

1942.
NEW ZEALAND.

MINES STATEMENT

BY THE HON. P. C. WEBB, MINISTER OF MINES.

MR. SPEAKER,—

I have the honour to present to Parliament the annual statement on the mining industry of the Dominion for the year ended 31st December, 1941. The Statement has been considerably reduced in size owing to the need for conserving paper.

MINERAL PRODUCTION.

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 1941 and 1940 :—

Mineral.	1941.		1940.	
	Quantity.	Value.	Quantity.	Value.
Gold and silver	*	£ *	*	£ *
Platinum	35 oz.	286	..	..
Iron-ore	1,544 tons	3,894	1,188 ¹⁴ / ₂₀ tons	2,888
Stone .. .. .	..	528,313	..	540,820
Pumice	3,160 „	11,226	3,166 „	10,341
Coal	2,639,507 „	2,639,507	2,516,099 „	2,516,099
Tungsten-ore	67 ⁷ / ₂₀ „	13,463	74 „	16,006
Manganese-ore	752 ⁸ / ₂₀ „	2,995	980 ⁴ / ₂₀ „	3,266
Silica sand	2,034 „	2,756	1,354 ¹⁰ / ₂₀ „	1,569
Fuller's earth	109 ² / ₂₀ „	382	71 „	248
Diatomaceous earth	124 ² / ₂₀ „	508	..	..
Serpentine	7,861 „	6,780	..	..
Antimony	17 „	249	2 „	55
Bentonite	136 „	578	205 „	820
Quicksilver	21 ⁰ / ₂₀ „	5,043	..	..
Asbestos	53 ⁷ / ₂₀ „	240	..	..
Clays	1,272 „	1,273	..	..
Dolomite	2,672 „	1,336	2,743 „	1,371
Totals .. .. .	..	£3,218,829	..	£3,093,483

* Not available for publication.

NOTE.—The values shown in the above and subsequent tables are expressed in New Zealand currency.

GOLD AND SILVER MINING.

No statistical data concerning gold and silver production is being published this year. The decision not to publish these figures was made pursuant to a request made to the Government by another authority and follows the procedure adopted during the last war.

There have been no outstanding activities in the industry during the year. The dredging industry has been well maintained, and a few new dredges were put into commission. Early in the present year further consideration was given to the question of dredging policy and a statement made that in future it would be advisable for persons taking up areas with a view to testing their dredging possibilities to inquire as to the likelihood of dredging being permitted, and if so, as to the conditions which would be imposed upon any license which might be granted, before incurring any substantial expenditure on prospecting and boring. The Government has decided that where areas applied for as dredging claims contain good or potentially good farming-land, re-soiling, or at the least resurfacing, of the dredged land will be made a condition of any license, even if compliance therewith would render dredging operations uneconomical.

MINING PRIVILEGES.

A total of 387 licenses for mining privileges were granted under the provisions of the Mining Act, a decrease of 38 on the previous year. Of the licenses granted in 1941, 49 were licenses entitling the holders to mine for gold and included 6 special dredging claims.

Altogether 47 mining privileges, including 11 claim licenses and 16 water-race licenses, were struck off the registers under section 188 of the Mining Act.

PETROLEUM OIL.

Since the passing of the Petroleum Act, 1937, a thorough and intensive search has been prosecuted for oil by the three major companies operating in the Dominion. In addition to geophysical and geological investigations, topographical surveys, and palaeontological examinations, three wells all of which failed to disclose oil, have been drilled—at Totangi to a depth of 5,700 ft., at Morere to a depth of 6,643 ft., and at Midhirst to a depth of 10,925 ft. The last named is the deepest well ever drilled in this country.

Good progress is being made with the sinking of a further hole at New Plymouth. This is already down to a depth of over 3,000 ft. Three new and exceptionally large drilling-rigs will be operating in this country at an early date, one in the South Island and two in the North Island.

From the wells at Moturoa on Petroleum Prospecting License No. 7 held by New Zealand Petroleum Co., Ltd., 93,915 gallons of crude petroleum oil were obtained during 1941.

The Dominion's total production of crude petroleum oil to 31st December, 1941, is estimated at 3,177,917 gallons.

COAL-MINING.

There were 140 coal-mines operating in the Dominion in 1941. Fifty-seven of these mines are situated on freehold property and produced 1,132,490 tons, or 43 per cent. of the total output. The remaining 83 mines are situated on Crown lands and produced 1,507,017, or 57 per cent. of the total output of 2,639,507 tons.

The annual production of coal since 1937 has been as follows :—

Year.		Tons.	Year.		Tons.
1937	..	2,277,799	1940	..	2,516,099
1938	..	2,222,088	1941	..	2,639,507
1939	..	2,342,639			

During 1941 the quantity of coal imported was 78,171 tons or 13,311 tons more than in the previous year, whereas exports (58,179 tons) were 23,108 tons less than in 1940.

The output for the year under review of 2,639,507 tons is a record for the Dominion and represents an increase of 123,048 tons, or 4·9 per cent., on the 1940 production. During the past six years production of coal has risen by 524,323 tons, or nearly 25 per cent.

The output per miner employed underground during last year was 726 tons, or 56 tons higher than in 1940. This has been exceeded only once previously—namely, in 1916—when 752 tons per man underground was won. Again, production per man on the payroll—i.e., both underground and surface workers—was 528 tons, or 30 tons higher than in 1940. Only twice previously has this output been exceeded—viz., in 1915 and 1916, when the figures were 532 tons and 566 tons respectively.

The difficulties which have arisen recently as a result of further heavy increases in consumption consequent upon the entry of Japan into the war are being steadily overcome. This affected the supply position for householders, especially in the North Island, but it is expected that some improvement in the domestic supply will soon be possible.

Other problems of man-power and shipping have had to be faced, and it is not unlikely that other new problems will manifest themselves as time goes on. Under war conditions it is not reasonable to expect the maintenance of standards of service which can be given in times of peace, but there is no real need for concern as to the future in respect of supplies of coal.

A careful survey shows that the collieries now being developed and operated have adequate productive capacity to meet the country's fuel needs, both for the present and for some years to come. It is not considered desirable or necessary, therefore, to open up new collieries, but it is essential that all collieries now operating continue in production. To achieve this the Government has taken over mines which have been abandoned by former owners and has extended aid to others which could not carry on without financial assistance.

The following is a table showing the output of coal from the various coalfields, and the comparative increase and decrease, for the years 1941 and 1940, 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, 1941.
	1941.	1940.			
	Tons.	Tons.	Tons.	Tons.	Tons.
North Auckland	80,367	81,411	..	1,044	6,132,313
Waikato (including Taranaki) ..	837,629	788,559	49,070	..	19,296,386
Nelson	14,360	16,166	..	1,806	714,671
Buller	519,095	504,647	14,448	..	26,960,890
Reefton	72,030	69,875	2,155	..	1,255,544
Grey	570,610	533,369	37,241	..	19,344,646
Canterbury	27,898	26,893	1,005	..	1,199,604
Otago	184,646	188,508	..	3,862	14,346,243
Southland	332,872	306,671	26,201	..	8,725,378
Totals	2,639,507*	2,516,099	130,120	6,712	97,975,675

* Increase, 123,408 tons,

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

Class of Coal.	Output of Coal during 1941.				Total Output to the End of 1941.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Total.	
Bituminous and sub-bituminous	Tons. 80,367	Tons. 1,099,214	Tons. ..	Tons. 1,179,581	Tons. 55,153,167
Brown	837,629	76,136	412,245	1,326,010	37,009,976
Lignite .. .. .	..	745	133,171	133,916	5,812,532
Totals for 1941 ..	917,996	1,176,095	545,416	2,639,507	97,975,675
Totals for 1940 ..	869,970	1,124,057	522,072	2,516,099	95,336,168

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 1937 ..	85,977,543	..	13,583,196	..	..
1937	2,277,799	Inc. 137,582	116,499	5,421	..
1938	2,222,088	Dec. 55,711	109,206	..	7,293
1939	2,342,639	Inc. 120,551	111,537	2,331	..
1940	2,516,099	Inc. 173,460	64,860	..	46,677
1941	2,639,507	Inc. 123,408	78,171*	13,311	..

* From Australia; value, £96,128.

TABLE SHOWING QUANTITY OF COAL EXPORTED ANNUALLY FROM NEW ZEALAND FROM 1937 TO 1941.

Year.	Quantity. Tons.	Year.	Quantity. Tons.
1937	113,116	1940	81,287
1938	55,711	1941	58,179*
1939	43,990		

* Includes 58,814 tons bunkers, value £103,164, and 5,365 tons cargo, value £6,336.

STATE COAL-MINES.

The output from the State coal-mines for the financial year 1941-42 was 354,708 tons, compared with 281,506 for the previous year. This is the highest output ever recorded in the history of the Department, and all collieries, except Liverpool, contributed to the increase. There was a slight decrease of 1·7 per cent. in the production at the Liverpool Colliery.

The Blackball Colliery, which was about to be abandoned by the owners, was taken over by the State during the year and operated as a State colliery. Development work was pushed ahead in the hope of locating an area of coal which would be less friable than that being worked, but without success so far. The Department is now pushing ahead with plans to establish a briquetting-works to enable it to increase output to an economic level. A geological survey of an area in the vicinity of the mine was carried out during the year, and a boring programme is now being put in hand to determine the possibilities of the field.

Satisfactory progress was made at the two State collieries in the North Island which were taken over in 1940. At Mangapehi development has proceeded during the year and a boring programme is now in progress. The Tatu Mine has not yet been placed on a proper trading basis owing to the fact that the major proportion of the work has been of a developmental nature. Major development is now reaching an end and trading accounts will be commenced as from 1st October next.

Full details in respect of the operations at the collieries appear in the annual report of the State Coal-mines (C.-2A). At the time of writing this report the financial accounts have not been completed and audited, but the provisional figures indicate a satisfactory trading year. These accounts will also be presented in the annual report of the State Coal-mines.

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

Mine.	Output in Tons, 1941-42.		Output, in Tons, 1940-41.		Percentage Increase in Gross Output.	Percentage Increase in Net Output.
	Gross.	Net.	Gross.	Net.		
Liverpool	163,799	157,170	166,529	159,610	1·7*	1·6*
Strongman	87,402	85,381	78,262	76,330	11·7	11·8
James	26,549	25,809	22,936	22,045	15·8	17·0
Blackball	25,950	25,773	..	..	..	..
Mangapehi	40,849	38,920	13,213	12,065	209·1	222·6
Tatu	10,159	8,875	566	566	..	..
Totals	354,708	341,928	281,506	270,616	26·0	26·4

* Decrease.

NOTE.—The difference between the gross and the net output is the allowance for mine consumption and waste. In addition to the above, 17,760 tons of coal was purchased for resale.

The disposals, inclusive of stock on hand at the beginning of the year, were as follows :—

Supplied to						1941-42.	1940-41.	Percentage Increase.
						Tons.	Tons.	
Depots .. .. .	..	..	..	..	..	118,430	75,860	56·2
Railways .. .. .	..	..	..	..	..	72,506	56,322	28·8
Other Government Departments .. .. .	..	..	..	..	..	18,309	13,630	30·0
Shipping .. .. .	..	..	..	..	..	8,131	9,132	10·9*
Gasworks .. .. .	..	..	..	..	..	107,522	102,627	4·7
Other consumers .. .. .	..	..	..	..	..	13,519	10,278	31·5
Totals .. .. .	..	..	..	..	..	338,417	267,849	26·4

* Decrease

The following table shows the total sales of State coal from the State mines as compared with the previous year, and the average f.o.r. price realized by each mine, *exclusive of subsidy* :—

Mine.		Total Sales, 1941-42.	Total Sales, 1940-41.	Percentage Increase.	Average Price f.o.r. realized.	
		Tons.	Tons.		s.	d.
Liverpool .. .. .	..	155,349	157,706	1·6*	18	2·85
Strongman .. .. .	..	80,754	75,535	6·9	21	7·19
James .. .. .	..	26,190	21,989	19·6	18	2·59
Blackball .. .. .	..	22,415	..	..	16	5·42
Mangapehi .. .. .	..	38,851	12,053	222·3	19	7·47
Tatu .. .. .	..	14,858	566	..	20	4·13
Totals .. .. .	..	338,417	267,849	26·4	..	..

* Decrease.

The sales of coal, &c., through the medium of the depots totalled 263,800 tons, value £441,337, as against 194,619 tons, value £341,385 for the previous year.

HOUSING.

Up to the end of June, 1942, a total of 103 loans have been granted to miners and other workmen under the State Coal-mines Housing Scheme to enable them to erect and own their own homes. No departmental rental dwellings were erected in Runanga during the year, but plans of a single men's hostel are being prepared, for which tenders will be invited shortly. At the Tatu Mine one residence for a colliery clerk was built, six other dwellings for workmen are in course of construction, and twelve married men's hutments were erected near the mine itself.

At Benneydale, the township at which the Mangapehi workmen reside, a total of forty-two houses have been erected, some of which have not been quite finished, and, in addition to a number of comfortable single men's hutments, a hostel to provide improved accommodation for single men is nearly completed.

CO-OPERATIVE MINING, STATE COAL RESERVE.

Nineteen co-operative parties working portions of the State Coal Reserve near Greymouth produced during the year 1941, 85,333 tons, the number of men employed being 152. During the previous year nineteen parties produced 95,553 tons, there being a decrease this year of 10,220 tons.

Up to the end of 1941 co-operative parties have produced a grand total of 1,625,603 tons of coal and have in the same period paid royalties to the State amounting to £77,162.

RESCUE-STATIONS.

The rescue-station buildings at Rotowaro and Ohai have now been completed, and residences for the officers in charge are under construction.

Practically all the equipment for these stations is being obtained from overseas, and as the result of war conditions there has been some delay in deliveries. However, equipment is now coming to hand and it is expected that training will soon be commenced at these new stations.

Courses of training continue at the Dobson Rescue-station, and excellent progress is still being made by the trainees.

SOCIAL AMENITIES IN MINING TOWNSHIPS.

Further assistance was extended during the year in the construction of swimming-baths, tennis-courts, bowling-greens, &c., in pursuance of the Government's policy of improving living-conditions in the mining townships.

CARBONIZING AND BRIQUETTING.

The following figures show the production of the low-temperature coal-carbonizing and briquetting plant of Waikato Carbonization, Ltd., at Rotowaro, during 1941 :—

Raw coal carbonized .. .. .	..	..	..	..	32,260 tons.
Carbonized coal produced .. .. .	..	..	..	..	15,807 tons.
Average percentage of carbonized coal to raw coal .. .. .	..	..	..	..	49 per cent.
Carbonettes manufactured .. .. .	..	..	..	..	14,300 tons.
Tar and oil treated .. .. .	..	..	..	..	289,933 gals.
Pitch produced .. .. .	..	..	..	..	592 tons.
Light and heavy oils produced .. .. .	..	..	..	..	6,973 gals.
Creosote produced .. .. .	..	..	..	..	140,926 gals.
"Char" sold for producer-gas plants .. .. .	..	..	..	..	2,939 tons.
"Char" sold for other purposes .. .. .	..	..	..	..	444 tons.

Towards the end of the year the demand for "char" for motor-vehicles fitted with producer-gas units increased considerably, and production of this commodity is at present about 200 tons weekly. Owing to the heavy demands by industries for slack and other classes of coal it was necessary to operate the plant with only one carbonizer in operation. Furthermore, it is unlikely that the second carbonizer will be allowed to operate during the present year.

For the twelve months ended 31st December, 1941, Smokeless Fuel and Briquettes (Canterbury), Ltd., produced 5,600 tons of briquettes at its works at Sockburn. The production of tar was 30,000 gallons.

SUBSIDY ON COAL-PRODUCTION.

As a result of the national agreement on wages and conditions of coal-miners entered into on 1st May, 1942, the Government decided, pursuant to its policy of stabilization to grant a further subsidy to owners to meet the additional costs involved. This subsidy, which will vary from 1s. to 1s. 6d. per ton for major collieries, is being met from the War Expenses Account, as is the original subsidy which was granted for a like purpose in May, 1940. A further small subsidy to cover the increase of 2½ per cent. in sea freights granted by the Price Investigation Tribunal in respect of coal carried in coastal vessels is being paid out of the same account. This subsidy is expected to cost about £12,000 per annum.

COAL-MINES COUNCIL.

The Council made several visits to the coalfields during the year and performed valuable work in adjudicating on industrial disputes, its decisions being loyally accepted by all parties. The advice of the Council was also sought on a number of other issues of importance to the industry.

MINING CONTROL.

It has been a very busy year for the Mining Controller and his assistants, but, having secured the confidence and co-operation of all those connected with the industry, the work has been made much easier than would otherwise have been the case and a minimum of control has been necessary.

Last year attention was drawn by the Mining Controller to the acute situation which was likely to arise in regard to man-power. This matter was recently represented to the War Cabinet and a decision obtained to transfer men with mining experience from the military forces back into the mines.

Considerable progress has been made in building up stocks of equipment vital to the continuity of production, and with the exception of one or two lines, which should arrive at any time, the position is good in this respect.

Wholesale distribution has received attention with good results, and plans have been completed for an improvement in housing at the mining townships in certain areas.

COAL-MINERS' RELIEF FUND.

The Coal-miners' Sick and Accident Funds having been abolished as from the 1st April, 1926, and incorporated in the Coal-miners' Relief Fund, all accident-relief payments are now made from the latter fund, which is administered by the Public Trustee.

The rate of interest allowed on the fund was decreased from 4 per cent. to 3½ per cent. as from the 1st April, 1933.

The interest earned for the twelve months ended 31st March, 1942, was £679 7s. 10d., as against £735 13s. 7d. for the previous year, while for the same periods the receipts from the ½d. per ton contributions were £5,543 14s. 1d. and £5,268 7s. 11d. respectively.

The total expenditure for the year ended 31st March, 1942, amounted to £9,385 13s. 9d., as against £7,231 9s. 3d. for the previous year.

The amount standing to the credit of the fund at the 31st March, 1942, was £17,777 0s. 8d. as against £20,939 12s. 6d. at the 31st March, 1941.

PERSONS EMPLOYED IN OR ABOUT MINES AND STONE-QUARRIES AND IN OIL-PROSPECTING OPERATIONS.

The following table shows the number of persons employed in each inspection district during 1941 and 1940 :—

Classification.	Inspection District.			Totals.		
	Northern (North Island).	West Coast (of South Island).	Southern (Rest of South Island).	1941.	1940.	Increase or Decrease.
Gold, silver, and tungsten ore	632	1,076	617	2,325	2,738	Dec. 413
Coal	1,767	2,303	921	4,991	5,046	Dec. 55
Stone - quarries under the Stone-quarries Act	1,396	85	491	1,972	1,952	Inc. 20
Silica	2	..	6	8	5	Inc. 3
Cinnabar	22	..	..	22	20	Inc. 2
Iron ore	10	11	..	21	21	..
Manganese	9	..	..	9	12	Dec. 3
Pumice	1	..	..	1	1	..
Fuller's earth	1	..	..	1	..	Inc. 1
Diatomaceous earth	1	..	1	2	..	Inc. 2
Bentonite	2	..	..	2	3	Dec. 1
Serpentine	6	..	..	6	2	Inc. 4
Asbestos .. ..	..	10	..	10	..	Inc. 10
Dolomite .. ..	..	4	..	4	..	Inc. 4
Clay .. ..	..	2	4	6	..	Inc. 6
Antimony .. ..	..	..	3	3	..	Inc. 3
Oil prospecting	153	21	..	174	178	Inc. 4
Totals	4,002	3,512	2,043	9,557	9,978	Dec. 421

The principal decrease was in the gold-mining industry, which was affected by the calls for military service and the diminution in the number working small alluvial claims. The decrease in the numbers employed in coal-mines may be attributed mainly to the fact that there is no field available for the recruitment of labour to replace the annual wastage due to accidents, sickness, and retirements through age.

MINING AND QUARRY ACCIDENTS.

In metalliferous mines, at which 2,420 men were ordinarily employed, four persons were killed and three persons seriously injured.

At stone-quarries under the Stone-quarries Act, employing 1,972 men, five persons were seriously injured. There was one fatal accident.

In coal-mines, where 4,991 persons were ordinarily employed, four persons were killed and twenty persons seriously injured.

The inspection of mines and quarries was maintained at the highest possible level during the year and full investigation made into the circumstances of every fatal and serious accident. In each case the Department's and workmen's inspectors reported "no blame attachable to any one."

MINERALS OTHER THAN GOLD.

The exigencies of war give ever increasing importance to the production of minerals other than gold, especially those which come within the category of strategic minerals. The loss of valuable supplies in the Far East from countries invaded by Japan has considerably aggravated the situation, and it is now fully recognized that for the duration of the war their value far transcends that of gold to the united allied cause.

The main difficulty encountered has been the general shortage of mining equipment and skilled man-power, but this must be overcome even at the expense of future gold-production. Accordingly I have had no hesitation in suspending prospecting operations by the Mines Department at the Golden Treasure Mine, Reefton, despite recent promising development, and transferring the staff and equipment to Glenorchy in the effort to increase the production of tungsten ores.

Salient points in the development of these minerals during the year have been increased development of scheelite deposits which should result in increased production in the future, the resumption of the production of mercury in New Zealand, the location and prospecting of mica deposits which it was hoped would prove valuable on thorough investigation, though results of this work have proved disappointing, and of increased interest in the development of non-metallic mineral deposits.

SHEELITE.

This still remains the most important strategic mineral produced in New Zealand. Its importance has, of course, increased enormously owing to the loss of supplies from Burma and China, the world's major producers. Short supply and increased demand have resulted in a sharp upward trend in the price of tungsten-ores, the price at which Portugal is now supplying the Axis powers being fantastically high.

The Imperial Government, to whom the whole of the scheelite produced in New Zealand is now sold under contract, has recognized this general increase in prices, and New Zealand ores are now being purchased at £6 sterling per unit on similar terms to those previously operating. This agreement is for a term of two years, and should be an incentive for small producers to undertake development work and thereby increase production.

Despite increased effort and a considerable measure of assistance by the Mines Department, the production of scheelite fell from 74 tons in 1940 to 67 tons in 1941. This is due in great part to the erratic distribution of scheelite in the various lodes and the leeway to be made up in development work. The latter problem has been given continuous consideration by my Department, and eventually it was decided that the only manner by which it could be overcome was by the Department itself taking an active part in development work. To this end the Government has acquired two mines in the Glenorchy district, and active development work is now proceeding at both of them.

Prospecting operations were continued by the Department in the Wakamarina district, but the occurrence at Mountain Camp Creek proved disappointing on development, and operations were transferred to an unexplored section of the Golden Bar Mine, which was an important producer of scheelite during last war. Recent work at this occurrence has been encouraging, but much work requires to be done before its value can be assessed.

In general, I am endeavouring to have every occurrence of scheelite-ore that presents any possibilities investigated, either directly by the Mines Department or by independent prospectors with assistance from the Department.

MERCURY.

It is pleasing to report the resumption of the production of mercury in New Zealand, especially as mercury is of prime importance in the munitions industry, and the deposit at Puhipuhi appears the only one either in New Zealand or Australia capable of sustained production.

Considerable enterprise has been shown by the principals of Mercury Mines, Ltd., in overcoming the many difficulties inherent in such an undertaking, especially in wartime with shortages of both equipment and skilled labour. The modern and well designed treatment plant reflects much credit upon them.

In addition to these operations, the Mines Department has been investigating cinnabar occurrences, and is at present prospecting the Ascot Mine at Karangahake. Results so far have been sufficiently encouraging to indicate that a small but worthwhile tonnage of high-grade ore may be developed, and prospecting work is being continued.

MICA.

It is of considerable interest, considering the strategic value of mica, that deposits of this mineral have been located in south Westland. A preliminary investigation of these deposits by officers of the Geological Survey was sufficiently encouraging to justify much more detailed work. As a first step the area containing the deposits has been photographed from the air and a well-organized prospecting party, containing officers of both the Geological Survey and the Mines Department, have now made a comprehensive survey of the area. Access to the area is difficult, and the party worked under considerable difficulties at high altitudes at a most unseasonable time of the year. Unfortunately, detailed work has shown that the mica is rather small and occurs very spasmodically, and the possibilities of producing commercial mica seem limited. However, the effort to locate supplies of this essential mineral was well justified by its importance to the war effort.

COPPER.

A geophysical survey of the copper deposits at Kawau Island was recently made by an officer of the Geological Survey, but the results were disappointing in not showing any extension of the known deposits, and further reserves of copper ore must be sought in depth. Accordingly it is proposed to explore by diamond drilling the ground below the old workings, and this work should commence at an early date. It is not expected that this deposit will be large enough to justify the construction of a copper smelter in New Zealand and make New Zealand self-sufficient as to copper supplies, but it is possible that a tonnage of ore sufficient to provide a useful amount of concentrates for shipment to Australia may be established.

NON-METALLIC MINERALS.

The development of many industries now calls for the search for, exploitation, and beneficiation of many non-metallic minerals. There is an increasing demand for such minerals in properly processed form in New Zealand, and the war has made increasing demands upon New Zealand's own deposits of these minerals.

While many of these minerals are known to exist in commercial quantity, the industry has suffered from the lack of fine grinding and processing equipment, and many have not been thoroughly investigated. It is accordingly of interest to report that a group with adequate financial resources and technical guidance is now making a thorough survey of the whole field, with a view to erecting a modern processing-plant. Such a plant would handle a range of minerals such as bentonite, talc, diatomaceous earth, &c., and it is conceivable that valuable export markets abroad will in time be developed for their products.

OIL-SHALE.

The main development in the investigation of New Zealand's oil-shale resources has been the testing of a representative sample of shale from Orepuke by the chemical staff of National Oil Proprietary, Ltd., at Newnes, in New South Wales. Results of the testing work were disappointing in indicating that the high sulphur content of the crude oil made the production of a satisfactory motor-spirit exceedingly difficult, if not impossible.

The Nevis deposits have now been surveyed in detail, and indications are that an immense tonnage of oil-shale can be developed at this locality, but the grade is consistently low.

It has now become increasingly apparent that any production of oil from shale deposits must be subsequent to extensive and exhaustive testing work. The facilities for such work at the present time under war conditions are not available, while any consideration of obtaining plant and equipment is out of the question. It follows that, despite the importance of the production of oil in New Zealand at the present time, exploitation does not come into the realm of practical politics and must be deferred till the post war years.

LABORATORY INVESTIGATIONS.

As in previous years, the Dominion Laboratory carried out a considerable amount of analytical and investigational work connected with the mining industry. A small number of prospectors' samples were examined for gold and silver. A further large number of samples taken in connection with the survey of the Onekaka iron-ore deposits and various other ores, including scheelite concentrates, were also examined. A number of samples of mine airs, gases, and stone-dusts were analysed in connection with safety measures in mines. The Coal Survey Laboratory continued the systematic survey of the coal resources of the Dominion, but the programme was modified to deal mainly with problems connected with war conditions and all long-range work was suspended. Besides the work of the survey, 289 samples were analysed, including producer fuels (char and charcoal), shales, peats, &c. The analysis of over one hundred samples of peat from the Chatham Island was a major investigation undertaken to determine the value of the deposit as a source of wax. The wax is being investigated as a possible substitute for montan or other waxes.

GEOLOGICAL SURVEY.

During the year ended on the 31st March, 1942, little detailed geological mapping was carried out, the time of most officers, in whole or in part, being devoted to the examination of deposits of useful minerals. In order to assist the oil companies in solving problems of stratigraphy and structure the palaeontologists identified mollusca and foraminifera in many samples. To the same end the petrologist determined the heavy minerals in extensive series of Tertiary rocks from the Rangitikei and North Westland districts. This officer also examined numerous samples for the Dominion Laboratory and ganisters for the railway workshops.

The bands of igneous rock impregnated with sulphides outcropping along or near the west coast of D'Urville Island were mapped and sampled. The deposits, though large, seem to be much too low in sulphur to be workable.

Barite, a fairly common mineral, is a valuable paint pigment. Small veins in the coal-measures near Stockton Mine, Westport, were found to resemble similar deposits long known to occur in this district.

Before the high-grade phosphate from Nauru and Ocean Islands came on the market, phosphate rock was quarried at Clarendon, near Milton. This locality was re-examined, and geophysical work to assist prospecting carried out. Sampling of the phosphatic horizons long known in North Otago confirmed the earlier unfavourable opinion.

Vast supplies of serpentine containing about 35 per cent. of magnesia are available in the broad belt of this rock extending north and south through the eastern part of D'Urville Island. Two areas where the rock may be conveniently quarried and shipped were mapped in detail and soundings taken of the adjacent inlets.

Talc of good quality occurs in connection with the serpentine of D'Urville Island and two localities there, and another on the neighbouring mainland were examined. The deposits are poorly exposed, and prospecting will have to be undertaken to ascertain their extent and general quality.

From time to time specimens of mica of good size and quality have been obtained in south Westland and north-west Otago. Two geologists traversed this inhospitable country, visited reported occurrences, and found a promising deposit. Tracks to the mountain tops where the rock is best exposed are necessary before prospecting can be efficiently undertaken.

Several deposits of clay in North Auckland were examined and samples were obtained from the Mangapehi, Ohura, Westport, and Grey coalfields in connection with a report on New Zealand fireclays and ganisters now being prepared.

The deposit of oil-shale in the Nevis Valley was mapped in greater detail than was possible last year and estimates made of the amount of shale. The deposit is large and suitable for open-cut mining, but unfortunately it is of poor quality.

The mapping of the Grey coalfield is approaching completion, the chief area as yet unsurveyed in the great detail necessary for the work being that about Paparoa. The geologists engaged on this survey have now a good knowledge of the sequence and structure of the coal-measures, and the coal-mining industry is making increasing use of their services. From a third to a half of their time is taken up in reporting on faulting and thinning problems of the existing mines, in selecting sites for prospecting-bores, and in suggesting areas suitable for exploitation by working parties.

The geophysical examination of possible sites for dams for hydro-electrical-power development was continued on the Waikato River between Atiamuri and Cambridge. An officer, after testing the area in the vicinity of the copper deposit worked on Kawau Island nearly one hundred years ago, recommended prospecting.

SCHOOLS OF MINES.

The District Committees in which the control of the Schools of Mines is vested continue to take very active interest in their work. The increased interest displayed in the work of the schools augurs well for the future of the mining industry.

The value of the scholarships offered annually by the Department for competition among students attending Schools of Mines within the Dominion has been increased to £65 per annum in the case of students who have to reside away from home while attending the University of Otago, and to £45 in the case of students who are able to reside at home while attending the University.

At the annual examination held in November, 1941, nine scholarship candidates presented themselves for examination. Scholarships were awarded to two candidates from the Dunedin School and one from the Thames School. Two candidates from the Thames School were awarded partial passes.

The expenditure in the Schools of Mines for the year ended 31st March, 1942, was £3,390, as compared with £3,360 for the previous year.

MINERS' BENEFITS.

The provision for payment of a miner's benefit is contained in the Social Security Act, which has been operative since the 1st April, 1939.

One of the necessary conditions precedent to payment of the benefit is that the applicant should be seriously and permanently incapacitated by miners' phthisis or totally incapacitated by heart or other occupational disease associated with the mining service in New Zealand.

The rate of benefit for the miner is 30s. a week, and this may be increased by 10s. a week in respect of the wife. There is also provision for the payment of a grant of 10s. a week for each dependent child under the age of sixteen years, with a maximum grant in any particular case of £1 10s. weekly, but the benefit in respect of the children is reducible by all income of the family other than the miners' benefit in excess of £2 a week.

The widow of a miner who died while in receipt of a benefit may be granted a benefit of 17s. 6d. per week during widowhood.

This scheme, which originated in the Miners' Phthisis Act, 1915, is administered by the Social Security Commission, and the following summary of the operations for the year ended 31st March, 1942, has been supplied by the Social Security Department:—

Miners' Benefits.

	£
Payments from 1st November, 1915, to 31st March, 1941	1,260,140
Payments from 1941-42	83,280
	<hr/>
	£1,343,420
	<hr/>
Number of new grants for year 1941-42—	
Male	23
Female	8
	—
	31
Number of benefits in force, 31st March, 1942 (including two emergency)—	
Male	755
Female	133
	—
	888
Annual value of benefits in force at 31st March, 1942	£81,393
Average benefit per annum	£91 13s. 2d.
Dissection of benefits—	
Single miners	228
Married miners	527
Miners' widows	133
	—
	888

ASSISTANCE TO MINING.

During the financial year ended 31st March, 1942, assistance has been extended to the mining industry on a basis similar to past years. A sum of £25,238 was advanced to promote and maintain coal-production, £4,954 to scheelite-mining, and £7,760 to gold-mining. In addition, assistance to individual prospectors seeking gold and scheelite absorbed £9,775, and the Department itself expended £8,611 in prospecting and development work on strategic minerals.

This policy will be pursued during the coming year, except that no assistance will be available to new gold-mining ventures or for the working of alluvial gold deposits. The subsidized gold-mining scheme was terminated on the 30th June, 1942.

The activities of the Department and its policy of financial assistance will be devoted entirely to strategic minerals during the war period.

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, 5th June, 1942.

I have the honour to present my report on metalliferous mines and stone-quarries for the year ended 31st December, 1941.

Owing to the necessity to conserve space, and other circumstances, no details are given on gold-mining, nor, as in former years, are any statistics included regarding the production from quartz-mining, dredge mining, or alluvial mining.

ACCIDENTS.

In 1941 four fatal and three serious non-fatal accidents occurred in or about metalliferous mines, at which 2,420 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
Explosives .. .. .	..	..	..	..
Miscellaneous, on surface	3	3	2	2
Miscellaneous, underground	1	1	..	..
Totals	4	4	3	3

Two of the fatalities occurred at the Martha Mine, in the Northern District, one in the West Coast District and the fourth in the Southern District.

On 31st March a bracedman stood on a nail, sustaining a slight punctured wound of the right foot. Tetanus developed some days later, with fatal results.

On 9th July a miner, carrying fishplates in from the surface, walked into an open winze near which he had been working and fell 90 ft., sustaining injuries from which he died a few minutes later. To prevent a similar accident occurring, it is intended to require by regulation the installation of an approved grid and, where necessary, a substantial railing to bar off the winze.

The West Coast District mining fatality occurred on 22nd February when an old miner jumped off a punt which had got out of control in the Mokihinui River. He died from the shock, and his body was not recovered for some days.

On 14th June a Chinese hurrying along an old track near the Nevis Water-race to resume work after his lunch fell about 50 ft. into the elevator paddock, and broke his neck. No one saw the happening, but about three-quarters of an hour afterwards his body was seen by another workman above the 3 ft. of water in the paddock.

Of the three serious but non-fatal accidents, two occurred in the Martha Mine, in the Northern District, and the third in the Big River Mine, in the West Coast District.

GOLD-MINING.

No new quartz-mines were opened up during the year.

The twelve dredges working in the West Coast District at the end of 1940 continued operating throughout 1941.

White's electric dredge was dismantled, and it has been transferred to Waipuna, where it will be reconstructed.

Early in 1941 the Snowy River and Red Jacks dredges commenced operating. The Marsden dredge was completed, and the construction of the Slab Hut and No. 1 Atarau dredges well advanced. The completion of the building of the Mawheraiti and No. 2 Atarau dredges has been deferred.

The five dredges working in the Southern District at the end of 1940 continued to operate.

PROSECUTIONS.

No informations were laid by the Inspectors of Mines.

MINERALS OTHER THAN GOLD.

Antimony.—Near Alexandra, in Central Otago, 17 tons of antimony ore, valued at £249, was mined.

Asbestos.—From 620 cubic yards of serpentine 53½ tons of asbestos fibre was produced by open-casting in the Upper Takaka field.

Bentonite and Fuller's Earth.—At Porangahau 136 tons of Bentonite, worth £578, was mined. At Kamo 109 tons of Fuller's earth, worth £382, was produced.

Diatomite.—At Kamo about 30 tons of diatomaceous earth, worth £336, and at Ngongotaha about 15 tons, worth £60, were produced. In Otago 79 tons of low-grade diatomaceous earth, valued at £112, was mined.

Dolomite.—From Mount Burnett 2,672 tons of dolomite was mined.

Iron.—From Mount Burnett 310 tons of limonite, valued at £93, was quarried. Near Whangarei 275 tons of limonite, valued at £1,067, was mined, and at Okaihau North Auckland, a further 959 tons of limonite, valued at £2,733, was won.

Manganese.—At Moumoukai 603 tons of manganese ore was won from Cloudesley's Mine.

At the Mirandite Products Co.'s mine, 148 tons was mined, of which 58 tons was shipped to New South Wales.

Mercury.—From the new opencast workings at Puhipuhi 1,300 tons of ore was treated and over 2½ tons of mercury was recovered. Some prospecting at an old cinnabar claim at Karangahake was done towards the end of the year.

Mica.—Some outcrops were discovered in South Westland.

Petroleum.—Geological and geophysical surveys of possible areas were continued in the West Coast District of the South Island and also in North Island districts.

The Morere and Midhirst bores reached depths of 6,683 ft. and 10,918 ft. respectively. No oil being met, the drills were stopped and moved to other sites.

From the three producing wells owned by Motorua Oilfields, Ltd., Nos. 1, 2, and 4, a total of 93,915 gallons of petroleum was obtained, all of which was treated by New Zealand Oil Refineries, Ltd.

Platinum.—Together with the gold recovered at a sluicing claim at Round Hill, Southland, 35 oz. of platinum, valued at £286, was saved.

Pumice.—From the Wanganui River 150 tons of pumice, valued at £328, was recovered.

Pottery Clay.—From a mine near Kaka, in the Nelson District, 470 tons of pottery clay was mined for the manufacture of insulators, and, for various purposes, 802 tons of high-grade clays were produced from the Otago and Canterbury pits.

Serpentine.—To augment the supply of fertilizer, 7,861 tons of serpentine, valued at £6,780, was mined in the Waiwera and Mahurangi Survey Districts.

Silica.—From the Wanganui and North Auckland districts, 416 tons of silica, valued at £985, was produced.

In the Southern District 1,618 tons of silica sand was won.

Sulphur.—No work was done on any sulphur deposit during the year.

Tungsten.—From old tailings at Wakamarina 6 cwt. of scheelite concentrates was recovered.

From the Glenorchy and Macrae's districts of Otago, 67 tons of scheelite concentrates, valued at £13,403, were produced.

STONE-QUARRY INSPECTION AND STATISTICS.

By section 2 of the Stone-quarries Amendment Act, 1920, the application of the Stone-quarries Act, 1910, 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. The Act also applies to any tunnel in the construction of which explosives are used, but it 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 1941 :—

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.
Auckland ..	R. T. H. Dale, Mines Dept., Huntly	220	990	Tons. 843,029	Tons. ..	Tons. ..	Tons. 198,903	Tons. 266,352	Tons. ..	Tons. 43,320	£ 244,112
	E. J. Scoble, Mines Dept., Waihi (Hauraki Mining District only)	23	104	78,316	..	3,423	..	..	..	..	27,893
Hawke's Bay	R. T. H. Dale, Mines Dept., Huntly	23	72	23,573	..	..	40,874	..	..	..	15,067
Taranaki ..	Ditto	26	97	39,243	..	..	..	..	..	..	8,057
Wellington ..	„	33	133	104,028	4,055	..	80,117	..	..	12,000	47,219
Nelson ..	G. W. Lowes and R. C. Ruffin, Mines Dept., Grey-mouth	21	85	15,899	5,880	318	20,031	46,984	..	2,388	16,217
Westland ..											
Buller ..											
Marlborough	T. McMillan, Mines Dept., Dunedin	49	491	119,053	37,320	4,151	388,549	49,585	..	..	169,748
Canterbury											
Otago ..	T. McMillan, Mines Dept., Dunedin	49	491	119,053	37,320	4,151	388,549	49,585	..	..	169,748
Southland ..											
Totals, 1941	..	395	1,972	1,223,141	47,255	7,892	728,474	362,921	..	57,708	528,313
Totals, 1940	..	367	1,952	1,228,950	106,560	10,615	593,995	404,386	..	88,482	540,820

QUARRY ACCIDENTS.

The following is a summary of serious accidents during 1941 at quarries under the Stone-quarries Act :—

Cause.							Number of Accidents.		Number of Sufferers.	
							Fatal.	Serious.	Killed.	Seriously Injured.
Haulage ..	..	..	..	..	..	..	..	..	..	..
Machinery ..	..	..	..	..	..	..	1	1	1	1
Explosives ..	..	..	..	..	..	..	..	1	..	1
Falls of ground ..	..	..	..	..	..	..	..	1	..	1
Miscellaneous ..	..	..	..	..	..	..	..	2	..	2
Totals ..	..	..	..	..	..	..	1	5	1	5

One fatal accident (in a North Island quarry) occurred during 1941, and none in the South Island quarries.

On 23rd January a motor attendant died from injuries he received by being drawn into the terminal roller of a conveyor belt at the Mount Eden Quarry.

Of the five serious but non-fatal accidents at quarries, three were in the North Island and two in the Southern District.

PROSECUTIONS.

Convictions were obtained against two persons in the Northern districts. A quarry foreman was fined £5 and costs for storing detonators with other explosives, and convicted and ordered to pay costs for not making a written report of his daily inspections.

The occupier of a quarry who was not certificated was fined £5 and costs for acting as quarry-manager, and convicted and ordered to pay costs for not notifying the Inspector of renewing quarrying operations.

STATE AID TO MINING.

(1) SUBSIDIZED PROSPECTING.

During the year ended 31st March, 1942, individual gold prospectors were assisted from the Mines Department vote to the extent of £9,775. This sum includes all payments made in respect of subsidies, wages, and equipment connected with the Department's subsidized gold-mining scheme, but does not include salaries and allowances paid to mining engineers and supervisors. The average number of men employed under the scheme was 110.

In addition, a total sum of £34,203 was advanced by way of subsidy, loan, or other form of financial assistance to companies and individuals engaged in prospecting and/or mining for gold, coal, and other minerals.

The Department has also undertaken surveys, prospecting, mining, and development work in selected areas at a cost of £7,949.

(2) GOVERNMENT PROSPECTING DRILLS.

During the year the Department's drills were hired out on ten occasions to various companies and parties. One hundred and eighty-five holes were drilled for a footage of 10,064 ft.

(3) SUBSIDIZED ROADS TO MINING AREAS.

The expenditure in the form of subsidies and direct grants upon roads and tracks to mining areas amounted to £1,283 13s. 5d., as compared with £958 14s. 10d. during the previous year.

LEGISLATION AFFECTING METALLIFEROUS MINES.

The Mining Act, 1926, was amended during the year, also the Petroleum Act, 1937. The regulations under the Mining Act, 1926, were also amended.

I have, &c.,
 GEORGE DUGGAN,
 Inspecting Engineer of Mines.

ANNEXURE A.

SUMMARY OF REPORTS BY INSPECTORS OF MINES.

NORTHERN INSPECTION DISTRICT (E. J. SCOBLE, Inspector of Mines).

QUARTZ-MINING.

Martha Gold-mining Co. (Waihi), Ltd.—Operations were continuous, and the ore treated was obtained from between No. 14 level and the surface, the Martha, Royal, and Edward lodes being the greatest producers. Work undertaken in connection with development, the extraction of ore from arches, &c., accounted for 8,041 ft. of driving, rising, and winzing. All payable stone in No. 14 level was exhausted early in the year, and nothing more is likely to occur in this part of the mine. The ore developed comprised a total of 161,304 tons, of which a fair proportion was contained in narrow high-grade lodes. However, its average tenor is low, and the maintenance of a large daily tonnage is required in consequence.

Golden Dawn Gold-mines, Ltd., Owharou.—During the year, No. 1 winze (on No. 5 reef, No. 3 level) was sunk to 150 ft., where driving on reef 33 in. wide commenced, and was carried forward in an easterly direction for 52½ ft., at which point work has been suspended. At the commencement of driving, values amounted to 28s. 3d. per ton, with gold at 142s. per ounce, but these fell progressively and were only 7s. 3d. per ton for a reef width of 22 in. when operations ceased. The ground is faulted for almost the full length of reef exposed.

Talisman-Dubbo Gold-mines, Ltd. (in Liquidation), Karangahake.—All privileges have been struck off the Register and the company should shortly be dissolved. During the early part of the year, tributaries (one subsidized) won a little bullion from the property.

New Maoriland Mine, Waitekauri.—The material treated at this mine consisted of 208 tons of mixed ore and decomposed country rock.

Golden Spur Co., Ltd., Maratoto.—Further driving on and rising from No. 3 to No. 2 level (all on reef) was undertaken, together with the installing of aerial and ground tramways.

Golden Crown Gold-mining Co. (N.L.), Komata.—No. 2 level, as referred to in last year's report, was carried forward until the random of the first and most important block of stone (left behind by the old Komata Co.) was reached, when it was found that the arch supporting the level under same had collapsed, with unfortunate results to both reef and walls, for they had fallen away to a serious extent. Work has since ceased.

Kernick's Freehold, Tapu.—Driving and stoping were undertaken north and south on the Gully level, and on No. 2. Surface prospecting was also carried out on different parts of the property.

Una Hill Consolidated Gold-mines, Ltd., Thames.—Operations were continuous for the year, and consisted of driving to the north, on reef, for 110 ft. and south for 80 ft. As the latter work fell somewhat short of expectations, stoping was undertaken mainly in the first-mentioned direction, where values improved along what is probably a junctioning line of reefs. Some good-grade specimen ore was got from this source. The next objective, but a little farther to the north, is the Loyalty reef system, and its junctions both with the No. 2 and the Hague-Smith lodes.

Green Hill Gold-mines, Ltd., Coromandel.—Crosscutting work, as referred to in last report, was carried up to and beyond the borehole, without results, as no reef was encountered. The country is disturbed and faulted for the latter half of the crosscut. No. 2 winze was sunk to 50 ft., where a crosscut advanced to the east intersected the main reef at 35 ft. Values are low.

Kuaotuna Gold Recoveries Syndicate, Kuaotuna.—This syndicate, operating on freehold property, treated 790 tons of tailings.

Hardy's Mines, Waiorongomai.—Operations were confined to the 1,400 ft. level of the Hero reef, and resulted in the winning of 2 tons 7 cwt. of selected ore.

BORING OPERATIONS.

Drilling Prospectors, Ltd., Thames.—Operations on the foreshore portion of the company's claim were continued, three holes being drilled to depths of 222 ft. 1 in., 128 ft. 5 in., and 109 ft. 6 in. respectively.

PROSPECTING.

The greater part of the prospecting was subsidized and carried out at Coromandel, Thames, and Karangahake, but the number of men so employed fell from 17 to 7.

MISCELLANEOUS.

Mercury Mines, Puhipuhi.—Opencast methods of mining have been successfully adopted, the face being 80 ft. in depth and about 2 chains in width. The ore treated amounted to 1,300 tons, from which was recovered 2 tons 10 cwt. 2 qr. of mercury, valued at £5,042. Untreated concentrates are estimated to contain an additional ton.

Ascot Cinnibar Claim.—Towards the end of the year the Department applied for and was granted an area which covered this old claim at Karangahake. Two men have since been engaged at driving on the deposit.

Serpentine.—This is being mined in Waiwera and Mahurangi Survey Districts, North Auckland. Supplies are limited, and probably do not exceed 50,000 tons.

Manganese.—Cloudesley Mines, Moumoukai, South Auckland: The total production was 603½ tons, valued at £2,423 19s. 11d. Practically all of this was sold to the Challenge Phosphate Co., Otahuhu, Auckland.

Mirandite Products, Ltd., produced 58½ tons, worth £210 14s. 8d., which was sold to the Broken Hill Proprietary Steelworks, Newcastle, Australia. A further 90 tons was mined but not shipped. The deposit operated by this company is somewhat troubled and irregular, but trenching northward from the present working which are opencast, has proved a slight extension of good-grade ore in that direction.

Silica.—Mr. J. B. Gilbert's mine, Aramoho, Wanganui, produced 265 tons, worth £450. Some was exported to Australia, but the greater portion was used by the owners in their factory at Castlecliff, Wanganui, for the manufacture of high-grade abrasive soap, and in the glass-bevelling, valve-grinding, and dental industries. Chemical and Colour Industries (N.Z.), Ltd., Auckland, mined 148 tons, valued at £531 11s. 4d. The material was obtained at Totara North. Three tons, valued at £3 5s., were won from Tucker's Mine, Aramoho.

Pumice.—This is obtained in Wanganui, and is brought down by successive floods of that river. The finer grades are used for the manufacture of sandsoap, while the coarser ones are used by cool stores for insulation purposes. Production amounted to 150 tons, valued at £328.

Fuller's Earth.—The quantity obtained was 109 tons 2 cwt., all of which was got from the estate of the late A. Crawford, Kamo, Whangarei. It was sold for £381 17s. 1d.

Diatomaceous Earth.—A total of 96 cubic yards was got from the property of Mr. S. C. Crawford, Kamo, and 15 tons 2 cwt. from that of Mr. W. Brake, Ngongotaha, the selling-prices being £3 10s. per cubic yard and £4 per ton, respectively.

Bentonite.—This was all produced from Porangahau, Hawke's Bay, and amounted to 136 tons, worth £578.

Sulphur.—No deposits were worked.

Limonite.—Okaihau Quarries, Ltd., Okaihau, mined 959 tons, valued at £2,735 5s. 5d. Reyburn's Lime Co., Whangarei, produced 275 tons, worth £1,067 13s.

Petroleum.—The Morere and Midhurst bores, which are referred to in last report, were sunk to depths of 6,683 ft. and 10,918 ft. respectively, and then abandoned. Geophysical and geological work was also carried out in several districts and is still taking place. Moturoa Oilfields, Ltd., obtained the following from its three producing wells: 4,058 gallons from No. 1, 66,496 gallons from No. 2, and 23,361 gallons from No. 4, or a total of 93,915 gallons, all of which was treated by N.Z. Oil Refineries, Ltd.

ACCIDENTS.

One fatality occurred, the victim being Mr. A. Yarr, an employee of the Martha Gold-mining Co. (Waihi), Ltd. Mr. Yarr met his death by falling down an open winze, which is situated in a surface drive, and about 200 ft. from the portal. There were no witnesses, and it is assumed that Yarr misjudged distances, and accidentally walked into the opening through being dazzled by strong sunlight, for he had previously been in the open. He was working at the winze, and the instructions given him before commencing were to cover and make it safe generally. There were two serious non-fatal accidents, in one of which Mr. W. Lunn suffered a broken right forearm, and in the other Mr. S. Merry sustained a broken right femur. The former was struck with the handle of a windlass, and the latter by falling ground. Both are employees of the Martha Gold-mining Co.

PROSECUTIONS.

There were no prosecutions.

WEST COAST INSPECTION DISTRICT (G. W. LOWES AND R. C. FUFFIN, INSPECTORS OF MINES).

QUARTZ-MINING.

Marlborough County.

Mountain Camp Scheelite-mine (Mines Department).—After crushing 25 tons taken from various points the mine was abandoned on account of the low grade of ore, and part of the plant and buildings were transferred to the mining area formerly held and worked by the Dominion Consolidated Mining Co.

Golden Bar Mine (Mines Department).—After the necessary plant had been erected, driving south on No. 2 level in untried ground was commenced. All previous workings had been to the north.

Buller County.

Red Queen Mine.—Work ceased at this mine owing to serious deterioration of the track to the mine. Transport of plant, building, and mining material by water was attempted, but the swift currents of the Mokihinui River made the task impracticable.

Inangahua County.

Blackwater Mine.—No. 11 Level Drive North: This drive was advanced 97 ft., of which 56 ft. exposed reef averaging 4.77 dwt. over a width of 12 in.

No. 12 Level Drive North: This drive was advanced 29 ft., of which 18 ft. exposed reef averaging 18.61 dwt. over a width of 8 in.

No. 13 Level Drive North: This drive was advanced 72 ft., of which 55 ft. exposed reef averaging 16.36 dwt. over a width of 19 in.

No. 14 Level Drive North: This drive was advanced 251 ft., of which 213 ft. exposed reef averaging 11.72 dwt. over a width of 32 in.

No. 14 Level Drive South: This drive was advanced 216 ft., all of which was on reef averaging 13.04 dwt. over a width of 36 in.

No. 15 Level: As soon as the north shaft had reached the horizon of No. 15 level, a pilot crosscut was driven east towards the reef, which was intercepted just before the end of the year. Samples of the reef when encountered gave an average value of 16.30 dwt. over a width of 13 in. The reef opened up in the lower levels continues to give very satisfactory values.

North Shaft: This shaft was sunk to 33 ft. below the horizon of No. 15 level, the total depth now being 2,633 ft.

Alexander Mine.—The solution of faulting problems (during stoping operations) on disconnected lenses of ore ultimately led to the exposure of an ore-body 190 ft. in length and averaging 4 ft. of payable ore. The ore won was principally from the stopes above No. 6 intermediate, and prospects of developing further ore reserves in the south end of mine and below the intermediate and main levels are greatly enhanced by the recent improvements of stopes going upwards to No. 5 level.

Big River Mine.—During the year No. 7 crosscut was advanced to a point where the ore channel was intercepted and a rise connection to No. 6 winze effected. The ore-body on this level was broken, and a comparatively small tonnage of ore was won between No. 6 and No. 7 levels, but fortunately values were consistently high and defrayed mining and developing costs. A winze was commenced in No. 7 to follow a rich shoot of ore and continued to a depth of 85 ft. At 88 ft. an intermediate level was driven south on ore for 12 ft., and further development from this winze will be carried out until No. 8 chamber is reached and this level repaired and extended. Repairs to main shaft between No. 7 and No. 8 levels were commenced.

Perseverance Mine.—A considerable amount of crosscutting and driving was carried out on No. 2 level, with disappointing results.

Golden Treasure Mine.—During the year nearly 1,000 ft. of crosscutting and driving were completed on the levels from the surface to No. 3 shaft level. In addition to the investigation and sampling of stopes that had been worked to a small extent by the former licensees, rising and sinking on an ore-body located when driving north on No. 2 intermediate provided additional data respecting the amount of ore available for treatment.

New Welcome Gold-mining Co.—After completion of 1,150 ft. crosscut and cutting on channel, this company carried out only a small amount of driving before suspending operations.

Grey and Westland Counties.

With the exception of small-scale prospecting in the Langdon's Creek area, Grey County, lode-mining operations in both counties received no attention.

Dredge-mining.

Grey River Dredge, Inangahua County.—This dredge, employing an average of thirty-one men, operated for 6,309 hours during the year, which was 84.9 per cent. of the possible working-time. An area of 108.47 acres was dug and 4,609,862 cubic yards handled with 16-cubic-feet buckets. A recovery of 6.52d. was effected.

Ngahere Dredge, Grey County.—This dredge ran a total of 1,737 hours, being 76.173 per cent. of the working-time available. An area of 18.88 acres was worked with 18-cubic-feet buckets in ground averaging 94.3 ft. Realization was 5.77d. and total cost 4.11d. per cubic yard.

Snowy River Dredge, Grey County.—This dredge commenced operations early in January, and completed a successful first year; 58.8 acres of ground were worked of an average depth of 14 ft., and out of the total possible working-time 86.2 per cent., or 7,244 hours, were worked.

Grey County.

Argo Dredge.—This dredge, operating 4½-cubic-feet buckets, dug 381,200 cubic yards from ground averaging 18ft. in depth.

Nemona Gold-dredge.—This dredge resumed operations after being overhauled, and dug with 4½-cubic-feet buckets 174,650 cubic yards. Owing to unsatisfactory returns, operations were suspended and the company went into voluntary liquidation.

Blackball Creek Dredge.—Digging was continued in 45 ft. ground.

Barrytown Dredge.—Dredging operations were carried on for 5,477 hours, this being 74.6 per cent. of possible working-time. An area of 66.1 acres was worked with 12-cubic-feet buckets of an average depth of 23.3 ft. and 2,490,000 cubic yards dug. Average recovery was 1 grain per cubic yard.

Red Jacks Dredge, Associated Gold Dredges, Ltd.—This dredge commenced operations in October, and up till the end of the year had treated 149,000 cubic yards.

Westland County.

Maori Gold-dredge.—Operating with 4-cubic-feet buckets, this dredge handled 326,500 cubic yards won from very tight ground with subsequent heavy expenditure for repairs in addition to a serious loss of dredging-time.

Rimu Dredge.—During the year this dredge, operating 12-cubic-feet buckets, worked 5,942 hours, this being 81 per cent. of the possible working-time. From 20.45 acres of an average depth of 56.9 ft., 1,877,288 cubic yards were handled. This dredge encountered extremely heavy and difficult digging at the eastern end of the property, conditions finally becoming of such a nature that early in the year the dredge had to be turned towards the south in order to avoid damage to the structure and machinery.

Kanieri Dredge.—This 18-cubic-feet bucket dredge worked 22.05 acres of ground of an average depth of 71.3 ft. in 5,150 hours, which was 70.1 per cent. of the possible working-time. The yardage treated was 2,539,000 cubic yards.

Arahura Dredge.—During the year, 30.98 acres of ground averaging 70 ft. deep were dredged with 18-cubic-feet buckets in 6,369 hours, equal to 86.7 per cent. of possible dredging-time, and 3,398,000, cubic yards were treated. The ground treated gave a return of 2.6 grains per cubic yard.

Okarito Five-mile Beach Dredge.—This dredge, operated by hydraulic power, dug and treated 160,610 cubic yards of auriferous blacksand.

Gillespies' Beach Dredge.—This dredge dug and treated 688,141 cubic yards of blacksand.

DREDGE-CONSTRUCTION.

Construction of the *Red Jacks Dredge* was completed, and operations commenced in October.

The *Marsden Dredge*, a duplicate in design and size of the former plant, was ready for a trial run by the end of the year.

The construction of *No. 1 Atarau Dredge* was well advanced when the year ended.

Owing to scarcity of labour and material, Associated Gold Dredges, Ltd., decided to concentrate on the completion of the three dredges mentioned above and defer the completion of *No. 2 Atarau* and *Mawheraiti* dredges until more favourable circumstances prevail.

The Slab Hut Dredge.—The construction of this dredge was well advanced by the end of the year.

White's Electric Dredge, which formerly operated at Barrytown, was dismantled and transported to a claim situated on the Big Grey River at Waipuna.

The construction of two large dredges on the Taramakau and Mikonui Rivers, Westland County, will not be undertaken until conditions return to normal.

ALLUVIAL MINING.

Buller County.

Addison's Flat Gold-mining Co.—During the year the company worked 20 acres of ground averaging 15 ft. in depth, containing 484,000 cubic yards. Improvements on the claim consisted of replacing the 7 in. pipe-line with 11 in. pipes, thereby raising the effective pressure from 75 lb. to 90 lb. per square inch, and an increase in volume from one and three-quarters heads to two and a quarter heads for sluicing purposes. Out of a total of nine and a quarter heads available, seven are used for the hydraulic elevator, which has a suction pipe 22½ chains in length when working at the limit of pressure.

Inangahua County.

Waitahu Gold-mining Co.—This company operated extremely shorthanded for the greater part of the year.

Mount David Sluicing Claim.—Two men were engaged in main water-race repairs for the whole year, the task of bringing in water having proved to be more formidable than was anticipated by the proprietor when operations commenced.

Grey County.

During the year sluicing operations were continued at the Golden Sands and Moonlight claims in the Grey district, at many small claims in the Wakamarina, the Takaka, Collingwood, Waimea Counties, and the Howard field.

Westland County.

Kumara Alluvials.—An average of five men was employed throughout the year on the restoration of the tunnel tail-race, the construction of the water-race, and the pipe-line. Good progress was made in all sections of the work undertaken, and the producing stage is now within sight.

Sluicing operations were carried on at a number of claims within the county. One hundred and sixteen men were engaged.

MISCELLANEOUS.

Asbestos.—From 620 cubic yards of serpentine rock won from an opencast quarry in Upper Takaka Valley the Hume Pipe Co. produced 53 tons 7 cwt. 2 qr. of asbestos fibre, valued at £240.

Mica.—Prospectors discovered some outcrops of mica in the Mataketake Survey District, South Westland.

Petroleum.—Activity in the search for oil has been limited to geological survey by licenseholders in the district.

Tungsten.—A party of subsidized miners won 6 cwt. of concentrates from old tailings in the Wakamarina River.

Pottery Clay.—K. A. Polglase, Kaka, produced 470 tons of clay, worth £722 15s., from underground workings. The material was used in the manufacture of insulators.

Iron.—From Mount Burnett, 310 tons of limonite, valued at £93, was quarried.

PROSPECTING.

Lode prospecting in this inspection district has been almost limited to State activities in the Inangahua County. Mica deposits in South Westland received attention and on a much reduced scale, prospecting of the iron-ore bodies at Onckaka was carried out by drilling and tunnelling.

Some check boring on claims being worked and trial boring of new areas was done. Four hundred and forty-three holes were bored on 13 areas by privately-owned and Government drills.

FATAL ACCIDENTS.

On the 22nd February William Stephen died as a result of shock and atheroma of the coronary arteries caused by jumping into a strong current in the Mokihinui River from a punt transporting machinery. The punt had been beached the previous evening after proceeding some distance upstream from the loading-bank, and on resumption of work next day the punt with the manager and Stephen aboard slipped back into the current and got out of control. Both men had to jump into the water and drifted some distance downstream. The manager got ashore, but Stephen disappeared, his body being recovered several days later.

SERIOUS NON-FATAL ACCIDENT.

On the 16th July G. Black, winding-engine driver at the Big River Mine, received severe facial injuries and a fractured arm when drawing a tube from the "Babecock" boiler used for supplying power to the mine plant. A beam, used as a support for a partly-drawn tube, slipped and struck Black just as he descended from a stage in front of the boiler to the floor of room.

PROSECUTIONS UNDER THE MINING ACT AND REGULATIONS.

Nil.

SOUTHERN INSPECTION DISTRICT (T. McMILLAN, INSPECTOR OF MINES).

QUARTZ AND ALLUVIAL MINING.

Waihemo County.

Macrae's Flat Gold and Scheelite Mining Co., Ltd., Golden Point Mine, Deep Dell, Macrae's.—Six men were employed at the mine and treatment plant, and mining operations were carried out in the Home and Dip reefs. Returns were poor, and as prospecting operations in the 80 ft. rise section of the Home reef failed to locate anything of importance, mining operations were temporarily suspended in May. Efforts to raise further capital to develop the mine did not meet with success, but operations were resumed in December. The levels and rises were repaired and the Diesel power plant was overhauled. Twelve tons of scheelite-ore was treated for a return of 1 ton 3 cwt. 27 lb. of scheelite concentrates, valued at £230.

Callery Party, Round Hill Mine, Macrae's.—Work has been carried out on each side of Round Hill, west of the Golden Point Road. In the north-west section good scheelite-ore was located, and in the south-east section alongside the road gold-bearing ore was mined. Six hundred and fifty-seven tons of ore have been mined, and transported for treatment to the Deep Dell treatment plant.

Tipperary Co-operative Mining Co.—Driving operations in the low-level crosscut were continued and the main reef was intersected at 280 ft. Driving and stoping operations were carried out in order to obtain a trial crushing. The values proved to be low, and mining operations were suspended early in December.

Macrae's Gold-mining Co.—During the major portion of the year the two gravel-pumping plants were in operation. The No. 1 plant, operating upstream from the township, was shut down before the end of the year, and the No. 2 plant, operating further up the flat, continued to run. The alluvial material elevated by the gravel-pumps varied in depth from 8 ft. to 20 ft. and overlies an irregular schist bottom.

The various mines in the Naseby, Cambrian, Vinegar Hill, Kyeburn, and Patetaroa districts have been operated steadily when sluicing-water has been available.

Tuapeka County.

Paddy's Point Gold-mining Co., Waitahuna.—Early in the year the payable auriferous gravels became exhausted and the plant and equipment were sold for removal.

Sluicing operations were continued at the Sailor's Gully and Tuapeka Mouth claims.

Foord's Mine, Pleasant Valley.—Driving operations have been continued in this area, where a huge slip has covered the lead.

Southland County.

The various sluicing claims at Nokomai, Waikaia, Round Hill, and Urepuki have been operated steadily.

Lake County.

Glenorchy Scheelite-Mining Co., Ltd., Western Slope, Mount Judah.—The levels and headings have been extended and stoping operations have been carried out above the No. 1A level. Some pillars in the old workings have been split. One hundred and forty-five tons of ore were sent to the battery for treatment, yielding 15 tons 8 cwt. of scheelite concentrates, valued at £3,080.

Heather Jock Scheelite Syndicate, Western Slopes of Mount Larken.—The prospecting drive ahead of the old workings located the reef, but the scheelite content was small. The reef was hard and solid and operations were suspended at the beginning of winter. A sluicing plant was purchased and installed near the southern boundary of the claim, and sluicing operations were carried out in an endeavour to locate the reef at its lowest position so that development work could be carried out to the rise.

Elliot Bros. and Tripp, South-western Slopes of Mount Larken.—Sluicing operations were carried out when weather conditions were suitable and water available.

Sharpe Bros., Harris, and Weatherston.—Active mining operations have been carried on at this and the high-level Boozer Mine during the working season. Driving and stoping operations have been carried out in heavy, difficult ground in the Gorge Mine. Prospecting and stoping operations have been carried out near the Boozer reef outcrop.

Grove's Mine, on the Southern Side of the Bonnie Jean Creek.—During the year a high-level water-race and dam have been constructed and a high-pressure pipe-line and Pelton-driven Broomwade compressor installed.

Bonnie Jean Crossing Mine.—Driving operations were resumed during the winter months in this previously-worked reef near the track crossing. A sluicing plant previously worked on the Orepuki Goldfield was moved to this area, a storage dam and head-race constructed, and sluicing operations were carried out during the spring. Some good ore was located, and sluicing operations will be resumed when water becomes available.

Eureka Reef, near the Glenorchy Terminus of the Buckleburn Aerial Ropeway.—Prospecting and driving operations have been carried out on the outcrop of this previously-worked reef, and some good ore has been located. Two miners prospected the Lower and Upper Pinhead reefs on the slopes of Mount McIntosh, but nothing of importance was located.

Ross Mine.—Mining and treatment work has been carried out, and the bottom level has been extended so that a rise can be driven to intersect the underhand stope in the top level. The rise has been commenced. Scheelite-bearing ore has been located in the bottom level.

Mount McIntosh Mine.—Two miners have been driving, stoping, and sinking on this reef during the summer, and good ore has been won.

Black Peak Mine.—Work has been carried out by two miners on the southern side, also on the saddle and on the precipice side of Black Peak, during the summer. Good ore has been won.

Paradise Mine.—The Paulin party continued to operate at this mine, which is situated on the northern slope of Mount Alfred, overlooking the Dart River valley. Cleaning out and repair work was carried out in the levels, also sinking, rising, and stoping operations in various parts of the mine. Work was also carried out on the big reef in the bottom level, and in December crosscutting operations were undertaken, in order to locate the downward extension of the small or hanging wall reef. Scheelite-prospecting operations have also been carried out at the twelve mile on the slopes between the Oxburn and Rees river bridges.

Sluicing operations have been continued in the Moonlight Valley, Sandhills, Skippers, Shotover, Mountain Terrace, and Arrow River claims.

Vincent County.

Thomas and Party, "Bell-Kilgour" Section of Scotland Point.—When the development company ceased to operate the pumping plant in the Kawarau Gorge, sluicing operations ceased.

Scotland's Lead, Ltd.—Driving operations were continued and the channel was intersected. The main drive was too high. As a consequence, mining operations were hampered, and a second shaft is required in order to prospect this section of the lead.

Scott and Wells Mine.—Operations have been continued. The auriferous section of the lead was comparatively short and several hundred feet of driving and crosscutting has been carried out in and about the main channel, but no further payable auriferous section has yet been located.

Long Drive Syndicate.—This syndicate claim adjoins the area held by Messrs. Scott and Wells, and the rock tunnel is situated on the terrace above the gum-trees. A distance of 400 ft. had been driven by the end of the year, but a further 150 ft. of driving will be required in order to locate the deep river lead.

Homer's Mine, Gee's Flat.—Driving and crosscutting operations were continued in the Gee's Flat deep lead from the end of the rock tunnel driven through the rim rock which separates this flat from the Kawarau River. Two other miners have also been testing the terrace deep lead above Gee's Flat by driving and blocking out.

W. Thomas and Son, Lower Cairnmuir.—In order to obtain water for sluicing purposes from the Bannockburn Creek, this party have extended the Cairnmuir Co.'s water-race to their mine. A pipe-line and sluicing plant have been installed, rock tail-races have been cleaned out and deepened. Opening-out operations are now in progress in the shallow ground in front of the terrace deposit.

Shine Again Gold-mining Co., Ltd.—Sinking operations were continued below the 60 ft. level, and the winze had reached a depth of 60 ft. when operations had to be suspended on account of climatic conditions.

Antimony Syndicate.—Mining operations were carried out on the western side of the Manorburn Dam, in the Alexandra district, where several tons of antimony-ore were mined from an outcrop on the western shore of the dam. Operations ceased when winter weather conditions became severe, and have not been resumed as all the easily-mineable ore had been removed.

SLUICING.

Sluicing operations have been carried on at Blackman, Matakau, Gorge Creek, and on the left bank of the Clutha River between Alexandra and Doctor's Point.

Several claims, such as the Graham, Nevis, Cameron's Gully, Jones, and Williamson claims in the Nevis Field continue to be operated.

DREDGING.

Lake County.

The dredge owned by the Goldfield's Dredging Co., Ltd., and moored on the big beach, Shotover River, near Arthur's Point, has been sold.

Vincent County.

The Nevis Crossing Dredge, Lower Nevis, has not been in operation and has now been sold.

Bendigo Goldlight Dredge.—This dredge has not been sold, and is still beached near the Bendigo Township.

Austral New Zealand Mining, Ltd.—This large dredge has operated throughout the year downstream from the Lowburn Ferry on the flats known as the Athenaeum Reserve. Up to 4th October it had operated for 5,100 hours and covered an area of 40-58 acres, digging 3,302,000 cubic yards, averaging 1-80 grains per cubic yard. Running-time during the latter part of the year was slow owing to the necessity for carrying out many alterations and repairs, and shortage of power. For the year, 3,588,000 cubic yards were dug. This dredge is electrically operated, and a Diesel-operated standby set is also provided for use in cases of emergency.

Molyneux Gold-dredging Co., Ltd.—This dredge has operated in the Kawarau River and was dredging downstream from the Cairnmuir Gorge early in January. Dredging ceased on the 22nd of that month, and the dredge was then moved upstream. When the centre of the Gorge had been reached, the river fell to such an extent that it was impossible to move the dredge farther until the river rose to a normal level. Three attempts were made to negotiate the narrow upper portion of the Gorge during small rises in the river, but these efforts were not successful. It was not until the 20th November, when the Kawarau River rose 25 ft. in the Cairnmuir Gorge, that the dredge could be moved upstream, and dredging was resumed on the 24th November. The stretch of river below and above the Cairnmuir Gorge proved to be low grade. The dredge has moved 80 chains up the Kawarau River, and the bottom dredged has been soft pug with a number of large schist boulders. The average depth has been 20 ft. This dredge is electrically operated, and carries a Diesel-operated standby set for use in cases of emergency.

Clutha River Gold-dredging, Ltd.—This dredge operated in the Molyneux or Clutha River upstream from the Fraser River junction on a section of the river held by the Molyneux Gold Dredging Co. The area dredged was comparatively shallow, and on account of the previous dredging operations the returns were poor. The depth dredged varied from 20 ft. to 40 ft. The dredge was operating a considerable distance upstream from the site selected for the reconstruction operations, when the river rose in late November. This rise made it possible to move the dredge downstream to the selected site. After dredging from the river and into Alexandra Flats, the work of dismantling this river dredge, preparatory to its reconstruction as a padlock dredge, was commenced.

Aitken's Dredge, Chatton District, Southland.—This dredge is operating in the Chatton district on freehold land in a shallow valley on the eastern Mataura River flats. The depth dredged varies from 6 ft. to 12 ft., and the tailings are discharged from a sluice-box. An extension chute is used when surface soil is being stripped so that it can be deposited on top of the tailings. The dredge is steam driven. From the 25 acres dredged during the year, 403,333 cubic yards of material has been dug.

Rainbow Dredging Co., Ltd., Maitland, Waikaka Valley, Southland.—Dredging operations have been continued. The ground dredged is shallow, varying from 4 ft. to 8 ft., and about 8 acres have been dredged. This is the smallest dredge operating in New Zealand, and is powered by a 38 h.p. Gardner Diesel engine.

MINERALS OTHER THAN GOLD.

Antimony.—Seventeen tons, valued at £249, was mined at the Manorburn Valley, near Alexandra.

Platinum.—The concentrates saved at the Round Hill Gold-mining Co.'s mine at Round Hill, Southland, have been treated for a return of 35 oz., valued at £286.

Silica Sand.—One thousand six hundred and eighteen tons of silica sand valued at £1,771, has been mined from Hyde, in Central Otago, Mount Somer's and Pleasant Valley, near Geraldine, in Canterbury.

Diatomaceous Earth.—Seventy-nine tons of low-grade material suitable for insulating purposes was mined at Foulden Hill, near Middlesmarch. The value was £112.

VALUABLE CLAYS (OTHER THAN FOR BRICKMAKING).

Eight hundred and two tons of clay, valued at £650, have been mined from the Benhar Mine, in Otago, and the Kakahu and Mount Somer's Mines, in Canterbury.

Tungsten.—During the year 713 tons of tungsten-bearing ore has been treated for a yield of 67 tons of scheelite concentrates (57 tons from the Glenorchy district and 10 tons from the Macrae's district), with an approximate value of £13,403.

ACCIDENTS.

There was one fatal accident during the year:—

Yun Yuk, a raceman and miner employed by the Nokomai Gold-mining Co., met his death through slipping and falling into the worked-out paddock when taking a short cut to his working-place at about 1 p.m. on the 14th June, 1941.

There were no serious non-fatal accidents at the mines during the year.

SUBSIDIZED MINING SCHEME.

An average of twenty-eight men have been employed at gold-mining under the subsidized mining scheme in the Lake, Maniototo, Tuapeka, Vincent, Waihemo, and Wallace Counties, and an average of six men employed in Scheelite-mining at Glenorchy.

STONE-QUARRIES ACCIDENTS.

There were no fatal accidents at the stone-quarries during the year.

There were two serious non-fatal accidents whereby two persons were injured:—

The foreman of the Roslyn City Council Quarry was injured on the 4th March when he was barring down the quarry face. He tripped on the rock pile and fell, suffering a fracture of the small bone of left forearm and bruises.

A quarry worker and aerial-ropeway attendant at the Timaru Lime Co.'s quarry at Cave was injured on the 7th August through being hit by a piece of stone which slipped down the quarry face. He suffered a fracture of the right tibia and right fibula.

ANNEXURE B.

STONE-QUARRIES.

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

(R. T. H. DALE.)

The following is the report for the year ending 31st December, 1941, for stone-quarries and tunnels worked in the North Island District under the Stone-quarries Act, 1910.

QUARRIES.

A total of 302 quarries employing 1,292 men was worked during the year ending 31st December, 1941, producing 1,655,494 tons of stone, valued in the quarries at £314,455.

In 1940, 276 quarries employing 1,200 men were worked, and 1,534,795 tons of stone, valued at £308,443, were produced.

The bulk of the stone quarried was obtained for roading purposes and construction work, 1,009,873 tons of hard stone being used in 1941 for these purposes, an increase of 72,831 tons as compared with the previous year.

Owing to a greater demand for lime products for agricultural purposes there has also been a substantial increase in the tonnage of limestone quarried.

During 1941, 586,246 tons of limestone was quarried, 319,894 tons being for agricultural purposes and 266,352 tons for the manufacture of cement, an increase of 102,358 tons and a decrease of 24,641 tons respectively as compared with the previous year. The production of soft stone used for miscellaneous purposes, including the manufacture of bricks, tiles, and pipes, decreased from 88,472 tons in 1940 to 55,320 tons in 1941.

TUNNELS.

No tunnelling has been carried out during the year ending 31st December, 1941.

ACCIDENTS.

One fatal and two serious accidents occurred in quarries during 1941.

Fatal Accident.

On 23rd January, George Broomfield, motor attendant at the Auckland City Council's quarry, Mount Eden, was pulled into a conveyor and crushed between the belt and a terminal roller. His injuries proved to be fatal.

Serious Accidents.

On 3rd February Paul Shaw, a mechanic employed at Winstone's quarry, Mount Wellington, was caught on a revolving shaft. He received serious injuries to his right arm, necessitating amputation.

On 28th July James Scott, quarry foreman, St. Helier's Quarry, fell from a bench to the quarry floor, a distance of 30 ft., receiving severe internal injuries.

PROSECUTIONS UNDER THE STONE-QUARRIES ACT, 1910.

Four informations were laid during the year and convictions obtained on each information.

On 30th June a quarry foreman was convicted and ordered to pay costs for failing to make a written report of his daily inspection of the quarry, and was fined £5 with costs for storing detonators along with gelignite in the main magazine.

On 11th September a quarry occupier was convicted and ordered to pay costs for failing to give notice in writing of intention to renew the working of a quarry, and was fined £5 and costs for acting as quarry foreman without a certificate.

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, 5th June, 1942.

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, 1941, in accordance with section 42 of the Coal-mines Act, 1925.

OUTPUT.

The output from New Zealand collieries for 1941 was 2,639,507 tons, 123,408 tons greater than the 1940 output.

There were increases of 48,026 tons from the Northern District, 52,038 tons from the West Coast District, and 23,344 tons from the Southern District.

In the Northern District 55 more men were employed, and the output per man, 519.5 tons, was 11.4 tons greater than during 1940. In the West Coast District the output per man, 510.6 tons, was 43.8 tons per man higher than for 1940. In the Southern District 592.2 tons per man were produced, an increase of 28.4 tons as compared with the previous year.

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1941 :—

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 1937	85,977,543	*	*	*	*	*	*	484
1937 ..	2,277,799	1,129	3,288	4,417	693	2.64	1.36	6
1938 ..	2,222,088	1,195	3,368	4,563	659	4.86	2.41	11
1939 ..	2,342,639	1,220	3,542	4,762	661	7.26	3.57	17
1940 ..	2,516,099	1,277	3,769	5,046	668	3.18	1.58	8
1941 ..	2,639,507	1,358	3,633	4,991	726	1.51	0.80	4
Totals ..	97,975,675	..	..	..	..	..	..	530

* For returns for previous years see page 53, Mines Statement, 1941.

ACCIDENTS.

The following is a summary of accidents in and about coal-mines during 1941, 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.
Carbon-monoxide poisoning .. ..	..	..	..	..
Explosions of fire-damp or coal-dust .. ..	..	..	..	..
Falls of ground	2	2	10	10
Explosives .. ..	..	..	..	..
Haulage	1	1	7	7
Miscellaneous—Underground .. ..	..	..	1	1
On surface	1	1	2	2
Totals	4	4	20	20

During 1941 three fatalities occurred in the West Coast District and one in the Southern District. Twenty serious non-fatal accidents were reported to the District Inspectors during 1941. Twelve occurring in the West Coast District, four in the Northern District, and four in the Southern District. Six accidents in the West Coast District, two in the Northern District, and two in the Southern District were caused by falls of coal or stone. Three men were seriously injured by runaway tubs and three by being crushed between tubs.

DANGEROUS OCCURRENCES REPORTED.

Of the seventeen dangerous occurrences reported to the Inspectors during 1941, eleven related to fires or heating in underground workings, one to a large quantity of firedamp found in the Wallsend Colliery, two to firedamp found in the Pukemiro and Renown Collieries, and one to an ignition of firedamp in the MacDonald Mine.

Inrushes of water were reported in the Linton No. 1 and Alison Mines.

PROSECUTIONS.

Twelve informations were laid during 1941, ten by Inspectors of Mines and two by a mine-manager, for breaches of the Coal-mines Act and the regulations thereunder. Convictions were obtained in all cases. Brief details are given in the Inspectors' reports.

LEGISLATION AFFECTING COAL-MINES.

An Act to amend the Coal-mines Act, 1925, was passed in 1941.

I have, &c.,

GEORGE DUGGAN,
Inspecting Engineer and Chief Inspector
of Coal-mines.

ANNEXURE A.

SUMMARY OF REPORTS BY INSPECTORS OF COAL-MINES.

NORTHERN INSPECTION DISTRICT (R. H. SCHOEN, INSPECTOR OF COAL-MINES).

The following is my report on the working of coal-mines in the Northern Inspection District for the year ended 31st December, 1941 :—

SUMMARY OF OPERATIONS OF EACH COLLIERY FOR THE YEAR 1941.

North Auckland District.

Kamo Colliery.—No. 3 Mine : No further extension of the main drive was undertaken during the year.

Intermediate North-east Section : A pair of drives were set away from the main haulage intermediate between Nos. 1 and 2 north-east sections. These opened up good coal 11 ft. thick which had already been prospected by a surface bore. It was decided, in order to improve the haulage to the surface, to connect this section to the main dip by a slant road leaving the main dip at a point 21 chains from the mine entrance and at a favourable angle. This slant dip which runs slightly north of east from the main dip, is now connected, and has been driven some 18 chains. The coal at the face is of good quality, and as the main field lies in this direction the development looks promising. A small panel is being developed to the north of these drives. Some faulting has been met, but development is proceeding.

To the south-west of the main dip panel development on both sides of the Railway Reserve was completed during the year, and with the exception of a prospecting drive which is being extended to the south-east from No. 1 section, no further work is being done in this locality. The drive is in coal of good quality 6 ft. thick and is dipping 1 in 4 with the floor of the seam.

No. 4 Mine : A few men have been employed in this mine section, where a small area of good coal has been worked in the company's holdings.

Waro Colliery.—During the year the main No. 1 drive and workings to the east of it were extended some 9 chains to a distance of 49 chains from the mine entrance. The coal-seam in this direction has proved disappointing both in thickness and quality, while to the east of the main drive the seam has thinned to 4 ft. with a good deal of disturbance from faulting, causing great difficulty in haulage and ventilation and largely increasing the cost of getting the coal.

Two slant dips, driven to the west at distances of 31 and 39 chains from the mine entrance, were in coal up to 6 ft. thick and of varying quality.

At a point 8 chains from the main drive, No. 1 slant dip reached a fault where broken roof caused a heavy inrush of water and slurry on 7th May. This water is now held at No. 6 level in the dip, but no extension of the dip heading has been possible, though a small panel has been developed towards No. 2 slant dip. The coal averages about 6 ft. and is of fair quality.

No. 2 slant dip has been driven 6½ chains in coal of fair quality 6 ft. thick. At this point the face is on a fault thinning the coal to 18 in.

Orr and Party (Tauranga Block).—Work continued throughout the year on pillars left in the upper seam in old Northern Co.'s workings. Coal for about three months work was left at the end of December.

Ruatangata Colliery.—Pillar-extraction was commenced in July in the eastern part of the area worked from a fault which runs parallel to the main dip and about 3 chains from it. Further development of the area to the east of the section being pillared may be undertaken by extending an existing road in a north-easterly direction from the main dip. Development to the west of the dip has proved unprofitable owing to faulty conditions and thinning of the seam.

Whareora Colliery.—During the year the section being worked in the old mine was worked out, pillars being drawn owing to the seam dipping to the east below water-level. A further drive has now been put into a 3 ft. seam, and boring is proceeding to test the coal before further development is undertaken.

Avoca Opencast Coal-mine.—One man has been employed in opencasting pillars left behind during the original working.

Waikato District.

Rotowaro Collieries.—No. 1 Mine (Top Seam) : In the New Haulage section pillar-extraction was continued throughout the year, a barrier being left at the northern end to support the surface where a small creek has been straightened.

No. 4 East Section : The haulage-road pillars are still being withdrawn towards No. 1 Haulage. A dip has been driven through pillars to the south to recover pillars and barriers left in the old sump at Ollis' Dip section.

Hill 60 Right : Pillar-extraction has continued throughout the year in this part of Hill 60 section, which is outside the portion sealed after the explosion in August, 1940.

Callaghan's Dip Section (Bottom Seam) : The main headings were advanced 14 chains in a seam which dipped for 3 chains and is now rising 1 in 20. Panels are being developed on both sides of a pair of headings which have been advanced 5 chains to the north-east.

Two other headings have been set away to the south-west.

No. 3 Mine (Bottom Seam) : The main headings were stopped early in the year owing to bands of stone in the seam. In Brown's and Moodie's Jig sections pillar-extraction has continued, while in Taylor's Jig section all pillars have been extracted and the section is sealed off.

Extraction of pillars from the creek boundary to the north-west was commenced following completion of development, while pillar-extraction to the south-west has continued throughout the year in good quality coal 18 ft. thick.

Alison Mine.—The main headings have been extended 17 chains during the year and endless haulage advanced.

No. 1 panel has been developed in good coal 16 ft. to 20 ft. thick and pillar-extraction will start shortly, while Nos. 2 and 3 panels have been partly developed. A fault of 60 ft. upthrow has hindered development to some extent, but the coal on the rise side will be won by means of a pair of roads driven from No. 2 panel.

The north-west headings are being restarted, having been stopped for awhile owing to an inrush of surface water and clay in October.

Extensive boring has proved an area of good coal averaging 16 ft. thick between Rotowaro Township and the company's present Nos. 1 and 2 collieries, and a stone drive from the surface near the Alison screens has been started to reach the new seam. The estimated distance is 8 chains at a grade of 1 in 4.

Renown Colliery.—No. 3 south headings have been extended to 51 chains south of No. 3 east level, at which point a large downthrow fault was encountered. As the coal on the other side of the fault will be won from the new drive, pillar-extraction in this area is now proceeding.

Pillars in Nos. 4 and 6 west panels and in the panel between Nos. 2 and 3 south headings are also being extracted. No. 6 north headings have advanced to a point 11 chains north of the main west level. The coal has thinned to less than 5 ft. and the roof is soft and friable.

No. 4 south headings have been driven 11½ chains from the main west level. The coal is 9 ft. 6 in. thick and of good quality.

Development of one panel has been completed in this area and two others are being opened up.

Pillar-extraction is proceeding successfully in the No. 2 north section in spite of considerable difficulty caused by the floor heaving.

The new mine entrance in Tapp's area has now reached the coal-seam at a distance of 4 chains from the surface, and has been driven another chain in the coal, which is here 10 ft. thick. The grade to the seam is 1 in 6.

Wilton Colliery.—No. 1 Mine : Pillar-extraction through this mine section proceeded steadily during the year.

No. 2 Mine : The main headings have now been extended a distance of 22 chains from the surface.

Nos. 1 and 2 left panels have been developed to within a chain of the boundary.

The small sections to the right of the main haulage have each in turn encountered splitting of the seam by dirt bands, rendering the coal unworkable at only a short distance from the main headings. The coal-seam in this area averages 7 ft. in height and is very irregular in grade.

No. 3 Mine : A surface endless-rope haulage to this mine was completed in April.

Pukemiro Colliery.—North Mine : Pillar-extraction in this mine was continued throughout the year, the greater part of the output being obtained from areas at the top of the stone drive and in the straight heading section. A small area of solid coal recently developed to the south of the straight heading and adjacent to the fault on that side was also pillared.

South Mine : Development was continued to the north in the Taupiri section, east of the road separating the Pukemiro and Taupiri holdings. This is worked by agreement with the Taupiri Co. The main headings north have been extended some 28 chains from the main entry roads and panels have been developed to west and east.

Pillar-extraction in the new panel section, to the north of No. 2 right haulage road, has been almost completed, while pillar-extraction in the south of the Taupiri section and in the Mid section was continued.

The cleaning-up and retimbering of No. 1 west haulage road has proceeded slowly owing to extremely bad roof conditions while passing through faulty country. The face is now 29 chains from the main haulage.

A small panel is being developed to the south of this haulage road in coal previously left unworked.

Glen Afton No. 1.—During the year pillar-extraction in the south-west portion of K1 section continued, and this work is now nearly completed. Retimbering of the stone drive west from the end of L section haulage road was completed to the face.

Pillar-extraction was continued in E3 and E1 panels.

Owing to a large fire which was discovered by the night-shift deputy at 1.15 a.m. on 12th November, 1941, in the overcast over the main haulage road, E section, this section had to be sealed off by stoppings at a point 33½ chains from the main haulage. This caused a stoppage of E1, E2, and E3 sections and necessitated men being transferred to the MacDonald Colliery. The stoppings were opened on 6th February, 1942, in an unsuccessful attempt to reach and put out the heating. The stoppings had to be rebuilt at a point close to the overcast where the heating occurred.

Glen Afton No. 2 (MacDonald Colliery).—Pillar-extraction in B2 left and G sections was completed and the sections sealed off, while E1 left was completed except for two pillars in the north-west corner, which can be more conveniently reached from H haulage road.

H section headings have been extended to the boundary and E section headings to a distance of 38 chains from the main haulage, and panels are being developed on both sides of these main headings. Owing to an ignition of CH₄ in the dip heading of H2 section on 2nd October, safety-lamps had to be introduced into this mine, and the management has since agreed to equip the No. 4 (Daylight) Mine section with safety-lamps.

In No. 4 mine pillar-extraction of No. 1 east panel is approaching completion, while on the west side of the main dip pillar-extraction is being continued from the south end of No. 1 west.

Development headings north-east from the main haulage have been extended 18 chains, and panels are being developed on both sides of these.

Graham Colliery.—Pillar-extraction is nearly completed.

Taupiri East Colliery.—Four men were engaged in pillar-extraction during the year in the area east of the main dip.

Whatawhata Campbell, Colliery.—The area opened up last year, 10 chains south-west of the old mine entrance, is now being pillared, and the surface haulage has been extended to the west, where a dip heading has been driven across old workings and has reached unworked coal 8 ft. thick and of good quality. A connection is being made to the present fan drift for better ventilation as the drive advances.

Waikato Extended Colliery.—All available coal in the southern area having been exhausted, a prospecting drive is being put in near the old Waikato Mine entrance to reach a block of coal thought to have been left unworked.

Taranaki District.

Old Stockman Colliery, Mokuu.—The main No. 2 drive has been extended some 5 chains from the outcrop in a north-east direction. The seam is 4 ft. 6 in. thick and is hard bright coal with sandstone roof. Several bords have been driven to the north-west.

Tutu State Colliery, Ohura.—The main drive has been extended 14½ chains and the companion heading the same distance. Both headings are stopped on a large upthrow fault of some 40 ft. displacement which is evidently the same fault which has been crossed by two development roads driven north-east from the main drive 7½ chains from the mine mouth. These have reached what is thought to be the main field beyond the fault. The coal here is 6 ft. to 7 ft. thick and is dipping at a grade of 1 in 8 in the direction of the drives. A small area of coal lying between the main drives and another fault running between the present mine workings and the old Egmont Colliery workings has also been developed during the year.

Mangapehi State Colliery.—The development roads cast at Nos. 6 and 7 levels have been driven 21 chains from the main haulage and are standing in good-quality coal. Development of No. 1 panel between No. 6 level and the outcrop is nearly completed and the coal has been of good quality throughout.

Levels driven east at Nos. 13 and 14 levels had proceeded 8 chains from the main haulage by the end of the year, the quality of the coal being good.

To the west, Nos. 6 and 7 levels have been driven 12 chains from the main haulage. At this point a steepening of the dip of the seam towards the west has come in, together with thinning and interruption of the seam. At the face the levels have reached a point directly under the surface contour at 1,264 ft. which is level with the mouth of the mine.

The lower west levels, Nos. 13 and 14, have been driven 6 chains from the main haulage and are stopped in troubled country. A small panel is being developed to the rise of these levels, and panel development is also proceeding on the rise side of Nos. 6 and 7 levels west.

MINE RESCUE-STATION.

Erection of the building at Rotowaro Village was completed early in the year. Owing to delay in the delivery of the necessary equipment the training of rescue brigades has not yet commenced.

FATAL ACCIDENTS.

There were no fatalities in the Northern District collieries during 1941.

SERIOUS NON-FATAL ACCIDENTS.

On 26th March, 1941, H. A. Peel, a boy employed at the Pukemiro Colliery, slipped and fractured his right radius while walking across a moving screen.

On 6th August, 1941, A. J. Singer, a miner employed at No. 3 Rotowaro Colliery, received a fracture of the right lower leg due to a fall of coal from the roof of his working-place, which was 7 ft. high. A slab of coal 8 in. thick on the roof which had been tested fell off a back while coal was being cleared away to set a prop.

On 13th November, 1941, S. Smith, a trucker employed at Pukemiro South Mine, received a fracture of the right femur while trucking to a jig head. Smith was caught between two full skips, and it is thought the second had been left behind him on the slight grade and had followed him down the incline.

On 20th November, 1941, R. Fairhurst, a miner employed at Rotowaro Colliery, lost his right index finger when coal he was trimming on the roof slid down the pick and jammed his hand on the skip. The roof was 7 ft. high.

DANGEROUS OCCURRENCES (REGULATION 81, COAL MINES REGULATIONS 1939).

On 19th February, 1941, a small fire was found in a wooden temporary stopping near the back heading of the "Korfmann" rope-road, MacDonald Colliery. The fire was put out and the stopping repaired.

On 31st May, 1941, a small quantity of inflammable gas was reported when a heading driven from No. 2 right section, Pukemiro South Mine, was holed into old workings. The holing was sealed until the companion heading was holed through and ventilation was possible.

On 2nd October, 1941, a miner in H2 heading, H section, MacDonald Colliery, reported the accidental ignition of a small jet of gas issuing from a borehole in the coal-roof. Tests showed the presence of CH₄ and the mine was put on safety-lamps.

On 13th October, at the Alison Colliery, Rotowaro, an inrush of clay and water from a surface subsidence where water had accumulated owing to heavy rain occurred in the No. 1 headings to the right of the main haulage. The section had been idle for some time. The surface subsidence was filled in.

On 12th November, 1941, a serious outbreak of fire was discovered by the dog-watch deputy at 1.15 a.m. at the overcast over the main E section haulage road at E1 panel, Glen Afton Colliery. Permanent stoppings were erected at K shaft and in the E rope-road, and returns to control the fire, the whole of E section being temporarily sealed off.

On 30th November, 1941, during the early hours of Sunday morning, a small fire was discovered at the booster fan in K1 section, Glen Afton Colliery. The fire was extinguished before much damage was done.

On 16th December, 1941, a trace of firedamp was discovered by a deputy in the main west level section, Renown Colliery. As a precautionary measure the manager installed electric safety-lamps in the section.

PROSECUTIONS UNDER THE COAL MINES ACT, 1925.

A trucker employed in the Pukemiro North Mine was prosecuted for striking a deputy, contrary to Regulation 65 of the Coal-mines Regulations 1939. He was convicted and fined £1, with costs £1 1s.

WEST COAST INSPECTION DISTRICT (J. McARTHUR AND C. HUNTER, INSPECTORS OF COAL-MINES).

In accordance with section 42 of the Coal-mines Act, 1925, we have the honour to submit our annual report on the operations of the coal-mines in the West Coast Inspection District:—

GREYMOUTH DISTRICT.

Liverpool State Colliery, Rewanui.—Morgan Seam: Extraction of pillars was continued throughout the year in Nos. 1, 2, and 3 banks, Morgan west area, and in Nos. 1, 2, and 4 banks, Morgan east area. On the extreme western side of the section development was carried on in the steeply-inclined area near the main western fault and also in No. 3 crosscut section, but towards the latter part of the year pillar-extraction was also carried out in conjunction with development work in both areas.

Morgan East Dip: Development work was continued in the main dips and in a small subsidiary panel at the upper eastern side of the section. At the inbye side of the main dip the No. 1 east level was commenced, but disturbed conditions of the ground retarded progress.

The total distance advanced by both dips is $17\frac{1}{2}$ chains.

Kimbell Sections: Development work was completed in the Kimbell west dip, and extraction of pillars commenced on the west side of the section adjacent to the Kimbell west fault.

In the Kimbell east section, pillar-extraction was completed in No. 7 and No. 8 banks. Pillaring was in progress at the head of No. 6 bank and in No. 5 bank, which is rapidly approaching exhaustion.

Anderson Dip Section: Development of the main dip in this area was abandoned on the 11th August, when the lower section of the main dip was sealed off and flooded on account of heating in fallen coal. Since then operations have been confined to splitting and forming pillars in some blocks of solid coal near the lower end of the section.

James State Colliery, Rapahoe.—Development work east of the mine was stopped in an area of burned coal and ash. Operations to the west also ceased on account of intrusions of stone at a point about 2 chains from the outcrop in Cannel Creek.

Strongman State Colliery.—The output was again obtained from development work in the following areas:—

No. 1 North Section: Three main headings have been advanced 19 chains from the main haulage road in the bottom seam, and in an easterly direction two dip headings have proved the existence of coal for a distance of 15 chains from No. 1 north heading. On the western side of the main heading, access to the upper seam was obtained by a short level 5 chains in length, and from this level three headings have been driven 12 chains in a northerly direction in coal of good quality. Operations in the main north headings were seriously retarded by a thinning of the coal and the presence of stone bands varying in thickness from a few inches to 2 ft. 6 in.

No. 1 South Section (South Dip): Work in this area consisted of driving two levels which have advanced 9 chains from the inbye side of the main dip.

No. 2 South Heading: The south heading was advanced in coal to a point 17 chains from the main east heading when highly inclined measures were encountered and an upthrow fault of 24 ft. A stone drive estimated to be 140 ft. in length was commenced and advanced 60 ft. through the fault, at a gradient of 1 in 6, to reach the top seam on the upper side of the fault.

East Headings: Development work was continued in excellent coal for a distance of 6 chains at the inbye side of the "Doherty" fault when a second upthrow fault of 24 ft. was struck in the main headings. Boring was carried out at the fault, which emitted large quantities of water and firedamp.

No. 2 North Section: Development of the main headings and Nos. 2 and 3 panels continued during the year.

The total distance advanced from the main haulage road is 19 chains.

Blackball State Colliery, Blackball.—On the 7th July, 1940, ownership of the property of the Blackball Proprietary, Ltd., was transferred to the Mines Department, and operations from that date have been carried out by the State Coal-mines Branch.

The output for the year was entirely from development work in the main dip headings and areas to north and south of them.

Main Dip Headings: The total distance advanced in No. 1 main heading from the inbye side of the stone drive is 1,000 ft., the seam over the last 300 ft. maintaining a regular dip of 1 in 20 and an average height of 10 ft. Transport of coal from the heading face to the surface is effected by belt conveyors.

No. 1 North Section: Development was continued steadily in No. 1 north level and the block of solid coal between this level and the eastern barrier below the old Blackball Mine workings. The distance advanced from the main dip heading is $17\frac{1}{2}$ chains.

No. 1 South Section: Work in this area was confined to the development of a block of coal south of the main heading. The main level has advanced 8 chains from the main dip heading.

The coal is of a very soft nature with heavy, unreliable roof conditions existing throughout the mine. The workings generally are extremely wet and entail the pumping of approximately 1,000,000 gallons of water per day from the mine.

Blackball Creek Coal Co., Ltd.—The output for the year was again won from splitting and extracting of pillars in Nos. 3 and 4 sections in the top seam workings in the old Blackball Mine.

Briandale Collieries, Ltd., Ten-mile Creek.—Pillar-extraction was continued throughout the year in the top seam, No. 1 section.

In the bottom seam, three drives advanced about a chain in a north-westerly direction from exposed outcrops and proved the existence of clean, hard coal of an average height of 5 ft. 9 in.

Wallsend Colliery (Brunner Collieries, Ltd.).—The greater part of the output was obtained from development in the rope road extension section and Nos. 1 and 2 slant dip sections.

No. 1 Rise Panel: Splitting of pillars was completed early in the year and the section sealed off with three permanent concrete stoppings, one of which, erected in the main rise jig, also effectively seals all exhausted workings to the north of the main haulage road.

"A" Panel: Splitting of pillars was continued throughout the year and should be completed in approximately three months.

"B" Panel: Development of the panel was carried to a distance approximately 5 chains above the dip barrier, the coal improving in quality and gradually increasing in height from 3 ft. 6 in. to 5 ft. 8 in.

"C" Panel: Development of this panel is proceeding, the coal being of good quality.

No. 2 Slant Dip: At a point 10 chains from the extension rope-road an upthrow fault was met in the main dip, and work during the latter quarter of the year consisted of development to the east of the dip. A level in stone approximately 30 ft. in length was driven into the fault to enable boring to be carried out.

No. 1 Slant Dip Section: Development of panels to east and west of the main dip was continued. Towards the end of the year a start was made in the back heading to the dip and advanced a further 20 yards below the bottom level.

Dobson Colliery (Grey Valley Collieries, Ltd.).—The output from the mine was won from development work and splitting of pillars in No. 3 west level section.

No. 3 West Level: Splitting of pillars in the panel adjacent to the Dobson fault was continued throughout the year, and arrangements made for sealing the panel immediately splitting operations are completed.

No. 4 West Level: The main level was extended to the large downthrow fault, and development of the area to the rise carried out in conjunction with the advancement of Nos. 1 and 4 west dips.

No. 4 East Level: A further 3 chains, making a total of 23 chains from No. 1 main dip, has been advanced in the east level, but an upthrow fault was encountered and development terminated. Development of the block of solid coal situated between No. 4 east level and old No. 3 east level has been proceeding for the greater part of the year. The coal in this area is of good quality, with an average height of 16 ft. and a gradient near the fault of 1 in $1\frac{1}{2}$.

No. 5 Main Levels: At a point 18 chains from the terminus of the main endless haulage system in No. 1 dip two main levels were commenced and driven to east and west of the dip for a distance of 6 chains and $7\frac{1}{2}$ chains respectively, whilst the main dip headings were advanced a further 3 chains.

Paparoa Colliery (Paparoa Coal Co., Ltd.).—Aerial Section: The output from this area was obtained from development work on the north side of the main dip where a small panel was completed near the fault which terminated development in the dip extension heading. A panel to the rise of the main north level was further extended and all headings driven to the fault.

Owing to the steepness of the seam, operations in the slant dip, which is advancing towards the old No. 2 seam workings, was suspended early in the year. Towards the end of the year preparations were under way for establishing a connection with No. 2 seam and the Aerial Section by driving through the old workings from the original main level on the west level main haulage road.

West Level Section: A little development work was carried out on both sides of the top incline tunnel, but thin coal and the presence of numerous thin bands of stone rendered the seam unworkable, and operations were abandoned.

United Brunner Mines, Ltd., Brunner.—Opencast operations were carried out early in the year at an exposed outcrop 10 ft. in height on the northern bank of the Grey River. On account of the proximity of the Blackball Highway, work ceased, and a level was subsequently driven in coal in a northerly direction for a distance of 60 ft., when operations were again stopped.

CO-OPERATIVE MINES IN THE GREY DISTRICT.

Spark and Party's Mine, Rewanui.—All coal was won from development work in the main east level (advanced a further 5 chains during the year) and the area between the east level and the northern boundary of the lease. Due to having reached the boundary, work in No. 1 north heading was stopped. Two new headings were advanced a distance of approximately 2 chains in a northerly direction at the inbye side of the east level.

Old Runanga Mine (O'Brien and Party).—No. 1 Seam: Pillar-extraction was commenced in thin coal at the inbye side of the main level, and at the end of the year the line of extraction had reached a point 12 chains from the mine entrance.

No. 2 Seam: Pillar-extraction was continued throughout the year in Nos. 1 and 2 panels.

Moody Creek Mine (Simpson and Party).—Development of No. 2 main dip was stopped early in the year on account of unworkable conditions of the seam, and pillar-extraction commenced on the fault line running between Nos. 1 and 2 dips below No. 6 east level.

In No. 5 east level the fault was penetrated by a stone drive and the level advanced in clean, hard coal 9 ft. thick.

A small amount of development work was also carried out towards the upthrow fault west of No. 2 dip. *Goldlight Colliery (McKenzie and Party).*—The main dip has been advanced 5 chains in a south-westerly direction, making the total distance 8 chains, and suitable connections for a return airway provided. From the bottom of the dip a pair of levels have been driven in a northerly direction for 5 chains in coal 8 ft. thick.

New Point Elizabeth Colliery (Guy and Party).—Operations were confined to pillar-extraction from an area lying to the north-east and near two faults on the inbye side of the main heading.

Fiery Cross Mine (Currie and Party), Dunollie.—This is a new mine operating under the old name, and situated on the south side of the railway between Moody Creek and Hunter and Party's Mine. The mine has been opened up with a pair of levels driven in a south-easterly direction for a distance of 12 chains. Height of coal, 6 ft. Bords driven for 2 chains in a north-easterly direction entered troubled country and development stopped in this direction. The inclination of the seam is approximately 65°.

Castlepoint Mine (Duggan and Party).—The whole of the output has been secured from pillar-extraction on the rise side of the haulage road.

Hilltop Mine (Armstrong and Party), Ten-mile.—Operations were practically confined to pillar-extraction in the area between the main level and outcrop of seam, sufficient coal being left to protect the surface along the line of outcrop. Driving to the dip was commenced in September, and had been advanced to a distance of 3 chains in good, clean coal having an average height of 6 ft.

Kaye and Party's Mine, Ten-mile.—No coal was produced from this mine during the year.

Hunter and Party's Mine, Dunollie.—During the first quarter of the year a stone drive 2½ chains in length was completed, and the coal-seam, 9 ft. in height, located on the southern side of Rewanui Creek. Development of the seam was commenced, and two main levels have been advanced approximately 6 chains in a southerly direction. A second outlet was also completed.

Schultz Creek Mine (Marshall and Party), Twelve-mile.—Extraction of pillars in the area situated between two faults at the inbye side of the stone drive was completed during the year. Driving was again resumed and the coal-seam located after driving 200 ft.

Bellbird Mine (Stuart and Party), Ten-mile.—Output was secured from the driving of No. 6 level, extraction of pillars, and driving in a 4½ ft. seam on the rise side of a 40 ft. upthrow fault. This fault was crossed by a stone drive, from No. 5 east level, driven approximately 2 chains on a variable gradient of 1 in 3 to 1 in 2½.

Bellvue Mine (Hadercroft and Party), Rapahoe.—The coal in the lease originally held by this party having become worked out, operations ceased in August. A new mine, under the old name, is being opened up on State reserve approximately one mile in a north-easterly direction from the old mine. The main drive has been driven approximately 2½ chains in a 9 ft. seam.

Jubilee Mine (Finning and Party), Rapahoe.—This is a new mine opened up in close proximity to the Bellvue Mine. Two levels, 12 ft. wide by 9 ft. high, have been driven for a distance of 3 chains from the surface.

Cliffside Mine (Moore and Party), Nine-mile.—Extraction of pillars was completed, and the old mine abandoned in June. At a point approximately 7 chains to the dip of the old mine a stone drive 4½ chains in length tapped the coal-seam and an area of coal 3½ chains by 1½ chains has been developed. The coal is of good quality, hard, and has an average height of 10 ft.

Smith and Party's Mine, Dunollie.—With the exception of a small percentage of coal won from a level at the bottom of the dip, the output has been secured from pillar-extraction to the east of the main dip.

Braehead Mine (Boote and Party), Dunollie.—Solid work at this mine was completed in May, and since then the output has been won from pillar-extraction.

Harrison and Party's Mine, Ten-mile.—The work at this mine (formerly known as Hunter and Party's Mine) comprised the completion of a stone drive to cross an upthrow fault of 28 ft. and developing in the seam beyond the fault. A return airway was secured by driving in the seam on a level course for 3 chains and thence by a heading to the rise for 3½ chains connecting on to a level on the rise side of the fault. Height of seam, 8 ft. 6 in.; quality of coal, good. Safety-lamps were installed in March.

REEFTON DISTRICT.

Archer's Mine, Caplestone.—Top Mine: The output was won from development work in No. 1 seam, completed early in the year, and then from extraction of pillars near a line of faulting. At a point 175 ft. from the surface, No. 2 seam was tapped by a stone drive which proved a thickness of 9 ft. of good coal. Development of the seam is postponed until a second airway, which is in process of driving, has been completed.

Bottom Mine: Extraction of pillars was continued until the 7th July, when, as a result of an outbreak of fire, a permanent seal was constructed in the main tunnel.

Doran's Section.—The output was secured from the extraction of pillars to right and left of the main dip. A cross-measure stone drive was completed during the year and the coal-seam tapped at a point ahead of the upper dip approximately 100 ft. below the upper main level. Development of a main heading to connect with the upper workings was proceeding at the end of the year.

Archer Bros' Mine.—At a point approximately 12 chains west of the Bottom Mine, the vertical seam (No. 4) was tapped by a short stone drive, and development of the seam to right and left commenced from the point of contact. At the end of the year two levels, 1 chain apart, had opened up a total width of 9 chains, showing an average thickness of 9 ft. of clean, hard coal.

Coghlan's Mine, Caplestone.—The output for the year was won from pillar-extraction in No. 2 seam. The prospect heading in No. 1 seam was extended a further 30 yards, but no improvement in the composition of the seam occurred in that distance.

Low Level Mine, Oghlan's Freehold, Caplestone.—One man was again employed on development work in No. 2 seam to the dip of Coghlan's Mine. The total distance advanced in coal in the main level is 5 chains.

Waitahu Mine (A. D. Williams), Reefton.—Top Mine: The output was obtained from development of the main level and two rise headings advancing towards the eastern boundary of the mine. The distance advanced in the main levels during the year was 3 chains, while the headings advanced 5 chains. A section of the seam in the present workings is as follows: Top coal, 3 ft.; stone band, 3 ft.; bottom coal, 5 ft.

McKinlay's Mine: Operations in this mine were confined to driving the main levels, which have now reached a point 22½ chains from the surface. The coal is of good quality with an average height of 6 ft.

Lewis and Party's Mine.—The right to operate a portion of Waitahu top seam on which Williams' old mine is located was obtained by this party, and in August the old dip heading in Williams' Mine was dewatered and operations commenced in an area of solid coal to the north of the old mine workings. The original dip heading has been retimbered and a main rope haulage, 6 chains in length, has been installed.

Pyramid Mine, Reefton.—Extraction of pillars continued throughout the year in the top and mid sections of this mine. For the purpose of operating the seam at a lower level a drive was completed and development of a block of coal below the mid-level was proceeding at the end of the year. The coal is of good quality and has an average height of 10 ft.

Burke's Creek Collieries, Ltd., Reefton.—The output for the year was obtained from pillar-extraction in No. 3 panel and the further development of two levels to the south of the main dip extension. Extraction of pillars in No. 3 panel was pushed rapidly during the year and the area is now almost worked out.

Peerless Mine (Williams and Party), Burke's Creek Lease, Reefton.—All coal was extracted from this mine, and operations ceased in October.

Burnell Coal Co., Reefton.—Operations during the year consisted of driving the rise companion level, and two main headings have been advanced in a southerly direction for a distance of 3 chains. A new return airway was completed and essential repairs and improvements carried out in the main level.

Terrace Mine, Reefton.—Early in the year operations ceased in the top workings of the mine, and the seam was tapped by a stone drive 470 ft. in length at a point 65 ft. below the level of the original mine entrance. The main level at the inbye side of the stone drive was advanced in good coal approximately 120 ft. and two headings connected with the upper main level, which now forms the main return airway. The estimated thickness of the seam is 40 ft., the lower 9 ft. of which is being operated through the new stone tunnel.

Venus Mine, Murray Creek.—All available coal was won from this mine, and the mine was abandoned early in the year.

Defiance Mine (McClatchie and Co., Ltd., Christchurch), Murray Creek.—During the year extraction of pillars was completed in the Waterfall and McKenzie's sections.

Development of the top level area was carried forward to the north-eastern boundary of the lease, and pillar extraction commenced on the line of outcrop near the boundary.

At the inbye side of the main dip, approximately 9½ chains from the top level, a small amount of development work was carried out in the dip extension, and a main level has been opened out on the northern side of the dip. The coal in this area is of good quality with an average height of 5 ft.

Clele Mine, Merrijigs.—The output for the year was secured from pillar-extraction in No. 1 mine. All development work in this area has been completed, and extraction of pillars was proceeding near fault lines on the eastern and western sides of the main level.

White Rose Mine, Merrijigs.—Most of the output was obtained from partial extraction of a strip of outcrop coal left behind when operations were abandoned several years ago.

In the latter half of the year the main portion of the seam was intercepted by a short stone tunnel at a lower level.

BULLER DISTRICT.

Mitchell's Mine, Charleston.—Opencast mining was carried on during the year in the upper 8 ft. of the coal-seam. *Warne's Mine, Bowater and Bryan's Mine, and Powell's and Price's Mines, Charleston.*—These mines did not operate during the year.

Brighton Coal-mines, Ltd., Brighton.—A small quantity of coal was won from development to meet local requirements.

Rockland's Mine (J. F. Burley), Buller Gorge.—All available coal was extracted from this mine, and the mine abandoned in December.

Glencrag Mine (Forsyth and Bateson), Buller Gorge.—The output was obtained from development work in the main level and a small amount of pillar-extraction carried out in the vicinity of the northern fault line.

Coal Creek Mine (McGuire and Party), Seddonville.—The output was obtained from development work in the top mine and the reopening of the old working in the Lawrence section of the Mokihinui Mine. The coal in the latter area is of good quality, with an average height of 12 ft.

Cardiff Coal Co., Ltd., Mokihinui.—During most of the year operations were confined to the clearing and repairing of roadways in the old Cardiff Bridge Mine, and the driving of a ventilation shaft, through 60 ft. of stone, at the inbye side of the workings. A small amount of coal was won from pillar-extraction near the fault on the northern side of the mine.

Hydro Coal-mines, Ltd., Seddonville.—All development work has been completed, and extraction of pillars was commenced in low west and top east sections during December.

Charming Creek-Westport Coal Co., Ltd., Ngakawau.—The output during the first half of the year was won entirely from development work in the south jig section. Dirty coal and a thinning of the seam were then encountered, and consequently development work was stopped and the extraction of pillars commenced.

In the south-eastern area of the mine, development work was advanced with a view to opening up an area of coal proved by several boreholes put down during 1940.

Westport-Cascade Mine, Cascade Creek.—The output was obtained from three separate areas as follows:—

Moynihan's Section: Extraction of pillars was continued throughout the year in excellent coal approximately 30 ft. thick.

O'Brien's Section: Pillar-extraction was carried towards the outcrop early in the year, but as a result of the reduction in height of the overburden near the outcrop the opencast method of mining was introduced.

Durkin's South Section: Five solid places, situated on the upthrow side of a fault with a good displacement of 25 ft., were advanced towards the outcrop.

Westport Coal Co., Ltd., Denniston Mines.—Ironbridge Mine: The whole of the output was again won from pillar-extraction.

Coalbrookdale Mine: Most of the output was obtained from pillar-extraction in the Whareatea Extended, Waterloo, Cascade, and Forsyth's sections, all of which, with the exception of Forsyth's section where some panels have yet to be completed, have been fully developed and a retreating system of pillar-extraction is carried on.

The ratio of pillar coal to solid coal won from development was approximately 90 per cent. and 10 per cent. respectively.

Boring operations in the area adjacent to Forsyth's section have been almost completed.

Westport Coal Co., Ltd., Millerton Mine.—Mine Creek Section: The output was again obtained from partial extraction of pillars and top coal in the third and sixth west sections. All available coal was extracted from No. 5 west section, and the area was sealed off in the early part of the year.

Mangatini Area: Operations consisted of the total extraction of pillars as far as conditions permitted.

Old Dip Area: Extraction of pillars was continued at the inbye side of the area during the year. The seam here varies from 15 ft. to 30 ft. in thickness, and on account of the liability of spontaneous combustion developing in the coal the area has been blocked into small panels by artificial barriers formed by the coal-pillars and substantial concrete stoppings. During the year evidence of heating was observed in the goaf area behind the working pillars—the area was immediately sealed off by closing two doorways in a line of stoppings previously prepared for such an emergency.

Westport-Stockton Coal Co., Ltd., Ngakawau.—Operations have been confined mainly to development in the East, Straight, McCabe's Jig, and Main South areas. In McCabe's Jig area the main headings advanced a further 10 chains in excellent coal, which unfortunately is inclined very steeply and has caused some serious transport problems. Considerable trouble was also experienced in this area by inflows of water from the surface, caused by breaks and fissures in the thin overburden.

In the main south area two main headings have advanced in highly-inclined country at the inbye side of the main fault for a distance of 12 chains. A split in the seam occurred in this area, the lower portion of the seam thinning from 8 ft. to a few inches within $1\frac{1}{2}$ chains; the upper portion, however, maintained a uniform thickness of 10 ft. and consists of clean, hard coal. A stone drive, 3 chains in length from the right companion heading, has been completed and provides an ample waterway from this area.

Some further development work was carried out in the west dip to the right of McCabe's dip in very good coal.

In old Nos. 1 and 2 West a few pillars were extracted, and in No. 2 a small amount of development work was carried out.

Boring operations carried out during the year proved an area of approximately 30 acres of coal-bearing land west of the No. 2 pillared area near the main locomotive roadway.

Watson's Mine, Karamaea.—The main tunnel subsided a few weeks after the commencement of the year. The seam was again tapped by a stone drive at a point 4 chains to the north of the original mine entrance. No coal was produced during the year.

Comet Mining Party (J. Strang and Party), Inangahua.—Production at this mine at Flaxbush Creek, about four miles from Inangahua Township, commenced on the 2nd December. The seam is lignituous and has an average thickness of 10 ft.

NELSON DISTRICT.

Paponga Mine, Paponga.—Operations during the year were confined to pillar-extraction in the horse level and the old dip area to the north of the horse level.

Mount Burnett Mine, Collingwood, North Cape Syndicate's Mine, Onekaka, and Abbotsford Mine, Takaka.—These mines did not operate during the year.

Owen Colliery, Owen River, Murchison.—The output for the year was won from the stalls which, on the western side of No. 3 dip, were stopped on account of the thickening of the intervening stone bands and a general thinning of workable coal. In the latter half of the year work was commenced in Nos. 6 and 7 East stalls and No. 6 West stall, while a small amount of coal was also being recovered from upper stall barriers.

O'Rourke's Mine, Murchison.—This mine remained closed during the year.

Six-mile Mine, Murchison (J. Gillespie and Party).—Operations commenced in September on a vertical seam located approximately 30 yards to the east of the old Wynnendale Mine, and at the end of the year prospect drives had proved the existence of coal, 5 ft. in thickness, on the northern side of the Six-mile Creek for a distance of a chain. Prospecting was also proceeding on the southern side of the creek, but coal had not been located.

O'Rourke's Mine, Arikai.—Development of a coal-seam outcropping in a subsidiary creek to the south of Maruia River was commenced in August, and at the end of the year coal of good quality, 4 ft. in thickness, and dipping towards the north-west at the rate of 1 in 3, had been proved by drives for a distance of a chain.

Westhaven Mine, Mangaraku.—The outcrop for the year was obtained from development work in the main dip and areas to the east and west. A total distance of 8 chains has been advanced in the main dip, and on the strike of the seam a width of 12 chains has been carried forward to the present position of the main dip.

Glenhope Mine, Glenhope (Biggs and O'Brien).—A prospect drive has been driven 180 ft. in a vertical seam outcropping on freehold property approximately three-quarters of a mile to the north of Glenhope Township.

RESCUE-STATION.

During the year an additional five brigades completed the course of training, the total number of trained rescue men on the station register being seventy-five at the end of the year.

FATAL ACCIDENTS.

Three fatal accidents occurred during the year, as follows:—

On 16th January, J. Mansell, coal-miner, was clearing loose coal from the outer rail on the main dip of the Owen River Mine, when he was struck by a large flat stone, 9 ft. in length and $3\frac{1}{2}$ ft. in width. He sustained a fracture of the skull and brain injuries which resulted in his death eight hours later.

E. W. Cutbush, a trucker at Peerless Coal-mine, Reefton, was fatally injured on 6th August when he was severely jammed against a prop in the main level by a runaway truck, which knocked him across a flat-sheet and crushed his head against the prop. The injury sustained was an extensive fracture of the vault and base of the skull, and the cause of death, laceration of the brain and hæmorrhage.

Fatal injuries were sustained by W. R. Martin, platelayer on the surface loco. track, Westport-Stockton Coal-mine, Stockton, on 17th October. Martin was attempting to remove some planks from the line as the train was coming towards him, but, being between plank and rail, he was swept on to the track before the train, with the plank on top of him pinning him down to the track. Serious head and back injuries were inflicted, and death was instantaneous.

SERIOUS NON-FATAL ACCIDENTS.

On 19th February L. Porter, rope-boy at Strongman Colliery, sustained a compound fracture of the right foot when caught between the buffers of two moving trucks.

R. Hodgson, miner at Liverpool Colliery, was injured on 5th March when a small piece of coal fell, inflicting a fractured forearm.

At Denniston Mine on 7th April A. Filer, miner, was struck on the legs by approximately 10 cwt. of coal which fell from between two slippery "backs" when he was assisting to tamp up a shot. He sustained a compound fracture of the right leg and dislocation of the left ankle joint.

R. Little, miner at James Colliery, was injured on 22nd April. He was replacing three props which had been knocked out by two shots when a slab of stone fell from the roof, striking him on the head and coming to rest on his right leg. He sustained a fractured right tibia in two places.

At Liverpool Colliery on 8th May V. Fenton, trucker, was injured when his right leg was caught between a flat-sheet and the bottom of a truck. Fenton forgot to attach the jig rope to an empty truck, and was struck by the full truck on the flat-sheet. He suffered a fractured right leg.

On 14th July A. Carson, rope-road worker at Wallsend Colliery, was seriously injured. He stopped the haulage rope to take off the chain when a box on the empty side became detached and ran down the incline, striking him. His left foot had to be amputated above the ankle, and he sustained a compound fracture of the right leg, internal injuries, and a slight scalp wound.

At Denniston Colliery on 10th July R. Kay, rope-road boy, sustained a fractured right wrist when he was caught between two boxes whilst taking off tokens at the brakehead.

On 19th July J. Parker, deputy at Denniston Colliery, received a fracture of the patella of the left leg. Parker was travelling out of the mine when he slipped on a piece of board.

J. S. Senior, trucker at Dobson Colliery, on 14th October was seriously injured when he slipped and fell whilst twisting a box on a flat-sheet. He sustained a slight fracture of the pelvis.

On 28th November J. McKearnan, miner at Coalbrookdale Mine, was struck on the left ankle by a piece of coal weighing about $\frac{1}{2}$ cwt. McKearnan was preparing to drop 8 ft. of top coal whilst extracting pillars, when the piece fell, rolled downhill, and struck his ankle. He received a fracture of the tibia and dislocation of the ankle.

At Paparoa Mine on 19th December J. U. Fielding, miner, suffered fracture of both bones in the left leg when a piece of coal weighing approximately 1 cwt. parted from the roof, rolled forward on a heap of loose coal, and pinned Fielding's left leg against the coal-rib.

On 22nd December T. Budd, miner, Millerton Mine, was injured whilst dropping top coal and robbing the adjoining pillar in an old roadway in the sixth west section, Mine Creek Mine. A fall of coal knocked out a prop which struck an empty truck and broke, the upper part striking Budd, who sustained a simple fracture of the right forearm.

DANGEROUS OCCURRENCES IN COAL MINES (Regulation 81, Coal-mines Regulations 1939).

Pyramid Mine, Reefton.—A heating occurred in some buried coal while extraction of pillars was proceeding on the 21st April. The heated coal was located by driving into the fall, and was loaded into trucks and removed from the mine.

Wallsend Colliery, Brunnerton.—On the 21st May an accumulation of firedamp (approximately 15,000 cubic feet) was discovered in the north-west corner of "A" panel. The workmen were withdrawn from the section and the gas cleared before the end of the day.

Liverpool State Mine, Rewanui.—On the 11th September heating of coal was found in the west side of the Anderson dip section. The heating was located in a large heap of fallen coal which could not be removed, and after unsuccessful attempts to cool it with water the area was sealed with permanent stoppings and subsequently flooded with water.

Liverpool State Mine, Rewanui.—On the 17th October a "heating" was reported in the Morgan East Section. An area had been previously sealed off with permanent stoppings, but damage to two stoppings had been caused by excessive crush, which resulted in the products of the fire escaping through the stoppings. A new line was erected on the outbye side of the affected area.

PROSECUTIONS UNDER THE COAL-MINES ACT, 1925.

Four informations were laid during the year, and a conviction obtained in all cases.

On 4th June two miners were prosecuted for having in their working-place 4 lb. of explosives, not being in a secure case or canister as required by Regulation 221 (1) of the Coal-mines Act, 1925. Both men were convicted and fined £3 each with Court costs 10s.

A shot-firer was charged with failing to examine all contiguous accessible places with a locked safety-lamp within a radius of 20 yards from a shot which had been charged and coupled to the shot-firing cable preparatory to firing it. He was convicted and fined £5, and Court costs 10s.

A mine-manager was charged with a breach of section 131 (2) of the Coal-mines Act, 1925, in that he failed to withdraw the workmen from a working-place rendered dangerous by the presence of inflammable gas. He was convicted and fined £5 and Court costs 10s.

SOUTHERN INSPECTION DISTRICT. (J. HUGHES, INSPECTOR OF COAL-MINES.)

In accordance with the Coal-mines Act, 1925, I have the honour to submit the following report on the mining activities for the year ended 31st December, 1941.

CANTERBURY DISTRICT.

Bonanza Mine.—Pillar-extraction was continued at this mine until November. The mine was then abandoned and all plant withdrawn.

Clearview Mine.—Pillar-extraction was continued throughout the year. As a result of heavy rain the mine was flooded in September, and was later dewatered and mining operations recommenced.

Lucknow Clay-pit.—Another seam of fireclay was developed during the year by means of two levels driven north-east for a distance of 200 ft.

Klondyke Mine.—Very little development work was carried out during the year, the bulk of the output being obtained from pillar-extraction along the No. 3 north-west level.

Malvern Mine.—During the year the lower south level collapsed and a small amount of head coal extraction took place along the lower north level; the mine was abandoned in October.

Sandown Mine.—Following upon efforts to further develop this mine, it was abandoned towards the end of the year.

Steventon Mine.—Development has been continued in the lower levels to the north. A fault was intercepted, and further development work increased the influx of water.

Sunnydale Clay Mine.—Work was carried out very intermittently at this mine.

Blackburn Mine.—Development work is continuing on the north-west side of the fault. The coal in this area is of good quality and a reasonable amount of coal is now in sight. During the year the railway leading to the mine was replaced by a roadway, and the results have proven this to be beneficial.

Mount Somers Mine.—Pillar-extraction has continued in the old mine and very little coal remains to be won. The new stone drive was successfully completed and development work is proceeding in a northerly direction.

Brockley Anthracite-mine.—Development work is continuing to the south-west, and the seam is maintaining its thickness.

Acheron Mine (Anthracite).—All development work carried out at this mine appears to indicate a deposit of reasonable extent.

Woodbank Mine (Albury).—Following the abandonment of the old mine, all operations have been confined to opencast mining.

NORTH OTAGO DISTRICT.

Airedale Mine.—Pillar-extraction was continued to the north of the inbye dip haulage road, and trouble was experienced from spontaneous combustion. As a result, the whole of this area was permanently sealed off. Development work is now proceeding on the south side of the old area, but the extent of available coal is fast diminishing.

St. Andrew's Mine.—Practically all pillar coal in the dip area has now been won, and a small area to the rise remains for further development.

Ngapara Mine.—All production from this mine continues to be from pillar-extraction.

Shag Point Mine (McLaren's).—A small amount of development work was continued to the east and to the south, but the bulk of the output was obtained from pillar-extraction. An effort is being made to prove the seam to the north of the fault which runs parallel to and on the north side of the main dip haulage heading.

Willett's Mine.—A limited amount of development work was carried out to the north, but the bulk of the output was obtained from pillar-extraction.

Rockvale Mine.—Development of the field to the east has been continued during the year, and a few years' coal is in sight.

CENTRAL OTAGO DISTRICT.

Shepherd's Creek Mine.—The whole of the mine output has been obtained from pillar-extraction, and the quantity of coal remaining to be won from present operations is very limited.

Cairnmuir Mine.—All previous development or exploratory work has been abandoned and a small amount of coal has been won from an area adjacent to Wilson's old mine.

Guruchua and Idaburn Pits.—Opencast operations have been continued at these pits.

SOUTH OTAGO DISTRICT.

New Fernhill Mine.—Development work has continued during the year to the north, and the places have reach the boundary in this direction.

Jubilee Mine.—The whole of the mine output has been won from pillar-extraction, a general policy of retreating from the dip having been followed. No further work has been carried out to develop this seam from any other site. A stone drive had been commenced for this purpose, but meantime the project is suspended.

Fairfield Mine.—Pillar-extraction has been continued during the year, no further development having been attempted.

Willowbank Mine.—During the year the top seam has been developed to the south, the quality of coal being good. A method of partly working the lower seam and then following up with the total extraction of the top seam has proved successful. The seams are separated by approximately 8 ft. to 12 ft. of fireclay and the floors of the seams are subject to heave.

East Taieri Mine.—Development work has continued to the south from the lower level. The coal is of a friable nature.

Elliotalc Mine.—The old mine was abandoned early in the year, and prospecting operations have taken place during the latter portion of the year. A small quantity of coal has been won to the rise of the old workings, and a good face of coal exposed to the west.

Kai Point Mine.—Operations were suspended at this mine about the middle of the year.

Benhar Mine.—The main dip has been extended and the lower areas to the north and south are being developed. The main dip heading has now been extended a total distance of approximately 1,400 ft.

Wangaloa Mine.—Development work has continued in the lower levels and to the north-west. A small amount of pillar-extraction took place in the higher north-west levels, but this area is being held in reserve.

Kaitangata Mine.—In the main south dip heading all operations are still confined to pillar-extraction and the greater portion of the mine output has been won from this area, the quality of the coal being good. The pillars on the east side of the heading have retreated to a point 300 ft. to 500 ft. from the heading. In the north-west area, known as Samson's, pillar-extraction has been brought back almost on a line with the north-west heading, and despite the steep gradient (1 in 2) full extraction is obtained, this work being assisted by a strong roof. In the main south-west dip heading in Samson's, development is proceeding; the seam is still very steep and the coal tends to become more friable as it extends to the dip.

The new stone drive, which is being driven to intercept Samson's seam, has now been driven approximately 2,200 ft. in a southerly direction (on a grade of 1 in 4), and a further 400 ft. still remains to be driven.

SOUTHLAND DISTRICT.

At the Waimumu, Raty, Firelight, Newvale, Argyle, Hedgehope, Ota Creek, Ashe's Siding, Waimamea, Coster's, Croyden, and Mataura Paper-mills pits opencast operations were continued during the year.

Balfour Mine.—This mine is really a continuation of the old Kingston Crossing Mine. A pair of levels have been driven in a southerly direction from the outcrop, these being a short distance to the west of the old workings.

Boghead.—The year's operations have consisted of driving several of the lower levels on to the south boundary, and no development has taken place to the dip. A small quantity of lignite was won opencast.

Black Lion Mine.—The year's operations have consisted of pillar-extraction in the north and north-east portion of the mine. The very small amount of development carried out has not disclosed any further area of coal-bearing ground. The mine's operations appear to be gradually nearing their end.

Black Diamond Mine.—The whole of the mine's output for the year has been obtained from pillar-extraction. The area worked was the north-east portion of the workings along the Nos. 5 and 6 levels.

Mossbank No. 4 Mine.—Coal-production was commenced at this new mine, and development work has been continued throughout the year. Main levels have been driven east for a distance of approximately 500 ft., and panels are being formed to the north and rise of the levels.

Star Mine.—During the year the development of all rise coal above No. 1 east level was completed and a commencement made to extract the pillars in the No. 2 panel. It was very soon evident that the roof in this area is weak, and it would appear that the percentage of coal won will not be high. Development of the main dip heading was recommenced during the year.

Birchwood Mine.—The bulk of the year's output has been obtained from pillar-extraction in the No. 3 west section and Nos. 3 and 4 east sections. Development work has been carried out in the No. 2 west section, the prospecting stone drives in this section proving an area of good-quality coal approximately 27 ft. in thickness to the west of the faultline.

Wairaki Mine.—No. 1: The bulk of the mine's output has been obtained from pillar-extraction. The areas which have been worked are chiefly the dip section from No. 3 east level and the stone dip section; the development of the latter section did not have very satisfactory results and it was therefore decided to extract the pillars. A certain amount of development work took place to the east of the main haulage heading.

No. 3: Development of this mine has been continued on sound lines and coal of good quality proven. Levels have been driven west for approximately 500 ft., and panels are being formed to the rise and north.

Linton Mine.—No. 1: The chief development in this mine is taking place in the No. 9 section; the work of extending the main dip heading into this area is proceeding, and preparations are being made to open up a further section to the east of the main dip. Pillar-extraction has continued in Nos. 3 and 6 sections, and the quantity of coal remaining in the former section is now very limited. In the No. 7 section all development work was completed and pillar-extraction commenced in the dip and in the east rise areas. Development of the No. 8 dip panels was also completed and preparations made for pillar-extraction. The development of the section known as "Adam and Eve's" is also nearing completion, but as this area is adjacent to old heated workings no pillar-extraction can take place at this stage.

No. 3: Development of this mine has been retarded as a result of the main north headings striking a fault. Pillar-extraction has been proceeding in the rise and dip areas.

FATAL ACCIDENT.

On the 17th June Charles Hazeldine, miner, was killed in the Linton No. 1 Mine. The deceased was engaged in pillar-extraction, and was killed by being struck by coal which fell from the overhanging lip of his working-place.

SERIOUS ACCIDENTS.

On the 30th June George Williamson, Assistant Engineer, Wairaki Mine, sustained a fractured pelvis. Williamson was crushed between a full box, ascending an incline, and the rib side of the roadway.

On the 5th August Ivan Jenkinson, miner, Kaitangata Mine, sustained a fractured vertebra of the neck. Jenkinson was engaged in pillar-extraction and was struck on the neck and shoulders by coal which fell from the lip of his working-place.

On the 16th September Walter Parker, pumpman, Kaitangata Mine, sustained a fracture of the lower spine. Parker was screwing up a pipe-line when he was struck by a piece of stone which slipped off a greasy parting from the rib.

On the 29th September James Robb, trucker, Star Mine, sustained a fractured pelvis and internal injuries. Robb was struck by a runaway mine truck, which it is alleged ran over the stop-block. The type of stop-block used was condemned, and new stop-blocks were installed throughout the mine.

DANGEROUS OCCURRENCES (REGULATION 81, COAL-MINES REGULATIONS 1939).

Linton No. 1 Mine.—19th March : Heating occurred in the pillared area, No. 3 section, and was effectively sealed off.

Black Lion Mine.—2nd April : Fire broke out in the dip pillared area and was effectively sealed off.

Wairaki Mine.—20th May : Heating occurred in the goaf of the area to the dip of No. 3 east level, and the area was effectively sealed off.

Airedale Mine.—27th June : Heating occurred in the goaf of the dip pillared area ; a line of new permanent stoppings were erected and the area sealed.

Linton Mine.—30th September : Heating occurred in the goaf section No. 6, and the area was effectively sealed.

Linton Linc.—20th November : As a result of subsidence in an old pillared area in No. 3 section, a considerable quantity of surface water accumulated behind the underground fire stoppings. The stoppings were strengthened, the water drained away, and mining operations suspended for two days, after which conditions again became normal and work was resumed.

PROSECUTIONS.

A manager was convicted for a breach of Regulation 81 and of Regulation 179 (1) of the Coal-mines Regulations 1939. Defendant was fined £8 and costs and convicted with Court costs respectively.

A fireman deputy was convicted for a breach of section 128, Coal-mines Act, 1925, and for a breach of section 3 (2) of the Coal-mines Amendment Act, 1936. Defendant was fined £4 and costs and £1 and costs respectively.

A fireman deputy was convicted and fined £6 and costs for a breach of Regulation 225 (4), Coal-mines Regulations 1939.

A manager proceeded against two miners for breaches of Regulation 221 (4), Coal-mines Regulations 1939. Defendants were each convicted and fined £1 10s. and costs.

ANNEXURE B.

STATISTICS OF WORKINGS IN COAL-MINES, 1941.

Name of Mine and Locality.	Title held (Crown Lease or otherwise).	Name of Mine-manager and Class of Certificate.	Name and Address of Owner.	Years worked.	Classification of Coal.	Number of Beams worked.	Thickness of Coal-seams.	Thickness worked.	System of Under-ground Working.	Number of Winding-shafts.	Depth or Length of Shaft Drive (if any) to reach Coal-seam.	Total Output for 1941.	Total Output to 31st December, 1940.	Total Output to 31st December, 1941.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
NORTHERN INSPECTION DISTRICT.																		
<i>Waikato District.</i>																		
Rotowaro, Rotowaro ..	Crown lease and freehold ..	J. Smith (1st C.) ..	Taupiri Coal-mines, Ltd., Auckland	24	Brown ..	2	7', 9' and 27'	7' to 25' ..	Bord and pillar	..	55' S.	Tons. 203,298	Tons. 2,982,708	Tons. 3,186,006	94	267	361	Fans.
Pukemiro, Pukemiro ..	Ditto ..	W. N. Currie ..	Pukemiro Collieries, Ltd., Auckland	26	" ..	1	4' to 18'	4' to 14'	Ditto ..	..	..	134,242	2,943,602	3,077,844	53	184	237	"
Wilton, Glen Massey ..	Freehold ..	T. L. Andrews (1st C.) ..	Wilton collieries, Ltd., Auckland	11	" ..	1	6' to 8'	7' 6"	" ..	..	..	90,093	837,451	927,544	39	108	147	"
Waikato Extended, Huntly West	" ..	J. Honey (U.) ..	Roose Shipping Co., Mercer ..	25	" ..	1	14'	9'	" ..	..	7 ch. ..	2,298	118,245	120,843	3	108	111	Natural.
Glen Afton No. 1 ..	Crown lease ..	W. C. Inglis ..	Glen Afton Collieries, Ltd., Auckland	21	" ..	1	4' to 16'	9'	" ..	..	..	71,432	1,990,512	2,061,944	33	135	168	Fan.
MacDonald, Waikowai ..	Crown lease ..	W. Scurr (D.) ..	Ditto ..	11	" ..	1	6' to 20'	9'	" ..	..	..	150,903	1,284,367	1,435,270	62	195	257	"
Taupiri East, Kimbha ..	" ..	Holland and party, Huntly ..	Holland and party, Huntly ..	20	" ..	1	18'	17'	" ..	..	..	3,455	39,740	43,195	2	5	7	Natural.
Whatawhata, Campbell, Whatawhata ..	" ..	A. Penman (1st C.) ..	Whatawhata Campbell Coal Co., Ltd., Hamilton	20	" ..	1	7'	7'	" ..	..	2½ ch. ..	4,643	82,564	87,207	3	5	8	Fan.
Renown, Renown ..	Freehold ..	T. Geddes (1st C.) ..	Renown Collieries, Ltd., Auckland	14	" ..	1	15'	7' 6" to 9'	" ..	..	Tun. 72 ch. ..	138,297	1,246,829	1,374,626	49	191	240	"
Graham, Glen Afton ..	" ..	J. Tweedie (2nd C.) ..	Graham Coal Co., Glen Afton	18	" ..	1	2' 6" to 4'	2' 6" to 4' 6"	" ..	..	5 ch. ..	2,046	143,520	147,566	1	3	4	"
Glen "A" Potteries, Glen Afton	" ..	J. Howie (P.) ..	Taranaki Brick and Land Co., Ltd. New Plymouth	54	" ..	1	8'	8'	Opencast	..	..	230	1,991	2,221	1	..	1	Natural.
<i>Taranaki District.</i>																		
Old Stockman, Mokau ..	Freehold ..	H. W. Jones (D.) ..	Chambers Bros., Havelock	21	Brown ..	1	4' 6"	4' 6"	Bord and pillar	..	{ No. 1, 9 ch. No. 2, 4-5 ch. }	1,064	11,425	12,489	1	2	3	Natural.
Mangarehi, Mangarehi (State) ..	Crown lease ..	J. Hadcroft ..	N.Z. Government, Wellington	7½	" ..	1	8' to 20'	7' to 8'	Ditto ..	..	..	33,614	37,644	71,258	22	54	76	Fan.
Tatu, Ohura (State) ..	" ..	A. F. McMillan (1st C.) ..	" ..	5	" ..	1	7'	7'	" ..	..	5 ch. ..	11,946	66,916	75,862	25	35	60	"
Aria, Aria ..	Freehold ..	J. Gillick (1st C.) ..	A. R. Keighley, Aria ..	2	" ..	1	12'	8'	" ..	..	..	68	311	379	..	1	1	Natural.
<i>Hikurangi District.</i>																		
Waro, Hikurangi ..	Freehold ..	A. Burt (1st C.) ..	Waro Coal-mines, Ltd., Auckland	7	Sub-bituminous	1	4' to 6' 6"	All	Bord and pillar	..	1,548'	26,480	58,376	109,856	17	69	86	Fan.
Ruatangata, Kamo ..	" ..	G. Cross (2nd C.) ..	Kamo Potteries, Ltd., Whangarei	21	Ditto ..	1	5'	5'	Ditto ..	..	250'	2,780	58,844	61,624	1	7	8	Mechanical.
New Kamo, Kamo ..	Crown lease and freehold ..	J. Makinson (1st C.) ..	Kamo Collieries, Ltd., Whangarei	7½	" ..	..	6' to 12'	8'	" ..	..	430' S. and 1,100' D.	48,594	195,009	243,603	21	69	90	Fan.
Tauranga Block, Hikurangi	Freehold ..	J. B. Orr ..	Wilson's Portland Cement Co., Ltd., Auckland	7½	Bituminous	1	2½' to 3½'	3½'	" ..	..	..	1,240	8,758	9,908	..	3	3	Natural.
Aroca, Tangowahine ..	" ..	S. G. Foot (U.) ..	S. G. Foot, Hikurangi	12½	Sub-bituminous	1	8'	All	Opencast	..	..	403	10,338	10,741	1	..	1	"
Whareroa, Hikurangi ..	" ..	J. Pollock (D.) ..	A. E. Pollock, Kamo Road, Whangarei	11	Ditto ..	1	4'	4'	Bord and pillar	..	90' D.	870	7,203	8,073	1	2	3	"
Outputs of collieries included in previous statements at which operations have been abandoned or suspended														..	12,337,870	12,337,870	..	..

STATISTICS OF WORKINGS IN COAL-MINES, 1941—continued.

Name of Mine and Locality.	Title held (Crown Lease or otherwise).	Name of Mine-manager and Class of Certificate.	Name and Address of Owner.	Number of Years worked.	Classification of Coal.	Number of Seams worked.	Thickness of Coal-seams		Thickness worked.	System of Under-ground Working.	Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam.	Total Output for 1941.	Total Output to 31st December, 1940.	Total Output to 31st December, 1941.	Number of Persons ordinarily employed.		Means of Ventilation.
							Number of	of							Above.	Below.		Total.
WEST COAST INSPECTION DISTRICT.																	
Nelson District.																	
Westhaven, Collingwood	Freehold	G. Wynn (D.)	G. and A. H. Wynn, Mangaraka	8	Sub-bituminous	1	10'	5' 9"	..	Bord and pillar	..	3,758	4,011	7,799	3	5	Natural.
Puponga, Puponga	Crown lease	A. J. McHardy (2nd C.)	Puponga Coal-mines, Ltd.	38	Ditto	1	5' to 6'	5' to 6' 6"	..	Ditto	..	6,548	412,435	418,953	3	8	"
Owen, Owen River	"	O. J. Gilroy (D.)	Owen Collieries, Ltd., Nelson	12	"	1	4' to 6'	Full	..	Double stall	4 ch.	3,841	36,384	40,225	2	6	Fan.
Stratmore, Ariki	"	R. O'Rourke	R. O'Rourke, Murchison	1	"	1	4' to 5'	"	..	Stopping	1 ch.	72	..	72	2	2	Natural.
Six-mile, Murchison	"	J. Gillespie (P.)	Six-mile Coal Co., Murchison	1	"	1	6'	"	..	"	1 ch.	111	..	111	1	3	"
Buller District.																	
Allan's, Charleston	Crown lease	F. D. Allan	F. D. Allan, Charleston	9	Lignite	1	40'	8'	..	Opencast	..	10	65	75	1	..	Open.
Bowater and Bryan, Charleston	"	F. M. Mitchell (P.)	Bowater and Bryan, Westport	11½	"	1	1' to 8'	Full	..	Bord and pillar	..	384	2,700	3,124	1	..	"
Brighton, Fox River	"	A. Hunter (P.)	Brighton Coal-mines, Ltd., Brighton	9	"	1	12' to 15'	"	..	"	..	182	3,473	3,655	1	1	Natural.
Cascade, Cascade Creek	"	W. Brown (1st C.)	Cascade-Westport Coal Co., Ltd., Westport	15	Bituminous	1	30'	7' to 10'	..	Ditto	..	17,407	226,700	244,107	10	20	"
Charming Creek, Ngakawau	"	B. J. Wearne (1st C.)	Charming Creek Coal Co., Ltd., Westport	14	"	1	8' to 20'	10'	..	"	20 ch.	36,445	217,298	253,743	25	31	Fan.
Coal Creek, Seddonville	"	T. Quinn (D.)	Coal Creek Mining Pty., Seddonville	24	"	1	10' to 45'	8'	..	"	..	4,072	109,963	114,035	2	5	Natural.
Hydro, Seddonville	"	N. Forsyth (2nd C.)	Hydro Coal-mines, Ltd., Westport	6	"	1	20'	Full	..	"	22 ch.	11,297	42,977	54,274	2	8	Fan.
Dove's, Seddonville	"	J. T. Dove (D.)	J. T. Dove, Seddonville	11	"	1	20'	"	..	"	1 ch.	10	119,651	119,661	..	1	Natural.
Mitchell's, Charleston	"	F. M. Mitchell (P.)	F. M. Mitchell, Charleston	16	Lignite	1	1' to 8'	"	..	Opencast	..	176	979	1,155	1	..	Open.
Warne's, Charleston	"	G. N. Warne (P.)	G. N. Warne, Charleston	16	"	1	6'	"	..	"	..	13	145	158	1	1	"
Rocklands, Buller Gorge	"	A. E. Paine (P.)	J. P. Burley, Buller Gorge	39	Brown	1	28'	8'	..	Bord and pillar	..	2,426	16,527	18,953	1	4	Natural.
Glencrag, Buller Gorge	"	N. Forsyth (2nd C.)	Forsyth and Bateson, Westport	18	Bituminous	1	20'	10'	..	Ditto	..	1,680	7,437	9,117	2	2	"
Denniston, Denniston	"	A. Openshaw (1st C.) and R. Marshall (1st C.)	Westport Coal Co., Ltd., Dunedin	61	"	7	3' to 30'	Full	..	"	..	181,545	11,354,455	11,536,000	104	254	Fans.
Millerton, Granity	"	A. J. Davis (1st C.)	Westport-Stockton Coal Co., Ltd., Christchurch	50	"	1	4' to 40'	12'	..	"	298 ch.	111,764	8,709,807	8,821,571	37	117	"
Westport-Stockton, Ngakawau	"	T. McGhee (1st C.)	Westport-Stockton Coal Co., Ltd., Christchurch	33	"	3	4' to 20'	10'	..	"	28 ch.	148,680	4,001,753	4,150,433	89	183	"
Cardiff, Mokihinui	"	J. Simpson (D.)	Cardiff Coal Co., Ltd., Westport	54	"	1	12'	9'	..	"	70' ..	2,964	15,730	18,694	1	5	Natural.
Reefton District.																	
Archer's, Capleston	Crown Lease and freehold	F. W. Archer (2nd C.)	F. W. Archer, Reefton	..	Brown	2	16' to 18'	8' to 18'	..	Bord and pillar	..	8,544	96,628	105,172	3	17	Natural.
Burke's Creek	Crown lease	C. D. Bulst (1st C.)	Burke's Creek Collieries, Wellington	40	"	1	8' to 12'	9'	..	Ditto	..	26,195	361,184	387,379	15	40	Fan.
Clele, Merrifliss	"	R. V. Alborn (2nd C.)	V. W. Alborn, Christchurch	55	"	1	5'	Full	..	"	30' ..	98,107	98,107	98,871	3	8	Natural.
Coghlan's, Capleston	Crown lease and freehold	E. Cohen (U.)	J. F. Coghlan, Reefton	44	"	1	7' to 40'	8½'	..	"	..	4,356	43,227	47,583	2	9	"
Defiance, Murray Creek	Crown lease	G. Turner (2nd C.)	McClatchie and Co., Ltd., Christchurch	13	"	1	6'	6'	..	"	..	6,090	23,134	29,224	6	10	"
Morrisvale, Reefton	"	D. Curtis (2nd C.)	W. J. Morris, Reefton	29	"	1	15'	10' to 12'	..	"	50'	8,471	175,150	183,621	12	3	"
Burnwell, Reefton	"	C. D. Hamill (D.)	Burnwell Coal Co., Ltd., Reefton	13	"	1	50'	10'	..	"	90'	1,920	9,986	11,906	..	5	Fan.
Watahau, Reefton	"	A. D. Williams (1st C.)	A. D. Williams, Reefton	32	"	1	6' to 12'	Full	..	"	20 ch.	6,525	30,068	36,593	4	13	"
Flashlight, Merrifliss	"	J. H. T. Griggs (P.)	J. H. T. Griggs, Reefton	18	"	1	6'	"	..	"	..	7,709	1,783	2,492	1	2	"
Terrace, Reefton	"	J. Findlay (D.)	Terrace Coal-mine, Ltd., Reefton	14	"	1	50'	9'	..	"	450'	3,289	11,239	14,525	1	3	Fan.
Comet, Inangahua	"	J. Strang (U.)	Comet mining party, Inangahua	1	"	1	10'	8'	..	"	..	170	..	170	1	4	Natural.
Grey District.																	
Belbird, Ten-mile	State reserve	A. Coppersmith (2nd C.)	Stuart and party, Runanga	14	Bituminous	1	6'	Full	..	Bord and pillar	100'	3,268	41,660	44,928	1	6	Fan.
Belvue, Rapahoe	"	H. Haddock (U.)	Belvue Mines, Ltd., Greymouth	15	"	1	11'	8"	..	Ditto	..	3,714	90,455	94,169	1	4	"
Blackball, Blackball	Freehold	H. Quinn (1st C.)	State Coal-mines, Greymouth	50	"	2	17'	3"	..	"	800'	27,027	4,149,444	4,176,471	48	35	"

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SOUTHERN INSPECTION DISTRICT.

Locality	Owner	Altitude	Strata	Bedrock	Thickness	Remarks	Notes
Acronon Anthracite, Coalgate	A. Taylor (P.)	11	Altered lignite	6'	1' 8'	690	756
Blackburn, Mount Somers	A. McLean (C.)	12	Lignite	All	2' 8' to 20'	2,792	31,573
Bonanza, Sheffield	J. T. Todd (D.)	101	Altered lignite	6'	1' 3'	2,438	17,662
Brookley Anthracite, Whitecliffs	E. W. Broad (D.)	3	Lignite	All	1' 3'	1,094	2,131
Clearview, Glenroy	J. W. Marsh (P.)	22	Lignite	75'	1' 10' to 1' 26'	1,778	39,230
Klondyke, Coalgate	A. Nimmo (2d C.)	13	Lignite	5'	1' 5' to 7'	8,438	74,103
Malvern, Sheffield	G. Craig (P.)	4	Lignite	2'	1' 5' to 7'	1,222	3,882
New Bush Gully, Coalgate	E. Charles, Coalgate	1	Lignite	7'	1' 10' to 7'	1,090	3,253
Sandown, Sheffield	D. Cameron (P.)	131	Lignite	5' to 6'	1' 10' to 7'	3,460	80,163
Stevetoun, Whitecliffs	M. Fowler (2d C.)	75	Lignite	7' to 17'	2' 9' to 23'	3,932	114,879
Tripps, Mount Somers	M. Menaglio (P.)	17	Lignite	All	1' 5'	912	11,528
Woodthorpe, Albury	J. H. Smillie (D.)	15	Lignite	All	1' 6'	2,719	49,944
Alredale, Papakaio	E. Roberts (C.)	63	Brown lignite	58'	1' 25' to 1' 7'	1,155	55,494
Ngapara, Ngapara	C. J. M. Nimmo (P.)	27	Brown lignite	150'	1' 5' to 7'	1,919	3,883
Rockvale, Herbert	D. J. Gaudion (D.)	62	Lignite	126'	1' 10'	1,925	441,777
St. Andrews, Pables	W. McLaren, Shag Point	9	Lignite	7'	1' 5' to 7'	1,925	442,732
Willets, Alredale	J. H. Nimmo, Oamaru	1	Lignite	7'	1' 5' to 7'	1,925	89,898
Central Otago	R. Cartwright (P.)	1	Lignite	7'	1' 5' to 7'	1,925	10,678
Cairnmuir, Cromwell	W. Hodson (D.)	71	Lignite	28'	1' 30'	212	596
Idaburn, Otarehua	R. Barber (D.)	47	Lignite	10'	1' 16' to 20'	1,044	64,177
McPhersons, Coal Creek	N. J. Harlwich (P.)	64	Lignite	10'	1' 16' to 20'	1,888	116,155
Otarehua, Otarehua	A. Brown (D.)	1	Lignite	10'	1' 16' to 20'	1,888	117,313
Shepherd's Creek, Bannockburn	J. Hodson (2d C.)	1	Lignite	10'	1' 16' to 20'	1,888	8,943
		1	Lignite	10'	1' 16' to 20'	1,888	146,969

STATISTICS OF WORKINGS IN COAL-MINES, 1941—continued.

Name of Mine and Locality.	Title held (Crown Lease or otherwise).	Name of Mine-manager and Class of Certificate.	Name and Address of Owner.	Years worked.	Classification of Coal.	Number of Soams worked.	Thickness of Coal-seams.	Thickness worked.	System of Under-ground Working.	Depth of Shaft or Length of Drive (ft only) to reach Coal-seam.	Total Output for 1941.	Total Output to 31st December, 1940.	Total Output to 31st December, 1941.	Number of Persons ordinarily employed.		Means of Ventilation.				
														Above.	Below.		Total.			
SOUTHERN INSPECTION DISTRICT—continued.																				
Benhar, Benhar ..	Crown lease and freehold	J. Walls (2nd C.) ..	McSkimming and Sons, Benhar ..	78	Lignite ..	3	14'	10'	Bord and Pillar	150'	7,397	355,593	362,990	1	8	9	Fan.			
East Taiari ..	Freehold	J. Dunlop (P.) ..	Barr, Burgess and Stewart, Dunedin	22	"	1	15'	6'	Ditto	7 ch.	2,036	52,549	54,585	2	5	7	"			
Elliotvale, Milton ..	"	C. Harris (P.) ..	Elliotvale Collieries, Ltd., Dunedin	12	"	1	20'	8'	"	"	1,001	40,806	41,806	1	2	3	"			
Fairfield, Fairfield ..	"	J. G. Barclay (1st C.) ..	Fairfield Coal Co., Ltd., Dunedin	44	"	1	8'	6'	"	165'	2,535	21,808	24,343	1	2	3	"			
Jubilee Hill ..	Crown lease and freehold	F. Barclay (2nd C.) ..	Jubilee Coal Co., Ltd., Dunedin ..	44	"	1	7 to 9'	6'	"	200'	10,233	65,782	66,015	5	15	20	"			
Kaitangata ..	Freehold	S. Newburn (2nd C.) ..	S. Newburn, Kaitangata	14	Brown ..	15'	25'	15'	"	150'	81	9,579	9,660	1	1	1	Natural.			
Kaitangata ..	Crown lease and freehold	F. Carson (1st C.) ..	Kaitangata Coal Co., Ltd., Kaitangata	65	"	2	8' to 20'	All	"	424 ch.	133,285	5,962,955	6,096,240	70	190	260	Fan.			
New Fernhill, Ashcroft ..	Freehold	M. Hewitson (D.) ..	Fernhill Coal Co., Ltd., Dunedin	9	"	1	7' to 14'	6'	"	300'	4,513	31,658	36,171	1	5	6	"			
Wangaloa, Kaitangata ..	Crown lease and freehold	R. McVie (D.) ..	R. T. Parker, Dunedin	19	"	1	25'	All	"	54 ch.	2,965	20,419	23,414	1	3	4	"			
Willowbank, East Taiari ..	Freehold	G. Scurr (D.) ..	G. Scurr and Co., Mosgiel	21	Lignite ..	2	10'	6'	"	200'	6,118	92,884	98,952	2	6	8	"			
Southland District.																				
Argyle, Waikaka ..	Crown lease ..	T. Woodward (P.) ..	T. Woodward, Waikaka	50	Lignite ..	1	11'	All	Opencast	1,100'	412	14,200	14,612	1	..	1	Fan.			
Birchwood, Ohai ..	"	J. Lewis (1st C.) ..	Birchwood Coal Co., Dunedin ..	18	Brown ..	1	9' to 25'	6' to 25'	Bord and Pillar	"	38,982	288,655	327,637	16	52	68	"			
Black Diamond, Nightcaps ..	"	R. McDonald (2nd C.) ..	Black Diamond Coal Co., Nightcaps	26	"	1	25'	All	Ditto	"	17,097	307,352	324,449	5	15	20	"			
Black Lion, Ohai ..	"	J. C. Griffen (2nd C.) ..	Black Lion Coal Co., Ltd., Benhar	20	"	1	18'	15'	"	4 ch.	11,466	228,146	239,612	4	14	18	"			
Boghead, Mataura ..	Freehold	J. Dee (P.) ..	C. E. Rowe, Mataura ..	36	Lignite ..	1	22'	11'	"	"	6,752	138,047	144,799	1	3	4	"			
Coster's, Edendale ..	"	D. A. Coster (P.) ..	D. A. Coster, Mataura ..	51	"	1	12'	All	Opencast	"	1,252	5,262	6,514	1	..	1	"			
Croyden, Gore ..	"	C. McGregor (P.) ..	S. B. Taylor, Gore	26	"	1	30'	"	"	"	1,942	39,702	41,644	1	..	1	"			
Diamond Lignite, Asher's Siding ..	Crown lease ..	A. McMillan (P.) ..	S. McMillan, Invercargill	39	"	1	36'	"	"	"	1,086	46,896	47,982	1	..	1	"			
Glenlee, Waikaka ..	Freehold	J. G. Burgess (P.) ..	F. W. Edge, Waikaka ..	48	"	1	20'	10'	Bord and Pillar	"	1,282	44,822	46,104	1	1	1	Fan.			
Hedgehope, Waikaka ..	"	F. W. Burton (P.) ..	P. Larking, Mataura	3	"	1	21'	20'	Opencast	"	7,517	7,781	15,298	3	..	3	"			
Linton, Ohai ..	Crown lease and freehold	A. Smith (1st C.) ..	Linton Coal Co., Ltd., Invercargill	26	Brown ..	2	30' to 40'	All	Bord and Pillar	3 ch.	108,449	1,648,634	1,757,883	44	137	171	Fan.			
Mataura Lignite, Mataura ..	Freehold	J. Pearson (D.) ..	Beattie Coster and Co., Mataura	65	Lignite ..	1	15'	"	Opencast	"	2,448	418,020	420,468	3	..	3	"			
Mataura Paper-mills, Mataura ..	"	A. W. Coster (P.) ..	New Zealand Paper-mills, Ltd., Dunedin	3	"	2	8' to 22'	"	"	"	21,863	32,258	54,121	5	..	5	"			
Ota Creek, Wyndham ..	Crown lease ..	E. Genge (P.) ..	E. Genge, Wyndham ..	61	"	1	10'	8'	Bord and Pillar	"	584	35,175	35,759	17	26	43	Fan.			
Mossbank, Ohai ..	"	J. McLellan (1st C.) ..	Mossbank Coal Co., Ltd., Invercargill	1	Brown ..	1	22'	"	"	"	13,398	645,811	659,409	1	..	1	"			
Newvale, Waimumu ..	Freehold	P. J. Terry (P.) ..	Terry and Bryant, Gore	12	Lignite ..	1	6'	All	Opencast	"	2,670	635	2,805	2	..	2	"			
Raby, Gore ..	"	J. E. Miller (P.) ..	J. E. Miller, Gore	8	"	1	20'	"	"	"	2,617	20,903	24,620	..	1	1	Fan.			
Sarar, Ohai ..	"	J. Bard (1st C.) ..	Star Coal Co., Ltd., Invercargill	10	Brown ..	1	20'	"	Bord and Pillar	4 ch.	26,395	100,254	126,679	12	37	49	"			
Wainamea, Orepuki ..	Crown lease ..	J. L. Hennessy (P.) ..	J. L. Hennessy, Orepuki	36	Lignite ..	4	16'	19'	Opencast	"	86	38,563	38,649	2	..	2	"			
Waimumu ..	Freehold	R. J. Meeching (P.) ..	Waimumu Coal Co., Ltd., Gore	13	"	1	30'	25'	"	"	5,096	41,007	46,103	2	..	2	"			
Wairaki, Ohai ..	Crown lease and freehold	I. Young (1st C.) ..	Wairaki Coal Co., Ltd., Invercargill	28	Brown ..	1	30'	25'	Bord and Pillar	"	54,409	616,395	670,804	20	68	97	Fan.			
Oterikera, Oterikera Terrace, Balfour ..	Freehold	A. Maxwell (P.) ..	J. Hoffman, Gore	52	Lignite ..	1	7' to 22'	All	Ditto	"	4,441	71,829	76,273	..	4	4	Natural.			
Output of collieries included in previous statements, at which operations are abandoned or suspended																				
Totals, Southern District, South Island				..	..	..	..	..	..	..	545,416	23,538,166	24,083,582	661	921	..	..	
Totals, West Coast District, South Island				..	..	..	..	..	..	..	1,176,095	46,990,605	48,166,700	269	1,634	2,303	..
Totals, Northern District, North Island				..	..	..	..	..	..	..	917,996	24,510,723	25,428,719	429	1,388	1,767	..
Grand totals																				
Output of collieries prior to 1890, not included in above statement														1,358	3,633	4,991	
Shale exported, 1914														296,453
														97,975,675

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