MINES STATEMENT.

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1929.

NEW ZEALAND.

MINES STATEMENT

BY THE HON. W. A. VEITCH, MINISTER OF MINES.

MR. SPEAKER,—

I have the honour to present to Parliament my first annual Statement on the mining industry of the Dominion for the year ended the 31st December, 1928.

It is pleasing to report that during the year 1928 the output of coal from the mines of the Dominion was a record, being over 70,000 tons more than the quantity produced in any previous year. This result was due largely to the utilization by the railways of more locally-mined instead of imported coal, and also to the commendable action of gas companies in obtaining greater quantities of their requirements within the Dominion. Tests carried out by the blending of different classes of New Zealand coal have proved that by using suitable mixtures the results for gas-making purposes are not inferior to those obtained from imported bituminous coal.

The absence of industrial trouble of a serious character has been one of the pleasing features of the coal-mining industry, and is evidence that a spirit of goodwill exists between employers and employees. That this condition will continue to prevail is earnestly to be hoped.

With the knowledge gained from investigations carried out in the Dominion Laboratory, as well as in countries abroad, it is considered that in the near future it should be possible to considerably curtail coal importations, and, by adopting some of the proved carbonizing processes now in operation abroad, eliminate much waste and secure better and greater results from carbonized fuel.

While it is gratifying that the quantity of bullion production during the year 1928 shows an increase of 26,494 oz. over that of the preceding year, still it is a matter of regret that there has not been a genuine revival in this important industry. The discovery of new and payable goldfields would give an impetus to mining generally and materially help to remove some of our existing troubles, and to some extent relieve unemployment. A general feeling of optimism, however, prevails amongst prospectors and those who have invested their capital in search of precious metals, and much energy is now being devoted to devising means of extracting bullion from lodes of low grade, which it is believed exist in several parts of the Dominion.

The search for oil still continues in different parts of both the North and South Islands. Prospecting for oil necessitates the expenditure of large sums of money in preliminary surveys and boring. Up to the present time the location of a commercially payable oil-well, as the result of boring in recent years, has not eventuated, but it is hoped that success will ultimately attend the efforts of those who are now engaged upon the work.

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 1928 and 1927 :—

Mineral.	1928.		1927.	
	Quantity.	Value.	Quantity.	Value.
		£		£
Gold and silver*	532,914 oz.	551,242	506,420 oz.	550,166
Platinum	35 ,,	263	33 ,,	231
Osmiridium	10 dwt.	10	..	..
Tungsten-ore	$6\frac{4}{20}$ tons	432	$6\frac{9}{20}$ tons	445
Sulphur	719 ,,	8,200	469 ,,	3,375
Iron	6,362 ,,	31,802	3,383 ,,	17,761
Quicksilver	..	..	$\frac{14}{20}$,,	462
Stone	..	461,890	..	570,369
Pumice	2,301 ,,	8,280	1,733 ,,	6,230
Coal	2,436,753 ,,	2,436,753	2,366,740 ,,	2,366,740
Totals	..	£3,498,872	..	£3,515,779

* 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 £3,222,137, as compared with £3,312,543 during 1927. The total value of such minerals exported to the end of 1928 amounted to £169,465,395.

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 1928 and 1927 :—

Class of Gold-mining.	Production of Bullion.				Dividends paid by Registered Companies.		Number of Productive Claims and Dredges.	
	1928.		1927.		1928.	1927.	1928.	1927.
	Oz.	£	Oz.	£	£	£		
Quartz	506,473	446,014	480,978	449,281	99,181	49,591	22	22
Alluvial	10,593	40,517	10,402	40,154	1,660	2,155	333	346
Dredging ..	15,848	64,711	15,040	60,731	3,283	6,766	5	4
Totals ..	532,914	551,242	506,420	550,166	104,124	58,512	360	372

COAL-MINING.

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

Class of Coal.	Output of Coal during 1928.				Total Output to the End of 1928.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Total.	
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and sub-bituminous	179,460	1,169,272	..	1,348,732	41,819,046
Brown	602,429	31,408	339,401	973,238	22,734,951
Lignite	..	159	114,624	114,783	4,208,838
Totals for 1928 ..	781,889	1,200,839	454,025	2,436,753	68,762,835
Totals for 1927 ..	747,530	1,156,191	463,019	2,366,740	66,326,082

PERSONS EMPLOYED IN OR ABOUT MINES AND STONE-QUARRIES.

The following table shows the number of persons employed in each inspection district during 1928 and 1927 :—

Classification.	Inspection District.			Totals.		
	Northern (North Island).	West Coast (of South Island).	Southern (rest of South Island).	1928.	1927.	Increase or Decrease.
Gold, silver, and tungsten ore	723	420	318	1,461	1,663	Dec. 202
Ironstone	..	21	..	21	70	„ 49
Cinnabar	10	..	2	12	..	Inc. 12
Sulphur	12	..	..	12	6	„ 6
Coal	1,606	2,844	926	5,376	5,374	„ 2
Stone-quarries under the Stone-quarries Act	1,561	162	438	2,161	2,341	Dec. 180
Oil	32	2	..	34	32	Inc. 2
Totals	3,944	3,449	1,684	9,077	9,486	Dec. 409

MINING AND QUARRY ACCIDENTS.

In metalliferous mines, at which 1,494 men were ordinarily employed, there was one fatal accident and six serious accidents.

At stone-quarries under the Stone-quarries Act, employing 2,161 men, one person was killed and seven persons met with serious injuries.

There were 5,376 persons ordinarily employed about the coal-mines, and there were nine persons killed and fifteen persons seriously injured.

SOCIAL AMENITIES AT MINING TOWNSHIPS.

During the past year additional amenities for the recreation of miners and others at mining townships have been provided.

Further financial assistance was granted out of the State Coal-mines Account for making a croquet lawn, for improving the domain, bowling-green, and tennis-courts at Runanga, and also repairing the Seddon Memorial Institute in that township.

At Rotowaro the Taupiri Mines Co., Ltd., provided a third tennis-court for the use of the mine's staff residing near the colliery, and at Huntly this company transferred to the Huntly Town Board 12 acres of land in close proximity to the town for recreation purposes. This land is being improved to provide football and sports facilities.

At Waipa the Waipa Collieries and Railway Co., Ltd., assisted the miners and residents to lay down a standard bowling-green for the use of the miners and general public.

At Pukemiro a swimming-pool, 100 ft. by 21 ft. by 6 ft. 9 in. to 2 ft. 9 in. in depth, the excavation of which was made in solid rock, concreted on the floor and sides, was constructed, with change-sheds, for the use of the general public at Pukemiro and Glen Afton. The total cost of this construction, approximately £600, was financed by public subscription, assisted by the Pukemiro Collieries Co., Ltd.

At Millerton a bowling-green is nearing completion, and a football-field and recreation-ground adjacent to the school will be fit for use during the present year. These facilities were financed by the residents with the help of the Westport Coal Co., Ltd.

Both the past and recent facilities are extensively used and patronized by the children, miners, and general public.

GEOLOGICAL SURVEY.

During the field season ended 31st May, 1929, geological surveys were carried out in the Te Kuiti, Tongariro, and Upper Wairoa districts in the North Island, and in the southern part of the Murchison basin in the South Island. The examination of these districts will, it is hoped, be completed next season.

Owing to the interest of the public in oil-prospecting, the Geological Survey was called upon on several occasions in the past year to supply information on districts that are possibly oil-bearing. The explorations in the Murchison and Wairoa areas, which have been in progress for two and three years respectively, and a large part of the palæontological work are directed chiefly to elucidating the succession and structure of the Tertiary strata, fundamental problems in the search for oil.

Bulletin No. 30 (the Geology of the Waiapu Subdivision) and the twenty-second annual report of the Geological Survey were published during the year. The report on the soils of irrigation areas in Otago Central is now in an advanced stage of printing and will shortly be published. Other bulletins, the preparation of which is well forward, describe areas in North Auckland, Nelson, and Otago (two).

The detailed mapping and the making of an inventory of the mineral and other natural resources of New Zealand proceeds steadily, though all too slowly, since about one-quarter only of the total area has been covered after twenty-three years' work. Much of the information collected concerns resources which have little present intrinsic value, but which will be worth a great deal when New Zealand has reached a further stage in its economic development.

MINING PRIVILEGES.

During the year ended 31st March, 1929, 443 licenses for mining privileges were granted under the provisions of the Mining Act, 1926. Out of this number 74 were licenses for claims authorizing the holders to mine for gold. For the same period 203 mining privileges, including 12 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 thirteen parties, and a total of 5,465 ft. was drilled.

For the year a total of £8,586 8s. 11d. was expended in subsidies for prospecting, and 113 persons were employed in connection therewith.

£1,792 5s. 11d. was expended by way of direct grants and subsidies for roads and tracks.

The expenditure on schools of mines amounted to £3,541 6s. 6d., against £3,516 17s. 1d. during the previous year.

SCHOOL OF MINES SCHOLARSHIPS.

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

MINER'S PHTHISIS ACT, 1915.

(Now in Pensions Act, 1926.)

The benefits under this Act are administered by the Pensions Department, and 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, 1929.

Amounts paid since inception until 31st March, 1929—	
Payments from 1st November, 1915, to 31st March, 1928	£ 346,274
Payments for year ended 31st March, 1929	48,074
	£394,348
Number of new grants for year 1928–29	94
Annual value of new grants	£6,630
Number of pensions in force at 31st March, 1929	760
Annual value of pensions in force at 31st March, 1929	£48,367
Average pension payable per annum	£63 12s. 10d.
Total number of pensions granted to 31st March, 1929	1,541
Total number of pensions granted to 31st March, 1929, includes the following :—	
To unmarried miners	296
To married miners	619
To widows of miners	626
	1,541

INVESTIGATIONS, NEW ZEALAND COALS.

Research work on coal has been continued at the Dominion Laboratory under the direction of the Coal Research Association, in which the Mines Department is represented.

The low-temperature carbonization of some Waikato coals has been investigated at temperatures of 550° and 600°, using the Fischer rotary retort installed last year. The condensing system was modified by the addition of absorbers of activated carbon to strip the light oil from the gas. A meter was also installed to accurately measure the volume of gas produced. A full charge for the retort is 30 lb. of coal. The average yield for Rotowaro coal at 600° C. per ton of coal as charged was: Residue, 10·5 cwt.; tar-oil, 16·3 gallons; light oil from gas, 0·9 gallon; gas, 4,215 cubic feet. The work is being extended to the other chief classes of New Zealand coal.

In addition to the work carried out at the Dominion Laboratory, an investigation was made of conditions of stone-dusting in New Zealand coal-mines, and a report prepared on the subject.

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 £685 7s. 4d. as at the 31st March, 1929, as against a diminution of £712 0s. 1d. as at the 31st March, 1928. 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, 1929, was £1,364 14s. 2d., as against £1,365 1s. for the previous year, while for the same periods the receipts from the ½d. per ton contribution were £4,893 10s. 7d. and £5,072 18s. 1d. respectively. No vouchers were recredited to the Fund during the year, as against £2 12s. 1d. for the previous year.

The total expenditure for the year ended 31st March, 1929, amounted to £6,943 12s. 1d., as against £7,152 11s. 3d. for the previous year.

The amount standing to the credit of the Fund as at the 31st March, 1929, was £25,471 3s. 10d., as against £26,156 11s. 2d. at the 31st March, 1928.

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 two years ago that the employees availed themselves of the opportunity thus offered.

To the 31st March, 1929, twenty loans for financing the cost of the erection of twenty 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, 1929, are briefly reviewed hereunder.

Liverpool Colliery.—The gross output for the year was 129,126 tons, as compared with 143,889 tons for last year, a decrease of 14,763 tons.

James Colliery.—The gross output for the year was 39,105 tons, as compared with 41,345 tons for last year, a decrease of 2,240 tons.

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

Mine.	Output in Tons, 1928–29.		Output in Tons, 1927–28.	
	Gross.	Net.	Gross.	Net.
Liverpool	129,126	122,340	143,889	137,180
James	39,105	36,614	41,345	37,142

Note.—The difference between the gross and the net output is the allowance for mine consumption and waste. In addition to the above, 4,280 tons of coal were purchased for resale, of which 2,455 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, 48,123 tons; railways, 20,662 tons; other Government Departments, 6,138 tons; shipping, 17,411 tons; gasworks, 57,000 tons; other consumers, 11,582 tons: total, 160,916 tons.

The total sales of State coal from the Liverpool Mine for the year amounted to 123,974 tons, value £161,157,* as compared with 136,978 tons, value £185,970,* for last year—a decrease of 13,004 tons, with a decrease in value of £24,813.

The average price realized by the mine on the total sales for the year was £1 5s. 11·9d., a decrease of 1s. 1·9d. on last year's average.

The total sales of State coal from the James Mine for the year amounted to 36,942 tons, value £53,284,* as compared with 38,835 tons, value £56,080,* for last year—a decrease of 1,893 tons, with a decrease in value of £2,796.

The average price realized by the mine on the total sales for the year was £1 8s. 10·1d. per ton, a decrease of 0·5d. on last year's average.

The sales of coal, &c., through the medium of the depots totalled 116,749 tons, value £220,505, as against 134,830 tons, value £253,579, for last year.

The profits at the mines were £1,892, and at the depots, &c., £7,377, making a net profit of £9,269. £4,573 was applied to the Sinking Fund Account.

Taking into consideration the reduced number of days worked owing to the increased use of fuel oil for ships instead of coal, the increased power from hydro-electric works, the decreased consumption of small coal by gasworks using vertical retorts, and the temporary cessation of a works which consumes large quantities of small coals, the financial results for the year must be considered 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	13,765
The payments for interest totalled	9,102
The payments for sea carriage of coal amounted to	50,890
The cost of railway haulage amounted to	39,325
The total wages paid for coal-winning were	96,966
The amount paid for management and office salaries (Head Office and mines) totalled	3,979
The gross capital expenditure on the whole undertaking to the 31st March last was	647,359
The total depreciation written off to date (equal to 60 per cent. on the gross capital expenditure) amounts to	390,542
The debenture and loan capital stands at	162,601†
The net profits of the State Coal-mines Account from inception to the 31st March, 1929, are	163,317
The net profit for the year ended 31st March, 1929, was	9,269
The sinking fund is in credit	4,854†
General reserve stands at	164,227
The amount at credit of Profit and Loss is	4,695
The cash in hand and in the Public Account at the 31st March last as (last year £22,098)	5,672
The present net book value of permanent or fixed assets is	256,816

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

† During the year the sum of £65,000 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, 1928 AND 1927, 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, 1928.		For Year ended the 31st December, 1927.		Total from the 1st January, 1853, to the 31st December, 1928.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Precious metals—	Oz.	£	Oz.	£	Oz.	£
Gold*	118,722	489,584	130,171	534,639	23,665,457	93,427,622
Silver	445,811	44,416	427,358	42,589	26,426,632	3,103,665
Total gold and silver ..	564,533	534,000	557,529	577,228	50,092,089	96,531,287
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	..	..	$4\frac{1}{20}$	12	$19,384\frac{1}{20}$	62,006
Hæmatite ore	..	..	..	..	77	469
Tungsten-ore	$5\frac{1}{20}$	328	$12\frac{10}{20}$	821	$2,402\frac{5}{20}$	306,272
Quicksilver	..	..	..	..	$16\frac{12}{20}$	8,336
Sulphur (crude)	..	..	..	..	4,927	13,241
Mixed minerals†	2,313	8,830	$1,760\frac{9}{20}$	6,636	81,329	340,453
Coal (New Zealand) exported	125,771	173,693	143,440	221,253	6,059,962	6,601,001
Coke exported	20	93	19	69	17,623	27,676
Coal, output of mines in Dominion (less exports)	2,310,982	2,263,060	2,223,300	2,223,300	62,702,873	43,073,873
Oil-shale	..	..	..	..	14,444	7,236
Kauri-gum	4,394	240,139	4,674	278,632	408,367	22,374,522
Pig iron	500	1,994	1,110	4,592	1,610	6,586
Total quantity and value of minerals	$2,443,985\frac{1}{20}$	2,688,137	$2,374,320\frac{10}{20}$	2,735,315	$69,324,169\frac{8}{20}$	72,934,108
Value of gold and silver, as above	..	534,000	..	577,228	..	96,531,287
Total value of minerals, including gold and silver	..	3,222,137	..	3,312,543	..	169,465,395

*In respect of gold, ounces of the fineness of 20 carats and upwards. † Including pumice-sand, 2,301 tons.

No. 2.

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD EXPORTED FROM NEW ZEALAND FOR THE YEARS ENDED THE 31ST DECEMBER, 1928 AND 1927, AND THE TOTAL QUANTITY AND VALUE FROM 1857 TO THE 31ST DECEMBER, 1928.

District and County or Borough.	Year ended 31st December, 1928.		Year ended 31st December, 1927.		Total Quantity and Value from January, 1857, to 31st December, 1928.	
	Quantity.	Value.	Quantity.	Value.		
AUCKLAND—	Oz.	£	Oz.	£	Oz.	£
County of Ohinemuri ..	89	297	332	1,149		
Borough of Thames ..	114	340	339	1,151		
Borough of Waihi	75,823	317,991	80,091	336,009		
	76,026	318,628	80,762	338,309	7,474,249	29,070,527
WELLINGTON	..	..	..	..	188	706
MARLBOROUGH—						
County of Marlborough ..	329	1,308	305	1,183	107,342	417,903
NELSON—						
County of Collingwood ..	133	503	245	904		
County of Murchison ..	273	1,088	475	1,905		
County of Waimea ..	37	149	..	..		
	443	1,740	720	2,809	1,742,412	6,908,485
WEST COAST—						
County of Buller	62	241	135	537		
County of Inangahua ..	17,986	70,897	22,012	85,542		
County of Westland ..	15,471	62,924	18,079	73,360		
	33,519	134,062	40,226	159,439	6,557,264	26,029,797
CANTERBURY	..	..	..	..	157	620
OTAGO—						
County of Fiord	..	..	12	49		
County of Tuapeka ..	1,332	5,488	2,286	9,364		
County of Vincent	2,672	10,790	834	3,331		
County of Maniototo ..	727	2,978	890	3,623		
Borough of Cromwell ..	..	..	89	344		
County of Waitaki ..	139	538	89	359		
County of Lake	861	3,456	463	1,857		
County of Wallace	756	2,977	653	2,575		
County of Southland ..	973	3,965	2,131	8,662		
County of Waihemo ..	19	79	..	..		
	7,479	30,271	7,447	30,164	7,773,116	30,956,379
Unknown	926	3,575	711	2,735	10,729	43,205
Totals	118,722	489,584	130,171	534,639	23,665,457	93,427,622

No. 3.

TABLE SHOWING THE OUTPUT OF COAL FROM THE VARIOUS COALFIELDS, AND THE COMPARATIVE INCREASE AND DECREASE, FOR THE YEARS 1928 AND 1927, 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, 1928.
	1928.	1927.			
	Tons.	Tons.	Tons.	Tons.	Tons.
North Auckland	179,460	172,348	7,112	..	4,981,705
Waikato (including Taranaki) ..	602,429	575,182	27,247	..	10,268,774
Nelson	13,528	11,489	2,039	..	451,576
Buller	656,706	657,982	..	1,276	21,350,273
Inangahua	30,324	36,797	..	6,473	638,657
Grey	500,281	449,923	50,358	..	13,016,504
Canterbury	9,145	11,103	..	1,958	954,419
Otago	192,746	173,593	19,153	..	11,843,894
Southland	252,134	278,323	..	26,189	5,257,033
Totals	2,436,753*	2,366,740	..	..	68,762,835

* Increase, 70,013 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, 1928.
	1928.	1927.			
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and semi-bituminous..	1,348,732	1,290,529	58,203	..	41,819,046
Brown	973,238	954,436	18,802	..	22,734,951
Lignite	114,783	121,775	..	6,992	4,208,838
Totals	2,436,753*	2,366,740	..	..	68,762,835

* Increase, 70,013 tons.

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

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 1928.

Imports.

Country whence imported.	Tons.	Value.
		£
United Kingdom	178	157
Australia	247,683	341,824
Totals	247,861	341,981

The values shown are the current domestic values in country 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	41,301	81,047	..	..
Straits Settlements	300	600	..	..
Canada, via West Coast	6,905	8,031	..	..
Chile	2,072	2,175	..	..
Australia	20,328	21,155	12,042	17,958
Fiji	3,903	4,770	..	..
Nauru Island	10,941	11,136	..	..
Gilbert and Ellice Islands.. ..	8,813	8,891	..	..
India	1,118	1,118	..	..
Papua	1,100	1,100	..	..
New Caledonia	1,132	1,132	..	..
United States of America, via West Coast	2,621	2,681	..	..
Tuamotu Archipelago	8,545	8,545	..	..
Whale-fisheries	1,690	3,232	..	..
Western Samoa	917	997	..	..
Belgium	1,503	1,503	..	..
Norway	1,109	2,370	..	..
China	626	645	..	..
Society Islands	5,138	5,138	..	..
Totals	120,062	166,266	12,042	17,958

Exports: Cargo.

Country to which exported.	Produce of New Zealand.		Produce of other Countries.	
	Tons.	Value.	Tons.	Value.
		£		£
United Kingdom	2	5	..	..
Fiji	1,922	2,549	..	..
Western Samoa	1,066	1,192	..	..
Gilbert and Ellice Islands.. ..	2,719	3,681	..	..
Totals	5,709	7,427	..	..

No. 7.

NUMBER OF PERSONS ORDINARILY EMPLOYED AT OR ABOUT MINES OTHER THAN COAL-MINES DURING THE YEAR ENDED 31ST DECEMBER, 1928.

County or Borough.	Number of Persons ordinarily employed at				Total.	
	Gold-quartz Mines.	Gold Alluvial Mines.	Gold-dredges.	Mines other than Gold and Coal.	1928.	1927.
NORTHERN INSPECTION DISTRICT.						
County of Thames	18	..	..	..	18	3
,, Ohinemuri	58	..	..	..	58	73
,, Coromandel	36	..	..	..	36	46
,, Piako	..	..	..	..	..	2
Borough of Thames	33	..	..	..	33	70
,, Waihi	567	..	..	..	567	601
County of Wairoa	..	..	..	21	21	9
,, Taranaki	..	..	..	3	3	2
,, Waiapu	..	..	..	2	2	11
,, Clifton	..	..	..	..	..	5
,, Tauranga	11	..	..	..	11	9
,, Whangamomona	..	..	..	6	6	2
,, Bay of Islands	..	..	..	10	10	..
White Island	..	..	..	12	12	6
WEST COAST INSPECTION DISTRICT.						
County of Marlborough	8	18	..	..	26	18
,, Takaka	..	..	..	..	..	1
,, Collingwood	..	10	..	21	31	83
,, Murchison	..	23	..	2	25	37
,, Buller	7	7	..	..	14	15
,, Inangahua	211	5	..	..	216	281
,, Grey	..	11	9	..	20	35
,, Westland	..	58	53	..	111	110
SOUTHERN INSPECTION DISTRICT.						
County of Tuapeka	2	50	..	2	54	54
,, Vincent	..	33	21	..	54	75
,, Maniototo	3	47	7	..	57	46
,, Waihemo	4	3	..	1	8	8
,, Waitaki	..	6	..	..	6	9
,, Lake	3	45	..	2	50	60
,, Wallace	..	33	..	..	33	33
,, Southland	..	58	..	..	58	67
Totals	961	407	90	82*	1,540	1,771

* Includes 12 persons employed in sulphur-mining, and 34 in oil-boring operations.

Summary of Persons ordinarily employed in or about New Zealand Mines during 1928 and 1927.

——	1928.	1927.	Increase or Decrease.
Gold, silver, and tungsten mines	1,461	1,663	Dec. 202
Other metalliferous mines	79*	108	,, 29
Coal-mines	5,376	5,374	Inc. 2
Totals	6,916	7,145	Dec. 229

* Includes 12 persons employed in sulphur-mining, and 34 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, 1st June, 1929.

I have the honour to present my report on metalliferous mines and stone-quarries, together with statistical information, for the year ended 31st December, 1928.

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, 1928, to the 31st March, 1929.

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 1928 and 1927 :—

Mineral.	1928.		1927.	
	Quantity.	Value.	Quantity.	Value.
	Oz.	£	Oz.	£
Gold and silver (estimated)	532,914	551,242	506,420	550,166
Platinum	35	263	33	231
Osmiridium	½	10	..	..
	Tons. cwt.		Tons. cwt.	
Tungsten-ore	6 4	432	6 9	445
Iron	6,362 0	31,802	3,383 0	17,761
Stone	..	461,890	..	570,369
Pumice	2,301 0	8,280	1,733 0	6,230
Sulphur	719 0	8,200	469 0	3,375
Quicksilver	..	..	0 14	462
Totals	..	1,062,119	..	1,149,039

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, 1928:—

——	1928.	1927.	Increase or Decrease.	Total from the 1st January, 1853, to the 31st December, 1928.
	£	£	£	£
Gold	489,584	534,639	Dec. 45,055	93,427,622
Silver	44,416	42,589	Inc. 1,827	3,103,665
Tungsten-ore	328	821	Dec. 493	306,272
Kauri-gum	240,139	278,632	,, 38,493	22,374,522
Pig iron	1,994	4,592	,, 2,598	6,586
Manganese ore	..	12	,, 12	62,006
Sand, lime, and building-stone	8,830	6,421	Inc. 2,409	482,172
Other minerals	..	215	Dec. 215	
Totals	785,291	867,921	Dec. 82,630	119,762,845

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, 1928.
	Northern.	West Coast.	Southern.	
Gold, silver, and tungsten	723	420	318	1,461
Ironstone	..	21	..	21
Cinnabar	10	..	2	12
Totals for 1928	733	441	320	1,494
Totals for 1927	804	577	352	1,733

*In addition, 12 persons were employed in sulphur-mining and 34 persons in oil-boring operations.

III. ACCIDENTS.

During 1928 one fatal and six serious but non-fatal accidents occurred in or about metalliferous mines, at which 1,494 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	1	1	2	2
Explosives	..	..	2	2
Miscellaneous	..	..	1	1
Miscellaneous, underground	..	..	1	1
Totals	1	1	6	6

An account of the fatal accident, together with reports on the serious but non-fatal accidents, appears in the Inspectors' reports attached hereto.

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, 1928.* (All Mines.)		Dividends paid, 1928. (By Registered Companies only.)†	Number of Persons ordinarily employed at Productive and Unproductive Mines.	Number of Productive Quartz-mines, Alluvial Mines, and Dredges, 1928.
	Quantity.	Value.			
	Oz.	£	£		
Quartz-mining ..	506,473	446,014	99,181	961	22
Dredge mining ..	15,848	64,711	3,283	90	5
Alluvial mining‡ ..	10,593	40,517	1,660	407	333
Totals, 1928 ..	532,914	551,242	104,124	1,458	360
Totals, 1927 ..	506,420	550,166	58,512	1,661	372

* 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 333 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 1928 was greater by £1,076 than that produced in 1927. The return from quartz-mining decreased by £3,267, while the returns from alluvial mining and gold-dredging increased by £363 and £3,980 respectively.

(1) Quartz-mining.

Inspection District.	Statute Tons of Ore treated.		Value of Bullion.		Dividends paid (by Registered Companies only).	
	1928.	1927.	1928.	1927.	1928.	1927.
			£	£	£	£
Northern	205,271	208,372	366,937	366,021	99,181	49,591
West Coast	46,717	46,168	79,044	83,243	..	..
Southern	120	28	33	17	..	..
Totals	252,108	254,568	446,014	449,281	99,181	49,591

The average value per ton of ore treated during 1928 amounted to £1 15s. 5d., as compared with £1 15s. 3d. during 1927.

From the Waihi Mine 181,479 tons of ore were extracted and treated, an increase of 1,836 tons over the quantity of the previous year. The bullion won consisted of 67,322 oz. of gold, valued at £282,752, and 350,669 oz. of silver, valued at £35,067, the total value being £317,819, which is less by £3,174 than the value of bullion won from this mine in the previous year. A considerable amount of development work and diamond drilling was done during the year, but no large body of payable ore was found.

The Waihi Gold-mining Co. has also carried on work in the Waihi Grand Junction property. 22,762 tons of ore were mined, and yielded 67,929 oz. of bullion, valued at £45,762.

Muir's Gold-reefs Mine was unwatered early in the year, and a small amount of crosscutting and driving was done with a view to locating the Muir's reef at the 500 ft. level. The reef was got, but the values were quite unpayable. Two bore-holes were then put down from the surface, but these also failed to strike payable reef, and all work on this property was stopped in May.

The Blackwater Mine produced and milled 39,907 tons of ore for a return of 16,609 oz. of gold, valued at £70,525, being a decrease of 1,455 tons of ore, a decrease of 948 oz. in the amount of gold won but an increase in value of £1,880 over the figures for the previous year.

(2) Dredge Mining.

The following is a statement showing the capacity, production, and profits of bucket gold-dredges during 1928. (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 1928.	Dividends declared.	
								During 1928.	Total.
Otago and Southland.						Ft.	£	£	£
Upper Nevis	Nevis River ..	7	10	205	E	50	4,984	..	..
Nevis Crossing	,, ..	3½	10	12	S	10	1,028	..	..
Undaunted	Little Kyeburn ..	4½	10	60	H	20	87	..	..
West Coast.									
Rimu	Rimu Flat ..	10	19	325	E	55	57,725	3,283	22,981
New River	Dunganville ..	7	18	155	E	35	887	..	..
Totals, 1928 ..	..	..	..	..	..	..	64,711	3,283	Unknown.
Totals, 1927 ..	..	..	..	..	..	..	60,731	6,766	Unknown.

The Rimu Flat dredge worked for 84 per cent. of the possible digging-time, and turned over 1,880,847 cubic yards of gravel for a return of 14,092 oz., valued at £57,725, increases of 119,386 yards, 1,022 oz., and £4,597 over the returns of the previous year. A large amount of prospecting-work was done by Keystone drill, the total number of holes put down being sixty-eight and the average depth 38 ft.

The New River dredge ceased to operate in April, by which time it had turned over 32,000 cubic yards for a return of 219 oz., valued at £887. Since April the dredge has been reconstructed, as it had been found that it was not powerful enough for the work and was constantly breaking down. A new and longer ladder, with close-linked buckets, has been installed, together with the necessary driving machinery, and it is expected that in the present year the dredge will have a greatly increased turnover.

(3) Alluvial Mining.

The following is a statement showing the value of production and dividends declared from alluvial gold-mines during 1928 :—

Name of Company.	Estimated Value of Gold produced.	Dividends declared.	
		During 1928.	Total to End of 1928.
	£	£	£
Nokomai Sluicing Co.	1,781	..	..
Big Beach Gold-mining Co.	2,746	..	..
St. Bathan's Syndicate	1,166	..	..
A. and G. Brown	1,052	..	..
Lawrence Sluicing Co.	804	375	4,125
Gabriel's Gully Sluicing Co.	804	1,000	20,215
Graham and party	1,659	75	4,463
Sailor's Gully Sluicing Co.	1,712	210	9,410
Round Hill Mining Co.	1,699	..	..
W. R. Smyth	1,367	..	..
Hohonu Gold Sluicing Co.	1,974	..	..
Stubbs and Steel	1,121	..	..
All other claims	22,632	..	..
Totals	40,517	1,660	Unknown.

V. MINERALS OTHER THAN GOLD.

Iron.

The ironworks at Onakaka during 1928 smelted 12,725 tons of ore and produced 6,362 tons of pig iron, valued at £31,810. At the present time the plant is closed down pending the disposal of the accumulated stocks of pig iron. A pipe-making plant is being added to the existing plant, and it is hoped in this manner to supply the requirements of this country for pipes, and so enable the blast furnace to be kept in continuous operation.

Sulphur.

A new company, the White Island Products, Ltd., took over the sulphur deposits on White Island, and during the year shipped 719 tons of sulphur, valued at £8,200. Additions to the machinery, plant, and housing accommodation on the island were made during the year.

Petroleum.

The Taranaki Oilfields, Ltd., continued drilling the No. 2 well at Waiapu, and reached a depth of 3,260 ft., when drilling was stopped and the plant removed. Drilling at the Gisborne No. 1 well was continued to a depth of 3,040 ft.; soft shale, which caved badly, was struck, and with the plant in use it was impracticable to continue, so operations were suspended. The Gisborne No. 2 well was begun in April on a favourable structure, and by the end of the year it was down to 2,000 ft. Shows of gas and oil were got in both No. 1 and No. 2 Gisborne wells.

The Blenheim Oil Well Reclamation Co. continued its efforts to recondition and bring into production the old Blenheim well. The well was cleared to 2,200 ft. and securely plugged. Water was shut off at 1,889 ft. Endeavours to bring in the well have so far been unsuccessful.

The New Zealand Oil Syndicate has drilled to 893 ft. at Prospect Valley, near Whangamomona, but without getting more than slight shows of gas and oil.

The Murchison Oil Co., operating at the Mangles River, near Murchison, drilled to 4,080 ft. At this depth the bailer was lost in the hole and operations were suspended.

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 1928 :—

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	166	1,073	480,325	109,800	..	26,449	226,037	..	46,405	202,216
	J. F. Downey, Mines Dept., Waihi (Hauraki Mining District only)	15	103	72,316	..	774	..	..	..	..	26,380
Hawke's Bay	James Newton, Mines Dept., Auckland	16	74	24,449	10,236	..	17,000	..	..	..	9,571
Taranaki ..	Ditto	22	96	27,711	7,583	..	3,260	..	..	..	14,752
Wellington	,, ...	44	215	127,314	1,095	..	10,000	700	..	28,000	48,781
Canterbury	E. J. Scoble, Mines Dept., Reefton	12	104	107,990	1,143	..	4,056	..	..	..	38,721
Nelson, Westland, Marlborough	Ditto	11	162	8,353	18,586	440	2,631	40,485	..	16,118	17,666
Otago, Southland	A. Whitley, Mines Dept., Dunedin ..	33	334	130,283	30,200	6,840	119,553	43,560	..	..	103,803
Totals, 1928	..	319	2,161	978,741	178,643	8,054	182,949	310,782	..	90,523	461,890
Totals, 1927	..	300	2,341	1,145,974	325,789	26,264	144,073	372,475	..	166,020	570,369

There were 180 fewer men employed than during the previous year, and a reduction in the value of the stone produced of £108,479.

Quarry Accidents.

The following is a summary of serious accidents during 1928 at quarries under the Stone-quarries Act :—

Cause.	Number of Accidents.		Number of Sufferers.	
	Fatal.	Serious.	Killed.	Seriously injured.
Haulage	..	1	..	1
Machinery	..	..	..	..
Explosives	..	1	..	1
Falls of ground	1	..	1	..
Miscellaneous	..	5	..	5
Totals	1	7	1	7

Accounts of the fatal accident and of the serious non-fatal accidents are given in the District Inspectors' reports attached hereto.

VII. STATE AID TO MINING.

(1) Subsidized Prospecting.

Upon subsidized prospecting operations 113 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.	Feet.			
C. and W. Campbell	2	Thames	113 10 8	57 17 0	62	Quartz	Prospecting and driving	Several gold-bearing reefs found. Prospects encouraging.
Prescott and McKenzie	2	Mahakirau	11 7 6	11 7 6	29	,,	Driving	On reef carrying a little gold.
McNaughton and Roberts	2	Waihi	8 9 0	8 9 0	13	,,	Sinking	Nothing payable discovered.
Hauraki Mines Consolidated	20	Coromandel	3,000 0 0	1,500 0 0	..	,,	Unwatering shaft	Work uncompleted.
Vulcan Gold-mining Syndicate	..	Thames	26 0 0	..	..	,,	Driving	No work done.
G. E. Hyde	..	Te Aroha	21 13 4	..	..	,,	,,	,,
Ohinemuri Gold and Silver Mines	4	Maratoto	38 11 4	35 19 4	83	,,	,,	Large reef of low value.
H. Meagher	2	Karangahake	86 13 4	86 13 4	200	,,	,,	Nothing payable found.
W. F. D. Macwilliams	2	,,	104 0 0	104 0 0	218	,,	Driving and sinking	,,
Imperial Gold-mining Co.	2	,,	325 0 0	217 13 4	500	,,	Driving	Several gold-bearing reefs cut.
Campbell and Lang	2	Thames	50 14 0	14 6 0	..	,,	Prospecting	Work in progress.
Luxall Mining Syndicate	4	,,	86 13 4	..	..	,,	Driving	,,
Rising Sun Gold-mining Co.	10	Owharoa	589 11 10	207 1 10	188	,,	Unwatering, driving, &c.	Work not completed.
Muir's Gold Reefs	9	Te Puke	7,500 0 0	5,594 0 7	..	,,	Unwatering and driving	Reef not found in low level.
West Coast Inspection District.								
H. Hughes and party	2	Bainham	31 4 0	..	..	Alluvial	Prospecting	No work reported.
S. G. Haines and party	2	Baton	46 16 0	..	..	..	,,	,,
R. G. and S. M. Honey	2	Callaghan's	28 15 0	..	..	Alluvial	,,	,,
Hart and Ahern	2	Wakamarina	46 16 0	46 16 0	..	..	,,	Nothing of value discovered.
McQuilkin and party	2	Kanieri	65 1 5	15 17 6	30	Alluvial	,,	,,
A. E. Morel (Noble's)	3	Waipuna	200 0 0	132 10 0	100	,,	Tunnel and dam	Gold-bearing gravels treated and work in progress.
New Big River Gold-mining Co.	15	Big River	76 5 4	44 12 8	103	Quartz	Driving	Work suspended.
Ross and party	3	Rocky River	85 0 0	18 10 0	74	Alluvial	Tunnel	Work temporarily suspended.
Rimu United Sluicing Co.	4	Back Creek	100 0 0	100 0 0	..	..	Prospecting.	
Skippers' Westland Gold-mining Co.	3	Skippers	400 0 0	100 0 0	162	Alluvial	,,	Work in progress. A little gold found.
Southern Inspection District.								
Reid and Lynch	2	Skippers	90 14 11	45 1 4	144	Quartz	Driving and rising	Nothing payable discovered.
R. Christie	2	Lawrence	5 13 4	5 12 8	13	Alluvial	Driving	No auriferous cement found.
Golden Crescent Sluicing Co.	6	,,	500 0 0	176 12 1	44	,,	,,	Work in progress.
Kawarau High Level Mining Co.	4	Kawarau Gorge	100 0 0	63 8 9	..	,,	Surface	Work in progress. A little gold found.
	113		13,738 10 4	8,586 8 11				

(2) Government Prospecting Drills.

The following table gives details of the drilling done and the results obtained for twelve months ended 31st December, 1928.

Drill Superintendents: W. H. Warburton, E. A. Wilson, E. W. Browne, D. Pettigrew, G. Seale, F. W. R. Godden, and B. F. Tyson.

Drills used: Schram-Harker diamond, Keystone, and placer 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.	
5	102	6	Gold	Gravel and sand..	Four River Plains Syndicate	8s.		..	Promising.
11	896	6	,,	Clay, gravels, &c.	John Stevenson and party	17 0	3 3	..	Satisfactory.
6	81	6	,,	Gravels ..	Matakitaki Syndicate	9 10	29 2	..	..
35	781	6	,,	Gravels and sand	Four River Plains Syndicate	9 8	1 6	..	Fair.
4	144	5	,,	Gravels, &c. ..	Upper Nevis Gold-dredging Co.	6 10	0 7½	..	Unsatisfactory.
3	88	5	,,	Gravels and clay	Lower Nevis Prospecting Co.	32 3	7 11	..	,,
22	368	6	,,	Gravels ..	Clutha Development, Ltd.	22 0	9 3	..	,,
8	479	6	,,	Gravels and clay	J. Stevenson and party	17 0	3 3	..	Satisfactory.
3	151	6	,,	,,	E. W. Finch ..	..	..	..	In progress.
3	208	3 & 4	Water	Limestone & gravels	Cobden Town Bd.	11 8	0 10½	3 2	Unsatisfactory.
2	1,480	1¾	Gold	Clay-andesite breccia	Muir's Gold-reefs, Ltd.	12 0	0 10	10 1	,,
1	571	2⅜	Coal	Mudstone, sandstone, shale, and grit	Hunter and party	6 5	0 1	5 1	,,
3	116	3	,,	Slip sandstone and shale	T. S. Williams and party	9 1	0 9	..	8 ft. seam of good coal.
106	5,465								

(3) Subsidized Roads on Goldfields.

The expenditure in the form of subsidies and direct grants upon roads on goldfields amounted to £1,792, as compared with £3,841 during the previous year.

(4) Schools of Mines.

For the year ending the 31st March, 1929, the expenditure on schools of mines totalled £3,541, against £3,517 for the previous year. This includes a grant of £750 to the University of Otago for the Otago School of Mines. The other schools supported were the schools of mines at Thames, Waihi, Huntly, Westport, and Runanga. The schools of mines do useful and necessary work, though at the gold-mining centres, Waihi and Thames, few of the students take mining and allied subjects, with the result that these two schools are technical schools rather than schools of mines.

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 shaft-sinking was done during the year. A considerable amount of repair work was carried out, and the shafts have been maintained in good condition.

No. 15 Level (1,880½ ft.)—Martha lode, north section: The stoping of Cow block was continued, and at the end of the year the roof was 70 ft. above No. 15 level.

No. 14 Level (1,752 ft.)—Martha lode: An important test of the Martha lode and adjacent country rock was carried out by diamond-drilling from this level. The starting-point of the borehole was at 133 ft. north-west from No. 4 shaft. The direction of the borehole was north-westerly and at right angles to the line of the Martha, and its inclination was 6° from the vertical. The total depth of the borehole was 372 ft., measured from No. 14 level; it therefore penetrated to a depth of 244 ft. below the No. 15 or bottom level. The drill traversed the Martha lode on a long angle between the 291 ft. and 360 ft. marks, the true width of the lode being about 40 ft. The quartz recovered was carefully sampled, and assays ranged from traces up to 10s. 9d. per ton, the average of sixteen samples being 2s. 5d. per ton. Owing to soft slidy country rock at the beginning, and hard vughy quartz in the reef, very great difficulty was experienced in putting down this hole. The work was very expensive, but, in view of the importance of ascertaining the facts about conditions below the bottom level, was persevered with. After passing through the main portion of the Martha the foot-wall was penetrated for a distance of 12 ft., and proved to be a soft white andesite or andesitic tuff, looked upon in the Waihi Mine as being of an unfavourable nature. Details of the formations penetrated are as follows: 0 to 39 ft., hard grey adesite; 39 ft. to 52 ft., hard low-grade quartz; 52 ft. to 61 ft., grey andesite with quartz stringers; 61 ft. to 78 ft., soft slidy country; 78 ft. to 106 ft., hard vughy low-grade quartz; 106 ft. to 137 ft., grey andesite with quartz stringers; 137 ft. to 257 ft., andesite with quartz stringers; 257 ft. to 279 ft., andesite with much vughy quartz; 279 ft. to 291 ft., very soft country rock with patches and stringers of quartz; 291 ft. to 360 ft., main portion of Martha lode, hard vughy quartz; 360 ft. to 372 ft., white andesite or andesitic tuff. A further important test of the Martha lode at this level was made by continuing the drive eastward from No. 4 shaft north crosscut into the Junction Co.'s ground. Starting at a point 549 ft. east of the north crosscut, the drive was extended 238 ft., making its total length 787 ft., the final 125 ft. being in Junction ground. Only low-grade quartz was met with in the course of the driving. At 785 ft. east a crosscut 23 ft. southward disclosed grey andesite. At the same point a crosscut 108 ft. in length was driven to the north and traversed the Martha lode. The formations penetrated were as follows, measured from the south side of the drive: 0 to 20 ft., quartz, and quartz and country, perhaps the Empire lode; 20 ft. to 25 ft., country rock; 25 ft. to 75 ft., quartz, Martha lode; 75 ft. to 108 ft., quartz and country mixed with quartz leaders. The crosscut terminated in whitish andesitic rock. All the quartz met with was low-grade, assays ranging from traces to 11s. 6d. per ton. It is interesting to note that this ground was tested by the Grand Junction Co. some time ago by a crosscut 156 ft. in length from their No. 10 level, above where the Waihi Co. has now crosscut. The Junction Co.'s crosscut passed through 80 ft. of quartz, which was also of very low grade.

Edward lode: Only a few feet of additional driving was done on this lode at No. 14 level, and there was no development of importance. A trial of the ore in the big low-grade Trout block is being made. This block is estimated to contain about 4,000 tons of ore.

No. 13 Level (1,578½ ft.)—Empire lode: Starting at Boundary winze, at the southern end of the 600 ft. east crosscut, 327 ft. were driven on Empire lode in the Junction Co.'s eastern section, and a stoping-block 110 ft. in length was opened up. Westward from the same point a stoping-block, known as "Ellis" block, was opened up in the Waihi Co.'s ground. This block is estimated to contain 4,744 tons of ore, of an average value of £1 14s. 6d. per ton.

No. 12 Level (1,447½ ft.): There is no special development on this level to record. Stoping was continued on a number of blocks. The Manning block, on the south branch of the Dreadnought lode in the Waihi Co.'s ground, was opened up close to the eastern boundary. It is estimated to contain 2,015 tons of ore, of an average value of £2 10s. 6d. per ton.

No. 11 Level (1,301 ft.): The most important development-work carried out on this level was the investigation of the Dominion lode in Junction Co.'s eastern section by an extension of Waihi Co.'s No. 11 level. No. 20 diamond-drill hole was also bored from this level.

No. 10 Level (1,152 ft.)—Edward lode: Further investigation of the country west of the Edward lode was made at this level. The drive on the west reef, the face of which at the end of 1927 was 88 ft. from Waihi Co.'s western boundary, was extended to the boundary and thence 196 ft. into Junction Co.'s western area. The reef proved to be only a thin leader, carrying traces of bullion. Shark north-west crosscut was extended across the line of the Royal lode 180½ ft., making its total length 654½ ft., measured from the starting-point on the Edward cross-lode. It was hoped that this extension might disclose a westward continuation of the Royal lode, but only thin leaders, carrying traces of bullion, were met with. The crosscut was stopped in grey andesite of medium hardness, marked by numerous oxidized joints. The country rock was not of favourable character. A new block, known as the "Roach" block, has been opened up in the Edward lode. It is estimated to contain 5,647 tons of ore, of an average value of £1 12s. per ton. The drive eastward on the south branch of the Dreadnought lode was extended 50 ft. to Waihi Co.'s eastern boundary, and a further 82 ft. into Junction Co.'s ground, making its total length 440 ft. Remnants of blocks of payable ore are being extracted at this point, on each side of the boundary between the two properties. Bomb east block was opened up in Waihi Co.'s ground, close to the eastern boundary, and is estimated to contain 3,343 tons of ore, of an average value of £2 0s. 3d. Further investigation of the Regina section of the Martha lode was also carried out on No. 10 level. The drive mentioned at 600 ft. in No. 4 shaft crosscut, which was standing at 47½ ft. at end of 1927, was extended to 135 ft., and work is being continued in it.

No. 9 Level (1,000 ft.).—South branch of Dreadnought lode: The drive eastward at this level was extended 13 ft. to Waihi Co.'s eastern boundary, and from there 117 ft. in Junction Co.'s eastern area, when it connected with old workings. Payable ore is being won from this reef. The drive on the Empire lode eastward from No. 4 shaft, north crosscut, the face of which at the end of 1927 was standing at 699 ft., was extended to 749 ft., from which point a crosscut, known as "Worthington's north-north-east crosscut," was driven 267 ft. and into the Junction Co.'s eastern section for the purpose of tracing the upward continuation of the run of payable ore met with at Waihi Co.'s No. 10 level extension. Nothing definite in the way of a run of payable ore had, however, been proved up to the end of the year. On the Empire lode, north section, 126½ ft. of driving was done westward from Power

north-west crosscut, and a stoping-block 110 ft. long, known as "Leather" block, was opened up. On the Regina section of the Martha lode, and starting from a point 530 ft. in No. 4 shaft, north crosscut, a crosscut, known as "White's north-west crosscut," was driven 216½ ft. across the Regina lode and connected to old workings on the Martha lode, the purpose of the work being to further test the Regina lode. Crosscuts from No. 8 level, sublevel 70 ft. above White's crosscut, had disclosed quartz varying from 18 ft. to 24 ft. in width, of an average value of £1 7s. per ton. The considerable amount of driving now done eastward and westward from White's crosscut has exposed some very good ore on No. 9 level, and it is expected that a useful stoping-block will be opened up. What the quantity and average value of the ore to be won from here is likely to be cannot yet be estimated with any accuracy, mainly owing to the very soft nature of the whole formation making it difficult to confine stoping to the truly payable portion.

No. 8 Level (852 ft.).—North leader: What is known as the "Peach" block, on this leader, estimated to contain 7,720 tons, was added to the ore reserves during the year, and ore of good grade has been won from it. Peach winze, situated 52 ft. east of Hogson north crosscut, on the same ore-body, has been sunk in ore to a depth of 50 ft. Assays ranged from 9s. 5d. to £2 14s. 4d. per ton, and averaged £1 7s. per ton. At 49 ft. down in the winze a crosscut was put through the ore-body, the full width of which was 19 ft., 5 ft. in the south assaying £1 0s. 11d. per ton, the balance being low grade. The southern section contained a band of sulphide ore of good value, which justifies further investigation. This north leader is now being investigated below, at No. 9 level.

No. 7 Level (702 ft.): The Mary lode, which is a small foot-wall branch of the Martha lode, leaves the main lode within the Waihi Co.'s ground about 200 ft. from the eastern boundary. It runs into the Junction Co.'s ground, and was worked by that company in former years. With a view to testing it in the Waihi Co.'s ground, the Dye north crosscut was driven 22 ft. from the Martha lode. The Mary lode was met at 17 ft., where it proved to be 3 ft. wide and of an average value of £2 1s. 9d. per ton. It was then followed eastward for 205 ft., entering the Junction Co.'s ground at 182 ft. The width along the 250 ft. varied from 2 ft. to 5 ft., and the average value was £1 10s. per ton. The reef was also followed westward for 77 ft., when it died out against a carboniferous seam. A shrinkage block, to be known as the "Comet" block, 116 ft. long, was opened up on the most promising part of the lode. As the result of investigations on No. 6 level, 40 ft. sublevel, a block, to be known as the "Memmott" block, was opened up for stoping on the Martha lode, north branch. It is estimated to contain 2,194 tons of ore, of an average value of £2 8s. 3d. per ton.

No. 6 Level: On this level a shrinkage block, known as the "Whiteson" block, was opened up from 20 ft. east of Rickard crosscut to 68 ft. west of same. It is estimated to contain 1,928 tons of ore, of an average value of £1 11s. 9d.

No. 5 Level: On the 56 ft. sublevel, a shrinkage block, known as the "Rudd" block, was opened up during the year on the north lode. It is estimated to contain 1,257 tons of ore, of an assay value of £1 11s. 9d. per ton. On the 32 ft. sublevel, a shrinkage block, known as "Jennings" block, was opened up. This block is estimated to contain 1,009 tons of ore, of an assay value of £1 14s. 4d. per ton.

Surface workings: Operating from an incline known as "Hogan's" dip, an arch of ore was opened up on the Martha lode. This has been named the "Merry" block, and is estimated to contain 4,007 tons of ore, of an assay value of £1 9s. 6d. per ton.

Diamond-drilling: In addition to the two holes already referred to as having been drilled from No. 14 level, the following bore-holes were drilled in other parts of the mine:—

No. 20 borehole, No. 11 level: This was started in the northern end of Brook's north crosscut, on the Empire lode, about 50 ft. inside the Waihi Co.'s ground, its purpose being to test the Martha lode in that part of the property. The borehole was horizontal, and its direction 5° east of true north. Its total length was 279½ ft., and various reef formations were passed through. From 9 ft. to 16½ ft., quartz and a mixture of quartz and country were cut, assaying 3s. per ton. At 24 ft. to 38½ ft. the Martha lode was intersected, 14½ ft. of quartz and country, and quartz and calcite, assaying 1s. per ton. Between 170½ ft. and 175½ ft. a further mixture of quartz and country was met, which probably represented the Mary lode. Assays revealed only a trace of bullion. The country rock penetrated was generally of a soft nature, brecchiated in places, the final 16 ft. being light-grey andesite.

No. 21 borehole, No. 8 level: This borehole constituted an important test of the country north of the Martha lode. It was started in the chamber in the northern end of Hopkin's crosscut on the Martha lode, the chamber being 320 ft. inside the Waihi Co.'s northern boundary. The total length of the borehole was 435 ft. It crossed the boundary at 320 ft., and the final 115 ft. was in Junction Co.'s extended claim. The borehole was horizontal, and its direction approximately north-north-west. The country rock penetrated was a light grey to whitish andesite, containing much iron-pyrites. Between 72 ft. and 80 ft. the drill penetrated a zone of silicified country containing leaders of calcite. This formation showed only traces of bullion. Small leaders of quartz were met with, but were of no importance. At 386 ft. a 10 in. leader, which assayed 3s. 10d. per ton, was met, and another, 12 in. wide, at 387 ft., assays from which gave values up to 6s. 8d. per ton.

No. 22 borehole, No. 10 level (small drill): The starting-point of this borehole was in the Edward cross-lode at a point 1,967 ft. south from No. 2 shaft, the purpose being to cross the line of the main Edward fissure, which had been followed to a point 190 ft. to the north, and to determine if this reef continued southward. The borehole was horizontal, and its direction south-east. It was put in a total distance of 210 ft., well past the Edward line, but no sign of the fissure was met with.

Output: A total of 181,479 long tons of ore was won and treated, the quantities from each lode being as follows: Martha, 65,851·7; Edward, 47,983; north branch, Martha, 25,345·5; No. 2 reef, 8,600; Empire, 7,166·9; Royal, 5,901·7; Surprise, 4,112·5; North, 3,635·7; south branch, Dreadnought, 2,562·5; North leader, 2,369·6; Jellicoe, 1,655·4; Alexandra, 1,400·9; Mary, 1,394·7; Regina, 1,050·9; south branch, Welcome, 936·7; north section, Empire, 900; Welcome, 368·8; right-hand branch, Welcome, 137·6; Dreadnought, 104·5.

The total value of the bullion recovered was £317,818 15s. 6d. The recovery of gold was 67,321 oz. 17 dwt. 9 gr., valued at £282,751 17s. 4d., and of silver 350,669 oz. 1 dwt. 9 gr., valued at £35,066 18s. 2d.

The company paid dividends during the year to the sum of £99,181 8s., making the total disbursements to date £5,643,920 6s. 6d. The average number of men employed was 553.

Grand Junction Mine (J. L. Gilmour, Manager).—The claims held by this company have been worked throughout the year by the Waihi Co. Comparatively little development work was carried out, the more important items being the extension on No. 14 level of the Waihi Mine of the drive eastward from No. 4 shaft, north crosscut, for 125 ft. in Junction ground; the extension of the 600 ft. east crosscut on the Empire lode on Waihi No. 13 level 327 ft. into Junction ground; the investigation of the Dominion lode in the company's area from Waihi No. 12 level; the extension of the drive on West reef on No. 10 level, Waihi Mine, 196 ft. into the Junction; the investigation of the Republic and Wowser lodes; the extension of the drive on the south branch of the Dreadnought lode 32 ft. into Junction ground on No. 10 Waihi level; and the extension of the Worthington north-north-east crosscut into Junction area on No. 9 Waihi level.

Some 22,762 long tons of ore were won, which yielded bullion to the value of £45,762 6s. 9d. The amount of gold produced was 9,504 oz. 14 dwt. 14 gr., valued at £39,919 17s. 3d., and amount of silver 58,424 oz. 14 dwt. 14 gr., valued at £5,842 9s. 6d. The average number of men employed was fourteen.

Rising Sun Mine, Owharoa (R. R. Morrison, Manager).—The formation of a new company having been effected, underground operations were resumed in this mine in April. The mine-workings were found to be in very bad order, and considerable expense was entailed in putting them in repair; work was practically confined to the bottom

(No. 3) adit. The principal development work subsequently carried out was the putting-out of a crosscut from a point 1,560 ft. from the mouth of the adit for the purpose of intersecting Nos. 1, 2, and 3 reefs on their southern extension. Several small quartz veins carrying a little gold, but unpayable for working, were met with, but although the crosscut was apparently extended far enough to cut No. 1 reef no sign of the latter was noted. The drive on No. 3 reef was extended south about 10 ft., making the face 165 ft. south of the main crosscut. At this point a chamber was cut, and the sinking of a winze started. This winze was subsequently sunk about 30 ft. on reef about 12 in. wide, said to carry fair values. The drive north on No. 3 reef was also extended 7 ft., and a chamber cut there, from which a winze was sunk about 9 ft. on reef about 15 in. wide and said to show good dish prospects. Some stoping was done on a block north of the south rise to No. 2 level, and on two blocks north of winze from No. 2 level, 647 tons of ore being mined from these places, which on treatment yielded 970 oz. 18 dwt. bullion, valued at £1,601 4s. 8d.

Imperial Gold-mining Company, Karangahake.—On this company's holdings a new tunnel was put in for 630 ft. to test what is known as the "Ballroom" area. Several small veins were intersected, one of them, met at 412 ft., being about 30 in. wide. This was considered to be the downward continuation of the Ballroom leader, and several samples taken from it showed on assay values up to £7 17s. 9d. per ton. At the end of the adit a 7 ft. reef was cut, from which samples were assayed and gave results ranging from a few pence to £10 per ton. A trial crushing of 2¼ tons from this reef, put through the plant at the Thames School of Mines, only returned, however, bullion valued at £4 18s. 4d., which represented 72·6 per cent. of the full assay value. The company also had a parcel of 2¼ tons from another reef on the property, the Soutra reef, put through at the same plant. This crushing yielded bullion valued at £3 16s. 10d., said to represent a 65 per cent. extraction.

Earl of Glasgow Claim, Karangahake (J. B. Morris, Owner).—No mining-work was done on this claim during the year, but the treatment of some sand from previous operations resulted in the recovery of 48 oz. bullion, valued at £46 5s. 6d.

McWall Claim, Karangahake.—The adit level was extended to 336 ft. without anything of value being met with. A winze was then started from the adit a few feet back from the face, and up to the end of the year this had been sunk about 30 ft. with no better results.

New Talisman Claim, Karangahake (R. Schulzki, Manager).—This claim, which formed part of the old Talisman Co.'s property, was operated by a Marton syndicate. The main objective was to locate a portion of Shepherd's lode, on the horizon of Talisman No. 8 level, which it was thought had been missed by previous operators. After picking up an old adit and driving about 227 ft. the portion of Shepherd's lode looked for was picked up, but at this place was not found to contain any values. Cornes reef was also intersected, but was not found rich enough to pay for working.

Crown Claim, Karangahake (A. H. Meagher, Owner).—This claim formerly formed part of the Crown Mining Co.'s area. The present owner has done a good deal of superficial driving and trenching on it, and located a small rich leader. He is now driving an adit to prove it about 100 ft. lower down. To the end of the year this adit had been driven 170 ft.

Maoriland Gold-mining Company, Waitekauri.—In the early part of the year a certain amount of development work was carried out in No. 4 level. A crosscut was put out east for 39 ft. with a view to picking up the downward continuation of the Young New Zealand, or, as it is now known, the Maoriland reef, but nothing of any value was met with. About 60 ft. was also driven towards the northern end of the adit on a reef believed to cross the Welcome lode. A little gold occurred in this reef, but as the values were not considered payable attention was transferred to the No. 3 level and the Intermediate level 70 ft. below it. A crosscut was put out eastward from the latter, but nothing of value was found. Stoping was then carried out on a small foot-wall leader of the Maoriland reef, from which 9 tons of ore were mined. On treatment at the Thames School of Mines this ore yielded 105 oz. 2 dwt. gold, valued at £316 1s. 6d. Up to the end of the year this leader had been stoped up to the horizon of No. 3 adit, in which distance it had shortened to about 30 ft. in length.

Ohinemuri Gold and Silver Mines, Ltd., Maratoto (W. M. McConachie, Manager).—Development in this mine was carried on actively. In the Silverstream adit (No. 3 level) the drive north on the Camoola lode was extended a further 223 ft., making a total distance of 955 ft. from the main crosscut. At 732 ft. the lode disappeared, having evidently been cut off by a fault, the country from this point showing evidence of much crushing. At 540 ft. north a rise was carried up for 43 ft., where further evidence of faulting was revealed and the reef was cut off. A crosscut was put out easterly at 600 ft. north for 60 ft., and another in the same direction for 39 ft. at 780 ft., while at 630 ft. north a western crosscut was put out for 31 ft. At 723 ft. north a winze was started on the hanging-wall of the reef, but this had been carried down only a few feet at the end of the year. In the south end of the drive on the Camoola reef from the Silverstream level crosscuts were put out in unpayable ore for 18 ft., 35 ft., and 245 ft. respectively, and a branch drive from a point about 1,800 ft. south of the main crosscut was extended 457 ft. Further work in the Silverstream level consisted in the picking up for their entire length of the old workings on the Julia and Queen reefs, and the starting of a winze on the latter. The Telluride adit (No. 4 level), about 50 ft. below the Silverstream adit, was extended eastward a further 298 ft., making its total length 2,258 ft. Although carried beyond the line of the Camoola reef, this crosscut did not succeed in intersecting it, and a drive was started southward at about 100 ft. back from the face of the crosscut to meet the reef beneath the workings on No. 3 level. To the end of the year this drive had been advanced about 245 ft. A good deal of work was done in connection with the reconditioning of the treatment-plant.

Hauraki-Alaska Gold-mining Company, Ltd. (A. Bird, Manager).—On this company's property, at Neavesville, the only operations during the year consisted of the erection of a 10-stamp battery and the installation of a 60 h.p. suction-gas plant and compressor, at a cost of approximately £7,000. It is not expected that this plant will be ready to start crushing before March, 1929, when it is the intention of the company to thoroughly test the values of the low-grade gold deposits known to occur in this locality by putting through large bulk parcels of the material.

New Waiotahi Gold-mining Co., Ltd., Thames.—During the first six months of the year work was directed towards trying to locate the displaced surface portions of the Waiotahi-Cambria reef hillward of the slide by crosscutting from the main level. A distance of 253 ft. was driven, which was considerably beyond the estimated position of the reef. At this time, owing to heavy rains, a troublesome portion of the main level collapsed, and no further work was done. The latter portion of the year was occupied in driving to prospect the country between the main level and the Caledonian reef. A few small stringers were found, one carrying a few strong blotches of gold. A reef was also cut, out of which a few pieces of picked stone were got, but when driven on it was found to have been worked. Operations were then directed to the Waiotahi No. 2 reef, on which a stope is now being carried on a reef from 9 in. to 12 in. wide, in which strong dabs of gold are occasionally seen.

Alburnia Gold-mining Co., Ltd. (J. H. Benney, Manager).—The following is a brief account of the most important development operations carried out: The drive seaward on the main Sons of Freedom reef from west crosscut was extended 120 ft., making its total length 210 ft. The drive was on reef averaging about 30 in. in width, in which colours of gold were seen at times. The drive hillward on foot-wall dropper of the main Sons of Freedom reef was extended 300 ft., making total length 370 ft. from west crosscut. The reef here averaged about 12 in. wide, and a few colours of gold were seen. At 70 ft. back from the face in this last-mentioned drive a crosscut was driven east 20 ft. without meeting with anything of value. At 300 ft. in the same drive a rise was put up 86 ft. on reef averaging about 15 in. in width, but no gold was seen in the stone. From the top of the rise a crosscut was put out west for 10 ft., when it cut the main Sons of Freedom reef, which was 5 ft. wide. This reef was then driven on south for 20 ft.,

at which point it was still about 5 ft. wide, but was mixed with pug. A crosscut was also driven east from the top of the rise, but no reef was met with. The drive north on the hanging-wall branch of the Orlando reef was extended 48 ft., making the total 303 ft. from main west crosscut, on reef averaging about 12 in. wide, in which colours of gold were occasionally seen. At 30 ft. back from the face of this drive a cross-leader came in from the west wall, from which 30 lb. of picked stone was taken. A distance of 23 ft. was driven on this leader, a rise was put up on it for 12 ft., and a winze sunk for 8 ft. A rise on the hanging-wall branch of the Orlando reef at 70 ft. north of main west crosscut was put up 43 ft. on reef averaging about 2 ft. in width, in which colours of gold were seen at times. A drive was also extended north for 50 ft. on the foot-wall branch of the Orlando reef. A little stoping was done on the hanging-wall branch of the Orlando reef, but no stone was crushed.

Nonpareil Gold-mining Co., Thames.—No work was done on this company's claim, which was under protection for the main portion of the year.

Caledonia-Kuranui-Moanatairi Gold-mining Co., Ltd. (S. G. Baker, Manager).—Driving was continued on the main reef from the bottom of No. 2 winze, also on the foot-wall dropper, but as a break came across the face and displaced the reef work was discontinued, as it only meant waste of money in looking for it at this point, the work being only 30 ft. below the main adit. As the winding-gear was in a bad position for hauling, a chamber was cut out in the hanging-wall of the reef, and the winch was shifted to this point on the main adit about 70 ft. seaward of the main rise. A rise was put up from the workings below to connect with the chamber, and sinking was then commenced on the main reef, with the intention of sinking to water-level and then opening out. Very encouraging results are said to have been obtained from the quartz broken out in the sinking. Over the main adit a stope was taken along from the main rise, which disclosed another reef in the hanging-wall, lying very flat. This reef could only be worked economically from a lower level. At a point in the main adit about 90 ft. seaward of the main rise a crosscut was projected for 50 ft. into the foot-wall to try and pick up the main Cambria lode, but was not carried far enough to effect its purpose when all work was stopped at the end of October on account of shortage of capital. During the year 116 tons of quartz were treated, for a return of 83·95 oz. gold, valued at £326 17s. 7d., and 26·58 oz. silver, valued at £2 16s. 4d.

Kuranui Gold-mining Co., Ltd.—From two to four men were employed for portion of the year prospecting various parts of the property without successful result.

Occidental Una Unitel Gold-mining Co., Ltd.—During the early part of the year operations were confined to exploring-work in the northern end of the property on No. 5 level, where the Occidental No. 1 reef ran into the old Una claim. A big block of ore was opened up here, and a trial crushing of 90 loads of general dirt, together with picked stone, returned bullion valued at £321. Later in the year work was transferred to the south end of the mine, with a view to testing the extension of No. 2 Occidental reef south of the shaft on No. 5 level. This lode for about 300 ft. north of the shaft on this level gave the late Occidental Co. its main run of gold, but as the reef became disturbed near the shaft the old company did not follow it south. Driving in this direction by the present company during the year revealed that a body of ore from 4 ft. to 8 ft. wide extended in this direction. Some eighty loads taken from this part and crushed returned bullion to the value of £296, which was considered payable, and further crushings will be taken out. For the year 246 oz. 6 dwt. bullion, valued at £617 18s. 3d., was recovered from 250 tons (170 loads) of ore.

Lucky Shot Gold-mining Co., Ltd. (J. Smith, Manager).—The most important development work consisted in driving 8 ft. on a hanging-wall dropper of Golden Age reef on the main adit level, and 50 ft. on the same dropper at an intermediate level 50 ft. below the main adit. To connect two winzes on the latter level, 75 ft. was also driven on the Golden Age reef. A little driving, rising, and sinking was also done north of the break on the main reef. The old Half-moon (or Bird's) adit was also put in repair, and was extended to come under the intermediate level referred to, and rising and sinking was in progress to make connection between these two workings, which are about 80 ft. apart vertically. No crushing was done.

Zeehan Consolidated Gold-mining Co., Thames.—No work was done on this company's property, but a new company was in process of formation, which hoped to resume active mining early in the new year.

Cambria Gold-mining Co. (A. F. Sawyer, Owner).—A little prospecting-work only was done on this property, but at the end of the year a strong effort was being made to float a new company to actively work the claim.

Belgium Claim, Thames (A. Geraty and H. Adams, Owners).—No mining-work was done on this property during the year, but a clean-up of about 1 cwt. of stone previously picked out yielded 26 oz. 14 dwt. gold, valued at £70 6s.

Hauraki Mines Consolidated, Ltd., Coromandel (H. F. Shepherd, Manager).—Practically no active mining was done, underground work in this company's property having been seriously limited owing to a heavy influx of water from the seaward face of the 400 ft. level. The flow was considerably above the capacity of the main plunger-pump, and this fact, combined with the exceptionally wet weather experienced, compelled the replacement of the cages by bailing-tanks to cope with the water. While the change was being made the water flooded the bottom plunger, which eventually gave out. A draw-lift had then to be assembled and installed, and while this was being done the water rose to 8 ft. above the 300 ft. level. After a series of heavy rains and machinery breakdowns the water was eventually lowered to the 400 ft. level by the end of the year.

Father's Hope Claim, Tokatea.—A little prospecting only was done, without any very favourable result.

Mount Welcome Claim, Tokatea.—The company previously working this claim was struck off the register during the year, but a small party has since taken up and done a little prospecting on it.

Handsworth Claim, Kuaotunu (S. James, Owner).—A little prospecting was done, and about 15 lb. of picked stone secured, which on treatment returned 10 oz. 13 dwt. gold, valued at £24 12s. 6d.

Empire Reefs Gold-mining Co., Whangamata.—Two men were employed for part of the year doing a little prospecting, without successful result.

Muir's Reefs Ltd., Te Puke.—In the early part of the year the main crosscuts to the Muir and Massey reefs at the 500 ft. level were cleaned up and repaired. In the crosscut to Muir's reef, at a point 635 ft. from the shaft, a drive was started south on the course of the lode. This drive was subsequently advanced about 189 ft. without finding anything of value. At 62 ft. from main crosscut a quartz lode was met with, which proved to be 42 in. in width, and the drive continued on this lode to 134 ft., the average width being 33 in., and the average assay value 6s. 2d. per ton. To 173 ft. the average width was 3 ft., and values varied from 3s. 6d. per ton to 13s. 11d. A small amount of crosscutting, totalling about 90 ft., was also done from this drive, and a drive east on Muir's reef crosscut was extended for 20 ft. This was practically all the work done on this level. On No. 3 level the winze was continued down to 291½ ft. below the level. From 210 ft. to 262 ft. the winze was in country rock containing some quartz stringers. In order to find out if the winze was off the lode, a crosscut at 245 ft. down was driven 8 ft. into west wall and 8 ft. into east wall, but country rock only was penetrated. On the east side of winze, at 260 ft. down, there was a vein of clean quartz 12 in. wide. At 280 ft. down a crosscut was driven 13 ft. into the west wall, but only exposed unfavourable rock, while another crosscut into east wall for 18 ft. showed small stringers and fragments of quartz. About the end of May underground operations ceased, and the only work since done on the property consisted of diamond-drilling from the surface. Two boreholes were put down, one of which reached 540 ft., when it had to be abandoned owing to having got out of line. This hole was in very broken country, and required cementing three times. The other bore reached 940 ft. It was also in very broken and slidy ground. No results of value were obtained.

Quicksilver-mines.

The Great British Cinnabar-mines, Ltd., Puhipuhi (T. A. Black, Owner).—An adit level was driven for upward of 400 ft., with a view to picking up the cinnabar-bearing formation at greater depth than previously worked, but up to the end of the year this working had not been carried far enough to reach its objective.

Mount Mitchell Mercury Mine, Puhipuhi.—One man was engaged at prospecting, but nothing of definite value appears to have been found.

Kaikohe Ltd. (R. H. Goodwin, Manager).—After testing by means of numerous boreholes an area of about 600 acres at Ngawha Springs, in North Auckland, an English company, satisfied with the prospects of the property as a quicksilver-producer, has made a start with the installation of the necessary plant for mining the deposit and recovering the mercury. The average number of men employed was five.

Sulphur.

A resumption of operations took place in connection with the working of the sulphur deposits on White Island, a new company, known as White Island Products, Ltd., having been formed to work them. The sulphur is mainly to be used for the manufacture of fertilizers. A lot of work in the way of installing machinery, erection of houses for plant and employees, &c., was carried out. The average number of men employed was twelve. Some 2,107 tons of crude ore, containing 33 per cent. sulphur, were mined and sold, realizing £8,164 12s. 6d., and a further 71 tons were quarried, valued at £35 10s.

Oil-wells.

Blenheim Oil-well Reclamation Co., Ltd.—Work at this well consisted mainly in reconditioning the whole of the 7 in. and 10 in. casing. After a great deal of trouble the 10 in. casing was withdrawn from the well, put in good order, and restored to its place. At 2,200 ft. the well was securely plugged, and the water was effectively shut off at the 1,889 ft., 8 tons of cement being used. The shutting-off was done in October, since when efforts have been made to bring in the well, without any successful result up to the end of the year.

New Zealand Oil Syndicate.—This syndicate, operating at Whangamomona, started the drilling of a well, known as Prospect Valley No. 1, and up to the 22nd September had penetrated to a depth of 893 ft., when, owing to continued breakages of the boring-rods, it was decided to case the hole. The latter was then reamed out and cased to 600 ft. with 3 in. casing, and the hole was rebored to its original depth by the 21st December, when operations ceased for the time being. Slight traces of light oil were noted in the material coming from the bore, and faint blows of gas occurred from time to time.

Taranaki Oilfields, Ltd.—This company during the year operated exclusively in the East Coast district. The No. 2 well at Waiapu was continued from 2,908 ft. to 3,260 ft., at which depth drilling was suspended in view of the absence of encouraging developments. The first objective sought in this well was what is known as the "igneous conglomerate," which marks the distinction between the tertiary and cretaceous beds; but no evidence of its presence was discovered, the ground penetrated consisting entirely of grey shale, much of which was very soft and inclined to cave. Gisborne No. 1 well, at Morere, was continued from 2,140 ft. to 3,040 ft. Much difficulty was experienced in getting this well down, particularly in running the casing. Every effort was made to carry each string down as far as possible, but the 15½ in. casing had to be landed at 359½ ft., and the 12½ in. at 661 ft. The 10 in. casing was carried to 1,502 ft., and as it was found impracticable to run it deeper was set in cement at this point. A fairly good shut-off was made, but salt water was struck in sand at 1,640 ft. Throughout the whole of the depth the sinking was in alternate bands of shale and sandstone, and as much of the latter was unusually hard the wear-and-tear on drilling-tools and cable was much above the average. A string of 8¼ in. casing was cemented at 2,245 ft. without success, but a second effort effected a satisfactory shut-off. Below this mark further water was met in sand, which continued to 2,350 ft., below which a bed of shale 600 ft. in thickness was entered. In this shale continuous caving gave much trouble. Between 2,975 ft. and 2,980 ft. a bed of sandstone came in, some of which smelled strongly of petroleum, and the samples gave strong reaction for oil when subjected to the chloroform test. Just above 3,000 ft. 5 ft. of hard shale was met, below this several feet of running sand, and below this again soft caving shale. Efforts sustained for several months did not succeed in carrying the bore below the 3,040 ft. mark. There was a show of gas at 2,065 ft., and there was evidence that gas, together with salt water, occurred at the 3,000 ft. horizon. The gas was inflammable.

The Gisborne No. 2 well is situated about seven miles in direct line westerly from the No. 1 well, and about sixteen miles from the Port of Waikokopu by road. This well was started in April, and to the end of the year had been carried down approximately 2,000 ft. Near the surface a recent deposit of sand and boulders was found, which gave a good deal of difficulty in penetrating. From 40 ft. to 80 ft. the ground consisted of shale, carrying boulders or hard concretions, and from 80 ft. to 230 ft. sandstone. Below this were alternate bands of slate and sandstone. Hard concretions occurred at several horizons, especially at 250 ft. to 450 ft., and at 1,250 ft., which hindered progress considerably. A show of gas was got at 140 ft. to 175 ft., and another at 765 ft.

Much geological work was carried out on the various areas.

Accidents.

One fatal accident occurred. On the 13th June a miner named Alfred James Brian, employed in the Ohinemuri Gold and Silver Mine at Maratoto, was killed by a fall of ground. Deceased and his son were working on contract, extending the north drive on the Camoola lode in the Silverstream level, in somewhat broken country. At the time of the accident the men were engaged in cutting a hitch preparatory to putting in a set of timber, when a piece of rock shaped like an inverted V dropped from the back, burying deceased, who at the time was holding a moyle his son was striking. Death must have been almost instantaneous, as the spine, pelvis, and right thigh of deceased were fractured. The son stated that before starting to cut the hitch they had pulled down any loose ground overhead, and considered the working safe. An inquiry was held at Paeroa, at which, after hearing evidence, the Coroner returned a verdict that deceased was killed by a fall of dirt on the 13th June about 11.30 a.m., and in his opinion the cause was purely accidental, and no blame could be attached to anybody.

Two serious accidents unattended by fatal results were reported. On the 13th June a miner named Frank Thornton, working in a stoping-block on the Edward lode on No. 13 level of the Waihi Mine, had the middle finger of his right hand blown off by the explosion of a detonator. Thornton, who was a miner of thirty years' experience, stated that in preparing charges for two holes he had taken two detonators from a detonator-box in the magazine and placed them on a box near by, then took off the cover of the tin in which the fuse was kept, and was drawing the coil of fuse out, when a sudden explosion occurred, with the before-mentioned result. Thornton was positive he did not have a detonator in his hand at the time, and had no idea how the explosion was brought about. The other accident happened to a miner named James College, on the 31st July. He was engaged in a drive on the Martha lode at No. 2 intermediate level, below No. 9 level, of the Waihi Mine, when a fall of quartz resulted in the bones of his right leg being broken below the ankle. College was an old and experienced miner, and at the time was engaged in barring down after firing a round of holes, when a boulder slipped out from between two heads, striking him on the leg.

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

Quartz-mining.

Marlborough District.

Dominion Consolidated Mine.—The conduct of operations at this mine was taken over in the early part of the year by Mr. D. M. Straker, who has taken a lease of the property. Development consists of the following: No. 1 level advanced 180 ft. north, of which 80 ft. were on reef averaging 16s. over 7 ft., 80 ft. were on reef averaging £1 4s. over 14 ft., and 20 ft. carried no values. No. 2 level advanced 100 ft. north, the whole distance driven being in country rock. This level was driven with a view to locating the reef, which had pinched out farther south, but the results obtained were disappointing. No. 2 level: Rise 850 ft. north was put up to a height of 30 ft., where it encountered a winze sunk to a depth of 40 ft. from No. 1 level. An intermediate level, driven for a distance of 110 ft. at a height of 30 ft. above No. 2 level (and projected from the rise mentioned), penetrated stone averaging £1 5s. 6d. over 6 ft. Stoping operations were immediately commenced on this block. At the battery 2,358 tons of ore were crushed for a yield of 619 oz. of gold, valued at £2,390. Recovery was obtained by amalgamation, cyanidation not being resorted to. Eight men were employed throughout the year.

Reefton District.

Blackwater Mine.—During the year an average of 164 men were employed, and the results, both in development work and tonnage treated, were somewhat better than those obtaining over the previous period. In all, 1,932 ft. of development work was done, of which 1,380 ft. was on reef averaging 13·25 dwt. over a width of 23·7 in. Of the total footage, 1,264 ft. were on pay-reef averaging 13·69 dwt., and 116 ft. on unpayable reef averaging 6·10 dwt. over 15·3 in., the remaining 552 ft. being off reef. The following are the details of the work: No. 6 level advanced north 204 ft., of which 129½ ft. were on reef averaging 12·62 dwt. over 18·2 in.; No. 7 level advanced north 449 ft., of which 320½ ft. were on reef averaging 14·72 dwt. over 21 in.; No. 8 level advanced north 122 ft. on reef averaging 14·80 dwt. over 28 in.; No. 8 level north, south branch, was driven 88 ft. on reef averaging 9·66 dwt. over 38 in.; No. 9 level north, branch drive, was driven 70 ft., of which 35 ft. were on reef averaging 17 dwt. over 26 in.; No. 9 level advanced north 202 ft., of which 166 ft. were on reef averaging 13·72 dwt. over 23 in.; No. 10 level advanced north 132½ ft. on reef averaging 8·88 dwt. over 16·7 in.; No. 10 level, intermediate from rise 110 ft. south, was advanced north 16 ft. off reef; No. 7 level, Prohibition section, was advanced south 14 ft. off reef. The following rising was done: No. 7 level, rise 2,280 ft. north, Prohibition section, was put up 45 ft. on reef averaging 15·13 dwt. over 23·5 in.; No. 8 level, rise 2,220 ft. north, was extended 75½ ft. on reef averaging 15·5 dwt. over 30 in.; No. 7 level, rise 2,400 ft. north, was extended 28 ft. on reef averaging 16·2 dwt. over 29 in.; No. 9 level, rise 1,780 ft. north, was advanced 15 ft. on reef averaging 17·9 dwt. over 37 in.; No. 10 level, rise 490 ft. north, was extended 89 ft., of which 20 ft. were on reef averaging 11·40 dwt. over 36 in.; No. 10 level, rise 110 ft. south, was extended 71ft., of which 65 ft. were on reef averaging 10·95 dwt. over 32 in. The winzing carried out was: No. 6 level, winze 2,180 ft. north was sunk 40 ft., of which 30 ft. was on reef averaging 5·23 dwt. over 14·7 in.; No. 7 level, winze 2,400 ft. north, Prohibition section, was sunk 56½ ft., of which 40 ft. was on reef averaging 16·51 dwt. over 14·7 in.; No. 7 level, winze 2,220 ft. north, was sunk 68 ft. on reef averaging 12·51 dwt. over 16 in.; No. 8 level, winze 1,780 ft. north, was sunk 23½ ft. off reef; No. 9 level, winze 1,080 ft. north, was sunk 64 ft. off reef. On Nos. 7 and 9 levels 46 ft. was also done all off reef. At the battery 39,907 tons of quartz was crushed for a yield of 16,609 oz. 3 dwt. gold, of which 13,241 oz. 7 dwt. was obtained by amalgamation, 2,157 oz. by cyanidation, and 1,210 oz. 16 dwt. by treatment of concentrates, the values of the whole recovery being £70,524 12s. 5d. As the quantity crushed is less than that of the previous year by 1,455 tons, and the total value showed an increase of £1,879 11s. for the same period, it is evident a slight increase in values has occurred. Practically all development work has consisted of extending Nos. 7, 8, 9, and 10 levels in the direction of the Prohibition section (North Blackwater). A connection was obtained with the Prohibition workings in October last from a rise put up at a point 2,400 ft. north on No. 7 level. It was anticipated this connection would act as an upcast, but events proving otherwise it was found necessary to make other arrangements. A fan capable of producing 22,000 cubic feet of air per minute has been installed, and is operating at the top of the Prohibition shaft, the result being that a strong brisk current of air is constantly in circulation throughout the mine. Almost the whole of the stone crushed during the year has been won from the extreme north end of the mine, from the various levels mentioned. No attempt has been made to operate on No. 11 level, the shaft being sunk to that depth notwithstanding.

Murray Creek Mine.—Operations have been confined to development work above No. 2 Murray Creek battery level. The intermediate level 130 ft. above No. 2 level was extended a farther distance of 159 ft., exposing reef varying in width from 1 ft. to 3 ft. This level is now in a total distance of 454 ft., and is under the old Victoria reef, worked in the early days of Murray Creek. In No. 2 Murray Creek level, at a point 187 ft. from the wet pass, a rise was put up to this intermediate level. The rise started in reef 18 in. in width, which cut out about 20 ft. above the level. At 50 ft. stone came in again, and was carried right through, varying in width from 1 ft. to 4 ft. A rise was put up from the intermediate level to No. 4 Victoria level, 440 ft. from the portal. This was started on reef-track; reef came in at a distance of 40 ft. from the floor and was carried through for the remainder of the distance risen, carrying widths varying from 2 ft. to 5 ft. Repairs were carried out to the 40 ft. rise connecting No. 4 Victoria and No. 3 levels. No. 3 Victoria level was cleaned out and put in good order, thus ensuring excellent ventilation throughout the mine, and enabling necessary timbers to be obtained from the surface area at Murray Creek. No. 2 Murray Creek level was also repaired to a point 400 ft. south of the wet pass. Ten head of stamps at the battery have been put in order and the plant overhauled preparatory to commencing crushing operations early in the new year. The average number of men employed throughout the year was eight, but it is expected this number will be augmented considerably when mine and mill are both in operation.

New Big River Mine.—Work at this mine was confined exclusively to No. 2 level, where a crosscut, put out in a north-westerly direction from the shaft, was driven for a distance of approximately 200 ft. A narrow block of payable stone was located in the crosscut, but sinking and some small amount of stoping carried out on the ore-body proved it to be so limited in extent as not to warrant further exploitation. A final clean-up at the battery resulted in 19 tons of material being treated by concentration, the yield obtained therefrom equalling 103 oz. of gold, valued at £330 6s. 11d.

The *North Big River*, *South Blackwater*, *New Millerton*, and *South Big River Mines* were all idle during the year.

Progress Mine.—Work at this mine remains suspended, but the treatment plant, operating on some residues dumped in the past, produced therefrom gold valued at £1,812 9s. 10d. One man was employed regularly throughout the period, and the total slimes treated equalled 303 tons.

Wealth of Nations Mine.—No work of any description has been carried on at this company's mine, but the treatment plant, operating on residues dumped over a number of years, was put in running-order during the early part of the period, and has since worked a moderate tonnage of slimes with a reasonable amount of success. Gold valued at £1,670 1s. 9d. has been recovered from the material treated. The total number of persons employed was six.

Alexander River Reefs Mine.—Work was carried on steadily at this mine, an average of seventeen men being employed. Unfortunately, developments have not been as satisfactory as could be desired. Bull crosscut was driven a distance of 105 ft. to prove the country north of the Bull block of stone, and also to ascertain if any other reef existed north on this line. A reef-track, encountered at a distance of 88 ft. from the surface, and believed to be on the Bull line of reef, was driven on for 49 ft., but with disappointing results; driving has ceased. No. 2 crosscut: No. 2 level south was driven for a distance of 110 ft., but has been suspended at that point. At a distance of 22 ft. from the crosscut a block of stone was encountered which measured 15 ft. in length, with a width of 4 ft.; its values were low. Driving was continued for a farther distance of 10 ft., when another block of stone was encountered, and on this being penetrated it proved to measure 20 ft. in length, with a width of 2 ft., values equalling £1 12s. per ton. No. 4 crosscut: No. 1 level north was driven on reef-track for a distance of 162 ft., but, though several narrow bunches of ore were passed through, nothing of importance was developed. No. 4 crosscut: No. 1 level south was driven on stone averaging 2 ft. in width, with a length of 40 ft. Driving was suspended at this point, as values were low. No. 4 crosscut: No. 2 level south was driven on reef-track for a distance of 86 ft., but driving was suspended at that point as nothing of importance developed. Loftus reef, Mullocky Creek: No. 1 level was driven for a distance of 175 ft., 93 ft. being on stone about 15 in. in width, and carrying values of something over 1 oz. to the ton. A rise was put up on this block for a distance of 43 ft., and proved stone with a width of 10 in. to a height of 15 ft. The remainder of the rise was in faulted country. Mullocky Creek No. 2 crosscut was started with the view of intersecting an assumed downward continuation of a large reef exposed on the surface, which is known as "Downey's." The crosscut, which has been driven a distance of 192 ft., passed through reef-track at 186 ft. from the portal. Driving was continued. Surface prospecting has been carried on for several months with satisfactory results. Two lodes have been discovered, one being traced for a length of 500 ft. on the surface, with widths varying from 1 ft. to 10 ft. Samples taken from trenches extending over this 500 ft. gave an average result of £2 10s. per ton. Considerable time must elapse before these latest discoveries can be satisfactorily tested, as one shift only is worked, and no power-drills are supplied. The lodes are situated at an altitude of 1,300 ft.—1,400 ft. above the floor of the valley—and are rather difficult of access. Crushing was continued with the small five-head battery until the end of March, when operations were suspended. The mill was formerly driven by means of a petrol-engine, which was later discarded owing to excessive costs, and water-power is being substituted in its stead. Owing to its situation (600 ft. above the valley floor), it was not found possible to get enough water to permit of more than intermittent crushing. To overcome this difficulty, and at the same time increase crushing capacities, it was decided to pull down and re-erect the old mill at a previously chosen site at the creek-level. Five extra head of stamps are to be installed at the new mill, and the whole plant, when completed, will consist of one Gate's gyratory crusher, ten head of stamps, two Wilfley tables, and eight cyanide-tanks. No tube mill is to be installed, nor is sliming to take place. It is estimated that the new battery should be capable of crushing 25 tons per day, which will be a considerable advance in tonnage per head of stamps over that obtained from the old mill. Ore-transportation between mine and battery is to take place over an aerial tram-line, in course of construction, which is to be operated by gravity. Reconstruction work should be finished in May, 1929, when crushing operations will be resumed. A total of 285 tons of quartz treated at the mill yielded 334 fine ounces of gold, valued at £1,400 12s. 11d.

Hercules Mines Consolidated, Ltd. (Keep-it-Dark).—During the past year work was confined to stoping above the Golden Ledge No. 2 adit, and driving south on the Hercules line in the Keep-it-Dark battery level. In the south end of the stopes 78 ft. in height was stoped out, the reef averaging 4 ft. in width over a length of 112 ft. In the level this block was 50 ft. in length, and averaged 2 ft. 6 in. in width, with values of about £2 per ton. As stoping proceeded upwards the reef both widened and lengthened, but values practically disappeared, giving a return of 10s. only per ton of ore treated. In the north end a small block was encountered which averaged 20 in. in width over a length of 30 ft. Values of £2 per ton were consistent throughout, but its small size proved a deterrent to profitable working of the ore. In the battery level driving south was continued on the Hercules line for a distance of 160 ft., making the total distance driven from the point of intersection equal to 185 ft. In places small bunches of ore were disclosed which carried unpayable values. Stone 1 ft. wide was struck at 91 ft. and continued to a distance of 110 ft., carrying values from 1 dwt. 7 gr. to 5 dwt. 6 gr. per ton. From 110 ft. to 160 ft. the stone was broken and values unpayable. At 160 ft. stone again came in, which, averaging 2 ft. 6 in. in width, continued for a distance of 25 ft., where driving was suspended. The average values were low, amounting to 3 dwt. 6 gr. per ton. 1,115 tons of stone were produced and crushed, for a return valued at £915 10s. 1d. £667 10s. 4d. and £237 19s. 9d. were the gold-values received from amalgamation and cyanidation respectively. During the year the average number of men employed in mining and crushing operations was twelve. Work at mine and mill was suspended on the 31st August.

Westport District.

Britannia Mine.—Work at this mine has been confined to sinking a winze from the surface to No. 1 level, and stoping some ore in preparation for crushing, the latter operation being expected to start early in the new year. On an average seven men were employed throughout the year.

DREDGES.

Rimu Flat Dredge.—This dredge continued to operate very successfully, and managed to work for a total of 308 days, or 7,392 hours, representing 84 per cent. of the total possible digging-time. During the year the dredge dug 29·7 acres of land, treating in all a total of 1,880,847 cubic yards of gravel. From the above gravel gross values equalling £57,725 were extracted, showing an average gravel content of 7·37d. per cubic yard treated. Outside of the usual upkeep and repairs, no improvements were added to the dredge. A change was made in the method of taking large boulders off the bucket-line on the upper tumbler, which resulted in a material saving of time. It was planned during the month of December to overhaul the digging-ladder, putting in new and heavier angles on the lower end. To prevent the buckets from damaging the under-side of the ladder a new method of reinforcement was adopted. During the year both Mines Department and company's Keystone drills were kept in operation, a total of sixty-eight holes having been completed. The drilling was done for the purpose of accurately establishing the average value of the gravel in certain sections of the property, which in the preliminary drilling had been more or less sparsely tested. The value of approximately 5,000,000 cubic yards was thus ascertained during the year. Results of the sixty-eight drill-holes give an average depth of 38 ft., with an average gravel value of 6·5d. per cubic yard. It is estimated that the gravel treated for the year 1929 will not be of the same high grade as that washed during 1928. It is apparent from the drilling-work which has been done that there is a lean area several hundred feet in width traversing the property just in advance of the present position of the dredge. On an average fifty-three men were employed throughout the year.

Terrace Gold Dredge (New River).—This plant ceased to operate at the end of April, as it was found that various working-parts possessed insufficient strength to cope with the heavy ground encountered. A programme of extensive reconstructive work was put in hand immediately dredging was suspended. A longer and more powerful digging-ladder is to be installed, heavier and larger buckets are to be put on, and such other improvements made to the gear as circumstances warrant. 32,000 cubic yards of ground were treated during the period covered by dredging operations, and from this gravel 219 oz. 1 dwt. gold were obtained, which was valued at £886 19s. On an average nine men were employed throughout the year. If anticipations are realized, a resumption of operations should occur about April, 1929.

Alluvial Mining.

In this branch of mining a slight improvement showed itself, the recovery of gold being 3,054 oz. 19 gr., valued at £11,856 19s. 2d., as against 2,712 oz. 4 gr., valued at £10,406 0s. 6d., won last year. There was a slight falling-off in the number of men regularly employed during the period, the figures being 132, as against 156 in 1927. In addition, a considerable number of men were employed part-time at the work.

Mahakipawa Goldfields, Ltd.—Work at this mine was suspended at the latter part of 1927 owing to the inadequacy of the steam-driven pumps to deal with heavy inflows of water. A new and modern electrically operated plant having been installed by February, 1928, sinking was resumed, and continued without serious interruption until May, when bottom was reached at a depth of 135 ft. A line of bores previously put down close to the shaft indicated that the deepest part of the lead would be found some distance east of the opening, but subsequent events proved this assumption to be partly incorrect, as shaft and bores alike were in the deep ground. Developments south of the shaft have clearly defined the lead in that direction, as also its east and west boundaries. At the shaft the lead's width was 140 ft.; at 100 ft. south the east sidling closed in to such an extent as to reduce the gutter's width to 40 ft., but, the west sidling being regular throughout, this width has been maintained for the full length driven, a distance of 250 ft. A total of 640 ft. of driving and crosscutting gave 700 cubic yards of gravel, which on being treated produced 70 oz. of gold, or values amounting to 8s. per cubic yard. Prospects for the coming period are more encouraging, as a series of bores put down some distance south and east of a point coinciding with the working-places shows that the gutter will have considerable width later; and with this there is a steady increase of values as the faces advance south. The new plant consists of duplicate two-stage turbine sinking-pumps, driven by 75 h.p. vertical motors, a 40 h.p. winding-engine, fitted with all modern appliances, and other essential machines, the whole being operated by power obtained from the Marlborough Power Board. On an average sixteen men were employed throughout the year.

Marlborough (Deep Creek).—Two men were employed, winning 33 oz. 13 dwt. 7 gr. gold, valued at £129 15s. 2d.

Collingwood (including *Slate River*, *Rockville*, and *Parapara*).—Ten men were employed, winning 145 oz. 6 dwt. 3 gr. gold, valued at £550 17s. 4d.

Howard Diggings.—The returns to hand show that nine men were employed, winning 143 oz. 2 dwt. 18 gr. gold, valued at £555 13s. 5d.

Murchison (including *Lyell*, *Matakitaki*, *Glenroy*, *Maruia*, and *Newton Flat*).—Fourteen men were employed, winning 278 oz. 11 dwt. 15 gr. gold, valued at £1,071 11s. 8d.

Reefton (including *Merrijigs*, *Blackwater*, *Capleston*, *Antonio's*, and *Snowy Creek*).—Four men were employed, winning 142 oz. 7 dwt. 20 gr. gold, valued at £555 11s. 1d.

Buller (including *Charleston*, *Waimangaroa*, *Fairdown*, and *Burnett's Face*).—Eight men were employed, winning 174 oz. 13 dwt. 2 gr. gold, valued at £664 15s. 4d.

Grey Valley (including *Ahaura*, *Nelson Creek*, *Blackball*, *Totara Flat*, *Brunner*, *Moonlight*, *Stillwater*, *Waipuna*, and *Maori Gully*).—Five men were employed, winning 111 oz. 14 dwt. 13 gr. gold, valued at £443 10s. 9d.

Barrytown (including *North Beach* and *Cobden*).—One man was employed, winning 31 oz. 11 dwt. 21 gr. gold, valued at £121 19s.

Greymouth (including *South Beach*, *Rutherglen*, and *Dunganville*).—Five men were employed, winning 171 oz. 18 dwt. 11 gr. gold, valued at £672 14s. 6d.

Kumara (including *Stafford*, *Greenstone*, *Cape Terrace*, and *Callaghan's*).—Seventeen men were employed on these various fields, winning 961 oz. 11 dwt. 21 gr. gold, valued at £3,724 8s. 6d.

Hokitika (including *Rimu*, *Arahura*, *Blue Spur*, *Red Jack's*, *Kanieri*, and *Fox's*).—Twenty-nine men were employed, winning 444 oz. 7 dwt. 5 gr. gold, valued at £1,736 12s. 3d.

Ross (including *Waitaha* and *Mikonui*).—Two men were employed, winning 65 oz. 12 dwt. 19 gr. gold, valued at £255 4s. 11d.

Okarito (including *Matanui*, *Wataroa*, *Gillespie's Beach*, and *Bruce Bay*).—Ten men were employed, winning 279 oz. 15 dwt. 6 gr. gold, valued at £1,094 5s. 3d.

Minerals other than Gold.

Petroleum.—The Murchison Oil Co. continued drilling operations until May, when a depth of 4,080 ft. was reached with little or no change in the country penetrated. The drilling-cable showed signs of excessive wear at this stage, and the company was unfortunate in that the bailer-line parted, leaving the bailer in the hole. Fishing operations were at once commenced by the driller, but owing to the lack of proper fishing-tools and a new cable his efforts to raise the bailer were unsuccessful. With the bailer still in the hole, all work was suspended, the plant being left in charge of a caretaker.

Iron.—The Onakaka Iron and Steel Works closed down in the latter part of the year owing to the inability to place the whole of its product (pig iron) on the market. With a view to absorbing some of this pig iron the company has laid down and commenced to construct a modern pipe-making plant. The remainder of the machinery, &c., has been brought more up to date, and allowances made for increased outputs in the future. Resumption of operations, which should take place about the middle of the year 1929, with the various economies and improvements that have been effected should see the works established on a useful and permanent basis. Some 12,725 tons of crude ore were smelted, for a production of 6,362 tons of pig iron, valued at £31,810. Twenty-one men were employed on an average throughout the year.

General Remarks.

Mining.—Alluvial mining showed an improvement on the previous year, but in quartz-mining there was a further falling-off, only 18,724 oz. being recovered, as against 21,551 oz. in 1927. There was a corresponding decrease in the number of men employed. The falling-off in the output was mainly attributable to the suspension of crushing operations at the Alexander Mine. On account of ineffective water-supply, the treatment plant was removed from its former position and has been partly re-erected at a more suitable site, remodelling taking place at the same time. The closing-down of the Hercules Mine also helped to reduce the output. Contemplated prospecting-work at the New Big River Mine, if carried into effect, may yield satisfactory results during the coming year. The Britannia Mine is likely to be a producer for the next period, but small crushing-capacities and limited proved quantities of ore will militate against large returns from that holding. No dividends were paid by any of the mines.

Quarries.—In the various quarries in the Canterbury and West Coast Districts work was carried out steadily, some 266 men being employed, as against 274 last year. The value of the output increased from £55,983 to £56,387.

Prospecting.—A good deal of prospecting was carried out, but no great success was met with. Field prospecting gave nothing remarkable in values. Keystone drilling was carried out at Barrytown and Paenga, but, though values were located with several of the holes, the proved areas were not considered large enough to warrant dredges being put on them. An area on the lower Matakitaki, Murchison, also had a few drill-holes put down on it, which revealed fair values.

Accidents.—On the 3rd February, 1928, a miner named James Thomas Nicholls, employed at the Alexander River Mine, had the thumb and two first fingers of his left hand shot off by an explosion of gelignite.

On the 16th April, 1928, Charles Stoop, manager, Woodstock Sluicing Co., was employed dragging the large stones into the sluice-box, when a small stone, which appeared to have fallen away from the high left face (after ricocheting off another stone), struck him on the head, stunning him, and causing him to fall into the tail-race, down which he was swept.

On the 27th May, 1928, Frederick McCarthy, labourer, employed on the Rimu dredge, was engaged in removing one of the chafing-beams of the digging-ladder, when the beam fell, striking McCarthy, causing severe scalp wounds, fractured left leg, fractured left collar-bone, severe contusions, and sprains of chest and back, left side, and severe shock.

On the 7th September, 1928, Fred Prince, quarryman, employed at Tarakohe Quarry, was struck by a piece of stone, which flew high after the firing of a charge, causing a fracture of the left forearm.

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

Quartz and Alluvial Mining.

Waitaki County.

Livingstone and Maerewhenua.—Sluicing has been carried on by small parties of miners in these localities when water was available. Returns show that six men were employed, producing 259 oz. gold, valued at £1,006.

Waihemo County.

Golden Bar Mining Co., Stoneburn.—In the early part of the year 100 tons of ore were broken out of an open cutting on the Middle reef and crushed at the company's battery, for a yield of 4 oz. 7 dwt. gold, valued at £17 5s. 9d. The mine was closed down in March pending the reconstruction of the company.

The Ounce Mine, Stoneburn.—Mr. E. B. Callery, owner of this mine, crushed 20 tons of ore, for a return of 3 oz. 19 dwt. gold, valued at £15 8s. 1d.

Maniototo County.

Kildare Consolidated Gold-mining Co., St. Bathan's.—This company was formed to take over and work the claims formerly held by the St. Bathan's Gold-mining Co. and the Scandinavian and United M and E Water Race Companies. Part of the sludge-channel from the claims to Dunstan Creek was cleaned up, for a return of 217 oz. gold, valued at £802. Elevating has been resumed in the deep ground on the Kildare lead.

St. Bathan's Syndicate, St. Bathan's.—Part of the St. Bathan's sludge-channel was worked by the syndicate, for a yield of gold valued at £1,166.

Cambrian.—A few small parties of miners continue to work the auriferous deposits on this field by sluicing and hydraulic elevating. Morgan Bros. were the principal producers, with 179 oz. gold, valued at £689.

Patearoa.—Johnson and McLean's claim at Linnburn has been purchased by Mr. T. Ledingham. The main pipe-line has been lengthened to give an additional 50 ft. of pressure for breaking down a face of gravel 40 ft. high.

Golden Progress Quartz-mining Co., Oturehua.—This company was formed to reopen the old Progress Mine on Rough Ridge, which has been abandoned for forty years. An incline shaft which was sunk by the old company has been cleaned out and timbered to a depth of 80 ft. from the surface.

Naseby and Kyeburn.—Returns from these localities show that twenty-five men were employed and 542 oz. 2 dwt. 11 gr. gold, valued at £2,038 19s., was won. The largest producers were A. and G. Brown, with 269 oz., valued at £1,052, and Hewitt and Young, with 142 oz., valued at £555.

Tuapeka County.

Blue Spur.—The Lawrence and Gabriel's Gully Sluicing Companies, with their combined water-rights and plant, were engaged in prospecting the bottom layers of the auriferous cement. A paddock was sunk 50 ft. through hard cement, which did not contain sufficient gold to pay for working. Sluicing and elevating are being continued in the upper layers of cement in the Lawrence Co.'s claim. The yield of gold amounted to 461 oz. 5 dwt., valued at £1,608 3s. Dividends amounting to £1,000 were paid by the Gabriel's Gully Co., and £375 by the Lawrence Co.

Golden Crescent Sluicing Co., Wetherstones.—This company, which was formed in 1898 with paid-up capital of £3,500, has been working the auriferous cement deposit at Wetherstones Flat for twenty-eight years. The gold produced during that period amounted to 13,792 oz., valued at £54,717, and the sum of £14,861 has been paid in dividends. The company's operations were very profitable while work was being carried on within 12 chains of the fault which forms the northern boundary of the cement deposit, but as the workings extended to the south-west it was found that the cement was not payable. The limit to which sluicing and elevating could be carried on within the payable area having been reached, it was decided to prospect the deep ground by driving in the cement on the schist bottom. This work is in progress, and the company's high-pressure water-supply is used for supplying power for working the air-compressor pump and winch.

Golden Rise Claim, Wetherstones (W. R. Smyth, Owner).—Sluicing and elevating have been carried on continuously throughout the year. Four men were employed, and 354 oz. 13 dwt. gold, valued at £1,367 6s. 4d., was produced.

Evans Flat Gold-mining Co., Evans Flat.—This company ceased operations during the year, and the claim and plant were taken over by Treacy Bros., who are ground sluicing a face of clay and gravel 30 ft. high on the east side of the Tuapeka River.

Paddy's Point Gold-mining Co., Forsyth.—This company was formed to work the auriferous-cement deposit and the alluvial surface at Forsyth. Good prospects were obtained from a number of holes which were sunk in the alluvial. Water for sluicing will be brought on to the claim from the Waitahuna River.

Sailor's Gully Sluicing Co., Waitahuna.—The upper layers of the Waitahuna cement deposit are being removed by ground sluicing to a depth of 60 ft. from the surface. The cement, which is soft and weathered, is easily worked with the company's high-pressure water. The yield of gold for the year amounted to 447 oz. 15 dwt. 19 gr., valued at £1,712 13s. 11d. The sum of £210 was paid in dividends.

Tallaburn Sluicing Co., Horseshoe Bend.—The company is working an old channel of the Clutha River by hydraulic elevating. The yield of gold amounted to 132 oz. 7 dwt. 23 gr., valued at £499 1s. 5d.

Murchison Bros., Fourteen-mile Beach.—This party has carried on sluicing operations when the Molyneux River was low. The ground contains numerous large stones, which are lifted with an hydraulic winch. The yield of gold amounted to 87 oz., valued at £335.

Holloway Bros., Commissioner's Flat.—A deposit of auriferous gravel on the east side of the Molyneux River above Roxburgh is being worked by the party, whose returns show that gold valued at £73 was won.

Vincent County.

Kawarau High Levels Mining Co., Waitiri.—An open cutting, 75 ft. wide in the bottom, 300 ft. wide on top, and 62 ft. deep, is being sluiced out of the west bank of the Kawarau River. The ground contains numerous large stones, which are broken up with explosives and hauled out of the workings with an hydraulic winch. The gold won during the year amounted to 44 oz. 2 dwt., valued at £169 4s.

Nevis.—Five sluicing claims, employing seventeen men, were in operation in the alluvial deposits of this field. The gold won amounted to 671 oz., valued at £2,591. Graham and party, at Upper Nevis, with 429 oz., valued at £1,659, were the largest producers. The Department's No. 2 Keystone drill was used by the Upper Nevis Dredging Co., Lower Nevis Prospecting Co., and Mr. John Stevenson for prospecting their claims. In Stevenson's claim a depth of 220 ft. was reached in one of the boreholes without striking bed-rock. The wash passed through was gold-bearing from the surface down to 114 ft.

Lake County.

Kawarau Gold-mining Co.—The gates of the dam at Kawarau Falls were closed for one week during the month of August, but the river did not fall low enough to allow any work to be done in the company's claims.

Sandhills Gold-mining Co., Upper Shotover.—An old channel of the Shotover River is being sluiced out for a length of 33 chains and depth of 50 ft. for the purpose of diverting the river from its course and thus enabling its present bed to be worked.

Big Beach Gold-mining Co., Shotover River.—Ground sluicing has been carried on at the Sugar Loaf during the year. The supply of water from the company's races has been sufficient to keep two nozzles working eight hours daily. The yield of gold amounted to 720 oz. 13 dwt., valued at £2,746 9s. 4d.

Moonlight Mining Syndicate, Moonlight Creek.—This syndicate is working an old channel of Moonlight Creek. A face of gravel 130 ft. deep is being sluiced away with water from Dead Horse Creek. The gold won amounted to 169 oz. 5 dwt., valued at £634 13s. 9d.

Shotover Gold Claims, Ltd., Shotover River.—The company's efforts to work the bed of the Shotover River have not proved successful. A flood in October swept away part of the dam which was erected for diverting the river, and filled the workings with gravel.

Oxenbridge and Party, Twelve-mile Creek.—The auriferous lead which was found in the party's tunnel could not be profitably worked, and driving operations were suspended. Water has been brought in from Lake Dispute for working the bed of Twelve-mile Creek and a terrace of the west bank of the creek by sluicing and elevating.

Reid and Lynch, Sawyer's Creek.—The Crystal reef was cut off by a fault in the rise at a height of 85 ft. above the low level. At this point a drive was put out 65 ft. into the hanging-wall, and a reef formation 3 ft. wide was cut. This may prove to be the reef that was worked in the upper level, and rising is being continued to prospect it.

Southland County.

Nokomai Sluicing Co., Nokomai.—The Rimu Gold-dredging Co., under an option to purchase, bored seventeen holes, varying from 71 ft. to 113 ft. deep. Good values were obtained from some of the boreholes, but as the overburden carried very little gold and the drill in places revealed a rock bottom unsuitable for dredging the option was abandoned. Elevating was carried on, and, although No. 1 elevator was closed down during the winter months through a shortage of water, two paddocks were cleaned up, for a return of 481 oz. 16 dwt. gold, valued at £1,781 6s. 6d.

King Solomon Gold-mines, Ltd., Waikaia.—The company's main shaft was sunk to a depth of 143 ft. from the surface, leaving 37 ft. to sink to reach bed-rock. A 16 h.p. boiler was installed for supplying steam for pumping the water, which is coming into the shaft at the rate of 2,000 gallons an hour.

Waikaia.—Sluicing and elevating was carried on by three small parties of miners. The yield of gold amounted to 277 oz. 5 dwt. 20 gr., valued at £1,074 3s.

Athol.—Returns from this locality show that four men were employed, producing 168 oz. 17 dwt. 14 gr. gold, valued at £667 18s. 8d.

Wallace County.

Wakapatu Mining Co., Ltd., Wakapatu.—This company is working an area on the foreshore at the mouth of Ourawera Creek for gold and platinum. A 10 in. Gould's double-suction pump is used for delivering water at a pressure of 40 lb. per square inch on to a face of sand and gravel 20 ft. high. The material broken down by the water is lifted by a 10 in. Thompson's gravel-pump and discharged through a screen on to tables lined with matting for saving the gold and platinum. The stones from the screen are lifted and stacked by a small bucket elevator. Electric power for driving the pumps and elevator is supplied by the Southland Power Board. A total of 142 h.p. is required to work the plant. The gold and platinum recovered during the year is valued at £243.

Round Hill Mine.—Sluicing and elevating were carried on throughout the year, for a return of 430 oz. 5 dwt. 19 gr. gold, valued at £1,699 12s. 10d. Seven men were employed.

Orepuki.—Eleven men were employed on this field. The gold won amounted to 257 oz. 7 dwt. 5 gr., valued at £1,007 19s. 8d.

DREDGING.

Upper Nevis Gold-dredging Co., Nevis River.—Operations were curtailed by a shortage of the water, which is used for generating the electric power for working the dredge, and a stoppage of twelve weeks during the winter season. The gold won amounted to 1,246 oz. 11 dwt. 20 gr., valued at £4,984 3s. 2d.

Nevis Crossing Dredge, Nevis River.—Dredging was continued during the year, with the usual stoppage of three months in the winter. The yield of gold amounted to 267 oz., valued at £1,028.

Undaunted Dredging and Mining Co., Naseby.—The company's water-power dredge commenced operations in October, but the gold-returns have so far been unpayable.

Golden Terrace Extended Gold-dredging Co., Lower Shotover.—This company's special dredging claim of 400 acres on the Shotover River is being equipped with a dredge capable of treating 40,000 cubic yards per week. The pontoons are 107 ft. long, 40 ft. wide, and 9 ft. deep. They are made of $\frac{5}{16}$ in. steel plating, braced and stayed with steel sections, and fitted with a series of bulkheads, making each compartment watertight. The tumbler-framing and gantry are manufactured of steel. The gantry is of the hinged type, secured to the deck at four points, the deck at these points having been reinforced with heavy steel plating 1 in. thick. The screen-framing and stacker-framing at the stern of the dredge have been built from heavy steel-joist sections, and the whole of the framing from the stern to the bow is thoroughly tied and braced with rolled-steel channels and joists, thus ensuring rigidity. The

digging-ladder is 73 ft. long between centres, and is fitted with semicircular and sloping well-plate bulkheads, riveted to the web-plates, making it secure against side bending; when in position it will have an overhang of 15 ft., to enable the dredge to thoroughly dig out the corners of the paddock. The top tumbler is of chrome steel, six-sided, and fitted with steel wearing-plates. The lower tumbler is circular, with hollow shaft and renewable rim. The chain of buckets are manufactured from manganese steel, and are of the close-connected type. There are seventy-two buckets, each of 8 cubic feet capacity, which will discharge at the rate of twenty per minute. The bucket-pins are 5¼ in. diameter, each pin having a special-shaped head sunk into a recess in the bucket so as to avoid excessive wear of the tumbler-cheeks and to prevent the pins from turning. The screen is of the revolving type, 36 ft. long, built of heavy steel framing, which is fitted with perforated-steel plates that can be easily renewed. The stacker is 80 ft. long, of heavy steel framing, with a system of rollers to carry a rubber belt 36 in. wide for conveying the rough gravel to the tailing-heap clear of the dredge. The water-supply for the screen and gold-saving tables is obtained from two 12-in.-diameter Rees centrifugal pumps. The main winch has six drums of cast steel for operating the head and side lines, and a separate ladder-hoisting winch is also provided. A pilot-house is situated at the bow of the dredge, 20 ft. above the deck, and in it all the operating-levers for working the dredge are situated, in control of a man who will have a full view of the dredge and claim during operations. All the machinery on the dredge is electrically driven, each part having a separate motor. The power is developed at Wye Creek, ten miles from the claim, and transmitted across the Kawarau River to the dredge. A total of 500 h.p. will be developed. The construction of the dredge has been carried out by Joseph Sparrow and Son, Dunedin, and Mr. George Pettigrew has acted as inspector of works for the company.

Minerals other than Gold.

Tungsten.—The production of scheelite amounted to 6 tons 4 cwt., valued at £432. Of this amount, 5 tons 1 cwt. were produced by the Glenorchy Scheelite Co., and 1 ton 3 cwt. by E. B. Callery, owner of the Ounce Mine, at Stoneburn.

Platinum.—35 oz. 2 dwt. of platinum concentrates, valued at £263 6s. 10d., were recovered from alluvial and sea-beach claims at Round Hill, Orepuki, and Wakapatu.

Osmiridium.—10 dwt. of this mineral, valued at £9 16s. 10d., was found alloyed with 8½ oz. platinum which was recovered from the Wakapatu Mining Co.'s claim.

Cinnabar.—An area of 86 acres, in Block VII, Waipori Survey District, was taken up under prospecting license by W. E. C. Reid, and driving is in progress to prospect a lode from which high-grade cinnabar has been obtained.

Accident.

On the 1st March a miner named Charles Oxenbridge, who was employed in his father's alluvial claim at Twelve-mile Creek, Lake Wakatipu, had his right leg broken through falling down a small prospecting-shaft. The injured man was being lowered down the shaft by a windlass and hemp rope. When about 10 ft. below the brace the rope broke and he fell to the bottom. The rope, which had been used on other prospecting-shafts, was examined and tested before it was put on the windlass over the shaft in which the accident happened, and, as no defects were observed, it was considered safe to use.

ANNEXURE B.

STONE-QUARRIES.

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

(Mr. James Newton.)

As a general rule, I have found on inspection that those persons upon whom the Act places the responsibility for the safety of the operations in a quarry have shown a keen appreciation of the duties involved, and in very few instances have I found it necessary to complain of the manner or condition of the working surroundings in the large number of quarries that it has been my duty to inspect.

The quarries that have operated during the year number 248, and 1,458 persons have been employed. The quantity of stone won totals 1,146,364 tons, the total value of the stone at the quarry being £275,320. This year's output of stone shows a substantial decrease when compared with the output of stone for the preceding year, the decrease being 355,351 tons. The falling-off may be attributed principally to the closing down of the Auckland, Wanganui, and New Plymouth Harbour Board quarries, together with a lessened output from the Portland Cement Co.'s quarry at Portland. The permanent concrete roads in the Auckland District have also had the effect of diminishing the output of the quarries in and around Auckland, owing to the roads needing very little metal for repair purposes. A large number of the quarries have worked for only a short period of the year; some have operated intermittently; a few only can be termed permanent working-quarries.

The year's operations have not been free from distressing accidents, and I regret to have to report that one fatal and three serious accidents have occurred within the area under my jurisdiction, all of which, after making investigation, I concluded were accidental, and not blamable to a remissness regarding the law on the part of any official.

On the 9th May the quarry-manager, Marino Selak, of Rope and Thompson's Rangitoto quarry, whilst crossing over loose stone that had been blasted from the quarry-face, slipped and broke his leg.

On the 8th June, a workman named James Quickfall, employed in Pascoe's quarry, Epsom, fell and broke a small bone in his ankle. He was proceeding to a place of safety during blasting, and when he fell was fully 60 yards away from the blast.

On the 18th July, E. W. Leech, an employee of the Auckland Harbour Board, whilst engaged trucking stone from the Board's Rangitoto quarry to the quarry-wharf, had the misfortune to get his leg broken by being struck with a flying stone. Leech was proceeding toward the face of the quarry with an empty truck, and when struck by the stone was over a chain distant from the bottom of the quarry-face. In the course of preparing a site to commence boring at the top of the quarry, another workman sent a large stone over the edge of the face, which in its fall struck a ledge some 30 ft. below, causing it to break into several pieces, one of which flew through the air in the direction of Leech and struck him with sufficient force to break his leg.

On the 26th November in the Auckland City Council's Huia quarry, a workman named John Urquhart was fatally injured, the result of being struck on the head with a stone that rolled down the quarry-face. An employee, named Alfred Wayne, saw the stone descending, and called to deceased to look out. Wayne stated that deceased had ample time to get clear had he embraced the opportunity. Urquhart, however, appeared to conclude that he was sufficiently alert to dodge the stone. When the stone had almost reached the bottom of the quarry-face it struck a ledge of rock and flew through the air in the direction of deceased, who ducked to avoid it; he, however, failed in the attempt and received the full force of the blow on the side of his head, with the result that he died in a very short period of time. There had been no blasting done in the quarry for a considerable period of time prior to the occurrence, and the deceased had himself, during the morning, been engaged cleaning down the loose material from the spot where the stone left its bed.

Tunnel Quarries.—During the year under review a considerable amount of tunnelling has deen done in and around the Auckland District, the country pierced running into thousands of feet. Some of the tunnels driven have been small in size, approximating 3 ft. 6 in. by 6 ft. high; others have been much larger, approximating 10 ft. by 7 ft. 6 in. Most of the ground driven through has been hard blue basalt, the remainder through sandy papa of sufficient hardness to require explosives to break the ground. Some of the ground has needed timber support, and generally I have found that this has been well and substantially done. Ventilation has been adequately provided by means of electrically driven centrifugal fans, the air being carried either in or out through adequate piping, according to whether the method adopted was exhaust or pressure ventilation. All tunnelling has been undertaken in connection with the city or suburban drainage schemes.

My time has been fully occupied with inspection duties and the necessary clerical work connected therewith. Examinations of applicants for a quarry-manager or foreman's permit have been conducted at times and places that have been deemed most suitable for both condidates and 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. In many instances they have motored me long distances, at no small inconvenience to themselves, and so enabled me to reach quarries in out-of-the-way places.

ANNEXURE C.

MINING STATISTICS.

Table 1.

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE HAURAKI MINING DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1928.

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. ..	553	181,479 0 0 0	..	417,990 18 18	317,818 15 6
Waihi Grand Junction Gold Co.	14	22,762 0 0 0	..	67,929 9 4	45,762 6 9
	567	204,241 0 0 0	..	485,920 7 22	363,581 2 3
OHINEMURI COUNTY.					
Owharoa—					
Rising Sun Gold-mining Co. ..	20	647 0 0 0	522 0 0	448 18 0	1,601 4 8
Karangahake—					
Imperial	2	4 10 0 0	3 10 0	..	8 15 2
Earl of Glasgow	..	..	20 0 0	28 0 0	46 5 6
Talisman	1	2 10 0 0	190 0 0	..	127 16 0
Waitekauri—					
Maoriland	3	9 0 0 0	105 2 0	..	316 1 6
	26	663 0 0 0	840 12 0	476 18 0	2,100 2 10
THAMES BOROUGH.					
Moanatairi Creek—					
Caledonia - Kuranui - Moanatairi Gold-mining Co.	5	116 0 0 0	110 10 0	..	329 13 11
Occidental-Una-United Co. ..	6	250 0 0 0	246 6 0	..	617 18 3
Cambria	4	0 0 0 15	11 15 0	..	21 1 6
Belgium	..	0 1 0 0	26 14 0	..	70 6 0
Prospectors	8	0 8 0 25	21 8 0	..	56 13 10
	23	366 9 1 12	416 13 0	..	1,095 13 6
COROMANDEL COUNTY.					
Tokotea—					
Mount Welcome Gold-mining Co.	2	0 2 0 0	3 6 0	..	8 10 6
Kuaotunu—					
Handsworth	2	0 0 0 15	10 13 0	..	24 12 6
Prospectors	6	0 0 3 1	71 19 0	..	127 4 3
	10	0 2 3 16	85 18 0	..	160 7 3
SUMMARY.					
Waihi Borough	567	204,241 0 0 0	..	485,920 7 22	363,581 2 3
Ohinemuri County	26	663 0 0 0	840 12 0	476 18 0	2,100 2 10
Thames Borough	23	366 9 1 12	416 13 0	..	1,095 13 6
Coromandel County	10	0 2 3 16	85 18 0	..	160 7 3
Totals, 1928 ..	626	205,270 12 1 0	1,343 3 0	486,397 5 22	366,937 5 10
Totals, 1927 ..	669	208,371 18 0 10	752 6 0	458,669 11 0	366,020 16 8

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE WEST COAST INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1928.

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 ..	8	2,358 0 0	619 18 4	..	2,390 11 7
NELSON.					
Waiuta—					
Blackwater Mine	164	39,907 0 0	13,241 7 0	3,367 16 0	70,524 12 5
Crushington—					
Wealth of Nation	6	2,730 0 0	..	366 3 0	1,670 1 9
Hercules	12	1,115 0 0	174 7 0	90 16 0	915 10 1
Globe Hill—					
Progress	1	303 0 0	..	426 11 0	1,812 9 10
Alexander River—					
Alexander	17	285 0 0	334 0 0	..	1,400 12 11
Big River—					
Big River	3	19 0 0	..	103 0 0	330 6 11
Totals, 1928 ..	211	46,717 0 0	14,369 12 4	4,354 6 0	79,044 5 6
Totals, 1927 ..	263	46,168 0 0	16,173 15 0	5,377 13 14	83,242 17 3

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE SOUTHERN MINING DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1928.

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.
Golden Bar	3	100 0 0	4 7 0	..	17 5 9
Ounce	1	20 0 0	3 19 0	..	15 8 1
Totals, 1928	4	120 0 0	8 6 0	..	32 13 10
Totals, 1927	6	28 0 0	4 10 0	..	17 6 6

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)	626	205,271	487,740 8 22	366,937 5 10
West Coast (South Island)	211	46,717	18,723 18 4	79,044 5 6
Southern (Otago and Southland).. ..	4	120	8 6 0	32 13 10
Totals, 1928	841	252,108	506,472 13 2	446,014 5 2
Totals, 1927	938	254,568	480,977 15 14	449,281 0 5

In addition, 120 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 Scrip 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.	£	£	£	£
Rising Sun Gold-mining Co., Ltd.	13/7/27	6,000	5,943	Nil	40,000	3/-	Nil	74	Nil	618	1,583	7,244	Nil	1,035
Maoriland Consolidated, Ltd.	24/3/25	13,750	5,073	5,000	80,000	5/- and 1/8	Nil	77	2	105	315	5,335	Nil	25
New Waiotahi Gold-mining Co. (No Liability) ..	31/8/22	31,397	10,914	4,000	125,590	2/1 and 2/2	64	101	3	211	567	10,455	Nil	23
Aotearoa Minerals Development Co., Ltd ..	16/8/28	35	178	Nil	35	20/-	Nil	7	Nil	Nil	Nil	62	Nil	42
Hauraki-Alaska Gold-mining Co., Ltd.	1/8/27	6,005	5,988	Nil	119,760	1/-	Nil	113	6	37	39	5,567	Nil	85
Hauraki Mines Consolidated, Ltd.	28/11/25	75,509	36,190	28,750	302,036	Various	807	1,027	21	Nil	Nil	24,772	Nil	844
Alburnia Gold-mining Co., Ltd.	7/8/28	15,086	2,503	Nil	100,479	2/6, 2/3, & 6d.	..	228	9	Nil	Nil	1,533	Nil	20
Empire Reefs Gold-mining Co., Ltd.	11/11/25	3,657	2,352	1,000	69,150	1/- and 11d.	197	55	Nil	Nil	Nil	1,778	Nil	270
Kuranui Gold-mining Co. (No Liability)	5/6/25	8,026	4,695	210	82,364	1/3	Nil	36	Nil	10	25	4,680	Nil	3
Mount Welcome Gold-mining Co., Ltd.	21/10/20	3,600	2,646	2,500	24,400	3/9 and 5/-	41	65	Nil	50	142	3,147	Nil	16
Ohinemuri Gold and Silver Mines, Ltd.	1/6/14	107,904	60,648	55,275	220,000	Various.	390	237	43	7,282	1,354	67,608	Nil	7,009
Gold-seekers, Ltd.	27/8/28	987	650	300	79	£12 10/-	37	27	2	Nil	Nil	626	Nil	18
Father's Hope Consolidated Gold-mining Co., Ltd.	14/10/27	1,490	731	650	14,900	2/-	2	30	2	Nil	Nil	643	Nil	2
Lucky Shot Mines, Ltd.	12/6/28	21,463	1,375	10,000	107,315	6d.	57	247	9	Nil	Nil	1,171	Nil	100
Golden Age Gold-mining Co., Ltd.	2/7/26	12,000	2,798	2,000	120,000	9d.	951	218	Nil	Nil	Nil	4,599	Nil	2
Caledonia-Kuranui-Moanataiari Consolidated Gold-mining Co., Ltd.	16/3/20	35,000	27,451	2,500	150,000	5/- and 2/-	44	292	Nil	..	972	32,776	Nil	2,486
Occidental Una United Gold-mining Co. (No Liability)	9/11/26	23,875	4,676	2,500	95,500	1/4	2	115	5	246	618	4,404	Nil	159
N.Z. Metals, Ltd. (in liquidation)	29/11/26	5,000	4,280	Nil	5,000	20/- and 16/-	Nil	7	Nil	Nil	Nil	2,871	Nil	Nil
NELSON DISTRICT (INCLUDING WEST COAST).														
North Big River Gold-mines, Ltd.	29/10/19	44,915	12,972	35,000	44,915	15/3	Nil	79	Nil	Nil	Nil	10,028	Nil	135
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	5,699	25,000	35,007	12/- and 11/4½	304	67	9	Nil	Nil	5,638	Nil	1,465
Mahakipawa Goldfields, Ltd.	12/10/23	37,479	28,445	15,303	749,589	Various	Nil	908	18	70	250	26,015	Nil	1,800
Ngahere Gold-prospecting Co., Ltd.	22/12/25	24,465	4,246	18,000	48,931	10/- and 1/-	Nil	32	Nil	Nil	Nil	4,206	Nil	44
Britannia Gold-mining Co., Ltd.	21/12/27	8,167	3,525	Nil	8,167	20/-	88	52	7	Nil	Nil	2,998	Nil	91
Skipper's Westland Gold-mining Co., Ltd. ..	1/3/28	7,590	3,248	4,342	7,590	20/-	Nil	20	14	26	105	4,359	Nil	942
Hercules Mines Consolidated, Ltd.	27/7/26	15,007	6,132	Nil	15,007	Various	Nil	7	Nil	522	1,823	..	Nil	1,343
Southern Mines Development Corporation, Ltd. ..	27/7/26	28,170	17,645	Nil	28,170	Various	6,075	287	Nil	Nil	Nil	..	Nil	11,821
Blackwater Oil (N.Z.) Exploration Co., Ltd. ..	27/7/26	15,507	897	Nil	15,507	Various	Nil	7	Nil	Nil	Nil	..	Nil	500
Golden Lead Alluvial Co., Ltd.	27/7/26	12,007	280	Nil	12,007	Various	Nil	7	Nil	Nil	Nil	..	Nil	Nil
New River Gold-dredging Co., Ltd.	8/5/25	60,000	27,741	25,000	60,000	20/- and 10/-	Nil	71	Nil	2,254	9,995	43,481	Nil	Nil
Terrace Gold-dredging Co., Ltd.	10/8/28	45,000	15,000	30,000	45,000	20/-	Nil	50	12	Nil	Nil	5,487	Nil	Nil
Buller Diversion Gold-mining Co., Ltd.	13/3/28	8,183	3,046	Nil	45,232	5/-	622	185	7	Nil	Nil	2,965	Nil	304
New Big River Gold-mining Co., Ltd.	19/8/07	6,000	2,400	Nil	24,000	2/-	Nil	66	3	..	396,173	295,111	112,800	5,739
Alexander Mines, Ltd.	9/3/26	75,000	27,473	Nil	75,000	12/-	340	292	17	2,374	9,029	24,162	Nil	2,077
Rimu Gold-dredging Co., Ltd.	20/7/20	213,572	142,863	70,709	213,572	20/-	Nil	35	50	82,722	349,081	244,760	22,981	609

OTAGO DISTRICT.

Vinegar Hill Hydraulic Sluicing Co., Ltd.	23/9/00	6,000	6,000	Nil	6,000	20/-	Nil	16	*	5,493	21,099	21,363	1,050	1,197
Broken Hill Mining Co., Ltd.	2/8/26	2,291	2,098	1,200	13,966	5/- and 4/9	1	34	Nil	Nil	Nil	2,060	Nil	34
Golden Chance Mining Co., Ltd.	10/7/25	1,400	1,391	600	8,000	5/-	8	28	Nil	1	4	1,236	Nil	21
Vogel's Vision Gold Co., Ltd.	19/11/24	16,020	13,642	600	100,000	4/3 and 5/-	Nil	261	Nil	46	181	13,281	Nil	Nil
Cromwell Gold-mining Co., Ltd.	6/2/25	1,325	1,225	600	1,925	18/6	Nil	33	Nil	2	8	1,188	Nil	46
Hartley and Riley Consolidated Gold-dredging Co., Ltd.	30/7/27	43,220	13,821	1,000	864,402	Various	Nil	347	Nil	Nil	Nil	7,751	Nil	Nil
Natural Bridge Gold-mining Co., Ltd.	8/4/25	2,600	2,334	1,400	16,000	4/6	Nil	37	Nil	28	109	2,366	Nil	54
Nevis Junction Gold-mining Co., Ltd.	23/6/26	3,477	3,211	1,650	20,510	5/-	265	74	Nil	Nil	Nil	3,018	Nil	50
Big Beach Gold-mining Co., Ltd.	7/12/26	22,500	13,046	9,125	22,500	20/-	328	168	9	912	3,481	4,190	Nil	5,930
Molyneux Electric Gold-dredging Co., Ltd. ..	23/7/25	10,947	7,171	2,500	10,947	20/- and 7/6	58	130	1	301	1,164	3,887	Nil	560
Kawarau Gold-mining Co., Ltd.	8/4/24	14,985	4,985	9,999	299,708	1/-	Nil	1,053	1	94	366	6,739 107,567‡	Nil	13 4765‡
Kildare Consolidated Gold-mining Co., Ltd. ..	19/6/28	8,000	4,000	4,000	80,000	2/-	Nil	103	8	217	802	810	Nil	71
Lucky Chance Kawarau Claims, Ltd.	29/11/24	8,000	6,000	2,000	32,000	5/-	Nil	312	Nil	Nil	Nil	5,841	Nil	452
Another Chance Kawarau Gold, Ltd.	15/12/24	8,000	6,000	2,000	32,000	5/-	Nil	367	Nil	Nil	Nil	5,837	Nil	197
Kawarau High Level Mining Co., Ltd.	17/8/25	9,000	7,994	1,000	9,000	20/- and 17/6	Nil	57	4	60	229	8,073	Nil	71
Nokomai Sluicing Co., Ltd.	14/6/26	25,000	14,840	10,160	25,000	20/-	Nil	74	26	580	2,146	27,398	Nil	10,368
Temuka Gold-mining Co., Ltd.	11/12/24	2,000	1,200	Nil	2,000	12/-	Nil	10	Nil	Nil	Nil	1,184	Nil	Nil
Golden Bed Mining Co., Ltd.	12/3/25	4,615	2,320	1,556	9,230	Various	33	105	Nil	Nil	Nil	2,946	Nil	Nil
Golden Gorge Mining Co., Ltd.	27/11/25	5,154	4,254	900	20,616	5/-	Nil	277	Nil	Nil	Nil	2,851	Nil	155
Undaunted Dredging and Mining Co., Ltd. ..	23/6/27	5,500	5,495	..	8,000	20/-	5	44	2	23	86	6,032	Nil	496
Golden River Mining Co., Ltd.	21/1/25	3,979	2,142	1,257	3,979	Various	26	68	Nil	Nil	Nil	2,974	Nil	Nil
McGeorge Bros., Ltd.	27/3/12	11,400	11,400	Nil	11,400	20/-	Nil	6	1	29,939	127,606	79,031	48,419	Nil
New Era Gold-mining Co., Ltd.	4/3/25	7,000	4,396	1,500	7,000	Various	15	194	Nil	Nil	Nil	608	Nil	3
Central Treasure Gold-mining Co., Ltd.	15/7/25	5,442	4,336	1,500	13,884	Various	40	185	Nil	Nil	Nil	791	Nil	134
Upper Nevis Gold-dredging Co., Ltd.	20/9/26	38,968	33,635	5,000	43,968	20/- and 12/6	95	151	14	1,280	5,120	41,333	Nil	2,665
Shotover Gold Claims, Ltd.	28/1/26	7,131	3,406	Nil	7,131	20/-	5	79	Nil	Nil	Nil	3,108	Nil	6
Colossus Gold-mining Development Co., Ltd. ..	28/8/14	30,073	12,073	18,000	30,473	20/-	Nil	65	1	Nil	Nil	17,840	Nil	5,724
Skipper's Sluicing Co., Ltd.	20/11/11	3,450	345	3,105	3,450	20/-	Nil	30	*	2,155	9,025	9,852	Nil	1,764
Lawrence Sluicing Co., Ltd.	18/3/16	5,000	5,000	Nil	5,000	20/-	Nil	23	6	6,246	25,854	25,773	4,125	Nil
Golden Crescent Sluicing Co., Ltd.	26/11/98	3,500	3,500	Nil	3,500	20/-	Nil	20	6	13,692	54,718	46,297	14,175	312
Sailors Gully (Waitahuna) Gold-mining Co., Ltd. ..	3/6/96	8,400	200	8,200	8,400	20/-	Nil	26	6	11,884	46,801	38,711	9,410	140
Tallaburn Hydraulic Sluicing Co., Ltd.	3/12/04	1,200	1,200	Nil	12	£100	Nil	9	2	2,948	10,258	12,525	1,380	276
Good Fortune Gold-mining Co., Ltd.	13/5/25	1,800	1,027	600	1,800	20/-	8	12	Nil	Nil	Nil	726	Nil	Nil
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	Nil
Wairarapa Gold Claims, Ltd.	18/11/24	10,200	6,546	500	10,200	13/6	Nil	138	Nil	Nil	Nil	6,636	Nil	Nil
Gabriel's Gully Sluicing Co., Ltd.	2/5/07	600	600	Nil	600	20/-	Nil	9	8	19,707	77,539	68,253	20,215	43
Sandhills Gold-mining Co., Ltd.	19/12/13	7,000	2,000	5,000	7,000	20/-	Nil	20	5	1,192	4,562	19,176	Nil	7,613
Glenorchy Scheelite-mining Co., Ltd.	6/12/11	3,000	Nil	3,000	3,000	20/-	Nil	11	Nil	..	313†	85,121	7,125	905
Lady Ranfurly Gold-mining Co. (Kawarau), Ltd. ..	12/6/28	6,748	Nil	6,748	134,976	1/-	Nil	45	Nil	Nil	Nil	72	Nil	Nil

* Let on tribute. † Scheelite £88,165. ‡ Claimholders' Account.

Table 2—*continued.*

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

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	48,082	Nil	25
Waihi Gold-mining Co., Ltd.	7/12/87	247,953	4,803	53,333	443,209	5/–	Nil	1,837	553	23,106,985	15,912,959	9,455,913	1,162,795	29,638
Waihi Grand Junction Gold Co., Ltd.	22/12/97	41,392*	40,494	112,500	271,899	2/–	Nil	1,034	4	..	2,350,561	2,351,053	145,689	132

* 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, 1929.

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, 1928, 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. 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 1928.				Total Output to the End of 1928.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Totals.	
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and sub-bituminous	179,460	1,169,272	..	1,348,732	41,819,046
Brown	602,429	31,408	339,401	973,238	22,734,951
Lignite	..	159	114,624	114,783	4,208,838
Totals for 1928 ..	781,889	1,200,839	454,025	2,436,753	68,762,835
Totals for 1927 ..	747,530	1,156,191	463,019	2,366,740	66,326,082

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

* Includes 21 tons shale.

The output of coal for 1928 was the highest annual output yet recorded, and was greater by 70,013 tons than the output for 1927. The production of bituminous coal increased by 58,203 tons, that of brown coal by 18,802 tons, while the production of lignite decreased by 6,992 tons. The increases in bituminous and brown coal are largely the result of an endeavour on the part of the Railway Department to use wherever possible local coal in preference to imported coal.

The output of bituminous coal in the Northern District showed an increase for the year of 7,112 tons and of brown coal an increase of 27,247 tons, a total increase of 34,359 tons.

In the West Coast District the output of bituminous coal increased by 51,091 tons, while the outputs of brown coal and lignite decreased by 6,384 tons and 59 tons respectively, the net increase of output for the district being 44,648 tons.

In the Southern District there was a decrease of 2,061 tons in the output of brown coal and a decrease of 6,933 tons in the output of lignite, the total reduction of output for the district for the year being 8,994 tons.

The mines now in operation were able to produce much more coal than there was a market for, with the result that most of the mines were working short time through inability to dispose of the output. This was particularly the case in the mines in the Huntly District and in the Southern District, where the demand for coal is seasonal. The position as regards the mines near Huntly is likely to become worse through the opening-up of new mines and the replacement of steam plants in the Auckland Province by electric plants driven by hydro-electricity from Arapuni. The West Coast mines are feeling the effect of the increasing use of oil fuel on overseas vessels coming to New Zealand and the consequent reduction in the amount of coal required for bunkering.

A considerable amount of mining by co-operative parties is being carried on in the West Coast and Northern Districts. These parties work areas which in most cases could not be worked profitably by companies, and in some instances are extracting pillars left in and abandoned as unworkable by companies which formerly held the areas as part of larger holdings. One marked feature of mining by co-operative parties is the output per man employed compared with the results obtained in the large mines owned by companies; in many cases the former is at least double the average of the latter.

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 1928.	Total Output to 31st December, 1928.	Total Number of Persons ordinarily employed.
Northern District.			Tons.	Tons.	
Hikurangi	Hikurangi	Sub-bituminous	98,554	339,762	205
Wilson's	„	„	61,345	420,887	182
Rotowaro	Huntly	Brown	150,100	1,204,418	279
Pukemiro	„	„	154,315	1,602,717	280
Waipa	„	„	63,772	981,837	127
Glen Afton	Glen Afton	„	167,632	835,932	294
Renown	Waikokowai	„	26,555	26,555	88
West Coast District.					
Westport-Stockton	Ngakawau	Bituminous	152,884	2,490,726	294
Millerton	Millerton	„	167,340	7,700,300	462
Denniston	Denniston	„	228,558	9,585,550	513
Westportmain	Westport	„	35,213	91,841	58
Cardiff Bridge	Seddonville	„	25,783	139,918	28
Paparoa	Roa	Semi-bituminous	23,395	604,409	22
Blackball	Blackball	Sub-bituminous	119,358	3,721,506	292
Liverpool (State)	Rewanui	Bituminous	130,881	1,893,804	346
James (State)	Rapahoe	Sub-bituminous	39,877	185,545	83
Dobson	Dobson	Bituminous	97,524	188,691	264
Southern District.					
Shag Point	Shag Point	Brown	28,258	249,870	86
Kaitangata and Castlehill (3 collieries)	Kaitangata	„	85,160	4,601,170	259
Taratu	„	Lignite	21,860	680,002	40
Linton (2 collieries)	Nightcaps	Brown	103,459	499,305	157
Wairaki (2 collieries)	„	„	34,790	274,117	65
Mossbank (2 collieries)	„	„	43,862	214,242	65
142 other collieries	All coalfields	Various	376,278	7,148,029	887
Collieries abandoned or suspended, &c.	Various	„	..	23,081,702	..
Totals	..	..	2,436,753	68,762,835	5,376

SECTION II.—PERSONS EMPLOYED.

Inspection District.	Average Number of Persons employed during 1928.		
	Above Ground.	Below Ground.	Total.
Southern	244	682	926
West Coast	716	2,128	2,844
Northern	406	1,200	1,606
Totals, 1928	1,366	4,010	5,376
Totals, 1927	1,386	3,988	5,374

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1928.

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
Totals ..	68,762,835	..	..	..	..	..	..	421

* 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 1928, 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 ..	..	..	..	..
Falls of ground	8	8	9	9
Explosives	..	..	1	1
Haulage	..	..	3	3
Miscellaneous—Underground	..	..	2	2
On surface	1	1	..	..
Totals	9	9	15	15

The fatal accidents for the year were at the rate of 1·67 per thousand persons employed and 3·69 per million tons of coal produced. Accounts of all the fatal and serious non-fatal accidents are given in the District Inspectors' reports attached hereto.

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 1928 :—

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) ..	103,468	..	..	113,686	12	84	40	136	399,800
West Coast (of South Island) ..	183,514	..	127,122	396,477	16	353	248	617	1,184,880
Southern (*i.e.*, Canterbury, Otago, and Southland)	7,339½	..	50,635½	89,059	..	43	37	80	232,331
Totals	294,321½	..	177,757½	599,222	28	480	325	833	1,817,011

Seventy-four per cent. of the coal produced in the Dominion during 1928 was broken down by permitted explosive, and the average production of coal per pound of explosive used was 3·84 tons, and per shot fired 3·03 tons.

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

The following is a list of mines as at the 31st December, 1928, 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.

West Coast Inspection District.

North Cape Mine, Puponga.
Puponga, Puponga.
Stone's, Takaka.
O'Rourke's, Murchison.
Bennett and party's, Seddonville.
Zealandia, Seddonville.
Cardiff Bridge, Seddonville.
Celtic, Seddonville.
Chester's, Seddonville.
Clydevale, Seddonville.
Coal Creek, Seddonville.
Dove's, Seddonville.
Glen Lea, Seddonville.
Glasgow, Seddonville.
Harris, Karamea.
Murray's, Seddonville.
Quinn and party's, Seddonville.
St. Helens, Seddonville.
Rogers Bros., 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.
Caliope, Reefton.
Clele, Merrijigs.
Coghlan's, Capleston.
Collins and Kearns, Reefton.
Doran's, Capleston.
Morrisvale, Reefton (Perfection Valley and Matchless).
Reddale, Reefton (Woodlands, Empire, Lishman's).
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.
Dobson, Brunnerton.
Duggan's, Rewanui.
Hunter's, Dunollie.
Manderson's, Runanga.
Briandale, Ten-mile, Barrytown Road (Mc Neill's).
Moody Creek, Dunollie.
Old Runanga Co-operative party, Rewanui.
Schultz Creek, Runanga.
Scott and Kerry's, Twelve-mile, Barrytown Road.
Smith's, Runanga.
Spark's, Rewanui.
State Coal-mines (Liverpool Collieries and James Colliery).
Paparoa, Roa.
Wafer's, Runanga.
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.
Ohai Coal Company's mine, Ohai.

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

The following is a list of the mines as at the 31st December, 1928, 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.

West Coast Inspection District.

Westport Coal Co.'s (one section, Millerton Mine).
Dobson, Brunnerton.
Hunter's, Dunollie.
Manderson's, Runanga.
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.
Ohai Coal Co.'s mine, Ohai.

(*d*) Dangerous Occurrences reported.

(Regulation 82.)

A full list is contained in the District Inspectors' reports. The most serious was a fire in the Ironbridge Mine, Denniston Colliery. It began with a heating in Kruger's section on the 13th December, the heating being on the edge of pillared ground. In this section two seams have been worked, the bottom seam being approximately 20 ft. thick and the top seam 9 ft. thick. The return was on the far side of the goaf. When the heating was discovered an attempt was made, without success, to dig out the heated material. When that failed water was laid on and efforts made to isolate the heating, which had now become an active fire. The fire gave off a large amount of black-damp, with some carbon monoxide, and to keep the approaches to the fire clear a strong air-current was required. From the position of the return this air-current had to pass through the fire area, and so fanned the fire into greater activity. Eventually the area had to be sealed off. To do this effectively thirteen large stoppings were required, as well as a concrete wall 3½ chains long fronting a line of pillars which were too crushed for stoppings in the boards to be airtight. The stoppings had to be erected a considerable distance back from the actual seat of the fire, so that a large area was shut off, in all probability permanently. This fire cost the company several thousand pounds to cope with, and resulted in the abandonment of half a million tons of first-class bituminous coal; there is also some danger that the fire will affect old workings on the return side of the pillared ground.

(*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	36
Number of continuous-current installations	11
Number of alternating-current installations	28
Number of collieries electrically lighted	25
Number of collieries using electrical ventilating-machines	26
Number of collieries using electrical pumping plants	25
Number of collieries using electrical haulage plants	24
Number of collieries using electrical screening plants	12
Number of collieries using electrical miscellaneous plants	18
Number of collieries using electrical locomotives	1
Total horse-power employed from motors on surface	5,523
Total horse-power employed from motors below ground	4,005

(*f*) Prosecutions.

There were four prosecutions by the District Inspectors during the year.

On the 7th March the manager of a mine was prosecuted for being absent from the mine without having notified the Inspector, as provided in section 59 of the Coal-mines Act. The case was dismissed.

On the 16th July a shot-firer was prosecuted and fined £3 and costs for a breach of Regulation 228.

On the 27th November two truckers were prosecuted and convicted for riding on trucks in contravention of Regulation 63.

SECTION V.—LEGISLATION AFFECTING COAL-MINES.

By regulations gazetted on the 2nd February, 1928, provision was made for keeping a better check on the issue of safety-lamps to workmen, on the issue of detonators and the number of miss-shots, and on the results of the examination of dust on roadways underground; while a further amendment to the regulations provided for standard preparation of working-places prior to shot-firing. There was no amendment to the Coal-mines Act during the year.

I desire again to acknowledge the efficient help and co-operation which I have received from the District Inspectors. Of particular interest is the work done in recent years towards getting methods of working adopted which would give greater safety and at the same time reduce the excessive loss of coal. I have remarked on this in previous years. In the reports of the District Inspectors for the past year details are given of what has so far been attained. The progress made is striking, though much still remains to be done. It is noteworthy that in all cases the change of method, besides giving increased safety to the mine and a better percentage extraction of coal, has been accompanied by a reduction in the cost of production.

Inspector O. J. Davis resigned from the position of Inspector of the West Coast District to take up the position of manager of the Briandale Colliery. He was succeeded by Mr. C. J. Strongman, who had been Inspector between 1923 and 1926.

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).

In compliance with the Coal-mines Act I have the honour to submit the following report:—

The total output of coal produced from coal-mines in the Northern Inspection District for the year 1928 was 781,889 tons. The average total number of persons employed in and about the mines was 1,606. The following pre-war comparison of the figures of annual output and output per person employed underground shows a substantial increase both on output and on coal produced by each person employed underground. In 1913 the total output was 349,586 tons, and the output per person employed underground was 550 tons; in 1922 the total output was 430,578 tons, and the output per person employed underground was 582 tons. During the year 1928 1,200 persons employed underground produced 781,889 tons, equal to 651 tons for each individual. There were no fatal accidents during the year, and the number of fractures, four, sustained in the various collieries was notably low considering the number of men engaged in pillar-extraction. The number of reported minor accidents disabling for one day or more for purposes of payment of relief from the Coal-miners' Relief Fund was extraordinarily high considering the low percentage of serious accidents. No serious fires occurred in any of the collieries, and the workings generally have been free from the destructive effects of crushing. These satisfactory conditions are attributable wholly to the adoption during the past four years of better methods for the control of roof-weight. The question of "weighting" as affecting the formed coal pillars and roads is one of great importance, both as regards the extraction of the coal and the subsequent expense in maintaining the roads up to the faces. In the early days of coal-mining it was customary to drive wide and high places in the coal-seam and to leave small pillars of coal standing for the support of the roof. The sizes of the pillars varied, but they did not exceed 30 ft. square in any of the collieries. As the workings advanced to greater depths, with increasing roof-cover, no provisions were made to increase the size of the supporting pillars or to provide barrier pillars of adequate strength. Under these conditions, when an extensive area was undermined, the strata began to move, and the weight due to the subsidence generally extended over a wide area in the mine. In many cases the weight thrown on the weak pillars effected a closing of the workings and exposed the workmen to grave dangers from falls during the periods of final crushing, and several large collieries in the Waikato and Whangarei districts extracted less than 30 per cent. of the available coal prior to abandonment, that amount being obtained from the first workings. During the past six years the question of the influence of thickness of roof-cover upon the coal-pillars has been specially studied in the light of past experience of the irrecoverable loss of several million tons of coal under the old methods of mining. Subsequent to the crushing of the working-sections of a large colliery in the Waikato district during the year 1922, the important question of the size and inadequacy of the coal-pillars in relation to the thickness of the roof-cover was discussed at a meeting convened at Huntly by the Chief Inspector of Mines and myself, and attended by the managers of the local collieries. Although we had no power under the Coal-mines Act to enforce new methods of mining, we had sufficient grounds, in the light of that occurrence, to demand the formation of much larger pillars in the first workings of future mining operations. Since that meeting we have been successful in the majority of the mines in establishing requisite conditions for the control of the roofs. Pillars of 1 chain square in size, together with the "panel" system, and 1½-chain barrier pillars round three sides of the panels, have been adopted in most of the large collieries. From the results so far obtained we have enjoyed a freedom from serious crushings and fires in the mines during the past two years. With 1-chain pillars in the panel system it is possible to get 20 per cent. of the available coal in the first working and 60 per cent. in the second from the extraction of the pillars, thus outweighing the old methods of mining by 50 per cent.

The following is a general summary of the operations of each colliery for the year 1928:—

Hikurangi Coal Co., Ltd. (Shaft Colliery).—The output for the past year, 98,554 tons, shows an increase of 11,549 tons when compared with the figures of the previous year. The quality of the coal produced from this colliery is sub-bituminous. The Railway Department, in its policy to use larger proportions of local coal, takes fully 1,000 tons of coal per week for use in the locomotives in the Northern District.

There are three separate working sections in the mine—namely, McKenzie's dip section, west section, and east section. In the dip section the face of the slant dip has been extended 32 chains from the shaft level into an area of clean hard coal of a thickness of 14 ft. The direction of the dip is along the fringe of the Hikurangi Swamp area, and the inflow of water at the face has increased considerably during the past year.

In the west section the pillars to the rise of the seam have been extracted to a line within safe limits of the main-heading roadway. Several pillars were extracted in the east section in recovery of a portion of the section which was abandoned three years ago, due to crushing. In both the east and west sections there is a considerable area of solid coal to be worked under free-drainage conditions. The ventilation was satisfactory throughout the mine-workings. I should explain that the pillars extracted in the west section during the year were removed from a panel of 8 acres where the formed pillars of the first working were at least 55 ft. in size, and practically the whole of the available coal was extracted, with excellent results as regards safety and fires in the goaf.

In comparison, I should state that when the pillars of the east-section area of 13 acres were attacked the weight of the roof-cover—a thick, hard stratum of limestone roof—forced the small pillars, 30 ft. in size, downwards into the floor, and a soft layer of friable fireclay, of 2 ft. in thickness, lying immediately above the roof of the coal, filled the roadways and airways to the extent that the workings could not be kept open. The ventilation was impeded, fires ensued, and the workings were sealed off when only one-third of the coal was extracted. With the view to preventing crushing and creeping, still larger pillars are required on the dip side of the shaft in support of the increasing thickness of the coal cover, which is 500 ft. of limestone.

Wilson's Colliery, Hikurangi.—This colliery produced 61,345 tons during the year for use as powdered fuel in the kilns of Wilson's Portland Cement Co. works at Portland. The output was won from three sections—the stone-drive pillar section, No. 6 section, and the main dip section. In the pillar section another example of successful pillaring operations due to large pillars may be given as showing the results as compared with previous experiences under small-pillar conditions. When the mine was acquired by the company, eight years ago, an area of small coal pillars in No. 1 section was opened out with the view of extracting the remaining coal. Several pillars of soft coal were extracted, a disturbed movement of the roof followed, and the intensity of the weight caused a movement over the main haulage-road and airways. The pillars in the subsequent Nos. 6, 7, and 8 sections were made slightly larger in size—40 ft.—but many difficulties were again encountered during the period of extraction. The roof-weight over the tender coal-seam crushed the supporting pillars into dust, and high air-temperatures and fires in the goaf affected the workmen to the extent that only six-hour shifts could be endured at the coal-faces. I can also recall that several fractures to limbs were sustained by workmen from roof-falls in the disturbed places. From this experience it was realized by the management that larger supporting pillars should be formed and left in the stone-drive section and succeeding sections to the dip. In the stone-drive section the pillars were made 120 ft. by 50 ft. in size, and during the past two years the pillars have been extracted to within 5 chains of the main roadway without loss of coal, and under good working conditions. In fact, I was informed during a recent visit of inspection of the mine that fully 90 per cent. of the available coal had been extracted, and that during the period of extraction no difficulty had been experienced in the control of the roofs at the faces. Similar results should be obtained from the dip sections, where the pillars are even larger in size and of better shape.

The main dip sections have been extended 6 chains under the Hikurangi Swamp, and drainage difficulties can only be overcome by the introduction of larger pumps and pipes to cope with the increasing accumulations of water. The passage for air in the return airways is somewhat constricted, due to the fretting of the sides, intensified by the action of the humidity of the air in the return.

Mine equipment and baths for workmen have been maintained in good order and condition.

Kerr and Co. (Phœnix Colliery).—Mining operations ceased in this colliery in the month of May. The pillars have been extracted to the road-boundary and the plant was withdrawn to the surface. The mine-plan was extended to show the workings up to the date of the cessation of operations.

Silverdale (Foot's Crown Lease).—Operations in the established mine were suspended, due to a dispute between the owner and the miners. A new mine section was subsequently opened out, and a seam of coal 4 ft. in thickness was developed to give employment to four miners. The output is carried over the county roads for a distance of three miles by means of motor-lorries.

Northern Co-operative Colliery (Cunningham's Crown Lease).—The mine was idle during the winter months, due to a creeping movement over the pillars, but it was reopened in the month of September to win an isolated area of thin coal left by a former working. The output is transported over the county roads to Hikurangi Railway-station.

Glen Nell Colliery (Crown Lease).—The mine only produced coal during the first quarter of the year. The seam is 2 ft. in thickness, and it is worked by a system of longwall for the better extraction of the pillars. The output was conveyed by motor-lorry to the Hikurangi Station, a distance of three miles and a half.

Hillside Colliery.—A dip was driven from the surface to recover a small area of thin coal abandoned by Kerr and Party when working the "Rocks" Mine. The workings were exhausted and the plant withdrawn four months from the commencement of operations.

Belton's Colliery (Freehold).—Two thousand tons of coal were won by four men from an area abandoned by the Hikurangi Coal Co., Ltd. Short drives were driven from the surface to reach the shallow outcrop pillars on free drainage. The drives were adequately timbered, and the jig connecting the mine with the county road has been properly maintained.

Christie's Colliery.—This colliery was reopened during the year to win an area of coal proved by boring to exist on the hill above the workings which were abandoned two years ago. The seam is 3 ft. 6 in. in thickness, and is conveniently situated for the operation of the tramway laid down to connect the mine with the railway-sidings at Hikurangi Station. A shaft for ventilating purposes was sunk to the coal-seam during the year.

MacKinlay and Party's Phœnix Colliery (Crown Lease).—A small mine was opened out on a Crown-lease area proved by prospecting to contain several thousands tons of coal. A water-free drive was driven from the lowest level of the seam, and four miners produce 20 tons per day from bords turned away from the main drive. A stone band in the roof affords an ideal roof for pillar-extraction. The output is carted over the county roads to the Hikurangi Railway-station.

Ruatangata Colliery (Freehold).—Operations at this mine have been confined to the unwatering and reopening of No. 2 section of the old Kamo Mine workings, abandoned during the year 1894. The recovered places are in good condition. A slant dip has been driven 25 chains through pillars and falls, and at the face an area of comparatively solid ground 4 chains square, has been exposed for the extraction of the coal. Two pumps are in commission for the unwatering of the old workings.

Ngungaru Fireclay and Coal Co., Ltd. (Fireclay-mine, Kiripaka).—The open-face mine was worked intermittently during the year to provide large loads of fireclay for shipment to Auckland, a distance of 120 miles by sea. The overburden was stripped back from the face, and generally the face was maintained in good order.

Kiripaka Fireclay-mine (Crown Lease).—Eighty-two tons of fireclay was produced during the year from an elevated outcrop connected to the river-wharf by a jig tramway.

Doels' Kiripaka Coal-mine (Freehold).—A small colliery situated on Stephen's land, 5 miles from Whangarei, on the main Kiripaka road, is under course of development to market an output in Whangarei. Thirty chains of surface tramway have been laid down to connect the mine with the county road.

Harrison's Waro Colliery (Freehold).—Operations at the mine have been chiefly confined to the driving of a diversion dip heading, for the provision of storage-room for water, to permit the driving of the main dip. The electrical transmission-cables and other apparatus installed underground have been replaced by modern machinery designed to give better working results. Generally the plant and machinery of the mine have not kept pace with the requirements of the mine.

Rotowaro Collieries.—Two seams are being developed in this colliery, and three separate mine sections are producing 750 tons per day. In No. 1 section (top seam) the development headings have explored and proved the existence of a large field of coal lying at shallow depth to the south-east of the property. The pillars have been removed in a number of the sections, and the entrances to the sections have been sealed off with brick stoppings. No. 2 section has been extended by the advance of the main dip into the bottom seam, which is of better quality than the coal worked in the top seam. In No. 3 section the lower seam has been followed to a faulted area, and working-sections have been opened out on the east side of the main haulage heading. Modern equipment is used in all the sections. The endless-rope system of mechanical haulage is employed throughout the mines, and no horses are in use underground.

One Arc Wall and one Sullivan electric coal-cutting machines are in use, and another Arc Wall machine will shortly be installed. The workings are stone-dusted, and, generally, good conditions have prevailed during the year. I should mention that a high percentage of pillar coal has been won from the sealed sections. Several small fires in the goaf were arrested and suppressed by stoppings erected ahead of requirements. In some cases it was advantageous to erect more than one line of temporary stoppings in sections where the coal was thick and liable to spontaneous combustion. The roof is composed of jointy fireclay, which fractures easily and breaks off at the pillar-ends when the roof-supporting props are removed to induce a pressure. No creeps occurred in the sections. In Lofty's jig section, where the pillars were being removed slowly, a crushing movement disturbed the roofs of the roadways leading to the faces. The thrust was subsequently checked by the settlement of the roof in the excavated spaces behind the working-faces.

No. 3 mine is being developed on the panel system throughout. Barriers of solid coal are being left round each district. The supporting coal pillars vary in size, but are mostly 70 ft. centres, with bords 14 ft. wide by 8 ft. high driven on direction bearings to the determined barriers.

Oldham's electric safety-lamps (cap type) are in use throughout No. 1 and No. 3 mine sections. The advanced workings in No. 1 section have been connected to the surface at two points. These outlets simplify the provision of fresh air to the faces, and also afford a third escape for workmen in the farthest inbye places.

Pukemiro Collieries.—The output from the company's mine has been fully maintained to the average of previous years. In the north mine the pillars have been extracted from several panel sections to the east of the main haulage-road. A systematic withdrawal of the props in the pillar spaces induces clean falls of the roof against the face row of props, consequently the roof-weight is relieved and their is little risk of accident when the remaining pillars are being attacked.

The Brickyard section near Glen Afton is being developed in a seam 7 ft. in thickness. The roadways are connected to the north mine haulage and ventilation systems. In the south mine the first workings are proceeding towards the barriers. It was realized from the results of a slight crushing movement over the main roadways that the formed pillars were too small to support a roof-cover of approximately 500 ft., and much larger pillars and barriers have been provided during the past two years to afford favourable conditions for the extraction of the pillars. During the year a small quantity of inflammable gas was discovered at the face of a heading in Horne's No. 2 section. Oldham's electric safety-lamps, of the cap type, were subsequently introduced into the west section of the mine. All the districts in the mines are sealed off when finished to the boundaries of the first workings, and the stoppings are frequently examined for leakages of contained gases.

Glen Afton Colliery.—The development of this mine was commenced eight years ago, and during the past year the company despatched 167,632 tons of coal, principally to the dairy factories and shareholders of the New Zealand Co-operative Dairy Co., Ltd., the owners of this colliery. The mine equipment has been increased correspondingly with the advance of the mine-workings. The main headings have reached a distance of one mile and a quarter from the entrance of the mine. The pillars are being removed from A section, one of the first sections to be turned off the main haulage-road. The crushing movement which rode over the pillars of D and G sections during the year 1926 appears to be settled. Several of the affected pillars on the airway side have been strengthened with facings of brick walls erected from roof to floor along the pillars between the stoppings. Pillars of 1 chain square and barriers from 1 chain to 2 chains of solid coal have been formed and provided for the support of the increasing roof-cover in all the recently developed districts. The headings in K and J sections, through the upthrow fault, have been rapidly advanced to open out a widely spread area for working-sections. The faces in these districts have been advanced to the extent that there is now a difficulty in maintaining an adequate standard of ventilation. The position has been temporarily improved by the introduction of two auxiliary fans for use in boosting the ventilation. Two downthrow faults, of 20 ft. and 30 ft. displacement, have been encountered in the main heading. The corners of the pillars in the majority of the places are being supported by timber props and laths, thus affording protection from falls from pillar-sides. The coal-seam generally is liable to spontaneous combustion, but with the adopted panel system of barriers, large pillars, and few openings in each district I would expect a high percentage of coal from the extraction of the pillars under a roof-cover of 400 to 500 ft., as proved to exist over the area. The surface plant has been increased by the installation of a new steam boiler and another generator for the production of electric current to operate the subsidiary haulage machinery in the mine.

Graham's Colliery (Co-operative Party).—Twenty men are employed in and about the colliery for an output of 50 tons per day. A drive to the surface on the rising outcrop has considerably improved the ventilation of the pillar workings. At the same point a water-free drive has been driven under the seam to facilitate the drainage of the main dip. The pillars have been successfully extracted under ideal pillaring conditions, consequent to the driving of narrow places, 6 ft. wide, in the first workings.

Pukemiro Junction Colliery (Crown Lease: Co-operative).—Headings of small dimensions and large pillars were adopted in the system pursued in opening out the mine. When coming back with the pillars the roof-weight has no effect on the workings, and a high percentage of coal is won from the pillars. The output of 40 tons per day is jigged down to the railway-wagons at Pukemiro Railway-siding.

Waipa Colliery.—No. 1 and No. 2 sections have been extended from the main dip in a solid area of coal. The timbering of the roofs consist of bars set systematically, and with occasional props set along the brattice side of the places. The pillars are being extracted in No. 3 section under a progressive roof-pressure exerted by a roof-cover of 300 ft. of claystone. The pressure at some points has carried weight over the coal pillars and caused the roof to fall in the roadways to the extent that many fresh roadways have to be made through the falls in order to recover the pillars. A solid barrier has not been provided along the main haulage-road, and a large number of openings will require to be sealed off to prevent heating in the goaf. The humidity of the mine atmosphere was tested by the following hygrometric observations: No. 1 section—65° wet, 66° dry; combined intakes—66° wet, 67° dry; No. 3 pillar section—73° wet, 75° dry: indicating an appreciable increase of temperature as the result of pillaring operations. The ventilation system was improved by providing three separate ventilating districts in the mine. The dust on the roadways was sampled and analysed on several occasions in order to ascertain the conditions of the mine in respect to the inflammability and ignitibility of the coal-dust on the roadways.

Waikato Extended Colliery.—Early in the year the company operating this colliery secured a lease of a portion of the old Waikato Mine workings. When preparations were being made to extract the barrier coal lying between the properties a fire broke out in the old workings of the Extended Colliery, and the mine was subsequently sealed up for a period of three months. Several places were opened out in the southern area of the Waikato property. The seam contains numerous clay backs, and is inferior in quality to that mined in the Extended area. Towards the end of the year the fire area was recovered, and several pillars were extracted against the goaf to allow the roof to fall and so cover the goaf ends with fresh falls of roof stone. Bords and headings of the solid workings were 14 ft. high by 14 ft. in width, consequently no suitable positions for stoppings can be obtained against the waste, and the cost of each stopping is very high. The output is distributed along the Waikato River depots by river-steamers owned by the owners of the colliery (Roose Shipping Co., Ltd.).

Huntly Brickworks.—This fireclay openface, developed to supply the Huntly brickworks with suitable clay for making building-brick, firebricks, tiles, &c., has been safely worked during the year.

Taupiri East Colliery (Auckland University Council Endowment Lease).—Prospecting to the rise of the seam revealed an area of coal destroyed by prehistoric fire. The seam is 18 ft. in thickness at the crown of the terrace, and is reduced to burnt ash where it is exposed in the gullies. Operations are confined to the driving of headings in thick coal. A pump operated by electric motor, has been installed in the mine. The output is conveyed by motor-lorry to Huntly Station, a distance of four miles.

Campbell Colliery, Whatawhata (Crown Lease).—During the past three years the mine has been operated by a small party holding a sublease from the company to work the mine on a royalty basis. The agreement to work the mine proved to be unsatisfactory. The roof-supporting pillars were left small and badly shaped, and generally the system of mining pursued by the party was not conducive to the interest of the owners, nor to the development of the mine in regard to provisions which would enable the company to remove the pillars without risk of crushing and fires. The agreement was terminated at the end of the year, and the company has since made arrangements to take over the control and management of the mine. The output is carted by road to Hamilton, a distance of eleven miles.

Renown Colliery, Waikokowai.—The colliery is situated about three miles west of Rotowaro Railway-station. The output stage was reached in the month of June, and since that date 26,555 tons of coal have been obtained from the top seam, which was first exploited, as it was conveniently situated to the entrance of the mine. The main dip heading was extended 8 chains on a gradient of 1 in 6 through stone to reach the bottom seam, proved by boring to exist ahead over a large area. The bottom seam is a hard compact coal of clean appearance similar in quality to the coal mined in other Waikato mines. Having regard to the susceptibility of the seams to spontaneous combustion, it is intended to develop the mine on the approved panel system. The seams are lying practically level, and it is proposed to open out 5-acre districts with 1½ chain barriers round three sides of the panel. Pillars are to be not less than 1 chain square, bords and headings are to be 12 ft. wide by 8 ft. high, and airways and roadways are to be amply dimensioned to provide roomy passages for ventilation and haulage. The output during the year was obtained from the top seam from places almost entirely mined by the operations of an Arc Wall coal-cutting machine. It is capable of cutting twelve places in an eight-hour shift, and the daily average output per miner filling from the machines is 12·2 tons, compared with 6 tons per miner in places where the cutting is done by hand. No difficulties have been encountered in operating the two and a half miles of endless-rope tramway constructed over undulating country to connect the mine with the Government railway at Rotowaro.

Electric power for the colliery is obtained from the Central Power Board, and the following description of the installation may be of some interest: The power supplied is alternating current at 400 volts, 50 cycles. There are two substations, one at Rotowaro and another at the mine. Rotowaro station consists of an incoming feeder panel of 300 amp. capacity; a panel for screening plant, 100 amp. capacity; and a panel for surface haulage plant of 250 amp. capacity. The capacity of the haulage plant is 100 tons per hour at a speed of two and a half miles per hour, and the plant is operated by a 150 b.h.p. slip-ring induction motor. The screening plant is driven by a 40 b.h.p. slip-ring motor for main gear, together with a 6 b.h.p. motor for raising jibs. The capacity of the screens is 800 tons per day. At the mine substation there are four panels—incoming, 700 amp.; mine circuit, 250 amp.; surface plant, 150 amp.; fan circuit, 80 amp. Power is conveyed into the mine by bitumen-insulated sheathed steel-armoured cables to supply

a coal-cutter 50 b.h.p., two winches of 10 b.h.p. each, two booster fans of 10 b.h.p. each, and two pumps of 10 b.h.p. and 7 b.h.p. capacity respectively. The ventilating-fan is a Keith Blackman type, 56 in. diameter, double inlet, operated by a 40 b.h.p. motor. The fan circulates 85,000 cubic feet of air per minute at a water-gauge pressure of 2½ in. Rails of 30 lb. section are used throughout the workings. Substantially built steel skips of a carrying-capacity of 15½ cwt. are in use in the mine.

Old Stockman Mine, Mokau.—A limited output was mined for local use to meet the requirements of the settlers residing on the banks of the Mokau River.

Coal Creek Colliery (Taranaki Coal-mining Co., Ltd.: Crown Lease, Tatu).—Operations in this mine are being conducted by the Taranaki Coal-mining Co., Ltd.; nominal capital, £10,000. The area was formerly prospected and worked by Hyde, Fougere, and party, and comprises 470 acres of a Crown coal lease in Block 4, Pouatu Survey District. Two headings have been driven in a seam of coal of an average thickness of 3 ft. The mine is situated in the Tangarakau Gorge, at a point eleven miles north by road from Tahora, the present terminus of the Stratford–Ohura Railway, under construction.

Egmont Colliery (Crown Lease, Block 7, Pouatu Survey District).—Formerly this area was worked by William Shanks. During the year a company, registered under the title of "Egmont Collieries, Ltd." (capital, £70,000), was formed to take over and amalgamate various coal-prospecting licenses in the Tangarakau district. A surface tramway three and a half miles in length is in course of construction to connect the mine to the Public Works Department's light railway at Tangarakau Flat. The seam of coal exposed in the bed of Tangarakau River is being developed to produce an output in time for the completion of the screens and tramway. The seam is 5 ft. in thickness, with an intervening band of 11 in. of shaly coal, which occurs near the bottom of the seam.

Power Coal-mine, Ohura.—Prospecting operations were conducted during the year on an area of 227 acres of Crown land situated in Block IV and Block VIII, Waro Survey District. Two seams of coal were located—top seam, 14 in. in thickness; bottom, 3 ft. in thickness. Two drives were driven in the bottom coal-seam, and a longwall face of 100 ft. in length was opened out to test the longwall method of working the coal. The roof broke over the timber and closed the working-face, and the method was subsequently abandoned in favour of a retreating system of working. The seam of coal is overlain by a mudstone roof, varying to sandstone, which becomes friable with moisture, and therefore presents many difficulties.

Serious Non-fatal Accidents.

On the 8th May George Gilby, miner, sustained a fracture of a small bone in the ankle, due to a fall of roof-stone, n his working-place whilst he was engaged in hewing coal in Wilson's Colliery.

On the 21st June J. B. Thomson, miner, Pukemiro Colliery, sustained injuries to his face and head, the result of a fall of coal from a bench in his working-place.

On the 20th July R. Holmes, employed at Glen Afton Colliery, had his leg fractured by a blow from a jig-rope.

On the 6th September E. Cooke was injured at Wilson's Colliery by a fall of roof-stone and timber in his working-place. His left leg was broken, and he was off work for a period of 117 days.

On the 28th September Robert Allen received general injuries by being struck on the head and back by a prop falling whilst he was engaged in removing timber in a place where the timber was being withdrawn by means of the lever and chain.

On the 7th November, in the Renown Colliery, Tasman Stephenson sustained a fracture of his left ankle by falling in front of ascending skips on the dip haulage-road.

On the 1st March Harold Tickle, miner, Pukemiro Colliery, suffered a hernia as a result of lifting a derailed skip on to the rails; he is still unfit for work.

Prosecutions.

On the 27th November two truckers were convicted and ordered to pay costs for unlawfully riding on trucks attached to the Hikurangi Coal Co.'s endless-rope tramway.

Dangerous Occurrences.

(Regulation 82.)

On the 30th August, a fire broke out in the old workings of the Waikato Extended Colliery. The workings were subsequently sealed off by three stoppings erected in positions near the entrance of the mine.

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

During 1928 the coal-output for the combined Nelson, Buller, Reefton, and Grey Districts was 1,200,839 tons, an increase of 44,648 tons over the year 1927. The output from the Nelson District shows an increase of 2,039 tons; Buller a decrease of 1,276 tons; Reefton a decrease of 6,473 tons and Grey District an increase of 50,358 tons. The total number of men employed during the year was 2,844.

Buller District.

Denniston Colliery—Coalbrookdale Mine.—The results obtained from the adoption of the panel system are still proving satisfactory, and is now being used for all development work. In the Wareatea the pillars are somewhat irregular. In McIlwain's section the main headings have been extended 300 ft. in thick coal. The No. 1 right and left panels were completed, and straight-line pillar-extraction commenced in both panels. The No. 2 panels, left and right, have been started away and extended several chains. The coal is of fair quality. In the Waterloo section the workings have been extended to the dip on the west side of the main heading. Development work is being carried out in high coal of good quality. In Birchall's section pillar-extraction has been carried out where the coal thinned as it went to the rise. In the South Heading section work has been confined to forming a panel on the west side of the main heading, while on the east side a heading has been driven on a level course towards the outcrop in Sullivan's Creek. The coal is of fair quality. In the Extended section pillar-extraction has been carried out in the old and new dip sections. A drainage-tunnel has been set away to drain the old Extended pillar area. In the Extension section there has been a development of the panel system through the section. The main headings run south-westerly towards Sullivan's Creek. The coal has proved of good quality and thickness. In the Cascade section work has been confined to pillar-extraction. Ventilation has been maintained efficiently through the mine by fan and natural circulation. Pumping has been reduced by development in drainage. Stone-dusting has been efficiently carried out. A motor-road, 2 miles 52 chains in length, was constructed to the Wareatea section of this mine. Suitable travelling-roads were completed between this road and the Extension section. A fleet of fifty-seater Minerva char-a-bancs conveys the employees to and from work under comfortable conditions.

Ironbridge Mine.—On the 13th December a serious fire broke out in Kruger's section. The fire was kept in check by pumping water on the flames. This enabled the fire to be kept in check until a line of stoppings was erected. The Proto apparatus was extensively used during the fire-fighting operations, and proved of great assistance for making examinations in an irrespirable atmosphere. Many thousands of tons of valuable coal were lost; this loss would have been considerably reduced and possibly entirely prevented if more care had been given to the laying-out of the mine in the first instance. Development work has been carried out in Young's, Garing's, and portions of Deep Creek sections. As a result of experience gained, the height and width of the places driven are now considerably less than formerly. The coal is of fair to excellent quality

Ventilation has been efficiently maintained by two fans and natural circulation. No. 1 drainage drive has been cleaned out and repaired for nearly the full length. The mine employees are conveyed from Denniston and Marshallvale to Burnett's Face in char-a-banes.

Millerton Colliery.—This mine was frequently idle during the year, the market for steam coal having been poor. The greater portion of the output was won from pillar-extraction.

In the Mine Creek north-east section the number of men employed is gradually being reduced, the major portion of the pillars having been extracted. In the Mangatina section narrow drives in the bottom coal have been continued with the object of extracting pillars. As the first workings were exceedingly high and wide, heavy falls have taken place, making the work of removing the remainder of the pillars difficult and expensive. In the third west dip pillar section the work of removing pillars has proceeded steadily throughout the year. The alteration in the method of pillar-extraction is giving better results, but the excessive height and width of the places renders the work difficult, and several accidents have occurred in this section. The fires in the adjoining workings have been kept in check by flushing the connecting drives. Short rises have been put up to the surface. The surface soil is stripped by means of an hydraulic pump, working at a pressure of 120 lb. per square inch, and the debris is flumed into the mine. In the second west section the work of building the earth-dam is being proceeded with. The first section of the drive has been successfully stopped, and the earth filling has completely covered the concrete stoppings. The results achieved have greatly improved the outlook for the mine. Stoppings a few chains away from the main rope-road which formerly registered a temperature of 106° F. are now normal. In the first west section the work of cleaning up old falls and relaying the roads is proceeding, and pillar-extraction has been resumed. The fire-stoppings in this section have remained normal throughout the year.

In the old Dip Mine pillar-extraction on the straight-line system is giving good results. The line of extraction is parallel with the line of concrete stoppings erected to seal off the fire. Towards the end of the year the fire crossed the barrier in the inbye workings; stoppings were erected and the fire sealed off.

In the Settlement Extended faults and rolls prevented development to the rise, and pillar-extraction was commenced.

Development work: Continuity of the seam having been proved by bore-holes, the work of putting a stone-drive through the barren area has been commenced. A large area of coal, estimated to contain several million tons, will be opened up by this drive. The crosscut heading has been continued in stone over the Mangatina fault, and the grading, &c., are now well in hand. The completion of this road will greatly reduce haulage costs from the fourth west sections. A seam of coal overlying the fourth west section has been tapped by a stone-drive, rising 1 in 4. The coal is clean and of good quality. From the head of the crosscut haulage-road a level road has been continued to the surface to open up a section known as Brown's outcrop, but results have been disappointing, the area being badly faulted. In the western area section, estimated to contain 2,000,000 tons of coal, a surface tram-line, 23 chains in length, is being constructed.

Progress of fire, Evan's section: The work of filling in surface breaks and flushing the drives is having a beneficial result. The fire, however, appears to be extending in the direction of No. 2 dip, and plans have been prepared to deal with it at this point. Stone-dusting has been efficiently carried out, and the ventilation well maintained.

Stockton Colliery.—This mine has worked steadily throughout the year. Development work has been confined to Fly Creek section, and a large area of good quality coal has been opened up. The extension of the electric haulage-road has improved the daily output. In the east dip the winning-places are being driven in the top coal. The seam at this point is 30 ft. thick. The main west headings have been extended, and a fault, with a throw of 14 ft., has been pierced and 9 ft. of coal got at the face. To the north the seam has dipped, and extra power for pumping purposes is being installed to remove the water in order to extend the workings in this direction. In the south-west the main headings are standing on what is considered to be the Webb fault, and prospecting is necessary before further development of the workings in this direction can be carried on. The panel system of working has been adopted. All places are being driven 14 ft. wide, and, where conditions permit, 8 ft. high. This is a considerable improvement on the old system of working, and a more complete extraction of the pillars should be possible. Pillar-extraction has commenced to the south of Plover Creek. As the mine is extremely wet, stone-dusting to a limited extent only is necessary.

Westportmain Colliery.—This small mine is working in the seam adjacent to the Millerton Colliery. During the year the output has been won partly from solid places, and partly from pillar-workings and surface stripping. In the main lease the solid work is nearing completion. To the east the seam thins and faults. The coal varies in height, and is 50 ft. thick on the western outcrop. The ordinary system of bord-and-pillar work is being carried on. The coal is liable to spontaneous combustion, and provision should have been made in the initial laying-out for dealing with fires. It is proposed to open up a small area to the west of the present workings by means of a surface tram-line.

Clydevale Colliery.—The broken nature of the lease has severely retarded the progress of this mine. It is now being worked by a tribute party which proposes to extract the standing pillars, after which the mine will shut down.

Cardiff Bridge Mine.—The output from this mine has been well maintained. The coal, being of exceptional quality, finds a ready market. The fluming of the coal from the working-face is being successfully carried on. Owing to the isolated position of the mine and the rough nature of the country over which the coal is carried, the transport of coal by means of water has much in its favour. Unfortunately, the figures as to loss in transit can only be approximated, and the system is liable to stoppages through shortage of water in dry weather. During the year the major portion of the output has been won from pillars.

Old Cardiff Mine (Dove's).—This mine was owned and worked by a party of miners employing outside labour to a limited extent. Early in January an old fire in the adjoining workings broke through No. 4 stopping on the main haulage-road. Several small explosions made the work of sealing off the fire dangerous. The main entrance of the mine was then shot in and the mine abandoned. The working of this property by numerous small parties acting independently resulted in the starting of a serious fire, which finally spread throughout the mine. In the initial stages it was possible to have controlled the fire, but subsequent mining operations near the outcrop gave it fresh impetus. Had the colliery been properly handled it could have been profitably worked for a number of years.

Chester and Party's Mine.—This small mine employs three men. Two winning-places are being driven. The seam is thin, and split with stone bands.

Coal Creek Mine, Upper Mokihinui (Co-operative).—The old mine, having been lost by fire, the party have constructed 15 chains of tram-line to open up a small area of 7 acres in the eastern portion of the lease, adjacent to the upper mine. The bord-and-pillar system is being followed. All places are being driven 7 ft. high and 8 ft. wide. The seam of coal is 25 ft. thick. It is expected that better results will be obtained by driving narrow places.

Quinn and Party's Mine, Upper Mokihinui.—This small mine has been idle during the greater portion of the year, the owner having been unable to dispose of the coal.

Celtic Mine (Westport-Stateville).—The main headings are being driven in a southerly direction towards the old State mine. The coal is transported by flume to the railway-station. A small circular saw, driven by water-power, is being used to cut all timber used in renewing the flume.

Glasgow Co-operative Party.—To the dip the pillars are being extracted. The solid workings to the rise are proceeding towards the old State mine, and one place has been holed into the old workings. The mine has worked continuously throughout the year. The coal, being of good quality, finds a ready sale.

Westport-Mokihinui Mine.—The pillars to the rise are being extracted. The area is badly faulted.

Charming Creek Mine.—The sawmill tramway leading from the mine to the railway has been reconstructed; grades and curves have been reduced. Supplementary to this work, 103 chains of light railway has been constructed. A level stone-drive, 8 ft. by 7½ ft., 10 chains in length, has opened up a seam of hard coal 12 ft. thick. A small quantity of coal was won towards the end of the year.

Westport-Cascade Mine.—Several small sections were opened up during the year. Small local rolls and faults made development work difficult. Sluicing the coal from the working-face to the flume was successfully carried out. Labour troubles have seriously handicapped development work and caused a reduction of output.

Bennett's Mine.—This small mine ceased operations towards the end of the year.

Rocklands Mine, Buller Gorge.—Two men are employed. The coal is transported by lorry to Westport and Inangahua Junction.

Whitecliffs Mine, Buller Gorge.—Two men are employed. Very little work was done during the year.

Grey District.

Liverpool State Colliery.—At this colliery two mines, Nos. 1 and 2, are being worked. The bulk of the output is derived from No. 2 mine. Operations in the No. 1 mine are now confined to pillar extraction. In the No. 2 mine pillar-extraction has commenced in the Anderson seam in a panel adjacent to the main haulage-road. To the dip a small amount of solid working remains to be completed. Development work in the Kimbell and Morgan seams is on the semi-panel system. Towards the end of the year the coal in the main level, Kimbell east seam, split, and prospecting in the floor has given indications of coal below the level of the present workings. In the west the main level is approaching the Tararu fault-line. In several of the main inclines proceeding to the rise the coal thinned and split. Stone-dusting has been efficiently carried on, and samples are periodically taken and analysed at the mine office. The ventilation is maintained by a large Sirocco fan capable of producing 120,000 cubic feet of air per minute at a water-gauge of 3¼ in.

James Mine.—Development work has been confined to the main heading, which holed on the banks of Cannell Creek, and preparations are being made to develop an area in that locality. On the east side of the main heading a stone-drive has been started to cut the fault, with the object of opening up a section in the vicinity of Nos. 3 and 4 boreholes, where coal of a reasonable thickness has been proved to exist. The extraction of pillars from the west and dip sections was continued throughout the year. A complete change-over from steam to electric power has been made, the electricity being purchased from the Grey Electric-power Board.

Dobson Mine.—The panel system is being continued successfully. All winning-places are being driven narrow, and wherever possible are kept 8 ft. in height. To the rise the main headings have been stopped on the boundary of the lease. The main dip headings proceeding south-west are temporarily stopped 27 chains from the main level. Three panels are being worked in the dip section. In the east section several rolls have been met, and development work has been suspended. Samples of the dust from the roadways, taken at intervals, have been tested in the mine laboratory, the results obtained proving satisfactory. The stone-dust is distributed throughout the mine by compressed air.

Paparoa Mine.—During the year the directors of the company, finding the venture unprofitable, decided to suspend operations. The mine was subsequently leased to a tribute party of fifteen men; this arrangement has resulted in considerable increase in output per man employed, and the mine in all probability will prove a paying concern. During the year the output was produced mainly from pillar-workings. Preparations are being made to open up No. 1 seam. An aerial tramway is being erected from a point near the top brake to the outcrop. It is estimated that 80,000 tons of coal exist to the rise.

Blackball Mine.—The whole of the output was won from No. 9 dip section. In the No. 2 level off No. 9 dip operations were confined to the extraction of pillars, and in No. 3 level to the driving of the level headings and bords. Development work consisted of driving a level to the east from No. 9 dip near the mouth of No. 3 level west. No. 9 dip was extended 16 chains, and No. 4 level east and No. 4 level west broken away. All development work is proving the existence of coal of good thickness, the coal in No. 4 level east being 30 ft. in height. No. 2 dip, which has been flooded for the past thirteen years, has been partially pumped out. Pumping operations are to be continued until the water is removed sufficiently to allow of development work to be commenced. A large area of unworked coal is known to exist in this section. During the first eight months of the year the mine worked two shifts. At the beginning of September it was decided that one shift could supply all the demand for coal from the mine, and the services of a large number of men were dispensed with. Outbursts of black-damp are frequent, and make efficient ventilation of the working-places difficult. The main dip was stopped in order to allow the gas to drain off. The mine is damp; more attention should be paid to stone-dusting of the working-faces.

Wallsend Mine.—The work of installing the machinery and erecting the buildings is nearing completion.

Briandale Colliery.—The coal-seams have been opened in three places. No. 1 drive is in a seam of coal 12 ft. thick, dipping steeply south-west. The main heading going north-west has reached a fault. The heading has been offset to follow the fault and is now rising steeply. No. 2 mine is 5 chains to the east of No. 1 mine. The main level after advancing 6 chains in a north-easterly direction struck thin coal. The headings driven westerly reached a fault and pillar-extraction was commenced. The main dip is still in good coal. The main level in No. 3 mine has been driven 3 chains, and inclines have broken off.

Co-operative Mines, Grey District.

Spark and Party's Mine.—The output was won partly from solid workings and partly from pillars to the rise of the main level. The seam is split in places by dirt bands. As the mine is owned by the workmen, more care than usual is taken in removing the dirt from the coal.

Duggan and Party's Mine.—Coal-winning from the old mine has practically ceased. Towards the end of the year only one place was working, near the outcrop. It is proposed to drive in stone north-westerly to open up an area of 2 acres of coal, 3 ft. 6 in. thick, in the south-western portion of the lease.

O'Brien and Party's Mine (Old Runanga Co-operative).—Operations consist of removing coal from an abandoned portion of No. 3 Extended State Mine. The area is faulted, and could only be profitably worked by a small party.

Moody Creek Co-operative Party's Mine.—A few small pillars still remain to be extracted. Work on the new lease has been commenced.

New Point Elizabeth Mine (Guy and Party).—During the year work to the rise ceased, and a stone-drive was started to cross the fault in the main level.

Baddeley and Party's Mine.—Work during the year was confined to removing pillars to the rise.

Castle Point Mine (Co-operative).—The main level has been continued in a northerly direction. Inclines to the rise have reached the outcrop in several places.

Armstrong and Party's Mine.—Work during the year has been confined to pillar-extraction.

Hunter and Party's Co-operative Mine.—Pillar-extraction was continued throughout the year. Preparations have been made to drive a dip on a south-easterly direction between two faults.

Brae Head Mine (Boote and Party).—Work in the upper portion of the lease has been confined to pillar-extraction. The driving of a stone-tunnel to cut the seam at a lower level has been persevered with.

Manderson and Party's Mine.—All the available coal having been won, the plant is being removed.

Scottvale Mine (Scott and Party).—This mine has remained idle during the year.

Cox's Creek Mine.—Operations consist of driving the main headings. The seam is 3 ft. 6 in. thick.

Schultze Creek Mine (Marshall and Party).—Workings to the rise have reached the northern boundary of the lease. The main level proceeding south-east has been stopped on a fault.

Dennehy's Mine, Schultze Creek.—Mining operations have been suspended during the greater portion of the year.
Bellvue Mine.—The work of driving winning-places has been continued throughout the year.
Cain's Mine.—Work during the year has been of a routine nature.
Bellbird Mine, Ten-mile Creek (Fauth and Party).—The work of driving on the coal has commenced.
Fiery Cross Mine (Currie and Party).—The mine has been opened up and coal-winning operations commenced.
Allan and Party's Co-operative Mine.—The output has been won from pillars left behind in the old Coolgardie Mine, Brunner.
Smith and Party's Mine.—Work has been confined to the extraction of pillars.

Inangahua District.

Reefton Coal Co.'s Mine.—During the year the dip workings became flooded, the pumps being unable to cope with the water, and the mine is closed. The premature extraction of the pillars is partly responsible for the influx of water. The pillars in the dip are small and irregular in size. Four small contract parties are now working in the eastern portion of the lease.
Morrisvale Mine.—Work to the dip has been stopped, no boiler being available to provide the necessary power.
Matchless Syndicate.—This small area forms part of the Morrisvale lease. Work during the year has been confined to pillar-extraction.
Perfection Valley Syndicate (Morrisvale Lease).—A pair of headings have been continued on the strike of the seam.
No. 3 Mine (Morrisvale Lease).—From a point on the hillside a short dip has been commenced and levels broken away to the right and left.
Archer's Mine, Capleston.—Operations consist of driving two headings to the rise for a second outlet and return on No. 2 seam. The seam pitches steeply. The coal is carted by lorries to Cronadun Railway-station.
Waitahu Mine.—This mine has worked intermittently during the year; only a few tons of coal were produced and sold locally.
Osborn's Mine (White Rose, Merrijigs).—This is a small coal-mine, nine miles from Reefton. Two men are employed. The coal is sold locally.
Calliope Mine.—The mine was idle throughout the year.
Reddale Mine.—Mining operations have ceased, and the company is in liquidation.
McLaughlin's Mine.—Two men were employed during the year.
Clele Mine.—Faults and rolls prevented the further development of this mine, and work is now confined to pillar-extraction. It is proposed to open up another portion of the lease.
Phœnix and Venus.—All coal produced during the year has been won from outcrops adjacent to the fire area.
Coghlan's Mine, Capleston.—Operations consist in driving the main and back levels to make a second outlet, the previous one having been blocked by falls. Only a small portion of the slack mined is sold, as the cost of road transport is excessive.
Doran's Mine.—This small mine has ceased operations.

Nelson District.

A. O'Rourke's Mine, Murchison.—The old workings have been abandoned and a drive started in the seam at a lower level. The seam is 3 ft. thick and of good quality.
Broxbourne Mine.—This small mine has been closed.
Marble Creek Mine.—No work has been done during the year.
Stone's Mine, Takaka.—Mining operations having set up movement in the overlying strata, the main drives collapsed. The mine has not since been reopened.
Winter's Opencast. Motupipi.—The coal lies below high-water mark, and surface stripping is carried out at low tide.
Ellis's Mine, Takaka.—Two prospecting-drives were started, but mining operations ceased towards the end of the year.
North Cape Mine.—The old mine has been reopened and a fault pierced by a dip drive proceeding in a north-easterly direction. The seam is 3 ft. 6 in. thick and of good quality.
Puponga Mine.—Prospecting operations to the west of the old mine have proved a seam of coal of fair quality, and the workings are now being extended in this direction. In C mine the coal in the main level has increased from 3 ft. to 5 ft. 9 in. Three inclines proceeding south are being continued in coal 6 ft. in height.

Loss of Coal.

The coal-seams of the West Coast vary in thickness from 3 ft. to 50 ft., and it is in the larger seams that the greatest loss of coal occurs. The general method of working is the bord-and-pillar system, no special precautions being taken to guard against fire. In most of the larger mines the mistakes of the past are being recognized, and the panel system is now being extensively adopted. Most of the fires that occur can be attributed to one or more of the following causes: (1) Excessive height and width of first workings; (2) inadequate size of pillars; (3) irregular and unsystematic extraction of pillars; (4) loss of top coal in falls of roof during pillar-extraction; (5) incomplete extraction of the pillars.

Many of the fires started have spread over considerable areas. The fires could have been localized and controlled if suitable barrier pillars had been left. In addition to the loss of coal and the increased cost of production, there is no doubt that accidents would have been less frequent if more care had been taken in the laying-out of the colliery in the first instance. The movement of the overlying strata, due to small pillars crushing, causes creeps, and in the readjustment of strains and stresses heavy bumping occurs, increasing the risk to workmen. Ordinary timbering in these cases is not effective. Market conditions are, no doubt, responsible to some extent. The inferior coal, not finding ready sale, is left in the mine, to the jeopardy of the future working. In the Seddonville district three mines have been lost through fires caused by indifferent mining methods. At Denniston and Millerton extensive fires exist that could have been restricted if suitable barrier pillars had been left in the first working. In the Grey district the coal is not so liable to spontaneous combustion, but considerable quantities of coal have been lost in pillar extraction. Larger pillars and more regular line of extraction is necessary.

Inangahua district: Numerous small parties of miners are at work, and the mining equipment is of an exceedingly primitive nature, making any systematic development of the field impossible. Coal is being won principally to the rise under shallow cover. Pillars are extracted prematurely and irregularly, and fires are of frequent occurrence. At the Reefton Coal Co.'s mine pillars to the dip have been extracted and the solid workings have become flooded. Plans of the smaller mines have not been made. If the present methods continue, only a small percentage of the coal in this field will be extracted.

Co-operative Mining.

The co-operative movement is extending, and numerous small parties of miners are now working areas that were formerly considered unprofitable. Lack of the necessary capital to procure mining machinery has handicapped the movement to some extent. The advent of the Grey Power Board has removed many of the disabilities of the small parties working at Dunollie. The success of the small mine is largely due to the mobility of the workmen. The collier keeps the mine in repair, and trucks from the face to the nearest lay-by. The number of on-cost men in proportion to the number of colliers employed is usually less than one-half that of the larger mines working under agreement, where all the work is specialized and lack of co-ordination causes inefficiency. The co-operative miner, having to market his own coal, is careful to remove all stone and dirt at the face, and to prepare shots in a manner

that will increase the percentage of lump coal; the timbering required is varied to suit working-conditions, and unnecessary sets are replaced with props, thus reducing costs. There is, however, a decided tendency to remove only the more easily accessible coal that can be cheaply mined; this applies more particularly to the Reefton, Seddonville, and Nelson districts, where the leases are larger.

Fatal Accidents.

During the year six men lost their lives while employed in or about the coal-mines of the West Coast Inspection District.

James Berry, collier, died on the 1st February as a result of injuries received in the Millerton Mine on the 23rd December, 1927. A piece of stone falling from the pillar-edge broke his shovel-handle, driving the broken portion into his groin.

On the 28th June Robert Crawford, a shiftman, was killed by a fall of coal.

On the 2nd July James Melling, collier, was killed instantly by a fall of coal in the Cardiff Bridge Mine.

On the 25th July Thomas Middleton was smothered by loose coal in the Millerton Mine. He was working in a stope when the side of the bin gave way; falling through the side of the bin, he was covered by the sliding coal.

George Gardner, engine-driver, employed at the Liverpool State Colliery, died on the 14th October as a result of injuries received from the explosion of a boiler.

On the 13th November Harry Chilton, collier, was killed by a fall of roof-coal in the Blackball Mine.

Serious Non-fatal Accidents.

On the 15th April John Henry, deputy, employed in the Millerton Colliery, was caught by a fall of roof-coal and his left leg was broken in three places.

On the 16th April Thomas Floyd, collier, had his leg broken by a fall of coal in the Wareatea (Denniston) Mine.

On the 21st April James Reid had his collar-bone broken by a fall of coal in the Stockton Mine.

On the 7th July Michael Douthett was pinned under a brake-car on the Stockton loco-road. Both legs were broken.

On the 31st July Sidney Provis, collier, was caught by a fall in the pillar-workings of the Clele Mine. His pelvis was broken in two places.

On the 11th August Arthur Eager, collier, had his leg broken by a fall of coal in the Matchless Mine.

Dangerous Occurrences.

(Regulation 82.)

On the 5th February the morning deputy employed in the old Cardiff (Dove's Mine) discovered smoke on the main drive; further examination proved that an old fire from an adjoining mine had broken through No. 4 fire-stopping. Gas-explosions drove the workmen from the mine. The main drive was then shot in and the mine abandoned.

On the 18th February smoke was found issuing from Calder's section, old Dip Mine, Millerton Colliery. The smoke was cleared by ventilation, and the fire was discovered on the goaf edge. Concrete stoppings were erected and the fire sealed off.

On the 21st April smoke was noticed coming from the old dip workings, Reefton Coal Co.'s Mine. A connection was made to the pump, and the fire extinguished with water.

On the 13th December an active fire was found to exist in Kruger's section of the Ironbridge Mine, Denniston. Attempts to put out the fire with water failed. Stoppings were then erected and the fire sealed off.

Prosecutions.

Only one information was laid during the year. The case was dismissed.

Social Amenities.

At the larger mines facilities in the nature of clubs and libraries have been provided and are extensively patronized. At Runanga the residents possess a bowling-green, tennis-court, gymnasium, library, club, and swimming-baths. The Horticulture Society hold flower-shows throughout the year, and the picture entertainments are run by the local union in the union's hall. At Roa the tennis-court and library are well supported. At Blackball a combined library and club and swimming-baths provide recreation. At Denniston a full-sized bowling-green has now been completed. The tennis-court has, however, been allowed to fall into disrepair. The library and club are well fitted up with reading-room, book-room, billiard-room, &c. A small cottage hospital is situated midway between Burnett's Face and Denniston. At Millerton the tennis-courts are well kept and extensively used. A full-sized bowling-green is nearing completion. A large football-field and recreation-ground has been constructed by filling in a gully, carting soil, and sowing grass. At Granity the local Beautifying Society have filled in a swamp and formed small parks. The playing-field is now being improved. The library and reading-room is well patronized.

SOUTHERN INSPECTION DISTRICT (Mr. George Duggan, Inspector).

Coal-output.

During the past year the total output from the coal-mines in the Southern Inspection District again shows a decrease. In 1927 it was 463,019 tons, whereas in 1928 it reached only 454,025 tons. From the Nightcaps and Ohai field only 216,463 tons were produced, against 240,678 tons in 1927. It is pleasing to note that the South Otago mines produced 18,523 tons more than during 1927, and those of North Otago show an increase of 902 tons. The output from the Kaitangata Coal Co.'s mines increased by 23,659 tons, from the Linton mines by 8,197 tons, and from the Mossbank Coal Co.'s mines by 7,291 tons. Labour disputes have been few, but the large number of miners unemployed, or working only part-time, is far from satisfactory, and it is to be hoped that further uses will soon be developed for our brown coals and lignite, otherwise the constantly extending use of electricity for heating and power purposes will throw many of our miners out of employment. The methods of mining slowly show improvement here, but there is still room for better mining methods, particularly in the lignite and low-grade brown-coal mines. In view of the increase in first cost, consequent upon the adoption of improved methods, and the gradually decreasing sale through the extended use of electrical appliances for heating and cooking, managers and owners are reluctant to alter their methods of work. Still, heavy losses have occurred through falls and fires, caused by the extraction, during the first working, of too high a percentage of coal from near the mine-entrance. The fire in the Whiterig Mine, which broke out early in 1928, and caused the abandonment of the mine, was, in my opinion, chiefly due to the small pillars which had been made within a few chains of the surface. Much harm can be done in this manner between an Inspector's visits, and, once done, there is no way of remedying the evil. For bord-and-pillar working the panel system is consistently recommended, and, as at the Wairaki and Linton Mines, an endeavour is being made by a few of the mine-managers to follow that system, but the old checkerboard method is hard to eradicate.

Mount Torlesse Mine.—This mine was abandoned in April, and the coal lease was determined in December.

Austin's Claystone Mine, Sheffield.—Two men have been employed during the past year on the few pillars remaining near the main dip. These will all be out within a few months.

Springfield Mine.—A few tons for local use were won from near the outcrop.

Homebush Mine.—Most of the lower pillars were extracted in the dip section, and a heavy creep developed, culminating in a large fall, which completely blocked the dip about a chain down. An attempt may be made later on to work the north side pillars near the top of the dip. Three levels are now being worked to the rise of the dip section. The lowest of these, now in 10 chains, will reach a gully in another 4 chains, and if the coal lives under the gully the level may go another 10 chains or so. At the clay-mine a place is being driven to the north and a slit to the outcrop. The north place is in about 2 chains from the dip—which is now used as a sump. About 40 ft. above the dip-entrance some buff-coloured clay is being worked from a small opencast pit.

Bush Gully Mine.—The small 2½ ft. seam becoming thinner and unprofitable to work, pillar-extraction was commenced from the lowest of the three levels, and they are now back about 2 chains. Props are regularly set at 3½ ft. intervals. The waste is still standing on the props, and no sign of crushing is showing on the pillars. The top level is in a few yards to the north, but, as the seam is only 18 in. thick there, this level will not be driven much farther.

St. Helens (Whitecliffs) Mine.—This small party of miners has driven several short dips and worked the pillars left in from former workings. They lately started another drive 14 chains west of the previous one. This went level for 18 yards, then dipped at 1 in 3 for 35 yards, when a large downthrow fault was met on the west side. A chain down the dip a level was broken away to the east, but when only 20 yards in another large fault was met. They drove in this fault for 10 yards, but, it proving disappointing, they are now extracting a pillar in the upper seam. Another pillar in a lower seam can later be won.

Steventon Valley Mine.—The dip was stopped when only 5 chains down, as the coal both there and in the east side places became very soft and dirty. On the west side a level was started to cross the large downthrow fault, but it was stopped within a few yards. Pillar-extraction was then commenced, and they are now working 2 chains up from the bottom of the dip, the water being allowed to rise to the flatsheet from which they are working.

Clearview Mine.—The three miners are extracting the inbye pillars near the fault which cut off the long main level and the few places to the rise. A little work was done about half-way in, but the remainder of this is being reserved until a few more inbye pillars have been taken out.

Tripp's Mine (Mount Somers).—Early in the year a small output was won from the tops and pillars in the north-west side of the old mine and from the few remaining pillars in the drive from the opencast area. These were exhausted in July, and the old mine and opencast area were closed. A petrol-engine to drive a winch and pump at the new dip drive to the east was installed on the surface. This proved unsuitable for the work, and after extending the dip to 150 ft. down, where it met a fairly large fault, the dip was stopped. A level was then commenced at a lower altitude and about 7 chains due south of the dip. The coal-seam was reached at 60 ft., and the upper portion proved to be 10 ft. thick, with 18 in. of fireclay below and then at least another 6 ft. of coal.

Burnwell Mine.—The new lessee, the Southern Cross Glass Co. of New Zealand, Ltd., has not yet reopened this small mine.

Albury Mine.—All the output is now produced from the Woodbank lease, and is taken through the drive under the traffic-road. An incline going north-east met an upthrow fault running about due east and west when about 2½ chains up from the main level. No attempt has yet been made to cross this fault, work being confined to the main level, which is now in 4½ chains. It had to be deflected to the north-east, so it should soon meet the upthrow fault. Two other places have been driven to the rise, and there does not appear to be much extent of workable lignite in the Woodbank lease. The owner states that another seam exists 80 ft. below the former workings on his own lease, and he intends proving the thickness and extent of this seam by hand boring.

Roseneath Mine, near Wharekuri.—When over 3 chains down from the surface a little water was met in the main drive, which was dipping to the west at a grade of 1 in 4. As there is no pump at the mine, the water was allowed to rise about 6 ft. up the drive, and is kept at that level by hand bailing. A place going to the south was also dipping steeply, and is now under water. A level has been driven to the north, and is now in 25 yards. The coal-prospecting license, over an area north of the traffic-road, has been surrendered.

Airedale Mine.—The main level is stopped in poor lignite, and it appeared to be near the outcrop; but a bord on the dip side has gone well past the faulted coal, so the main level will again be extended. A dip was driven to the south-east and went through poor coal, but was continued. The seam then thickened to 12 ft., but a band of stone came in about 3 ft. from the floor. This band thickened until the seam became too dirty to work, so the dip was stopped and another commenced a few chains inbye.

St. Andrew's Mine, near Peebles.—Early in the year two young miners opened up a new mine on this freehold area. Previously they had put down five shallow boreholes to the north of the old workings, and then commenced a level about half a mile from the old workings. From this level, now over 9 chains in, a seam of lignite 9 ft. thick is being won. From a place going west a small airshaft has been put up 52 ft. to the surface for a return. In this shaft a good steel ladder has been provided. The traffic-road had to be extended by the miners over a quarter of a mile to the new mine.

Ngapara Mine.—Near the boundary, narrow working-places are still being driven to the north. The roadways are being treated with fine clay. Blocks of Oamaru stone 12 in. square and 9 in. thick were used to build the stoppings between the intake and return airways. A 4 ft. ventilating-fan of the propulsive type and driven by a 1 h.p. single-phase motor has been installed at the top of the upcast shaft.

Shag Point Mine.—No work was done in the main dip for the first eight months, but since then it has been extended about a chain. The seam is 4 ft. thick there, but the bottom foot is very stony. The rest of the seam is clean and of fairly good quality. The bottom level on the south side was stopped when 1½ chains in. A 2 ft. upthrow was met, but the coal dipped away again and became very soft and dirty.

Shag Point Coal-mining Co.'s Mine.—Hancock's dip has not been extended, but recently a dip place has been started 20 yards to the west. Four chains inbye in the bottom west level a borehole was put down 100 ft. but no workable seam was found. A level going to the east off Hancock's dip is now in ten chains in thin coal. Beyond the 38 ft. upthrow fault, the main west level is in over 12 chains. In this, the Stone Jig section, the seam being under 2½ ft. thick, the workings were altered to longwall, and five miners are now employed there. Seventeen feet below the stone jig, and a little to the south, a 3 ft. seam is being worked. This seam is clean and hard. About 4 chains to the west of the head of the stone jig a dip, called "Perry's dip," has been driven. The stone band, running in the middle of the seam, thickened to 2 ft. 3 in., so the dip was stopped when 5 chains down. Three places to the west are being worked there, and these are approaching the upper workings of the old Allandale Mine. All the pillars from the top section, and most of those in the middle section, of the long crosscut have been extracted. Off the main haulage-road an incline, called "Rutter's heading," was driven to the south. This holed into an old bord when 5½ chains up, so another incline, 50 ft. further east, is now being driven. This is within a chain of holing into the bottom level of the old south workings and when completed will be used as a new return airway. Off Rutter's heading three bords are being worked to the east. As the seams are very thin and the stone from the middle band needs much stowage-room, most of the places are driven rather wide and the pillars are made fairly small. The several faults form sufficient barriers, should a section require isolation; but underground fires are unknown in this mine, there being no tendency to spontaneous heating. The management was instructed to amend the timbering rules for pillar-workings by reducing the maximum distance between the rows of props, and between adjacent props in the same row, from 6 ft. to 4 ft.

Rough Ridge Coal-pit.—A few tons for local consumption are still being won from the south-east corner of the area.

Idaburn Pit.—This pit changed ownership during the year, and the new owner, soon after taking over, commenced stripping away the overburden from the east end of the pit.

Oturehua Pit.—Nearly 200 tons of lignite were produced during the first quarter of the year, but one of the owners was killed in a motor accident and very little lignite has been won since.

Cambrian Coal-pit.—A fair output was won during the first half of the year, but little has been done there lately.

Blackman's Gully Mine.—A small party obtained a coal-prospecting license over this area, and three miners drove a dip to the south, near the prospect drive put in about two years ago. A small petrol-engine was used for haulage, and another for driving a 2 in. centrifugal pump on the surface. No workable area being found, the dip was stopped when 20 yards down.

McPherson's Pit.—The seam below the level of the tail-race is still being worked to the east and south. The Pelton wheel and winch used for hauling the trucks from this lower seam have been turned around, so the winchman now stands behind the winch, instead of in front as formerly. The stripping of the upper seam to the north has been continued, and a large quantity of lignite is now exposed there. During the summer months, when water becomes scarce, the output will be maintained from this higher area.

Shepherd's Creek Mine.—A steam boiler has been removed from the old mine and is now supplying steam for a Sullivan 7 in. by 6 in. air-compressor. An air-driven hand hammer-drill was tried for coal-cutting, but it proved unsuitable. The crosscut to the south-west met troubled ground. The seam thinned to 6 in. but commenced to thicken again. It was then decided to stop the place for the time being and use it as a sump. A dip is being driven on the north side, and two levels have been broken away to the north. The seam has only 30 ft. of cover in that locality.

Cromwell Mine.—About the middle of the year a dip was driven at a grade of 1 in 1 in decomposed schist for a distance of 80 ft. As the dip was within 40 yards of disused workings containing an accumulation of water, the miner was notified that either the water in the old workings must be pumped out or advance and flank bores drilled. Since then no work has been done on the lease.

Nevis Crossing Pit.—The old opencast pit, which has been worked for many years, has been abandoned, and a new one opened up on a seam about 100 yards to the west of the old pit. This seam is 15 ft. thick, but is of inferior quality. A number of small prospecting-shafts were sunk near the northern boundary of the lease, but no workable coal was found.

Parfit's Coal-pit.—A considerable amount of stripping has been done during the past year, with a hydraulic nozzle, on the west side of this pit, where there is about 15 ft. of gravel overburden. Between the upper seam, 10 ft. thick, and the lower one, of 20 ft., is a stratum of shale about 8 ft. thick. Some of the gravel from the recent stripping has been allowed to fill up the rectangular pit to a depth of 20 ft., and the remainder has been retained near the pit and not allowed to flow into the creek from which water is diverted into the Mount Ida Water-race.

Prospecting at Waikerikeri Creek, near Clyde.—A low-grade lignite outcrops on a hill about four miles north-west of Clyde and near the Waikerikeri Creek. Two shafts, each about 60 ft. in depth, were sunk, but as no workable seam was found the prospecting ceased.

Freeman's Mine.—Four miners are now employed at pillar-extraction—one to the west and three on the east side of the main jig. An area of waste on the west side had to be sealed off, owing to heating.

Jubilee Mine.—The main dip in No. 5 section was stopped for several months owing to lack of power, but in August the connection to the Otago Electric-power Board's leads was effected and a three-phase 5 h.p. motor, driving a small Deming pump, was installed in the dip. This enabled them to resume working there, and the dip is now down 10 chains beyond the traffic-road line. The pillars now being formed are larger than those of past years, and the management has been advised, owing to the increased cover as the workings extend to the dip, of the need of still larger pillars being formed. A panel system of work should be adopted, and the main dip is sufficiently advanced for a barrier pillar to be now formed along the strike of the seam. The seam has thickened to 9½ ft., of which 2 ft. is kept up for a roof. All places are being driven narrow, but on account of the tender roof several have to be supported by sets. The coal is rather soft on the east side, but in the main dip and the west places it is good hard lignite. The pillaring in No. 6 section is now finished, and work in No. 7 section ceased in September, as the seam became too thin to work. A high percentage of the pillar coal was won, with due regard to the safety of the miners.

Willowbank Mine.—The pillaring in the old area was completed in June. The new drive, commenced in 1927, was extended and met the seam 4 chains from the surface. Ten chains down a large downthrow fault was struck, running north and south. The coal in the workings, both north and south, became very soft. The bottom south level, broken off about three yards back from the face of the main drive, is in only 15 yards and is in very soft coal, while the lowest place going north, which is about 2 chains, is also in soft faulty coal. Unless harder and better coal is proven east of the downthrow fault the life of this small mine will be a very short one, as the available pillars will not last more than two years. An electrically driven haulage plant has been installed on the surface, and a small Myers pump, driven by an A.C. motor of 3 h.p., is used underground. An interest has been purchased in land lying between this mine and the Main South Traffic-road. Prospecting will soon commence, and if workable lignite is found there a new level will be driven and the Willowbank Mine plant removed there and a shorter surface jig constructed to the traffic-road.

Waronui Mine.—The extraction of the pillars near the main haulage road in the No. 2 mine was completed by the end of the year, and, the pump having been withdrawn, the water is allowed to rise in the lower workings, which is mostly goaf. About 400 ft. south-west of the No. 2 mine entrance a level has been driven to the south from the surface and has holed into a place in the rise section of the No. 2 mine workings. From this level an area of rise coal will be worked. 450 ft. north-west of the No. 2 mine entrance a dip is being driven, at a grade of 1 in 5, to the west. It is now 400 ft. down from the surface, and in conglomerate lying at the same inclination as the grade of the dip. From the old upper mine a Lancashire boiler has been removed to a site near the top of the dip. An air-compressor, D.C. dynamo, and haulage-engine have also been installed there.

Crichton Mine.—A place being driven to the east from the north level proved a 12½ ft. seam above the main seam. Levels going north and south have been driven in this seam. The south level holed into an old level of the Crichton workings, so the natural ventilation is now very good there. Both north and south levels were driven 7 ft. high, so over 5 ft. of coal was left on to support the roof.

Taratu Mine.—The output for the past year was produced solely from the pillar-workings in Barclay's section. Unless lost through spontaneous heating, causing the stopping-off of any considerable proportion, they should last another two years. A surveyed road-line traverses the surface over this pillar section. The management has for some time refrained from extracting the remaining pillars under this road-line. An area being pillared near the road-line showed signs of heating in May, and, after filling away the heated coals for about a fortnight, it had to be sealed off, thus a quantity of pillar coal under the road-line is now lost. The prospect levels, driven south-east and about 10 chains to the west of Barclay's section, met an upthrow fault of at least 40 ft. displacement when about 100 ft. in. Before extending these drives through the fault borcholes will be put down to ascertain the exact amount of displacement of the seam.

Tuakitoto Mine.—Prospecting to the east, from a point 10 chains from the commencement of the main level, has proved another very thick seam, above the one worked in the past, with only a few feet of clay between the two seams. The owner intends driving back as far as possible in this seam and parallel with the main level, then, after a proper survey has been made, to extend the main dip haulage-road to connect with this place.

Kaituna Mine.—A small output has been produced from the rise portion of the 4-ft.-seam workings. A narrow level was driven to the west about 20 yards and a place broken away to the south.

Kaidale Mine.—Early in the year this mine was purchased by a Kaitangata miner, who commenced driving a crosscut to the dip. The dip about 7½ ft. high, is down about 300 ft. in clean coal, and, owing to a good coal roof, does not require timbering.

Kaibrook Mine.—A few tons were won early in the year. About a chain down from the entrance a large fall occurred north of the main dip, and heating developed there. Two board stoppings were put up and clayed over in an attempt to seal off the fire, but, as the seam is very shallow there, air is being drawn through the fall and little can be done to combat the fire.

Kaitangata No. 1 Mine.—Early in the year the new return airway was connected from the surface to the main-seam workings, and the ventilating-fan was removed in March from the old air-shaft to its new site. The fan-foundation and the air-lock are of concrete, and the motor and fan-house is built of brick. The cross-measures level, driven from the 6 ft. seam to intersect the main seam a little east of the bottom level of old Mundy's dip workings, was stopped early in May owing to a large inflow of water through a fissure from the old workings above. Pumping was much delayed through a large fall in the cross-measures drive, and it was not until the end of August that driving could be recommenced. The headings are now in good clean coal. This is the old main seam worked prior to 1921 in Mundy's dip area, and it is easily the best coal which has been produced from the Kaitangata Mines for some time. It is to be hoped that a fair-sized area of such coal will be proven in this section, now called the No. 2 section, No. 1 seam. The main headings have been deflected to the east, and are now being driven to the full dip, 1 in 9. Endless rope or "main-and-tail" rope haulage should be made into the No. 2 section, No. 1 seam, as early as possible, as the present costly haulage, by means of two horses and three winches, to the main haulage-rope, a distance of about 40 chains, also limits the output. The size of pillars and of the intended panels should now be decided upon, and instructions given to see that the pillars are made to the required dimensions and that working-places do not encroach upon the barrier pillars. The method of breasting-back the pillars, in vogue a few years ago, has largely been displaced by the safer one of working lifts to the rise. To the south-east, and immediately ahead of the main haulage-road, the main seam is also being worked in No. 1 section, No. 1 seam. The seam is thinner there, being only 6 ft. thick at the face of a crosscut being driven almost due east. In the No. 4 seam a down-throw fault running east and west, and of 27 ft. displacement, cut off all the places. A small section of pillars have since been worked back from the south end of these workings. Farther down the main dip in this seam two large levels driven to the south met very troubled ground, so they had to be stopped. Turbine furnaces have been fitted recently to the five boilers—one Cornish, one Galloway, and three ordinary Lancashire boilers.

Kaitangata No. 2 Mine.—Development work in this mine during the past year was very disappointing. At the inbye end of a stone-drive over 700 ft. in length (the extension of the main dip) a dip was driven at a grade of 1 in 3 in the conglomerate to cross the measures. After going 160 ft. a 12 ft. seam of coal was met, which was called the No. 6 seam. Two large faults, a downthrow one on the east side and an upthrow of 100 ft. on the west side, were met. These were only 4 chains apart and converging to the south. Between these two main faults were two minor ones. Two of the working-places met one of these smaller faults, but a third place only half a chain away did not meet it and was continued and a place broken away to the south, where the seam dipped 1 in 2. The coal won from the few rise places was very stony, so, as the workable area proved such a small one, work ceased in the No. 6 seam area in October. The 700 ft. stone-drive was then extended for another chain and a crosscut commenced to the east. This was driven level for 130 ft., then to the dip at a grade of 1 in 9 to intersect the No. 2 seam and east of the former workings in that seam. As the pillars in the inbye sections are almost exhausted, this attempt to again work the No. 2 seam is the sole hope for the No. 2 Mine, so, if it is unsuccessful, production will soon cease from the Kaitangata No. 2 Mine.

Castle Hill Mine.—Pillar-working has been continued in the Nos. 5 and 7 sections. In the former two pairs of miners have been employed, and four pairs in the No. 7 section. An area called the "Top Seam" workings, sealed off five years ago, has been reopened. From a level at the head of the stone jig a crosscut, going to the rise at a grade of 1 in 3, was driven until it reached the higher seam, over 20 ft. thick, and only 35 ft. above the No. 7 section. For a few chains the seam proved fairly hard, in the main heading going east, but at the face it is now soft and friable. This seam is very steeply inclined, being in some places 1 in 2. A pair of levels going north are in harder coal. No work is now being done in the south levels in the lower seam. Both of the Lancashire boilers have been equipped with turbine furnaces, and are now being fired with fine slack, called "coom," instead of run-of-mine coal.

Summerhill Mine.—Owing to slackness of trade, very little work has been done at this mine. The back level met stony coal, so places were driven to the rise, but the stony coal cut off two higher levels. The top place is now completely filled with the gravel overburden. This freehold property has recently changed ownership, and unless the certificated man who is working the mine can make better terms with the new owner he will shortly cease working there.

Benhar Mine.—The main dip of the new mine is now down 500 ft. from the surface, and has been driven in the 28 ft. seam through a 7 ft. upthrow fault. Beyond the fault the seam is only 16 ft. thick. The bottom north level is in about 4 chains, but the south level is in only 60 ft. The pillars are being made 36 ft. square. No coal is now being won from the old mine, but a connection to the air-shaft has been made from the new mine which is being ventilated by the old-mine ventilating-fan. Except for this place, the manager was instructed not to make any other connection between the two mines, and to form a barrier pillar at least 1 chain wide.

Brighton Mine.—Two levels were driven to the north for 25 yards. The coal is only 4½ ft. thick there and becoming very poor in quality. The main dip drive was then continued, and, after crossing fallen workings, a level is now being driven to the south to connect with the prospect-shaft by a return airway.

Whiterig Mine.—A fire broke out in March in a place west of the sump and connected to old workings. Wooden stoppings were put in around the fire area, but, proving ineffective, the pump was withdrawn and the mine-water allowed to rise in the workings. The mine was reopened in June, but after the water was pumped out heating again took place and the mine was again sealed. Another attempt to work the mine was made in August, without success, so the water was again allowed to rise, this time to within 40 ft. of the surface. On breaking through the stopping in October it was found that heavy falls had occurred in the main dip haulage-road extending through the overlying gravel to the surface. The top of the return air-shaft had also caved in, and it was retimbered. The expense involved in driving through the large falls was too large, so the mine was abandoned near the end of the year. There remains about 2½ acres of unworked land to the north-west, but it is almost impossible, and certainly would be unprofitable, to make another drive near the eastern boundary to work this small portion of virgin ground. The pillars in the mine were made much too small and the places driven too wide, so that when the fire came through from the old workings it could not be effectively sealed off.

Green's Mine, Gore.—The main dip has been extended about 25 yards during the year, and the face is now nearly 13 chains from the surface. An overcast has been made, in the thick seam, across the main haulage-road and within 2 chains of the face. One level has been driven to the north from near the bottom of the dip, and four places are being worked in the upper south levels. The pillars are more uniform in shape than formerly, but an increase in the size of future pillars would be very advantageous when their extraction has to be done. The main haulage-road since it has been reduced in width and height is certainly much safer than the large cavernous portion of the road near the mine-entrance. The levels are still being driven of large dimensions, but they are now broken away narrow to reduce the size of the concrete stoppings which will be built between the intake and the return airways.

Glenlee Mine.—The back level reached dirty coal, and, being near old workings, it was stopped, but the level below is still being driven. About a chain in from the surface a place has been broken away to the south-east, and it is now in about 15 yards and in fairly good lignite. As the main drive is in a small syncline, the owner expects to be able to work a fair area of water-free lignite to the east of the main drive.

Ramsay's Mine.—The owner was injured early in the year by a fall of "tops." His injuries proved more serious than was at first anticipated. He obtained the services of another miner, who for a couple of months continued stripping the 3 ft. of clay overburden from some old standing pillars. The owner intends to divert the surface haulage, which will then be direct from the traffic-road to this opencast work.

Argyle Pit.—Stripping has been continued towards the Waikaia River, and only 10 yards separates the top of the pit from the work done by a former lessee in cutting a race with a hydraulic nozzle from the river. Enough lignite has been stripped for the coming winter's supply.

McIver's Pit.—Stripping has been continued to the north, but the seam is thinning in that direction, and the lower portion is stony and unprofitable to work. I do not anticipate much more will be won from this pit.

Northcoat's Pit.—The seam of lignite is also thinning to the north in this pit, so they will soon have to turn the hydraulic jet into the heavy overburden to the east.

Wendon Coal-mine.—This small area, which has been intermittently worked for twenty-eight years, has again been taken up. A new level is being driven to the north-west and is now in 2 chains. The 16 ft. highly inclined seam was met 20 yards in, and is dipping to the west. A vertical clay "back" 12 in. thick is near the left rib of the level.

Terrace Mine, Kingston Crossing.—The main level has been continued in an easterly direction and places worked to the north. The south places proved very wet, so were only driven a few yards in.

Princhester Creek Pit.—Opencast work has been continued towards the east side. The old pit to the west is completely filled by debris from higher up the hill. A bar of papa rock prevents the slip from entering the recently worked ground. There is sufficient coal stripped ahead to supply the demands for the coming winter. A few short boreholes will be put down to prove if the seam lives to the south-east of the pit.

Lynwood Pit.—This pit has been abandoned, as the Lake Te Anau steamer is now driven by Deisel engines, and the supply of household coal is obtained from Princhester Creek.

Boghead Mine.—The dip was not extended during the year, and owing to slackness of trade only three bords on the north side were worked. As at the other local mines, the places are wide and high, but the lignite stands very well and needs very little timbering.

Mataura Lignite-mine.—Trade was slack at this mine also, and only six places were worked. These places, to the south-west, are being kept to a maximum width of 15 ft., and the pillars are being made larger than formerly. The shaft for ventilating purposes could not be completed on account of the quantity of water which had to be dealt with. About 12 chains west of the main haulage-road a place was driven to the surface and the ventilation is considerably improved in consequence. A new electrically-driven two-stage centrifugal pump has been purchased and installed, and the main dip is again being driven.

Larking's Mine.—Until October driving was continued in places to the north and south. The seam is 12 ft. thick, and the places were 8 ft. high. At the face of one of the south levels the lignite was much disturbed, as though they were approaching a fault. The place going south-east off the old opencast area was stopped when only 10 yards in, as stony lignite was met. A level was continued to the south for 2 chains. This place is connected to another driven from the north side workings. Lately the owner ceased underground work, and has commenced working a small area to the east as an opencast pit.

Ota Creek Pit.—During the past year the output was produced from the centre and north end of the pit. At the present face there is about 8 ft. of lignite, with 6 ft. of gravel overburden.

Thompson's (Wyndham) Pit.—As the seam is dipping at the east end of this pit and only 3 ft. of lignite can now be worked above the level of the pond, the owner will soon commence working at the opposite end of the pit, where there is only 4 ft. of overburden.

Gabite's Pit, Menzie's Ferry.—This is a small opencast pit worked for local supplies. The seam of lignite is 6 ft. thick, with about 6 ft. of sand and gravel overburden. A 4 in. Tangye pump driven by a portable traction-engine is used to unwater the pit.

Diamond Lignite-pit.—The year's output was again produced from the lower lift of this thick seam of lignite.

Black Diamond Mine.—The number of miners employed at this mine gradually decreased until only six are now working there, and these share work with five others. The solid work in the north-east section is being continued, and should last another six months or so. From the prospect-drive to the south-west of the main haulage-road a bore-hole was put up which passed through five small seams and, 88 ft. up from the floor of the present workings, a 17 ft. seam of coal containing three fireclay bands 4 in., 4 in., and 9 in. thick was pierced. A crosscut will be driven from about half-way down the main haulage-road to work this seam.

Smithvale Mine.—The main level reached very faulted country, and after driving about 30 yards in this the level was stopped . The back level was then pushed on, and is now in coal 3 ft. 9 in. thick; but many soft-clay backs make the coal very dirty. The indications at the face are not very promising.

Mossbank No. 1 Mine.—Development has continued in a south-easterly direction, and the large washout cuts off the workings to the north-east. The extended section, to the east of the Wairaki Settlement traffic-road, is proving rather disappointing, and the coal is still very variable in quality. All shot-firing is now done by authorized shot-firers. As the major portion of these workings is under a swamp and the pillars cannot be fully extracted, they are being split and the "tops" worked back. In February a dip drive was started, going south, at a grade of 1 in 4½ to cross under the Ohai Railway and the traffic-road and to work a new coal lease to the south. A full face of coal was reached when 6 chains down. For a couple of chains the coal was level, then it again dipped slightly. The seam contains many clay backs, and, being only fit for boiler coal, the drive was stopped in August, when the face of drive was directly below the northern boundary-line of the Ohai Railway. The drive was reopened towards the end of the year, and, if the quality of the coal improves, a return airway independent of the old mine will be driven.

Mossbank No. 2 Mine.—A party of five miners commenced working a small area of coal north-east of the old Mossbank No. 2 Mine workings and near an opencast area worked some years ago. A dip has been driven to the south-east about 2 chains and two levels, going north-east, are in rather hard coal but containing many stone backs. To the west the levels were stopped 20 yards in, as they were approaching old workings sealed down on account of fire some seven years ago.

Wairaki No. 1 Mine.—The solid work having been completed early in the year in the No. 1 east section, two pairs of miners are now on pillar-extraction there. The No. 2 east section was stopped in July, but development was resumed there in December. The main level has been driven under the Ohai Railway and the traffic-road, but a barrier a chain wide has to be formed south of the road-line. The coal is much cleaner there than formerly, but it is still of rather poor quality. The places to the rise in that section are standing in coal 18 in. thick. This appears to be a continuation of the thin coal met in the No. 1 east section. Many reports of inflammable gas were recorded early in the year. To enable the ventilating-current to be split, an undercast was made, and the No. 2 east section is now a separate split. The ventilating-fan is being run additional hours. Prospecting is being continued on the west side, and the No. 3 west level has passed through very troubled ground but is now in coal 8 ft. thick. This is still rather dirty, but shows signs of improvement. Five solid single places are being worked in No. 2 west section, and three pillar places in No. 1 west. Except for the forking of the coal underground, with the consequent increase of fine coal-dust to be removed or rendered inert, there is little room for criticism over the methods now employed at this mine. The working-places are well timbered and ventilated, and few small pillars are now being formed. The use of electric cap lamps, which I understand is mooted, would also improve the working-conditions. Owing to slackness of trade the miners are sharing the work by working alternate fortnights.

Wairaki No. 2 Mine.—Pillar-work was resumed after being closed down for about a year, and three pairs of miners are now working there, two on the east side and one near the bottom of the main drive on the west side. A heated area in the goaf is kept well under control.

Linton No. 1 Mine.—A few pillar places are still being worked in the Little Dip section of No. 1 mine. A connection was made from the north-west heading—the crosscut from which the large coal-bearing area north of the 160 ft. downthrow fault will be worked—to the No. 1 Mine, and several pairs of miners were on solid work in clean hard coal to the east of the north-west heading in what is called the Junction section. The north-west heading, now 12½ chains down, is crossing the 160 ft. downthrow fault, having passed through a 5 ft. band of stone and the lower portion of the coal-seam. The seam was proved in a borehole just 3 chains ahead of the present face of the heading to be 49 ft. thick, so it is expected to again cut the seam in another 20 yards. The heading is well supported by squared black-birch timber sets. For a new return airway an incline is being driven in the seam, at a grade of 1 in 3, and to the south of the north-west heading. A borehole, 70 ft. deep, has already been drilled from the surface, and when the incline reaches the borehole a rise will be put up to the surface on the line of the bore. Owing to the great thickness of the seam, a pillar takes several months to extract, and in the past two pairs of miners have some-

times been put on the same pillar, or rather near to one another. This, I consider, affects the miners' safety, as when one pair of men has stopped working to observe if a fall is likely to occur the noise of the other pair's shovels or picks may prevent them hearing the danger signals.

Linton No. 2 Mine.—In the No. 1 south section heating developed about the middle of the year. Owing to the shallow overburden the fire broke through to the surface, and much clay and soil had to be shot down into the cavity to check the fire. Good concrete stoppings were built underground. A good deal of pillar coal, in which eight pairs of miners were working early in the year, was lost owing to the fire. Pillaring to the west of this heated area has been done from the No. 3 south section, and a large fall took place there in August. So far no heating has occurred, and, should it develop, stoppings would have to be put in to prevent it spreading into the lower No. 3 south workings. The No. 2 south section has been reopened, and pillaring is now proceeding there. Five pillar places are also being worked in No. 3 south, while in No. 4 section six solid places are being worked. This mine has been singularly free from inflammable gas during the year, only two reports of small quantities being recorded. Telephones have been installed on the main haulage-road. The panel system of working, almost in abeyance a couple of years ago, is again being followed in this mine. Should heating occur in the goaf of the No. 3 south pillars, difficulty will be experienced in sealing it off owing to the lack of a proper barrier pillar between the Nos. 2 and 3 south sections. Most of the solid workings require no timber, but there is a tendency, where tender roof occurs, to delay the putting up of the necessary timber supports. The management was instructed to amend the timbering rules by requiring props to be put up under the lip in every place where "top" coal is being worked.

Birchwood Mine.—No attempt was made to reopen the main drives, which had been sealed owing to an underground fire. Even should the fire die out, the available pillar coal would not warrant the reopening. The pumps were withdrawn, and the dip workings are now filling with water. A small area of thin coal to the east of the main entrance of the closed mine was worked for a few months. A borehole was put down to ascertain if the thick upper seam existed above the sealed workings. It was stopped when 120 ft. down, as only a thin seam, 6 in. thick, was met.

Ohai Coal Co.'s Mine.—A small output has been produced throughout the year from the few pillars in this mine. Heating developed in the north side pillars in March, but after allowing the mine water to rise and submerge the heated area the section was reopened in June and the pillaring recommenced there. Gradually the output diminished, and the mine was exhausted at the end of the year. Three additional bores were put down by a petrol-driven percussive machine in the central portion of the lease and north of the large downthrow fault. The first bore proved three seams of coal—8 ft., 27 ft., and 4 ft. thick. The second hole, 10 chains west, reached the 8 ft. seam at 372 ft. from surface, and the 20 ft. seam at 456 ft. No coal was proven in the last hole, which was stopped at 400 ft. A level drive to cross the overlying measures will soon be commenced from near the north bank of the Morley Stream, and it should reach the thick seam when about 10 chains in.

Black Lion Mine.—Development has proceeded to the north, and the main north drive is now in over 14 chains, and within 4 chains of a dip driven a couple of years ago from the workings higher up the hill. The seam is now 13 ft. in thickness. The present workings are bounded on the east side by a downthrow fault running north-east and south-west which was met in a dip when only 2 chains in from the main north drive. It is intended soon to drive through this fault into the upper seam. Only a couple of places are being worked on the west side, owing to a "washout" which runs parallel to and only a chain from the main north drive. The air-compressor is now driven by steam from a multitubular boiler, as the cost of running it with an electric motor was found to be prohibitive.

Beaumont Coal Syndicate's Mine.—Early in the year four local miners took over this small mine on tribute. A dip was driven going west, and when down 100 ft. met a downthrow fault running north-west. They put down a borehole 65 ft., and about 17 yards ahead of the face of the dip, but did not prove the seam. A little pillar coal was won and the mine abandoned in April.

Bridgehead Mine.—Two miners purchased a 3 h.p. electric motor and pump and unwatered this small mine in March. After driving a couple of places 10 yards to the east the seam was too broken and dirty to continue working, so the mine was again closed down.

Tussock Creek Coal-pit.—The owner stripped the 5 ft. of overlying clay from the timber sets in the drive and then worked opencast to the south. The 9 ft. seam of lignite is inclined at 80° to the east, and there is a band of 12 in. of claystone in the middle of the seam. In June the pit was flooded, and it has not been worked since.

Fatal Accidents.

Shag Point Coal-mining Co.'s Mine.—On the 4th April a trucker named John Gourley was killed by a fall of stone, which was caused by a low set of timber on the trucking-road being knocked out. No one saw the accident, but it is surmised the set was knocked out by a runaway tub which the deceased was endeavouring to stop when the fall occurred.

Shag Point Coal-mining Co.'s Mine.—On the 23rd May a miner named William J. Robinson was killed by a fall of stone in his working-place. He and a timberman named Burrows were setting an extra 6 ft. prop, when a block of stone about 10 ft. square and 3 ft. thick fell, swinging all the props and killing Robinson instantly. The floor had been ripped to obtain sufficient trucking-height, and the large block of stone rested on both sides of the top of the canch, and Burrows was able to crawl out from under the fallen stone.

Linton No. 1 Mine.—On the 20th June a miner named Guy Cockburn was instantly killed by a fall of about 40 tons of top coal. He and his mate had been trying to bar down this overhanging coal some time previously, but, being unable to do so, they decided to leave it until near "knock-off," when they intended to shoot it down. The body was recovered, badly mutilated, an hour after the fall occurred.

Serious Non-fatal Accidents.

Ramsay's (North Chatton) Mine.—9th February: Peter Ramsay, miner and owner of the lignite-pit, was severely bruised about the face and body by a fall of about 2 cwt. of "tops." He had tried previously with pick and bar to pull down the lump that fell. He is not yet able to resume work.

Mossbank No. 1 Mine.—16th May: George Clarke, miner, was burned about the face and right arm by blasting-powder which somehow was ignited by his naked carbide lamp.

Dangerous Occurrences notified under Regulation 82.

Kaitangata No. 1 Mine.—14th February: Black-damp was reported by the examining deputy being given off at the entrance to an old level near the main haulage-road. The heated area located in old workings of thirty years ago was effectively sealed off by building a substantial stopping in the old level.

Taratu Mine.—15th February: A small hole was found burned through the No. 3 west side stopping. This was immediately repaired.

Taratu Mine.—28th February: The fire in the west pillar section again burned through two stoppings, and it was not until 7 p.m. that the fire was again sealed off.

Ohai Coal Co.'s Mine.—2nd March. The goaf on the north side showed signs of heating, so the section was sealed off and the water allowed to rise over the affected area.

Whiterig Mine.—21st March: A fire broke out in an old bord, to the west of the main drive, and connected to old workings. The mine-water was allowed to rise to drown the fire but on reopening the mine in June the fire again broke out. Other attempts were made to reopen the mine, but heavy falls had occurred in the main drive, so it was decided towards the end of the year to abandon the mine. To again work the area a new dip would have to be driven.

Kaitangata No. 1 Mine.—10th May: A break was struck in the roof of the stone-drive going towards the main seam from the 6 ft. seam section. A considerable volume of water was liberated, causing the withdrawal of the men in the section. After the water was removed it was found to have come from the old Mundy's dip workings through 15 ft. of clay and coal.

Linton No. 1 Mine.—7th June: Owing to fire-stink being emitted from the goaf in the dip workings, the men were withdrawn and the affected area then sealed off.

Wairaki No. 2 Mine.—5th June: Heating developed in the pillar section on the west side. Stoppings were at once put in and pillaring was recommenced, but rather close to the top stopping, as it was found to be leaking a fortnight after.

Wairaki No. 2 Mine.—28th October: At 4.30 p.m. smoke was reported in the return airway, and it was found that the fire in the goaf of the pillar section on the west side had crept through the coal over one of the stoppings. The heated material behind the stopping was filled out and the space packed with clay and ashes and the stopping then reinforced.

Waronui Mine.—11th November: An increased flow of water came into the No. 2 mine from the waste area of No. 1 mine. As they were retreating with the pillars the pump was withdrawn to a site farther up the dip.

Prosecutions.

On the 16th July a fireman-deputy, who was also the authorized shot-firer, was convicted and fined £3 and costs for failing, himself, to couple up the firing-cable to the detonator-wires. He left the miner to couple up the shot and went down the incline trailing his cable. He had trouble with the terminals, and after fixing them he looked up and saw a light at the pillar corner. Thinking this was the miner, he called out "Fire," and turned the battery-key, thus firing the shot. The miner was still at the face, having just coupled up the detonator-wires to the cable, and luckily he received only slight abrasions on his face and arms.

ANNEXURE B.

COLLIERY STATISTICS, 1928.

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 1928.	Total Output to 31st December, 1927.	Total Output to 31st December, 1928.	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	6	Sub-bituminous	1	7′ to 10′	7′ to 9′ ..	Bord and pillar	2 S	S. 350′, S. 340′	98,554	241,208	339,762	57	148	205	Blackman fan.
Kerr & Co., Hikurangi	Ditto ..	A. H. Taylor ..	Kerr & Wyatt, Hikurangi ..	8½	Ditto ..	1	5′ to 6′	5′ to 6′ ..	Ditto ..	1 T	T. 528′ ..	1,870	35,696	37,566	2	7	9	Natural.
Silverdale, Hikurangi	Crown lease ..	S. G. Foot ..	S. G. Foot, Hikurangi	10½	,, ..	1	3′ to 5′	5′ ..	,, ..	1 T	T. 120′ ..	2,608	30,041	32,649	1	4	5	,,
Northern Co-operative, Hikurangi	,, ..	E. A. Cunningham(P.)	E. A. Cunningham & Co., Hikurangi	10	,, ..	1	4′ ..	4′ ..	,, ..	1 T	T. 40′ ..	1,020	29,403	30,423	1	3	4	,,
Wilson's, Hikurangi	Crown lease and freehold	G. Davidson ..	Wilson's Collieries, Ltd., Auckland	11	,, ..	1	8′ ..	8′ ..	,, ..	1 S 1 T	S. 200′, T. 924	61,345	359,542	420,887	38	144	182	Sirocco fan.
Waro, Whangarei	Ditto ..	J. Cadman ..	British Standard Portland Cement, Ltd., Whangarei	18	,, ..	1	5′ to 13′	9′ ..	,, ..	1 S	S. 105′ ..	3,489	47,758	51,247	3	10	13	Fan.
Ruatangata, Kamo	,, ..	R. Dickson ..	Kamo Potteries Ltd., Whangarei	8	,, ..	1	8′ ..	6′ ..	,, ..	1 T	T. 550′ ..	2,873	6,823	9,696	1	6	7	,,
Glen Nell, Hikurangi	Crown lease ..	J. McIntyre ..	J. McIntyre and party, Hikurangi	4	,, ..	..	6′ to 13′	7′ ..	,, ..	1 T	T. 40′ ..	876	2,311	3,187	1	2	3	Natural.
Hillside, Hikurangi	Freehold ..	Wm. Tunstall ..	Cumming and party, Hikurangi	2½	,, ..	1	5′ ..	4′ ..	,, ..	1 T	T. 66′ ..	392	2,361	2,753	1	4	5	,,
Belton's, Hikurangi	,, ..	F. Johnson ..	Johnson and party, Hikurangi ..	2½	,, ..	1	7′ ..	6′ ..	,, ..	1 T	T. 40′ ..	2,001	3,652	5,653	1	3	4	,,
Phœnix, Hikurangi	Crown lease ..	W. McKinlay ..	McKinlay and party, Hikurangi	1½	,, ..	..	3′ to 10′	3′ to 10′ ..	,, ..	1 T	T. 66′ ..	1,672	..	1,672	1	4	5	,,
Christie's, Hikurangi	Freehold ..	H. Tipton ..	J. K. Reyburn, Whangarei ..	6	,, ..	1	5′ ..	3′ to 6′ ..	,, ..	1 T	T. 60′ ..	2,760	30,820	33,580	2	5	7	,,
Waikato District.																		
Rotowaro, Rotowaro	Crown lease and freehold	A. Penman ..	Taupiri Coal-mines, Ltd., Auckland	11	Brown ..	3	7′ to 27′	4′ to 15′ ..	Bord and pillar	3 T	T. 4,000′, T. 1,600′	150,100	1,054,318	1,204,418	73	206	279	Fans (3).
Pukemiro, Pukemiro	Freehold ..	A. Burt	Pukemiro Collieries Co., Ltd., Auckland	13	,, ..	1	4′ to 18′	4′ to 14′ ..	Ditto ..	3 T	T. 5,000′, T. 2, 200′	154,315	1,448,402	1,602,717	66	214	280	Fans (2).
Waipa, Glen Massey	,, ..	T. Thomson ..	Waipa Railway & Collieries, Ltd., Wellington	15	,, ..	1	8′ to 10′	6′ to 8′ ..	,, ..	1 T	T. 6,500′ ..	63,772	918,065	981,837	28	99	127	Sirocco fan.
Waikato Extended, Huntly ..	,, ..	J. Leonard ..	Roose Shipping Co., Ltd., Mercer	12	,, ..	1	16½′ ..	14′ ..	,, ..	1 T	T. 490′ ..	7,063	67,852	74,915	2	7	9	Fan.
Glen Afton, Glen Afton ..	Crown lease and freehold ..	P. Hunter ..	Glen Afton Collieries, Ltd., Auckland	8	,, ..	1	4′ to 16′	4′ to 12′ ..	,, ..	1 T	T. 4,800′ ..	167,632	668,300	835,932	67	227	294	Sirocco fan.
Pukemiro Junction, Pukemiro ..	Crown lease ..	C. V. Malony ..	Clare and partners, Pukemiro Junct.	8	,, ..	1	2′ to 25′	2′ to 18′ ..	,, ..	2 T	T. 350′ ..	12,215	66,655	78,870	6	14	20	Natural.
Taupiri East, Kimihia ..	Auckland University lease	J. Holland (P.) ..	Holland and party, Huntly ..	7	,, ..	1	8′ to 15′	8′ to 10′ ..	,, ..	1 T	T. 320′ ..	2,129	6,645	8,774	1	3	4	,,
Campbell, Whatawhata ..	Crown lease ..	R. Fox	Whatawhata Campbell Coal Co., Ltd., Hamilton	7	,, ..	1	12′ ..	9′ ..	,, ..	1 T	T. 446′ ..	3,903	13,728	17,631	2	5	7	,,
Renown, Waikokowai	Freehold ..	C. Hunter ..	Renown Collieries, Ltd., Auckland	¾	,, ..	2	13′ ..	9′ 6″ ..	,, ..	1 T	T. 720′ ..	26,555	..	26,555	39	49	88	Fan.
Graham, Glen Afton	,,	W. Mills	Graham Coal Co., Pukemiro ..	5	,, ..	1	6′ 6″ ..	6′ ..	,, ..	1 T	T. 440′ ..	12,339	40,493	52,832	5	14	19	,,
Rangitoto, Te Kuiti	Native lease	J. Cheirns (P.) ..	Morgan and party, Te Kuiti ..	2	,, ..	1	7′ ..	6′ ..	,, ..	1 T	T. 100′ ..	80	174	254	..	2	2	Natural.
Taranaki District.																		
Coal Creek	Crown lease (470 acres)	R. Hall	Taranaki Coal Co., Ltd., Stratford	1	Brown ..	1	3′ ..	3′ ..	Bord and pillar	1 T	T. 70′ ..	179	..	179	4	4	8	Natural.
Egmont, Tangarakau	Crown lease ..	R. Fleming ..	Egmont Collieries, Ltd., Stratford	2	,, ..	1	5′ ..	5′ ..	Ditto ..	1 T	T. 314′ ..	1,503	70	1,573	4	11	15	,,
Power, Ohura	,, ..	E. Gascoigne ..	Power Coal Syndicate, Palmerston North	1½	,, ..	1	4′ ..	3′ 9″ ..	Longwall	1 T	T. 50′ ..	295	41	336	..	3	3	,,
Old Stockman, Mokau ..	Freehold ..	C. Wright (P.) ..	Chambers Bros., Awakino ..	8	,, ..	..	4′ 6″ ..	4′ 6″ ..	Bord and pillar	1 T	T. 130′ ..	349	2,447	2,796	..	2	2	,,
Output of collieries included in previous statements at which operations are abandoned or suspended ..				..	..	..	..	..	..	..	..	..	9,391,805	9,391,805	..	..	..	..
WEST COAST INSPECTION DISTRICT.																		
Nelson District.																		
North Cape	Freehold ..	T. McCormick ..	North Cape Coal Co., Nelson ..	18	Bituminous	1	3′ ..	3′ ..	Bord and pillar	1 ..	S. 15 ch. ..	3,390	111,543	114,933	7	14	21	Fan.
Puponga	Crown lease ..	A. J. McHardy ..	Puponga Coal Syndicate, Puponga	25	,,	1	3′ 6″ to 6′	Full ..	Ditto ..	..	T. 16 ch. ..	9,617	263,176	272,793	6	14	20	Natural.
Stone's	Freehold ..	R. C. Stone ..	R. C. Stone, Takaka	10	Brown ..	1	5′ ..	5′ ..	,, ..	..	..	30	1,042	1,072	..	2	2	,,

COLLIERY STATISTICS, 1928—*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 1928.	Total Output to 31st December, 1927.	Total Output to 31st December, 1928.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
WEST COAST INSPECTION DISTRICT—*continued.*																		
												Tons.	Tons.	Tons.				
Nelson District—continued.																		
Broxbourne	Freehold	T. McCormick	G. Boyd, Motupipi	1½	Lignite	1	5′	5′	Bord and pillar		T. 3 ch.	21	176	197	..	2	2	..
Motupipi	Crown lease	H. E. Winter	John Winter, Motupipi	1	,,	1	3′	3′	..	..	..	95	..	95	2	..	2	Open.
Ariki	,,	R. O'Rourke	R. E. F. O'Rourke, Ariki	1	Brown	1	5′ 4″	Full	Bord and pillar		T. ½ ch.	75	..	75	..	2	2	Natural.
O'Rourke's	Freehold	..	Ambrose O'Rourke, Murchison	9	,,	1	2′6″	2′ 6″	Stoping		T. 9 ch.	300	797	1,097	..	1	1	,,
Buller District.																		
Bennett's	Crown lease	T. L. Bennett	Bennett and party, Seddonville	2	Bituminous	1	Not proven		Bord and pillar	2	..	373	97	470	2	3	5	Natural.
Cardiff Bridge	,,	M. Forsyth	Cardiff Bridge Co-op., Seddonville	8	,,	1	5′ to 25′	Full	Ditto	..	..	25,783	114,135	139,918	5	23	28	Natural & fan
Cascade	,,	W. Lowden	Cascade-Westport Coal Co., Westport	2	,,	1	20′	9′	,,	..	..	10,948	5,534	16,482	8	16	24	Natural.
Charming Creek	,,	C. D. Buist	Charming Creek-Wesport Coal Co., Ltd., Westport	1	,,	1	6′ to 21′	7′	,,	..	T. 11½ ch.	83	..	83	12	4	16	Fan.
Chester's	,,	J. Penberth	Chester and Penberth, Seddonville	9	,,	1	2′ to 3′	Full	,,	..	T. 13 ch.	2,282	12,830	15,112	1	2	3	Natural.
Clydevale	,,	J. G. Quinn	Clydevale Coal-mines, Ltd., Wellington	4	,,	1	5′ to 14′	8′	,,	..	T. 6 ch.	8,026	9,828	17,854	2	10	12	,,
Coal Creek	,,	W. McGuire	McGuire and party, Seddonville	13	,,	1	5′ to 20′	8′	,,	..	..	4,848	72,459	77,307	2	10	12	,,
Dove's	,,	J. T. Dove	J. T. Dove, Seddonville	8	,,	1	2′ to 18′	10′	..	..	..	614	119,012	119,626	1	3	4	Fan.
Glasgow	,,	H. Monaghan	Glasgow Co-op. Mining party, Seddonville	4	,,	1	8′	6′	Bord and pillar	..	..	9,402	14,976	24,378	7	13	20	Natural.
Harris's	Freehold	J. Harris	J. Harris, Karamea	5	Lignite	1	12′	5′	Ditto	..	T. 20 ft.	8	16	24	..	1	1	,,
Mitchell's	Crown lease	F. T. Mitchell	F. T. Mitchell, Charleston	5	,,	1	3′	Full	..	..	..	31	111	142	1	..	1	Opencast.
Quinn's	,,	T. Quinn	Quinn and party, Seddonville	5	Bituminous	1	5′	,,	Bord and pillar	..	..	305	6,389	6,694	1	2	3	Natural.
Warne's	,,	..	G. N. Warne, Charleston	..	Lignite	1	7′	,,	..	..	..	4	21	25	2	..	2	..
Denniston	,,	W. Hewitson, G. Smith, & A. Smith	Westport Coal Co., Ltd., Dunedin	48	Bituminous	..	3′ to 30′	,,	Bord and pillar	..	T. 410 ch.	228,558	9,356,992	9,585,550	127	386	513	Fan.
Millerton	,,	W. D. Butler	Westport Coal Co., Ltd., Dunedin	37	,,	1	4 to 20′	12′	Ditto	..	T. 298 ch.	167,340	7,532,960	7,700,300	97	365	462	,,
Westportmain	,,	H. Brady	Westport-Granity Coal-mines, Ltd., Westport	4	,,	1	10′	Full	,,	..	..	35,213	56,628	91,841	18	40	58	Natural.
Westport-Mokihinui	,,	W. O'Rourke	McIntosh and Willman, Seddonville	8	,,	1	5′ to 15′	8′	,,	..	T. 20 ch.	6,430	25,685	32,115	1	10	11	,,
Westport-Stateville	,,	R. M. Mulholland	Westport-Stateville Co-op. Coal Proprietary., Seddonville	4	,,	1	10′	8′	,,	..	T. 13 ch.	2,113	6,043	8,156	1	7	8	,,
Westport-Stockton	,,	Thos. McGhie	Westport-Stockton Coal Co., Ltd., Christchurch	20	,,	3	4′ to 20′	10′	,,	..	..	152,884	2,337,842	2,490,726	103	191	294	Fans.
Wynn's	,,	G. Wynn	G. Wynn, Seddonville	5	,,	1	3′	Full	,,	..	T. 2½ ch.	782	3,737	4,519	..	2	2	Natural.
Rocklands	,,	J. P. Burley	G. Walker's Estate, Berlin's	26	Brown	1	27′	8′	,,	..	..	289	9,368	9,657	..	2	2	,,
Whitecliffs	,,	J. H. Burley	James H. Burley, Berlin's	6	,,	1	18′	10′	,,	..	T. 6 ch.	390	849	1,239	..	2	2	,,
Reefton District.																		
Archer's	Crown lease and freehold	F. W. Archer	F. W. Archer, Cronadun	..	Brown	2	10′	10′	Bord and pillar	..	T. 11 ch.	2,970	33,742	36,712	1	5	6	Natural.
Clele	Crown lease	C. Skinner	Clele Coal-mine Syndicate, Reefton	42	,,	1	5′	Full	Ditto	..	..	3,224	32,246	35,470	2	6	8	,,
Coghlan's	,,	C. Curtis	J. Coghlan, Reefton	2	,,	1	8′	7′	,,	..	T. 1 ch.	1,327	428	1,755	1	3	4	,,
Coghlan's	Freehold	P. Coghlan	J. Coghlan, Reefton	32	,,	1	8′	7′	,,	..	..	1,702	13,727	15,429	..	3	3	,,
Collins	Crown lease	N. Collins	N. Collins, Reefton	36	,,	1	8′	Full	,,	..	..	620	57,177	57,797	1	2	3	,,
McLaughlin's	,,	D. McLaughlin	D. McLaughlin, Reefton	1	,,	2	8′ to 5′	,,	,,	..	T. 3 ch.	518	..	518	..	2	2	,,
Morrisvale	,,	A. Thompson	W. J. Morris, Reefton	16	,,	2	6′ to 20′	8′	,,	..	T. 15 ch.	8,212	47,181	55,393	6	15	21	,,
Reddale	,,	W. Lowden	Reddale Collieries, Ltd. (in Liquidation), Christchurch	26	,,	1	8′ to 14′	10′	,,	..	..	1,457	31,002	32,459	3	4	7	,,
Reefton	,,	W. Wood	Reefton Coal Co., Ltd. (in Liquidation), Wellington	27	,,	1	7′ to 12′	..	,,	..	T. 10 ch.	10,218	163,515	173,733	5	15	20	,,
Waitahu	,,	A. D. Williams	Waitahu (N.Z.) Colliery, Ltd., Reefton	19	,,	1	6′	Full	,,	..	T. 5 ch.	50	5,309	5,359	..	1	1	,,
Lankey's Creek	,,	James Bolitho	Consolidated Goldfields of N.Z., Ltd., Reefton	17	Brown	..	..	..	,,	..	..	4	25,084	25,088	..	..	..	..
White Rose	,,	W. Osborn	W. Osborn, Merrijigs	5	,,	1	4	Full	,,	..	T. 5 ch.	22	51	73	..	2	2	Natural.

Greymouth District.																		
Allan's	Crown lease	John Allan	E. G. Pilcher, Box 84, Wellington	6	Bituminous	1	7′ 6″	Full	Bord and pillar	T. 4½ ch.	2,284	3,894	6,178	1	4	5	Natural.
Armstrong's	State reserve	V. Armstrong	Armstrong and party, Runanga	7	Sub-bituminous	1	10′	,,	,,		5,548	29,263	34,811	3	4	7	,,
Baddeley's	,,	J. Rowse	Baddeley and party, Runanga	8	Ditto	1	5′	,,	,,		5,539	22,374	27,913	1	8	9	Fan.
Bell Bird	,,	F. Fauth	Fauth and party, Greymouth	1	,,	1	10′	8′	,,		293		293	1	2	3	Natural.
Bellvue	,,	J. Hadcroft	Bellvue Co-op. party, Runanga	2	,,	1	6′	5′ 6″	,,	T. 8 ch.	7,584	126	7,710	2	7	9	,,
Blackball	Freehold	W. Parsonage	Blackball Coal-mines Proprietary, Christchurch	37	,,	2	17′	15′	,,	T. 18½ ch., 10 ch.	119,358	3,602,148	3,721,506	63	229	292	Fan.
Boustridge's	Crown lease	T. H. Boustridge	T. H. Boustridge, Greymouth	2	Bituminous	1	1′	Full	,,	T. 3 ch.	64	291	355		2	2	Natural.
Brae Head	State reserve	John Watson	Boote and party, Dunollie	8	Sub-bituminous	1	9′	,,	,,	T. 10 ch.	6,378	27,212	33,590	5	12	17	,,
Briandale	Crown lease	O. J. Davis	Briandale Collieries, Ltd., Greymouth	2	Ditto	1	3′ to 10′	,,	,,		8,640	1,027	9,667	11	35	46	Fan.
Brunner-Wallsend	,,	George Smith	Brunner Collieries, Ltd., Brunnerton	5	Bituminous	1	6′ to 18′	8′	,,	T. 10 ch.	308	205,802	206,110	16	8	24	,,
Cain's	State reserve	E. Cain	John Cain, Rapahoe	4	Sub-bituminous	1	4′ to 6′	Full	,,	T. 6 ch.	609	1,411	2,020	1	2	3	Natural.
Castle Point	,,	J. Duggan	Castle Point Co-op. party, Runanga	2	Bituminous	1	6′	,,	,,	T. 14 ch.	7,198	2,694	9,892	2	9	11	,,
Dobson	Crown lease	J. Hughes	Grey Valley Collieries, Ltd., Christchurch	6	,,	1	9′ to 16′	9′	Panel	T. 18 ch.	97,524	91,167	188,691	46	218	264	Fan.
Duggan's	State reserve	W. Richmond	Duggan and party, Rewanui	7	,,	1	4′ 6″	Full	Bord and pillar	T. 4 ch.	4,981	24,222	29,203	1	6	7	Natural.
Hunter's	,,	G. W. Teasdale	Hunter and party, Dunollie	8	Sub-bituminous	1	9′	,,	Ditto	T. 19 ch.	4,781	22,454	27,235	1	7	8	Fan.
Manderson's	,,	T. Howard	Manderson and party, Runanga	7	Ditto	1	4′ 6″	,,	,,	T. 9 ch.	4,753	25,362	30,115	2	8	10	Natural.
Jubilee	,,	G. Stanton	Stanton and party, Rapahoe	1	,,	1	5′ 6″	,,	,,		2,047		2,047	1	4	5	,,
James	Crown	J. Armstrong	N.Z. Government, Wellington	6	,,	1	4′ to 8′	,,	,,	T. 15 ch.	39,877	145,668	185,545	19	64	83	Fan.
Liverpool	,,	Thomas King	N.Z. Government, Wellington	16	Bituminous	5	6′ to 34′	,,	,,	T. 56 ch., 38 ch.	130,881	1,762,923	1,893,804	97	249	346	Fans.
Moody Creek	State reserve	William Robertson	Moody Creek Co-op. party, Dunollie	6	Sub-bituminous	1	8′	,,	,,		4,313	22,580	26,893	2	6	8	Natural.
New Point Elizabeth	,,	John Forrest	New Point Elizabeth Co-op. party, Dunollie	2	Ditto	1	7′	,,	,,	T. 4 ch.	5,163		5,163	2	6	8	,,
Old Runanga	,,	E. W. Kennedy	Old Runanga Co-op. party, Rewanui	2	Bituminous	1	7′	,,	,,	T. 10 ch.	4,753	4,972	9,725	2	8	10	,,
Paparoa	Crown lease	A. O'Donnell	Paparoa Coal Co., Ltd., Wellington	20	Semi-bituminous	1	25′	,,	,,	T. 48½ ch.	23,395	581,014	604,409	7	15	22	Fan.
Schultze Creek	,,	W. Page	Marshall and party, Runanga	4	Sub-bituminous	1	4′ 6″	,,	,,	T. 4 ch.	2,560	2,562	5,122		8	8	,,
Smith and party	State reserve	T. Halliday	Smith and party, Runanga	8	Ditto	1	2′ 9″	,,	,,	T. 9 ch.	4,364	33,308	37,672	2	6	8	Natural.
Spark and party	,,	J. Unwin	Spark and party, Rewanui	7	Bituminous	1	7′	,,	,,	T. 1 ch.	4,992	18,056	23,048	2	6	8	Fan.
Williams (Gold Light)	,,	J. Kelly	Williams and party, Runanga	1	Sub-bituminous	1	7′	,,	,,	T. 4 ch.	1,303		1,303	1	7	8	,,
Coates and Marsh	Crown lease	T. Marsh	Coates and Marsh, Runanga	2	Ditto	1	4′	,,	,,		791	375	1,166		3	3	Natural.
Output of collieries included in previous statements at which operations are abandoned or suspended												7,044,507	7,044,507				

SOUTHERN INSPECTION DISTRICT.

Canterbury District.																	
Homebush, Glentunnel	Freehold	J. C. Campbell (D.)	Homebush Brick and Tile Co., Glentunnel	55	Brown	1	6′	All	Bord and pillar	T. 594′	2,627	349,469	352,096	1	5	6	Natural.
Bush Gully, Coalgate	,,	Jas. Charles (P.)	J. Dean's Estate, Coalgate	11	,,	1	2′ 8′	,,	Ditto	T. 297′	581	40,260	40,841		2	2	,,
Whitecliffs, Whitecliffs	Crown lease	J. T. Tedd (P.)	G. McClatchie & Co., Ltd., Christchurch	47	,,	2	3′ and 5′	,,	,,	T. 66′	523	35,113	35,636	1	2	3	,,
Steventon Valley, Whitecliffs	,,	J. T. Leeming (D.)	Leeming Bros., Glentunnel	3	,,	1	6′	,,	,,	T. 198′	856	1,547	2,403	1	2	3	,,
Clearview, Glenroy	Freehold	Geo. Aitken (D.)	Clearview Coal Co., Glenroy	9	,,	1	10½′	7½′	,,		2,800	12,915	15,715	1	5	6	,,
Tripps, Mount Somers	,,	M. Menaglio (P.)	Mt. Somers Coal Co., Mt. Somers	62	,,	1	16′	7′	,,	T. 256′	734	84,544	85,278		3	3	,,
Woodbank, Albury	Crown lease under Lands Act	J. H. Smillie (D.)	Duncan Ross, Albury	4	Lignite	1	9′	7½′	,,	T. 528′	996	539	1,535	1	2	3	,,
Springfield, Springfield	Freehold	J. Taylor, sen. (D.)	J. Taylor, Springfield	46	Brown	1	4′	4′	,,	T. 120′	28	92,808	92,836				,,
North Otago District.																	
St. Andrew's, Papakaio	Freehold	T. Nimmo, jun. (U.)	Duncan Cameron, Papakaio	49	Lignite	1	7½′ to 9½′	6′	Bord and pillar	T. 198′	604	62,035	62,639		2	2	Natural.
Ngapara, Ngapara	,,	Wm. Nimmo (U.)	Wm. Nimmo, Ngapara	50	,,	1	25′	8′ to 10′	Ditto	T. 50′	890	42,257	43,147	1	2	3	,,
Shag Point (old mine), Shag Point	Crown lease	W. McLaren (P.)	Bruce Rly. and Coal Co., Dunedin	14	Brown	1	5′	All	,,	T. 330′	704	416,743	417,447	1	1	2	,,
Shag Point, C.M. Co. Ltd., Shag Pt.	Freehold	A. Gillanders (1st C.)	Shag Point C.M. Co., Ltd., Dunedin	20	,,	2	3′ and 3½′	,,	,,	T. 500′	28,258	221,612	249,870	14	72	86	Fan.
Airedale, Papakaio	Crown lease	A. Beardsmore (P.)	A. Beardsmore & A. Beardsmore, jun., Papakaio	2	Lignite	1	12′	6′ to 7′	,,		836	793	1,629	1	2	3	Natural.
Roseneath, Kurow	Freehold	J. Hollows (P.)	Mrs. M. Matheson & J. Hollows, Kurow	2	,,	1	20′	7′	,,	T. 132′	333	76	409	1	1	2	,,

COLLIERY STATISTICS, 1928—*continued.*

Name of Mine and Locality.	Tities 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 1928.	Total Output to 31st December, 1927.	Total Output to 31st December, 1928.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
SOUTHERN INSPECTION DISTRICT—*continued.*																		
												Tons.	Tons.	Tons.				
Central Otago District.																		
Rough Ridge, Oturehua	Crown lease	E. Beck (P.)	Margaret Beck, Oturehua	41	Lignite	1	20′	All	Opencast			40	35,585	35,625	1	..	1	Open.
Idaburn, Oturehua	Freehold	C. L. Fisher (P.)	C. L. Fisher, Oturehua	58	,,	1	20′	,,	,,			286	53,555	53,841	2	..	2	,,
Oturehua, Oturehua	Crown lease	J. R. Becker (P.)	Becker Bros., Oturehua	34	,,	1	18′	,,	,,			238	5,334	5,572	1	..	1	,,
Cambrian, Cambrian	,,	O. Jones (P.)	Vinegar Hill Hydraulic Sluicing Co., St. Bathan's	67	,,	1	10′	,,	,,			153	51,640	51,793	1	..	1	,,
McPherson's Coal Creek Flat	,,	N. Harliwich (P.)	N. Harliwich, Coal Creek Flat	58	,,	1	26′	18′	,,			2,310	91,296	93,606	2	..	2	,,
Shepherd's Creek, Bannockburn	,,	J. Hodson, jun. (2nd C.)	J. Hodson & others, Bannockburn	51	,,	1	6′ to 20′	4′ to 8′	Bord and pillar		T. 200′	1,802	118,789	120,591	1	2	3	Natural.
Nevis Crossing, Nevis	,,	R. Ritchie (P.)	Robt. Ritchie, Nevis	25	Brown	1	60′	60′	Opencast			463	17,604	18,067	2	..	2	Open.
Parfit's, Upper Idaburn	,,	Isaac Parfit	Parfit & Marslin, Naseby	3	Lignite	1	30′	30′	,,			82	427	509	1	..	1	,,
South Otago District.																		
Freeman's, Abbotsford	Freehold	W. Evans (U.)	Freeman's Coal Co., Green Island	48	Lignite	1	8′ to 12′	All	Bord and pillar			3,989	605,288	609,277	1	5	6	Natural.
Jubilee, Fairfield	,,	R. Hill (1st C.)	Jubilee Coal Co., Dunedin	31	,,	2	6′ to 10′	,,	Ditto		T. 264′ and T. 1,122′	15,069	515,258	530,327	8	20	28	Fan.
Jubilee (under roads)	Crown lease	R. Hill (1st C.)	Jubilee Coal Co., Dunedin	..	,,	..	..	..	..		..	..	..	..	..	..	..	..
Willowbank, Riccarton	Freehold	W. Robertson (U.)	Geo. Scurr & Co., Ltd., Mosgiel Junction	8	,,	1	10′	6′	Bord and pillar		T. 660′	4,874	20,435	25,309	2	6	8	Natural.
Auchmeddon, Fairfield	,,	H. Orr (2nd C.)	H. Orr, Fairfield	3	,,	1	4′	All	Opencast			6	35	41	..	..	..	Open.
Brighton, Brighton	,,	N. McColl (P.)	Mrs. McColl, Brighton	13	,,	1	5′	,,	Bord and pillar			133	9,054	9,187	1	1	2	Natural.
Waronui, Milton	,,	J. Carruthers, jun. (1st C.)	Bruce Rly. and Coal Co., Dunedin	24	,,	1	5′ to 12′	7′	Ditto		T. 1,500′	14,277	348,478	362,755	7	22	29	Fan.
Viewbank, Crichton	,,	N. Greaves (P.)	N. Greaves, Milton	9	,,	2	10′ & 12′	7′	,,		T. 413′	1,030	6,148	7,178	1	2	3	Natural.
Taratu, Lovell's Flat	,,	J. Hadcroft (1st C.)	Sargood & Cheeseman, Dunedin	27	,,	1	25′ to 40′	7′ to 30′	,,		T. 924′	21,860	658,142	680,002	15	25	40	Fan.
Tuakitoto, Tuakitoto	,,	J. Throp (P.)	J. Throp, Kaitangata	18	,,	1	20′	7′	,,		T. 150′	761	5,816	6,577	1	1	2	,,
Wangaloa, Kaibrook — Kaitangata	Crown lease	W. Barclay (D.)	Thos. Gage, Kaitangata	6	,,	1	11′	6′	,,		T. 65	13	834	847	..	2	2	Natural.
				9	,,	1	11′	6½′				29	2,815	2,844				
Kaituna, Kaitangata	Freehold	R. McMillan (D.)	W. Smaill, Kaitangata	20	,,	1	4½′	All	,,			41	26,065	26,106	..	1	1	Fan.
Kaidale, Kaitangata	Crown lease	J. Ramsden (U.)	J. Ramsden, Kaitangata	9	,,	1	10′	6½′	,,		T. 268′	843	8,610	9,453	..	2	2	Natural.
Kaitangata No. 1, Kaitangata	Freehold	F. Carson (1st C.)	Kaitangata Coal Co., Dunedin	52	Brown	2	6′ & 25′	All	,,		T. 1,188′							
Kaitangata No. 2, Kaitangata	,,	F. Carson (1st C.)	Kaitangata Coal Co., Dunedin	16	,,	3	8′, 8′ & 25′	,,	,,		T. 4,620′, T. 957′							
Kaitangata (under roads)	Crown lease	F. Carson (1st C.)	Kaitangata Coal Co., Dunedin	..	,,	..	..	..	..		T. 3,135′, T. 1,320′	85,160	4,516,010	4,601,170	53	206	259	Fans.
Castle Hill, Kaitangata	Freehold	J. McLelland (1st C.)	Kaitangata Coal Co., Dunedin	35	,,	3	12′ to 20′	All	Bord and pillar		T. 3,300′							
Benhar, Benhar	,,	J. Walls (2nd C.)	McSkimming & Son, Ltd., Benhar	65	Lignite	3	14′	10′	Ditto		T. 470′	7,341	265,723	273,064	1	7	8	Fan.
Summerhill, Kaitangata	,,	Thos. Heyes (1st C.)	Thomas Gage, Kaitangata	4	,,	1	14′	7′	,,		,,	155	771	926	..	1	1	Natural.
Dunlop's, Lovell's Flat	,,	Wm. Dyet (P.)	McSkimming & Son., Ltd., Kaitangata	2	,,	1	14′	8′	,,		T. 60′	166	425	591	..	2	2	,,
Southland District.																		
Whiterig, East Gore	Freehold	R. Craig (P.)	R. Craig, East Gore	50	Lignite	1	24′	12′	Bord and pillar		T. 462′	1,873	102,579	104,452	1	2	3	Fan.
Green's, Gore	,,	F. Barclay (2nd C.)	Estate late T. Green, Gore	40	,,	1	19′	12′	Ditto		T. 786′	12,086	331,361	343,447	3	7	10	,,
Glenlee, Waikaka	..	F. W. Edge (P.)	A. A. Edge, Waikaka	35	,,	1	14′	8′	,,		T. 90′	1,307	30,094	31,401	..	2	2	Natural.
Ramsay's, North Chatton	Freehold	P. Ramsay (P.)	P. Ramsay, Waikaka	25	,,	1	12′	12′	Opencast			214	107,615	107,829	1	..	1	Open.
Landslip, Waikaia	Crown lease	T. Northcoat (P.)	T. Northcoat and Lahey, Waikaia	29	,,	1	4′	All	,,			180	36,990	37,170	1	..	1	,,
McIver's, Waikaia	,,	R. McIver (P.)	R. McIver, Waikaia	5	,,	1	8′	5′	,,			324	601	925	1	..	1	,,
Argyle, Waikaia	,,	T. Woodward (P.)	Thos. Woodward, Waikaia	37	,,	1	12′	All	,,			474	10,205	10,679	1	..	1	,,
Terrace, Longridge	Freehold	G. Daly (P.)	G. Daly, Longridge	10	,,	1	25′	10′ to 12′	Bord and pillar		T. 66′	744	11,015	11,759	1	1	2	Natural.
Princhester Creek, The Key	Crown lease	J. A. Denton (P.)	J. A. Denton, private bag, Lumsden	26	Brown	1	6′	All	Opencast			218	2,966	3,184	1	..	1	Open.
Lynwood, Te Anau	,,	W. Blatch (P.)	E. C. Govan, Te Anau	18	Lignite	1	8′	,,	,,			30	3,740	3,770	..	..	..	,,
Boghead, Mataura	Freehold	J. Bolger (D.)	C. E. Rowe, Mataura	23	,,	1	18′	11′	Bord and pillar		T. 360′	2,835	50,665	53,500	1	3	4	Natural.

Mataura Lignite, Mataura	Freehold	T. Barclay (2nd C.)	Beattie, Coster, and Co., Ltd., Mataura	52	Lignite	1	18′	12′	Bord and pillar	T. 1,200′	11,352	320,506	331,858	3	6	9	Fan.
Larking's, Mataura	,,	P. Larking (P.)	P. Larking, Mataura	7	,,	1	15′	13½′	Opencast		2,503	4,416	6,919	2		2	Open.
Ota Creek	Crown lease	E. Genge (P.)	E. Genge, Wyndham	48	,,	1	7′	All	,,		386	29,852	30,238	1		1	,,
Wyndham	Freehold	Wm. Thompson (P.)	Wm. Thompson, Wyndham	21	,,	1	12′	6′	,,		340	22,914	23,254	1		1	,,
Diamond Lignite, Asher's	Crown lease	A. McMillan (P.)	S. McMillan, Invercargill	26	,,	1	38′	All	,,		645	33,226	33,871	1		1	,,
Black Diamond, Nightcaps	,,	R. W. Duncan (1st C.)	Black Diamond Coal Co., Invercargill	13	Brown	1	25′	8′	Bord and pillar	T. 1,320′	12,546	184,166	196,712	6	18	24	Fan.
Mossbank No. 1, Ohai	,,	T. McMillan (1st C.)	Mossbank Coal Co., Invercargill	14	,,	1	7′ to 33′	7′ to 20′	Ditto	T. 462′	43,862	170,380	214,242	15	50	65	,,
Mossbank, No. 2, Ohai	,,	S. Reid (D.)	Mossbank Coal Co., Invercargill		,,	1	12′	8′	,,								Natural.
Wairaki, No. 1, Ohai	,,	J. T. Mosley (1st C.)	Wairaki Coal Co., Gore	15	,,	1	7′ to 17′	All	,,	T. 1,980′	34,790	239,327	274,117	14	51	65	Fan.
Wairaki No. 2, Ohai	Freehold	J. T. Mosley (1st C.)	Wairaki Coal Co., Gore	10	,,	1	7′ to 17′	,,	,,								,,
Linton, Ohai	Crown lease	G. S. Langford (1st C.)	Linton Coal Co., Invercargill	13	,,	1	40′	,,	,,	T. 1,320′	103,459	395,846	499,305	52	105	157	Fans.
Linton, Ohai	Freehold	G. S. Langford(1st C.)	Linton Coal Co., Invercargill		,,												
Birchwood, Ohai	,,	A. Morris (1st C.)	Birchwood Coal Co., Box 674, Dunedin	8	,,	1	7′ to 8′	,,	,,	T. 924′	1,876	147,154	149,030	1	2	3	Fan.
Ohai Coal Co., Ohai	Crown lease	J. B. Ross (1st C.)	Ohai Coal Co., Box 145, Invercargill	6	,,	1	20′	,,	,,		8,922	47,261	56,183	6	10	16	,,
Black Lion, Ohai	,,	Ed. Mason, (2nd C.)	Black Lion Coal Co., Invercargill	7	,,	1	10′	7′	,,	T. 396′	10,420	13,627	24,047	6	12	18	,,
Smithvale, Nightcaps	Freehold	Wm. Smith (P.)	Wm. Smith, Nightcaps	2	,,	1	4′	All	,,	T. 264′	294	91	385		2	2	Natural.
Tussock Creek	,,	J. C. McDonald (P.)	J. C. McDonald, Tussock Creek	5	Lignite				Opencast		14	579	593				Open.
Beaumont Coal Syndicate	,,	S. Reid (D.)	Beaumont Coal Syndicate, Ohai	2	Brown	1	12′	7′	Bord and pillar	T. 66′	210	4	214		2	2	Natural.
Bridgehead	Crown lease	R. Murray (1st C.)	McKenzie and Hunter, Nightcaps		,,	1	4⅓′	All	Ditto	T. 198′	70	74	144		1	1	,,
Wendon, Wendon	Lease applied for	E. Radford (P.)	J. E. Radford, Wendon	4	Lignite	1	18′	10′	,,	T. 150′	134	456	590		2	2	,,
Menzie's Ferry	Freehold	Chas. Gabites	Chas. Gabites, Menzie's Ferry	1	,,	1	5′	All	Opencast		6		6				Open.
Otikerama	,,	T. Hoffman	A. McDonald, Otikerama	39	,,	1	15′	15′	,,		20	42,404	42,424	1		1	,,
Outputs of mines included in previous statements at which operations have been abandoned or suspended												6,348,716	6,348,716				
Totals, Southern District, South Island											454,025	17,413,678	17,867,703	244	682	926	
Totals, West Coast District, South Island											1,200,839	34,147,120	35,347,959	716	2,128	2,844	
Totals, Northern District, North Island											781,889	14,468,610	15,250,499	406	1,200	1,606	
Grand totals											2,436,753	66,029,408	68,466,161	1,366	4,010	5,376	
Output of collieries prior to 1890 not included in the above statement													296,653				
Shale exported, 1914													21				
													68,762,835				

APPENDIX C.

REPORT OF BOARDS OF EXAMINERS.

SIR,— Mines Department, Wellington, 31st July, 1929.

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 1928.

The annual written examinations of candidates for mine-managers' certificates under the Coal-mines Act, 1925, were held at Dunedin, Reefton, and Huntly in October last. Eleven candidates sat for first-class certificates and eleven for second-class certificates, as compared with seven for first-class certificates and six for second-class certificates in 1927. This is a marked improvement.

The work of the candidates for second-class certificates was, on the whole, better than that of those for first-class certificates, nine out of the eleven candidates for second-class certificates being called up for oral examination as against four out of the eleven candidates for first-class certificates.

In addition, examinations were also held at Huntly and Reefton for candidates for mine-surveyors' certificates under the Coal-mines Act, one candidate sitting in each centre.

Two candidates also sat at Waihi for battery superintendents' certificates under the Mining Act, 1926.

Those candidates for certificates under the Coal-mines Act who were successful in obtaining the necessary marks in their written examination came before the Board for oral examination at its annual meeting in December last, as a result of which the following were granted certificates: Second-class mine-managers' certificates—Joseph William Smith, Puponga; David Bryson Thomson, Huntly; Robert Blair, Glen Massey; Edward Johnson, Pukemiro; Harry Jones, Huntly; Robert Crump, Huntly. Mine-surveyors' certificates—John R. Watson, Huntly; John Rennie, Millerton. John Thomas Samuel of Dunedin, who had the necessary qualifications was, after oral and practical examination, also granted a mine-surveyor's certificate.

In addition to the above, partial passes for certificates were also granted as follows: First-class mine-managers' certificates—J. W. Glendenning, Dobson; R. T. H. Dale, Runanga; A. Colligan, Nightcaps; J. E. Pfeffer, Millerton. Second-class mine-managers' certificates—Robert Wilson, Pukemiro; G. Williamson, Glen Massey.

The Board of Examiners under the Mining Act, 1926, also granted a battery superintendent's certificate to J. G. Banks, of Waihi, he having been successful in both his written and oral examination.

During the year six examinations for candidates for certificates as underviewers and firemen-deputies were held—one at Auckland, on the 14th August; one at Dunedin, on the 4th September; one at Greymouth, on the 22nd November; one at Westport, on the 24th November; and two at Huntly, on the 17th and 18th January, and the 4th and 5th December respectively. Ninety-three candidates presented themselves for examination, thirty-seven for underviewers' certificates, and fifty-six for firemen-deputies' certificates. The number was thirty in excess of last year's total.

The examination held at Auckland on the 14th August last was somewhat of an innovation, and was done to meet the urgent representations of candidates in the North Auckland District and to save them both time and money in not having to proceed to Huntly. Only candidates for firemen-deputies' certificates were examined, there being no suitable room at the Inspector of Quarries' office, where the examination was held, to hold the written part of the examination for candidates for underviewers' certificates.

Twelve candidates were successful in gaining underviewers' certificates and thirty-eight were successful in gaining firemen-deputies' certificates. The certificates issued will in a number of cases come up for confirmation at the next annual meeting of the Board of Examiners under the Coal-mines Act.

The number of candidates offering themselves for examination under the Coal-mines Act again showed an increase over that of the previous year, but the number of candidates for examination under the Mining Act was again negligible.

The following holders of British certificates of competency as coal-mine managers were granted equivalent New Zealand certificates under the Coal-mines Act: First class—Hugh Brady, Dunedin; second class—James William Glendenning, Dobson, and William Paterson, Christchurch.

Mine-surveyors' certificates without examination were, in accordance with the regulations under the Coal-mines Act, granted to C. S. Beilby, Denniston, and James Alan Gibson, Rotowaro, the necessary qualifications being possessed by them.

A number of additional applications from holders of first-class colliery-managers' certificates for endorsement of their certificates as mine-surveyors in accordance with the regulations under the Coal-mines Act, 1925, were finally dealt with at the last annual meeting of the Board in December last, and the endorsement of their certificates was confirmed. The names of the applicants whose certificates were endorsed are given in the list appended. No further applications in this regard can be considered, as under the regulations applications were required to be made before the 1st January, 1928, and certificates had to be endorsed before the 30th June following.

A number of duplicate certificates to replace originals lost or accidentally destroyed were issued during the year. In addition, sixty-six gas-testing certificates were issued.

Service permits as oil-well managers were issued under the Mining Act during the year to J. R. Thompson, Morere, and J. W. Rawlinson, New Plymouth.

Mr. W. T. Neill (Surveyor-General) who had been a member of both Boards for some eight years retired on superannuation on the 31st December last.

Regulations were issued during the year giving effect to the provisions of the Mining Amendment Act, 1927, relating to the issue of dredgemasters' certificates.

The certificates issued or endorsed during the year, and which have been confirmed by the Boards, are as follows:—

COAL-MINES ACT, 1925.

First-class Mine-manager's Certificate.

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

Brady, Hugh, Dunedin.

Second-class Mine-managers' Certificates.

Issued after Examination.

Blair, Robert, Glen Massey.
Crump, Robert, Huntly.
Jones, Harry, Huntly.
Johnson, Edward, Pukemiro.
Smith, Joseph Wm., Puponga.
Thomson, David Bryson, Huntly.

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

Glendenning, James William, Dobson.
Paterson, William, Christchurch.

Mine-surveyors' Certificates.

Issued without Examination.

Beilby, C. S., Denniston.
Gibson, James Alan, Rotowaro.

Issued after Examination.

Rennie, John, Millerton.
Samuel, John Thomas, Dunedin.
Watson, John Reginald, Huntly.

First-class Mine-managers' Certificates endorsed under Regulation 8 (3) under the Coal-mines Act, 1925.

Bayne, John A. C., Wellington.
Baxendale, James, Auckland.
Brown, John Connel, Westport.
Crowe, William, Nelson.
Davies, Wilfred Charles, Huntly.
Forsyth, Matthew, Seddonville.
Gilbert, George, Millerton.
Hewitson, W. E. G., Denniston.
Hunter, Charles, Rotowaro.
James, Isaac Angelo, Greymouth.
McGhie, Thomas, Ngakawau.
Murray, Robert, Ohai.
Neilson, James, Blackball.
Nelson, Edwin, Granity.
O'Donnell Alphonsus, Roa.
Parsonage, William, Blackball.
Pendleton, Samuel, Rotowaro.
Penman, Alexander, Rotowaro.
Ross, John, Ohai.
Smith, Albert, Millerton.
Smith, George, Brunnerton.
Tattley, E. W., Auckland.
Thomson, Thomas, Ngaruawahia.

Underviewers' Certificates.

Hutchinson, Ianson, Huntly.
Kerr, David, Palmerston South.
Stirling, James, Huntly.
Williamson, George, Glen Massey.

Firemen and Deputies' Certificates.

Barclay, James Greig, jun., Fairfield.
Barnfield, Henry, Wairio.
Byers, William, Glen Massey.
Currie, William Nicol, Pukemiro.
Green, John Allen, Huntly.
Griffiths, Norman George, Runanga.
Henwood, John Richard, Ohai.
Hewison, Sydney, Dunollie.
Kelly, John, Runanga.
Lawson, Robert, Pukemiro.
Learmonth, Alexander, Glen Massey.
Mackenzie, Alexander Boyd, Waro.
Marsh, Thomas, Runanga.
McKinlay, William John, Whangarei.
Mitchell, Thomas, Glen Massey.
Page, John Skikelthorp, Runanga.
Penman, John, Hikurangi.
Rothwell, Thomas Green, Hikurangi.
Stewart, Robert, Whangarei.
Stirling, James, Huntly.
Taylor, Henry Burdon, Hikurangi.
Turnbull, Matthew Charles, Hikurangi.
Waugh, Alexander, Shag Point.
Whitelaw, James, Kaitangata.
Wilson, Robert, Pukemiro.

MINING ACT, 1926.

Oil-well Managers' Service Permits.

Rawlinson, John William, New Plymouth.
Thompson, James Ross, Morere.

Battery Superintendent's Certificate.

Issued after Examination.

Banks, John Gripper, Waikino.

I have, &c.,
J. A. C. Bayne,
Acting-Chairman of Boards.

The Under-Secretary, Mines Department, Wellington.

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