1945

NEW ZEALAND

MINES STATEMENT

BY THE HON. J. O'BRIEN, ACTING 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, 1944.

MINERAL PRODUCTION

The following statement shows the quantity and value of the production of metalliferous mines, quarries, and coal-mines during 1944 and 1943:—

Mineral.	1944.		1943.	
	Quantity.	Value.	Quantity.	Value.
		£		£
Gold and silver*	470,568 oz.	1,518,119	429,936 oz.	1,567,614
Platinum	..	..	5 ,,	47
Arsenic	16 tons	284	8 tons	119
Asbestos	17 ,,	340	187 ,,	3,985
Bentonite	360 ,,	1,640	232 ,,	1,015
Clays†	6,668 ,,	4,335	2,523 ,,	3,631
Coal	2,805,970 ,,	2,805,970	2,787,868 ,,	2,787,868
Diatomaceous earth	55 ,,	94	128 ,,	250
Dolomite	3,931 ,,	1,474	3,571 ,,	1,098
Fuller's earth	106 ,,	387	124 ,,	437
Iron-ore	6,036 ,,	11,550	4,988 ,,	9,026
Magnesite	103 ,,	93	171 ,,	154
Manganese-ore	..	..	510 ,,	2,166
Mica	292 lb.	292	..	..
Phosphate	19,931 tons	20,551	9,241 ,,	14,340
Pumice	2,931 ,,	11,856	3,422 ,,	12,485
Quartzite	47 ,,	85	..	..
Serpentine	37,711 ,,	10,373	61,645 ,,	50,637
Silica sand	24,319 ,,	57,395	19,747 ,,	41,126
Stone	..	627,033	..	563,403
Talc	25 ,,	10	62 ,,	202
Tungsten-ore	145 ,,	67,081	110 ,,	52,215
Quicksilver	6,840 lb.	6,840	7,068 lb.	7,192
Totals	..	5,145,802	..	5,119,010

* The gold-silver bullion is generally exported unseparated. † Other than for brickmaking.

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

GOLD AND SILVER MINING

During the year 470,568 oz. of bullion, valued at £1,518,119, was produced, an increase in quantity of 40,632 oz., but a decrease in value of £49,495, as compared with the previous year. The gold content of the bullion is estimated at 142,287 oz., valued at £1,474,536.

The estimated gold production for the past ten years has been as follows:—

Year.	Oz.	Year.	Oz.
1935	165,277	1940	185,665
1936	164,575	1941	174,656
1937	168,487	1942	165,986
1938	152,050	1943	149,150
1939	178,955	1944	142,287

The decline in the production of gold which commenced in 1941 and has continued during the war years was still maintained, and this year's production shows a decrease of 6,863 oz. of gold compared with the previous year.

Production from alluvial mines (4,831 oz.) shows a decrease of 1,928 oz., dredges (87,274 oz.) an increase of 2,753 oz., and quartz mines (50,182 oz.) a decrease of 7,688 oz. compared with the previous year.

The increase in the production of gold by dredges is due to the completion of alterations to the Clutha River dredge converting it from a river dredge to a paddock dredge and allowing of the commencement of operations. Seventeen dredges operated during the year, fifteen on the West Coast and two in Otago. One of the West Coast dredges ceased operations during the year.

There has been only one prospecting venture of any consequence during the year—namely, that at the Sylvia Mine in the Thames goldfield. On the whole, results have been disappointing and operations have not disclosed any ore body of economic proportions. Generally the gold-mining industry has been severely handicapped by shortage of man-power and difficulties in securing replacements for essential equipment, but these have been inevitable owing to war conditions. Under the circumstances it is remarkable that many producers have managed to continue operations and that the decline in the production of gold has relatively been so small.

MINING PRIVILEGES

A total of 205 licenses for mining privileges was granted under the provisions of the Mining Act, a decrease of 42 on the previous year. Of the licenses granted in 1944, 32 were licenses entitling the holders to mine for gold.

PETROLEUM OIL

The only activity in the prospecting programme during the year was the completion of the bore at No Town, near Greymouth, by the New Zealand Petroleum Co., Ltd. This borehole reached basement rock at a depth of 6,742 ft., but proved, like all the preceding holes, to be dry.

Since the passing of the Petroleum Act, 1937, the following wells have been sunk: Totangi (Gisborne), 5,700 ft.; Morere (Gisborne), 6,643 ft.; Midhirst (Taranaki), 10,925 ft.; Devon No. 1 (Taranaki), 9,412 ft.; Devon No. 2 (Taranaki), 6,177 ft.; S.F.L. No. 1 (Kumara), 5,450 ft.; S.F.L. No. 2 (Kumara), 2,980 ft.; Stantiall (Marton), 6,877 ft.; Young (Mount Stewart), 3,395 ft.; Kawhaka No. 1 (Westland), 2,795 ft.; Uruti No. 1 (Taranaki), 1,173 ft.; Uruti No. 2 (Taranaki), 5,096 ft.

After many years of detailed geological study the sites for these boreholes were carefully chosen, and their completion now covers all the favourable structures located by the geological work. All the operating companies have now ceased work, their staffs of highly skilled geologists and drilling experts have been disbanded, and the licenses held by them under the Petroleum Act have been surrendered. While two years ago five companies held 47 licenses covering 7,541 square miles, at the present moment only 2 licenses are current, the small one of 10 square miles near New Plymouth which covers the activities of the Moturoa Oilfields Co., Ltd., and another of 198 square miles in North Auckland held by Northern Oilfields, Ltd.

From the wells at Moturoa, 73,588 gallons of crude petroleum oil was obtained during 1944.

The Dominion's total production of crude petroleum oil to 31st December, 1944, is estimated at 3,411,570 gallons.

COAL-MINING

There were 149 coal-mines operating in the Dominion in 1944. Fifty-four of these mines are situated on freehold property and produced 1,197,485 tons, or 43 per cent. of the total output. The remaining 95 mines are situated on Crown lands and produced 1,608,485 tons or 57 per cent. of the total output of 2,805,970 tons.

The annual production of coal since 1939 has been as follows:—

Year.	Tons.	Year.	Tons.
1939	2,342,639	1942	2,680,041
1940	2,516,099	1943	2,787,868
1941	2,639,507	1944	2,805,970

No coal was imported in 1944, whereas in the previous year 37,454 tons were imported. Exports totalled 37,688 tons, against 42,522 tons in 1943.

The output of 2,805,970 tons was a record for the Dominion and is an increase of 18,102 tons, or 0·649 per cent., on the 1943 production.

Compared with 1939, when war broke out, the production for 1944 shows an increase of 463,331 tons.

The output per miner employed underground during the year was 709 tons, a increase of 12 tons as compared with 1943. The production per man on the pay-roll—*i.e.*, both underground and surface workers—was 502 tons, a decrease of 17 tons on the previous year.

The production of the new mechanized opencast pits has a substantial effect on the man-output, and for the purposes of a proper comparison with previous years it is necessary to exclude the personnel and output of these concerns.

When this is done, the output per miner employed underground becomes 676 tons and the output per man on the pay roll 494 tons, giving respective decreases of 19 tons and 25 tons, which are doubtless due to the high percentage of inexperienced labour now employed.

While there was a record production of coal in 1944, the supply position has still remained critical owing to increased demand. Crucial to this situation has been the progressive decline in importations of coal from Australia, which reached bottom in 1944 with no import whatsoever. The demands of various industries, in particular the gas industry, have, in consequence, to be met from New Zealand production, and this has strained the bituminous coal section of the industry, which was unprepared to meet such heavy demands.

Even though in certain industries it has been possible to substitute lower-grade coals for bituminous coal, this has naturally resulted in greater quantities of the lower-grade coal being required to give the same effect as the bituminous coal formerly used. For this reason, together with the increased demands occasioned by the war, we have the paradoxical situation that even increased output of coal has failed to meet the demands of the country. It is apparent that under the present conditions no permanent relief to the coal supply position can be expected until such time as it has been possible to increase the production of bituminous coal.

The opening-up of new coal-mines or even increased production from old mines unfortunately cannot be speedily effected, but must await first exploration by drilling and then a lengthy development programme before the production stage can be reached. To this end an intensive drilling programme has been undertaken by the Mines Department and has been in operation for some time, but much work yet remains to be done before the position can be materially improved.

Every effort has, however, been made to increase the production of coal from areas where coal-seams are overlain by relatively shallow overburden and from which extraction of coal can be effected by opencast mining methods by the use of mechanical earth-moving equipment, where the period of preparation for the production stage is short compared with that of underground mines.

During the past two years, fifteen entirely new opencast mines have come into production, which were responsible, during 1944, for the production of 131,375 tons of coal. Of these, the two most important were the State-controlled mines at Kimihia and Stockton, which together contributed some 40 per cent. of the total output from mines of this description. The production from the Stockton Mine is of particular value because the coal is of the bituminous type.

The greatest difficulty that has been met in the development of opencast mining has been that of securing the necessary mechanical equipment. In this connection a visit to America was recently made on behalf of the Mines Department by Mr. A. F. Downer, who has taken a leading part in the developing and operating of opencast mines, and it is gratifying that Mr. Downer, with the assistance of the New Zealand Supply Mission in Washington, was successful in obtaining two large capacity dragline shovels. This equipment is now in short supply owing to urgent demands from every part of the world. With the installation of this equipment a considerable increase in production should be forthcoming from both Kimihia and Stockton, and in the latter case of the type of coal that is most urgently required.

The search for potential opencast coal-mines and their survey in detail is being continued by an organization set up by the Mines Department, particular attention having been paid to areas on the West Coast of the South Island. Wherever possible, every effort is being made to produce coal by opencast methods so that the total production of coal can be increased as speedily as possible.

It is, however, recognized that many of these areas only possess limited tonnages of coal, and that in the future the greater amount of coal must still, as in the past, be produced from underground mines.

Accordingly, it is important that New Zealand should keep abreast of developments in mechanized mining and in the handling and transport of coal underground.

Last year the Electrical Inspector of Mines, while visiting Australia to observe electrical engineering practice underground there, was also able to obtain details of the development of mechanized mining in Australia, while recently we have been fortunate enough to arrange for the visit to New Zealand of a representative of one of the leading coal-mining-equipment firms in Australia to report and advise upon the introduction of modern machinery into New Zealand mines.

Unfortunately, mining conditions in New Zealand, in particular regularity of seams over large areas, are not as favourable as in such countries as America and Australia, and the scope for mechanized mining is limited thereby. However, it has now been possible to lay out a tentative programme for the mechanization of the State coal-mine in the Waikato field. Results of this programme will be awaited with interest, as the adaption of mechanized mining to New Zealand conditions in this mine will give valuable information as to its possibilities in other mines.

Any method whereby the production of coal can be economically increased and the tedium and unpleasantness of hand methods obviated, but at the same time allowing due attention to the conservation of what cannot be regarded as an inexhaustive national resource, must command attention.

The following is a table showing the output of coal from the various coalfields, and the comparative increase and decrease, for the years 1944 and 1943, 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, 1944.
	1944.	1943			
	Tons.	Tons.	Tons.	Tons.	Tons.
North Auckland	85,390	81,828	3,562	..	6,374,654
Waikato (including Taranaki) ..	951,424	939,975	11,449	..	22,043,296
Nelson	8,146	8,635	..	489	743,718
Buller	463,874	478,439	..	14,565	28,421,687
Reefton	126,582	99,173	27,409	..	1,569,496
Grey	540,211	578,955	..	38,744	21,036,194
Canterbury	38,587	32,329	6,258	..	1,302,187
Otago	206,343	194,812	11,531	..	14,927,444
Southland	385,413	373,722	11,691	..	9,830,878
Totals	2,805,970	2,787,868	71,900	53,798	106,249,554

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

Class of Coal.	Output of Coal during 1944.				Total Output to the End of 1944.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Total.	
	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and sub-bituminous	85,390	982,692	..	1,068,082	58,534,896
Brown	951,424	138,839	450,653	1,540,916	41,414,446
Lignite	..	17,282	179,690	196,972	6,300,212
Totals for 1944 ..	1,036,814	1,138,813	630,343	2,805,970	106,249,554
Totals for 1943 ..	1,021,803	1,165,202	600,863	2,787,868	103,443,584

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 1940 ..	92,820,069	..	13,920,438	..	..
1940	2,516,099	Inc. 173,460	64,860	..	46,677
1941	2,639,507	Inc. 123,408	78,171	13,311	..
1942	2,680,041	Inc. 40,534	90,865	12,694	..
1943	2,787,868	Inc. 107,827	37,454	..	53,411
1944	2,805,970	Inc. 18,102	..	..	37,454

TABLE SHOWING QUANTITY OF COAL EXPORTED ANNUALLY FROM NEW ZEALAND FROM 1939 TO 1944

Year.	Quantity. Tons.	Year.	Quantity. Tons.
1939	43,990	1942	54,700
1940	81,287	1943	42,522
1941	58,179	1944	37,688*

*37,171 tons bunkers, value £71,842, and 517 tons cargo, value £1,288.

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, 1945, was £301, as against £436 for the previous year, while for the same periods the receipts from the ½d. per ton contributions were £5,566 and £6,325 respectively.

The total expenditure for the year ended 31st March, 1944, amounted to £10,059, as against £9,780 for the previous year.

The amount standing to the credit of the fund at the 31st March, 1945, was £7,199, as against £11,391 at the 31st March, 1944.

COAL SURVEY

The work of surveying the coal resources of the Dominion was continued under the general direction of a committee which comprised the Director of the Dominion Laboratory (Chairman), the Director of the Geological Survey, the Chief Inspector of Coal-mines, the Superintendent of State Mines, the geologist in charge of field operations, the chemist in charge of laboratory investigations, and the Assistant Director, Dominion Laboratory, as Secretary.

Field work was centred mainly in West Coast and Ohai fields. Reports were also made on Huntly (stripping areas), Tatu, Mangapehi, Waitewhena, Elliotvale, and Orepuki.

Laboratory work was mainly concerned with the analysis of coals and the examination of coal ashes.

STATE COAL-MINES

The gross output from State mines for the year ended 31st March, 1945, increased by 237,576 tons to 762,231 tons, which is equivalent to 27·16 per cent. of the New Zealand production.

Included in the output are 115,263 tons from opencasts and 142,350 tons from mines acquired during the year.

Conditions at the Liverpool Colliery remained difficult, and a further decrease of 13,531 tons in output was recorded. The stone drive to connect with the Morgan dip workings has now been completed, and with the arrival from England of additional haulage equipment it is anticipated that there will be a steady increase in output.

The Strongman Colliery showed an increase of 1,413 tons over the previous year. As was the case last year, production was mainly from solid places with the addition of a small amount of pillar coal which was obtained from an area in No. 1 North section between two faults. Extraction in this area has been completed and sealed off. Numerous faults encountered have hampered development during the year.

Although there has been no improvement in water and roof conditions at the Blackball Colliery, the output for the year increased by 12,807 tons. The major portion of the output was again won from development, the coal remaining friable and with no increase in the make of screened. The presence of sulphuric acid in the mine water has complicated pumping problems.

Conditions at the Wallsend Colliery showed no appreciable change during the year, when a small decrease in output was recorded.

The boring at Dobson indicated the extension of the seam ahead of the present workings, but confined to a narrow strip. Troubled country and heavy haulage costs will probably prevent the extension of the seam being worked from the present mine.

Pillar-extraction has been commenced in some sections of the Tatu Colliery, where the output increased by 2,460 tons. The installation of electrical haulages and pumping systems has facilitated the handling of coal and water.

Mangapehi Colliery experienced a difficult year. Since pillar-extraction has commenced the coal has shown itself to be very fiery and the management has had an anxious time with heating and fires. Development work continues satisfactorily.

The Stockton Mine, which was purchased on 1st July, 1944, continued to work satisfactorily. The Stockton Opencast commenced production on 20th November, 1944, and despite atrocious weather conditions produced 24,892 tons.

The Mossbank Colliery was acquired on 9th October, 1944. The lay out of the colliery makes working conditions difficult and the coal contains an unusually high number of stone bands.

Wilton Collieries (1934), Ltd., disposed of their mine to the Government on the 20th October, 1944. Development of the No. 3 extended mine and pillar-extraction in Nos. 1 and 2 has been continued. The coal is of good quality and development is proceeding satisfactorily.

The Wairaki Mine was acquired on the 27th January, 1945. The extraction of pillars in the No. 1 mine and the development of No. 3 has been continued.

Owing to extremely wet weather the Glen Afton Opencast ceased production during the winter months, and since reopening in December has produced 12,029 tons.

Kimihia Opencast (areas 2 and 4) opened in July and produced 47,871 tons to the 31st March. The amount of coal in these areas is not large, but will be sufficient to last until the No. 1 Kimihia Lake area is started about July. The contractor has successfully completed the stop-bank, and dewatering is proceeding satisfactorily.

The Beehive Opencast, at Glen Massey, produced altogether 4,009 tons. The coal was a small block left by Waipa Collieries adjacent to the outcrop. The coal was won principally during the Christmas holidays and helped the railways over a difficult period.

Kemps Opencast, Glen Massey, commenced production on 22nd December, 1944, and up till 31st March 6,874 tons of coal were won. The coal is of a hard close-grained nature and is contained in two relatively thin seams.

Ohai Opencast was purchased at the same time as the Wairaki Mine. Excavation was right up with the stripping when taken over, and the lack of suitable equipment, together with a fire in old opencast workings, hampered development. Only 704 tons were produced to 31st March, 1945, but the opencast has been producing satisfactorily since that date.

Waitewhena Opencast produced 18,884 tons, practically all of which was supplied to the Railways Department. Operations were hampered by a very wet season.

Full details in respect of the operations and financial results of the collieries appear in the annual report of the State Coal-mines (C. 2A).

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

Mine.	Output 1944–45.		Output 1943–44.		Percentage Increase in Gross Ouput.	Percentage Increase in Net Output.
	Gross.	Net.	Gross.	Net.		
	Tons.	Tons.	Tons.	Tons.		
Liverpool	121,728	116,670	135,260	131,010	−10·0	−10·94
Strongman	107,114	105,589	105,701	104,270	+ 1·34	+ 1·26
James*	7,057	7,057	12,003	11,813	−44·72	−43·83
Blackball	57,836	56,815	45,029	44,315	+28·44	+28·2
Mangapehi	60,930	59,040	70,929	69,442	−14·1	−14·98
Tatu	31,409	27,426	28,949	22,852	+ 8·5	+20·01
Wallsend	57,505	54,688	58,742	55,284	− 2·1	− 1·08
Dobson	61,461	60,373	61,876	60,656	− 0·67	− 0·46
Stockton	108,953	103,591	..	..	..	..
Mossbank	11,819	9,664	..	..	..	..
Wilton	33,634	32,014	..	..	..	..
Wairaki	12,836	11,385	..	..	..	..
Glen Afton Opencast	12,029	12,029	6,176	6,175	+94·77	+94·8
Kimihia Opencast	47,871	47,871	..	..	..	..
Beehive Opencast	4,009	4,009	..	..	..	..
Kemps Opencast	6,874	6,874	..	..	..	..
Ohai Opencast	704	704	..	..	..	..
Waitewhena Opencast	18,884	18,884	..	..	..	..
Totals	762,231	734,261	524,665	505,817	..	..

NOTE.—The difference between the gross and net output is accounted for by waste and mine consumption.

* Slack raised from dump. Colliery ceased operations on 23rd July, 1943.

The following table shows the total sale 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, 1944–45.	Total Sales, 1943–44.	Percentage Variation.	Average Price f.o.r. realized.
	Tons.	Tons.		s. d.
Liverpool	114,675	131,015	−12·47	19 3·77
Strongman	106,071	102,798	+ 3·18	24 8·40
James	7,057	12,519	−43·63	6 0·12
Blackball	55,850	44,559	+25·34	17 3·21
Mangapehi	59,068	69,391	−14·87	20 6·84
Tatu	27,301	22,893	+19·25	21 9·43
Wallsend	52,879	56,375	− 6·2	21 7·30
Dobson	59,343	60,720	− 2·26	23 3·53
Stockton	98,567	..	..	20 7·81
Mossbank	9,655	..	..	19 7·68
Wilton	32,011	..	..	19 11·81
Wairaki	11,385	..	..	18 3·76
Glen Afton Opencast	12,029	6,175	+94·8	24 4·94
Kimihia Opencast	47,871	..	..	25 11·86
Beehive Opencast	4,009	..	..	24 8·33
Kemps Opencast	6,874	..	..	19 4·61
Ohai Opencast	704	..	..	22 4·80
Waitewhena Opencast	18,884	..	..	29 3·00
Totals	724,233	506,445	+43·01	..

CO-OPERATIVE MINING, STATE COAL RESERVE

Eighteen co-operative parties working portions of the State Coal Reserve near Greymouth produced during the year 1944 95,946 tons, the number of men employed being 137. During the previous year the same number of parties produced 97,995 tons.

Up to the end of 1944 co-operative parties have produced a grand total of 1,907,135 tons of coal and have in the same period paid royalties to the State amounting to £91,373.

RESCUE STATIONS

The three mines rescue stations at Dobson, Rotowaro, and Ohai continue to function satisfactorily, and full advantage is being taken of them by the management of coal-mines where heating or underground fires occur.

A contract has been let for another mines rescue station which is to be built at Granity. This building will be almost identical in design to those at Rotowaro and Ohai, and will serve the mines from Seddonville to Denniston.

Since inception, 196 certificates of proficiency have been issued to trainees of stations.

SOCIAL AMENITIES

Financial assistance for the provision of social amenities for mining communities was continued during the year. At the Benneydale Township the theatre and billiard-room were recently completed and are now in full use.

HOUSING

The provision of housing accommodation in mining townships continues to be retarded by the lack of materials and labour. In the near future a review of the position will probably be necessary owing to the return of directed labour to normal avenues of employment.

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 1944 :—

Raw coal carbonized	31,965 tons.
Carbonized coal produced	15,663 tons.
Average percentage of carbonized coal to raw coal	49 per cent.
Carbonettes manufactured	12,461 tons.
Tar and oil treated	289,154 gallons.
Pitch produced	429 tons.
Light and heavy oils produced	1,320 gallons.
Creosote produced	155,055 gallons.
"Char" sold for producer-gas plant	5,029 tons.
"Char" sold for other purposes	60 tons.

No briquettes were manufactured by Smokeless Fuel and Briquettes (Canterbury), Ltd., during 1944, but the company produced 25,000 gallons of tar at the works at Sockburn.

During the year four tenders, three from British firms and one from an American firm, were received for the equipment of a proposed briquetting plant to treat a blend of Strongman and Blackball slack coals according to specifications drawn up by Mr. A. B. Jones, the works manager of Waikato Carbonization, Ltd., of Huntly. Is is expected that at least one additional tender is yet to be received, and decision is being deferred until this comes to hand.

SUBSIDY ON COAL PRODUCTION

For the financial year ended 31st March, 1945, the amount paid by way of subsidy on coal production and distribution was £717,916, made up as follows : tonnage subsidy (including provision for increases in mine stores), £469,243 ; subsidy in respect of coastal shipping freights, £52,420 ; and subsidy in respect of the additional cost of work on back Saturdays and statutory holidays and bonus payments, &c., to workmen not on contract, £196,253. At 31st March, 1945, the total sum paid out for coal subsidies since the subsidy was first introduced in May, 1940, amounted to £1,941,946.

COAL-MINES COUNCIL

The work of the Coal-mines Council continued during the year, its chief tasks, apart from special reports required from time to time, being the settlement of industrial disputes and the determination of the terms and conditions of employment generally in the industry.

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 1944 and 1943 :—

Classification.	Inspection District.			Totals.		
	Northern (North Island).	West Coast (of South Island).	Southern (Rest of South Island).	1944.	1943.	Increase or Decrease.
Gold, silver, and tungsten-ore	528	640	222	1,390	1,471	Dec. 81
Coal	2,112	2,491	992	5,595	5,374	Inc. 221
Stone-quarries under the Stone-quarries Act	1,031	97	403	*1,531	1,643	Dec. 112
Silica	8	..	5	13	12	Inc. 1
Cinnabar	18	..	..	18	18	..
Iron ore	17	3	..	20	20	..
Manganese	1	..	..	1	2	Dec. 1
Fuller's earth	2	..	..	2	1	Inc. 1
Diatomaceous earth	..	..	2	2	..	,, 2
Bentonite	5	..	..	5	4	,, 1
Serpentine	15	2	..	17	12	,, 5
Asbestos	..	15	..	15	15	..
Dolomite	..	4	..	4	3	Inc. 1
Clay†	..	6	6	12	10	,, 2
Phosphate	..	..	14	14	23	Dec. 9
Mica	..	6	..	6	..	Inc. 6
Oil prospecting	..	..	..	..	216	Dec. 216
Totals	3,737	3,264	1,644	8,645	8,824	Dec. 179

* The total number of men employed at stone-quarries is actually 1,551, as certain of the minerals listed separately in this table are produced from quarries which come under the Stone-quarries Act. † Other than for brickmaking.

MINING AND QUARRY ACCIDENTS

In metalliferous mines, at which 1,499 men were ordinarily employed, three persons were killed and two persons seriously injured.

At stone-quarries under the Stone-quarries Act, employing 1,551 men, three persons were killed and one person seriously injured.

In coal-mines, where 5,595 persons were ordinarily employed, twelve persons were killed and thirty-six persons seriously injured.

MINERALS OTHER THAN GOLD

While production of these minerals has generally been maintained at the same level as the preceding year, there have been no highlights in the progress and development of this section of the mining industry.

The supply position of essential war minerals as far as the Allied Nations are concerned has improved so far that substantial stock piles have now accumulated, and restrictions are being considered to prevent stock piles from becoming embarrassingly large. It is inevitable that such minerals as scheelite, mercury, manganese-ore, and mica, whose production in New Zealand has been fostered by war needs, must eventually be affected. As far as the Mines Department is concerned, the exploitation and development of these minerals will now have to be regarded from an economic viewpoint and not, as formerly, one of production at any cost to meet the necessities of war. On the other hand, industrial development in New Zealand in the post-war years should stimulate at least the exploration for, if not the actual development of, minerals used in industry, particularly non-metallic minerals.

Scheelite.—This year's production of tungsten-ores shows a substantial increase over that of the preceding year. Production of scheelite concentrates, calculated to the basis of 65 per cent. WO_3 per ton in the years in which purchase has come under Government control, has been as under:—

	Tons.		Tons.
1940	.. 79	1943	.. 116
1941	.. 71	1944	.. 145
1942	.. 71		

While New Zealand's production of scheelite is normally of small importance in the world's markets, its value during the war has been considerable, even though the amount is relatively insignificant.

With the commencement of 1945 a new agreement with the Imperial authorities came into force whereby all scheelite concentrates produced up till 30th June, 1945, were purchased at a price of 75s. sterling per unit, as compared with that of 100s. sterling per unit for the latter part of 1944 and 120s. sterling per unit for the two preceding years. The conditions were much the same as in previous agreements, except that a minimum value of 60 per cent. WO_3 was demanded and penalties exacted for various impurities were slightly increased.

Shortly before the date of expiration of this contract the Imperial authorities intimated that owing to the improved supply position of tungsten-ores they did not intend to purchase any scheelite after 30th June, 1945, but were confining their purchases to high-grade wolfram. However, they also stated that there appeared to be a market for scheelite in America through private channels and that they had no objection to New Zealand disposing of her output in that manner.

Accordingly, the sale of scheelite will now revert to the same conditions as existed prior to the outbreak of war. Negotiations have been proceeding for some time between producers and overseas buyers, and it is expected that satisfactory arrangements can be made for the disposal of scheelite produced in New Zealand.

At what price tungsten-ores will eventually be stabilized it is impossible to predict because of the many unknown factors, but some recession in the price seems inevitable.

At any rate, production this year has already dropped considerably, as many producers, having exhausted their ore, consider the position not sufficiently encouraging to undertake costly development work. The State scheelite-mines, which were responsible for one-third of the output last year, and whose production over the three years of their life amounts to one-fifth of the total production of New Zealand for the five war years, ceased operation at the end of the year due to the exhaustion of ore reserves. It has now been demonstrated that the scheelite deposits are generally shallow, small, and erratic, and lend themselves most suitably to small party operation. It is possible that operations of this nature may continue for some years unless the price level slumps drastically, but exhaustion of the deposits is in time inevitable and the basis of a steady mining industry of some magnitude unfortunately does not exist.

Mercury.—Operations were continued at Puhipuhi by Mercury Mines, Ltd., and a further 6,840 lb. of mercury were produced. The company has had to face considerable difficulties owing to unpleasant weather conditions resulting in much lost time, while the mining method adopted of opencast mining calls for modern earth-moving equipment, which has not been available.

Manganese-ore.—While no manganese-ore was actually produced in 1944, the shipment of 475 tons from Mirandite Products, Ltd.'s, property under lend-lease agreement was completed. The ore shipped proved to be high grade, but reserves at the mine are small. However, recent stripping of overburden by bulldozer has disclosed sufficient ore to make another shipment, this time to Australia, possible during this year.

Asbestos.—The efforts of the Hume Pipe Co., who have been developing the asbestos deposits in the Upper Takaka district, were mainly concerned during 1944 in carrying out an extensive development programme of driving adits and crosscutting therefrom. The material obtained from these workings was treated in the company's plant and information obtained thereby as to the percentage of fibre contained in the rock and the grade of the fibre. From these operations 17 tons of asbestos were recovered. Should this development programme result in the establishing of a sufficiently large tonnage of asbestos

fibre of suitable grade, the company will proceed to erect a large and modern treatment plant. With an all-weather motor road completed to the mine and with electric power available from the Cobb River scheme, the company is now in an excellent position to erect and operate such a plant should the prospecting work justify the same.

Mica.—Operations in the newly discovered mica field in South Westland have now shifted to an extension of the pegmatite sills located at a comparatively low altitude. Even at the lower altitude weather conditions have been on occasion severe and much time has been lost owing to heavy rain. However, the radio company opening up these deposits has been successful in obtaining 292 lb. of dressed mica suitable for the construction of condensers. Mining costs have been high and the percentage of usable mica recovered from the crude books has been low, so that the overall cost has been high. However, the mica produced has been invaluable in allowing the fulfilment of important war contracts. Mica is, of course, another mineral the demand for which has been increased by war conditions, and the future of our New Zealand deposits under peace conditions is obscure.

Phosphate.—Operations were continued by the British Phosphate Commission at Clarendon, and 4,317 tons of medium-grade material, valued at £10,792 10s., were produced. This, however, exhausted the reserves of this material, and as the drilling campaign had not disclosed additional supplies that could be produced economically operations then terminated. In addition, 15,614 tons of low-grade phosphatic sandstone, valued at £9,758 15s., were produced from the Kapiti Block, where the drilling operations on account of the Department of Agriculture had disclosed reserves of this material. In all, 19,931 tons of phosphate-bearing material was produced of a total value of £20,551 5s.

Bentonite.—While production increased somewhat above 1943 owing to a substantial overseas order, it has not approached the level of 1942, when an oil prospecting company was a large consumer. However, the possibilities of increased production after the war appear good.

Serpentine.—Production of serpentine in North Auckland declined from 61,645 tons in 1943 to 37,711 tons in 1944. This was due mainly to difficulties in transport and not to lack of demand. A deposit has recently been located at Te Kuiti which seems capable of supplying the needs of the North Island for some considerable time.

Limestone.—The production of limestone for agriculture was 903,808 tons, a record. It is of interest to note that during the last ten years production has increased more than threefold, and that the saturation point has not even been approached.

LABORATORY INVESTIGATIONS

The following is a brief summary of the work carried out in the Dominion Laboratory during 1944 in connection with mining industries.

A large number of examinations and analyses of samples of minerals and ores forwarded by prospectors and other members of the general public was carried out during the year.

The continuation of the war maintained the demand for tungsten, and approximately 150 analyses of samples of scheelite concentrates for export were made.

Work on the systematic survey of the clay resources was carried on in conjunction with the Geological Survey.

Other samples examined included mine airs and gases, serpentine for the manufacture of serpentine-superphosphate, phosphate rock, feldspar, chalk, bentonite, flints, and glass-sand.

GEOLOGICAL SURVEY

During the year ended 31st March, 1945, the only detailed mapping undertaken was what was necessary to facilitate the evaluation of deposits of economic interest. The palæontologists identified many faunas for the field officers, especially those engaged on coal survey, where the interpretations of sequence, correlation, and structure depend on palæontological determinations. The work of the petrologists also had a definite economic trend; sands and clays used in industry were examined, rocks for concrete aggregates were determined, the cause of the deterioration of building stones investigated, and heavy residues of possible value separated from gravels and sands.

The Grey and Ohai Coalfields have now been mapped in elaborate detail. The report on the latter is written, but the maps and plans have still to be drawn for publication. The report and drawings of the former are being prepared. The detailed examinations of the Kaitangata and Reefton Coalfields have now been put in hand. A reconnaissance survey of the Gore-Wyndham district was begun in order to obtain information about the extent and thickness of the low-grade lignite so extensively mined in Southland. Other work on coal deposits included the examination of opencast prospects on the North Island, West Coast, and Southland fields, and explorations in the upper Wanganui basin and a headwater branch of the Oreti in Southland.

The geologist who directed the prospecting of the phosphate deposits at Clarendon estimated the amount available and made his report. Limestones in North Auckland, Marlborough, the West Coast, Otago, and Southland were investigated. The prospecting of serpentine masses in North Auckland, near Te Kuiti, and in Southland was directed, and quantities available were estimated. A visit was made to the asbestos claim in the upper Takaka basin and prospecting suggested. A geologist was fortunate in locating a mica deposit in South Westland at a lower elevation and handier to the road than that originally worked; it has yielded good-grade material in substantial amount. Masses of feldspar occur in the same deposit and elsewhere in the same district. Another deposit of feldspar, near Charleston, was reported on, and the beds of feldspathic clay worked at Kaka were again visited. Pottery clays near Kaikohe, North Auckland, were prospected and sampled, and other clay beds near Takaka examined. A quartz sand near Ross may be useful in foundry work. The ironsands at Fitzroy and about Wanganui were estimated and sampled.

There are increasing demands for subsurface water, and geologists advised on conditions, possibilities, and well sites in the North Auckland, Waikato, Taranaki, Wanganui, and Marlborough districts. Visits were also made to Ngawha, Rotorua, and Te Puia in connection with supplies of hot mineral water.

A geologist reported on the volcanic phenomena at Ruapehu during March and April.

Geological and geophysical examinations were made about Karapiro Dam and also about the proposed site at Maractai on the Waikato upstream from Arapuni Lake. A reconnaissance survey over some 250 square miles was carried out near the latter in order to assist in finding rock suitable for concrete aggregate. Geologists also reported on sites for engineering projects at the Cobb River, in the Clarence and Conway basins, at Black Jack's Point in the Waitaki Valley, and above Roxburgh in the Molyneux.

SCHOOLS OF MINES

The expenditure on the Schools of Mines for the year ended 31st March, 1945, was £3,989, as compared with £3,381 for the previous year. At the annual examination held in November, 1944, three scholarship candidates presented themselves for examination. Scholarships were awarded to two candidates who were both from the Otago School of Mines.

It is to be noted that candidates for scholarships were, as in last year, confined to the Otago School of Mines, no candidates being forthcoming from the district Schools of Mines. This is due in part to war conditions and the consequent depressed state of gold-mining, and in part to coal-mining students in these schools preferring to obtain such certificates as mine managers or underviewers and qualify for responsible positions in the industry rather than proceed to the Otago School of Mines for advanced tuition. While this serves to maintain a flow of qualified officials into the mining industry and thereby performs a most useful service, it is to be regretted that conditions are not sufficiently attractive to allow of students benefiting by the sound basic training provided by the Otago School of Mines.

MINERS' BENEFITS

The provision for payment of a miner's benefit is contained in the Social Security Act, 1938, 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 mining service in New Zealand.

The rate of benefit for the miner is 32s. 6d. a week, and this may be increased by 10s. 6d. a week in respect of the wife. There is provision for the payment of a grant of 10s. 6d. a week for each dependent child under the age of sixteen years, with a maximum grant in any particular case of £5 weekly, but the benefit in respect of the children is reducible by all income of the family, other than the miner's 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 20s. a week during widowhood.

This scheme, which originated with the Miners' Phthisis Act, 1915, is administered by the Social Security Commission, and the following is a summary of the operations for the year ended 31st March, 1945:—

Miners' Benefits

	£	
Payments from 1st November, 1915 to 31st March, 1944	1,500,300	
Payments, 1944–45	74,367	
	£1,574,667	
Number of new grants for year 1944–45—		
Males	25	
Females	5	
		30
Number of benefits in force at 31st March, 1945 (including 2 emergency grants)—		
Males	679	
Females	106	
		785
Annual value of benefits in force at 31st March, 1945		£73,197
Average benefit per annum		£93 3s. 7d.
Number of children in respect of benefits in force at 31st March, 1945		153
Dissection of benefits in force at 31st March, 1945—		
Single miners	230	
Married miners	447	
Widows	108	
		785

ALUMINIUM DUST THERAPY FOR SILICOSIS

Recent research in Canada by McIntyre Research, Ltd., has established the value of aluminium dust treatment as a prophylactic for silicosis, and it is now confidently expected that the systematic use of this treatment will prevent the development of new cases of silicosis.

The treatment is in no sense a cure for persons already suffering from the disease, nor is it a substitute for dust-prevention measures in mines.

Naturally, these developments in Canada have been closely followed, and when it was learned that Dr. W. D. Robson, Medical Director of McIntyre Research, Ltd., was likely to visit Australia in the near future, steps were taken to ascertain if he would visit New Zealand to advise the Government on silicosis.

No finality has yet been reached as Dr. Robson's plans are still indefinite, but every effort is being made to secure his services.

ASSISTANCE TO MINING

During the financial year ended 31st March, 1945, assistance has been extended to the mining industry on a basis similar to past years. A sum of £31,281 was advanced to promote and maintain coal production, £203 to gold-mining, and £362 towards the production of manganese.

It is gratifying to report that in the case of scheelite-mining, repayment in full of the sums advanced has now been made in great part. In the case of three parties, advances exceeding £1,000 in each case were made, but these have now been paid in full by deductions from the proceeds of the sale of scheelite concentrates.

In other instances prospecting operations proved unsuccessful, as must always occur in mining, and the advances made have been written off, but over 75 per cent. of the money advanced to the industry has been recovered.

POST-WAR DEVELOPMENT

Of all minerals, coal will continue to command the greatest attention in the post-war years.

It is apparent that for some years at least imports of coal from Australia will be restricted and New Zealand will be forced upon her own coal resources. Some time must also elapse before new hydro-electric-power schemes can be developed, so that demand will continue at a high rate. The main concern will be maintenance of output, and as mines approach exhaustion new mines must be opened up. Before this can be effected, accurate information derived from geological surveys, confirmed by drilling, is required, and these have been proceeding for some time.

In time it is hoped to have a reasonably accurate picture of the coal resources of New Zealand, but this is an undertaking of some magnitude, and for a commencement work must be concentrated upon the more urgent problem of the supply of the higher-grade coals. In time this work will be extended to the lignite deposits of New Zealand, which promise to be of great value, and at the same time consideration can be given to various methods of processing and upgrading these coals.

Interest will be maintained in all developments of the use of coal as the basis of production of various chemicals, but serious consideration of their introduction to New Zealand must wait till the fundamental information as to quantities available has been determined and the coal resources of New Zealand can be critically examined in their correct perspective.

As far as the utilization of coal is concerned, the construction of a briquetting plant to treat various blends of slack coal has been under consideration for some time, while by enlisting the services of a fuel technologist it is hoped that the various grades of coal can be put to their correct uses and the maximum value obtained from them.

No sensational development can be expected in the gold-mining industry, but with adequate labour and equipment again available it is hoped that the decline in production during the war will be arrested in great part.

Many minerals such as cinnabar, scheelite, mica, &c., which were important during the war will now be in plentiful supply overseas, and production in New Zealand will decrease. It is expected that increasing attention, however, will be paid to non-metallic minerals, in particular clays, and that, in conjunction with the Geological Survey, the Mines Department will endeavour to have deposits prospected and opened up to supply the industrial needs of New Zealand.

Recently the military use of violent atomic energy has focused attention on the metal uranium which has proved the most suitable material for producing explosive effects by the disintegration of the atom.

The known workable deposits of uranium-ores are located in Canada and the Belgian Congo, and an intensive world-wide search for other deposits is inevitable.

In New Zealand some traces of the metal have been reported, and a careful examination of the prospects of finding economic deposits will undoubtedly be made in the period immediately following the war.

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, 15th May, 1945.

I have the honour to present my report on metalliferous mines and stone-quarries for the year ended 31st December, 1944.

ACCIDENTS

In 1944 three fatal and two serious non-fatal accidents occurred in or about metalliferous mines, at which 1,314 persons were ordinarily employed.

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

Of the fatalities, two were of men drowned off the Barrytown Dredge, one in August and the other in October. The third fatality occurred in the Waikino Battery, a workman being struck on his head by a fast travelling belt driving a rock-breaker.

One of the serious non-fatal accidents also occurred in the Waikino Battery. A workman repairing the stamper gear was struck on the head and fell to a lower floor level.

The other serious accident occurred to one of the workmen on the Atarau Dredge. He sustained broken ribs from a wire rope being tightened.

GOLD-MINING

No new quartz mine was opened during the year. Of the fifteen dredges operating in the West Coast District, twelve worked throughout 1944.

The Maori Gold Dredge worked until the end of September and then collapsed. The company afterwards went into liquidation.

The Slab Hut Dredge suspended operations in June, but recommenced dredging about two months later.

The Waipuna Dredge operated intermittently in 1944.

In the Southern District the Austral Dredge, at Lowburn, continued to operate throughout 1944.

The refitting of the Clutha Dredge was completed in February and it has been working since.

The Molyneaux and Rainbow Dredges were tied up all the year.

PROSECUTIONS

No informations were laid by the Inspectors of Mines during 1944.

MINERALS OTHER THAN GOLD AND SILVER

Arsenic.—Nearly 16 tons of arsenic was recovered at the Blackwater treatment plant.

Asbestos.—From 386 cubic yards treated in the Upper Takaka Mill 17 tons of asbestos fibre was recovered.

Bentonite and Fuller's Earth.—At Porangahau 360 tons of bentonite, worth £1,640, was mined. At Kamo 106 tons of Fuller's earth, worth £387, was produced.

Diatomite.—At Ngongotaha 11½ tons of diatomaceous earth, worth £54, was produced. In Otago 43 tons of diatomite, valued at £40, was produced.

Iron.—From Kamo 3,025 tons of limonite, worth £2,893, was mined; and at Okaihau, North Auckland, 2,568 tons, worth £7,882, was won. In the Onakaka district 443 tons of limonite, valued at £775, was quarried.

Talc-magnesite and Talc.—From the Upper Takaka district 103 tons and from Aniseed Valley 25 tons was quarried, together worth £102.

Manganese.—None was produced in 1944, but 475 tons was shipped from Clevedon.

Mercury.—At Puhipuhi 1,172 tons of ore was treated, which yielded over 3 tons of mercury, valued at £6,840. Work has ceased at the cinnabar-mine at Karangahake.

Mica.—Work was abandoned on the deposit at the 4,000 ft. level on the Matukituki Range, South Westland. A start was then made at about the 1,700 ft. level, and from there 700 lb., yielding about 300 lb. of useable material, was recovered.

Petroleum.—From the three producing wells owned by Moturoa Oilfields, Ltd., a total of 73,588 gallons was obtained, and was treated by N.Z. Oil Refineries Ltd., New Plymouth. The borehole at Kamaka, West Coast District, reached basement rock at 6,942 ft. with negative results.

Phosphate.—From the Clarendon deposit 19,931 tons, worth £20,551, was quarried.

Pottery Clay.—Near Kaka, in the Nelson District, 2,330 tons of pottery clay, worth £3,087, and about 50 tons of inferior clay, worth £44, was mined. At Benhar, South Otago, 3,374 tons of pottery clay was quarried; and at Kakahu, South Canterbury, 914 tons of clay used for making insulators was produced.

Pumice.—In the Northern District 2,931 tons of pumice, valued at £11,856, was quarried.

Serpentine.—To augment the supply of fertilizers, 17,699 tons of serpentine was obtained from Wayby Quarries and 20,022 tons from Kaukapakapa Quarries.

Silica.—From the Wanganui and North Auckland districts, 22,214 tons of silica, valued at £54,857, was produced. From Canterbury and Central Otago, 2,105 tons of silica sand, valued at £2,538, was mined.

Tungsten.—From the Glenorchy and Macraes districts of Otago, 136 tons of scheelite concentrates, valued at about £62,000, was mined.

STONE-QUARRY INSPECTION AND STATISTICS

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 1944:—

Provincial District.	Name and Address of Government Inspector of Stone-quarries.	Number of Working Quarries under the Act.	Number of Persons ordinarily employed.	Output of Stone.							
				Stone or Gravel for Macadamizing or Ballast.	Stone for Harbour-works.	Building or Monumental Stone.	Limestone for Agriculture.	Limestone for Cement or Mortar.	Phosphate for Agriculture.	Miscellaneous.	Value at Quarry.
				Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	£
Auckland ..	R. C. Ruffin, Mines Dept., Huntly	180	775	554,533	..	..	234,740	251,395	..	203,922	296,299
	E. J. Scobie, Mines Dept., Waihi (Hauraki Mining District only)	28	89	78,064	..	351	..	..	..	..	31,531
Hawke's Bay	R. C. Ruffin, Mines Dept., Huntly	17	31	16,081	..	..	45,828	..	..	1,950	21,717
Taranaki ..	Ditto	21	64	20,630	..	..	..	..	..	..	5,183
Wellington	,, ...	25	72	35,571	..	..	90,487	..	..	22,500	46,303
Nelson .. Westland .. Buller .. Marlborough Canterbury Otago .. Southland	G. W. Lowes, Mines Dept., Greymouth	24	103	13,852	..	4,321	24,899	70,335	..	4,003	13,504
	T. McMillan, Mines Dept., Dunedin	52	417	101,304	52,587	7,513	507,854	58,575	19,931	..	234,708
Totals, 1944	..	347	1,551	820,035	52,587	12,185	903,808	380,305	19,931	232,375*	649,245
Totals, 1943	..	325	1,672	774,993	51,914	17,712	752,603	411,045	9,241	237,056	580,297

*Includes 25 tons talc, value £10; 3,931 tons dolomite, value £1,474; 47 tons quartzite, value £85.

Quarry Accidents

The following is a summary of serious accidents during 1944 at quarries under the Stone-quarries Act:—

Cause.	Number of Accidents.		Number of Sufferers.	
	Fatal.	Serious.	Killed.	Seriously injured.
Haulage	..	..	..	..
Machinery	..	..	..	..
Explosives	1	..	2	..
Falls of ground	1	..	1	..
Miscellaneous	..	1	..	1
Totals	2	1	3	1

One accident, causing two deaths, occurred in a North Island quarry, and a quarry-manager was killed in an accident in a South Island quarry, during 1944.

STATE AID TO MINING

(1) Subsidized Prospecting

A total sum of £31,847 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 £13,842.

(2) Government Prospecting Drills

During the year the Department's drills were hired out on six occasions to various companies and parties. 33 holes were drilled for a footage of 12,928 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 £5,752, as compared with £621 during the previous year.

LEGISLATION AFFECTING METALLIFEROUS MINES AND QUARRIES

Section 3 of the Mining Amendment Act, 1937, debars any person from being employed trucking, timbering, or winning ore in a level or place off a level unless there is at least one other person working in that level or place or other place off that level. Section 42 of the Statute Amendment Act, 1944, empowers an Inspector to grant complete or partial exemption to a mine from compliance with this provision.

The Quarries Act, 1944, in which many new provisions are embodied, replaced the Stone-quarries Act, 1910, and which consequently was repealed.

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.—The footage recorded for development amounted to 7,643, of which 6,330 was accounted for in driving and crosscutting, and the balance in rising and winze-sinking. This footage was for the most part connected with the reopening of blocks of ore previously left behind and in the driving of sub-levels for the extraction of arches remaining under different levels. As in the previous year, operations were hampered to a great extent by the want of experienced miners, and for this reason no new country was developed. The ore crushed came principally from the Martha, Royal, Welcome, and Empire lodes, and amounted in all to 130,068 tons, which yielded 36,822 oz. of gold and 324,615 oz. 14 dwt. of silver, valued at £426,230 19s. 11d. The average number of men employed was 496, and the water pumped comprised 253,244,000 gallons.

Golden Dawn Gold-mines, Ltd., Owharoa.—Underground operations were suspended. The battery building was sold and dismantled during the year, and three men were afterwards engaged in treating the earth floor of same, together with material from an old tailings dump, by means of ground sluicing. The concentrates so gained are being held for shipment to Australia for final treatment.

Talisman-Dubbo Battery Site, Karangahake (E. Roberts and Mate)—Some 50 tons of material were obtained from this source, the yeild being 144 oz. 16 dwt. of bullion, worth £734 0s. 8d.

Frewin's Extended Claim, Waitekauri.—Thirty tons of material gave a return of 21 oz. 17 dwt. of bullion, valued at £143 6s. 7d.

Golden Spur Co., Ltd., Maratoto.—A limited amount of underground work was undertaken, but the staff was engaged for the greater part of the year in dismantling the now defunct Ohinemuri Gold and Silver Mining Co.'s battery. The battery belonged to the Golden Spur Co., and was sold for removal. Four men were employed.

Una Hill Consolidated Gold-mines, Ltd., Thames.—Operations were suspended and practically all plant and buildings disposed of.

Kernick's Freehold Mine, Tapu.—A prospecting drive was constructed south of previous workings and carried forward for 60 ft., where work was discontinued on account of the country rock proving unfavourable. In addition, some general prospecting was done on the surface, while a trial crushing of 4 tons of ore from a stock pile gave a return of 4 oz. 6 dwt. of bullion, valued at £27 3s. 6d. An average of one man was employed for the year.

Mountain King Claim, Puhoi Valley, Thames.—A fair amount of prospecting, both underground and on the surface, was done with practically nil results, and work was therefore suspended. Two men were employed.

Sylvia Mines Consolidated, Ltd., Thames.—The rich leader encountered at 39 ft. in the crosscut south, No. 6 level, and referred to in last year's report, was driven on in a westerly direction for 30 ft., where it vanished in a "crush" zone, and work was given up in consequence. Operations in the main crosscut were then resumed, and the main reef was met with in October at 108 ft., when it was driven on in an easterly direction for 60 ft. The reef is 5 ft. wide where intersected, and gradually opens out to a width of 6 ft. up to the point stated. Values showed a progressive increase from 12s. per ton at the crosscut to 30s. at the face, and at the time of writing (March, 1945) show a much greater gain for the extra work done. These improved values are satisfactory, and it can be assumed that the run of good ore, which was formerly operated on and had a length of 500 ft. in the upper levels of the mine, has now been encountered.

Hardy's Mines, Waiorongomai.—A small quantity of good-grade ore was won, and now awaits shipment to the smelters in Australia.

Miscellaneous

New Zealand Mercury Mines, Ltd., Puhipuhi.—A total of 1,172 tons of ore was produced, and yielded 3 tons 1 cwt. 8 lb. of mercury, valued at £6,840. A small quantity thereof was sold in New Zealand, but the greater part was disposed of in Australia. Operations were continuous, apart from usual stoppages on account of bad weather. Eighteen men were employed.

Ascot Cinnabar Mine, Karangahake.—Work is suspended, and is not likely to be resumed, as the results were unsatisfactory.

Serpentine.—All of this was again obtained from near Wayby and Kaukapakapa, North Auckland, and amounted to 17,699 tons and 20,022 tons respectively. The stone was produced by Bitumix Ltd. and Asbestos Mines, Ltd., in the quantities given.

Manganese.—None was produced, but Mirandite Products, Ltd., Clevedon, shipped 475 tons overseas. The ore averaged 55 per cent. manganese and realized 29 cents per unit, or a total of approximately £2,304. In addition, 500 tons or more of the ore were exposed and made ready for excavating by means of a bulldozer, and it is hoped to prepare and export this to Australia during the current year.

Silica Sand.—The New Zealand Glass Manufacturers Co., Pty., Ltd., Penrose, produced 21,883 tons, valued at £54,708, from Parengarenga, and Messrs. J. B. Gilberd and Sons, Ltd., Wanganui, obtained 331 tons, worth £148 19s. The former company use their sand in the manufacture of glassware, and the latter chiefly for making abrasives, such as sandsoaps, &c.

Pumice.—None was produced.

Fuller's Earth.—Mr. S. C. Crawford, of Kamo, Whangarei, mined 105½ tons, valued at £386 12s. 6d.

Diatomaceous Earth.—Eleven and one-half tons, worth £54, were produced by Mr. W. Brake, of Ngongotaha.

Bentonite.—Mr. H. F. Stoddart, of Porangahau, mined 360 tons, worth £1,640. The bentonite (dried and ground to a fine state of division) is used for foundry moulding, the strengthening of cement, in the manufacture of insecticides, &c. Five men were employed.

Sulphur.—There was no production.

Limonite.—The total comprised 5,593 tons, of which Mr. W. Whitelaw, Kamo, produced 3,025 tons, and Okaihau Quarries, Ltd., Okaihau, the remainder. Values received amounted to £2,893 and £7,882 respectively. Mr Whitelaw's ore (when crushed) is used for furnace work, in the manufacture of cement, gas-filtering, and in agriculture. That from the Okaihau Quarries is wholly employed in top-dressing and for the manufacture of cattle-licks. Seventeen men were employed.

Moturoa Oilfields, Ltd., New Plymouth.—This company's production was as follows: No. 1 well, 4,270 gallons; No. 2 well, 49,408 gallons; No. 4 well, 19,910 gallons; total, 73,588 gallons. The oil was disposed of to the New Zealand Oil Refineries, Ltd., which obtained the undermentioned fractions therefrom:—

	Gallons.
Petrol	14,520
Distillate	5,575
Power kerosene	11,610
Heavy kerosene	10,250
Diesel oil	11,870
Residue oil	17,055
Total	70,880
Loss (water)	4,100
Crude in still	74,980

Fatal and Serious Accidents

There were two accidents, one fatal and the other non-fatal. The victims were J. R. Buckeridge and J. Cornthwaite respectively, employees of the Martha Gold-mining Co. Buckeridge was adjusting a chain sling to the detached part of a rock-breaker, and while doing so passed within the range of a moving belt, when he was seen to fall backwards to the ground. He was picked up, but died soon afterwards, and a subsequent examination revealed that his death was due to hæmorrhage and laceration of the brain. It is assumed that he was struck on the head by a fastener of the belt. Cornthwaite was repairing stamper gear in the Waikino battery, and while working on top of a frame must have struck his head on an overhead beam, for he was seen to fall to the floor below and was picked up unconscious. He suffered a bad cut on the left forehead and two broken wrists.

Prosecutions

There were no prosecutions.

WEST COAST INSPECTION DISTRICT (G. W. Lowes, Inspector of Mines)

Quartz-mining

Marlborough, Buller, Grey, Westland, and Murchison Counties

There was no activity in gold-mining or prospecting during the year in the above counties, excepting the reopening of No. 3 level in the Empire City Mine at Deep Creek, in the Marlborough County. A distance of 369 ft. of the drive has been reconditioned, and when the ore channel has been reached crosscutting will be undertaken to locate a section of the lode that was displaced by faulting.

Inangahua County

Blackwater Mine, Waiuta.—Development during the year was very limited owing to shortage of labour. The total footage advance amounted to 1,553 ft., of which 1,211 ft. were done in driving exposing 744 ft. of reef averaging 13·04 dwt. over a width of 27 ins. Thus 61·4 per cent. of the driving was on reef and 38·6 per cent. in country. Of the 744 ft. driven on reef, 66 ft. were on unpayable reef averaging 3·54 dwt. over 21 in. in the No. 15 Level Drive South and the total pay reef exposed for the year was 678 ft. averaging 13·75 dwt. over a width of 28 in., compared with 614 ft. averaging 15·51 dwt. over 33 in. for the previous year.

The results obtained from the main development points were as follows:—

No 12 Level Drive North: This drive was advanced 87 ft., of which 49 ft. were on reef averaging 14·90 dwt. over a width of 14 in. The drive has now been suspended, as the company is of the opinion that they have passed through the northern extremity of the reef.

No 14 Level Drive North: This drive was advanced 80 ft., of which 36 ft. exposed reef averaging 11·56 dwt. over a width of 26 in.

No. 14 Level Drive South: This drive was advanced 41 ft. The southern boundary of the main ore body was reached after driving 17 ft. on reef averaging 10·70 dwt. over a width of 15 in. the balance of 24 ft. in country being driven for the purpose of stoping above.

No. 15 Level Drive North: This drive was advanced 234 ft., of which 126 ft. exposed reef averaging 13·66 dwt. over a width of 32 in.

No. 15 Level Drive South: This drive was advanced 224 ft., of which 190 ft. exposed reef averaging 9·82 dwt. over a width of 25 in. This 190 ft. of reef comprised 124 ft. averaging 12·40 dwt. over 27 in. and 66 ft. of unpay reef averaging 3·54 dwt. over a width of 21 in.

Shaft-sinking: No shaft-sinking was carried out during the year, but preparations are being made to sink from No. 15 to No. 16 level.

Alexander and Big River Mines, Big River.—Both mines remained idle during the year, and are not likely to resume until sufficient skilled labour is available to carry out the development necessary to build up ore reserves.

Dredge Mining

Inangahua County

Slab Hut Dredge, Mawheraiti.—About half-way during the year, on account of the mechanical condition of the dredge, it was found necessary to suspend operations for two months. On completion of extensive repairs and alterations dredging was resumed, and by the end of the year 693,200 cubic yards of ground had been dredged for a gold yield that did not permit the payment of dividends.

Snowy River Dredge, Ikamatua.—This dredge worked consistently throughout the year down-stream on a wide cut taken through the centre of the valley. An average depth of 20 ft. of free-digging gravel was handled and 1,253,720 cubic yards of ground treated of a value that provided the shareholders with the customary dividends.

Grey River Dredge, Ikamatua.—During the year this dredge worked 79·6 per cent. of the total digging-time of 310 working-days, equalling 5,923 digging-hours. Approximately 89 acres were dug of an average depth of 25·3 ft., and the ground treated was 3,626,313 cubic yards, the maximum output per digging-hour being 612 cubic yards. The value of the ground treated was 6·8d. per cubic yard, and operating-costs, excluding export taxes and realization costs, amounted to 4d. per cubic yard, while the total cost of production equalled 5·14d. per cubic yard. Shallow digging encountered during the first nine months of the year was again reflected in the volume of gravel treated. For a large portion of the year digging was carried on in the vicinity of the confluence of the Mawheraiti, Blackwater, and Snowy Rivers, which involved considerable reduced digging-time in the maintenance of waterways for the combining of the three streams. Difficulty in obtaining labour, adequate supplies, and replacement parts, together with increased material costs, greatly affected the year's operations.

Grey County

Waipuna Dredge, Waipuna (Ahaura Survey District).—This dredge operated intermittently during the year and dredged 358,550 cubic yards for a gold return that did not permit of the payment of dividends. The light construction of the dredge and the presence of large granite boulders in the wash accounted for a considerable amount of lost time with a subsequent reduction in yardage and increase in working-costs. The depth of ground dredged varied between 9 ft. and 28 ft., the latter depth being beyond the capacity of the dredge ladder to reach bottom.

Redjacks Dredge (Associated Gold Dredges, Ltd.), Redjacks Creek, Ngahere.—During the year this dredge dredged 24 acres of ground and treated 1,037,310 cubic yards. A considerable area of the claim adjoining the Greymouth-Reefton Highway had to be abandoned on account of the bottom at 60 ft. being beyond the capacity of the dredge, and future dredging operations are likely to be along the bed of the Redjacks Creek until a section of shallow ground situated on the south end of the claim is reached. The average depth of ground worked was 35·7 ft. and the percentage of possible hours worked was 68 per cent. A recovery of 0·61 grains per cubic yard was effected, and total working-cost per cubic yard was 3·68d.

Atarau Dredge (Associated Gold Dredges, Ltd.), Moonlight Creek, Atarau.—Despite an acute shortage of labour, this dredge dug 49 acres averaging 18·5 ft. in depth for a yardage of 1,130,496 cubic yards. Seventy-three per cent. of possible hours were worked, and working-costs totalled 5·015d. per cubic yard, to be expended from a return of 1·47 grains per cubic yard.

Marsden Dredge (Associated Gold Dredges, Ltd.), New River, Marsden.—This dredge worked 29 acres of ground and treated therefrom 1,183,552 cubic yards for a yield of 1·05 grains per cubic yard. The total cost of recovery was 3·43d. per cubic yard, and the hours worked was 76 per cent. of the total possible time. The average depth of ground dredged was 20 ft. of free-digging gravels resting on marine bottom of blue pug.

Ngahere Dredge, Ngahere.—The area dredged during the year amounted to 16·177 acres of a maximum depth of 95 ft. and a minimum depth of 68 ft. The maximum depth below water-level was 77 ft. and the maximum height above water-level 18 ft. For a recovery of 1·43 grains per cubic yard, 2,142,316 cubic yards of ground were dredged.

The cost of digging per cubic yard amounted to 1·27 grains, which is the highest cost recorded by the company since commencing operations, and leaves only a very narrow margin of profit. Owing to the company's inability to secure replacement parts, especially buckets and pins, working-costs increased. Digging-time decreased by 20 per cent., and scarcity of suitable labour added to the company's difficulties.

Blackball Creek Dredge, Blackball.—Repairs and maintenance of this dredge accounted for a considerable portion of available working time on day shift, but notwithstanding these delays and frequent changes of crew, the dredge dug a very satisfactory yardage and operations resulted in a good return on the capital invested.

Barrytown Dredge, Barrytown.—This dredge during the year dug 70·31 acres of solid ground and 4·49 acres of tailings, and the yardage of wash treated amounted to 2,291,000 cubic yards, not including the tailings, for a recovery of 1·29 grains per cubic yard. The dredge worked for 72·98 per cent. of the possible dredging-hours of 7,296 hours in ground of an average depth of 20 ft.

Westland County

Maori Gold-dredge, Callaghans.—This dredge worked up to the end of September and dredged 219,100 cubic yards before the whole plant yielded to the difficult conditions in which it had worked. For some weeks before cessation of operations parts of the top structure showed signs of collapse, and finally the pontoon was badly holed and the dredge sank. After temporary repairs had been effected and the dredge refloated, an examination disclosed that nothing less than a new dredge would be required to work out the remainder of the claim; consequently, the company went into liquidation and sold all plant and machinery.

Rimu Dredge, Rimu.—Out of a possible working period of 7,296 hours, the dredge worked 71·4 per cent. of digging-time. An area of 31·05 acres was dug of an average depth of 27·6 ft. and a total of 1,383,993 cubic yards of wash and overburden was treated. The yield per cubic yard averaged 12·92d., and operating-costs, excluding export taxes and realization costs, totalled 9·57d. per cubic yard. Total operating-costs, including the above-mentioned taxes, ran to 11·71d. per cubic yard. On the gold bullion produced, the company paid as export tax a total of £11,125, or about £358 for each acre dug. Throughout the year the dredge was engaged digging its way along the northern limits of the channel to the western end of the property. Dredge digging-time during the year was adversely affected by two major mishaps—viz., the blockage of the Kanieri Electric, Ltd.'s, water-race by a large slip and the parting of the bucket line due to pin failure. In addition to the foregoing, it was found necessary to overhaul and rebuild the digging-ladder point, which was badly strained on account of the tight nature of the ground.

Kanieri Dredge (Gold-mines of New Zealand, Ltd.), Kanieri.—A yardage of 2,313,000 cubic yards of solid ground was dredged and treated in addition to 75,879 cubic yards of tailings from 43·2 acres of ground in 5,964 hours, representing 81·75 per cent of the total possible dredging-time. The depth of ground averaged 33 ft., and a recovery of 2·92 grains per cubic yard was effected.

Arahura Dredge (Gold-mines of New Zealand, Ltd.), Arahura.—A total of 3,238,000 cubic yards of ground was dredged from ground averaging 74 ft. in depth, the recovery being 2·63 grains per cubic yard. The total area dredged was 27·09 acres. Hours worked were 6,137, representing 84·12 per cent. of the possible working-time.

Gillespie's Beach Dredge, Weheka.—This dredge had another difficult year, chiefly on account of labour shortage, but despite all drawbacks a profit on the year's work was made. Owing to the dredge encountering a high sand-bank at the northern end of the claim and the difficulties of tailings disposal, a 6 in. sand-pump had to be installed to relieve the sand wheels and tailings elevator, which was incapable of removing the wet sands from the gold-saving tables in sufficient quantity to enable the stern of dredge to be kept free. The sand-pump proved to be successful, and in consequence the dredging difficulties disappeared so far as disposal of tailings was concerned.

ALLUVIAL MINING

Buller County

Addison's Flat Gold-mining Co., Ltd., Addison's Flat.—The company resumed operations for the year in a new paddock in February. During the year an ample supply of water with a head pressure of 108 lb. per square inch in two pipe-lines was available continuously. Seven men were constantly employed at sluicing operations and approximately 15 acres of ground averaging 8 ft. in depth were worked. The ground yielded just under 6d. per cubic yard and the cost of treatment was just under 4d. per cubic yard. The ground in places was badly cemented and had to be broken by explosives, thereby adding greatly to the cost of treatment.

Inangahua County

Waitahu Sluicing Co., Ltd., Waitahu.—In the early part of the year a manager was appointed to the claim and an attempt was made to resume operations. The main water-race was cleaned out and pipe-line repairs were effected where necessary and preparations made to open out a paddock by ground sluicing, but owing to inability to obtain suitable labour operations were again suspended.

Mount David Sluicing Claim, Blackwater.—Despite the fact that water-race repairs and pipe-line adjustments were completed by the end of 1943, no attempt was made to work the claim during the past year.

Grey County

Moonlight Sluicing Claim, Blackball.—Before closing down towards the end of the year owing to scarcity of suitable labour the company sluiced 150,800 cubic yards of dirt, mostly overburden from a section of the claim that was previously worked and yielded payable returns.

Golden Sands Claim, Barrytown.—Despite difficulties caused by flood damage to the claim and plant, the company operated continuously during the year on three shifts when labour was available. The ground worked was payable, despite the fact that an enormous amount of buried timber had to be handled in overburden overlying the auriferous black sand.

MISCELLANEOUS MINERALS

Asbestos.—The Hume Pipe Co. (Australia), Ltd., holders of a mineral lease in Block I, Flora Survey District, Takaka County, confined its operations to prospecting and sampling in bulk material won from drives and crosscuts driven at different levels on the property. Exploratory underground work amounted to 1,460 ft., and out of this distance 445 ft. was driven on asbestos-bearing rock which yeilded 17 tons of fibre for the treatment of 386 cubic yards in the mill, which was only worked for sampling purposes. The gross value of this product was £20 per ton. Sales of fibre for the year were 12 tons 5 cwt., and stock on hand is 141 tons 1 cwt.

Estimates of the quantity and quality of fibre available cannot be made until the planned prospecting campaign is completed in 1945, when it is anticipated that sufficient data will have been accumulated to enable details to be worked out for the design and installation of a modern treatment plant of a capacity of 2,000 tons per week.

Electric power is now available at the works from the Cobb hydro-electric plant and a good road completed to the plant site, consequently mining and treatment costs can be kept within reasonable limits.

Mica.—Owing to the unfavourable weather experienced in South Westland, especially at the higher altitudes, an access track commenced in February could not be completed, but negotiations are in hand to continue the work. During the year Radio Corporation, Wellington, entered into an arrangement with the licensee of mining privileges on the Matakitaki Range to work his area, but had to abandon the attempt to work at the 4,000 ft. level on account of heavy falls of snow. Prospecting was carried out at approximately 1,700 ft. above sea-level and the northward continuation of Sweeney's outcrops located, which were worked by quarrying for the last three months of the year, and about 700 lb. of sheet mica was recovered and sent to the company's Wellington factory. This quantity yielded 292½ lb. of what is described as usable mica, and the removal of approximately 400 cubic yards of rock was necessary to obtain the amounts of mineral mentioned.

Petroleum.—The New Zealand Petroleum Co., Ltd., commenced boring at No Town, Block II, Mawheranui Survey District, and late in the year reached basement rock at a depth of 6,942 ft. before abandoning the hole. At 6,695 ft. a strong flow of sour non-petroleum gas was encountered and sealed off, and boring continued until all possibilities of the discovery of oil were exhausted. The plant was subsequently dismantled and removed from this district and the services of most of the drilling and technical staffs dispensed with by the company.

Pottery Clay.—The clay-pit at Kaka, in Tadmor Survey District, Waimea County, operated by K. A. Polglaze, produced 2,330 tons, which realized at the mine £3,087 5s. The quantity of clay available for present workings is limited to a few hundred tons. Towards the latter part of the year arrangements were made with the Mines Department to prospect an area by diamond drill and thereby, if possible, to ensure a continuous supply of clay to the Temuka pottery, where the raw material is converted into essential earthenware.

In the same district E. Cobbledick produced 50 tons of low-grade clay, which was disposed of at the rate of 17s. 6d. per ton.

Iron-ore.—From the Onakaka district 143 tons of iron-ore, which realized £775, was shipped to various parts of the Dominion.

Talc and Magnesite.—The Takaka Lime and Marble, holders of a mineral license at Upper Takaka, quarried and transported to the works at Mapua 103 tons of talc magnesite, and from the Aniseed Valley 25 tons of talc. The total value of mineral won was £102 14s.

Arsenic.—The amount of 15 tons 15 cwt. of arsenic was produced as a by-product from the treatment of roasted concentrates recovered by the flotation plant during ore treatment from the Blackwater Mine.

General Remarks: Mining and Prospecting

Faced by conditions imposed by the war, gold-production continues to shrink. Prospecting of new areas by dredging companies is at a standstill. Development of quartz lodes has received a serious check and restoration of the gold-mining industry to its pre-war state of prosperity will be a difficult task, but can be accomplished when the present abnormal conditions cease to exist.

Seven dredging companies carried out check boring, and drilled sixty-six holes aggregating 3,303½ ft. in depth. No diamond drilling for minerals exploitable under the Mining Act, 1926, was carried out during the year.

Fatal Accidents

Three fatal accidents occurred during the year—viz., two drowning fatalities at the Barrytown Dredge and one accident at the Pokororo Quarry.

Dredges.—On 22nd August, 1944, William McGrath, aged about twenty-one years, employed as a greaser on Barrytown Dredge, met his death. No witnesses were present at the time of the accident, but it is presumed that he left the dredge at the end of the shift at midnight by the stern instead of the gangway, and in doing so jumped into the soft tailings and was drowned. The body was recovered by dragging operations four days after McGrath was reported missing.

On 14th October, 1944, Edward Price, aged seventeen years, employed as an oiler on the Barrytown Dredge, met his death by drowning in the dredge pond. Deceased had been engaged with a workmate in loading stumps on to a punt. The latter left to oil the jigs, and on his return about ten minutes later there was no sign of Price. Dragging operations were carried out, and the body was subsequently recovered from the pond. It is presumed that Price had gone to unhook a stump on the punt and accidently slipped into the dredge pond.

Quarries.—On 21st September, 1944, Orman Parkes, quarry-manager, Pokororo Quarry, Motueka, sustained cerebral concussion and a crushed chest when he was struck by a fall of rock from the face of the quarry immediately above the spot where he was working. Death occurred shortly after the injuries were sustained.

Serious Non-fatal Accidents

One serious non-fatal accident occurred during the year.

On 11th March, 1944, John Burrell, a member of the workshop staff, Atarau Dredge, while engaged clearing a discarded bowline in front of the dredge sustained broken ribs. The shore gang were endeavouring to pull the line clear from the front of the dredge with the tractor and it fouled on a tree stump, striking Burrell before he had time to move.

Prosecutions under the Mining Act

Nil.

SOUTHERN INSPECTION DISTRICT (T. McMillan, Inspector of Mines)

Quartz and Alluvial Mining

Waituki County

Sluicing operations were carried out in the auriferous gravels of the Livingstone and Macrewhenua Goldfields.

Waihemo County

All operations have ceased in the Deep Dell Mine of the Golden Point Gold and Scheelite Mining Co., and the plant is to be sold.

The Lewis co-operative party continued to prospect the Deep Lead gravels for float scheelite, they then decided to install a sluicing plant in order to sluice off the overburden and work the scheelite-bearing gravels by ground-sluicing methods. As gravity water could not be obtained, the Golden Point generating plant was rented, and also pumping plant from the Macrae's Flat Gold-mining Co. This method proved to be too expensive, for the scheelite content was low, and operations ceased in September.

Callery Party, Deep Dell, Macrae's.—Prospecting, driving, sinking, rising, and stoping operations were carried out on both sides of Round Hill, and 275 tons of ore were treated at the Deep Dell Battery during the year.

Innes Freehold Mine.—Mining operations were carried on until the end of March, when on account of heavy rains the workings became flooded and operations ceased.

The Macrae's Flat Gold-mining Co.—The electrically operated gravel-pump continued to operate in the upper section of the Macrae's Flat where the main reefing system crosses the flat. As this system has apparently been the main source of the gold and scheelite content of the alluvial gravels on this flat, the auriferous content of the gravels became too low for profitable operations. Mining operations ceased in July, and the plant was then dismantled and sold for removal.

Maniototo County

The alluvial mines at Naseby, Kyeburn, St. Bathans, Cambrians, Vinegar Hill, and Patearoa operated steadily whenever water was available.

Tuapeka County

Mining operations were carried on steadily at the Sailor's Gully tribute mine, Waitahuna, by J. Hore and party. The Blue Spur and Gabriel's Gully party continued to operate in Lagoon Gully near the head of Gabriel's Gully.

Southland County

Sluicing operations have been carried out in the Waikaia and Nokomai auriferous areas.

Wallace County

The Round Hill Gold-mine has operated with a reduced staff, and two shifts daily have replaced the previous three-shift operation. Three acres were elevated to a depth of 75 ft. and half an acre stripped to 30 ft.

Sluicing operations were carried on regularly in the Old Township workings, Orepuki, in sections of this field previously mined by underground methods.

Lake County

State Scheelite-mines.—In the Glenorchy State Scheelite-mine, prospecting, developing, and stoping operations were carried out. The No. 7 or main level has been extended to 1,249 ft. from the portal. The reef averaged about 18 in., but was very low grade. In the No. 1 rise a small block was stoped on low-grade ore. In No. 1A rise two crosscuts were driven, but only small lenses of ore were located. The area was stoped out to the intermediate level above.

No. 2 Rise Section: Stoping operations were carried out until the ore became too low in value to pay for extraction.

In the No. 4 rise, stoping operations located one good lens of ore, but the balance of the ore was low grade. In the No. 4 stope (above No. 1A rise), stoping operations located some good lenses of ore, and the major portion of the concentrates were obtained from this section.

In the No. 5 rise section, development work proved this section to be disturbed and faulted. Considerable driving was carried out but no area of stoping ground was located, so all scheelite lenses were mined and operating ceased.

No. 7 Rise Section: Stoping operations were carried out on the west side of the rise up to 98 ft., and a small area was also stoped on the east side of the rise. The reef averaged 18 in., but the ore was generally low grade and operations ceased when 38,886 cubic feet had been mined.

In the No. 7 level, in order to test the ore thoroughly near the face, a leading stope was mined in reef averaging 18 in., but the ore was very low grade and prospecting operations were then suspended on the inbye section of this level. In order to test the reef below the No. 7 level three winzes were put down. No. 1 was 45 ft., No. 2 was 20 ft., and No. 3 was 15 ft. In all cases the ore was low grade.

In the No. 6 level, prospecting, development, and stoping operations were carried out during the early months of the year. Two rises were put up to 85 ft. and 148 ft. respectively. Nothing of value was opened up by the 85 ft. rise, and only a small lens just below No. 5 level in the 145 ft. rise; this was stoped out. The reef in the level was from 2 ft. to 3½ ft. thick but very low grade. Portions of this level were let on tribute in April.

Active prospecting and development work was also carried out in the No. 3 and 4 levels during the early months of the year. A small lens of ore was located between No. 3 and 4. This was stoped out, and as prospecting work had failed to locate payable reef, operations were suspended and all rails, pipes, and gear were withdrawn from No. 3, 4, and 5 levels.

A total of 1,002 tons of ore (97½ tons first grade and 904½ tons second grade) were sent to the treatment plant during the year and 22 tons of scheelite concentrates were obtained (16½ tons raw concentrates from the first grade ore and 5½ tons of roasted concentrates from the second-grade ore).

Kelly Lode: A tribute party opened up a section of this lode near Taylors. The main drive intersected a fault at about 100 ft. A prospecting crosscut opened up a thin lens of good ore. A second parallel drive was driven about 70 ft. for prospecting and ventilation purposes, but this failed to locate further payable ore and operations were suspended when all the payable ore had been extracted.

On account of the failure of prospecting and development work to locate payable scheelite-bearing ore, and the exhaustion of the balance of the payable ore in the pillar sections of the mine, operations by the State ceased early in 1945. One party of two men continued to carry on tribute operations on No. 7 level, and a similar party are tributing on the No. 6 level.

Treatment Plant: This plant has operated steadily during the year treating the ore from the two State mines and also ore from many of the privately owned mines in the Bonnie Jean and Mount McIntosh reefing system. This plant has been repaired, additions have been made, and improvements have been carried out. The plant is now in good working-order.

Paradise State Mine.—Active development and mining operations were carried out at this mine. All the payable ore for a length of 300 ft. between Nos. 1 and 2 levels was stoped, but the results obtained did not come up to expectations. No. 1 stope, between the No. 2 and No. 3 rises, yielding the best results from a lens of ore about 10 ft. wide running from No. 2 to No. 1 levels. This lens contained good scheelite and yielded the major portion of the mine output. The ore body was from 1 ft. to 4 ft. in thickness but, with a few exceptions, it was patchy and low grade.

No. 1 level was driven ahead for a short distance in formation yielding very little ore. Stoping was also carried out above the No. 1 level, but the ore body was small and low grade, yielding very little scheelite. In order to test the reef above the stope a rise was put up to the surface a distance of 94 ft. from the level. The reef proved to be small and very low grade. In order to test the reef underfoot, winzes were sunk from the No. 2 level. No. 1 winze was 37 ft. and the reef averaged 1 ft. in width but was low grade. No. 2 winze was sunk on a lens of ore, but this cut out at 10 ft. and operations were then suspended. On account of the failure of prospecting and development work to locate payable ore bodies, coupled with the poor overall results obtained from stoping operations, all mining ceased early in January, 1945.

During the year's operations a total of 89,477 cubic feet of ground was mined for a return of 873 tons of ore (187 tons first grade, 686 tons second grade), yielding 24 tons 16 cwt. scheelite concentrates. An average of twenty-eight men were employed during the year (eleven Glenorchy, thirteen Paradise, and four Glenorchy treatment plant).

The State took over the mines in a time of emergency when it was essential to obtain scheelite. Both mines had reached the stage where very considerable expenditure was required for prospecting and development. This work has been carried out, and no economic ore bodies have been located either at the Glenorchy or the Paradise Mine. The gradual exhaustion of the economic ore in the pillars of the mines was only a matter of time.

Mount Larkin Reefs. Further trenching and sluicing operations were carried out on the vertical reef line on the northern side of the creek, but results did not warrant a continuance of operations at this remote area under prevailing prices. Operations ceased at the end of the year.

Heather Jock Scheelite Syndicate (*Wylie Bros*), (Western Slopes of Mount Larkin).—When sluicing operations were resumed at Forbe's Reef an upthrow fault was encountered. The compressor was then shifted to the upper level of the Heather Jock reef and assembled and housed. The drive was reconditioned, water-pipes installed, and driving operations resumed in very hard quartz-reef formation. Ore was located near the end of the year and a short drive to the south-east opened up a lens of high-grade ore.

Bonnie Jean Mine (*Elliot Bros. and Tripp*), (South-western Slopes of Mount Larkin).—Active sluicing operations have been carried out during the season when water has been available. During slack water periods, driving and stoping operations were carried out at the southern end of the mine.

Sharpe Bros., Harris, and Wetherston, Bonnie Jean Gorge.—Operations were resumed at the Gorge Mine, and the balance of the payable reef was stoped out and mining operations were suspended.

Groves Mine (owned by Mr. J. R. Tripp and situated on the Left-hand Terrace of the Bonnie Jean Basin).—Driving and stoping operations were carried out during the early part of the year, then the mine was taken over on tribute by the Northcote Bros., who have continued to prospect and stope the remaining blocks of ore in the mine until all the payable ore has been exhausted. Fossicking operations have also been carried out on the surface outcrops. In addition to the treatment of the ore from the mine, the battery has treated parcels of ore from mines in the Mount Larkin area.

Operations ceased at the Bonnie Jean crossing reef and also at the Eureka reef.

The Valpy Bucklerburn River Alluvial Mine has been in operation during the working season and a covered tail-race is under construction on the north-east side of the river-bed.

The Hercules or Ross Mine.—A considerable amount of prospect driving, rising, and sinking has been carried out at and adjacent to the No. 1 mine, but only small lenses of payable ore have been located. Stoping operations have also been carried out in the No. 1 mine. No work has been done at Thompson's reef, and only a limited amount of work on the Gollop and Veint reef exposure.

Long Gully Mine (in the Big Slip near the Head of Long Gully).—Active prospecting, sluicing, and mining operations were carried out on the reef lines in this crushed reefing system. When all workable reef had been extracted to the fault line, sluicing operations were transferred to the Upper Pinhead reef, where a slipped portion of this reef was mined by ground sluicing. When this section was exhausted, further prospecting in Long Gully exposed the reef line on the opposite side of the fault. A lens of good ore was picked up. Active sluicing and mining operations are being carried on. During the summer and autumn, sinking operations were carried out in the Hall and Ross section of the Mount McIntosh reefing system.

Stoping operations were carried out on the reef line on the dark side of Mount McIntosh known as Northcotes. The visible scheelite-bearing outcrops on the Black Peak reefing system are now exhausted and no work has been carried out in this or in the Precipice Creek sections.

Rees Valley Mine (Paulin Bros. and Scott), (Left-hand Terrace, Rees Valley, about One Mile North of Precipice Creek Gorge).—Mechanical drilling equipment was installed at this mine and the water-supply previously used for sluicing purposes was utilized for operating the air-compressor. Prospecting, development, and stoping operations have been carried out. Some good lenses of ore were located, and operations were speeded up through the mechanical drilling.

Muddy Terrace Mine, Upper Rees Valley.—Trenching and ground-sluicing operations were carried out on this broken, disturbed reef system during the working seasons of the year.

Near Campbelltown the bed of the Bucklerburn has been reworked by an elevating plant operated by L. I. Smith, and then by J. Sanders and partner. Gold and scheelite has been won, but values have decreased down-stream from the gorge. Operations were suspended at the end of the year and the plant was removed to Long's Terrace, on the southern side of the Bucklerburn between the horse-track and the footbridge.

Some repair work has been carried out at the Twelve-mile Creek Alluvial Mine near Bob's Cove, Lake Wakatipu.

Mount Aurum Syndicate, Currie's Reef, Dynamo Flat, Skipper's Creek.—During the latter part of the year mining operations were resumed at this mine and 134 tons of ore were treated at the battery.

Flood Burn, Upper Shotover.—A sluicing plant is being installed in a difficult virgin section of the Flood Burn Gorge. This work has been rendered difficult on account of frequent floods and shortage of labour. Very little gold-mining is being carried on in the Lake County on account of the shortage of suitable labour through war conditions.

Vincent County

Very little work has been carried out at the alluvial mine operated by W. Thomas and Son, Lower Cairnmuir. The water-supply proved to be inadequate and it is possible that pumping plant will be employed for future mining operations.

Nevis

The Williamson Mine, Stone Huts, Upper Nevis.—Mining operations were resumed at this alluvial mine in the latter part of the year.

Jones' Mine (late Jones' Nevis), Whitton's Creek, Upper Nevis.—Mining operations were also resumed at this alluvial mine during the latter months of the year.

McLean's Mine (Old Township Workings), Mid-Nevis.—Mining operations have been carried on steadily during the working seasons.

Very little alluvial gold-mining has been carried out in the Vincent County on account of the shortage of labour due to the prevailing war conditions.

Dredging

Vincent County

Austral New Zealand Mining, Ltd.—This large electrically operated dredge continued to operate on the Athenaeum Reserve below Lowburn until values became low. A channel was then dredged in the strip of land between the Lowburn Hotel and the bridge. When the dredge had been moved up-stream, opening-out operations were carried out and the dredge is now operating on the Clutha River Flats above Lowburn. During the moving operations the road traffic was diverted until the road could be again reconstructed on its original line.

During the annual period ending 30th September, 1944, the dredge worked 5,690 hours, digging an area of 44 acres. The cubic yards treated were 2,882,000, from which 5,513 oz. of refined bullion were obtained. The average recovery was 0·92 grains per cubic yard.

The Clutha River Gold Dredging Co., Ltd.—The work of refitting this dredge was completed, and operations were resumed in February. The dredge had to dig its way through the tailings to the high virgin terraces on the flats up-stream from Alexandra, where it is now operating. In order to equip this electrically operated dredge (originally built to dredge in the Clutha River) for paddock dredging, extensive additions and alterations had to be carried out, the main additions being the erection of an elevator and conveyors to dispose of the tailings. These had to be capable of stacking from 80 ft. to 90 ft. above water-level, and the distance behind the dredge of the points of discharge had also to be considerable so that tailings would not interfere with the working of the dredge.

To compensate for the additional weight of the stacker equipment the whole balance of the dredge had to be altered, and this was done by shifting the superstructure and main gearing of the dredge forward a distance of 18 ft., and provision also had to be made for extra pontoons to carry additional weight.

In order to be able to handle and treat the increase of gravels from the close-connected bucket line of eighty-two buckets, the revolving screen was lengthened and extra tables were installed, also extra stone-chutes, dewatering-boxes, and a silt-wheel. In order to provide extra strength and height for the headlines, the forward gantry was reinforced and built up to a height of 60 ft. above deck level.

The plans for these additions and alterations were prepared by Messrs. F. W. Payne and Son, of Bickley, England, and most of the material required was manufactured by the Dunedin Engineering and Steel Co., Ltd., and Joseph Sparrow and Sons, Ltd., of Dunedin, and the work of dismantling and reconstructing the dredge was carried out by Mr. W. Curphey, general manager of the company, and his staff. Since the commencement of dredging operations in February an area of 10½ acres has been dug; this yielded 745,000 cubic yards of gravel, and the gold won amounted to 4,609 oz.

The dredge of the Molyneux Gold Dredging Co., Ltd., has been tied up all the year.

No work has been carried out by the Nevis Crossing dredge.

Southland

The dredge operated by the Rainbow Dredging Co. at Maitland, Waikaka Valley, has been tied up during the year.

Accidents

There were no fatal or serious accidents at the mines in the Southern District during the year.

Stone-quarries Accidents

There were no fatal or serious accidents at the stone-quarries in the Southern District during the year.

ANNEXURE B

STONE-QUARRIES

REPORT BY INSPECTOR OF QUARRIES FOR THE NORTH ISLAND

(R. C. Ruffin)

The following is the report for the year ending 31st December, 1944, for stone-quarries and tunnels worked in the North Island District under the Stone-quarries Act, 1910, and the Quarries Act, 1944.

Quarries

A total of 243 quarries was worked during the year 1944, being an increase of 18 compared with last year, while the number of men employed in the industry for the year 1944 was 942, showing a decrease of 115.

Output of Stone

The output of hard stone used for roading, hydro-electric-dam construction, and concrete work was 855,187 tons. There is no marked difference when compared to last year's production, but in passing I should refer to the shortage of labour being experienced in the industry, also a distinct hindrance evidenced in outlying districts in the want of certificated men.

For agricultural requirements 371,055 tons of limestone was quarried during 1944, an increase of 80,601 tons over last year, also 251,395 tons of limestone for cement, against 271,246 tons for last year.

A total of 1,477,637 tons of stone, valued at £369,502, was produced for 1944, compared with 1,407,851 tons, valued at £333,659, for 1943.

Tunnels

The Gisborne Borough Council had started to drive a tunnel for a water-supply scheme, the estimated length being one mile and a quarter, but this was discontinued due to local causes.

Extensive shaft-sinking and tunnelling was carried out to investigate the strength and nature of the country for major dam-sites on the Waikato River at Whakamaru and Maraetai, which lie between Arapuni and Atiamuri.

A diversion tunnel was driven 600 ft. at Lower Nihotapu to pass a valley creek and facilitate construction of a dam to augment the Auckland City water-supply.

Accidents

Fatal Accidents

A fatal accident occurred on 28th January, 1944, at the Okete Quarry, near Raglan, to C. Russell and P. Henriksen, caused by a premature explosion while loading explosive for a tunnel blast.

Serious Accident

On 17th August J. Sanders, a contractor at Greenhill Quarry, Ripia, Te Kopuru, sustained the loss of his left eye by being struck with a splinter of rock he was spalling.

Prosecutions

There were no prosecutions during the year.

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, 15th May, 1945.

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, 1944, in accordance with section 42 of the Coal-mines Act, 1925.

OUTPUT

The output from New Zealand coal-mines for 1944 was 2,805,970 tons, being 18,102 tons greater than the 1943 output.

There were increases of 15,011 tons from the Northern District and 29,480 tons from the Southern District, but the output from the West Coast District again showed a decrease, being 26,389 tons less than the 1943 output.

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1944 :—

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 1940	92,820,069	*	*	*	*	*	*	518
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
1942 ..	2,680,041	1,338	3,659	4,997	732	2·24	1·20	6
1943 ..	2,787,868	1,375	3,999	5,374	697	2·87	1·50	8
1944 ..	2,805,970	1,637	3,958	5,595	709	4·28	2·14	12
Totals ..	106,249,554	..	..	..	..	..	..	556

* For returns for previous years see page 53, Mines Statement, 1940.

ACCIDENTS

The following is a summary of accidents in and about coal-mines during 1944 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 ..	..	..	1	2
Falls of ground	7	8	16	16
Explosives	..	..	..	..
Haulage	1	1	14	14
Miscellaneous—Underground	3	3	3	3
On surface	..	..	1	1
Totals	11	12	35	36

During 1944 three fatalities occurred in West Coast coal-mines, three in the Southern District, and in the Northern District five fatal accidents caused six deaths.

Thirty-five serious non-fatal accidents were reported to the District Inspectors during 1944, sixteen of them in the West Coast District—six caused by falls of coal or stone—eight in the Southern District, of which four were due to falls of coal, and in the Northern District six of the eleven serious non-fatal accidents were also due to falls of coal or stone.

Fourteen persons were seriously injured in haulage accidents, five of them being due to runaway tubs.

DANGEROUS OCCURRENCES

Of the twenty-five dangerous occurrences reported to the Inspectors during 1944, nineteen were related to fire or heating in underground workings, two to ignitions or explosions, and four to accumulations of firedamp.

PROSECUTIONS

Eight informations were laid by Inspectors of Coal-mines for breaches of the Coal-mines Act and the regulations thereunder, and convictions were obtained in all cases.

LEGISLATION AFFECTING COAL-MINES

Section 8 of the Statutes Amendment Act, 1944, repealed section 60 of the Coal-mines Act, 1925, and, while re-enacting the parts of that section dealing with the qualifications of managers of coal-mines other than opencast mines, amended the qualifications required of managers of coal-mines where all the workings are opencast.

Now in every opencast coal-mine where not more than eight men are employed the manager shall hold a certificate under the Coal-mines or Quarries Acts or hold a permit in writing from an Inspector of Coal-mines.

In opencast coal-mines where more than eight men are employed the managers shall hold certificates under the Coal-mines or Quarries Acts.

Section 9 of the Statutes Amendment Act, 1944, empowers the Minister of Mines to require the owner of a coal-mine to provide transport underground for workmen.

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)

Summary of Operations of each Colliery for the Year 1944

North Auckland District

Kamo Colliery.—No. 3 Mine, No. 1 East Section: The pair of development headings have been continued in coal to a distance of 16 chains from the main haulage. Development has been slow owing to the presence of a band of fireclay in the upper part of the seam which necessitates close timbering. The quality of the coal is good. A pair of panel development headings have been broken away to the north-west.

No. 2 East Section: The upthrow fault reached by the development headings in 1943 proved to have a displacement of 25 ft., and beyond it the seam continued its grade of one in five, the coal maintaining its good quality and its thickness of 8 ft. Development was continued during the year a further 9 chains to a distance of 46 chains from the main haulage.

There have been no reports of inflammable gas at these development faces.

Late in December, 1944, another fault was met with. This has proved to be an upthrow with a displacement of 15 ft. to 20 ft., and the floor of the seam on the other side of it has been reached by driving. Panel development to north and south between these two large faults has been commenced.

No. 2 West Section: A connection has been made from this section by a pair of headings to No. 1 west section, and three headings are being driven to the rise in a south-westerly direction leaving a barrier against the old Harrison Mine workings to the east. These headings should soon be cut off by a continuation of the large fault lying to the west of them and running slightly west of south, but will make available a good tonnage of coal.

No. 4 Mine: Pillar-extraction is continuing in the area to the west of the Railway Reserve and north of Station Road.

Waro Colliery, Hikurangi.—Owing to a new fault having been struck in the No. 3 slope dip, further prospecting in this direction had to be abandoned in December. Repeated faulting in this section had made it most unlikely that any workable field of coal would be found here. Throughout the year the small output was produced from splitting and robbing pillars to the east of the main heading. As the seam thins to the east of the main haulage, and attempts to develop to the west have proved failures owing to faulting and inflows of water, it would appear that the life of this mine will not be longer than the time required to extract the remaining pillars, about eighteen months.

Avoca Colliery (Pollock and Son).—A new party have taken over from the previous owners and have worked throughout the year on a fresh block of coal tested by boring and driving by Foot and party. A small fire in the workings in November was successfully sealed off. The small output produced is sold at Dargaville.

Kiripaka Fireclay-mine.—A new open face has been started a quarter mile to the north of the old one. Four men are employed, the output of good-quality fire-clay being shipped from the Ngunguru River to Auckland.

Waikato District

Pukemiro Colliery.—North Mine: On the north side of the main haulage, pillar-extraction has proceeded to a line outbye of the stone drive some 27 chains from the mine mouth, while to the south the pillars at the rope end of No. 2 panel are being taken. Steady production has been maintained from this mine throughout the year.

South Mine (Taupiri Section): The three headings driven east from the Taupiri dip were stopped at the end of 1943 as the seam thinned. The Taupiri dip headings were continued to the end of 1944, but boring ahead of them does not encourage further driving. Some development has been carried out to the west. To the east of the main haulage of the section some pillar-extraction has been carried out from the point where the coal approaches an outcrop, a shaft having shown that the overburden was under 20 ft.

In the Horne's dip section some development is going forward to the south-west of the dip, and in this locality extraction of the remaining pillars at the Rope End was completed at the end of the year.

Pillaring has been continued and is well forward in the Mid and Nelson's Jig sections.

During October stoppings sealing a heating in the No. 1 right haulage road were broken and a fall 1 chain long spiled through. This work, which was successfully carried out largely through the efforts of members of the brigades trained at the Rotowaro Rescue-station, was done in most unpleasant and difficult conditions owing to the heat, ashes, and bad roof. The very complete arrangements for the operation were made by the mine-manager and the Supervisor of the Rescue station, who were present throughout the work.

The ventilation of the section beyond the fire area has now been restored, the area cooled down, and a large amount of coal made available for future pillaring.

Renown Colliery.—No. 1 Mine: In the No. 1 north section (top seam) extraction of pillars has continued throughout the year in the panel to the east of the main headings, and good results have been obtained. To the west some development has been done to test the thickness of the seam in this direction.

No. 2 Mine: Pillar-extraction has continued, and by the end of the year had reached a point 19 chains from the main haulage.

Withdrawal of pillars from the district at the south haulage rope end and the panels to the west continued until early in November without serious interruption. On a Sunday inspection on 12th November the examining deputy reported firestink on the main haulage of this district. An inspection made with the aid of proto apparatus located the heating near the rope end, and within two days men of the rescue brigade, assisted by members of the mine staff, had succeeded in sealing off the section. After restoring the ventilation it was found possible to proceed with work in No. 4 west panel. The sealed-off area was re-entered on 10th March, 1945, when the original heating was found to be due to a fall, and by the erection of two permanent stoppings was sealed off, allowing work to be resumed in the area.

No. 4 South: These development headings reached their limit at 22 chains from the main haulage, where, owing to the quick thinning of the seam, pillar-extraction in retreat was commenced. The extraction of pillars in the No. 2 panel east of the headings was also started, and by the end of the year about half the pillars had been extracted.

No. 2 Mine: The four main headings now being driven have been extended to a point 62 chains from the mine entrance. The coal is of good quality and maintains its thickness of some 14 ft. Two panels have been partly developed to the east towards the McDonald boundary, and the entries for a third are being driven. All development is by coal-cutting machine, giving very fast extension of the working-places.

Wilton Colliery.—No. 1 Mine: Pillar-extraction of the remaining pillars of this mine gave employment to a few miners throughout the year. A few pillars of outcrop coal were also worked from drives outside the mine entrance. This work was completed and the mine abandoned at the end of December.

No. 2 Mine: Pillar-extraction continued throughout the year and the face of work has reached a point 11 chains from the mine entrance. Development of the Dawson's area continued. In this section an 8 ft. downthrow fault was met and crossed to the south of the heading. The seam at this fault was 8 ft. to 10 ft. thick. In the main heading the seam thinned to the west to 5 ft. thick, while the outcrop, some 4 chains away, showed 4 ft. 6 in. of coal. It seems unlikely that the remaining area is worth developing.

No. 3 Mine: During 1944 the east headings were driven to the outcrop and the remainder of the panel between them and the outcrop completely extracted with the exception of a few pillars near the eastern mine entrance, which are now being worked. B panel, between the eastern headings and the main headings, was completely developed and is ready for pillar-extraction. Development to the west of the main headings stopped at 5 chains, the seam thinning and being split by stone bands in this direction.

The main headings were continued to reach daylight at 29 chains from the mine entrance. The haulage was extended to another outcrop some 8 ft. thick, and by the end of the year three parallel drives had been advanced 9 chains to the south in good coal 8 ft. or more thick.

The Wilton Colliery was taken over as a State colliery on 20th October, 1944.

Glen Afton No. 1.—Development of the two panels in the State area was stopped at a distance of 8 chains over the boundary owing to the coal-seam thinning, and pillar-extraction was commenced on both sides of the haulage and continued until the end of the year.

In H section work also proceeded in extraction of pillars throughout the year.

The driving of the stone dip heading west of the end of L haulage was continued until May, when the top of the seam was reached. However, this work was stopped following a serious heating which occurred in that month in old coal workings under the travelling road driven through J fault. A subsidence in this stone drive occurred, and though attempts were made over an extended period to remove the heated material preparatory to stowing the old workings, it was found necessary in July to erect stoppings and flood them. Owing to an ignition of inflammable gas in the J fault stone drive on 22nd June (probably due to water having been used on the hot coal below), it became necessary to use electric safety cap lamps throughout the mine.

A further serious fire occurred in the main return outbye of the J undercast at 12.3 a.m. on 4th July, and it was found necessary to shut off part of the return and the undercast by permanent stoppings. An attempt to damp down this fire by the use of a large quantity of CO_2, brought to the mine in cylinders, was unsuccessful, owing probably to the escape of the gas into a large area of old workings, and the stoppings had to be closely watched until late in December, when a permanent stopping was placed in the J undercast close to the main return.

Glen Afton No. 2 (McDonald Colliery).—Korfman Section: Pillar-extraction continued in H4 left and H3 right panels against the Renown boundary, and development of H3 left panel was continued beyond a downthrow fault. It is intended to use the headings of this panel as a means of testing the coal area still unworked in the north-west corner of the lease and also to the north of the Korfman headings, which have been extended into the Glen Afton area.

Korfman Headings: These three drives have been extended a distance of 18 chains from the main headings, and the haulage has been extended to within a short distance of the face, which is now 14 chains within the Glen Afton boundary. The coal has thinned considerably in this direction. A pair of headings to the north 6 chains showed thinning of the seam and have been stopped pending development from H3 left. Companion headings driven south are proceeding and a panel is being formed in thick coal. Development is all by machine.

Off the E main headings pillar-extraction is proceeding in the two inbye panels to either side of E5 (tail-rope) haulage.

No. 4 Mine: Pillar-extraction of No. 1 left dip panel was completed towards the end of June.

In the Tailrope section development of No. 1 dip panel was continued, while pillar-extraction proceeded throughout the year in No. 4 dip panel.

Development of No. 3 dip panel was completed and pillar-extraction commenced.

Pillar-extraction of Nos. 2 and 3 rise panels was continued.

Rotowaro Colliery.—No. 1 Mine (Top Seam): Pillar-extraction was continued in No. 1 section and No. 4 section. In the Hill 60 section pillar-extraction continued until October, when the section was sealed off owing to a further heating.

Callaghan's Dip Section (Bottom Seam): The main headings were advanced to 49 chains from the No. 1 haulage. Owing to the seam showing fireclay intrusions, the headings were stopped in April pending further boring. This has been favourable, and further extension is in hand.

To the rise of the main headings pillaring has been started in No. 4 panel on completion of development, and development of No. 5 panel is well in hand. No. 3 dip panel has been developed to the south-west until progress was stopped owing to splitting of the seam. Owing to the light cover of 80 ft. to 100 ft. and the fact that the surface here is swamp, the pillars in this panel were made small, and it is the intention of the management to take only the top coal above the 14 ft. wide roads, leaving the rest to support the roof. As development is now complete, this process has already been started. Development in Callaghan's dip section is largely by machine, with consequent rapid advance of the faces.

No. 3 Mine: Development of a small area of coal in A section to the west of the main return was undertaken. The coal is of good quality and 17 ft. thick. A small area to the north of C section haulage was also developed.

Pillar-extraction was continued in Wilkie's dip, north of C section haulage, and also in Moodie's Jig, Brown's section, and in a dip area between B and C sections.

Alison No. 1 Mine: Development of No. 4 Jig panel was continued, while pillar-extraction proceeded at the Rope End and in panels reached by Nos. 1, 2, and 3 jigs and Nos. 1 and 2 dips.

Alison No. 2 Mine: The main headings have been extended to a downthrow fault shown by bores to have a 40 ft. displacement, and continuation of the drives through this is in hand.

"A" section development headings have been driven in coal 18 ft. thick 5 chains to the south-east of the main headings, and "B" section headings 8 chains.

B1 panel is being developed to the south-west of the B headings. Owing to the thin cover of 100 ft. or less and the fact that the surface here is built-up area or swamp, the present intention is to develop small pillars some 35 ft. square between the 14 ft. roads and to leave these pillars in to support the surface. Owing to the thick seam of first-class coal which is being worked here and the great loss of coal which must be caused through leaving these pillars in, the company has been asked to give consideration to the use of a filling method of extraction in this and similar panels, of which there will no doubt be a number in this colliery.

Development of a panel to the north-west of the main headings is proceeding.

The erection of the new screening plant, designed by Norton's Tividale, Ltd., at the Alison Colliery was completed and the screens came into use in December.

During the year the bathroom accommodation at the Alison Colliery was doubled, completion of this work being somewhat delayed through a shortage of material.

A new mine office and staff houses in brick were erected in Rotowaro Township and a house drainage system for the whole township completed.

Taupiri East Colliery.—Work continued in the extraction of the remaining pillars on both sides of the main dip until October, when construction of the wing dam in Lake Kimihia had advanced to a point where the access road to the mine was broken. By an arrangement with the Mines Department work then ceased at the mine and the drives were sealed on 20th October.

Waikato Extended Colliery (Roose Shipping Co., Ltd.).—Work was continued throughout the year by opencasting. Stripping was continued to the south, and an 18 ft. seam was worked for the small output produced. Nine men are employed.

Glen Afton Potteries Opencast.—A small quantity of coal used in the company's kilns is produced from an 8 ft. seam, which has been stopped. Two men are employed on this work and in quarrying fireclay for pottery-making.

Huntly Brickworks.—The brickworks are supplied by quarrying two faces of fireclay on the company's freehold. No coal is mined. Six men are employed in quarrying.

Dally's Mine, Kawhia.—Owing to the difficulty of obtaining an experienced miner, no work has been done at this mine during 1944.

Whatawhata Campbell Colliery.—The main dip has been extended south-west to a distance of 8 chains from the surface, and an area of about 7 acres to the south has been developed. Prospects are encouraging, as the seam maintains its thickness of 8 ft. to 10 ft. and the quality of the coal is good.

During the year an electrically driven pump and winch were installed underground to assist in advancing the main dip. Twelve men are employed at this colliery.

Rangitoto Opencast.—Stripping of this area, adjacent to the old Rangitoto Colliery, some eight miles from Otorohanga, commenced in July. An access road was also constructed. Coal-production started in September. Output for 1944 was 1,797 tons.

Glen Afton State Opencast.—Stripping of the seam commenced on 11th January, 1944, and work at the opencast continued until 2nd June, 1944, when operations were temporarily suspended. Work was resumed on 23rd December, 1944, and was proceeding at the end of the year. Owing to a very wet winter and the unstable nature of the overburden, it was found necessary to relocate a short section of the Glen Afton Road near the opencast, and this added largely to the amount of earthwork required. The coal output to 31st December was 11,837 tons, the average men employed being sixteen in all. The coal is screened at the opencast.

Kimihia State Opencast.—Stripping of the No. 4 area (Johnson's Mine) commenced early in the year, and coal-production started on 11th July, the output to 31st December from this area being 30,850 tons, the overburden stripped being 186,450 cubic yards. No. 2 area was also partly stripped during the year, 26,700 cubic yards being shifted. Coal-production from this area can be started when required.

No. 1 area (along the lake edge) was cleared of water by a wing dam constructed from both ends, 71,000 cubic yards being used in this. In addition, 34,640 cubic yards of material have been removed from above the seam in this area and the water enclosed within the dam pumped out. An average of twenty-two men have been employed on this work. The coal is hauled by motor-truck some three miles to Huntly, where it is loaded at a specially constructed siding. Loading-bins and screens are now being built at the opencast.

Kemp's State Opencast.—Production of coal from this opencast, which is near the No. 3 Wilton Mine, commenced on 20th December, 1944, the output to 31st December being 1,885 tons. Three small seams are worked, the largest being 6 ft. thick. Stripping to the end of the year amounted to 142,000 cubic yards. An average of twenty-seven men were employed. The coal is hauled by motor-truck to Glen Massey Station, where loading-bins and screens have been erected.

Beehive State Opencast.—Part of the old Waipa Mine seam was stripped to produce an output of 2,206 tons from 30th November, when production started, until 31st December. Stripping amounted to 46,513 cubic yards, and the total coal produced was 4,009 tons to 12th February, 1945, when all coal available by stripping methods was won, and work on the area ceased. Nine men were employed on this work.

Taranaki District

Mangapehi State Colliery.—No. 1 east levels have been driven 36 chains from the main haulage, and the face is now 14 chains beyond the fault which was pierced in 1943. The country appears to be settled and the seam has kept its quality and thickness. Development to the rise beyond the fault has reached the other large fault which has run nearly parallel to the No. 1 east levels throughout. An endless-rope haulage to the fault is now being extended to the face of the main level.

No. 2 east levels were driven to a distance of 19 chains from the main haulage and development of No. 1 panel to the rise completed.

No. 3 east levels were extended to 8 chains from the main haulage and are standing in rather troubled country.

Parallel to the main dip and 1½ chains west of it another road has been driven on the floor of the seam in sections and has now been stopped a short distance from the surface. In continuation of this a dip has been driven to reach a continuation of the coal-seam found by boring in the floor at the bottom of the main drive, the coal shown in the bore being 12 ft. thick. By the end of the year the drive, after having passed through a 5 ft. seam, had struck stone again, but was still some distance from the position on the main drive where the bore was put down.

No. 1 West Section: No further work has been done in this section.

No. 2 West Section: On completion of the panel, pillar-extraction was commenced in April and has continued throughout the year.

Tatu State Colliery.—The second working of the panel north of the north-west headings was commenced in April, the pillars being split and robbed in the northern part of the panel, while development was still proceeding in the southern portion. Work in the pillar section was made extremely difficult owing to bad roof and heaving floor, and conditions became so bad that the section was abandoned in October and pillar-extraction was commenced in the north-west heading section. This is still proceeding.

The main drive was holed through to its south-western extension in July and its widening commenced to prepare for the extension of the main haulage to the face. Electric power was available at the mine during the same month and is now in general use on the surface and for haulage, while the main pumps underground are now electrically driven.

The driving of the second north-west headings is now being continued. The face at present is in good coal 7 ft. thick with fairly good roof.

Coal Lease (T. Moynihan), Upper Mangakara Stream, Ohura.—No work has been done on the access road to this lease nor on the lease itself since it was granted in August, 1943.

Aria Colliery.—This small mine has produced steadily throughout the year, three men being employed. The output is sold locally and in Te Kuiti. The coal is similar to that from Tatu.

Stockman Colliery. Three men are employed at this mine, which is situated some distance up the Mokau River, the coal being taken by launch to Mokau for distribution.

Waitewhena State Opencast (at Lee Stream, Waitewhena Valley, Twelve Miles from Ohura).—Stripping started on 22nd June and coal-production on 4th September. The seam varies from 8 ft. to 12 ft. thick, and the coal is hauled by motor-truck to the railway. The output to 31st December, 1945, was 9,513 tons. In all, an average of twenty men were employed in mining and transport of the coal to the railway. Construction of a railway siding and screens was completed during the year at the Waitewhena Bridge over the main Stratford line, two miles from Ohura. At Lee Stream a pile bridge and road access to the opencast was also constructed. Stripping was done by two bulldozers and a carryall, the coal being dug by power shovel assisted by shooting.

Rotowaro Rescue-station

Refresher courses were given during the year to the seventy fully trained men, while fourteen new members of the brigade were trained and received their certificates.

Four visits were made to Renneydale to give refresher courses to the trained men employed there.

Mr. Lennox, the Superintendent, has continued his policy of making all rescue men familiar with the mines of the district by frequent visits to them, combined with the use of the rescue gear underground in actual mining conditions.

Actual work at mine fires was done by rescue brigades in the Renown, Pukemiro, and Glen Afton Collieries. Excellent results were obtained in several cases where conditions would have made it impossible for untrained men to work in safety, and the mine-managers in each case have expressed their appreciation of the way in which the teams dealt with the difficult and dangerous work they were called on to do.

Huntly School of Mines

The school maintains its popularity and there was no falling off in attendance at classes, which were held at Huntly, Rotowaro, and Ngaruawahia throughout the year.

Fatalities

Six fatal accidents occurred in mines of the Northern District during 1944:—

On 21st January at Waro Colliery, Hikurangi, Wiremu McOnie, trucker, was electrocuted when he came in contact with an electric cable which had been damaged by a runaway skip.

On 28th February at Wilton No. 3 Colliery a miner, Arnold Rix, and a trucker, Owen Edmonds, were killed instantly by a fall of stone while standing in a trucking road. The road was 13 ft. wide and the roof was supported by three rows of props.

On 23rd May John Currie, a miner employed at the McDonald Colliery, received spinal injuries which proved fatal. He was trimming top coal with a pick when a small amount fell from a concealed back which crossed the lip.

On 30th June George Beadle, a miner, while working in pillars at the Rotowaro No. 1 Colliery, was thrown against an iron skip by a small fall of coal. He received multiple injuries which proved fatal.

On 2nd October Henry John Dobson, miner, while employed at Kamo No. 4 Colliery, was fatally injured by a fall of coal off a fault which paralleled the face he was working. The place was 7 ft. high and was well timbered to within 5 ft. of the face.

Serious Non-fatal Accidents

Joseph Dawson, miner, received a fractured right shoulder and two ribs and spinal injuries due to a fall of fireclay in his working-place, Kamo Colliery, on 10th February.

On 24th February Cyril Stephens sustained a fractured shoulder and ribs due to a fall of coal in his working-place, Glen Afton Colliery.

On 14th March Rhys Dickson, a pumpman employed at Kamo Colliery, was injured by the fall of a piece of coal from the inside while hanging up an air-pipe. His right lower leg was fractured.

On 24th February J. Stewart, a clipper employed at Renown Colliery, caught his arm between full skips and sustained a fracture of the left wrist.

On 21st April Roy Shanley, a trucker at Rotowaro Colliery, received a fracture of the left fibula.

On 28th April J. Williams, trucker, Pukemiro Colliery, was assisting to push a trolley of props when a prop rolled on his wrist, causing a fracture of the radius, left forearm.

On 17th May Ru Tarawhiti fractured his left wrist. He was pushing skips at the weighbridge, Renown Colliery, and his arm became caught between skips.

On 19th July at Pukemiro South Colliery J. Brownlie, underviewer, was struck by a large block of black stone which fell from a coal lip under which he was standing. His hard hat saved him to some extent, but he sustained serious head injuries, abrasions, and several fractured ribs on the left side.

On 25th July T. Davies sustained a fracture of the left ankle while clipping at a surface haulage bend, Wilton Colliery. A clip became unhooked when a skip was derailed, and on reaching the bend threw the rope off the pulleys. The flick of the rope caused the injury.

On 16th October while employed in pillars in No. 1 Alison Colliery, Harold Alvey, miner, suffered a fracture of the left tibia and severe bruises when a block of stone rolled down the goaf and jammed his leg.

On 9th October while Robert Dodds, a miner, was trimming a lip after firing a shot in top coal, a piece of stone in the coal fell on his right foot, crushing it severely. The accident occurred at No. 3 Rotowaro Colliery.

Reports regarding Dangerous Occurrences in Mines

At Pukemiro Colliery on 15th February a gob fire broke through a stopping at the Mid section, South Mine. Sealed by a new stopping.

At Pukemiro Colliery on 3rd March fire was found to have broken through a stopping in the Taupiri pillar section. Two new stoppings were erected.

On 25th March firestink was found to be coming off a fall in the No. 2 Jig pillar section, No. 4 Mine, McDonald Colliery. Three stoppings were erected to seal the area.

On 2nd May firestink was noted at Glen Afton Colliery coming through cracks in the floor of the J Hill stone drive, part of the travelling road. It was suspected that a fall in old coal workings under the road was heating, and operations to clear these were put under way. They were afterwards sealed and flooded.

On 2nd May a small fire occurred in the second panel, No. 1 east section, Mangapehi State Colliery. The panel, work in which had been completed, was sealed with permanent stoppings.

On 14th June a small fire was found in No. 3 Jig section, Alison No. 1 Colliery. It was sealed with one permanent stopping.

It was reported on 11th July from Glen Afton Colliery that a small ignition of inflammable gas had occurred during the night of 22nd June. This was no doubt produced by the use of water on the hot coal below the stone drive at J Hill and had accumulated in the stone drive itself. No damage was caused. Precautions were taken against a recurrence, and the management were required to install safety-lamps. Owing to the difficulty of getting equipment, full compliance with this was delayed until 13th September, when safety-lamps were installed throughout the mine.

At Glen Afton Colliery at 12.3 a.m. on 4th July smoke was noticed coming from the fan-drift. It was found that a fire had started in the main return near the foot of J Hill. Temporary stoppings were erected to seal off the main return from the foot of J Hill to F doors, and permanent stoppings outside these were then erected.

At Alison No. 1 Mine at 7 a.m. on 14th August, smoke and firestink were found coming off the goaf in No. 3 Jig section. Four stoppings were erected to seal the area.

At Renown Colliery on Sunday, 12th November, firestink was found by the examining deputy in the east haulage road, No. 1 Mine. By the use of trained men from the rescue brigades using apparatus, the fire was located at the rope end and the area sealed off.

On 22nd November at Mangapehi State Colliery a heating occurred in a fall at the end of a level within the No. 1 west panel. The end was sealed off by one stopping.

A fire discovered in the Mid section, South Mine, Pukemiro Colliery, on 4th December was sealed off by one of the mine rescue teams.

Prosecutions

On 26th April a trucker was prosecuted for breach of Regulation 65 by striking another trucker while in the mine. Fined £1, costs 10s.

On 26th April a clipper was prosecuted for breach of section 195, Coal Mines Act, 1925. He caused damage to a pump starter by striking the switch with a clip pin. Fined £1, costs 18s.

On 24th May a trucker was fined £1, costs 10s., for striking another trucker while in the mine, in breach of Regulation 65.

WEST COAST INSPECTION DISTRICT (C. Hunter and J. McArthur, Inspectors of Coal-mines)

Greymouth District

Liverpool State Colliery, Rewanui.—Anderson Dip Section: The greater portion of the output for the year was won from pillar-extraction in the Morgan and Kimbell sections. Six pairs of miners were employed on development work, three pairs to the east and three pairs to the west of the main dip. The east and west levels encountered disturbed country and dirty coal, and arrangements to extract the pillars have been proceeded with.

Kimbell West Dip: Development work is almost completed and extraction of pillars will be commenced in the near future.

Morgan East Dip Section: In this section development work was carried out throughout the year in coal of good quality, and prospects of the coal extending for a considerable distance to the dip are very promising.

During the year a stone drive connecting the main haulage road with the lower side of the Morgan dip workings was completed, and this drive will be used as a haulage road. A 70 h.p. electrically operated hauler is being installed to operate on the dip.

A section between No. 3 bank, Morgan West, and the Crosscut area was sealed off by permanent stoppings on account of a heating of coal.

Strongman State Colliery.—Three pairs of miners were employed on pillar-extraction in No. 1 north section. The remainder of the output was won from development work. Development was continued in the No. 1 south dip to the west of No. 2 north section and in a northerly direction between "Doherty's" and "Bob" faults in the east heading section. No. 2 north heading was stopped temporarily owing to a fault converging from the west side on to the line of development. In No. 2 south main heading, development was interrupted by heavy feeders of gas.

The number of miners employed was increased from sixty-six to seventy.

There were no major alterations to existing plant and machinery.

Blackball State Colliery, Blackball.—The output was won from work in the following sections:—

East Heading Section: The main heading was extended a distance of 10 chains at a grade of about 1 in 7. The coal in this section was friable and yielded a large percentage of slack.

South Heading Section: The main heading was stopped in 4 ft. of bottom coal and a place advanced to the south-west 3½ chains from the face of the heading. On the north side of the dip a thinning of the coal-seam, accompanied by heavy roof and water, was encountered and seriously interfered with development work.

Sump Section: Development work was continued in this section with the aid of a "Jeffrey" coal-cutting machine, the coal being of fairly good quality.

North Section: Owing to flooding of the main dip, work in No. 3 north section was stopped and development work continued from No. 2 north level to connect with an incline in No. 3 north section. The latter place was advanced a total distance of 9 chains and also encountered undulations in the floor and heavy roof and water.

Blackball Creek Mine (Balderstone and Party).—Early in the year No. 1 panel was reconditioned and the main-and-tail haulage system was installed. The output was won from the top seam, which varied in thickness from 4 ft. to 4 ft. 6 in.

Briandale Collieries, Ltd., Ten-mile Creek.—Owing to a thinning of the coal-seam and disturbed ground, work was abandoned in the Aerial seam in April, operations having since been confined to prospecting a coal-seam situated to the east of the bin at the bottom of the main incline. Two prospecting drives were driven 2 chains in clean coal with an average thickness of 2 ft. 6 in.

Wallsend State Colliery.—No. 1 Slant Dip: Splitting of pillars by six pairs of miners was continued at the lower end of the section, but adverse roof conditions and inflow of water from an old borehole seriously hampered operations.

No. 2 Slant Dip: Development work to the Taylorville fault was completed in this section and the splitting of pillars was commenced along the fault during the year.

"B" Panel: Two pairs of miners were employed on pillar-splitting in this panel, which is now nearing exhaustion.

"C" Panel: Owing to the coal thinning to 2 ft. 8 in., development work was stopped and splitting of pillars was commenced in this section.

Extended Section: Two main levels were driven approximately 14 chains from the extended rope end and stopped at this point owing to the coal thinning to 3 ft. 6 in. Preparations for splitting pillars was proceeding towards the end of the year.

No. 1 Dip: This section was reopened in October and a "Beeander" hauler operated by a 30 h.p. flame-proof motor was installed for hauling coal to the shaft bottom. Four pairs of miners were employed driving levels towards the Dobson fault with the object of giving access to the inbye end of the section.

Dobson State Colliery, Dobson.—Development work was carried out during the year to the east, west, and south, the extent of development east and west being strictly limited by the Dobson fault and the Buckley disturbance. Due to faulting and steep grades it was decided to cease development work and extract all available coal by pillar-splitting from the present position of the main dips.

Paparoa Colliery.—Aerial Section, No. 1 Seam: Five pairs of miners were continuously employed in this section on day shift and one pair brushing and retimbering on back shift.

No. 2 Main North Level: Pillar-extraction along the fault line was completed in the early part of the year with good results. The main roadways and airways leading to this section were maintained as a part of the main ventilating system.

No. 1 Main North Level: The greater part of the year's work was done in this area, where all miners are now employed. The main level was continued 8½ chains from the main dip where the grade increases, and a pair of headings was driven to the rise for about 1½ chains. To the east of the main level the main-heading workings were driven 3 chains in a new area of good-quality coal. No. 1 main level was brushed to the main stone roof and timbered with heavy sets.

No. 2 Seam, West Level Section: Three pairs of miners were employed during the year in the old slant dip section. These workings were connected with the old west level and the main fault contacted at several points west of the main heading.

Co-operative Mines in the Grey District

Spark and Party's Mine, Rewanui.—The output from this mine was won by development work in the area to the east of the main dip. The main level was advanced 29 chains from the dip in 9 ft. of excellent coal, where an upthrow fault was encountered.

Old Runanga Mine (O'Brien and Party), Rewanui.—No. 2 Seam: Pillar-extraction continued on pillars to the rise of the main level. To the west of the main level, development work was carried out in coal of an average thickness of 4 ft., the distance advanced on a level course being 2½ chains.

Moody Creek Mine (Wright and Party), Dunollie.—Pillar-extraction in No. 2 dip was completed in July and development work was commenced in No. 1 dip, which was advanced a further 6 chains. Coal in this area is of good quality with an average height of 10 ft. and dips at the grade of 1 in 6.

Goldlight Colliery (Williams and Party), Rewanui.—Development work to the east was completed and a new dip was broken away to the south off the main level to open up development in that area. The dip was advanced 6½ chains in 9 ft. of good-quality coal.

New Point Elizabeth Colliery (Guy and Party), Dunollie.—Pillar-extraction was continued and the rise section was exhausted. Towards the end of the year extraction of a few pillars on the rise side of the horse-road was being carried out.

Castlepoint Mine (Duggan and Party), Dunollie.—About half-way through the year coal-production ceased, the mine having been worked out, and all plant was removed.

Hilltop Mine (Armstrong and Party), Ten-mile.—Development work was continued in levels to the west of the main dip. The levels were advanced a distance of approximately 7 chains. Coal is of good quality with an average thickness of 20 ft.

Boote and Party (previously Kaye and Party's Mine), Ten-mile.—The eastern fault was contacted approximately 13 chains from the surface and an extension of the main dip was advanced on a level course for 3 chains. Heavy roof conditions were encountered, and appeared to indicate the junction of the east and west faults. Coal is of good quality averaging 8 ft. in thickness.

Hunter and Party's Mine, Dunollie.—Development work was completed to the rise off the main horse-road and pillar-extraction was commenced along the southern boundary of the lease. At the end of the year preparations were in hand for driving a dip to develop to the west of the main horse-road.

Schultz Creek Mine (Gould and Co., Ltd.), Twelve-mile.—The output from this mine was won from pillar-extraction on a block of coal attached to an upthrow fault at the inbye side of the main level. Coal is of good quality with an average height of 3 ft.

Cliffdale Mine (Stuart and Party), Ten-mile.—Coal-production was won from the extraction of pillars in the main dip. The dip drive from the surface was extended in a south-easterly direction for a distance of 5 chains for the purpose of opening up a new area to the east of the present mine.

Bellone Mine, Rapahoe.—The output was won from pillar-extraction between the eastern fault and the old goaf of the James Mine.

Jubilee Mine (Tinning and Party), Rapahoe.—The main south level was extended to a distance of 10 chains from the surface and two headings were driven a distance of 8 chains from the main south level to the rise. Some pillar-extraction was carried out in the old main level during the latter part of the year.

Cliffside Mine (Moore and Party), Nine-mile.—The output was won from development work and pillar-extraction between two faults to the west of the old mine. Prospecting work was carried out to the south-east beyond an upthrow fault which had cut off all the working-places, and the coal has been proved in these two places.

Smith and Party's Mine, Dunollie.—The output was won from pillar-extraction in the barrier pillar between this mine and Castlepoint Mine. There only remain six pillars and a half to extract to complete exhaustion of this mine.

Braehead Mine (Boote and Party), Dunollie.—The entire output from this mine was won from pillar-extraction on both sides of the main dip.

Harrison and Party's Mine, Ten-mile.—Pillar-extraction was commenced in July by two pairs of miners in the vicinity of the main western fault, and the output to the end of the year was won from this class of work. A stone drive to connect the main dip with the inbye workings was driven intermittently and advanced 1 chain from the main west level.

Reefton District

Alborn's Mine (previously Archer's), Capleston.—Pillar-extraction was carried out by three pairs of miners in the vicinity of the fault located to the south-east of the main dip. The east level was driven 8 chains from the main dip and across the lower side of Doran's old mine in 9 ft. of good coal.

Kleen Mine (Archer Brothers), Capleston.—The output was won from pillar-extraction in Nos. 4 and 6 rise levels in a vertical seam situated to the south-east of the main drive. No. 4 seam is being operated here in good-quality coal of an average thickness of 12 ft.

Coghlan's Freehold Mine, Capleston.—Coal-production was carried on throughout the year from extraction of pillars to the rise of the main level.

Waitahu Mine (A. D. Williams), Reefton.—During the year the coal-production was won from pillar-extraction to the rise of the main level and further development of two main levels to the north.

McKinlay's Mine (Waitahu Lease), Reefton.—Pillar-extraction was continued throughout the year in the main horse level. The slant dip was advanced a distance of 300 ft. from the horse level. Three levels were branched off to the north, the distances respectively being: top, 6½ chains; middle, 7 chains; bottom, 2 chains. The height of coal is 7 ft. 3 in.

Lewis and Party (Waitahu Lease), Reefton.—Development of two levels to the north was continued, the whole of the output being won from this class of work.

Pyramid Mine (Morrisvale Lease), Reefton.—All coal was won from pillar-extraction from the bottom level, and it is estimated that another six months' work will exhaust the mine.

Pyramid New Mine (Crown Lease), Waitahu. The dip has been extended for a distance of 8 chains from the surface. The upcast shaft is now being driven. A "Korfanan" coal-cutting machine is being used at this mine and is giving satisfactory results, also a four-stage "Reesroturbo" pump was installed and is working satisfactorily. The ventilation is secured by an electrically driven fan and the air conducted through air-pipes of 11 in. diameter. The height of coal was 12 ft. and of good quality.

Burke's Creek Mine, Reefton.—Pillar-extraction was continued in the slant dip section of No. 2 seam. Due to a heating in the goaf, this section was sealed off, and during the sealing operations the mine stopped coal-production for one month. Work was resumed in July, and the slant dip was driven 350 ft. on a gradient of 1 in 2 to prove the coal-seam below the present horse level. A quantity of coal was won from two drives opened up in No. 4 seam in the creek to the north of the Burke's Creek Mine. After driving 5 chains the coal thinned and the prospecting dip was driven 1 chain in favourable coal. Work was continued at the end of the year in this area.

Morrisvale Opencast Mine, Reefton.—In the early part of the year a new road 66 chains in length was constructed from Burke's Creek to Morrisvale Mine and No. 4 seam was opened up on the opencast system. The overburden was removed by a bulldozer and the coal handled by mechanical shovel.

Burnwell Mine (D. Hamill), Reefton.—During the first half of the year pillar-extraction in the main level section was completed and the area sealed off. Development work was continued to the end of the year in solid coal south-east of the main level.

Central Mine (D. Hamill), Reefton. This mine was originally known as the "Venture" Mine and was dewatered by means of a centrifugal pump. All roadways were cleaned up and a second outlet made to the surface for ventilation purposes. A small amount of development was carried out and a dip branched to the north of the main level. The coal averaged 12 ft. in thickness, 9 ft. of which was taken in the first working.

Terrace Mine, Reefton.—Development work was continued in three main levels and a crosscut. The former reached a total distance of 33 chains in coal. From one of these levels a level stone drive was driven and contacted No. 2 seam at a distance of 500 ft. At the point of intersection of the seam a downthrow fault was encountered with a displacement of 17 ft. Coal improved beyond this point, and it is the intention to drive to the surface in the No. 2 seam.

Defiance Mine, Murray Creek.—All the marketable coal having been recovered, the mine has closed down in the meantime. Prospecting was carried out on the surface and the coal-seam was located about 7 ft. thick.

Butler's Section.—In this section prospecting work was carried out in the solid area to the dip.

Clele Mine, Merrijigs. The output was won from pillar-extraction in Nos. 1 and 2 sections.

Nicholls' Mine, Capleston.—One and a half pairs of miners were employed on development work in two levels driving along the barrier adjoining the Waitahu coal lease. The coal is of good quality of an average height of 5 ft. 6 in.

Banks' Opencast Mine (A. E. Eklund), Waitahu.—Coal-production by the opencast method was commenced in March. A bulldozer is employed to remove the overburden, and the coal is loaded by hand. The seam has an average thickness of 20 ft. and the overburden averaged 12 ft. An average output of 100 tons per day was produced at this mine.

Star Mine (Lewis and Party), Murray Creek.—A small party commenced operations by the opencast method up Murray Creek. The overburden here is being taken off by means of water and the coal loaded by hand.

Royal Coal Syndicate, Rainy Creek.—A small quantity of coal was won during the latter half of the year. Three places were opened up for coal-production.

Buller District

Mitchell's Mine, Charleston.—Opencast operations were continued intermittently throughout the year. An output of approximately 600 tons was produced.

Warne's Mine, Charleston. This mine produced approximately 800 tons of coal by opencast methods. A water-race was installed, and towards the end of the year was being utilized for removing overburden and fluming the coal from the mine to the storage bin.

Bowater and Bryan's Mine, Charleston.—Opencast operations produced approximately 9,500 tons of coal. At this mine stripping was carried out by bulldozer and the coal loaded by mechanical shovel.

Nile-Hydro Mine (J. Powell), Charleston. Opencast operations were extended during the latter half of the year at this mine, the height of working averaging 15 ft. and overburden 6 ft. The overburden is sluiced off and the coal conveyed by means of water flume to the storage bin.

Allan's Mine, Charleston.—An output of 6 tons of coal was produced.

Brighton Mine, Brighton.—Two men were employed on coal-production in the latter half of the year. A new storage bin is in process of erection near the main highway. It is the intention to flume the coal from the mouth of the drive to the storage bin.

Glenreay Mine, Buller Gorge.—The output from this mine was won from pillar-extraction and a small amount of development work adjacent to the outcrop.

Coal Creek Mine, Seddonville.—The output was won from development work in the old Taipo section, and opencast operations were carried out towards the end of the year at outcrops of the Lawrence section.

Cardiff Coal Co., Ltd., Mokihinui.—Development work was completed, and the output thereafter was from pillar-extraction on the inbye side of the mine.

Hydro Coal-mines, Ltd., Seddonville.—The output was won from pillar-extraction.

Charming Creek—Westport Coal Co., Ltd., Ngakawau.—Ten pairs of miners were employed steadily throughout the year. In the latter part of the year six pairs were employed on pillar-extraction in No. 2 east section and four pairs on development in No. 3 east section. On completion of pillar-extraction in No. 3 east section two pairs of miners were transferred to the north headings and development in that direction continued throughout the year. In the latter half of the year development of No. 3 west section was resumed, with four pairs of miners being constantly employed. An output of approximately 160 tons per day was won throughout the year. An extension of the surface locomotive tram-line by 30 chains resulted in a reduction in length of the underground haulage, and a transfer was made of all surface equipment to the new mine entrance.

Westport Cascade Mine, Cascade Creek.—The output was won from pillar-extraction in Moynihan's and Durkin's south sections and development work in Mill Creek section. The latter area was opened up and a panel of approximately 4 acres formed. The coal is of excellent quality with an average height of 30 ft.

Westport Coal Co., Ltd., Denniston.—Ironbridge Mine: A total of 12,322 tons was won from splitting and pillar-extraction in Young's drive section and Kiwi sheet section by four pairs of miners. The mine ceased operations in September.

Coalbrookdale Mine: The output from this mine was won partly from pillar-extraction and partly from development. The extraction of pillars was continued throughout the year in the Cascade Extended and Whareatea sections. In the old Waterloo section, north side, prospecting work was carried out to prove an area of coal-bearing ground north of the present workings. The average number of miners employed daily was seventy-seven.

Westport Coal Co., Ltd., Millerton Mine.—Pillar-extraction was continued in the Mangatini section, where three pairs of miners were employed. In the Mine Creek area the output was won from partial extraction of pillars in the sixth west section and the recovery of bottom coal left in the first working in the north-east section. Five pairs of miners were employed on pillar-extraction in the Old Dip area, where alterations were made to the main haulage system to facilitate output being won from coal left behind in the early workings and to enable prospecting headings to be driven to an unworked area along the western boundary line of the lease. A "propellor" fan 3 ft. in diameter and driven by a 10 h.p. motor has been installed to ventilate these workings.

Stockton State Colliery, Ngakawau.—This mine was taken over by the State in July. The underground operations were confined to development work in the South and No. 4 sections, and the extraction of pillars in McCabe's, West Dip, and No. 2 sections. In the South section the coal thinned to under 5 ft., and on account of steep grades and wet conditions development work was abandoned. In No. 4 section advances of 8 chains south and west were made in good coal. Pillar-extraction in McCabe's west dip was carried out intermittently owing to periodical inrushes of water.

In the middle of the year, opencast coal-mining commenced on two small areas situated near "C" panel. The overburden varied from 20 ft. to 40 ft. thick with coal averaging 8 ft. in thickness. Miners were employed to fill coal, the overburden being removed by bulldozer, and over 8,000 tons were won from this area.

In September opencast work was commenced on a much larger scale at "E" Hill, situated near the old western boundary of the mine. Production by mechanical shovel and motor-trucks started during November. The overburden is up to 20 ft. and the coal 12 ft. to 14 ft. thick. In the last six weeks of the year 9,000 tons of coal was produced. A considerable amount of repairs and renewals were effected to the high-tension power lines and locomotive track during the year.

Harris' Mine, Karamea.—A very small output was produced from this mine.

Comet Mine, Inangahua.—The output was won chiefly from pillar-extraction in the North section and from prospecting work which was carried out on the south side of the creek.

Paine Brothers' Mine, Buller Gorge.—Development work was carried out during the first half of the year. An area of coal suitable for opencasting was subsequently opened up and opencast work was continued to the end of the year. Overburden averaging 20 ft. in thickness was removed by bulldozer, and the coal, which also averaged 20 ft. in thickness, is produced and loaded by hand.

Rahui Mine (Chester and Penberth), Buller Gorge.—The output was won from development work from two main levels and crosscuts necessary for ventilation.

Nelson District

Owen Colliery, Owen River.—The output for the year was secured from extraction of pillars.

Six-mile Mine (J. Gillespie), Murchison.—All available coal was extracted from this mine, which was abandoned in October. Prospecting was carried out in an extension of the same seam 14 chains to the south of the old mine. At the end of the year a seam 2 ft. thick had been located in one drive.

Strathmore Mine (R. O'Rourke), Ariki, Murchison.—Development of the main level and rise headings was carried out intermittently during the year.

Westhaven Mine, Mangarakau, Collingwood.—The output was won from development work carried out in levels to the east and west of the main dip.

Victory Mine, Glenhope.—A small quantity of coal was won from the vertical seam early in the year and a prospecting drive driven 1 chain in an attempt to locate the seam at a lower level.

Rescue-station, Dobson

All the trained men from the Greymouth and Reefton coal-mines attended the two-monthly practices, the number of brigades being thirteen and the total number of trainees on the station register at the end of the year being sixty-five.

Fatal Accidents

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

On 1st March James Dunsmuir Curragh, collier, Denniston Colliery, was struck by a fall of coal in Forsyth's Rope End section and received severe injuries, including a badly fractured pelvis. He died on the way to the Westport Hospital.

On 15th June William Parfitt, substation attendant, Stockton Colliery, sustained severe injuries to both legs and a badly injured left arm through falling under the rear part of a loaded race while the locomotive and race were passing the substation. He was transferred to hospital, where he succumbed to his injuries the following morning.

On 6th September James Buchanan, miner, Smith and Party's mine, suffered severe injuries to the chest and a fractured spine as the result of a fall of roof stone. He was removed to hospital, and succumbed to his injuries the following morning.

Serious Non-fatal Accidents

Sixteen serious accidents occurred during the year, as follows:—

On 7th February W. Jones, miner, Liverpool Colliery, was struck by a runaway truck in the Morgan West section of the mine and sustained a fractured tibia and fibula of the right leg.

On 15th February J. Allan, rope-road attendant, Wallsend Colliery, was jammed against a truck and sustained fractured ribs.

On 27th March Robert Kennard, roadsman, Charming Creek Colliery, sustained a fracture of the skull and several minor injuries when a piece of coal about 2 cwt. in weight slipped off the rib side of a pillar and caught him, knocking him down. It is thought that, in falling, his head struck a rail across which he was lying when picked up.

On 24th April Robert Maddon, miner, Goldlight Colliery, sustained a compound fracture of the left leg below the knee as the result of a fall of a block of stone.

On 17th May James Philips, miner, Wallsend Colliery, had his right foot badly crushed when a jig prop pulled out and he was caught by a full box at the bottom of a face jig.

On 25th May Neil Harris, trucker, Burke's Creek Colliery, received fracture of left radius and fracture of lower end of ulna. The accident occurred when Harris was putting a derailed truck of a race on the road. The truck slipped and jammed his arm between the wrist and elbow.

On 2nd June R. Cameron, rope-road worker, Wallsend Colliery, sustained fractures of both ankles while assisting in replacing the rope back on the empty side curve rollers at the top of No. 3 dip on the main rope road when the anchor chain snapped while he was pulling the slack rope with the aid of the air winch provided for the purpose.

On 6th July A. Day, miner, Wallsend Colliery, slipped while proceeding down the stone drive and struck the base of his spine on the rail, suffering a fracture of the spine.

On 7th July Frank Hawes, trucker, Wharatea Extended Section, Denniston Colliery, was injured as the result of a stump of pillar collapsing, partially burying him. He received a fractured lower jaw.

On 2nd September Colin Smith, trucker, Wallsend Colliery, when helping to replace a full box on the rails, the box moved and caught his head between the box and a prop. He sustained a fractured left cheek bone and a suspected fracture of the base of skull.

On 21st September M. Banks, trucker, Dobson Colliery, was caught in the bight of a haulage rope and sustained a fracture of a bone in the right leg.

On 15th November William Fleming, miner, Stockton Colliery, was caught by a fall of top coal and jammed against a prop in front of which he had been working. He sustained a fracture of the spine.

On 17th November David Hynd Neilson, trucker, Wallsend Colliery, was struck by a runaway box and sustained a compound fracture of the left leg. The leg was amputated above the knee on the 18th instant.

On 20th November Thomas Calder, shiftman, Millerton Mine, was engaged in taking down an old bar of timber when it slipped away and fell on his right forearm, causing fractures of the radius and ulna of the arm.

On 23rd November John Doyle, miner, Boote and Party's Colliery, sustained a fracture of the right forearm through being struck by a prop which was knocked out by a piece of coal rolling off the face.

On 12th December Sydney Payne, shiftman, Stockton Colliery, sustained a fracture of the left leg through being struck by a piece of stone weighing approximately 2 cwt.

Dangerous Occurrences in Coal-mines (Regulation 81, Coal-mines Regulations 1939)

Wallsend Colliery.—On 12th January a gas accumulation of 80,000 cubic feet was reported to have been found in "B" panel. At one stage it reached a maximum of 350,000 cubic feet.

Coalbrookdale Colliery.—An occurrence of heating coal was reported on 17th January in the Extended section, on the opposite side of the rope road to where the last fire took place.

Millerton Colliery.—On 4th February the mine-manager notified that faint evidence of spontaneous combustion was showing in an artificial panel on the fault side of Settlement section of Old Dip Mine. As this panel was nearly worked out and another had been opened up on the return side, it was deemed advisable to withdraw all material and seal off.

Burke's Creek Colliery.—On 8th February notification was received from the mine-manager that workmen had been withdrawn from the mine owing to a heating in the rise section above the return airway. The heating had been first detected on 6th February and sealed with temporary stoppings, but two days later the stoppings were found to be inadequate. It was eventually agreed by the manger to erect a line of clay and log stoppings outside the board stoppings.

Burnwell Colliery.—On 22nd May notification was received from the mine-manager that a fire in old workings was discovered along the return from new development workings. Permanent stoppings were erected.

Liverpool Colliery.—On 14th July a report of heating in the Crosscut section, No. 3 west heading, in the Morgan West section, was received. The heating originated in the goaf area and was giving off a large quantity of carbon dioxide with traces of carbon monoxide. Temporary stoppings were erected to isolate the area, and these were followed by permanent concrete stoppings.

Wallsend Colliery.—On 21st July an accumulation of firedamp (approximately 100,000 cubic feet) occurred in "B" panel. The accumulation was caused by a short circuit of ventilation from a damaged brattice stopping situated below the part of the workings affected by the gas. The gas was cleared and the ventilation restored to its normal course.

Wallsend Colliery.—On 17th August a report was received from the mine-manager that approximately 24,000 cubic feet of firedamp at approximately 10 per cent. CH_4 concentration had been found in Uren's Place, in the Extension section. Temporary bratticos and stoppings were erected where necessary and the section cleared. Apparently this accumulation was caused by a blower of gas fouling the brattice in the face and creating a block in the airway.

Wallsend Colliery.—On 10th October a report was received from the mine-manager that he discovered approximately 3,000 cubic feet of firedamp in Stillwell's Place and approximately 2,000 cubic feet firedamp in Gasey's Place. This was caused by a brattice door being lifted by the top rope, allowing the air to short circuit these places. All was cleared at 10.15 a.m.

Prosecutions under the Coal-mines Act, 1925

On the 6th June, a mine-manager was charged, under section 59 (1) of the Coal-mines Act, 1925, with failure to exercise daily personal supervision of the mine. He was convicted and fined £2 and costs.

SOUTHERN INSPECTION DISTRICT (J. Hughes, Inspector of Coal-mines)

Canterbury District

Acheron Mine (Anthracite).—Pillar-extraction has continued throughout the year and probably will provide another year's work. Prospecting work carried out higher up the river has resulted in the coal outcrop again being located. A commencement was made towards the end of the year to proceed with the development of this additional area.

Brockley Mine (Anthracite).—Development work carried out during the year has proven the seam to be faulted and difficult to operate. A small amount of pillar-extraction has taken place. Unless general conditions and circumstances improve, it may be found difficult to continue mining operations for any length of time.

Clearview Mine.—The year's work was confined to pillar-extraction.

Steventon Mine.—Pillar-extraction was continued throughout the year and the main haulage dip heading was extended. Faulting of the seam has made development work difficult. Towards the end of the year a crosscut stone drive was driven from the No. 11 north level to intercept a seam lying 70 ft. above the main seam, and the development of this seam is being continued.

Lucknow Clay-mines.—Limited and intermittent working was continued throughout the year along the usual lines.

Sheffield Clay-mine.—Following upon a period of pillar-extraction, mining operations were suspended in August.

Victory Mine.—A dip heading has been driven in the seam and a level driven south-west for about 300 ft., but these workings are too near the outcrop to be of much value. This coal-seam appears to have a distinct possibility, but its development is being retarded through lack of capital.

Klondyke Mine.—Pillar-extraction was continued throughout the year along the No. 2 and 3 north levels, and the work is now almost completed. A small amount of development work was carried out in No. 7 south level and a recommencement made to extend the main dip heading. This heading has now been driven a total distance of approximately 1,000 ft. The main body of the coal in this mine probably lies south of the main haulage heading and a change of direction in the main development places may be necessary.

Mount Somers Mine.—Development has proven the seam to be variable in quality and contour; the result is that very little progress has been made in the development of the mine.

Blackburn Mine.—Work at this mine has been confined to pillar-extraction.

Burnwell Mine, Mount Somers.—This is a new mine commenced on an area adjacent to the Mount Somers Mine. Two levels have been driven from the surface to intercept a seam, but up to the end of the year no coal had been produced for sale.

Sunnydale Clay-mine.—Clay was mined intermittently on the opencast method.

Woodbank Mine, Albury.—Underground mining has again commenced and two dip headings have been driven south for about 5 chains. Levels have also been driven east and west for similar distances. The scarcity of coal-supplies has accelerated the demand for this lignite.

North Otago District

St. Andrews, Papakaio.—The development of all known available coal has been completed and a commencement has been made on pillar-extraction. There is probably from four to five years' coal in sight.

Ngapara and Shag Point Mines.—All coal-production from these mines continues to be confined to pillar-extraction.

Airedale Mine.—Pillar-extraction was continued throughout the year at the lower end, and to the east, of the south-east dip heading. No additional development work was carried out.

Rockvale Mine.—Work was confined to pillar-extraction and the quantity of coal now remaining to be won is very limited.

Willett's Mine.—Development work has been carried out in a westerly direction, headings having been driven for a distance of about 6 chains, and a further small area of coal made available. The coal-seam thins and splits in the direction referred to, and prospects for future development are not bright.

Central Otago District

Cairnmuir Mine.—In this mine the seam is faulted, and this fact, coupled with the excessively steep inclination of the seam, has limited development work. An additional dip heading was commenced from the lower south level and may possibly succeed in opening up a small but limited area of workable coal.

Shepherd's Creek Mine.—The whole of the output was obtained from pillar-extraction.

Idaburn, Oturehua, and Coal Creek.—Opencast operations have been continued throughout the year along the usual lines.

South Otago District

Benhar Mine.—Development work has been continued and the main dip heading has been extended, also additional levels have been driven to the north and south. Several surface improvements have been made, a new fan drift having been erected, and loading facilities considerably improved.

Wangaloa Mine.—Operations have been confined to pillar-extraction throughout the year.

Fairfield Mine.—The output was obtained from pillar-extraction.

New Fernhill.—No. 1 Mine: Pillar-extraction was continued at this mine, and a small amount of prospecting operations was conducted from the surface for the purpose of proving an additional area of coal presumed to be left in the old Fernhill Mine. The possibilities of this area are not yet known.

No. 2 Mine: This mine is being developed by means of dip headings driven about 600 ft. in an easterly direction. The results of the development work so far have been variable, and future prospects at this mine are still in doubt.

Ocean View Mine.—This mine ceased operating in August, 1944, after all available coal had been won therefrom.

Victory Mine, Brighton.—This is a new mine commenced adjacent to Frye's old mine at Brighton, and was opened towards the end of the year.

Willowbank No. 1 Mine.—The main dip headings were extended up to the Saddle Hill roadway and a way-leave arranged to enable coal beyond the roadway to be developed. Pillar-extraction was continued during the year and some development carried out in the direction above indicated.

Willowbank No. 2 Mine (East Taieri).—All coal-production at this mine was confined to pillar-extraction.

Kaitangata Mine.—By far the greater proportion of the output from this mine was won from pillar-extraction. A certain amount of development work was carried out in a higher seam by means of rise headings driven in a north-easterly direction from the main level. Little is known of the possibilities of this development work, and its prospects meantime must be attended with some doubt. The cross-measure dip stone drive, which had for its object the proving of the strata underlying the seam being worked, was driven a distance of about 1,200 ft. with a nil result. The later development of Samson's seam to the dip proved this seam to deteriorate in this direction and the measures to assume an excessively steep gradient, and the result was the suspension of development work in this direction. The prospects of the mine maintaining its past year's output do not at this stage appear promising. A certain amount of prospecting work has been carried out on the Summer Hill property. There is, in my opinion, very little doubt that a large quantity of coal will be found to exist there, but the area is situated several miles from present mining operations, and the quality of this coal remains to be proven.

Southland District

Otikerama Mine.—Mining operations were suspended at this mine in July, 1944.

Hedgehope, Coster, Waimumu, Croydon, Ruby, Argyle, Ota Creek, Asher's Siding, Newvale, Mataura Paper-mills, Hakatere, Gladfield, and Starlight Mines.—Work was continued on the opencast system at all the above mines. The overburden is now removed by mechanical means, but at the Mataura Paper-mills mine the whole of the operation of stripping and loading is a mechanical one, and it is therefore only at that mine that the operations can be classed as efficient and working to full capacity.

Balfour, Boghead, and Glenlee Mines.—Underground operations were continued at these mines along lines followed during the past few years.

Black Diamond Mine.—A commencement was made towards the end of the year to exploit the coal left in the old Mount Hilda Mine, and it is probable there will be a small area of additional coal made available in the old mine. It is proposed to prospect a lower seam which appears to exist underneath the old Mount Hilda Mine workings and separated from the main seam by a few feet of stone. The bulk of the output, however, has been obtained from pillar-extraction.

Black Lion Mine.—All prospecting work carried out at this mine during the year has failed to add any appreciable quantity of coal to the area in sight, and it would appear as if the life of this mine will be limited.

Star Mine.—Pillar-extraction has continued in the No. 1 east level throughout the year. Development work has been continued in No. 2 east level and the development of all available coal in this section will shortly be completed. A further effort was made to develop the coal lying to the dip. Boreholes in this direction proved disappointing, however, there is a possibility that these boreholes were unfortunate in striking faulted ground. Dip development headings driven from No. 2 east level encountered a fault after proceeding a short distance. It is proposed to drive through this fault in a further effort to prove the coal to the south of it.

Birchwood Mine.—Very little development work was undertaken at this mine during the year and the bulk of the mine output was obtained from pillar-extraction. No serious effort has been made to develop the coal beyond the fault in No. 1 west section, and towards the close of the year all work of coal-production was confined to pillar-extraction.

Mossbank Mine.—All efforts on the part of the company failed to place this mine on a satisfactory basis, and the mine was taken over by the Government early in October. Numerous attempts were made to prove the field by means of driving through faulted ground in the west, east, and north-easterly portions of the mine workings. Since the Government took control of the mine a repetition of the work above mentioned has been continued, but up till the end of the year the results cannot be said to be encouraging. There is a reasonable quantity of pillar coal which it is possible to extract, and for this reason alone it is essential that mining operations be continued to meet national requirements.

Wairaki No. 1 Mine.—Operations at this mine were confined to a general withdrawal of pillar coal.

Wairaki No. 3 Mine.—The general plan of development work was continued throughout the year and was generally satisfactory. The main south dip headings were advanced to a total distance of approximately 2,000 ft., and levels were broken away from the bottom of the main dip to the east and to the west. The whole of the development of the lower seam in the No. 1 west level has been completed, both to the rise and to the dip of the main level. A level crosscut stone measures drive from No. 1 west level intercepted a higher seam about 12 ft. thick, and main development places have been continued to the west and to the north in this seam with satisfactory results. The general physical conditions of the coal and strata at this mine are such as to allow a high percentage of coal-extraction when the time arrives for pillars to be worked.

Linton.—No. 1 Mine: Pillar-extraction was continued in the Nos. 6 and 7 sections, this being the only class of work to be continued in these areas. In the No. 8 section, pillar-extraction was completed in the No. 2 dip panel and further development work was carried out from the extremity of the main No. 8 headings and towards the Birchwood-Linton boundary. Work continued in No. 9 section, this area now being almost fully developed. In No. 10 section, development work was continued with unexpectedly good results. Previous development work in No. 8 indicated a deterioration of the seam as it approached the Birchwood boundary, but the work carried out in No. 10 has proven the seam to be over 30 ft. thick, of excellent quality, and adjacent to the Birchwood boundary. This change in outlook would appear to indicate a fairly substantial extension of the area of available coal at the Linton Mine.

No. 3 Mine: The main headings have not been extended during the year, the main development work having been confined to driving dip headings to the north-west. These places intercepted a fault after being driven about 700 ft., and an effort is now being made to locate the seam to the north of the fault. Pillar-extraction has been completed in the No. 2 rise panel, and pillar-extraction is also continuing in the No. 2 dip panel. Some development work has also been carried out in an easterly direction and towards the Birchwood-Linton boundary.

Fatal Accidents

Kaitangata Mine.—On the 11th January Robert Leishman, surface worker, was knocked down by a runaway horse. The horse stumbled and fell on Leishman, inflicting injuries from which he died on 20th January.

Birchwood Mine.—On 29th September William McLachlan, trucker, sustained a very slight injury to his elbow as a result of striking the coal rib. The injury did not prevent McLachlan from completing his shift and did not appear serious enough to warrant medical attention. On the following day septicæmia set in, and McLachlan died on the 2nd October.

Wairaki Mine.—On 20th December Leo Welsh, trucker, was killed by a fall of head coal in a pillar place. The coal fell from the lip of the place, which was not actually in coal-getting use. The deceased, when going into the place to get the face truck, unfortunately took a course which caused him to walk under the lip referred to.

Serious Non-fatal Accidents

Birchwood Mine.—On the 23rd January James Kitto, miner, and Frederick Edwards, fireman deputy, sustained severe burns following upon an explosion which took place in a heated goaf area. The injured men were attending to a completed line of temporary fire stoppings when the explosion occurred, blowing out the stoppings and inflicting the injuries mentioned.

Kaitangata Mine.—On the 6th March N. Bloxham, shot-firer, sustained broken ribs and internal injuries as a result of being struck by a fall of coal from the lip of a pillar place. At the time of the accident Bloxham was in the act of charging a shot-hole.

Linton Mine.—On the 10th March O. W. Grant, miner, sustained a fracture of the right leg and a fractured rib as a result of being struck by a fall of coal in the goaf of a pillar place.

Blackburn Mine.—On the 15th March A. K. McLean, mine-manager, sustained a fracture of the right thigh and a fractured left scapula as a result of being struck by a fall of coal in the goaf of a pillar place. At the time of the accident McLean was instructing a miner to take down some loose roof material when an unexpected quantity came away from a greasy back.

Willowbank Mine.—On the 1st August H. Clark, surface worker, sustained a fractured pelvis as a result of being struck by a rake of descending boxes. Clark slipped on the wet surface and fell in front of the oncoming boxes.

Kaitangata Mine.—On the 1st September George O'Brien, trucker, sustained a fracture of the left clavicle. A box became derailed and threw O'Brien, who, in falling, sustained the above injuries.

Benhar Mine.—On the 21st September G. Park, miner, sustained a fracture of the right clavicle as the result of being struck by a small piece of coal which fell from the lip of a pillar place.

Linton No. 1 Mine.—On the 3rd October Adam Armstrong, trucker, was struck by runaway boxes from a jig head. He sustained a severely crushed right leg and foot, which resulted in the amputation of the leg above the knee.

Dangerous Occurrences in Coal-mines

Birchwood Mine.—On the 22nd January a minor explosion took place in a heated goaf area which was being sealed off at the time. The work of continuing the sealing-off of the area was completed late that night. However, a serious and more extensive explosion occurred about two or three hours after the area had been totally temporarily sealed off. Both explosions were caused by an accumulation of CH_4 within the goaf, coming in contact with the sealed material in the goaf.

The above chain of events, coupled with other similar events in the Ohai district, make it quite clear that following upon the sealing-off of any sealed goaf area in a gassy mine sufficient time should elapse before any men again enter the mine.

Wairaki No. 1 Mine.—On the 8th May a heating occurred in the No. 6 section of the No. 1 Mine. The area was effectively sealed off.

Linton Mine.—On the 8th July heating occurred in the No. 8 section of the No. 1 Mine. The area was effectively sealed off.

Wairaki Mine.—On the 3rd August a heating occurred in the No. 2 section of the No. 1 Mine. The area was effectively sealed off.

Prosecutions

During the year a mine-manager was convicted with costs for a breach of section 145 (1) (*c*) of the Coal-mines Act, 1925. The same manager was also convicted with costs in one case, and fined 10s. and costs in a further case, for two breaches of section 129 (1) (*c*) of the Coal-mines Act, 1925, as amended by section 11 (4) of the Coal-mines Act, 1941.

A mine-manager was convicted and fined £2 and costs in each case for breaches of Regulation 236 (1) and Regulation 189 (*b*) of the Coal-mines Regulations 1939.

ANNEXURE B

STATISTICS OF WORKINGS IN COAL-MINES, 1944

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 Working.	Number of Winding-shafts.	Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam.	Total Output for 1944.	Total Output to 31st December, 1943.	Total Output to 31st December, 1944.	Number of Persons ordinarily employed. Above.	Below.	Total.	Means of Ventilation.
NORTHERN INSPECTION DISTRICT																		
Waikato District												Tons.	Tons.	Tons.				
Rotowaro, Rotowaro	Crown lease and freehold	W. N. Currie (1st C.)	Taupiri Coal-mines, Ltd., Auckland	27	Brown	2	7′ to 27′	Full	Bord and pillar			212,370	3,613,387	3,825,757	111	282	393	Fans.
Pukemiro, Pukemiro	Ditto	G. Keown (1st C.)	Pukemiro Collieries, Ltd., Auckland	29	,,	1	4′ to 18′	4′ to 14′	Ditto	2	1-25yd. ; 1-100 yd	128,970	3,342,363	3,471,333	59	211	270	,,
Wilton, Glen Massey	,,	T. L. Andrews (1st C.)	N.Z. Government, Wellington	14	,,	1	6′ to 8′	7′ 6″	,,		8 ch.	85,582	1,085,787	1,171,369	51	128	179	,,
Waikato Extended, Huntly West	Freehold	J. Honey (U.)	Roose Shipping Co., Mercer	28	,,	1	18′	18′	,,			6,014	127,856	133,870	10	..	10	..
Glen Afton No. 1, Glen Afton	Crown lease and freehold	W. C. Inglis (1st C.)	Glen Afton Collieries, Ltd., Auckland	24	,,	1	4′ to 16′	9′	,,			53,242	2,168,221	2,221,463	29	99	128	Fan.
MacDonald, Waikokowai	Ditto	H. Stirling (1st C.)	Ditto	14	,,	1	6′ to 20′	9′ to 14′	,,			151,145	1,795,191	1,946,336	73	234	307	,,
Taupiri East, Kimihia	Crown lease	W. Scurr	Holland and party, Huntly	23	,,	1	20′	..	,,			3,933	52,768	56,701	2	4	6	,,
Whatawhata Campbell, Whatawhata	University endowment	A. Penman (1st C.)	Whatawhata Campbell Coal Co., Ltd., Hamilton	23	,,	1	10′	10′	,,	1	4 ch.	9,124	101,286	110,410	5	8	13	,,
Renown, Renown	Freehold	T. Geddes (1st C.)	Renown Collieries, Ltd., Auckland	17	,,	2	15′	7′ 6″ to 9′	,,		73 ch.	147,619	1,648,237	1,795,856	71	208	279	,,
Glen "A" Potteries, Glen Afton	,,	J. Howie (P.)	Taranaki Brick and Land Co., Ltd., New Plymouth	8¼	,,	1	9′	9′	Opencast			249	2,533	2,782	1	..	1	..
Rangitoto, Otorohanga (opencast)	Native lease	K. L. Harvey	Hamilton and Harvey, Otorohanga	½	,,	1	5′	5′	,,			1,797	..	1,797	8	..	8	..
Glen Afton (State), (opencast)	Crown lease	P. M. Outhwaite (1st C.)	N.Z. Government, Wellington	1	,,	1	8′ to 11′	8′ to 11′	,,			11,837	..	11,837	16	..	16	..
Kimihia (State), (opencast)	Crown lease and University endowment	W. Scurr (D.)	Ditto	⅝	,,	1	8′ to 15′	8′ to 15′	,,			30,850	..	30,850	22	..	22	..
Kemp's (State), (opencast)	Crown lease	P. M. Outhwaite (1st C.)	,,	½	,,	3	18″ to 3′	18″ to 3′	,,			1,885	..	1,885	27	..	27	..
Beehive (State), (opencast)	,,	Ditto	,,	¼	,,	1	6′	6′	,,			2,206	..	2,206	9	..	9	..
Taranaki District																		
Old Stockman, Mokau	Freehold	H. W. Jones (D.)	Chambers Bros., Havelock	24	Brown	1	4′ 6″	All	Bord and pillar		No. 1, 9 ch. ; No. 2, 6 ch.	1,014	14,577	15,591	1	2	3	Natural.
Mangapehi, Mangapehi (State)	Crown lease	H. Quinn (1st C.)	N.Z. Government, Wellington	10½	,,	1	8′ to 20′	7′ to 8′	Ditto			65,492	187,500	252,992	29	96	125	Fan.
Tatu, Ohura (State)	,,	A. E. McMillan (1st C.)	,,	8	,,	1	7′	Full	,,		7 ch.	26,950	134,464	161,414	33	56	89	,,
Aria, Aria	,,	A. Pratt	W. H. Jarvis, Te Kuiti	1	,,	1	9′ to 12′	..	..		7 ch.	1,632	..	1,632	..	3	3	..
Waitewhena (State), (opencast)	Freehold	J. Cunningham (2nd C.)	N.Z. Government, Wellington	½	,,	1	10′ to 12′	All	Opencast			9,513	..	9,513	20	..	20	..
Hikurangi District																		
Waro, Hikurangi	Freehold	P. T. Peattie (1st C.)	Waro Coal-mines, Ltd., Auckland	10	Sub-bituminous	1	3′ 6″ to 6′ 6″	All	Bord and pillar		1,548′	19,582	150,262	169,844	17	68	85	Fan.
New Kamo, Kamo	Crown lease and freehold	J. Makinson (1st C.)	Kamo Collieries, Ltd., Whangarei	10½	Ditto	1	8′	8′	Ditto		450′ and 1,100′	65,336	357,765	423,101	21	96	117	Fans.
Avoca, Tangowahine	Freehold	J. A. Pollock	A. E. Pollock, Tangowahine	1	,,	1	20′	10′	,,		3 ch. D.	472	..	472	1	1	2	Fan.
Output of collieries included in previous statements at which operations have been suspended or abandoned												..	12,598,959	12,598,959	..	..	..	..
WEST COAST INSPECTION DISTRICT																		
Nelson District																		
Westhaven, Collingwood	Freehold	J. Graham (D.)	G. and A. H. Wynn, Mangarakau, Collingwood	6	Sub-bituminous	1	6′	Full	Bord and pillar			4,168	14,142	18,310	2	5	7	Fan.
Owen, Owen River	Crown lease	O. J. Gilroy (D.)	Owen Collieries, Ltd., Nelson	15	Ditto	1	4′ to 6′	,,	Double stall		4 ch.	3,104	46,342	49,446	1	7	8	,,
Strathmore, Ariki	,,	R. E. O'Rourke (P.)	R. E. F. O'Rourke, Murchison	3½	,,	1	3½′ to 5′	3′ 9″	Bord and pillar			140	422	562	..	1	1	Natural.
Six-mile, Murchison	,,	J. Gillespie (P.)	Six-mile Coal Co., Murchison	3½	,,	1	7′	Full	Ditto			711	1,981	2,692	1	3	4	,,
Victory, Glenhope	Freehold	R. H. O'Brien (P.)	N. McConochie, Glenhope	3	Bituminous	1	6′	,,	,,		2 ch.	23	162	185	..	1	1	,,

Buller District																		
Allan's, Charleston	Crown lease	T. D. Allan	T. D. Allan, Charleston	12	Lignite	1	40′	8′	Opencast		6	90	96	1		1	Natural.
Bowater and Bryan, Charleston	,,	W. H. Smith (P.)	Bowater and Bryan, Westport	14½	,,	1	40′	8′	,,		7,635	3,726	11,361	10		10	,,
Brighton, Fox River	,,	Andrew Hunter (P.)	Andrew Hunter, Tiromoana	12	,,	1	10′ to 16′	8′	Bord and pillar		1,165	3,795	4,960	1	3	4	,,
Cascade, Cascade Creek	,,	W. Brown (1st C.)	Cascade-Westport Coal Co., Ltd., Westport	18	Bituminous	1	30′	8′	Ditto		20,209	275,715	295,924	10	11	21	,,
Charming Creek, Ngakawau	,,	R. J. Wearn (1st C.)	Charming Creek - Westport Coal Co., Ltd. Westport	17	,,	1	8′ to 20′	9′	,,	20 ch.	35,831	335,533	371,364	29	35	64	Fan.
Coal Creek Seddonville	,,	T. Quinn (D.)	Coal Creek mining party, Seddonville	27	,,	1	22′	8′	Bord and pillar and opencast		2,892	121,683	124,575	1	4	5	Natural.
Hydro, Seddonville	,,	J. Boyd (U.)	Hydro Coal Mines, Ltd., Westport	9	,,	1	20′	Full	Bord and pillar	22 ch.	12,808	81,229	94,037	3	7	10	Fan.
Dove's, Seddonville	,,	J. T. Dove (D.)	J. T. Dove, Seddonville	14	,,	1	20′	,,	Ditto		15	119,687	119,702		1	1	,,
Mitchell's, Charleston	,,	W. H. Smith (P.)	F. T. Mitchell, Charleston	19	Lignite	1	40′	8′	Opencast		583	1,595	2,178	2		2	Natural.
Warne's, Charleston	,,	G. N. Warne (P.)	G. N. Warne, Charleston	19	,,	1	40′	9′	,,		798	168	966	5		5	,,
Nile Hydro (Powell's), Charleston	,,	T. Moynihan	Nile Hydro Coal Syndicate, Dunedin	12	,,	1	30′	14′	,,		7,093	592	7,685	5		5	,,
Rocklands, Berlins	,,	N. B. Paine (U.)	A. E. and N. B. Paine, Berlins, Buller Gorge	42	Brown	1	18′ to 20′	Full	Bord and pillar and opencast	1 ch.	4,740	21,859	26,599	6		6	,,
Glencrag, Berlins	,,	W. Forsyth (U.)	Glencrag Coal Co., Westport	21	,,	1	12	,,	Bord and pillar		3,621	13,206	16,827	1	6	7	,,
Denniston, Denniston	,,	A. Openshaw (1st C.), and R. Marshall (1st C.)	Westport Coal Co., Ltd., Dunedin	64	Bituminous	7	3′ to 30′	,,	Ditto		143,888	11,877,959	12,021,847	82	250	332	Fans.
Millerton, Granity	,,	O. J. Davis (1st C.)	,,	53	,,	1	4′ to 40′	12′	,,	198 ch.	94,978	9,042,270	9,137,248	44	108	152	,,
Stockton, Ngakawau	,,	G. Gilbert (1st C.)	N.Z. Government, Wellington	36	,,	3	4′ to 20′	10′	,,	28 ch.	120,638	4,416,851	4,537,489	130	150	280	,,
Harris', Karamea	Freehold	J. Harris (P.)	John Harris, Karamea	8	Lignite	1	12′	8′	,,		2	61	63		1	1	Natural.
Cardiff, Mokihinui	Crown lease	J. Simpson (D.)	Cardiff Coal Co., Ltd., Westport	8½	Bituminous	1	10′ to 12′	10′	,,		3,076	26,089	29,165	1	3	4	,,
Buller Gorge, Rahui	,,	R. Chester (D.)	Buller Coal Mining Co., Westport	2½	Brown	1	11′	8′	,,	9′	3,896	4,229	8,125	1	5	6	,,
Reefton District																		
Doran's, Capleston	Crown lease	J. J. Doran (P.)	Doran Bros., Capleston	½	Brown	1			Bord and pillar		196		196		2	2	Natural.
Alborn's, Boatman's	Crown lease and freehold	N. R. Alborn (D.) and P. McCormack (D.)	V. W. Alborn, Christchurch	49	,,	3	8′ to 18′	9′	Ditto	350′ to 450′	12,597	125,170	137,767	1	15	16	,,
Kleen, Boatman's	Crown lease	P. McCormack (D.)	Andrew Archer, Reefton	1	,,	2	12′	Full	Opencast		679		679	2		2	,,
Burke's Creek, Reefton	,,	C. D. Buist (1st C.)	Burke's Creek Coal-mining Co., Reefton	43	,,	2	8′ to 30′	9′ and 30′	Bord and pillar and opencast		34,514	441,602	476,116	19	46	65	Fan.
Clele, Merrijigs	,,	R. V. Alborn (1st C.)	V. W. Alborn, Christchurch	58	,,	2	4′ and 5′	Full	Bord and pillar	30′ and 250′	2,953	107,817	110,770	1	4	5	Natural.
Coghlan's, Capleston	Crown lease and freehold	E. Patterson (U.)	John Coghlan, Reefton	47	,,	1	10′ to 12′	8½′	Ditto		3,353	57,276	60,629	2	5	7	,,
Defiance, Murray Creek	Crown lease	R. McMahon (U.)	McClatchie and Co., Ltd., Christchurch	16	,,	2	6′	Full	,,		8,846	49,689	58,535	1	9	10	Fan.
Morrisvale (Pyramid), Reefton	,,	C. D. Curtis (2nd C.)	W. J. Morris, Reefton	32	,,	1	14′	,,	,,		12,310	204,936	217,246	4	13	17	,,
New Pyramid, Waitahu	C.P.L.	E. J. Richards (2nd C.)	Pyramid Coal-mining Co., Ltd., Reefton	1	,,	1	10′	8′	,,	5 ch.	1,288		1,288	3	4	7	Natural.
Burnwell, Reefton	Crown lease	J. J. Queen (1st C.)	D. Hamill, Reefton	16	,,	1	50′	9′	,,	90′	6,828	20,530	27,358	1	9	10	Fan.
Central, Reefton	Wayleave	,,	,,	½	,,	1	12′	9′	,,		918		918	1	4	5	Natural.
Waitahu, Reefton	Crown lease	A. D. Williams (1st C.)	A. D. Williams, Reefton	35	,,	1	5′ 5″	Full	,,		10,520	59,767	70,287	3	13	16	Fan.
Terrace, Reefton	,,	G. H. Millar (2nd C.)	Terrace Coal-mine, Ltd., Christchurch	17	,,	1	9′ to 40′	9′	,,	750′	9,118	27,910	37,028	1	9	10	,,
Comet, Inangahua	,,	C. Taylor (D.)	Comet mining party, Inangahua Junction	3½	,,	1	10′	9′	,,		5,349	6,698	12,047		6	6	Natural.
Nicholls, Boatman's	,,	W. Nicholls (D.)	W. Nicholls, Blackspoint, Reefton	1½	,,	1	6′	Full	,,		1,879	877	2,756		4	4	,,
Banks, Waitahu	,,	A. E. Eklund (D.)	A. E. Eklund, Reefton	1	,,	1	20′	,,	Opencast		12,812		12,812	8		8	,,
Star, Murray Creek	,,	E. F. Rollerson (2nd C.)	John Lewis, Reefton	1	,,	1	10′	,,	,,		2,093		2,093	4		4	,,
Royal, Rainy Creek	,,	C. N. Curtis (D.)	Royal Coal syndicate, Reefton	½	,,	2	5′ and 6′	,,	Bord and pillar		329		329	2	5	7	,,
Grey District																		
Cliffdale, Ten-mile	State reserve	A. Jenkinson (U.)	Stuart and party, Runanga	17	Bituminous	1	8′ 6″	Full	Bord and pillar	100′	5,106	54,614	59,720	2	6	8	Fan.
Bellvue, Rapahoe	,,	W. Hughes (D.)	Bellvue Mines, Ltd., Greymouth	18	,,	1	11′	,,	Ditto		3,014	101,747	104,761	2	5	7	,,
Blackball, Blackball	,,	L. C. Cook (1st C.)	N.Z. Government, Wellington	53	,,	2	8′ to 17′	8′	,,	800	55,094	4,247,448	4,302,542	32	109	141	,,

STATISTICS OF WORKINGS IN COAL-MINES, 1944—*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 Working.	Number of Winding-shafts.	Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam.	Total Output for 1944.	Total Output to 31st December, 1943.	Total Output to 31st December, 1944.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
WEST COAST INSPECTION DISTRICT—*continued*												Tons.	Tons.	Tons.				
Grey District—continued																		
Blackball Creek, Blackball ..	State Reserve	L. C. Cook (1st C.)	N.Z. Government, Wellington ..	13½	Bituminous	1	5′ ..	4½′ ..	Bord and Pillar	..	6 ch. ..	6,079	164,060	170,139	1	9	10	Fan.
Harrison's, Ten-mile	,,	R. J. Bowman (U.)	Harrison and party, Runanga ..	12	,,	1	7′ ..	Full ..	Ditto ..	..	1½ ch. ..	6,518	37,022	43,540	1	9	10	,,
Brachead, Dunollie	,,	G. H. Gaskell (2nd C.)	Boote and party, Dunollie ..	24	,,	1	6′ to 9′	,, ..	,, ..	..	14½ ch. ..	7,826	157,214	165,040	1	5	6	,,
Briandale, Ten-mile	Crown lease ..	T. Howard (1st C.)	Briandale Collieries, Ltd., Christchurch	18	,,	1	6′ ..	,, ..	,, ..	..	1½ ch. ..	770	100,467	101,237	2	3	5	Natural.
Wallsend, Brunnerton ..	Crown lease and freehold	F. E. Lockington (1st C.)	N.Z. Government, Wellington ..	21	,,	1	18′ ..	8′ to 10′ ..	,, ..	2	650′ ..	57,139	983,817	1,040,956	32	165	197	Fan.
Castlepoint, Dunollie	State reserve	D. Bell (D.) ..	Castlepoint co-operative party, Runanga	18	,,	1	5′ ..	Full ..	,, ..	..	1 ch. ..	1,742	115,308	117,050	1	4	5	,,
Dobson, Dobson	Crown lease ..	J. G. Quinn (1st C.)	N.Z. Government, Wellington ..	22	,,	1	9′ to 16′	9′ ..	,, ..	..	1,200 ..	62,712	1,250,408	1,313,120	32	165	197	,,
Goldlight, Rewanui	State reserve	E. J. Keating (D.) ..	Williams and party, Greymouth ..	17	,,	1	8′ ..	Full ..	,, ..	..	6 ch. ..	7,566	112,242	119,808	2	6	8	,,
Hilltop, Ten-mile	,,	R. J. Armstrong (D.)	Armstrong and party, Runanga ..	14	,,	1	22′ ..	10′ ..	,, ..	..	240′ ..	4,586	84,834	89,420	1	4	5	,,
Kaye's, Ten-mile	,,	A. Coppersmith (2nd C.)	Kaye and party, Runanga ..	10	,,	1	8′ ..	Full ..	,, ..	..	..	5,956	25,061	31,017	1	5	6	,,
Hunter's, Rewanui	,,	R. Laing (U.) ..	Hunter and party, Greymouth ..	24	,,	1	7′ ..	,, ..	,, ..	..	5 ch. ..	8,609	129,677	138,286	3	7	10	,,
Jubilee, Rapahoe	,,	P. Hassan (2nd C.)	Tinning and party, Runanga ..	17	,,	1	9′ ..	,, ..	,, ..	..	..	8,931	49,962	58,893	3	12	15	,,
Moody Creek, Dunollie ..	,,	J. W. Patterson (2nd C.)	Moody Creek co-operative party, Runanga	22	,,	1	10′ ..	,, ..	,, ..	..	..	4,515	108,491	113,006	2	6	8	,,
Cliffside, Nine-mile	,,	R. Chandler (U.) ..	Moore and party, Greymouth ..	9½	,,	1	11′ ..	9′ ..	,, ..	..	5 ch. ..	6,249	36,200	42,449	2	8	10	..
New Point Elizabeth, Dunollie ..	,,	J. M. Williams (2nd C.)	New Point Elizabeth co-operative party, Greymouth	18	,,	1	7′ to 9′	Full ..	,, ..	..	..	6,329	137,673	144,002	2	8	10	Fan.
Old Runanga, Dunollie ..	,,	E. W. Kennedy (U.)	Old Runanga co-operative party, Runanga	18	,,	1	3′ to 5′	3′ to 4′ ..	,, ..	..	..	7,434	118,831	126,265	3	8	11	,,
Paparoa, Roa	Crown lease ..	A. O'Donnell (1st C.)	Paparoa Coal Co., Ltd., Wellington	36	Super-bituminous	2	8′ to 25′	Full ..	Bord and pillar	..	48½ and 15 ch.	35,207	1,071,391	1,106,598	26	44	70	Fans.
Schultz Creek, Twelve-mile ..	,, ..	D. Cameron (D.) ..	H. Gould and Co., Ltd., Timaru	20	Bituminous	1	3½′ ..	,, ..	Ditto ..	..	8 ch. ..	1,427	44,350	45,777	1	4	5	Fan.
Smith's, Dunollie	State reserve	T. Halliday (D.) ..	Smith and party, Runanga ..	24	,,	1	7′ ..	,, ..	,, ..	..	..	5,488	133,011	138,499	2	6	8	,,
Strongman, Nine-mile	,,	J. Adamson (1st C.)	N.Z. Government, Wellington ..	6	,,	1	20′ ..	9′ ..	,, ..	..	29 ch. ..	106,902	385,795	492,697	76	196	272	,,
Liverpool, Rewanui	,,	A. Smith (1st C.) ..	,, ..	32	,,	2	8′ to 34′	8′ ..	,, ..	..	36 ch. ..	118,935	3,885,815	4,004,750	82	239	321	,,
Spark's, Rewanui	,,	J. Kelly (2nd C.) ..	Spark and party, Runanga ..	22	,,	1	9′ ..	Full ..	,, ..	..	5 ch. ..	6,077	74,159	80,236	2	8	10	,,
Output at collieries included in previous statements at which operations have been abandoned or suspended ..			.. ..	..	..	..	..	..	..	..	..	..	9,401,976	9,401,976	..	..	..	..
SOUTHERN INSPECTION DISTRICT																		
Canterbury District																		
Acheron Anthracite, Coalgate ..	Freehold ..	A. J. Clark (D.) ..	Acheron Anthracite Co., Ltd., Christchurch	4½	Altered lignite	1	8′ ..	8′ ..	Bord and pillar	..	400′ ..	1,521	3,100	4,621	3	2	5	Fan.
Blackburn, Mount Somers ..	Crown lease ..	A. McLean (U.) ..	Blackburn Coal Co., Ltd., Ashburton	15	Lignite	2	8′ ..	7′ ..	Ditto ..	..	200′ ..	4,694	39,392	44,086	2	7	9	,,
Brockley Anthracite, Whitecliffs	Freehold ..	E. W. Broad (D.) ..	Brockley Anthracite Collieries, Christchurch	6	Altered lignite	1	3′ ..	3′ ..	,, ..	..	10½ ch. ..	1,111	4,791	5,902	1	4	5	Natural.
Clearview, Glenroy	,, ..	J. W. Marsh (D.) ..	Clearview Coal Co., Ltd., Glenroy	25	Lignite ..	1	10½′ ..	8′ ..	,, ..	..	90′ ..	1,757	42,418	44,175	1	1	2	Fan.
Klondyke, Coalgate	,, ..	A. Nimmo (2nd C.)	Klondyke Colliery Co., Ltd., Coalgate	16	,, ..	1	10½′ ..	8′ ..	,, ..	..	90′ ..	14,563	100,643	115,206	2	18	20	,,
Steventon, Whitecliffs	,, ..	H. Robb (U.) ..	Steventon Co-operative Collieries, Whitecliffs	16½	,, ..	2	6′ to 7′	4′ 6″ to 6′	,,	..	1 ch. ..	5,888	44,472	50,360	2	7	9	,,
Tripps, Mount Somers	,, ..	G. J. Porteous (D.)	Mount Somers Mines, Ltd., Ashburton	78	,, ..	1	10′ ..	8′ ..	,, ..	..	150′ ..	3,418	122,465	125,883	1	7	8	,,
Victory, Coalgate	,, ..	D. McQueen (D.) ..	D. McQueen, Sheffield	3	,, ..	1	14′ ..	8′ ..	,, ..	..	150′ ..	1,051	938	1,989	..	2	2	Natural.
Woodbank, Albury	Crown lease ..	J. H. Smillie (D.) ..	J. H. Smillie, Albury	19	,, ..	1	9′ ..	9′ ..	,, ..	..	..	4,584	13,623	18,207	2	4	6	Fan.
New Burnwell, Mount Somers ..	,, ..	T. Harris (D.) ..	Newburn Coal Co., Timaru ..	..	,, ..	1	8′ ..	..	,, ..	..	150′ ..	..	..	..	1	2	3	Natural.

North Otago District																	
Airedale, Papakaio	Crown lease	A. Beardsmore (D.)	Airedale Coal Co., Ltd., Oamaru	18	Lignite	1	6½′	6′	Bord and pillar	5 ch.	2,180	54,619	56,799	1	3	4	Fan.
Ngapara, Ngapara	Freehold	C. J. M. Nimmo (P.)	W. Nimmo, Ngapara	66	,,	1	24′	14′	Ditto	440′	2,869	57,807	60,676	1	4	5	,,
Rockvale, Herbert	,,	D. R. Gaudion (D.)	D. R. Gaudion, Herbert	10	,,	1	7′	6′	,,	10 ch.	2,344	9,953	12,297	..	3	3	,,
Shag Point, Shag Point	Crown lease	W. McLaren (D.)	W. McLaren, Shag Point	30	Brown	1	6′	6′	,,	150′	1,340	444,928	446,268	2	3	5	Natural.
St. Andrew's, Peebles	Freehold	J. H. Nimmo (D.)	J. H. Nimmo, Oamaru	65	Lignite	1	7′	6′	,,	3½ ch.	3,151	94,500	97,651	1	5	6	Fan.
Willetts, Airedale	Freehold and crown lease	M. W. Wilson (P.)	G. H. Willetts, Oamaru	12	,,	1	10′	6′	,,	190 lks.	1,291	13,978	15,269	..	3	3	Natural.
Central Otago District																	
Cairnmuir, Cromwell	Freehold and crown lease	W. Hodson (D.)	Cairnmuir Coal Co., Ltd., Cromwell	4	Lignite	1	20′	8′	Bord and pillar		1,308	2,759	4,067	1	3	4	Natural.
Idaburn, Oturehua	Freehold	R. Barber (D.)	R. Barber, Oturehua	74	,,	1	30′	30′	Opencast		1,496	67,573	69,069	2	..	2	,,
McPherson's, Coal Creek	Crown lease	N. J. Harliwich (P.)	N. J. Harliwich, Roxburgh	74	,,	1	12′	12′	,,		2,914	120,673	123,587	2	..	2	,,
Oturehua, Oturehua	,,	A. Brown (D.)	A. Brown, Oturehua	30	,,	..	20′	15′	,,		100	8,995	9,095	1	..	1	,,
Shepherd's Creek, Bannockburn	,,	J. Hodson (2nd C.)	J. Hodson, Bannockburn	67	,,	1	6′ to 20′	10′	Bord and pillar	100′	1,746	148,903	150,649	..	2	2	,,
South Otago District																	
Akatore, Milton	Crown lease	N. Smith (C.)	Akatore Coal Co., Dunedin	1	Lignite	1	9′	6′	Bord and pillar	150 ch.	230	..	230	2	..	2	Natural.
Benhar, Benhar	Freehold and crown lease	J. J. L. Findlater (C.)	McSkimming and Sons, Benhar	81	,,	3	14′	8′	Ditto	1,460′	9,116	376,260	385,376	1	10	11	Fan.
Fairfield, Fairfield	Freehold	J. G. Barclay (C.)	Fairfield Coal-mining Co., Ltd., Dunedin	12	,,	1	8′ to 10′	6′	,,	600′	6,676	31,687	38,363	1	6	7	,,
Kaitangata, Kaitangata	Freehold and crown lease	F. Carson (1st C.)	Kaitangata Coal Co., Ltd., Dunedin	68	Brown	2	8′ to 20′	8′ to 20′	,,	12 to 30 ch.	141,757	6,369,664	6,511,421	70	220	290	,,
New Fernhill No. 1, Abbotsford	Freehold	M. Hewitson (D.)	Fernhill Coal Co., Ltd., Dunedin	12	Lignite	1	7′ to 13′	12′	,,	250′	7,206	48,748	55,954	2	6	8	,,
New Fernhill No. 2, Green Island	,,	R. McDonald (2nd C.)	,,	1	,,	1	9′	6′	,,	250′	2,981	..	2,981	1	3	4	,,
Ocean View, Brighton	,,	N. Smith (C.)	Tikey, Tikey, Bush, and Smith, Brighton	2	,,	1	5½″	5½″	,,	120′	1,809	1,571	3,380	3	1	4	Natural.
Victory, Brighton	,,	L. Tikey (C.)	Tikey, Bush, and Tikey, Brighton	1	,,	1	6′	5′	,,	130′	48	..	48	1	2	3	,,
Wangaloa, Kaitangata	Freehold and crown lease	R. McVie (D.)	Wangaloa Coal Co., Ltd., Dunedin	22	,,	1	25′	12′	,,	5½ ch.	7,156	30,508	37,664	1	5	6	Fan.
Willowbank No. 1, East Taieri	Freehold	A. Edmond (D.)	G. Scurr, Mosgiel	24	,,	2	8′ to 9′	6′	,,	20 ch.	2,998	111,263	114,261	2	3	5	,,
Willowbank No. 2 (late East Taieri), East Taieri	,,	J. Dunlop (D.)	,,	25	,,	1	12′	6′	,,	10 ch.	5,627	59,406	65,033	2	5	7	,,
Southland District																	
Argyle, Waikaia	Crown lease	E. J. Hamer (P.)	E. J. Hamer, Waikaia Rural Delivery	53	Lignite	1	15′	15′	Opencast		335	15,138	15,473	1	..	1	Natural.
Birchwood, Ohai	,,	J. Lewis (1st C.)	Birchwood Coal Co., Ltd., Dunedin	21	Brown	1	9′ to 25′	6′ to 8′	Bord and pillar	35 ch.	25,260	404,625	429,885	15	47	62	Fan.
Black Diamond, Nightcaps	,,	J. F. Turner (1st C.)	Black Diamond Coal Co., Ltd., Nightcaps	29	,,	1	25′	25′	Ditto		22,712	370,373	393,085	8	19	27	,,
Black Lion, Ohai	,,	E. W. Moseby (C.)	Black Lion Coal Co., Ltd., Benhar	23	,,	1	8′	8′	,,	264′	20,328	266,869	287,197	4	16	20	,,
Boghead, Mataura	Freehold	J. S. Harvey (D.)	C. S. Rowe and Son, Mataura	39	Lignite	1	23′	10′ to 11′	,,	13′	10,881	159,435	170,316	1	6	7	,,
Coster's, Edendale	,,	D. A. Coster (P.)	D. A. Coster, Mataura	8	,,	1	13′	13′	Opencast		1,322	8,819	10,141	1	..	1	Natural.
Croydon, Gore	,,	D. McGregor (P.)	D. McGregor, Gore	29	,,	1	20′	20′	,,		2,237	44,660	46,897	1	..	1	,,
Diamond Lignite, Asher's Siding	Crown lease	A. McMillan (P.)	S. McMillan, Invercargill	42	,,	1	36′	36′	,,		1,078	50,187	51,265	1	..	1	,,
Gladfield, Thornbury	Freehold	J. T. McLelland (1st C.)	J. T. McLelland, Riverton	1	,,	1	16′	5′	,,		258	..	258	1	..	1	,,
Glenlee, Waikaka	,,	J. G. Burgess (P.)	F. W. Edge, Waikaka	51	,,	1	14½′	8′	Bord and pillar		2,720	50,490	52,769	2	..	2	Fan.
Hedgehope, Waimumu	,,	W. Coster (P.)	Larking, Mataura	6	,,	1	20′	20′	Opencast		11,555	29,464	41,019	7	..	7	Natural.
Linton, Ohai	Freehold and crown lease	A. Colligan (1st C.)	Linton Coal Co., Ltd., Invercargill	29	Brown	1	30′	30′	Bord and pillar		98,558	1,946,969	2,045,527	47	121	168	Fan.
Mataura Paper-mills, Mataura	Freehold	A. W. Coster (P.)	N.Z. Paper-mills, Ltd., Dunedin	6	Lignite	1	12′ to 22′	12′ to 22′	Opencast		26,294	102,509	128,803	4	..	4	Natural.
Mossbank, Ohai	Crown lease	R. T. Dale (1st C.)	N.Z. Government, Wellington	4	Brown	1	23′	8′	Bord and pillar		26,186	707,826	734,012	36	12	48	Fan.
New Hakatere, Gore	Freehold	J. S. Wilks (P.)	J. Adams, Gore	1	Lignite	..	16′	16′	Opencast		1,346	..	1,346	3	..	3	Natural.
New Vale, Waimumu	,,	J. Cronin (P.)	New Vale Coal Co., Gore	4	,,	1	20′	7′	,,		6,490	14,033	20,523	6	..	6	,,
Ohai Colliery, Ohai	Crown lease	J. L. Ferguson (D.)	Ohai Colliery, Invercargill	1	Brown	1	22′	22′	,,		9,167	..	9,167	7	..	7	,,
Ota Creek, Wyndham	,,	E. Genge (P.)	E. Genge, Wyndham	64	Lignite	1	9′	9′	,,		478	36,613	37,091	1	..	1	,,
Otikerama, Otikerama	Freehold	J. Hoffman (P.)	J. Hoffman, Gore	55	,,	1	20′	8′	,,		1,904	82,806	84,710	4	..	4	,,
Raby, Gore	,,	D. McGregor (P.)	Transport (Gore), Ltd., Gore	11	,,	1	15′	15′	,,		505	29,716	30,221	1	..	1	,,
Star, Ohai	,,	J. Baird (1st C.)	Star Coal Co., Ltd., Gore	13	Brown	1	20′	20′	Bord and pillar		39,751	201,244	240,995	15	39	54	Fan.

STATISTICS OF WORKINGS IN COAL-MINES, 1944—*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 Working.	Number of Winding-shafts.	Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam.	Total Output for 1944.	Total Output to 31st December, 1943.	Total Output to 31st December, 1944.	Number of Persons ordinarily employed.			Means of Ventilation.
															Above.	Below.	Total.	
SOUTHERN INSPECTION DISTRICT—*continued*																		
												Tons.	Tons.	Tons.				
Starlight, Gore	Freehold ..	J. Hoffman (P.) ..	J. Hoffman, Gore	1	Lignite ..	1	12′ ..	12′ ..	Opencast ..	..	..	1,669	..	1,669	2	..	2	Natural.
Taunga, Orepuki	,, ..	J. L. Hennessey (P.)	L. J. Shaw and party, Orepuki ..	1	,, ..	..	.. ..	..	,, ..	..	..	66	..	66	2	..	2	,,
Terrace, Balfour	,, ..	A. C. Dixon (D.) ..	A. C. Dixon, Balfour	4	,, ..	1	16′ ..	8′ to 9′ ..	Bord and pillar	..	..	1,575	17,579	19,154	2	..	2	,,
Waimeamea, Orepuki	Crown lease ..	G. S. Harris (D.) ..	Waimeamea Coal Co., Ltd., Invercargill	39	Brown ..	1	22′ ..	7′ ..	,,	..	..	914	38,710	39,624	1	3	4	,,
Waimumu, Waimumu	Freehold ..	A. Maxwell (P.) ..	Waimumu Coal Co., Ltd., Gore	16	Lignite ..	1	30′ ..	30′ ..	Opencast ..	..	..	7,146	60,233	67,379	3	..	3	,,
Wairaki, Ohai	Freehold and crown lease	T. Young (1st C.) ..	Wairaki Coal Co., Ltd., Invercargill	31	Brown ..	1	14′ ..	14′ ..	Bord and pillar	..	20 ch. ..	64,678	793,966	858,644	30	70	100	Fan.
Output of collieries included in previous statements at which operations are abandoned or suspended												..	11,385,063	11,385,063	..	..	..	..
Totals, Southern District, South Island												630,343	25,242,523	25,872,866	318	674	992	..
Totals, West Coast District, South Island												1,138,813	50,523,231	51,662,044	703	1,788	2,491	..
Totals, Northern District, North Island												1,036,814	27,381,156	28,417,970	616	1,496	2,112	..
Grand totals												2,805,970	103,146,910	105,952,880	1,637	3,958	5,595	..
Output of collieries prior to 1890, not included in above statement												..	..	296,653	..	..	..	..
Shale exported, 1914												..	..	21	..	..	..	..
														106,249,554				

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