubic feet of air per minute was purchased, and is to be installed adjacent to the one at present in use.

James Mine.—The output during the year was derived partly from the extraction of pillars from the east level and old dip sections and partly from solid workings above the fault near Cannell's Creek. Development in the vicinity of Cannell's Creek has been continued in a northerly direction. A pair of crosscut headings were continued through the fault adjacent to borehole No. 1A, where 9 ft. of clean coal exists. In the dip sections the work has been confined to pillar-extraction. The coal is of an extremely hard nature, producing a large percentage of lump coal.

Dobson Mine (Grey Valley Collieries, Ltd.).—During the year the main dip headings were again started, and are proving a good quality of coal. Development levels proceeding west reached a point underneath the Grey River. The strike of the seam in this direction is fairly uniform, and the coal has maintained its thickness and quality. The main levels driven east from the main dip struck an anticline running approximately north and south, with Mount Buckley probably the highest point, so that the workings lying to the east of the main dip will be steeply inclined. In the Western Rise section the main headings reached the Dobson fault, and pillar-extraction was commenced. Pillars have been left beneath two small creeks to prevent percolation of water into the dip workings. In the East Rise section the pillars have been formed preparatory to extraction. A new motor of 100 h.p. capacity has been purchased, and will be coupled to the fan with a view to increasing the circulation of air. 160 tons of stone-dust were used during the year on the underground roadways. A Sullivan-Arkutter coal-cutting machine, compressed-air driven, for use in the dip panels, has been purchased.

Paparoa Mine.—This mine is now being worked by a party of men on co-operative contract. During the year the bulk of the output was won from pillar workings. An aerial ropeway, 18 chains in length, has been completed to open out the No. 1 seam, where it is estimated 80,000 tons of coal can be won from the rise workings.

Blackball Mine.—The whole of the output for the year was won from the No. 3 dip workings. During April work in the section known as the New Level section was completed, and the section was sealed off with permanent clay stoppings. Development work was confined to the driving of No. 3 level, No. 4 level east and west, and No. 2 level east, known as the Rise section. During the year No. 3 level reached the fault on the west side of No. 3 dip, and coal-winning in this section during the latter half of the year was confined to pillar-extraction. No. 4 levels, east and west, are proving the existence of good-quality coal, but the measures in both levels are somewhat tilted, and indications are that in order to keep the main levels on a straight course dipping will be necessary. A start was also made to drive a new dip between Nos. 2 and 3 headings on No. 3 level. The prospects are good, and a good workable section should be opened up. At the beginning of August heating of an advanced nature was noticed in the old workings off No. 2 level (west). Temporary stoppings were at once erected around the affected area, and later permanent clay stoppings were placed in position, and these proved to be very effective in controlling the heating.

Wallsend Colliery.—This colliery, which has been closed since 1890, again commenced coal-winning operations during March, the new bin having been sufficiently advanced to allow of the handling of a small output. Coal-winning was carried out on two shifts with two winning-places working three shifts. A main haulage-road to open up the Taylorville Freehold was set away from the west level, 6 chains from the main shaft, and has been driven a distance of 13 chains on a dip gradient of 1 in 7 to the fault. To the west of this dip a triangular block of coal is to be developed in such a manner as to leave a barrier between the old and new workings. Between No. 3 and No. 3 dip (old Wallsend dip) the old bords have been carried forward. The size of the pillars has been increased to 99 ft. No. 2 dip was unwatered for a distance of 17 chains. Four chains to the east of the main shaft a pair of dip headings have been started in a southerly direction to reach the Dobson boundary some 16 chains distant. Progress with the erection of the surface equipment has been continued, and the work is nearing completion.

Briandale Colliery.—During the year the number of men employed at this colliery was reduced to twenty-three. In Nos. 1 and 2 sections the coal in the main levels going northerly thinned. The workings proceeding westward were stopped on a fault that cut the measures in a north-easterly direction, and the sections were finally closed down. The main level in No. 3 section was driven a distance of 8 chains in a north-easterly direction and was stopped in thin coal. The west level after being driven 4½ chains struck a downthrow fault running in a north-easterly direction, and development work in this section is being carried out to the rise. The coal varies from 3 ft. to 7 ft. in thickness.

Co-operative Mines, Grey District.

Spark and Party's Mine, Rewanui.—The main level was extended in a westerly direction. Pillar-extraction in the northern portion of the lease has been continued. Numerous small slips from the overhanging cliffs adjacent to the mine caused some anxiety as to the safety of the steam boiler, and preparations were made for its removal.

Duggan and Party's Mine.—Mining operations at this mine during the year have been mainly of a prospecting nature in the south-westerly portion of the field. The coal has thinned and is split by a stone band.

O'Brien and Party's Mine (Old Runanga Co-operative Party).—In the dip extended section the seam thinned to 18 in. on the strike and to 2 ft. 9 in. to the dip, when all development work was stopped. To open up a new seam at a lower level the surface tramway was continued along the escarpment.

Gold Light Colliery, Rewanui.—This small mine is adjacent to the Rewanui railway-line, approximately one mile below the railway-station. The seam is fairly uniform, the coal being 7 ft. 6 in. in thickness. The main level has been extended in a south-easterly direction to the edge of an anticline. Development to the rise has been carried on by means of three inclines driven north-easterly. Ventilation is provided by a motor-driven sirocco fan, the power being supplied by the Grey Power Board.

Moody Creek Co-operative Mining Party.—Work in the old mine on the north side of the Seven-mile Creek has ceased, and the party has opened up a new seam on the southern bank of the creek. The main dip was driven in a south-easterly direction for a distance of 4 chains.

New Point Elizabeth Mine (Guy and Party).—The main level going north was stopped on a fault. Two main inclines going east have opened up several acres of good coal 11 ft. thick. The roof conditions are very favourable. The excellent method of hand mining adopted at this colliery has resulted in a large increase in the amount of lump coal produced, and a reduction in the number of shots fired. The cutting of the fault and installation of a motor-driven sirocco fan have greatly improved the ventilation of the mine.

Fiery Cross Mine (Currie and Party).—The main headings are being driven north and east. Small rolls and faults have been encountered. The coal is 7 ft. thick.

Baddeley and Party's Mine.—The solid work is nearing completion. Faults have been encountered to the north and east. Some little prospecting was done without results.

Castlepoint Mine.—Development work has been continued along similar lines to that of the previous year. The soft fireclay floor has been troublesome.

Armstrong and Party's Mine.—All the coal having been removed, the mine was closed down.

Hunter and Party's Mine.—Coal-winning at this mine ceased towards the end of the year. A new lease having been obtained, the party is preparing to develop the new property.

Scottvale Mine.—Prospecting operations have been carried on throughout the year.

Cox Creek Mine.—The old mine having become unsafe, a short drive has been put in to cut the seam at a lower level.

Schultze Creek Mine (Marshall and Party).—The main level has been standing throughout the year. To the rise pillar-extraction has been carried on.

Dennehy's Mine.—Prospecting operations on a small scale have been carried on.

Cain's Mine.—The work during the year has been of a routine nature.

Bellbird Mine, Ten-mile Creek (Fauth and Party).—The work of driving the main dip heading has been continued throughout the year. The excellent method of working the coal-face and preparing the shots is a feature of this mine. Over 80 per cent. of lump coal is being produced.

Bellvue Mine.—The development places have been continued in a south-easterly direction.

Jubilee Mine.—This small mine has worked steadily throughout the year. Development work has been of a routine nature. In the western workings two rolls were encountered. The fault running north-east has been encountered in several places.

Allan and Party's Mine, Brunner.—The mine was closed towards the end of the year.

Smith and Party, Dunollie.—All the available pillars having been removed, the mine was closed.

Brae Head Mine (Boote and Party).—The major portion of the output was won from pillar-extraction in the northern portion of the lease. Work in the new stone drive that is being put in to tap the seam at a lower level is proceeding slowly.

Inangahua District.

Reefton Coal Co.'s Mine.—Preparations have been made to install an electric generator for pumping purposes. It is proposed to use the power to unwater the old dip workings. Three small contract parties have been at work on the lease during the year.

Morrisvale Lease.—Four small mines are being developed on this property, as follows: (1) Matchless Syndicate: No extensive development work was carried out. Pillar-extraction has been continued. (2) No. 3 dip: Owing to trouble with the steam plant the work of driving the dip was discontinued. (3) Perfection Valley Syndicate: The main level has been driven a distance of 8 chains in a north-easterly direction to the fault. The main incline going south-east has reached the outcrop. Pillar-extraction has been commenced adjacent to the old workings. (4) Surprise Mine: The main dip has been driven 3 chains in a north-westerly direction. Two levels proceeding north-east have been stopped on a fault.

Archer's Mine, Capleston.—All coal won for the year has been obtained from No. 3 seam, which, in common with the other seams on this area, is more or less faulted. The troubled nature of the coal renders its exploitation a costly process.

Waitahu Mine.—A small amount of coal was won from the rise workings by a co-operative party.

White Rose Mine.—Work at this mine has been fairly regular throughout the year, as sales are good though the coal is of medium quality only.

Defiance Mine.—Three men were employed during the year removing pillars.

The Terrace Mine (*Empire*).—A main level driven in a north-easterly direction has been largely advanced through the worked-out area of an old mine. Good solid coal should be encountered within a few chains from the present face. An air-shaft put down for a distance of 70 ft. from the surface gives excellent ventilation.

Clele Mine.—Pillar-extraction to the dip has been completed. Development work consists of driving a dip on the No. 2 seam, and levels were broken off to the left and right.

Phœnix and Venus (Collins and Party).—By driving in the old workings a small amount of pillar coal has been recovered.

Coghlan's Mine, Capleston.—Twin levels put out in a northerly direction, and continued during the year, have proved a fairly extensive area of good coal.

Lankey's Creek Mine.—Attempts have been made to penetrate the troubled area to the rise, but all headings projected have been cut off by intrusions of either stone or shale. Solid coal is being worked, but the future life of the mine must depend solely on pillar-extraction.

Nelson District.

A. O'Rourke's Mine, Murchison.—The main drive in this mine was seriously damaged by the earthquake on the 17th June, and very little work has been done since that date.

R. E. F. O'Rourke's Mine, Ariki.—Prior to the 17th June a drive was started on the strike of the seam; the earthquake, however, destroyed the road over which the coal was carted, and the mine closed down.

Marble Creek Mine (*Mount Burnett*).—An aerial has been purchased, and will be erected at the mine.

Winter's Mine, Motupipi.—A small amount of coal was won from surface stripping.

Morgan and Party's Mine, Owen River.—A drive that had been put in through the gravel to intersect the coal-seam was destroyed by the earthquake. A second drive was then started some distance away. After 230 ft. of driving had been completed, indications of coal were found in the floor and side.

Clarke River Mine.—Two men have opened up a small mine near the junction of the Baton and Clarke Rivers. The coal is carted by road to the railway, a distance of eighteen miles. The coal varies in thickness from 3 ft. to 5 ft.

North Cape Mine.—Prior to June work was being carried on to the dip in the north and north-easterly direction. The coal was 3 ft. thick. The earthquake on the 17th June so damaged the machinery that the water rose rapidly and the mine was flooded. A new boiler was procured, but the steam so weakened the return airway that it collapsed. The work of pumping was still being carried on at the end of the year, but no coal was being produced.

Puponga Mine.—At the end of the year the main level had been advanced a total distance of 24 chains from the mine-entrance, and a further 3½ chains of driving remains to be completed when the outcrop will be reached. To the rise the workings have reached the outcrop 7½ chains from the main level, thus forming a main return airway. Pillar-extraction was carried out to the rise in the low coal (3 ft. to 3 ft. 6 in.) throughout the year.

Method of Working.

During the last few years the method of working has been gradually changed. All the larger mines are now working on the panel system, and in some of the older mines artificial panels are being formed by building concrete stoppings. The tendency is now toward narrow workings, usually 12 ft. wide and 8 ft. in height. The sizes of the pillars are also being increased. In pillar-extraction the straight-line system is being extended, the object in view being to get as long a roof-break as possible. Unfortunately, in the smaller mines the lack of capital has resulted in wasteful methods; this applies more especially to the Reefton field, where the majority of the mines are worked on the tribute system.

Fatal Accidents.

During the year six men lost their lives in the coal-mines of the West Coast Inspection District, as under:—

On the 28th February, James White was killed by a fall of roof-coal in the Westportmain Colliery. A shot had been fired in a stump. White commenced to trim the shot, when approximately 14 cwt. of coal fell, killing him instantly.

On the 6th March the mine-manager (Mr. Smith) and John Bell were examining fire-stoppings in the Millerton Mine when a large body of hot water that had evidently been dammed back in the drive rushed through the drainage-boxes in the stopping and swept Bell off his feet and inflicted injuries that resulted in his death.

On the 25th March, Andrew Watkinson, employed as a trucker in the Blackball Mine, was found dead alongside the rails in No. 4 dip. He had evidently fallen forward and fractured his skull on the floor.

On the 17th June, as a result of the severe earthquake, two men lost their lives, William Chamley in the Cardiff Bridge Mine and R. McAllister in the Glasgow Mine. In both cases the men were suffocated by falls of soft material from the roof.

On the 17th October David Auld, while filling a truck, was struck and killed by a fall of roof-coal in the Millerton Mine.

Serious Non-fatal Accidents.

On the 28th February, on the Stockton loco-road, a workmens' train conveying twenty-four men from Fly Creek to Stockton became unmanageable. Of the twenty men who jumped off, twelve were injured more or less seriously.

On the 2nd April Oscar De Santa had his leg broken in the Liverpool Mine by a trolly becoming derailed.

On the 10th May Samuel Wilson, a miner employed at Paparoa Mine, was caught by a fall of roof-coal. Both bones in the forearm, two ribs, and his ankle were fractured.

On the 23rd May Peter Campbell had his arm broken by a fall of stone in the Briandale Mine.

On the 4th June J. Kay, who was at work extracting a pillar in Armstrong and party's mine, was caught by a fall of roof-stone, resulting in his leg being broken.

On the 1st July John McFarlane and his mate were erecting a set in the Dobson Mine when the bar swung, striking McFarlane and fracturing his skull.

On the 9th September J. Robertson was jigging a truck in the Dobson Mine when the jig-prop pulled out and struck him, fracturing his pelvis and scapula.

On the 23rd September Joseph Hutchinson had his leg broken by a fall of stone in the Liverpool Mine.

On the 17th October James Carr had his arm fractured by a fall of coal in the Millerton Mine.

On the 18th November Ernest Harrison had his leg broken by a jig-rope (which was attached to a runaway truck) striking his leg.

On the 21st November James Hughes, a miner employed in the James Mine, had his leg and arm broken by a fall of roof-stone.

On the 29th November James Morrow, a shiftman employed in the Coalbrookdale Mine, was erecting a bar when it rolled and struck his leg, fracturing the bone.

Dangerous Occurrences notified under Regulation 82.

Reefton Coal Co.'s Mine: On the 18th February a fire was discovered in Svenson's section by the morning deputy. Stoppings were erected and the fire sealed off.

Blackball Mine: On the 4th August a fire broke out in the old workings to the rise of No. 2 level, No. 9 dip. Stoppings were erected and the fire sealed off.

Millerton Mine: On the 26th September indications of heating were noticed on the edge of the goaf. Eight concrete stoppings were erected and the fire sealed off.

Prosecutions.

There were twenty-four informations laid during the year; one was dismissed, two were withdrawn, and twenty-one convictions were recorded.

On the 24th January a deputy was fined £1 with costs for firing a shot not prepared in conformity with Regulation 234 (*b*).

On the 4th March the manager of a mine was charged with employing a person under the age of twenty-one years to take charge of a boiler, contrary to section 68 (1) of the Coal-mines Act. The case was dismissed.

On the 6th March, for failure to provide a safety-lamp of a type for the time being approved of by the Minister (section 96 of the Coal-mines Act), a mine-manager was fined £1 with costs. On a second charge of failing to enter a report as to the condition of the mine, as provided by section 128 (2), the mine-manager, who also acted as examining deputy, was fined £1 and costs.

On the 15th April, for failing to ensure that not less than 150 cubic feet of air per minute was provided for every person in the mine, as provided for by section 92 (1) of the Coal-mines Act, a manager was fined £1 with costs.

On the 19th April a workman was injured by a prematurely fired shot. The deputy responsible for firing the shot was convicted for (1) failing to see that all persons in the vicinity had taken proper shelter; (2) failing to couple up the cable to the detonator as provided by Regulation 228 (4). A fine of 10s. with costs was imposed in each case. For failing to send to the Inspector of Mines half-yearly returns as provided by section 81 (1), two leaseholders were each fined 10s. with costs.

On the 1st July a mine-manager was fined £5 and costs for failing to comply with section 91 (1) and (2) of the Coal-mines Act. The return air was found to contain more than 1 per cent. of carbon dioxide.

On the 1st July, for failing to employ a fully qualified mine-manager in terms of section 61 (*b*) of the Coal-mines Act, the owners of a coal-mine were fined £1 with costs. A second charge against the mine-manager for acting in that capacity while not being qualified to do so was withdrawn.

On the 1st July, for failing to notify a serious accident as provided by section 145 (1) (*b*) and (*c*) of the Coal-mines Act, a mine-manager was fined 10s. with costs.

On the 19th August, for failing to take tests of the dust-mixture from the floor, roof, and sides, as provided by Regulation 238 (3) (*g*), a mine-manager was fined £1 with costs. A second charge of failing to keep a record of samples was then withdrawn.

On the 19th August, for failing to post notices specifying the manner in which the supports were to be set and advanced, as required by section 117 (3) of the Coal-mines Act, a mine-manager was fined £1 with costs.

On the 23rd April three charges were laid against a mine-manager, who also acted as deputy of the mine—(1) for failing to meet the workmen at the appointed station and instruct them as to their places of work, as required by Regulation 96; (2) for failing to remain underground until the day's work was finished (Regulation 93); and (3) for failing to report in a book kept for the purpose the results of the morning's examination (section 128 (2)). Convictions were secured in all three cases, the fines amounting to £4.

On the 6th December a mine-manager was fined £1 with costs for failing to keep a record of the analyses of dust-mixtures taken from the floor, roof, and sides, as required by Regulation 238 (*g*).

On the 6th December four convictions were recorded against a mine-manager, who also acted as examining deputy to three small mines: (1) For failing to appoint in writing a sufficient number of duly qualified officials in accordance with section 61 of the Coal-mines Act he was fined £1 with costs; (2) for failure to proceed to the appointed station to meet the workmen and instruct them as to their places of work he was fined £1 with costs; (3) for failure to keep records of samples of the dust-mixture from the floor, roof, and sides of two different mines, as provided by Regulation 238 (*g*), he was convicted in each case and ordered to pay costs.

SOUTHERN INSPECTION DISTRICT (Mr. GEORGE DUGGAN, Inspector).

COAL-OUTPUT.

It is pleasing to record that the output from the coal-mines in the Southern Inspection District, 475,998 tons, was 21,973 tons more than that produced in 1928. From the North Otago mines the output was 12,436 tons less, but this was due chiefly to the Shag Point Coal-mining Co.'s Mine being idle for about five months. From Central Otago only 4,946 tons of lignite were produced, this being a decrease of 428 tons for the year. Canterbury shows a small increase, and South Otago produced 2,633 tons more than during 1928. From the Southland mines, despite the Linton No. 1 Mine being closed for about a month owing to the explosion, the substantial increase of 31,900 tons is recorded; the Wairaki Mines output increased by 18,019 tons, that of the Linton Mines by 11,875 tons, and that of the Black Lion Mine by 5,531 tons. Except for a couple of stop-work meetings at the Linton Mines, and the endeavour to reduce the ruling rates at the Shag Point Coal-mining Co.'s Mine, it is very satisfactory to report that there were no stoppages in this district through labour disputes. Many users have installed more up-to-date furnaces at their steam plants, thus creating a demand for the small coal, the greater portion of which was formerly dumped as waste. Near the end of the year a conference of mining-men at Nightcaps agreed upon an improved method of working the very thick pillar coal at the Linton Mines. This method obviates as much as possible the miners having to go out into the unsupported waste ground to fill loose coal. Better mining methods, particularly the forming of larger pillars, is being insisted upon, and an improvement in this regard is now evident at most of the mines.

SUMMARY OF OPERATIONS AT EACH COLLIERY FOR THE YEAR 1929.

Austin's Claystone Mine, Sheffield.—Pillar-extraction was completed in June, and the plant was removed. Later on, from an opencast pit about 15 chains to the east, a few tons of inferior clay were won, but no work is now being done there.

Prospecting on Freehold Land, Sheffield.—A party of miners purchased 40 acres of freehold land about half a mile east of Austin's claystone mine and a little to the east of the old Sheffield Mine workings. About ten years ago a shaft was sunk 110 ft. on this land, and it was reported that a seam of coal 5 ft. thick had been met. The new party put down a dip drive, at a grade of 1 in 3, from a gully 80 ft. lower than the top of the shaft, and they expected to reach the coal-seam about 100 ft. down, but after driving 170 ft. very troubled ground was met. From the face of the dip drive they then drove 40 ft. to the east, but being still in the faulted country, this place was stopped and the rails pulled up. It was then decided to repair the prospecting-shaft, but they ceased operations in October owing to lack of money.

Springfield Mine.—No work was done during the year.

Homebush Mine.—The three levels to the rise of the dip section entered coal containing thick bands of stone, so in July it was decided to begin working back the pillars. Two sections are now being worked in the claystone mine. In the southern one the main level has been extended and a place broken away to connect with an old level to the rise. When the incline now being driven in the northern section is through to the old workings above, the few pillars will then be brought back.

Bush Gully Mine.—Pillar-extraction from the lower levels was completed, and the two miners are now driving a higher level, where the seam is 3 ft. thick, but which contains a stone band 4 in. thick.

Klondyke Mine (Bush Gully).—About 15 chains north-east of the Bush Gully Mine two miners have driven a level going east for about 4 chains. A seam was met, 5 ft. thick, but containing many bands of clay. The seam is rising to the north at about 75°. Lately from this level a crosscut has been driven to the south, and an upper seam, 6 ft. thick, has been met. Prospecting is now being done on this 6 ft. seam.

St. Helens (Whitecliffs) Mine.—The two miners drove several short dips and worked back a few pillars left in from former workings. Production ceased in October.

Steventon Valley Mine.—Pillaring was continued in the dip section and was completed in May. A level was then driven west of the fault met in the dip section. A little coal was won from the 6 ft. seam, but old workings were met, so they drove a crosscut to an upper 5 ft. seam, and a dip is being driven on this seam.

Lucknow Clay-pit.—About a mile beyond the Steventon Valley Coal-mine a clay-pit was opened up, first as an opencast, and later a level was put in for 40 yards. A place driven to the rise reached the outcrop 45 ft. up. Now the few pillars are being brought back.

Clearview Mine.—All the output for the year was obtained from pillar-extraction. A borehole was put down from the floor of the main level a few chains back from the face. Another seam of rather soft coal was found 12 ft. below the present workings, but as boring was continued only 3 ft. into the seam its thickness was not ascertained.

Mount Somers Coal Co.'s Mine.—The main north level is now in over 6 chains and has entered very troubled ground. The face of this place is 3 chains to the south of the 150 ft. dip driven in 1928, and which stopped at a large fault. To the east two levels have been driven, and they are now in 4 chains from the main north level in good-quality lignite. Two places going to the north out of the upper east level have passed through the poor lignite, so the outlook is now much more promising.

Burnwell Mine.—This mine has not yet been reopened.

Blackburn Coal's Co.'s Leases.—A railway of 3½ ft. gauge is being made from the Mount Somers Railway-station to the foot of the hills at Chapman's Creek, a distance of about nine miles. A good deal of prospecting has been done on the outcrops up the hill, and it is anticipated that production will commence during the coming winter.

Albury Mine.—The available rise coal on the Woodbank area is nearing exhaustion, as the fault is cutting off all the rise places. The bottom level going east was continued through the faulted ground, and the seam has again thickened to 11 ft. This level is now stopped within a few feet of Ross's opencast pit worked some five years ago. On the Albury lease a dip drive at a lower level is being cleaned out. It is intended to again drive under the traffic road to work the lignite to the dip of the present bottom level.

Roseneath Mine.—The north level is now in over 2 chains, but the last ½ chain is in very poor lignite. Places driven to the west off this level met a downthrow fault when only 6 yards in. To the east the lignite is unmarketable, so this mine will not last much longer, as the owner does not intend to extend the main dip where water is still flowing at the face.

Airedale Mine.—Most of the winning-places are stopped on account of meeting very soft lignite, and the outlook for the mine is now far from promising. The main and back levels were stopped early in the year, and later two of the dips were also stopped owing to the poor-quality coal met.

St. Andrew's Mine, near Peebles.—The main level, going almost due north, is now in 11 chains. A little troubled ground was met about a chain back from the face, but the level is again in fairly good lignite. Three crosscuts have been driven to the dip at a grade of 1 in 9, the full dip of the seam being 1 in 4½. Places have also been worked a couple of chains to the rise, and all are in good-quality lignite. Throughout the year a sale has been found for most of the slack produced.

Ngapara Mine.—The places near the boundary were stopped, and development during the year has been to the east, and within 10 chains of the mine-entrance some of the old workings have been drained of about 2 ft. of standing water: this was conducted to two shallow pits sunk into the underlying gravels, and from there it seeps away. Sale is now found for the slack.

Shag Point Coal-mining Co.'s Mine.—From the 31st March until the 19th August the mine was idle. In order to obtain fresh capital a new company was formed, and an endeavour made to get the employees to agree to a reduction in wages and contract rates. Development has now practically ceased, as most of the output is from pillar-extraction. In Perry's and Hancock's dip sections the seam did not thicken or improve in quality,

so it was decided to commence extracting the pillars there. The pillar work has been completed in the middle slant section. The small longwall section now has a face 80 ft. in length. This section is now under a gully near the rise portion of the old Allandale Mine. From the old rise section workings in the present mine a large flow of water heavily charged with sulphuric acid entails a lot of repair work to the electrically-driven pump.

Shag Point Mine.—The level to the south was stopped as it entered the very faulted ground met in the higher levels. From this level two dips were driven a pillar-length, and then connected by a cut-through which was continued across to the main dip. Preparations were then made to extend the main dip. A new return-air shaft 50 ft. deep has been sunk about 2 chains north-east of the coal-chute: this shaft connected with the top south level. The mine is now under the charge of a certificated underviewer.

Rough Ridge Coal-pit.—A few tons for home consumption were produced from this small opencast pit.

Idaburn Pit.—Stripping has been kept well in advance on the west side of the pit, but the lignite is of rather poor quality there.

Otureluna Pit.—A small output was produced early in the year, but the pit was again allowed to fill with water. Recently the pit has been purchased by a Shag Point miner, who is now producing a small output from the pit.

Cambrian Coal-pit.—Early in the year this pit was pumped out and 231 tons of lignite taken out. As trade again slackened, work ceased in June, but was again resumed towards the end of the year.

McPherson's Pit, Coal Creek Flat.—Work has been continued throughout the year both in the seam above the level of the water-race and in the one to the dip. In the spring a heavy wind carried so much thistle down into the race that it became blocked, causing an overflow which undermined the fluming. The upper 4 ft. of the lower seam is of rather poor quality, but the remainder is almost equal to that of the upper seam.

Shepherd's Creek Mine.—In another three months the solid work will be completed on the south side, and the pillaring should last another two years. Work has been confined to the south, as the lignite on the north side is of very poor quality. When the bottom south level broke through into old workings in August a considerable quantity of black-damp was released. All the mine-water is now draining out through the old workings. Places are still being driven about 9 ft. in width, and as there is 6 ft. of lignite left on the roof no timber supports are required.

Nevis Crossing Pit.—The small output for local sale has been maintained throughout the year.

Parfit's Coal-pit.—Work was continued to the north-west, where very heavy stripping by hydraulic nozzle was done. It will soon be too thick for the small amount of marketable fuel produced. The upper portion of the seam as well as a few feet of the bottom is very soft, and there is only about 7 ft. in the middle of the seam that is marketable, together with about 3 ft. of very light-coloured lignite, like shale, which finds a ready sale.

Freeman's Mine.—Three miners are now employed at pillar-work on the east side of the main trucking-road, and they are coming back nicely with the goaf closing well behind them. The floor is inclined to heave, and a little brushing has to be done to keep the trucking-roads open. Good stoppings were built to seal off the heated area on the west side.

Jubilee Mine.—The main dip in the No. 5 section (the only one now worked) has been extended 3 chains during the year, and the face is now 13 chains south of the traffic-road line. The floor is inclined to heave, and the main dip, driven 6 ft. high, is now only 4 ft. in height. The full dip of the seam now being about south-east, when the main dip is extended it will be diverted to that direction. On the west side some of the levels met a faulted area and the lignite is of rather poor quality, but the east levels are in good lignite, and one on that side is now in over 8 chains from the main dip. A panel system has been adopted, and barriers 50 ft. wide are being formed between the panels. A 30 h.p. 400-volt induction motor is now in use at the surface for the haulage from the No. 5 section.

Willowbank Mine.—From the area opened up during the past three years five miners have been working back pillars, and in a few months this section will be abandoned. A small 3 ft. ventilating-fan driven by a 3 h.p. motor was installed in July. About 10 chains west of the present mine-entrance a new dip to the south is being driven at a grade of 1 in 14. About 30 yards ahead of the commencement of the dip a bore put down from the surface met a 10 ft. seam of coal when down 24 ft. Another borehole, 2 chains farther to the west reached the seam at 20 ft., but it was only about 1 ft. thick there. Near the foot of the hill two boreholes were drilled: both were put down 130 ft., and both were unsuccessful in proving coal.

Waronui Mine.—About the middle of the year a small section was opened up to the rise of the old No. 1 Mine workings. All working-places have been driven less than 8 ft. in width, and the seam is only 5½ ft. thick. As there is a soft stratum of fireclay immediately over the coal-seam, all places have to be supported by sets. Many small hitches were met, and development has now ceased in that section, all the miners there being on pillar-work. In the No. 2 Mine, at the head of an old cuddy a few places are being worked. The seam is 9 ft. thick, and 2 ft. is being left on for roof-support. In the prospect drive on the west side of the railway-line no work was done for most of the year, but work was resumed in September. Unless a fault is soon met there is little hope of meeting a coal-seam, as the drive is running almost parallel with the measures.

Viewbank Mine.—Work ceased in the upper seam east workings early in the year. When a new return airway to an outcrop on the west side was completed the main north level in the lower seam was extended. This level, and others east and west of it, and an incline to the west, are now being worked.

Elliotvale Mine.—In the hills eight miles south of Milton a seam of brown coal outcrops. It was worked in a small way several years ago by opencast and a few level drives. One of the levels, commenced in the middle of the seam, was extended to about 25 yards, but as the seam was dipping in that direction the level met the roof. A few wooden tubs and iron rails were purchased, and after 83 tons were produced work was again stopped. The connecting road between the mine and the main road is only a clay one and traverses very hilly country.

Taratu Mine.—Another year's output from this mine consisted solely of pillar coal. The remainder of the coal under the surveyed road-line was not extracted, so a large quantity of good clean coal was lost. Pillar-extraction has been continued south of the road-line and also in the dip section, where five pairs of miners are employed. The mine is now a very small one, and, as the shaft seam was met in a hand borehole put down between the old shaft section and the present workings, a new dip should be driven to work the shaft seam.

Lakeside (formerly Tuakitoto) Mine.—One of the levels going north in the upper seam met a downthrow fault. Development was continued for some months in places to the east and south, but the south level was in very faulted coal for 20 ft. Lately work has been confined to the lower seam, an incline being driven to the west. From the main level and near the main dip a stone drive was commenced, but when in about 100 ft. a large fall occurred, breaking the timber supports. No further work has been done.

Kaituna Mine.—A few tons were produced early in the year from pillar-extraction from the rise portion of the 4 ft. seam. Production stopped in June, and nothing further has been done.

Kaidale Mine.—During the year very little work was done at this mine. The crosscut was not extended, but a place to the west from near the bottom of the crosscut was extended about 10 yards and another place broken away. Higher up a couple of other places going to the west were extended about ½ chain. Owing to the poor demand the mine-owner had to obtain employment elsewhere.

Wangaloa Mine.—From the outcrop a new level was driven first to the north-east, then it veered to the north and north-west, and it is now going south-west and is 6½ chains in from the surface. It is skirting a traffic road, and on account of a bend in the road the level can be driven another 30 yards only. The coal is clean and hard, and the places are being driven narrow and are well timbered. Three of the inclines have holed into old workings to the rise.

Summerhill Mine.—Very little work was done at this mine for the year, only 12 tons being produced.

Kaitangata No. 1 Mine.—In the No. 2 section, No. 1 seam (formerly called Mundy's dip section), the main dip heading has been driven 13 chains to the east, and the back heading advanced 4 chains beyond the main heading. Thereabouts the coal is of excellent quality and from 18 ft. to 20 ft. in thickness. To the north, off the main dip, the upper levels met stony coal when about 400 ft. in, but a lower level is now in over 14 chains and is still in good clean coal. On the north side a panel about 5½ chains wide and 9 chains long has been formed. A barrier about

1 chain wide is being made to the north of this panel, and another dip is being driven to commence another panel farther to the north. For some distance the lower levels to the north have been driven off the floor and into the upper portion of the seam. Another dip, called O'Fee's, and going to the south-east out of one of the upper south levels, is now down 11 chains. At the face of O'Fee's dip the seam is only 8 ft. thick but is of very good quality. The levels driven to the south off this dip have quickly veered to the west, so the bottom level will soon cut out two other levels above it. From near the inbye end of the main haulage-road a crosscut has been driven to the main drive leading into the No. 1 seam workings. This drive is being widened and graded, and eventually the endless-rope haulage will be extended into the No. 1 seam workings, but temporarily a compressed-air winch will be used to haul the output through the new crosscut. In the dip section of the No. 4 seam workings a few miners are still employed, but the coal in that section is of rather poor quality. The pillar-extraction in the rise section, No. 4 seam, has been completed, and that area is now effectively sealed off. As the ventilating-fan is being driven at its maximum speed it was decided to put down another dip from the surface for a main return airway. This dip was commenced from near the top of the present return, and will connect to one of the upper north levels of the No. 1 seam workings at a point about 8 chains north of the main heading. The new return, now 600 ft. down, is being driven at a grade of 1 in 2½, and will be 1,400 ft. in length. An elevator now conveys slack from the screening plant to the battery of boilers, and alterations were made to the "turbine" furnaces, one boiler having an extra tube put in and the tubes in the others being lengthened.

Kaitangata No. 2 Mine.—The development during the year in this mine was very disappointing. In the No. 6 seam section work was recommenced about the middle of the year. A downthrow fault was met in the places being driven to the east, and another only 6 chains away cut off the west-side places. This section was again stopped in September. The main dip in the No. 2 seam section was extended a couple of chains to the south-west, but as the dip of the seam thereabouts varies considerably—it is now almost due west—it is found very difficult to lay out the development work. Three levels are being driven to the south, the seam being 8 ft. thick in the top one but only 4½ ft. thick in the bottom level. A couple of levels are also being driven on the north side, but they are within 3 chains of old workings.

Castle Hill Mine.—In the Nos. 5 and 7 sections pillar-extraction was continued. In the top seam section the main heading was continued for about 2 chains into faulted country. A small shaft was sunk 20 ft. at the face and a hand borehole put down from the bottom of the shaft, but no workable seam was proven. In the north levels the coal became very dirty. A place going east and to the rise met a large downthrow fault when only 1 chain up. Owing to the disappointing results, and the excessive haulage and other costs for the small output, it was decided to remove all the plant out of the mine, and to close the mine by building stoppings near the mine-entrance and the top of the return airways. This was completed early in December.

Benhar Mine.—In the new mine the main dip is now down 10 chains, having passed through an 8 ft. upthrow fault. In order to form a good barrier between the old and the new mines the north levels were stopped when 3 chains in from the main dip. On the south side one of the levels is now in over 5 chains. An incline about 2 chains south of the main dip has been driven to the outcrop, and the ventilation is much improved. In the old mine a dip was driven at a grade of 1 in 3 to work a stratum of clay which was expected to be met about 70 ft. below the coal-seam. As the seam dipped at 1 in 8 the clay should have been met at 340 ft. down. After passing through 4 ft. of good clay and 9 ft. of dirty lignite the drive was stopped about 450 ft. down in a mixture of sand and clay.

Brighton Mine.—An attempt to drive to the dip had to be abandoned as, after crossing an old bord, another one, in which a heavy fall had occurred, was met. Then a level to the north was driven, but this, being near a county road, was stopped. Then a narrow place, crossing under the road, was driven to the south-east. To the east of the road the owner expects to work a fair area of lignite.

Green's Mine, Gore.—Awaiting the arrival of an electrically-driven centrifugal pump from England, the main haulage-road was not extended until near the end of the year, and production was solely from the south levels. The two lowest south levels were used for a sump. A borehole, 7 in. in diameter and 130 ft. deep, was made from the surface to the site for the new pump. In it are the 3 in. delivery column and a 1½ in. conduit for the cables.

Otikerama Pit.—A 15 ft. seam of lignite is being worked at this pit. To the north the overburden quickly thickens, but there is only 3 ft. to 4 ft. of overburden to the west. A small multitubular boiler and pump are now used to unwater the pit.

Ramsay's Pit, McNab.—This is a new pit a few chains south of the railway-line. The upper portion of the clay overburden is removed by horse and scoop. The lignite, of rather poor quality, was from 10 ft. to 12 ft. thick, but to the west the seam is rising and has thinned to 8 ft.

Milne's Pit, Waimumu.—This pit, formerly worked by local residents, has been reopened by a Gore miner, who sells most of his ouput in that town, eleven miles from the pit. There is about 4 ft. of stripping over an 8 ft. seam of fairly good lignite.

Glenlee Mine.—Driving has been continued to the east, and one place was driven back to the outcrop. A level has been started to the north and is 12 yards from the main north level, which is not being worked at present on account of much water draining in through the breaks in the coal.

Ramsay's Mine (North Chatton).—The surface haulage has been diverted and is now direct from the opencast pit to the gantry near the traffic road. Only a small output has been produced during the past year.

Argyle Pit.—Stripping has been continued with the hydraulic nozzle, and the overburden is now over 30 ft. thick, but, as the hard band of claystone immediately over the lignite has thinned, the water is more efficient in removing the overburden. In order to obtain more pressure a new water-race, 30 ft. higher than the old one, is being made, and water is being picked up from another creek farther south. It is expected to soon connect the pit to the Waikaia River by a shorter route. There is sufficient lignite stripped to cope with the demand for the next six months.

McIver's Pit.—A few tons of lignite are still being produced from the south end of the pit. The upper 3 ft. is weathered slack, and below that is about 4 ft. to 5 ft. of rather poor lignite.

Northcoat's Pit.—Working has been continued parallel to the east bank of the Waikaia River and a new tail-race made at the north end of the pit. The overburden, which at one place was from 60 ft. to 70 ft. thick, has thinned considerably, and it is about 15 ft. thick where stripping is now being done.

Wendon Mine.—In the old drive the tops are all out, and work has been transferred to a new section about 15 chains farther south. The drive is only in a couple of yards, and will soon go to the dip at a grade of 1 in 4. A small steam plant will be purchased for haulage purposes.

Terrace Mine, Kingston Crossing.—The north-west heading is still being extended, and a place was broken away to the south-west, but it entered poor-quality lignite and is only being continued as a narrow drive. A place was driven to the north-east and holed into old workings. All places are being worked up to a good clean parting, 7½ ft. from the floor, which makes an excellent roof.

Princhester Creek Pit.—201 tons were produced from this small opencast pit during the past year, a fair proportion of which was carted for use at Te Anau.

Boghead Mine.—For another year, owing to slackness of trade, the main dip has not been extended, and only the three north-side bords have been worked.

Mataura Lignite Mine.—Development has been restricted to a few levels to the south-west and the connecting inclines. The lowest of these levels is now within 30 yards of the road reserve which forms the western boundary of the property. As the solid work on that side will soon be completed it will be necessary to extend the main dip and work a virgin area of about 3 acres at the north-east corner of the property.

Larking's Pit.—No further work has been done at the mine, but three men have been regularly employed at the opencast area to the south-east of the mine. The clay overburden is from 10 ft. to 12 ft. thick, but it is expected to thin to about 8 ft. half a chain from the present face.

Ota Creek Pit.—The lignite becoming thinner at the north end, work was recommenced at the south end of the pit, where the lignite is now about 8 ft. thick.

Thompson's (Wyndham) Pit.—Owing to the keen competition from the Ohai coals the output was again low. A lift of about 7 ft. of bottoms is being worked at the north end of the pit. As the demand for road-metal fell away stripping at the south end has ceased.

Gabites's (Menzies Ferry) Pit.—No work has been done at this small pit during the past year.

Diamond Lignite Pit.—Another year's output was obtained from the lower portion of the seam.

Black Diamond Mine.—The solid work in the north-west will soon be completed, and pillar-extraction will then commence. Lately ten miners have been employed, but they average only about four days' work per week. In June an ignition of firedamp occurred whereby a miner was burned. As a consequence safety-lamps had to be installed and only permitted explosives used. Oldham electric cap-lamps were purchased, and they are giving every satisfaction. The percussive type of coal-cutting machine not proving satisfactory, attempts are being made to devise a suitable coal-cutter for the brown coals. It is hoped that one of the multiple drill type will be more successful.

Smithvale Mine.—No work has been done at this mine during the year. The owner-miner has opened a small opencast pit on his freehold land and 30 chains north-east of Quested's old opencast pit. The new pit is near the eastern boundary of the coalfield, and the "resin" seam, about 14 ft. thick with about 7 ft. of overburden, is being won there.

Mossbank No. 1 Mine.—All the east places in the extended section to the east of the Wairaki Settlement road were cut off by the "washout," and the south places met a large downthrow fault running almost east and west. A prospect level was driven to the south, and when 12 yards in it was stopped in hard compact sandstone 4 ft. thick with a conglomerate floor and roof. Pillaring was then done, and before the end of October all marketable coal had been won, and then stoppings were built in the intake and return airways to that section. This was the area applied for by the Beaumont Coal Syndicate, and, as the workings there covered less than 2 acres, it certainly would not have warranted opening out another mine. In Nos. 1, 4, and 5 sections the pillars could not be extracted on account of being under a swamp, so most of them have been split. A section of fair-quality coal, but containing many stone bands, has been opened up in the new dip section to the west of the main dip and towards the Wairaki No. 1 Mine workings. One chain to the west of the dip a return airway has just been completed back to the surface. Near the face of the dip a bore was put down, going through layers of sandstone, fireclay, and conglomerate to 42 ft. It was stopped in loose gravel at 46 ft. To ventilate this section a 7-ft.-diameter axial-type fan is being installed.

Mossbank No. 2 Mine.—Early in the year this small party of miners broke into the old workings inbye the heated area in the lower seam. Two stoppings of clay 6 ft. thick were first built, then they were reinforced with 9 in brick ones. Places were driven to the north and east in the lower seam, but these ran into stony coal, so were stopped. They are now extracting the upper pillars.

Lobbs Hill Mine.—Two miners put down a short dip drive on an area to the west of the Nightcaps–Ohai traffic road. This only proved a thin seam and was abandoned. A few chains to the south of the dip they then commenced a level drive and met a 4 ft. seam when in about six yards. Farther east a shallow shaft proved this seam to thicken to 5 ft.

Wairaki No. 1 Mine.—Two pairs of miners are still employed at pillar-extraction in the No. 1 east section. The old pillared area has been sealed off. In the No. 2 east section, south of the Ohai Road and railway-line, the main heading is now in an area of much cleaner coal, but this section is a gassy one. The few levels to the rise are in coal containing many stone bands. Near the face of the No. 3 west level a level was driven to the south-west, but the 3 ft. seam met there petered out and the level was stopped when about a chain in. Another place, crosscutting the measures below the seam, was then driven to the north. A borehole was put down in this place, and proved coal about 10 ft. down. In the No. 1 west section a good deal of pillaring has been done, but several pillars had to be sealed in owing to heating becoming apparent. "Ceag" electric cap and hand lamps are now to hand, and will be put into use early in the year. An area of 97½ acres to the south of their present lease has been applied for by the Wairaki Coal Co.

Wairaki No. 2 Mine.—The two pairs of miners employed at this mine are coming back rapidly with the few remaining pillars.

Linton No. 1 Mine.—In the old No. 1 Mine only three pillar places are now being worked, the rest being sealed off with concrete stoppings. Most of the available pillars in the little dip area were won before heating developed there and concrete stoppings were put in. The north-west heading was extended beyond the downthrow fault, but met another fault, so the heading is now stopped about 19 chains down from the surface. The back headings have both reached the fault which is running in a north-easterly direction. In a section to the west, off the north-west heading, a thick seam containing a few bands of stone is being worked 100 ft. below the one worked in the No. 1 north section of the No. 2 Mine. To the south-east a dip called "Adam and Eve's" is being driven, and the face of this dip is within 3 chains of being under the No. 2 Mine main haulage-road. It was in this section that the vertical shaft was put up towards the end of the year, and near the foot of which the explosion occurred on the 15th November.

Linton No. 2 Mine.—The main headings were extended only about 3 chains during the year, and little other development work was done there. A couple of miners are on solid work in the No. 5 south section. The pillaring of the No. 2 south section was completed in June, and stoppings were then put in to seal off the goaf. Pillaring is now proceeding in the No. 3 south section, and was recently commenced in No. 4 south. The attention of the management was drawn to the necessity of keeping the pillar-extraction in line in the No. 3 south section in order to ensure safer working and maximum extraction. An improved method of pillar-extraction has been agreed to by the miners and officials.

Birchwood No. 2 Mine.—A dip 7 ft. wide and 6½ ft. high is being driven into a coal-bearing area north of the large downthrow fault which cut off the Ohai Coal Co.'s workings. Three bores were put down on this area by the Ohai Coal Co. The main and back dips are down 500 ft. at a grade of 1 in 6, but workable coal has not yet been met. As a safety precaution naked lights were debarred when the dip reached the 5-chain mark, and only permitted explosives are now used at the mine. A chain or two to the east a seam 4 ft. to 6 ft. thick and probably the Resin seam, is being worked for boiler coal. A Robinson propeller-type ventilating-fan has been installed.

Black Lion Mine.—The face of the main north heading is now in 18 chains from the surface. This place and those to the east are in the upper portion of the seam, which is becoming stony. A dip has been driven to the east, and it met a 20 ft. downthrow fault. After driving 1 chain in the fault a 5 ft. seam of coal was struck, then the dip was diverted to the south-east, and in a few yards 8 ft. of fairly hard coal was met. When driving a back heading to this dip a miner ignited a pocket of firedamp and he was burned on the face and arms. As a consequence safety-lamps only and permitted explosives are now used at this mine.

Fatal Accidents.

Linton No. 2 Mine.—On the 13th June a miner named John Howd was instantly killed. Deputy Cosgriff had fired a shot in the working-place, and while the smoke was clearing away the deceased and his mate, E. W. Hunt, decided to fill some loose coal in a place they had left about ten days previously. Immediately after a shot had been fired in a near-by place the deceased called out, and he was found dead alongside the half-filled tub. The shot had released some coal from the tops overhanging into the goaf, and in falling this either knocked out a prop which struck Howd or it pushed him with such force on to the corner of the steel tub that it completely smashed the right side of his head.

Wairaki No. 1 Mine.—On the 3rd September a miner named Robert John Dixon was instantly killed by a large fall of top coal. His son Alex. had been working with him and had just left to give the trucker a hand. As the son reached the jig-prop the fall occurred, pushing him forward but burying his father—a couple of yards inbye—with about 200 tons of coal. They had been extracting a pillar and working back tops, and were back to within a few yards of the head of the jig when without any warning the 12 ft. of top coal fell, carrying all the supporting props in towards the goaf.

Linton No. 1 Mine, North-west Heading.—On the 15th November an explosion—which originated in an incline leading to a vertical rise being made to the surface for a new return airway—caused the death of three men, Antonio McCoy, Robert J. Johnston, and George Henry Kitto. McCoy, was a contractor working in the vertical rise, and his body was found by rescuers badly burned about the head, face, and hands. Robert J. Johnston and G. H. Kitto were overcome by the afterdamp when endeavouring to get out of the mine.

Serious Non-fatal Accidents.

Kaitangata No. 1 Mine.—9th May: William Rogers, a shiftman, had his right leg broken by a large slab of sandstone falling away from the side of a drive while he was cutting a hitch in the floor for a timber support.

Black Diamond Mine.—19th June: Frank Bee, a miner, was burned on the neck and arms by an ignition of a small quantity of firedamp.

Kaitangata No. 1 Mine.—3rd October: D. Balloch, a trucker, sustained a fracture of the left leg through the heel of his boot being caught between the guide-rail and the rail of the roadway. His boot became caught as he was trucking a full tub out and he fell heavily.

Linton No. 1 Mine.—15th November: Beside the three fatalities four other men were seriously injured through the explosion. Robert Ross, contractor; James Robb, trucker; and John Chamberlain, trucker, were severely burned about their arms and faces; and Arthur Pennack, a horse-driver employed at the mine-entrance, was carried many yards by the force of the explosion, and he sustained a fractured right arm and left collar-bone besides other body injuries.

Wairaki No. 1 Mine.—26th November: John McCoy, a miner, had his pelvis fractured by being crushed between a prop and a full mine-tub. The tub had become derailed, and McCoy had assisted the trucker in putting it back on the rails when it ran downhill and McCoy was caught as he was stepping to one side.

Dangerous Occurrences notified under Regulation 82.

Black Diamond Mine.—19th June: A small quantity of firedamp was ignited near the face of an incline by a miner's carbide head-lamp. As a consequence only safety-lamps are now used for lighting purposes.

Linton No. 2 Mine.—9th July: Signs of heating were reported in the No. 2 south section, and that section had to be sealed off by concrete stoppings. Pillar-extraction was nearly completed, so only a few pillars were lost.

Wairaki No 1. Mine.—30th September: Signs of gob-stink were noticed in a pillar place in the No. 1 west section. By the following day seven wooden stoppings had been built. A week later arrangements were made to seal off the whole of the top panel in that section, and by the 9th October all stoppings had been clayed up and were subsequently doubled.

Taratu Mine.—28th October: A wooden stopping collapsed outside the pillared ground in the west section and heating developed. Temporary stoppings were put up in the levels just a few yards off the main heading, and these were subsequently reinforced.

Mossbank No. 1 Mine.—28th October: The central portion of No. 6 section showed signs of heating in the goaf, so stoppings were built in the intake and return airways for that section, as practically all the marketable coal had been won from there.

Linton No. 1 Mine, North-west Heading.—15th November: An explosion of firedamp occurred at about 9.30 a.m., and production was not resumed until the 13th December.

Kaitangata No. 1 Mine.—18th November: The examining deputy reported a small roadside fire in the main intake airway and near a stopping outbye of the steel arches. The heated mass was filled out.

Black Lion Mine.—5th December: A miner ignited a small quantity of firedamp in his working-place in the dip section, and was slightly burned on his face and arms. He had commenced a return airway to the dip, which had crossed a downthrow fault. The ventilating-current was conducted by brattice to within 30 ft. of the face, but failed to carry away the gas from a small blower near the roof. Flame safety-lamps only are now used at this mine.

ANNEXURE B.

REPORT OF ROYAL COMMISSION ON LINTON EXPLOSION.

In the matter of the Commissions of Inquiry Act, 1908; and in the matter of a Commission to inquire into the explosion which occurred at the Linton Coal-mine on the 15th November, 1929.

To His Excellency the Governor-General of the Dominion of New Zealand, Wellington.

MAY IT PLEASE YOUR EXCELLENCY,—

Pursuant to the Commission dated the 26th November, 1929, entrusted to us by Your Excellency, we have the honour to report as follows:—

1. We duly assembled and commenced the inquiry at the Nightcaps Town Board's Hall, Nightcaps, on the 11th December, 1929, at 9.30 a.m.

2. PARTIES.

The following parties appeared without citation:—

(*a*) The Department of Mines (represented by Mr. A. H. Kimbell, Under-Secretary for Mines; Mr. J. A. C. Bayne, Chief Inspector of Mines; and Mr. C. J. Strongman, Inspector of Mines for Westland District).
(*b*) Mr. George Duggan, Inspector of Mines for the district.
(*c*) The United Mine Workers of New Zealand (represented by Mr. A. McLagan, secretary).
(*d*) The Nightcaps and Ohai Underviewers' and Deputies' Union (represented by Mr. A. E. Barnes, secretary).
(*e*) The Nightcaps District Coal-miners' Union (represented by Mr. L. S. Edwards, president, and Mr. J. Shedden, secretary).
(*f*) The Linton Coal Co., Ltd. (represented by Mr. H. J. Macalister, barrister, of Invercargill, and Mr. H. E. Barraclough, barrister, of Dunedin).
(*g*) Mr. G. S. Langford, manager of the Linton Coal-mine (represented by Mr. H. J. Macalister and Mr. H. E. Barraclough).
(*h*) The Southland Coal-mine Owners' Association (represented by Mr. H. J. Macalister).
(*i*) The relatives of the deceased Antonio McCoy, Robert John Johnston, and George Henry Kitto (represented by Mr. G. Reed, barrister, of Invercargill).

3. PROCEEDINGS.

After the inquiry had been formally opened and the order in which evidence would be received had been settled, the proceedings were adjourned till the afternoon. The Commissioners then, with such of the parties as desired to do so, visited the mine and inspected that part of it adjacent to and affected by the explosion. The sittings were resumed on the afternoon of the 11th, and were continued on the 12th and 13th December. The Commissioners on 14th December made a further inspection of the mine, and more particularly of the vertical shaft hereinafter referred to and of the second outlet to the mine.

During the course of its investigations the Commission examined nineteen witnesses. The proceedings were open to the public throughout, and lengthy reports were published in the newspapers.

4. DESCRIPTION OF THE MINE.

The Linton Mine in which the explosion occurred is situated at Ohai, some forty-five miles north-west from Invercargill. The Linton Coal Co., Ltd., besides freehold land, holds under lease from the Crown an area of 200 acres on and under which the No. 1 Linton Mine is situated. The lease was granted on the 30th June, 1913, to the predecessor in title of the company, and was assigned to the company on the 10th September, 1913. Coal has been won from the mine for a number of years.

The seam is a thick one, averaging about 30 ft. and reaching over 40 ft. in thickness. Its gradient varies, but is in general easy and very convenient for working. The coal is brown coal of good quality. In the north-west dip heading of No. 1 Mine, in which the explosion occurred, the coal is reached through a main tunnel about 20 chains in length, descending at an easy gradient from the surface and passing through sandstone for a distance of 200 ft. in the first 11 chains from the entrance. The mine is being developed by two main dips, and the coal is to be worked on the panel system. The workings have, in the course of development of the mine, come under progressively deeper cover, and the deepest workings are now about 400 ft. below the surface. A plan of the workings is forwarded herewith.

The floor of the workings is in most places damp. The coal is hand-hewn and blasted, and produces an average amount of dry dust. The mine has direct steam haulage, and compressed air is used for pumping and underground haulage. Electric hand and cap lamps of the Oldham pattern are used for lighting.

5. STORY OF THE EXPLOSION.

The explosion occurred about 9.30 a.m. on Friday, 15th November, 1929. There were about twenty-six men at that time in the workings about the further end of the north-west heading. At that part of the mine the explosion manifested itself as a hissing noise with a sharp concussion causing pain in the ears. The men were collected by Robert Wilson, an underviewer, who led them up the main drive to about the point B, where they were stopped by thick smoke. Wilson then went through to the other side of the lay-by at that point, but found conditions worse than in the main drive. He had received that morning a clear report from Henwood, the outgoing deputy, as regards gas. He therefore concluded that the explosion had been caused by the bursting of a gob fire through fire stoppings in another section of the mine, and that the conditions would grow worse instead of better, as proved to be the case. He accordingly led the men up the main drive, and he and several others fell before reaching the surface and were carried out insensible by rescue parties.

The deceased Robert John Johnston and George Henry Kitto appear to have been with Wilson's party at point B but to have got separated from it later. Kitto's body was found, bearing no marks of violence, in a dead end near the point F, and Johnston's in the same condition at No. 2 lay-by in the main drive. Both appeared, from the colour of the flesh, to have died from carbon-monoxide poisoning.

The deceased Antonio McCoy and his mate Robert Ross had been engaged on constructing a shaft in another part of the mine. McCoy seems to have been overwhelmed at once by the explosion. His body was found badly burned, lying in the manhole at D about the site of the explosion and near to the shaft C upon which he had been working.

Ross was on the way up the main drive going out of the mine, and could already see daylight. Ross, describing the explosion, says that it came from behind him with a whizzing noise and knocked him down. He waited till the fire passed over him and then got up and walked out without assistance. He was severely burned.

Rescue parties with connecting-links were organized by the manager with the assistance of the managers of adjacent mines, and appear to have entered the mine as soon as it was possible to do so without apparatus. They brought out those who had been overcome by gas and smoke, and the bodies of the three deceased. The attention of the searchers was drawn to Johnston's body by the shining of his lamp, but there was nothing to guide them to that of Kitto, which, being in a dead end, was overlooked till about 3 p.m., and was the last to be recovered.

There were no further explosions, and the air in the mine began to clear quickly after the explosion.

We are satisfied that the persons who engaged in the rescue operations did so at the risk of their lives, and deserve the highest commendation.

6. Origin of the Explosion.

The plan shows, coloured red, the part of the workings in which indications of the explosion were found upon an inspection on the following day. The nature of the indications is also shown on the plan, and the apparent lines of force are marked by arrows. From these it appears that the origin of the explosion was in the jig leading to the shaft C at or very near the place where the body of Antonio McCoy was found. McCoy had been engaged just before with his mate Ross in drilling a hole for a shot in the rise shaft; Ross, who was the older man, had left him in order to go to the surface to ascertain how much further the rise shaft had to be driven upwards. McCoy was for the time being alone; he was a cigarette-smoker; matches and cigarette-papers were found in a burnt cardigan jacket which was taken off his body and had lain for some hours outside the dressing-station; there were indications that he was not at work at the time when he fell. While the origin of the explosion cannot be stated with certainty, no likely explanation has been advanced save that McCoy was in some way responsible for igniting a body of gas which had collected in his vicinity.

The extent of the affected area, and the way in which the explosion faded out on reaching wet parts of the workings, indicate that its source was a small body of gas in the jig leading to the shaft, and that it was propagated and extended into other workings by coal-dust raised by the violent disturbance of the air. Had no coal-dust been present, or had it been rendered harmless by a sufficient mixture of inert dust or by dampness, we think that the explosion would have been more restricted to the area where the gas had collected, and that the lives of Kitto and Johnston at least would probably not have been lost.

It will be seen from the above that there were three conditions prerequisite to the explosion, viz.: A collection of firedamp; an igniting agency to explode the same; insufficient precaution against propagation of the explosion by coal-dust.

We proceed now to deal seriatim with the subjects referred to in paragraph 3 of the Commission.

7. Examination of the Mine.

The daily examination of the mine by the fireman-deputy, under section 128 of the Act, appears by the reports to have been regularly carried out. On the day of the explosion this examination was made by a relieving deputy, Henwood, the regular deputy being on holiday. Henwood is a certificated deputy and an experienced miner. He states that he examined for gas at the dump, near the bottom of the jig, also at the bottom of the shaft leading from the head of the jig, and again 20 ft. or 30 ft. up the uncompleted shaft. This was about 6.10 a.m. His examination disclosed no gas. He was unable to ascend the whole 70 ft. of the rise shaft to make his examination at the top because of debris from a shot fired the previous evening. No chalked record of his examination of the rise shaft can be found for the 15th November. We think that it was Henwood's duty to report to the underviewer his inability to reach the top of the rise shaft. The rise shaft should have been cleared down and inspected before any work was done in it that morning.

Except as above, the examination of the mine by the company's officials appears to have been regularly carried out.

8. Ventilation.

The fact of the explosion itself proves that the ventilation of the jig where it occurred on the day in question was not adequate, or in accordance with section 91 of the Coal-mines Act. The jig was in the same condition as it had been for months: the party at work in the rise shaft had habitually had their crib very near the place where the explosion originated, and had never had any complaint to make of inadequate ventilation; the brattice appears to have extended sufficiently far up the jig, and we have no reason to suppose that normally there was any dangerous collection of gas in that locality.

The conditions in the jig on the day in question may have been affected by the blocking of a 4 in. pipe, which led from the top of the rise shaft to the surface, and which appears from recent anemometer tests materially to contribute to the ventilation of the shaft and the jig.

The dangerous accumulations of gas found in the jig by the Inspector of Mines on the 21st November and subsequent days were, we think, due to the destruction of the brattice by the explosion, and the blocking of the pipe above mentioned.

We think there should be more efficient ventilation in places driven to the rise. The quantity of air in the main current at the time of the explosion was 16,000 cubic feet per minute, which is well above the statutory requirements, and in our opinion was ample for the whole mine if properly distributed and carried by bratticing well up to the working-faces. The bratticing seems in general to have been carried sufficiently forward in the ordinary working-places at the time of the explosion.

The general system of ventilation, which was a temporary one at the time of the explosion, will be dealt with later.

9. Lighting.

We are satisfied with the system of lighting in the ordinary working-places—namely, electric lamps, with a sufficient number of capable officials carrying flame safety-lamps. In isolated places one man at the face should, we think, be given a flame testing-lamp. Ross and his mate were using electric lamps. Had they been supplied with a testing-lamp, the presence of gas in their working-place could have been detected on the flame.

We note that the manager reported on the 21st February, 1924, an explosion of gas in a shaft which was being driven upwards. There was another explosion in a rise on the 23rd April, 1926, in which two men were burned. These two incidents should, we think, have warned the manager of the danger of encountering gas in a shaft or rise.

Ross is a man very experienced in shaft-work, and though he is a contractor and not a certificated shot-firer, we would not have been inclined to take a serious view of his being allowed to do shot-firing if he had been supplied with a flame safety-lamp.

It was suggested at the inquiry that a flame lamp should be issued as a spare lamp to each party at ordinary working-places. We do not think this is desirable, but there should be frequent inspections for gas by mine officials.

10. Explosives and Shot-firing.

The explosive used is samsonite, which is a permitted explosive under the Coal-mines Act.

The company admitted that Regulation 234 (*b*), with reference to the preparation for shot-firing, has not been obeyed. The manager issued on the 29th July, 1929, a notice under subclause (ii) of this regulation, specifying the minimum depth and width of holing, the minimum depth and height of side-cutting, and the position of the shot-holes. For some time after the visit of the Chief Inspector in July of the current year the terms of this notice were complied with, but the dangerous practice of "grunching," which was customary in the district before that, has again become common in the Linton Mine. The responsibility for this breach of the regulations as regards preparation for shot-firing rests, in our opinion, equally on the company and on the miners. We do not think that a proper compliance with this regulation is impracticable in this mine, and we recommend that it be enforced in normal working-places. We are bound to state, however, that this irregularity had, in our opinion, no relation to the explosion.

It was further admitted by the company that the shot-firing in the construction of the shaft at C had, with the knowledge of the mine officials, been done by Robert Ross, he not being the holder of a shot-firer's certificate. It was further admitted by the company that detonators were issued to Ross, and that no proper check of such detonators was kept, and it was admitted by Ross that he kept unused detonators in the mine. These irregularities also had, we think, no connection with the explosion, but we think that greater care should be exercised in the issue and handling of explosives and detonators. This is fully provided for in the Act and regulations.

We are of opinion that the number of shots fired by each shot-firer daily proves that there was insufficient time to carefully examine the places and supervise the charging operations.

11. Prevention and Treatment of Inflammable Dust.

The last analysis of dust from the north-west heading of No. 1 Mine was made on the 13th September, 1929, and the last previous to that on the 4th May, 1929, an interval exceeding the three months allowed by Regulation 238. There does not appear to have been any analysis earlier than this, though the regulation has been in force since 1926, and though there are numerous references to stone-dusting in the defect notices given by the Inspector of Mines and in his correspondence from the 31st August, 1926, onwards.

The analysis made on the 13th September showed, in three sections out of six, less than 50 per cent. of combined water and incombustible dust. Upon this being apparent the sections in question were, according to the reports, dusted again. It is impossible for us to say what was the percentage at the time of the explosion. Assuming that it was sufficient to comply with the regulation, then the percentage demanded by the regulation is insufficient, since it is clear that the explosion was propagated and extended by coal-dust.

No test has ever been made to determine the percentage of incombustible dust and water necessary to counteract the inflammability of the Linton Mine coal-dust. The percentage required by the regulation is based upon tests made of the dust from Wairaki and other mines. We think that the present explosion throws some doubt upon the sufficiency of the percentage (50 per cent.) required by the regulation. We therefore recommend that, unless and until the scientific advisers of the Mines Department are satisfied on this point, the required percentage of combined moisture and incombustible dust should be raised to 60 per cent., and that the Chief Inspector be empowered in any given case to require a still higher percentage. Whatever percentage the regulations may ultimately require, we think that strict and immediate compliance with the present regulations should be insisted on.

12. Working and General Management.

We have already indicated some matters in which the management has been at fault. Other matters to which we wish to draw attention, though not amounting to a breach of the law, seem to us to call for comment with a view to the improved working of the mine in future. The matters we refer to are:—

(*a*) *The Present Temporary Ventilation System.*—The mine is at present ventilated by means of a forcing-fan. This, we understand, is to be replaced within a short time by a permanent system. We are of opinion that there has been a somewhat long delay in doing this. The permanent system proposed by the management contemplates the installation of a larger fan above the shaft C, and the use of that shaft as the return airway. The jig intended to give access to the shaft and to be part of the return airway has been in existence for many months, and all that was required to install the permanent system was the completion of the shaft of approximately 80 ft. It appears to us that this should not have been allowed to delay so long the installation of the permanent system.

(*b*) *Advance Working and Ventilation Plans.*—In our opinion it would assist the management and contribute to the future safety of the mine and its methodical development if proposals for its future development and ventilation were submitted in advance to the Inspector of Mines for his approval and advice.

(*c*) *Emergency Exit.*—The present emergency exit by way of the mouth of No. 1 Mine is by a circuitous route, and involves climbing several ladderways and steep inclines at various points. In the event of explosion or fire, men suffering from the effect of gas poisoning or blinded by smoke would find great difficulty in making their way out of the mine by this route. We understand that a shorter and more practicable route is to be provided by an incline shaft to be constructed in the vicinity of the vertical shaft C. We recommend that this work be put in hand at once. We also recommend that all men working underground be required at least once during each quarter to pass in or out of the mine through the return airway or second outlet, so as to become acquainted with it.

Subject to the comments which we have made in reference to the above three subjects (*a*), (*b*), and (*c*), and to what we have said earlier in this report on the irregularities in shot-firing and the preparation of shots and issue of detonators, the mine appears to have been satisfactorily managed.

13. Inspection of the Mine.

(*a*) *By the Inspectors of the Mines Department.*—The Inspector of Mines for the district appears to have drawn the attention of the management from time to time to all or nearly all the matters on which we have had occasion to comment, in so far as they came to his knowledge. He would be much assisted in his duties by the supply to him of the advance plan of proposed developments as recommended elsewhere. We consider his inspection to have been thorough and efficient. The Chief Inspector has also shown by his communications his full apprehension of the dangers in the mine, and we are satisfied that he has done all in his power to remedy the defects brought to his notice by the District Inspector and by his own observations.

(*b*) *By the Workmen's Inspectors.*—This was done with reasonable frequency, though not as often as the law allows. The Miners' Union representative pointed out that the workmen's inspectors were unable to take full advantage of the law by reason of the heavy expense entailed to them. The Inspector for the district was very appreciative of the assistance given to the workmen's inspectors.

14. Rescue Brigades and Apparatus.

The evidence has been somewhat conflicting as to whether a trained rescue brigade would have saved lives or not. We are satisfied that it would be better to be without a brigade than to have an inefficient one.

We would strongly recommend that the Mines Department obtain the latest imformation on rescue brigades and apparatus, and confer with representatives of the Coal-mine Owners' Association and the United Mine Workers with a view to discussing the whole question as to the benefits derived by establishing rescue brigades and providing apparatus in the chief coal-mining centres.

A valuable offer has been made by the Southland Coal-mine Owners' Association to erect a properly equipped first-aid station and lecture-room and to provide a lecturer, in order that there may be available in cases of emergency a body of men trained in rescue work and possessing the requisite local knowledge.

15. Search of Persons employed Underground.

We draw attention to the fact that the search for prohibited articles under section 98 of the Act did not prevent matches being taken into the mine. We recommend that the regulations under this section be more strictly complied with, and that workmen be liable to be searched not only when entering the mine but also at any time when in the mine.

16. Suggestions for prevention of Future Accidents.

This has already been fully dealt with in this report.

17. Amendments to Existing Legislation.

As already indicated, we recommend amendment of the present regulation concerning stone-dusting, along the lines indicated in paragraph 11. We also recommend an extension by legislation of the right to search persons employed underground, along the lines indicated in paragraph 15. Subject to these amendments, we think that the existing law, if strictly enforced, will ensure safety in coal-mines. We cannot stress too strongly the necessity for strict enforcement of the law and regulations.

18. General.

We express our appreciation of the assistance rendered to us during the inquiry by counsel, advocates, and the parties engaged. The secretary, Miss Kent, merits our sincere thanks for her extremely able and indefatigable work in recording the evidence and discharging her other duties.

We return herewith Your Excellency's Commission, and also enclose—

(1) Minutes of the proceedings, and verbatim report of the evidence given;

(2) Plans of the mine, and documents and records produced at the inquiry.

And we have the honour, in obedience to the Commission addressed to us, to submit this our report for the consideration of your Excellency.

Given under our hands and seals, at Invercargill, this 18th day of December, 1929.

W. H. Woodward.
W. Carson.
J. Smeaton.

ANNEXURE C.

COLLIERY STATISTICS, 1929.

Name of Mine and Locality.	Titles held (Crown Lease or otherwise).	Name of Mine Manager.	Name and Address of Owner.	Number of Years worked.	Classification of Coal.	Number of Seams worked.	Thickness of Coal-seams.	Thickness worked.	System of Underground Working.	Number of Winding-shafts.	Depth of Shaft or Length of Tunnel.	Total Output for 1929.	Total Output to 31st December, 1928.	Total Output to 31st December, 1929.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
NORTHERN INSPECTION DISTRICT.																		
North Auckland District.												Tons.	Tons.	Tons.				
Hikurangi, Hikurangi	Crown lease and freehold	J. Makinson	Hikurangi Coal Co., Ltd., Auckland	7	Sub-bituminous	1	7′ to 10′	7′ to 9′	Bord and pillar	2 S	S. 350′, S. 340′	8,227	339,762	347,989	15	30	45	Blackman fan.
Silverdale, Hikurangi	Crown lease	E. A. Foot (U.)	S. G. Foot, Hikurangi	11½	Ditto	1	3′ to 5′	5′	Ditto	1 T	T. 120′	1,875	32,649	34,524	1	4	5	Natural.
Northern Co-op., Hikurangi	,,	E. A. Cunningham(P.)	Cunningham and Co., Hikurangi	11	,,	1	4′	4′	,,	1 T	T. 60′	1,110	30,423	31,533	1	3	4	,,
Wilson's, Hikurangi	Crown lease and freehold	G. Davidson	Wilson's Collieries, Ltd., Auckland	12	,,	1	6′ to 10′	8′	,,	1 T	T. 3,900′	66,468	420,887	487,355	38	149	187	Sirocco fan.
Waro, Whangarei	Way-leave and freehold	J. R. Watson	British Portland Standard Cement Co., Ltd., Wellington	19	,,	1	5′ to 10′	9′	,,	1 S	S. 120′	3,576	51,247	54,823	3	12	15	Fan.
Ruatangata, Whangarei	Freehold	F. Kells	Kamo Potteries, Ltd., Whangarei	9	,,	1	8′	6′	,,	1 T	T. 400′	5,014	9,696	14,710	2	12	14	,,
Belton's, Hikurangi	,,	F. Johnson (D.)	Johnson and party, Hikurangi	3½	,,	1	7′	7′	,,	1 T	T. 100′	2,340	5,653	7,993	1	5	6	Natural.
Phœnix, Hikurangi	Crown lease	W. McKinlay (D.)	McKinlay and party, Hikurangi	2½	,,	1	3′	3′ to 10′	,,	1 T	T. 66′	2,465	1,672	4,137	1	4	5	,,
Christie's, Hikurangi	Freehold	H. Tipton	J. R. Reyburn, Hikurangi	7	,,	1	4′	3′ to 4′	,,	1 T	T. 60′	10,335	33,580	43,915	4	10	14	,,
Tauranga Blk., Hikurangi	Sublease, freehold, Wilson's	A. Wells (P.)	Wells and party, Hikurangi	½	,,	1	5′	5′	,,	1 T	T. 50′	951	..	951	1	2	3	,,
Tauranga Blk., Hikurangi	Ditto	R. Muir (P.)	Muir and party, Hikurangi	½	,,	1	4′	4′	,,	1 T	T. 120′	1,062	..	1,062	1	3	4	,,
Nesbitt's, Hikurangi	Sublease, freehold, H.C.C.	J. Cunningham (P.)	Nesbitt and party, Hikurangi	½	,,	1	5′ to 7′	6′	,,	1 T	T. 100′	3,899	..	3,899	1	8	9	,,
Coutt's, Hikurangi	Ditto	G. Coutts (P.)	Coutts and party, Hikurangi	½	,,	1	3′ to 8′	7′	,,	1 T	T. 50′	2,056	..	2,056	1	3	4	,,
May, Waro	F'hold, H.C.C.	H. Newby (P.)	Newby and party, Hikurangi	½	,,	1	3′ to 6′	3′ to 6′	,,	1 T	T. 190′	2,929	..	2,929	1	7	8	,,
Fearnley's, Waro	F'hold, H.C.C., Crown lease	H. Fearnley (P.)	H. Fearnley, Hikurangi	½	,,	1	4′	4′	,,	1 T	T. 200′	1,545	..	1,545	1	3	4	,,
Glen Nell, Hikurangi	Crown lease	S. G. Foot (U.)	Foot and Co., Hikurangi	5	,,	1	3′	3′	,,	1 T	T. 70′	659	3,187	3,846	1	2	3	,,
Jackson's (late Kerr and Co.) Rocks, Hikurangi	Sublease, Kerr and Whyte, freehold	W. Jackson (P.)	W. Jackson, Hikurangi	9	,,	1	10′	10′	,,	1 T	T. 40′	224	37,566	37,790	1	3	4	,,
Jubilee No. 3, Hikurangi	Sublease, freehold, H.C.C.	J. Wilson (P.)	J. Wilson, Hikurangi	½	,,	1	2′	2′	,,	1 T	T. 30′	62	..	62	..	2	2	,,
New Kiripaka, Kiripaka	Freehold	D. Duffy (P.)	A. J. Webber, Kiripaka	½	,,	1	5′	5′	,,	1 T	T. 100′	302	..	302	2	2	4	,,
Glenbervie, Kiripaka	,,	J. Doel (P.)	J. Doel ,Whangarei	1	,,	1	5′	5′	,,	1 T	T. 120′	560	..	560	1	4	5	,,
Avoca, Tangowahine	,,	J. Leighton (P.)	Burley and party, Hikurangi	1	Brown	1	8′	8′	,,	1 T	T. 130′	450	..	450	2	2	4	,,
Waikato District.																		
Rotowaro, Rotowaro	Crown lease and freehold	A. Penman	Taupiri Coal-mines, Ltd., Auckland	12	,,	3	4′ to 15′	4′ to 15′	Bord and pillar	3 T	T. 4,000′, T. 1,600′	155,521	1,204,418	1,359,939	68	203	271	Fans (3).
Pukemiro, Pukemiro	Freehold	A. Burt	Pukemiro Collieries, Ltd., Auckland	14	,,	1	4′ to 14′	4′ to 14′	Ditto	3 T	T. 5,000′, T. 2,200′	156,786	1,602,717	1,759,503	64	214	278	,, (2).
Waipa, Glen Massey	,,	T. Thomson	Waipa Railway Collieries, Ltd., Wellington	16	,,	1	8′ to 10′	6′ to 8′	,,	1 T	T. 4,000′	56,438	981,837	1,038,275	29	95	124	Sirocco fan.
Waikato Extended, Huntly	,,	J. Leonard	Roose Shipping Co., Ltd., Mercer	13	,,	1	16′	14′	,,	1 T	T. 500′	5,342	74,915	80,257	2	6	8	Fan.
Glen Afton, Glen Afton	Freehold and Crown lease	P. Hunter	Glen Afton Collieries, Ltd., Auckland	9	,,	1	4′ to 16′	4′ to 12′	,,	1 T	T. 4,800′	167,197	835,932	1,003,129	63	231	294	Sirocco fan.
Pukemiro Junction, Pukemiro	Crown lease	C. Malony	Clare and partners, Pukemiro Junct.	9	,,	1	2′ to 25′	2′ to 18′	,,	2 T	T. 70′, T. 100′	15,901	78,870	94,771	6	14	20	Natural.
Taupiri East, Kimihia	Auckland University lease	J. Holland (P.)	Holland and party, Huntly	8	,,	1	8′ to 15′	8′ to 10′	,,	1 T	T. 390′	1,991	8,774	10,765	1	4	5	,,
Campbell, Whatawhata	Crown lease	H. Fox	Campbell Coal Co., Ltd., Hamilton	8	,,	1	12′	9′	,,	1 T	T. 300′	5,114	17,631	22,745	3	5	8	,,
Renown, Rotowaro	Freehold	C. Hunter	Renown Collieries, Ltd., Auckland	1½	,,	2	13′	9′ 6″	,,	1 T	T. 1,950′	72,535	26,555	99,090	43	95	138	Fan.
Graham, Glen Afton	,,	R. Christopher	Graham Coal Co., Pukemiro	6	,,	1	6′ 6″	6′	,,	1 T	T. 1,400′	14,796	52,832	67,628	4	16	20	Natural.
Rangitoto, Te Kuiti	Native lease	J. Chevins (P.)	Morgan and party, Te Kuiti	3	,,	1	7′	6′	,,	1 T	T. 360′	150	254	404	..	2	2	,,
Taranaki District.																		
Paparata (late Coal Creek)	Crown lease	..	Taranaki Coal Co., Ltd., Stratford	2	,,	1	3′	3′	,,	1 T	T. 70′	243	179	422	3	2	5	Natural.
Egmont, Tangarakau	,,	A. Whittleston	Egmont Collieries, Ltd., Stratford	3	,,	1	5′	5′	,,	1 T	T. 314′	1,180	1,573	2,753	10	3	13	,,
Power, Ohura	,,	E. Gascoigne	Power Coal Syndicate, Palmerston North	2½	,,	1	4′	3′	,,	1 T	T. 120′	7	336	343	..	2	2	,,
Old Stockman, Mokau	Freehold	C. Wright (P.)	Chambers Bros., Awakino	9	,,	1	4′ 6″	4′ 6″	,,	1 T	T. 400′	548	2,796	3,344	..	2	2	,,
Output of collieries included in previous statements at which operations are abandoned or suspended				..	..	..	..	..	..	..	..	..	9,394,558	9,394,558	..	..	..	..

COLLIERY STATISTICS, 1929—*continued.*

Name of Mine and Locality.	Titles held (Crown Lease or otherwise).	Name of Mine Manager.	Name and Address of Owner.	Number of Years worked.	Classification of Coal.	Number of Seams worked.	Thickness of Coal-seams.	Thickness worked.	System of Underground Working.	Number of Winding-shafts.	Depth of Shaft or Length of Tunnel.	Total Output for 1929.	Total Output to 31st December, 1928.	Total Output to 31st December, 1929.	Number of Persons ordinarily employed.			Means of Ventilation
															Above.	Below.	Total.	
WEST COAST INSPECTION DISTRICT.																		
Nelson District.																		
North Cape	Freehold	G. Gilbert	R. G. Filleul, Collingwood	19	Bituminous	1	3′	3′	Bord and pillar		T. 15 ch.	5,704	114,933	120,637	9	21	30	Fan.
Puponga	Crown lease	A. J. McHardy	Puponga Coal Syndicate, Puponga	26	,,	1	3′ 6″ to 6′	6′	Ditto		T. 23 ch.	12,849	272,793	285,642	5	15	20	Natural.
Motupipi	,,	D. E. Winter	J. and D. E. Winter, Motupipi	2	Lignite	1	3′	3′				403	95	498	2		2	,,
Baton	,,	C. Curtis	I. Gibbs and Bromell, Kohatu	1	Bituminous	1	4′ 6″	4′ 6″	Bord and pillar		T. 3½ ch.	112		112		2	2	,,
O'Rourke's	Freehold		A. O'Rourke, Murchison	10	Lignite	2	2′ 6″	2′ 6″	Stoping			134	1,097	1,231		1	1	
Buller District.																		
Allan's	Crown lease	T. D. Allan	T. D. Allan, Charleston	1	Lignite	1	42′	10′	Open			8		8	1		1	
Bennett's	,,	E. McDonald and Hagedorn	Granity	3	Bituminous	1	Not proven		Bord and pillar			20	470	490		1	1	Natural.
Bowater and Bryan's	,,	W. H. A. Penseler (Geologist)	Bowater and Bryan, Westport	1	Lignite		Prospecting		Open			280		280	10		10	Surface.
Cardiff Bridge	,,	M. Forsyth	Cardiff Bridge Co-op., Westport	9	Bituminous	1	30′	30′	Bord and pillar			25,518	139,918	165,436	5	22	27	Natural and fan.
Cascade	,,	W. Lowden	Cascade-Westport Coal Co., Westport	3	,,	1	20′	10′	Ditto			13,796	16,482	30,278	12	33	45	Natural.
Charming Creek	,,	C. D. Buist	Charming Creek-Westport Coal Co., Westport	2	,,	1	6′ to 21′	8′	,,		T. 12 ch.	627	83	710	8	2	10	Fan.
Chester's	,,	R. Chester	Chester and Penberth, Seddonville	10	,,	1	3′	3′	,,		T. 15 ch.	1,895	15,112	17,007	1	3	4	Natural.
Clydevale	,,	J. G. Quinn	Clydevale Coal-mines, Ltd., Wellington	5	,,	1	5′ to 14′	8′	,,		T. 6 ch.	2,944	17,854	20,798	2	13	15	,,
Coal Creek	,,	W. McGuire	McGuire and party, Seddonville	14	,,	1	25′	8′	,,			8,076	77,307	85,383	2	12	14	,,
Glasgow	,,	D. Q. O'Brien	Glasgow mining party, Seddonville	5	,,	1	8′	6′	,,		T. 8 ch.	4,384	24,378	28,762	5	7	12	,,
Harris	Freehold	J. Harris	J. Harris, Karamea	6	Lignite	1	12′	6′	,,		T. ½ ch.	3	24	27		1	1	,,
Mitchell's	Crown lease	F. T. Mitchell	F. T. Mitchell, Charleston	6	,,	1	8′	8′	Open			35	142	177	1		1	Surface.
Powell's	,,	J. H. Powell	J. H. Powell, Charleston	1	,,							10		10	1		1	,,
Quinn's	,,	T. Quinn	Quinn and party, Seddonville	6	Bituminous	1	4′ 6″	4′ 6″	Bord and pillar			59	6,694	6,753		2	2	Natural.
Sweeney's	,,	M. Hampton	J. W. Sweeney, Charleston		Lignite			5′	Open			5	19	24	1		1	Surface.
Warne's	,,	G. N. Warne	G. N. Warne, Charleston		,,	1	6′	6′				12	25	37	1		1	,,
Denniston	,,	J. McArthur and G. Smith	Westport Coal Co., Dunedin	49	Bituminous		3′ to 30′	30′	Bord and pillar & panel		T's. 410 ch.	200,399	9,585,550	9,785,949	143	364	507	,,
Millerton	,,	A. Smith	Westport Coal Co., Dunedin	38	,,	1	4′ to 40′	12′	Bord and pillar		T's. 298 ch.	203,071	7,700,300	7,903,371	96	369	465	Fans.
Westportmain	,,	H. Brady	Westport-Granity Coal-mines, Ltd., Westport	5	,,	1	10′	10′	Ditto			36,227	91,841	128,068	21	34	55	Natural.
Westport-Mokihinui	,,	W. O'Rourke	McIntosh and Willman, Seddonville	9	,,	1	6′ to 14′	14′	,,		T. 20 ch.	5,176	32,115	37,291	1	8	9	,,
Stateville	,,	R. Mulholland	Stateville Co-op. Party, Seddonville	5	,,	1	8′	8′	,,		T. 21 ch.	1,788	8,156	9,944	1	7	8	Fan.
Stockton	,,	Thos. McGhie	Westport-Stockton Co., Ngakawau	21	,,	3	4′ to 20′	10′	,,			151,716	2,490,726	2,642,442	105	215	320	Fans.
Wynn's	,,	G. Wynn	G. Wynn, Seddonville	6	,,	1	3′	3′	,,		T. 2½ ch.	669	4,519	5,188		2	2	Natural.
Rocklands	,,	J. P. Burley	J. P. Burley (Walker's Estate), Berlin's	27	Brown	1	27′	8′	,,			207	9,657	9,864		2	2	,,
Whitecliffs	,,	Jas. H. Burley	J. H. Burley, Berlin's	7	,,	1	18′	12′	,,		T's. 16 ch.	608	1,239	1,847		2	2	,,
Reefton District.																		
Archer's	Crown lease	F. W. Archer	F. W. Archer, Cronadun		Brown	4	6′ to 18′	16′	Bord and pillar		T. 10 ch.	2,916	36,712	39,628	1	5	6	Natural.
Clele	,,	C. Skinner	V Alborn, Reefton	43	,,	1	6′	6′	Ditto			3,564	35,470	39,034	2	6	8	,,
Coghlan's	,,	W. McCaffrey	J. Coghlan, Reefton	3	,,	1	8′	7′	,,		T. 1 ch.	1,469	1,755	3,224	1	3	4	,,
Coghlan's	Freehold	P. Coghlan	J. Coghlan, Reefton	33	,,	1	8′	7′	,,		T. 14 ch.	1,582	15,429	17,011		4	4	,,
Collins	Crown lease	N. Collins	Collins and Clark, Reefton	37	,,	1	7′	7′	,,			505	57,797	58,302	1	2	3	,,

Honey's	Crown lease	H. A. Honey	H. A. Honey, Reefton	1	Brown	1	20′	7′	Bord and pillar			408	..	408	..	2	2	Natural.
Defiance	,,	D. McLaughlin	D. McLaughlin, Reefton	2	,,	1	8′	8′	,,	..	T. 4 ch.	1,126	518	1,644	1	2	3	,,
The Terrace	,,	C. A. Svenson	William Blackadder, Maruia	9	,,	1	7′	7′	,,	..	T. 3½ ch.	143	4,746	4,889	1	2	3	,,
Morrisvale	,,	A. Chadwick and H. Talbot	W. J. Morris, Reefton	17	,,	3	6′ to 12′	8′	,,	2	S. 300′	15,728	55,393	71,121	12	29	41	,,
Reefton	,,	W. Wood	Reefton Coal Co., Wellington	28	,,	2	8′	6′	,,	1	S. 10 ch.	7,454	173,733	181,187	6	15	21	,,
Waitahu	,,	A. D. Williams	Waitahu Collieries, Ltd., Reefton	20	,,	1	6′	6′	,,	..	T. 5 ch.	316	5,359	5,675	1	5	6	,,
Wealth (late Lankey's Creek)	,,	J. Bolitho	Consolidated Goldfields, Reefton	18	,,	1	12′	12′	,,	..	T. 6 ch.	1,523	25,088	26,611	1	4	5	,,
White Rose	,,	W. Osborn	W. Osborn, Merrijigs	6	,,	1	4′	4′	,,	..	T. 5 ch.	64	73	137	..	2	2	,,
Greymouth District.																		
Allan and party's	Crown lease	John Allan	E. G. Pilcher, Wellington	7	Bituminous	1	8′	8′	Bord and pillar	..	T. 4½ ch.	2,205	6,178	8,383	1	4	5	Natural.
Armstrong's	State reserve	V. Armstrong	Armstrong and party, Runanga	8	Sub-bituminous	1	12′	12′	Ditto	..	..	2,082	34,811	36,893	2	3	5	,,
Baddeley's	,,	J. Rowse	Baddeley and party, Runanga	9	Ditto	1	5′	5′	,,	..	..	4,584	27,913	32,497	1	8	9	Fan.
Bell Bird	,,	F. Fauth	Fauth and party, Greymouth	2	,,	1	10′	10′	,,	..	T. 5 ch.	3,759	293	4,052	1	3	4	Natural.
Bellvue	,,	W. Brown	Bellvue Co-op. party, Greymouth	3	,,	1	6′	6′	,,	..	T. 10 ch.	9,402	7,710	17,112	1	12	13	,,
Blackball	Freehold	W. Parsonage	Blackball Coal-mines Proprietary, Christchurch	38	,,	2	17′	15′	,,	..	T's. 89 ch.	79,845	3,721,506	3,801,351	51	179	230	Fan.
Brae Head	State reserve	J. Watson	Boote and party, Dunollie	9	,,	1	9′	9′	,,	..	T. 10 ch.	9,970	33,590	43,560	5	14	19	Natural.
Briandale	Crown lease	T. Howard	Briandale Collieries, Ltd., Christchurch	3	,,	1	4′	4′	,,	..	..	14,109	9,667	23,776	9	32	41	Fan.
Cain's	State reserve	E. Cain	J. and E. Cain, Rapahoe	5	,,	1	3′ 6″	3′ 6″	,,	..	T. 7 ch.	671	2,020	2,691	1	2	3	Natural.
Castlepoint	,,	E. Cain	Castlepoint Co-op. party, Runanga	3	Bituminous	1	6′	6′	,,	..	T. 20 ch.	9,145	9,892	19,037	2	13	15	Fan.
Cox's Creek	Crown lease	T. Marsh	T. E. Coates, Greymouth	3	,,	1	4′	4′	,,	..	T. 3 ch.	137	1,166	1,303	..	3	3	Natural.
Dennehy's	,,	M. Wafer	J. M. and W. I. Dennehy, Barrytown	2	,,	1	3′ 6″	3′ 6″	,,	..	T. 3 ch.	51	16	67	..	1	1	,,
Dobson	,,	J. Hughes	Grey Valley Collieries, Ltd., Christchurch	7	,,	1	9′ to 16′	9′	Bord and pillar & panel	1	T. 18 ch.	139,461	188,691	328,152	51	248	299	Fan.
Duggan's	State reserve	W. Richmond	Duggan and party, Rewanui	8	,,	1	5′ 6″	4′	Bord and pillar	..	T. 10 ch.	3,240	29,203	32,443	2	6	8	Natural.
Fiery Cross	,,	T. H. Currie	Currie and party, Runanga	1	Sub-bituminous	1	6′	6′	Ditto	..	T. 6 ch.	2,970	..	2,970	1	8	9	,,
Gold Light	,,	J. Quinn	Williams and party, Runanga	2	Bituminous	1	7′	7′	,,	..	T. 2 ch.	7,574	1,303	38,877	2	9	11	Fan.
Hunter's	,,	G. W. Teasdale	Hunter and party, Dunollie	9	Sub-bituminous	1	5′	5′	,,	..	T. 12 ch.	5,430	27,235	2,665	1	7	8	,,
Jubilee	,,	W. Wallwork	Jubliee Co-op. Coal Party, Rapahoe	2	Ditto	1	6′ 6″	6′ 6″	,,	..	..	4,054	2,047	6,101	2	7	9	Natural.
James	,,	J. Armstrong	N.Z. Government, Wellington	7	,,	1	8′	8′	,,	..	..	41,592	185,545	227,137	17	63	80	Fans.
Liverpool	,,	T. King	N.Z. Government, Wellington	17	Bituminous	5	6′ to 34′	Full	,,	..	T's. 94 ch.	137,593	1,893,804	2,031,397	98	248	346	,,
Leitch (late Scotvale)	Crown lease	J. Scott	J. R. Leitch, Greymouth	2	..	1	6′	6′	,,	..	T. 5 ch.	76	143	219	..	2	2	Natural.
Moody Creek	State reserve	W. Robertson	Moody Creek Co-op. party, Dunollie	7	Sub-bituminous	1	5′ 6″	5′ 6″	,,	..	T. 5 ch.	4,483	26,893	31,376	2	6	8	,,
New Point Elizabeth	,,	P. Manderson	New Point Elizabeth Co-op. party, Dunollie	3	Ditto	1	11′	11′	,,	..	T. 6 ch.	8,029	5,163	13,192	2	9	11	Fan.
Old Runanga	,,	E. W. Kennedy	Old Runanga Co-op. party, Rewanui	3	Bituminous	1	4′ 6″	4′ 6″	,,	..	T. 10 ch.	5,320	9,725	15,045	2	9	11	Natural.
Paparoa	Crown lease	A. O'Donnell	Paparoa Coal Co., Ltd., Wellington	21	Semi-bituminous	1	5′ to 25′	8′ to 25′	,,	..	T. 48½ ch.	20,436	604,409	624,845	9	26	35	Fan.
Schultze Creek	,,	M. Fowler	Marshall and party, Runanga	5	Ditto	1	4′	4′	,,	..	T. 4 ch.	5,173	5,122	10,295	1	9	10	,,
Smith's	State reserve	T. Halliday	Smith and party, Runanga	9	,,	1	5′	5′	,,	..	T. 9½ ch.	4,550	37,672	42,222	3	5	8	Natural.
Spark's	,,	J. Unwin	Spark and party, Rewanui	8	Bituminous	1	4′	4′	,,	..	T. 1 ch.	4,218	23,048	27,266	2	7	9	Fan.
Wallsend	Freehold	G. Smith	Brunner Collieries, Ltd., Wellington	6	,,	1	18′	10′	,,	..	T. 10 ch.	9,765	206,110	215,875	39	102	141	,,
Wallsend	Crown lease	G. Smith	J. Harris, Wellington	1	,,	1	18′	10′	,,	..	..	36,551	..	36,551				
Output of collieries included in previous statements at which operations are abandoned or suspended				..	..	..	..	..	..	..	..	..	7,223,482	7,223,482	..	..	..	..
SOUTHERN INSPECTION DISTRICT.																		
Canterbury District.																		
Homebush, Glentunnel	Freehold	J. Campbell (D.)	Homebush Brick and Tile Co., Glentunnel	56	Brown	1	5′ 6″	5′ 6″	Bord and pillar	..	T. 660′	2,644	352,096	354,740	1	5	6	Natural.
Bush Gully, Coalgate	,,	Jas. Charles (P.)	J. Dean's Estate, Coalgate	12	,,	1	2′ 8″	2′ 8″	Ditto	..	T. 66′	422	40,841	41,263	..	2	2	,,
Whitecliffs, Whitecliffs	Crown lease	J. T. Todd (P.)	G. McClatchie and Co., Christchurch	48	,,	3	3½′ to 6′	3½′ to 6′	,,	..	T. 66′	435	35,636	36,071	..	2	2	,,
Steventon Valley, Whitecliffs	,,	J. T. Leeming (D.)	Leeming Bros., Glentunnel	4	,,	1	7′	6′	,,	..	T. 132′	220	2,403	2,623	..	1	1	,,
Clearview, Glenroy	Freehold	Geo. Aitken (D.)	Clearview Coal Co., Glenroy	10	,,	1	10½′	10′	,,	..	..	3,067	15,715	18,782	1	3	4	,,
Tripps, Mount Somers	,,	M. Menaglio (P.)	Mt. Somers Coal Co., Mt. Somers	63	,,	4	12′ to 24′	8′	,,	..	T. 360′	1,197	85,278	86,475	1	3	4	,,

COLLIERY STATISTICS, 1929—*continued.*

Name of Mine and Locality.	Titles held (Crown Lease or otherwise).	Name of Mine Manager.	Name and Address of Owner.	Number of Years worked.	Classification of Coal.	Number of Seams worked.	Thickness of Coal-seam.	Thickness worked.	System of Underground Working.	Number of Winding-shafts.	Depth of Shaft or Length of Tunnel.	Total Output for 1929.	Total Output to 31st December, 1928.	Total Output to 31st December, 1929.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
SOUTHERN INSPECTION DISTRICT—*continued.*																		
Woodbank, Albury	Crown lease under Lands Act	J. H. Smillie (D.)	Duncan Ross, Albury	5	Lignite	1	9′	7½′	Bord and pillar		T. 528′	1,323	1,535	2,858		3	3	Natural.
Klondyke, Bush Gully	Freehold	W. J. Smith (P.)	W. J. Smith, Whitecliffs		Brown	1	10′	7′	,,		T. 1,072′	141		141	1	1	2	,,
North Otago District.																		
St. Andrew's, Papakaio	Freehold	T. Nimmo, jun. (U.)	Duncan Cameron, Papakaio	50	Lignite	1	6′ to 9′	6′	Bord and pillar		T. 198′	1,948	62,639	64,587	1	3	4	Natural.
Ngapara, Ngapara	,,	Wm. Nimmo (U.)	Wm. Nimmo, Ngapara	51	,,	1	25′	9′ to 10′	Ditto		T. 50′	1,149	43,147	44,296	1	2	3	Fan.
Shag Point (old mine), Shag Point	Crown lease	W. McLaren (P.)	Bruce Rly. and Coal Co., Dunedin	15	Brown	1	5′	All	,,		T. 400′	1,318	417,447	418,765	2	5	7	Natural.
Shag Point, C.M. Co., Shag Point	Freehold	A. S. Gillanders (1st C.)	Shag Point, C.M. Co., Dunedin	21	,,	1	3′ to 3′ 6″	,,	,,		T. 500′	13,290	249,870	263,160	8	40	48	Fan.
Airedale, Papakaio	Crown lease	A. Beardsmore (P.)	A. Beardsmore and A. Beardsmore, jun., Papakaio	3	Lignite	1	12′	7′	,,			950	1,629	2,579	1	2	3	Natural.
Roseneath, Kurow	Freehold	R. Waddingham (P.)	Mrs. M. Matheson, Kurow	3	,,	1	20′	6′	,,		T. 212′	534	409	943	1	1	2	,,
Central Otago District.																		
Rough Ridge, Oturehua	Crown lease	E. Beck (P.)	Margaret Beck, Oturehua	42	Lignite	1	20′	All	Opencast			24	35,625	35,649				Opencast.
Idaburn, Oturehua	Freehold	C. L. Fisher (P.)	C. L. Fisher, Oturehua	59	,,	1	20′	,,	,,			306	53,841	54,147	2		2	,,
Oturehua, Oturehua	Crown lease	A. Brown (P.)	Becker Bros., Oturehua	35	,,	1	20′	,,	,,			122	5,572	5,694	1		1	,,
Cambrian, Cambrian	,,	O. Jones (P.)	Vinegar Hill Hydraulic Sluicing Co., St. Bathan's	68	,,	1	10′	,,	,,			293	51,793	52,086	2		2	,,
Coal Creek Flat	,,	N. Harliwich (P.)	N. Harliwich, Coal Creek Flat	59	,,	1	26′	12′	,,			2,222	93,606	95,828	2		2	,,
Bannockburn, Bannockburn	,,	J. Hodson, jun. (2nd C.)	J. Hodson and others, Bannockburn	52	,,	1	6′ to 20′	9′	Bord and pillar		T. 20′	1,756	120,591	122,347	1	2	3	Natural.
Nevis Crossing, Nevis	,,	R. Ritchie (P.)	Robt. Ritchie, Nevis	26	Brown	1	60′	60′	Opencast			97	18,067	18,164	2		2	Open.
Parfit's, Upper Idaburn	,,	Isaac Parfit	Parfit and Marslin, Naseby	4	Lignite	1	30′	30′	,,			126	509	635	1		1	,,
South Otago District.																		
Freeman's, Abbotsford	Freehold	W. Evans (U.)	Freeman's Coal Co., Green Island	49	Lignite	1	12′ to 16′	All	Bord and pillar			4,268	609,277	613,545	2	5	7	Natural.
Jubilee, Fairfield	,,	J. Hadcroft (1st C.)	Jubilee Coal Co., Dunedin	32	,,	1	5′ to 9′	4′ to 7′	Ditto	1	T. 1,782′	15,317	530,327	545,698	7	21	28	Fan.
Jubilee (under roads)	Crown lease											54						
Willowbank, Riccarton	Freehold	W. Robertson (U.)	Geo. Scurr and Co., Ltd., Mosgiel Junction	9	,,	1	12′	6′	,,		T. 528′	4,410	25,309	29,719	1	5	6	,,
Auchmeddon, Fairfield	,,	H. Orr (2nd C.)	H. Orr, Fairfield	4	,,	1	4′	4′	Opencast			8	41	49				Open.
Brighton, Brighton	,,	N. McColl (P.)	N. McColl, Brighton	14	,,	1	5′	5′	Bord and pillar		T. 264′	127	9,187	9,314	1	1	2	Natural.
Waronui, Milton	,,	J. Carruthers, jun. (1st C.)	Bruce Railway and Coal Co., Dunedin	25	,,	1	5′ to 9′	5′ to 7′	Ditto		T. 950′	12,714	362,755	375,469	7	21	28	Fan.
Viewbank, Crichton	,,	N. Greaves, (P.)	N. Greaves, Milton	10	,,	2	12′ & 10′	7′	,,		T. 413′	913	7,178	8,091	1	2	3	Natural.
Taratu, Lovell's Flat	,,	A. Morris (1st C.)	Sargood and Cheeseman, Dunedin	28	,,	1	25′ to 40′	7′ to 30′	,,		T. 205′, 180′, and 924′	21,621	680,002	701,623	14	21	35	Fan.
Tuakitoto, Tuakitoto	,,	J. Throp (P.)	J. Throp, Kaitangata	19	,,	1	20′	7′	,,		T. 150′	1,186	6,577	7,763	1	1	2	,,
Wangaloa, Kaibrook, Kaitangata	Crown lease	W. Barclay (D.)	William Barclay, Kaitangata	7	,,	1	10′	6½′	,,		T. 99′	734	847	1,581	1	2	3	Natural.
													2,844	2,844				
Kaituna, Kaitangata	Freehold	R. McMillan (D.)	William Smaill, Kaitangata	21	,,	1	4′ 6″	4′ 6″	,,			30	26,106	26,136		1	1	,,
Kaidale, Kaitangata	Crown lease	J. Ramsden (U.)	J. Ramsden, Kaitangata	10	,,	1	10′	6′ 6″	,,		T. 260′	199	9,453	9,652		2	2	,,
Kaitangata No. 1, Kaitangata	Freehold	F. Carson (1st C.)	Kaitangata Coal Co., Dunedin	53	Brown	2	6′ & 25′	All	,,		T. 1,188′							
Kaitangata No. 2, Kaitangata	,,	W. Carson (1st C.)	Kaitangata Coal Co., Dunedin	17	,,	2	8′	,,	,,		T. 4,620′							
Kaitangata (under roads)	Crown lease										T. 957′	89,194	4,601,170	4,690,364	49	220	269	Fans.
Castle Hill, Kaitangata	Freehold	J. McLelland (1st C.)	Kaitangata Coal Co., Dunedin	36	,,	3	12′ to 20′	,,	,,		T. 1,155′							
											T. 1,320′							
											T. 3,300′							
Benhar, Benhar	,,	J. Walls (2nd C.)	McSkimming and Son, Ltd., Benhar	66	Lignite	3	14′	10′	,,		T. 550′	7,510	273,064	280,574	1	5	6	Fan.
Summerhill, Kaitangata	,,	Thos. Heyes (1st C.)	Thomas Gage, Kaitangata	5	,,	1	15′	7′ to 8′	,,			12	926	938				Natural.
Elliotvale, Moneymore	,,	H. T. Morris (D.)	W. Cockburn, Milton			1	40′	8′	,,		T. 80′	83		83	1	1	2	,,

Southland District.																		
Green's, Gore	Freehold	F. Barclay (2nd C.)	Estate late T. Green, Gore	41	Lignite	1	19′	12′	Bord and pillar	T. 820′	11,029	343,447	354,476	3	6	9	Fan.
Glenlee, Waikaka		F. W. Edge (P.)	A. A. Edge, Waikaka	36	,,	1	14′	7′ 6″	Ditto		1,027	31,401	32,428	..	2	2	Natural.
Ramsay's, North Chatton	Freehold	P. Ramsay (P.)	P. Ramsay, Waikaka	26	,,	1	12′	12′	Opencast		116	107,829	107,945	1	..	1	Open.
Landslip, Waikaia	Crown lease	T. Northcoat (P.)	T. Northcoat and Lahey, Waikaia	30	,,	1	4′ to 10′	All	,,		268	37,170	37,438	1	..	1	,,
McIver's, Waikaia	,,	R. McIver (P.)	R. McIver, Waikaia	6	,,	1	10′	6′	,,		179	925	1,104	1	..	1	,,
Argyle, Waikaia	,,	T. Woodward (P.)	Thos. Woodward, Waikaia	38	,,	1	12′	12′	,,		485	10,679	11,164	1	..	1	,,
Terrace, Longridge	Freehold	G. Daly (P.)	G. Daly, Longridge	11	,,	1	20′ to 25′	8′ to 10′	Bord and pillar	T. 66′	842	11,759	12,601	1	1	2	Natural.
Princhester Creek, The Key	Crown lease	J. A. Denton (P.)	J. A. Denton, Lumsden	27	Brown	1	5′ 6″	5′ 6″	Opencast		201	3,184	3,385	1	..	1	Open.
Boghead, Mataura	Freehold	Thos. Gaudion (P.)	C. E. Rowe, Mataura	24	Lignite	1	20′	12′	Bord and pillar	T. 412′	4,810	53,500	58,310	1	2	3	Natural.
Mataura Lignite, Mataura	,,	Jas. Pearson (D.)	Beattie, Coster, and Co., Ltd., Mataura	53	,,	1	18′	12′	Ditto	T. 1,584′	12,613	331,858	344,471	3	5	8	Fan.
Larking's, Mataura	,,	P. Larking (P.)	P. Larking, Mataura	8	,,	1	15′	15′	Opencast		1,783	6,919	8,702	1	..	1	Open.
Ota Creek	Crown lease	E. Genge (P.)	E. Genge, Wyndham	49	,,	1	8′	8′	,,		346	30,238	30,584	1	..	1	,,
Wyndham	Freehold	Wm. Thompson (P.)	Wm. Thompson, Wyndham	22	,,	1	12′	7′	,,		206	23,254	23,460	1	..	1	,,
Diamond Lignite, Asher's	Crown lease	A. McMillan (P.)	S. McMillan, Invercargill	27	,,	1	38′	38′	,,		894	33,871	34,765	2	..	2	,,
Black Diamond, Nightcaps	,,	R. W. Duncan (1st C.)	Black Diamond Coal Co., Invercargill	14	Brown	1	25′	8′	Bord and pillar	T. 1,320′	11,692	196,712	208,404	5	16	21	Fan.
Mossbank No. 1, Ohai	,,	T. McMillan (1st C.)	Mossbank Coal Co., Invercargill	15	,,	1	6′ to 24′	7′	Ditto	T. 462′	} 49,640	214,242	263,882	17	57	74	,,
Mossbank No. 2, Ohai	,,	S. Reid (D.)	Mossbank Coal Co., Invercargill	..	,,	1	8′ to 12′	7′	,,	..							
Wairaki No. 1, Ohai	,,	J. T. Mosley (1st C.)	Wairaki Coal Co., Gore	16	,,	1	7′ to 25′	All	,,	T. 1,980′	} 52,809	274,117	326,926	22	88	110	Fan.
Wairaki No. 2, Ohai	Freehold	J. T. Mosley (1st C.)	Wairaki Coal Co., Gore	11	,,	1	7′ to 25′	,,	,,	T. 990′							
Linton, Ohai	Crown lease	G. S. Langford (1st C.)	Linton Coal Co., Invercargill	14	,,	1	30′ to 40′	,,	,,	T. 1,320′	} 115,334	499,305	614,639	40	120	160	Fans.
Linton, Ohai	Freehold	G. S. Langford (1st C.)	Linton Coal Co., Invercargill	..	,,	..	..	..	..	..							
Black Lion, Ohai	Crown lease	Ed. Mason (2nd C.)	Black Lion Coal Co., Invercargill	8	,,	1	10′	7′	,,	T. 264′	15,951	24,047	39,998	5	15	20	Fan.
Smithvale, Nightcaps	Freehold	Wm. Smith (P.)	Wm. Smith, Nightcaps	3	,,	1	14′	14′	Opencast	T. 297′	139	385	524	1	..	1	Open.
Wendon, Wendon	Crown lease	E. Radford (P.)	J. E. Radford, Wendon	5	Lignite	1	18′	12′	Bord and pillar	T. 60′	344	590	934	..	2	2	Natural.
Otikerama	Freehold	Jos. Hoffman (P.)	A. McDonald, Otikerama	40	,,	1	20′	20′	Opencast		2,325	42,424	44,749	1	1	2	Open.
Waimumu	,,	Jas. Milne (P.)	A. P. Cowie, Gore	1	,,	1	15′	All	,,		200	..	200	1	..	1	,,
McNab	,,	J. Ramsay (P.)	Ramsay and Ross, Gore	..	,,	1	10′	10′	,,		701	..	701	1	..	1	,,
Lobb's Hill, Ohai	Crown prospecting license	Wm. Russell (D.)	Russell and Marelich, Ohai	..	,,	1	4′	4′	Bord and pillar	T. 66′	100	..	100	1	1	2	Natural.
Output of mines included in previous statements at which operations have been abandoned or suspended											..	6,756,535	6,756,535	..	..	..	..
Totals, Southern District, South Island											475,998	17,867,703	18,343,701	227	699	926	
Totals, West Coast District, South Island											1,290,008	35,347,959	36,637,967	768	2,264	3,032	
Totals, Northern District, North Island											769,858	15,250,499	16,020,357	375	1,164	1,539	
Grand totals											2,535,864	68,466,161	71,002,025	1,370	4,127	5,497	
Output of collieries prior to 1890 not included in the above statement											..	..	296,653	..	..	..	
Shale exported, 1914											..	..	21				
													71,298,699				

APPENDIX C.

REPORT OF BOARDS OF EXAMINERS.

SIR,— Geological Survey Office, Wellington, 27th June, 1930.

On behalf of the Boards of Examiners under the Mining and Coal-mines Acts, I have the honour to submit the following brief report on the work of the Boards during 1929.

The annual examinations of candidates for mine-managers' certificates under the Coal-mines Act, 1925, were held at Waihi, Huntly, Reefton, and Dunedin, on the 22nd, 23rd, and 24th October. Four examinations of candidates for certificates as underviewers and firemen-deputies under the Coal-mines Act, 1925, were also held—one at Dunedin, on the 27th August; one at Greymouth, on the 27th and 28th November; one at Westport, on the 30th November and 2nd December; and one at Huntly, on the 5th and 6th December respectively. In addition an examination of candidates for battery-superintendents' certificates, under the Mining Act, 1926, was held at Waihi and one at Dunedin for a dredgemaster's certificate.

The following is a summary of the various examinations held and the results obtained:—

Act and Examination.	Number of Candidates.			Number of Certificates issued.	
	Examined.	Passed.	Partial Pass.	By Examination.	By Recognized Credentials.
1. Coal-mines Act, 1925—					
Mine-manager's certificate—					
(*a*) First class	..	..	..	..	3
Written examination	16	4	4	1	..
Oral examination	4	1			
(*b*) Second class—					
Written examination	12	8	6	3	..
Oral examination	7	1			
Underviewer's certificate	22	12	..	12	..
Fireman-deputy's certificate	39	28	..	28	..
2. Mining Act, 1926—					
Battery superintendent's certificate	2	1	..	1	..
Dredgemaster's Class B certificate	1	1	..	1	5

The three second-class mine-managers' certificates credited by examination in the above table include two candidates who had previously passed their oral examination but who were required to complete their written examination and were successful therein. In addition to those in the above table one mine-surveyor's certificate under the Coal-mines Act, 1925, was issued. As the candidate possessed the necessary credentials, no examination was required for this certificate. Seventy-seven gas-testing certificates—eleven more than last year—were also issued, as well as two duplicate firemen-deputies' certificates to replace originals accidentally destroyed. Under the Mining Act, 1926, four service permits as oil-well managers were granted.

The number of candidates who sat at the examinations for mine-managers' certificates constituted a record for recent years, and compares with eleven for first-class certificates and eleven for second-class certificates who sat in 1928. The work of the candidates for second-class certificates was up to the usual standard, but the work of those who sat for first-class certificates could not be considered good.

The annual meeting of the Board was held on the 8th January last, having been postponed from the previous month owing to two members of the Board being engaged on the Commission set up to inquire into the disaster at the Linton Mine.

Messrs. W. Carson, James Bishop, and J. C. Brown, whose appointment as members of the Board of Examiners under the Coal-mines Act, and Mr. J. L. Gilmour, whose appointment as a member of the Board of Examiners under the Mining Act, expired during the year, were reappointed to the Boards.

Mr. H. E. Walshe, who was appointed to the position of Surveyor-General, *vice* Mr. W. T. Neill (retired), automatically became a member of both Boards.

Correspondence was received from the Board of Mining Examinations, London, requesting full particulars relative to the granting of first- and second-class certificates of competency as coal-mine managers, and the question as to whether these New Zealand certificates are accepted by the British authorities for exchange purposes has been taken up with the London Board.

A complete list of the certificates issued during the year is as follows:—

COAL-MINES ACT, 1925.

FIRST-CLASS MINE-MANAGERS' CERTIFICATES.

Issued on Production of Certificate from a Recognized Authority outside the Dominion.

Andrews, Thomas Lightbody, Rotowaro.
Brown, Walter, Blackball.
McArthur, James, Granity.

Issued after Examination.

Glendenning, James William, Dobson.

SECOND-CLASS MINE-MANAGERS' CERTIFICATES.

Issued after Examination.

Hewison, Sydney, Dunollie.
Williamson, George, Glen Massey.
Wilson, Robert, Pukemiro.

MINES-SURVEYOR'S CERTIFICATE.

Issued without Examination.

Andrews, Thomas Lightbody, Rotowaro.

UNDERVIEWERS' CERTIFICATES.

Issued after Examination.

Byers, William, Glen Massey.
Cowan, William, Millerton.
Hewison, Sydney, Dunollie.
Kelly, John, Runanga.
Kelly, Henry Michael, Granity.
Lees, Thomas Wilson, Glen Massey.
Nimmo, Allan, Ngapara.
Niven, James Quinn, Ngakawau.
Peart, Frederick Smith, Millerton.
Pollock, John, Marshallvale, Denniston.
Tweedie, John, Huntly.
Wilson, Robert, Huntly.

FIREMAN-DEPUTIES' CERTIFICATES.

Issued after examination.

Blyth, William, Millerton.
Britton, Christopher, Pukemiro.
Bromilow, John, Runanga.
Brown, John Robert, Runanga.
Burchfield, Walter, Granity.
Burt, John, Millerton.
Chetwynd, William, Taylorville, Brunnerton.
Cowan, Thomas, Huntly.
Dixon, George Robert, Taylorville, Brunnerton.
English, George, Runanga.
Ewart, John, Millerton.
Farnworth, William, Dunollie.
Gilmour, Peter, Millerton.
Hallinan, Ed., Taylorville, Brunnerton.
Hart, John, Brunnerton.
Hewitson, Matthew, Denniston.
Hillman, Charles, Huntly.
Jenkinson, Alfred, Runanga.
Morris, Herbert Thomas, Milton.
Powell, Richard Fynes, Runanga.
Richardson, William, Mangatina.
Simpson, James, Denniston.
Smith, Frederick Joseph, Runanga.
Strang, James, Blackball.
Tweedie, John, Huntly.
Wight, David, Millerton.
Wilson, Robert, Huntly.
Wyness, James, Glen Afton.

MINING ACT, 1926.

OIL-WELL MANAGERS' SERVICE PERMITS.

Hart, Sterling Paul, Gisborne.
McKay, John, Motukawa.
Tynan, Daniel Joseph, New Plymouth.
Van de Water, James Orm, New Plymouth.

BATTERY SUPERINTENDENT'S CERTIFICATE.

Issued after Examination.

Keoghan, James Alexander, Waihi.

MINING AMENDMENT ACT, 1927.

DREDGEMASTERS' CLASS B SERVICE CERTIFICATES.

Jones, Francis, Nevis.
Lewis, Frank Benjamin, Hokitika.
O'Brien, William, Naseby.
Pettigrew, David Miller, Hokitika.
Speed, Richard Oswell, Wellington.

DREDGEMASTER'S CLASS B CERTIFICATE.

Issued after Examination.

McKay, William Gordon, Greymouth.

I have, &c.,
J. HENDERSON,
Chairman of Boards.

The Under-Secretary, Mines Department, Wellington.

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