

1944
NEW ZEALAND

MINES STATEMENT

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

MR. SPEAKER,—

I have the honour to present to Parliament the annual statement on the mining industry of the Dominion for the year ended 31st December, 1943.

MINERAL PRODUCTION

The following statement shows the quantity and value of the production of metalliferous mines, stone-quarries under the Stone-quarries Act, and of coal-mines during 1943 and 1942 :—

Mineral.	1943.		1942.	
	Quantity.	Value.	Quantity.	Value.
		£		£
Gold and silver*	429,936 oz.	1,567,614	477,346 oz.	1,727,150
Platinum	5 "	47	21 "	189
Arsenic	8 tons	119	8 tons	126
Asbestos	187 "	3,985	43 "	1,035
Bentonite	232 "	1,015	500 "	2,134
Clays†	2,523 "	3,631	2,337 "	2,376
Coal	2,787,868 "	2,787,868	2,680,041 "	2,680,041
Diatomaceous earth	128 "	250	418 "	585
Dolomite	3,571 "	1,098	3,361 "	1,260
Fuller's earth	124 "	437	138 "	434
Iron-ore	4,988 "	9,026	2,433 "	6,576
Magnesite	171 "	154	..	..
Manganese-ore	510 "	2,166	321 "	1,694
Phosphate	9,241 "	14,340	..	..
Pumice	3,422 "	12,485	3,085 "	11,673
Quartzite .. .. .	..	..	95 "	370
Serpentine	61,645 "	50,637	31,248 "	26,038
Silica sand	19,747 "	41,126	1,875 "	2,367
Stone .. .. .	..	563,403	..	538,599
Talc	62 "	202	15 "	45
Tungsten-ore	110 "	52,215	67 "	32,309
Quicksilver	7,068 lb.	7,192	11,402 lb.	11,110
Totals .. .. .	..	5,119,010	..	5,046,111

* 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

It is now possible to resume the publication of statistical data covering the production of gold and silver.

Below are tabulated figures for the year 1943, as well as for the years 1941 and 1942, when publication was suspended.

			1941.		1942.		1943.	
			Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Gold produced</i>								
			Oz.	£	Oz.	£	Oz.	£
Quartz-mining	..	..	68,214	713,999	65,486	678,169	57,870	595,592
Alluvial mining	..	..	12,383	109,463	9,674	77,134	6,759	64,932
Dredge mining	..	..	94,059	978,815	90,826	928,819	84,521	868,327
Totals	..	..	174,656	1,802,277	165,986	1,684,122	149,150	1,528,851
<i>Silver produced</i>								
Silver	..	..	378,331	49,580	311,360	43,028	280,786	38,763

Naturally, the decreased importance of gold-mining to the community during war has been responsible for man-power problems and difficulties in securing equipment, and the result has been lessened production and the discouragement of fresh enterprises. Under these circumstances it has been the prime concern of the Mines Department to assist established producers to maintain operations until such time as gold-mining may again take its place in the economic structure of the country.

During 1943 production has been mainly from the two quartz-mines, the Martha and the Black-water, and the sixteen dredges operating on the west coast and the two in the Southern District.

MINING PRIVILEGES

A total of 247 licenses for mining privileges was granted under the provisions of the Mining Act, an increase of 23 on the previous year. Of the licenses granted in 1943, 32 were licenses entitling the holders to mine for gold.

Altogether 45 mining privileges, including 4 claim licenses and 16 water-race licenses, were struck off the register under section 188 of the Mining Act.

PETROLEUM OIL

Prospecting and drilling operations in connection with the search for oil declined during 1943, and only one company is now actively engaged. Two wells were drilled in the Taranaki District during the year, but in each case the results were negative. 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. All of the foregoing wells were dry. A further well is at present being drilled at Notown, near Greymouth, and has already reached a depth of more than 6,000 ft.

It must be admitted that the results of the intensive programme to explore our oil resources carried out by the three operating companies have been disappointing despite the adoption of the latest scientific technique. The fact must now be faced that oil-pools of the structural-trap nature, for the location of which search has so far been directed, appear difficult to find. However, during recent years search in the older oil-producing countries has been directed towards oil-pools of the stratigraphic-trap nature as an outcome of the completion of investigations of favourable structures. The possibility of the existence of oil-pools determined by stratigraphic traps in New Zealand cannot as yet be discounted, and, while the search for such is far from simple, I have no doubt that this approach to oil exploration will in time receive the attention it warrants. Much work still remains to be done in the exploration of the possible oil resources of New Zealand.

From the wells at Moturoa on Petroleum Prospecting License No. 7 held by New Zealand Petroleum Co., Ltd., 73,487 gallons of crude petroleum oil were obtained during 1943. The Dominion's total production of crude petroleum oil to 31st December, 1943, is estimated at 3,337,577 gallons.

COAL-MINING

There were 134 coal-mines operating in the Dominion in 1943. Fifty-four of these mines are situated on freehold property and produced 1,132,735 tons, or 41 per cent. of the total output. The remaining 80 mines are situated on Crown lands and produced 1,655,133 tons or 59 per cent. of the total output of 2,787,868 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		

During 1943 the quantity of coal imported was 37,454 tons, or 53,411 tons less than in the previous year, while exports (42,522 tons) were 12,178 tons less than in 1942.

The output of 2,787,868 tons was a record for the Dominion and is an increase of 107,827 tons, or 4.023 per cent., on the 1942 production.

Compared with 1939, when war broke out, the production for 1943 shows an increase of 445,229 tons.

The output per miner employed underground during the year was 697 tons, a reduction of 35 tons as compared with 1942. The production per man on the pay-roll—*i.e.*, both underground and surface workers—was 519, a decrease of 17 tons on the previous year.

An increase in consumption of coal during the war period was inevitable, and the Government's production plans to meet the growing demand were successful up to last year. Whereas most parts of the Empire have been unable to maintain coal outputs during the war, in this Dominion production has actually increased by 19 per cent. since 1939.

Imports of coal from Newcastle were, however, drastically reduced during the year, only 37,454 tons being imported, as against 90,865 tons in 1942. The loss of imported coal has seriously affected, either directly or indirectly, the coal-supply position of New Zealand, and to it must be ascribed our present difficulties. To compensate for this loss, recourse has had to be made to our bituminous coals of the West Coast, and although the collieries there were developed and equipped to meet normal demands the strain in making up leeway through loss of imports has been severe. It will be appreciated that development of these coal measures for increased production must necessarily be a lengthy procedure owing to the nature of the deposits, and it is impossible to increase output at short notice. The position is further complicated by the necessity for conserving bituminous coal owing to the comparatively limited reserves of this type of coal. When it is further considered that all men recruited to the mines during war years have in great part been inexperienced, the very real difficulties with which the industry is confronted can be realized.

The supply position of bituminous coal has been further complicated by shipping difficulties owing to the West Coast harbours being bar-bound for long periods. Had our normal imports of approximately 100,000 tons of high-grade coal still been available from Australia, there would have been no necessity for restrictions of the railway services, nor would there have been any deficiencies in gas-supply. These imports are fundamental to our whole coal-supply position.

In order to increase coal-production as quickly as possible, New Zealand, along with other countries, has devoted attention to the mining of coal by stripping such portions of the seams that are covered by shallow overburden. Such opencast methods depend upon the use of mechanical strippers and excavators, and their adoption in New Zealand had to be postponed until such time as this equipment could either be released from construction of defence works or obtained from abroad.

Geological surveys, accompanied in some cases by shallow mining, have, of course, been necessary to locate and define possible stripping areas, but real progress is now being made in the winning of coal by these methods, and it is expected that before the end of 1944 a production of some 2,000 tons of coal per day will be obtained from this system of mining from areas both in the North and South Islands.

The following is a table showing the output of coal from the various coalfields, and the comparative increase and decrease, for the years 1943 and 1942, 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, 1943.
	1943.	1942.			
	Tons.	Tons.	Tons.	Tons.	Tons.
North Auckland	81,828	75,123	6,705	..	6,289,264
Waikato (including Taranaki)	939,975	855,511	84,464	..	21,091,872
Nelson	8,635	12,266	..	3,631	735,572
Buller	478,439	518,484	..	40,045	27,957,813
Reefton	99,173	88,197	10,976	..	1,442,914
Grey	578,955	572,382	6,573	..	20,495,983
Canterbury	32,329	31,667	662	..	1,263,600
Otago	194,812	180,046	14,766	..	14,721,101
Southland	373,722	346,365	27,357	..	9,445,465
Totals	2,787,868*	2,680,041	151,503	43,676	103,443,584

* Increase, 107,827 tons.

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

Class of Coal.	Output of Coal during 1943.				Total Output to the End of 1943.
	Northern District (North Island).	West Coast District (South Island).	Southern District (South Island).	Total.	
Bituminous and sub-bituminous	Tons. 81,828	Tons. 1,057,094	Tons. ..	Tons. 1,138,922	Tons. 57,466,814
Brown	939,975	107,478	456,788	1,504,241	39,873,530
Lignite .. .. .	..	630	144,075	144,705	6,103,240
Totals for 1943 ..	1,021,803	1,165,202	600,863	2,787,868	103,443,584
Totals for 1942 ..	930,634	1,191,329	558,078	2,680,041	100,655,716

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 1939 ..	90,477,430	..	13,808,901	..	..
1939	2,342,639	Inc. 120,551	111,537	2,331	..
1940	2,516,099	Inc. 173,460	64,860	..	46,677
1941	2,639,507	Inc. 123,408	78,171	13,311	..
1942	2,680,041	Inc. 40,534	90,865	12,694	..
1943	2,787,868	Inc. 107,827	37,454	..	53,411

TABLE SHOWING QUANTITY OF COAL EXPORTED ANNUALLY FROM NEW ZEALAND FROM 1939 TO 1943

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

* Includes 42,462 tons bunkers, value £90,421 and 60 tons cargo, value £195.

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, 1944 was £436, as against £571 for the previous year, while for the same periods the receipts from the ½d. per ton contributions were £6,325 and £5,346 respectively.

The total expenditure for the year ended 31st March, 1944, amounted to £9,780, as against £9,284 for the previous year.

The amount standing to the credit of the fund at the 31st March, 1944, was £11,391, as against £14,410 at the 31st March, 1943.

COAL SURVEY COMMITTEE

This Committee, which comprises representatives of the Mines Department, the Geological Survey, and the Dominion Laboratory, supervises field and laboratory investigations connected with the complete survey of the Dominion's coal resources.

During the year, work has been conducted by the field staff in the Greymouth, Ohai, Westport, Mangapehi, and Waikato fields. The results of both field and laboratory work have been incorporated in coal-survey reports issued by the Committee.

STATE COAL-MINES

The gross output from the State coal-mines for the year ended 31st March, 1944, was 524,665 tons, which is equivalent to 18.8 per cent. of the total Dominion production. Production commenced in the Glen Afton opencast, and 6,175 tons were produced up to the 31st March last.

There was a substantial decrease in production from the Liverpool Colliery, in which mining conditions have become somewhat difficult and troublesome. In order to reduce haulage distance and costs, a stone drive was driven to connect the main haulage road with the Morgan dip workings, and

the job is nearly completed. Difficulties with the workmen over dust in the Morgan East dip workings were met during the year, with a resultant slowing up of development in this section. A full investigation was made by the Coal-mines Council and this, coupled with medical examination of some of the workers, enabled the Council to fix suitable conditions under which work could proceed with proper regard for the health of the employees.

In the Strongman Colliery, production showed an increase compared with the previous year. Coal-winning operations in this colliery were mainly confined to the development of solid places, although two pairs of miners were engaged in extracting head coal in the No. 1 North section.

The Blackball Colliery worked steadily throughout the year, in which output increased substantially over 1942-43. All the coal was won in the course of development work, and, although the quality of the product was quite satisfactory, the coal was of a soft, friable nature and gave only a low percentage of lump coal after passing over the screening plant. Heavy costs for timbering and pumping out the large volume of water in the mine were again incurred.

There was some improvement in output from the Wallsend Colliery, where production was secured almost wholly from development of solid places. In the Dobson Mine dip development was continued in difficult country and at very high costs. Pending boring, this development was suspended, but has again been resumed now that the boring revealed a seam of coal 10 ft. thick 15 chains ahead of the workings. Further boring is being undertaken as rapidly as possible to prove the extent of the coalfield ahead of the mine, as this data is essential to enable a proper working policy to be determined.

At the Mangapehi Colliery, in the North Island, an increased output was secured, and satisfactory results were obtained from development and prospecting work. At the Tatu Colliery, near Ohura, the main work was development and pushing ahead with the installation of a new power unit which is necessary before either development or coal-winning can be effectively undertaken. In this colliery a special study of a method of working to minimize the problems associated with a bad roof and heaving floor is being made. Unexpected faults or "wants" have upset the original developmental plans and have prevented improvement in output up to the present, and the future of this colliery is very uncertain.

The James Colliery closed down on the 23rd July, 1943, all of the extractable coal having been won from the mine.

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 1943-44.		Output 1942-43.		Percentage Increase in Gross Output.	Percentage Increase in Net Output.
	Gross.	Net.	Gross.	Net.		
	Tons.	Tons.	Tons.	Tons.		
Liverpool	135,260	131,010	165,837	160,260	*18·44	*18·25
Strongman	105,701	104,270	94,170	92,180	12·24	13·11
James†	12,003	11,813	29,529	28,770	*59·35	*59·93
Blackball	45,029	44,315	34,527	34,294	30·41	29·22
Mangapehi	70,929	69,442	‡52,062	50,915	36·23	36·38
Tatu	28,949	22,852	29,620	24,440	*2·27	*6·50
Wallsend	58,742	55,284	‡6,883	6,441	..	..
Dobson	61,876	60,656	‡7,081	6,913	..	..
Glen Afton Opencast, No. 1 ..	6,176	6,175	..	..	..	..
Totals	524,665	505,817	419,709	404,213	25·00	25·14

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

* Decrease. † Colliery ceased operations on 23rd July, 1943. Output includes 6,883 tons slack lifted from dump. ‡ Output for six weeks only.

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

Supplied to	1943-44.	1942-43.	Percentage Increase.
	Tons.	Tons.	
Depots	136,121	132,990	2·35
Railways	132,431	96,328	37·47
Other Government Departments	22,028	23,758	*7·28
Shipping	15,118	10,289	46·93
Gasworks	169,396	107,667	57·33
Other consumers	31,351	26,235	19·5
Totals	506,445	397,267	27·48

* Decrease.

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

Mine.	Total Sales, 1943-44.	Total Sales, 1942-43.	Percentage Increase.	Average Price f.o.r. realized.	
	Tons.	Tons.		s.	d.
Liverpool	131,015	159,900	*18·06	18	6·38
Strongman	102,798	92,240	11·44	23	3·64
James†	12,519	27,927	*55·17	9	1·22
Blackball	44,559	30,542	45·9	16	10·82
Mangapehi	69,391	50,862	36·42	20	8·91
Tatu	22,893	24,321	*5·87	21	0·07
Wallsend	56,375	‡5,910	..	20	9·30
Dobson	60,720	‡5,565	..	21	3·09
Glen Afton Opencast, No. 1 ..	6,175	..	..	24	7·92
Totals	\$506,445	397,267	27·48	..	..

* Decrease. † Colliery ceased operations on 23rd July, 1943. Sales include 6,883 tons slack lifted from dump. ‡ Output for six weeks only. § Increase, 109,178.

The sales of coal, &c., through the medium of the depots totalled 370,740 tons, value £648,651, as against 290,036 tons, value £499,010 for the previous year.

HOUSING

Owing to lack of man-power and essential materials, the provision of housing accommodation in mining townships is not proceeding as rapidly as might be desired, and consequently the employment in the mines of quite a number of suitable men has been prevented.

To improve the position temporarily in the Waikato District the Government has obtained a number of huts, which have been transported to and erected at the Renown and Wilton Mines and cooking and other facilities provided. These huts have been made available to the coal-mining companies concerned on favourable terms, and are being occupied by single men directed to the coal-mining industry.

CO-OPERATIVE MINING, STATE COAL RESERVE

Eighteen co-operative parties working portions of the State Coal Reserve near Greymouth produced during the year 1943 97,995 tons, the number of men employed being 149. During the previous year the same number of parties produced 87,591 tons.

Up to the end of 1943 co-operative parties have produced a grand total of 1,811,189 tons of coal and have in the same period paid royalties to the State amounting to £87,559.

RESCUE-STATIONS

As predicted in my previous Statement, the three rescue-stations at Dobson, Rotowaro, and Ohai were in full operation during 1943, and the training of crews in mine-rescue work is proceeding satisfactorily.

Since the inception of the scheme, 168 certificates of proficiency in mine-rescue work have been issued, after examination, to trainees at these three stations.

It has been decided to establish a rescue-station in the Buller District, and steps to that end have been taken. The establishment of such a station in this district is considered a vital precaution in view of the active mine fires in the vicinity of Denniston, Stockton, and Millerton Collieries.

SOCIAL AMENITIES

During the year assistance continued to be rendered to organizations in mining communities which had for their object the provision of recreational facilities, both sporting and otherwise, for miners and their families. It is pleasing to record that full use is made of these facilities, which were brought into being by the efforts and with the assistance of the miners themselves, the coal-mine owners, and the Government.

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 1943 :—

Raw coal carbonized	35,964 tons.
Carbonized coal produced	17,622 tons.
Average percentage of carbonized coal to raw coal	49 per cent.
Carbonettes manufactured	10,890 tons.
Tar and oil treated	343,001 gals.
Pitch produced	732 tons.
Light and heavy oils produced	1,715 gals.
Creosote produced	169,192 gals.
“ Char ” sold for producer-gas plants	8,751 tons.
“ Char ” sold for other purposes	189 tons

For the twelve months ended 31st December, 1943, Smokeless Fuel and Briquettes (Canterbury), Ltd., produced 1,300 tons of briquettes at its works at Sockburn. The production of tar was 27,000 gallons.

Testing-work to determine the possibility of making briquettes from Blackball slack, and also from a blend of Strongman and Blackball slack coals, was carried out at the works of the Waikato Carbonization, Ltd., of Huntly, under the supervision of the works-manager, Mr. A. B. Jones. These tests were highly satisfactory, and indicate that the briquettes make a good domestic coal, while the blend of briquetted coal has proved satisfactory for use on locomotives.

These briquettes have been made according to standard practice with a pitch binder, but it is of interest to note that binderless briquettes are now being made in America, with resultant economies in cost of production. Arrangements have already been made to have samples of New Zealand coals tested in America to see whether they will respond to this method of binderless briquetting. While the disposal of slack coal presents no difficulties at present owing to heavy demands caused by the war for coal of all types and sizes, it is essential that preparation be made to ensure that all coal produced in the after-war years is utilized to advantage. Accordingly, it is expected that briquetting of slack coal will become of increasing importance in the conservation of our coal resources. In particular the blending and briquetting of coals would enable much of our lower-grade coals to be utilized, with a corresponding saving in our limited resources of high-grade coals. A specification of the type of plant required by the State Coal-mines has been drawn up and leading manufacturers in England and America have been invited to submit quotations.

SUBSIDY ON COAL-PRODUCTION

For the financial year ended 31st March, 1944, the amount paid by way of subsidy on coal production and distribution was £510,642, made up as follows: tonnage subsidy (including provision for increases in mine stores), £428,645; subsidy in respect of coastal shipping freights, £12,590; and subsidy in respect of the additional cost of work on back Saturdays, and bonus payments to workmen not on contract, £69,407. At 31st March, 1944, the total sum paid out for coal subsidies since the subsidy was first introduced in May, 1940, amounted to £1,224,030.

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 1943 and 1942:—

Classification.	Inspection District.			Totals.		Increase or Decrease.
	Northern (North Island).	West Coast (of South Island).	Southern (Rest of South Island).	1943.	1942.	
Gold, silver, and tungsten ore	547	629	295	1,471	1,561	Dec. 90
Coal	1,970	2,432	972	5,374	4,997	Inc. 377
Stone - quarries under the Stone-quarries Act	1,141	103	399	*1,643	1,559	„ 84
Silica	7	..	5	12	6	„ 6
Cinnabar	18	..	..	18	20	Dec. 2
Iron ore	18	2	..	20	15	Inc. 5
Manganese	2	..	..	2	3	Dec. 1
Fuller's earth	1	..	..	1	1	..
Diatomaceous earth .. .. .	..	..	..	..	1	Dec. 1
Bentonite	4	..	..	4	2	Inc. 2
Serpentine	9	..	3	12	16	Dec. 4
Asbestos .. .. .	..	15	..	15	12	Inc. 3
Dolomite .. .. .	..	3	..	3	3	..
Clay† .. .. .	..	6	4	10	5	Inc. 5
Phosphate .. .. .	..	..	23	23	..	„ 23
Oil prospecting	106	110	..	216	262	Dec. 46
Totals	3,823	3,300	1,701	8,824	8,463	Inc. 361

* The total number of men employed at stone-quarries is actually 1,672, 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 1,562 men were ordinarily employed, one person was killed and five persons seriously injured.

At stone-quarries under the Stone-quarries Act, employing 1,672 men, four persons were killed and three persons seriously injured.

In coal-mines where 5,374 persons were ordinarily employed eight persons were killed and thirty persons seriously injured.

MINERALS OTHER THAN GOLD

There has been continued interest in the development of mineral deposits whose value has been enhanced owing to their importance in the prosecution of the war, while shortage of overseas supplies of others has directed attention to local sources.

The returns from such work have not always been all that could be desired, but some measure of disappointment is inevitable to mining, and without courageous prospecting the worth of mineral deposits can never be established. With it all there has been progress in the development of New Zealand mineral resources, and it is now possible to assess their value to the community with some degree of certainty. The overseas supply of many minerals has now responded to stimulation due to the urgent needs of war to such a degree that, from being in drastically short supply, they are now accumulating in stock piles and war needs are being adequately met, so that marked recession in demand and consequent fall in value seem inevitable.

It is of interest to note the increasing demands upon the mining industry for minerals used as fertilizers or in the preparation of fertilizers, as is indicated in the notes following that cover the production of phosphate, serpentine, magnesite, dolomite, and limestone. It is apparent that production of such minerals must become of increasing importance with succeeding years.

Scheelite.—As anticipated in my Statement for last year, production of scheelite in 1943 showed a marked increase over that in the preceding years, but it is to be regretted that the response to development has been delayed until such time as the drastic shortage of supply of this mineral to the Allied Nations has been adequately met from overseas sources.

In all, the equivalent of 116 tons of 65-per-cent. tungstic acid content concentrates was produced in 1943, as against a production of 70½ tons of similar grade concentrates in 1942. This increase is due in part to the activities of the State scheelite-mines, which contributed approximately 40 tons to this total, and to the completion of the development and equipment of small claims by private interests with a strong measure of financial assistance from the Mines Department. It is of interest in this connection to note that some parties, to whom large sums had been advanced, have already been able to repay the moneys advanced in full from the sale of scheelite concentrates. The supply position of tungsten-ores, as far as the Allied Nations are concerned, has now enormously improved, and demand has correspondingly weakened, so that the future of the market is uncertain. It is gratifying under these circumstances to be able to report that the Imperial authorities have renewed their contract price of £6 sterling per unit for the nine months ending 31st December, 1944, in respect of 50 tons, any production in advance of this figure to be purchased at a price of £5 sterling per unit. So far this year production has been well maintained, as producers are making every effort to market the maximum amount possible while demand still holds and the price is satisfactory.

Mercury.—Operations were continued at Puhipuhi by Mercury Mines, Ltd., and a further 3 tons 3 cwt. of mercury were produced. The company's activities were severely hampered during the year owing to large slips at the quarry-face, which, combined with unpleasant weather conditions, precluded any possibility of production for many months. Operations have now been suspended at the Ascot Mine, where the Mines Department was carrying out some investigations. The tonnage of mercury-ore available proved to be too limited to warrant the erection of a furnace, while the ore did not prove amenable to concentrating to small bulk.

Manganese.—Some 500 tons of manganese-ore were produced during the year from the area held by Mirandite Products, Ltd., for shipment to the United States of America. While the tonnage available is limited, the ore is of excellent grade for metallurgical purposes.

Arsenic.—It is of interest to note the production of arsenic as a by-product from the roasting of concentrates at the Blackwater Mine prior to cyanidation for their gold content. There has been a small production from this source for some time, and during the year 8 tons were recovered and sold locally for manufacture and use in New Zealand.

Asbestos.—An all-weather motor road has now been completed to the asbestos deposits in the Upper Takaka district operated by the Hume Pipe Co. In addition, excellent accommodation has been provided for the staff, and the treatment plant, which has been improved, now awaits provision of power from the Cobb River scheme. After operating under many difficulties, the company now has all the facilities to make a thorough investigation of their deposits. From operations during the present year some 188 tons of asbestos fibre were produced.

Mica.—Some further prospecting work was done on the mica deposits in South Westland, and the few pounds of dressed mica produced had a ready sale to a local radio-manufacturer. However, it was realized that continued investigation was dependent upon improved access which would also allow of the construction of housing adequate to meet the rather severe weather conditions. To this end, a

contract has been let for the construction of a pack-track, and work is now proceeding. Recently production of mica has become a matter of urgency owing to failure of overseas supply and to important war orders for radio equipment still remaining unfulfilled. To meet this situation the radio-manufacturing company took over the claims under tribute agreement. It is of interest that commercial mica has recently been located at much lower elevations with correspondingly more favourable working conditions.

Talc.—A small production of tale (62 tons) is recorded this year from the Upper Takaka district, Nelson, but the deposits proved too small and irregular for continued production. The occurrence of tale is reported from many localities in the South Island, but so far no deposit of suitable grade has been opened up that is capable of sustained production.

Bentonite.—While production for 1943 showed a decrease from 1942, there are indications of an increased demand overseas for this mineral.

Phosphate.—A considerable amount of prospecting-work was carried out upon the Clarendon phosphate deposits during the year, two of the Mines Department's diamond drills being continually engaged thereon. One drill, on behalf of the Department of Agriculture, was engaged in exploring the phosphatic sandstone, and as a result of the drilling programme a quarry has been opened up in the Kapiti Block, a grinding plant installed, and finely ground phosphatic material prepared for use in fertilizers. In 1943, 6,070 tons were produced.

Efforts to prove up other blocks of similar tonnage to justify quarrying operations were not so successful, and the drilling programme has now been abandoned. A considerable amount of testing-work was carried out at the Thames School of Mines upon this material, and it was found that the phosphatic contents could be doubled by concentration by flotation, but unfortunately the tonnage as yet available is not sufficient to warrant erection of a treatment plant or to pursue the matter further.

The other drill has been working on behalf of the British Phosphate Commission in exploring the medium-grade horizon that was extensively worked in the past. As a result of this work, stripping operations have been undertaken, and phosphate rock suitable for use in the manufacture of superphosphate has been obtained. Unfortunately, reserves of this material are limited, and as much of it required extensive stripping operations, prospecting-work in this area has now also been abandoned. Of this material, 3,171 tons was obtained, and, in all, some 9,241 tons of phosphate-bearing rock was produced from Clarendon during the current year.

Serpentine.—The function of this mineral in eking out our diminished supplies of phosphate is of increasing importance, and during the year some 59,445 tons were mined from deposits in North Auckland and 2,200 tons from a deposit at Mossburn. Prospecting-work in North Auckland was continued and a sufficient tonnage of mineral proved to assure a continued supply for the current year.

Magnesite.—Some 171 tons of magnesite were procured from the deposits in the Upper Takaka district and finely ground for use as a fertilizer in the tobacco industry. Dolomite had been previously used for this purpose.

Dolomite.—Some 3,571 tons of this material were procured from the deposits at Mount Burnett and shipped to Huntly, where it is used in the preparation of basic-slag fertilizer.

Limestone.—A record production of 752,603 tons of limestone for agricultural purposes is recorded for 1943.

STATE SCHEELITE-MINES

In February, 1942, in response to an urgent appeal from the Imperial authorities to increase the production of scheelite, it was decided that the Mines Department should undertake development work in the Glenorchy field.

An arrangement was accordingly made whereby the Mines Department took over the Mount Judah and Paradise Mines, of the Glenorchy Scheelite Co., Ltd., and these have been actively operated for the past two years.

For a commencement, considerable difficulties had to be overcome, owing to the relative isolation of the district, in recruiting labour, providing housing accommodation, and equipping the mines.

However, considerable progress has now been made and an extensive development programme carried out, some 2,000 ft. of development work, comprising driving, crosscutting, rising, and winzing, having been completed at each mine, while, in addition, old workings were repaired to allow of a systematic investigation of the mines.

Incidental to the development programme some scheelite was produced, while early opportunity was taken to stope ore revealed by development. From these operations 9 tons 3 cwt. of scheelite concentrates were produced from the Glenorchy Mine and 6 tons 11 cwt. from the Paradise Mine in 1942, while 25 tons 8 cwt. and 11 tons 16 cwt. were produced from the Glenorchy and Paradise Mines respectively in 1943.

Development work has, on the whole, been disappointing, and with considerable improvement in the tungsten supply position further development work has been suspended on the advice of the Imperial authorities. Opportunity, however, is now being taken to extract any ore that can be economically produced at the present price level, and up till the end of August of this year 32 tons of concentrates have been produced, approximately half coming from each mine.

LABORATORY INVESTIGATIONS

Laboratory work connected with the mining industry has been undertaken by the Dominion Laboratory along similar lines to that reported in previous years.

In addition to the numerous routine analyses and assays of prospectors samples, special investigations carried out during the year included the following:—

- (a) Detailed examination of clays from the Charleston, Waimangaroa, Whangarei, and Kaka districts:
- (b) Processing of Porangahau bentonite:
- (c) Investigation of the efficiency of locally prepared soda-lime for use in mine-rescue apparatus:
- (d) Examination of a very large number of scheelite concentrates for export for content of tungsten, sulphur, tin, and arsenic, and in some cases for gold and silver:
- (e) Examination of stone dusts, mine airs and gases, and mine dusts for health hazard:
- (f) Analyses of coal and other fuel samples and a large amount of investigational work in connection with fuel problems carried out by the Coal Survey Division of the Laboratory, in addition to systematic work on the physical and chemical survey of the coal resources of the Dominion:
- (g) Other samples examined included manganese-ores, ganister, serpentines for addition to superphosphate, glass-sand, mica, feldspar, yellow ochre, polishing-earths, magnesite limestones, as well as numerous rock and mineral samples analysed for the Geological Survey.

GEOLOGICAL SURVEY

During the year ended on the 31st March, 1944, officers of the Geological Survey were chiefly engaged in examining, sampling, and prospecting deposits of mineral substances of possible value to industry. Mapping was carried out only to further this work, which was undertaken at the request of State Departments, industrial firms, and private persons.

Several officers devoted their whole time to the detailed examination of the Greymouth and Nightcaps-Ohai coalfields. The preparation of the report of the former is now in hand. The detailed mapping of the Westport field has begun. Other officers visited the Kawakawa, Huntly, Mangapahi, Tatu, and Waitewhena areas of the North Island, and Reefton and Elliotvale of the South.

The search for oil in Taranaki and North Westland involved the identification of many macro- and micro-fossil faunas by the Departments palaeontologists as well as the determination by the petrologist of the mineral content of heavy residues from many rock samples from both districts.

Reports were prepared on gold and scheelite mines and on two manganese prospects. Geologists also explored the area about Henry Pass where many years ago a little mica was mined.

A geologist made a number of visits to the deposit of phosphate rock at Clarendon and advised on the extensive drilling operations. He also sampled and estimated the more readily accessible masses of limestone in Southland. In North Auckland two geologists, occupied for months in prospecting serpentine bodies in the Wellsford and Kaukapakapa districts with magnetometer, post-hole digger, and power drill, proved 100,000 tons of reasonably accessible rock. The serpentine-quarry at Blackridge, Southland, was visited several times.

The petrologist examined ganisters for the Railway Workshops and advised on the occurrence of dunite in Nelson and on how the highly refractory forsterite bricks could be prepared from this rock. A report on the fireclays and ganisters of New Zealand was also issued.

Officers sampled and estimated deposits of pottery clay in the Bay of Island, Whangarei, Waimangaroa, Charleston, Mount Somers, and Kakahu districts. In the first two districts extensive post-hole prospecting was undertaken. Sampling and boring was also carried out on beds of Fuller's earth in the Gore-Mataura district. A small deposit of diatomite near Auckland was mapped and bored.

Supplies of underground water are being increasingly sought, especially in the Auckland District, and the geologist at Whangarei has selected many bore-sites with good success. The military authorities, State Departments, municipalities, industrial concerns, farmers, drillers, and others have asked his advice. Most of the drilling was in Auckland Peninsula and about Auckland City, though he was asked to select sites as far afield as Raglan, Morrinsville, Tairua, and Rotorua.

Officers visited Rotorua to report on how the extensive drilling for hot water is likely to affect the supply for public baths. It is, however, impossible to give a definite answer until data of flow, temperature, and content of spring and bore waters have been collected over a number of years. Electrical and magnetic measurements were made over and near parts of the more active areas.

SCHOOLS OF MINES

The expenditure on the Schools of Mines for the year ended 31st March, 1944, was £3,381, as compared with £3,695 for the previous year. At the annual examination held in November, 1943, two scholarship candidates presented themselves for examination. Scholarships were awarded to these candidates, who were both from the Otago School of Mines.

The dearth of candidates is due mainly to war conditions, and has not been offset by the fact that the value of the scholarships offered annually by the Department for competition among students attending Schools of Mines within the Dominion has been increased to £65 per annum in the case of students who have to reside away from home while attending the University of Otago, and to £45 in the case of students who are able to reside at home while attending the University. It is now becoming increasingly apparent that the greatest field of mining education in New Zealand lies in the coal-mining division.

Increased attention to conservation of coal and the persistent trend towards mechanization must create a demand for recruits to the coal-mining industry who have a foundation of sound technical training. Accordingly, I consider that the opportunities which exist in the coal-mining industry warrant greater attention being paid in the mining schools to the problems of coal-mining than in the past.

So far it has not been possible to attract many graduates from the Otago School of Mines into the coal-mining industry. The problem of recruiting technically trained men in mining engineering for coal-mining is not, of course, peculiar to New Zealand. Of late it has been discussed and explored in many other countries, but difficulties still persist. However, it is hoped that in time some of these difficulties may be solved and that the contribution of the Department towards the cause of mining education may be of greater value to the coal-mining industry.

MINERS' BENEFITS

The provision for payment of a miner's benefit is contained in the Social Security Act, which has been operative since the 1st April, 1939. One of the necessary conditions precedent to payment of the benefit is that the applicant should be seriously and permanently incapacitated by miners' phthisis or totally incapacitated by heart or other occupational disease associated with 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, 1944 :—

MINERS' BENEFITS		£
Payments from 1st November, 1915, to 31st March, 1943	.. .. .	1,423,648
Payments, 1943-44	.. .. .	76,652
		<u>£1,500,300</u>
Number of new grants for year 1943-44—		
Males	.. .. .	27
Females	.. .. .	6
		— 33
Number of benefits in force, 31st March, 1944 (including two emergency)—		
Males	.. .. .	691
Females	.. .. .	106
		— 797
Annual value of benefits in force at 31st March, 1944	.. .. .	£75,087
Average benefit per annum	.. .. .	£94 6s.
Number of children in respect of benefits in force at 31st March, 1944	.. .. .	164
Dissection of benefits in force at 31st March, 1944—		
Single miners	.. .. .	217
Married miners	.. .. .	474
Widows	.. .. .	106
		— 797

ASSISTANCE TO MINING

During the financial year ended 31st March, 1944, assistance has been extended to the mining industry on a basis similar to past years. A sum of £36,743 was advanced to promote and maintain coal-production, £2,244 to scheelite-mining, £2,278 to gold-mining, £636 towards the production of manganese, and £1,142 for the production of mercury. In addition, the Department itself expended £9,506 in prospecting and development work on strategic minerals.

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, 1944.

I have the honour to present my report on metalliferous mines and stone-quarries for the year ended 31st December, 1943.

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

ACCIDENTS

In 1943 one fatal and four serious non-fatal accidents occurred in or about metalliferous mines, at which 1,562 persons were ordinarily employed.

Cause.	Fatal Accidents.		Serious Non-fatal Accidents.	
	Number of Separate Accidents.	Number of Deaths.	Number of Separate Accidents.	Number of Persons Injured.
Falls of ground .. .. .	..	..	1	2
Explosives .. .. .	..	..	..	..
Miscellaneous, on surface	1	1	3	3
Miscellaneous, underground .. .. .	..	..	..	..
Totals	1	1	4	5

The fatality occurred on the Ngahere Gold-dredge, a workman being dragged into a chute by a revolving screen. Of the serious non-fatal accidents, one was in a Glenorchy scheelite-mine, where two miners were injured by an explosion of gelignite during drilling operations.

GOLD-MINING

No new quartz mines were opened up during the year.

All of the fifteen dredges, except the Okarito, which were operating in the West Coast District at the end of 1942 continued throughout 1943. The Okarito Dredge ceased working early in December owing to the low values of the area then being dredged. The Waipuna Dredge recommenced operations in April.

In the Southern District the Lowburn Dredge continued to operate throughout 1943, and the Molyneux Dredge until 5th March, since when it has been tied up. The refitting of the Clutha Dredge was not completed, and the Rainbow and Nevis Crossing dredges did not operate.

PROSECUTIONS

One information was laid against a dredgemaster for failing to make a report as to the safety of the dredge, and a conviction was obtained.

MINERALS OTHER THAN GOLD AND SILVER

Arsenic.—About 8 tons of arsenic, valued at £119, was recovered at the treatment plant of the Blackwater Mine.

Asbestos.—From 1,747 cubic yards of serpentine, 187 tons of asbestos fibre was recovered from the Upper Takaka field.

Bentonite and Fuller's Earth.—At Porangahau 232 tons of bentonite, worth £1,015, was mined. At Kamo 124 tons of Fuller's earth, worth £437, was produced.

Diatomite.—At Kamo 16 tons of diatomaceous earth, worth £21, and at Ngongotaha about 19 tons, worth £89, were produced. In Otago 93 tons of diatomaceous earth, valued at £140, was produced.

Iron.—From near Whangarei 2,779 tons of limonite, valued at £3,394, was mined, and at Okaihau, North Auckland, 1,893 tons, worth £5,442, was won. In the Onakaka district 316 tons of limonite, valued at £190, was quarried.

Magnesite.—At Upper Takaka 171 tons of magnesite, valued at £154, was quarried.

Manganese.—At Moumoukai 10 tons of manganese-ore was mined, and from a mine near Cleveland 500 tons, worth about £2,000, was won.

Mercury.—The large landslide at the Puhipuhi opencast working was not completely cleared away until late in 1943. From then until the end of the year 1,010 tons of material was treated for a recovery of 63 cwt. of mercury worth £7,192.

A little work is still being done at the Ascot Cinnabar mine near Karangahake.

Mica.—A track 2½ miles in length is to be constructed to gain access to the mica deposits on the Matukituki Range in South Westland.

Petroleum.—At Uruti, in North Taranaki, two bores were put down, the No. 1 to 1,173 ft. and the No. 2 to 5,096 ft. Both bottomed in greywacke and were unproductive. The Superior Oil Co's plant completed the Marsden bore, and New Zealand Oil Exploration, Ltd., did 571 ft. of structural drilling. A short bore, also unproductive, was drilled in the Arahura Valley by the Superior Oil Co. From the three producing wells owned by Moturoa Oilfields, Ltd., Nos. 1, 2, and 4, a total of 73,487 gallons of petroleum was obtained, and was treated by New Zealand Oil Refineries, Ltd., New Plymouth.

Platinum.—Together with the gold recovered, a Southland sluicing claim produced 5¼ oz. of platinum during 1943.

Pottery Clay.—Near Kaka, in the Nelson District, 1,300 tons of pottery clay, worth £1,722, was mined. Fifty tons of inferior pottery clay, worth £31, was mined near Tadmor. From Kakahu and Mount Somers 1,173 tons of high-grade clays was produced.

Serpentine.—To augment the supply of fertilizers 59,445 tons of serpentine, valued at £49,537, was obtained from Wayby and Kaukapakapa quarries. From a quarry near Mossburn, Southland, 2,200 tons of serpentine, valued at £1,100, was won.

Talc.—From the Upper Takaka district 62 tons of talc, valued at £202, was quarried.

Silica.—From the Wanganui and North Auckland districts 17,398 tons of silica, valued at £38,813, was produced. In the Southern District 2,349 tons, valued at £2,313, was mined.

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

Tungsten.—From the Glenorchy and Macraes districts, Otago, 110 tons of scheelite concentrates, valued at £52,215, was produced.

STONE-QUARRY INSPECTION AND STATISTICS

By section 2 of the Stone-quarries Amendment Act, 1920, the application of the Stone-quarries Act, 1910, was extended to include every place, not being a mine, in which persons work in quarrying stone and any part of which has a face more than 15 ft. deep. The Act also applies to any tunnel in the construction of which explosives are used, but it does not apply to any Government operations or any road or railway cutting, or excavations for buildings.

The following is a table showing the number of quarries under the Stone-quarries Act, also the number of persons ordinarily employed thereat, and the annual output and value of crude stone during 1943 :—

Provincial District.	Name and Address of Government Inspector of Stone-quarries.	Number of Working Quarries under the Act.	Number of Persons ordinarily employed.	Output of Stone.							
				Stone or Gravel for Macadamizing or Ballast.	Stone for Harbour-works.	Building or Monumental Stone.	Limestone for Agriculture.	Limestone for Cement or Mortar.	Phosphate for Agriculture.	Miscellaneous.	Value at Quarry.
Auckland ..	R. C. Ruffin, Mines Dept., Huntly	153	814	Tons. 521,304	Tons. ..	Tons. 11,725	Tons. 168,848	Tons. 271,246	Tons. ..	Tons. 223,752	£ 251,654
	E. J. Scoble, Mines Dept., Waihi (Hauraki Mining District only)	23	84	72,793	..	293	..	..	..	..	26,281
Hawke's Bay	R. C. Ruffin, Mines Dept., Huntly	21	82	11,140	..	..	42,771	..	..	2,859	27,216
Taranaki ..	Ditto	20	57	16,530	..	..	..	..	..	52	3,735
Wellington ..	.. ..	31	104	55,623	..	..	78,835	..	..	3,166	51,054
Nelson ..	G. W. Lowes, Mines Dept., Greymouth	25	106	7,284	4,702	3,000	21,430	58,510	..	5,027	21,388
Westland ..											
Buller ..											
Marlborough	T. McMillan, Mines Dept., Dunedin	52	425	90,319	47,212	2,694	440,719	81,289	9,241	2,200	198,969
Canterbury											
Otago ..											
Southland ..	..	..	..	..	..	..	..	..	..	..	..
Totals, 1943	..	325	1,672	774,993	51,914	17,712	752,603	411,045	9,241	237,056*	580,297
Totals, 1942	..	334	1,559	1,330,177	50,950	2,924	613,168	381,870	..	63,412	539,904

* Includes 62 tons talc, value £202; 171 tons magnesite, value £154; 3,571 tons dolomite, value £1,098; 2,200 tons serpentine, value £1,100.

QUARRY ACCIDENTS

The following is a summary of serious accidents during 1943 at quarries under the Stone-quarries Act :—

Cause.	Number of Accidents.		Number of Sufferers.	
	Fatal.	Serious.	Killed.	Seriously injured.
Haulage .. .. .	..	..	..	..
Machinery .. .. .	..	..	..	..
Explosives	3	1	4	1
Falls of ground .. .. .	..	1	..	1
Miscellaneous .. .. .	..	1	..	1
Totals	3	3	4	3

One fatal accident occurred in a North Island quarry during 1943, and there were two fatal accidents causing three deaths in South Island quarries. Of the three serious but non-fatal accidents which occurred during 1943, all were in North Island quarries.

STATE AID TO MINING

(1) SUBSIDIZED PROSPECTING

A total sum of £43,043 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 £9,506.

(2) GOVERNMENT PROSPECTING DRILLS

During the year the Department's drills were hired out on six occasions to various companies and parties. 234 holes were drilled for a footage of 14,572 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 £621, as compared with £3,968 during the previous year.

LEGISLATION AFFECTING METALLIFEROUS MINES

There were no amendments to the Mining Act, 1926, during 1943, nor were any of the regulations under that Act amended.

I have, &c.,

GEORGE DUGGAN,
Inspecting Engineer of Mines.

ANNEXURE A

SUMMARY OF REPORTS BY INSPECTORS OF MINES

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

QUARTZ-MINING

Martha Gold-mining Co. (Waihi), Ltd.—A total of 6,982 ft. was driven during the year, drives and crosscuts accounting for 5,597 ft., and the remainder being in winzes and rises. This footage was for the most part connected with the opening-up of arches and pillars and the driving of footwall gangways. Operations were considerably hampered through lack of experienced miners, and for this reason little or no new development work was carried out. The ore crushed came mainly from the Martha, Royal, and Empire lodes, and amounted in all to 148,278 long tons, a decrease of 5,732 tons on the previous year's output. The returns of gold and silver were also below those for 1942. The average number of men employed was 507.

Golden Dawn Gold-mines, Ltd., Ocharoa.—Underground work has ceased and practically all plant and buildings have been dismantled and sold.

New Maoritani Mine, Waitakauri.—Some 25 tons of fairly good grade ore was produced as a result of driving and development work which was undertaken on a new section of the property.

Golden Spur Co., Ltd., Maratoto.—Development work was continued for the greater part of the year, but nothing of outstanding importance was discovered. Underground operations were suspended from October to December. The number of men employed averaged six.

New Maratoto Mine, Maratoto.—Work was discontinued during the early part of the year, chiefly for the reason that labour was practically unobtainable. Two men were employed.

Sylvia Mines Consolidated, Ltd., Thames.—The sinking of the main shaft was continued until a depth of 200 ft. below No. 4 level was reached. Crosscutting south was then undertaken, and carried forward to 39 ft. At this point a leader about 2½ in. wide, giving values of 18.3 oz. of gold and 5.5 oz. of silver per ton, was intersected. The leader strikes 40° east of north and west of south, and dips 56° to the north-west. It is heavily mineralized, and contains zinc blende in addition to the gold and silver. The country rock, adjacent to the leader, is valued at from 2 dwt. to 3 dwt. of gold also, while galena and molybdenite are present. The gold in the leader is largely coarse in character and 780 fine. The leader was struck in July, and in the following month the crosscut became flooded from a strong inflow of water while a sump was being constructed at the bottom of the shaft. The existing pumps (air driven) could barely cope with the extra work thrown upon them, and it has therefore been decided to instal electrically operated units in their stead. The "leader" remains unexploited while this change is being made. The cables will be taken down the Auckland shaft for this purpose and for safety reasons. The shaft (long disused) is now under repair, and extends from No. 1 to No. 3 level. A rise, 110 ft. in height, is being made from the vicinity of the main shaft on No. 4 level up to No. 3 level. The Auckland shaft, when in working order, will provide both a second means of exit and an air return. The number of men employed during the year averaged fourteen.

Una Hill Consolidated Gold-mines, Ltd., Thames.—Development work continued until August, but was of a discouraging nature throughout, so operations were then suspended. The whole of the equipment was afterwards removed from underground and, together with the company's Komata battery, is now for sale. A total of 62½ tons of ore was treated for the period. An average of six men was employed.

Hardy's Mines, Waiorongomai.—A small amount of work was carried out during the first three months of the year, but has since been given up, and is not likely to be resumed until the end of the war.

GOLD PROSPECTING

Eight men were engaged at independent work on their own claims, with satisfactory results in one or two cases.

MISCELLANEOUS

New Zealand Mercury Mines, Ltd., Pukipahi.—The ore treated amounted to 1,010 tons, and this gave a yield of 3 tons 3 cwt. 12 lb. of mercury, worth £7,191 10s. Production was greatly hampered by the landslip which occurred in 1942 and which was not cleared until after the middle of the year. The main ore-body was shortly afterwards encountered, and gave improved returns compared with the stone previously worked. Sixteen men were employed.

Ascot Cinnabar Mine, Karangahake.—Operations were continuous, but nothing of importance was proved. Two men were employed.

Serpentine.—This was all obtained from near Wayby and Kaukapakapa, in the North Auckland district, and amounted to 37,857 tons and 21,588 tons respectively.

Manganese.—The Cloudesley Mine, Monmoukai, was idle for the year, but 10½ tons of dioxide-ore obtained during the previous period were disposed of for a return of £166. Mirandite Products, Ltd., Clevedon, produced sufficient ore to complete a 500 tons order, and this now awaits shipment overseas. It is intended to continue working the area.

Silica Sand.—Production was as follows: Messrs. Gilberd and Sons, 494 tons, valued at £839 16s.; and New Zealand Glass Manufacturers' Co. Pty., Ltd., Penrose, Auckland, 16,904 tons, valued at £37,973 9s. 5d. The former company obtain their sand at Aramoho, Wanganui. The latter obtain theirs from Parengarenga, North Auckland, and use it for the manufacture of bottles, jars, &c. The North Auckland deposit is snow-white in colour and should prove practically inexhaustible.

Pumice.—None was produced.

Fuller's Earth.—Mr. S. C. Crawford, of Kamo, Whangarei, obtained 124½ tons, valued at £436 17s.

Diatomaceous Earth.—About 16 tons were produced by Mr. Crawford, of Kamo, the value being £21. Mr. Brake, Ngongotaha, won 19 tons 3 cwt., which realized £89 3s.

Bentonite.—Mr. H. F. Stoddart, Porangahau, mined 232 tons, valued at £1,015.

Sulphur.—None was produced.

Limonite.—A total of 2,779 tons, worth £3,393, was mined from Mr. W. Whitelaw's deposit, Three-mile Bush, Kamo. These figures include 234 tons, valued at £909, which was won and marketed by Reyburn's Lime Co., Whangarei. Okaihau Quarries, Ltd., produced 1,893 tons, for a return of £5,442 7s. 6d.

Petroleum.—The New Zealand Petroleum Co. put down two bores, Nos. 1 and 2, Uruiti, in North Taranaki, with nil results. The holes bottomed at 1,173 ft. and 5,096 ft. respectively in greywacke. Moturoa Oilfields, Ltd., obtained the following from its three producing wells: No. 1, 3,525 gallons; No. 2, 55,156 gallons; and No. 4, 14,806 gallons; or a total of 73,487 gallons. The oil was treated and disposed of by New Zealand Oil Refineries, Ltd.

ACCIDENTS

Nil.

PROSECUTIONS

Nil.

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

QUARTZ-MINING

Marlborough County

Golden Bar Mines (Mines Department), Wakamarina.—After driving 600 ft. on the main level, 327 ft. in intermediate level, and 60 ft. rising between main and intermediate levels on the lode (varying in width from 30 in. to 55 in.), approximately 4,500 tons were exposed on three sides, with an additional 1,500 tons broken during development and deposited on the dump. Gold and scheelite values proved to be too low to permit of mining and treatment without loss to the State, and operations ceased in April. All plant was removed from the workings.

Buller, Grey, Westland, and Murchison Counties

There was no activity in gold mining or prospecting during 1943.

Inangahua County

Blackwater Mine, Waitata.—Owing to shortage of labour the development programme had to be curtailed considerably and only the bare essentials could be proceeded with. The total amount of development footage advanced during the year was 1,707 ft., of which 836 ft. was driving on the Nos. 14 and 15 levels, exposing 614 ft. of reef averaging 15.51 dwt. over a width of 33 in. Thus, of the total advance made in the drives, 73.4 per cent. was on reef.

The results obtained from the main development points were as follows—No. 14 Level Drive South: This drive was advanced 25 ft. on reef averaging 7 dwt. over a width of 14 in., and suspended. No. 14 Level Drive South, Backshunt North at 1,295 N.: This backshunt was put in to follow the reef where it had been faulted. The total advance was 123 ft., of which 118 ft. exposed reef averaging 15.10 dwt. over a width of 29 in., after which the reef was cut off. No. 15 Level Drive North: This drive was advanced 222 ft., of which 199 ft. exposed reef averaging 16.29 dwt. over 44 in. No. 15 Level Drive South: This drive was advanced 423 ft., of which 272 ft. were on reef averaging 15.19 dwt. over a width of 30 in. Driving on No. 15 level showed an improvement as compared with the previous year as follows:—

No. 15 Level Drive North—1942: 510 ft.; 14.21 dwt.; 19 in., 1943: 199 ft.; 16.29 dwt.; 44 in.

No. 15 Level Drive South—1942: 237 ft.; 14.89 dwt.; 24 in., 1943: 272 ft.; 15.19 dwt.; 30 in.

Although the above shows a very satisfactory state of affairs in the bottom level, it was disappointing to encounter unexpected faulting in the drive south, which necessitated driving and crosscutting in country rock for 267 ft. This unproductive work was due to the fact that instead of the reef being cut off by a single main fault, as on the No. 14 level, on No. 15 level it was displaced at three points.

Alexander Mine, Alexander River.—At the commencement of the year ore reserves had dwindled to a small tonnage, and subsequent prospecting from No. 6 main level and the intermediate levels under No. 5 led to no increase in the amount of quartz available for treatment. Efficient labour being difficult to obtain, it was decided by the directors to shut down in November as all the payable ore had been extracted above No. 6 level and conditions were unfavourable for the continuation of prospecting below No. 6 by either sinking or diamond-drilling.

DREDGE MINING

Inangahua County

Slab Hut Dredge, Manheraiti.—Excepting stoppages for repairs, this dredge operated continuously during the year and handled 658,000 cubic yards of ground. Depths varied from 15 ft. to 20 ft. of fairly free river gravels, and returns up to date have justified the dredging of this area.

Snowy River Dredge, Ikamatua.—This dredge continued digging in fairly favourable ground, and according to published returns handled 1,289,900 cubic yards. The ground worked was comparatively shallow, consequently considerable acreage was worked. Return cuts, down the centre of the valley, were commenced in deeper ground than for the most part will exceed a depth of 20 ft., as against 12 ft. to 14 ft. in the former upstream cut.

Grey River Dredge, Ikamatua.—This dredge operated 80.3 per cent. of the total digging-time, worked an area of 94.8 acres of an average depth of 23.1 ft. and handled 3,528,114 cubic yards, which is an average of 589 cubic yards per hour of an average value of 7.8d. per cubic yard. A large proportion of the year's digging was done in shallow gravels and involved the digging of a high percentage of bottom material in order to maintain flotation. This was reflected in the reduced rate of digging, from 702 to 589 cubic yards per hour. During September, a major flood was experienced which filled in the dredge pond with river-bed shingle, burying the mooring-lines and power cable.

Grey County

Waipuna Dredge, Waipuna (Ahaura Survey District).—The reconstruction of this dredge was completed in March and digging operations commenced early in April, and at the close of the year had handled 255,009 cubic yards. This is one of the smaller type of dredges using 4-cubic-foot buckets running at sixteen to the minute and discharging into a revolving screen 26 ft. by 4 ft. 9 in. The ground varied in depth, the maximum being 18 ft. and the minimum 10 ft., and water-level is maintained almost to the level of the ground.

Redjacks Dredge (Associated Gold Dredges, Ltd.), Redjacks Creek, Ngahere.—Out of a total possible working-time, this dredge operated 77.71 per cent. and dredged 29.5 acres for a yardage of 1,177,154 cubic yards. This was from depths varying from 25 ft. at the beginning of the year to depths exceeding the length of the digging-ladder by the end of the year.

Ataran Dredge (Associated Gold Dredges, Ltd.), Moonlight Creek, Ataran.—The year's continuous working resulted in 47.5 acres being dredged and 80.5 per cent. of the total time being worked. From depths varying from 12 ft. to 16 ft. a yardage of 1,293,950 cubic yards was handled for much improved returns when compared with those of the previous year.

Marsden Dredge (Associated Gold Dredges, Ltd.), New River, Marsden.—Ground treated during the year amounted to 1,424,929 cubic yards dug from 32 acres. The ground averaged approximately 21 ft. in depth, and 81.85 per cent. of possible time was worked.

Ngahere Dredge, Ngahere.—An area of 26.15 acres, of an average depth of 60.6 ft., was dredged during the period, and 2,555,479 cubic yards were dug and treated for a total cost of 4.30d. per cubic yard. This represented 78.19 per cent. of total digging-time. An average face of 21.8 ft. above water-level was worked, and the maximum depth below water-level of 75 ft. was reached on part of the area, and bottom could only be reached by lowering the water-level with a high-capacity pump mounted on a barge.

Blackball Creek Dredge, Blackball.—Except for the periods devoted to repairs and maintenance, this dredge operated continuously during the year in ground 33 ft. to 40 ft. in depth for satisfactory returns.

Barrytown Dredge, Barrytown.—This dredge dug 52.48 acres, including 1.22 acres of tailings, and treated therefrom 2,551,000 cubic yards, including 57,323 cubic yards of tailings. The average depth of ground dug was 30 ft., and the percentage of possible running-time amounted to 77.95 per cent.

Westland County

Maori Gold-dredge, Callaghans.—Under continued difficulties this dredge dug 449,200 cubic yards. The total dredging-time for the year was much less than the possible time on account of numerous breakages due to tight cemented wash.

Rimu Dredge, Rimu.—During the year this dredge operated on 5,908 hours, equal to 80.7 per cent. of possible working-hours, and dug 33.13 acres of an average depth of 34 ft. The total amount of wash handled was 1,816,120 cubic yards dug at the rate of 307 cubic yards per digging-hour.

Kanieri Dredge (Gold-mines of New Zealand, Ltd.), Kanieri.—An area of 36.59 acres was dredged in 5,726 hours, which working period was 78.23 per cent. of the possible time available. The ground averaged 36.5 ft. in depth and the yardage treated was 2,147,000 cubic yards. Dredging-conditions on the license improved considerably during the year.

Arahura Dredge (Gold-mines of New Zealand, Ltd.), Arapura.—Digging to a depth of 72.5 ft., this dredge worked 24.45 acres in 6,169 hours, equivalent to 84.29 per cent of possible working-time. The quantity of ground dredged and treated amounted to 2,862,000 cubic yards.

Okarito Dredge, Five-mile Beach, Okarito.—This dredge operated for 3,808 hours during the year and dug 142,352 cubic yards. Most of the ground worked was below payable point, and the south end of the claim became very rough and beyond the power of the dredge to handle. Operations were suspended in December, and are not likely to be resumed on account of the low values that have been proved on the lagoon side of the dredged area.

Gillespie's Beach Dredge, Weheku.—This dredge, on account of shortage of labour and difficulty in securing replacements, had a low yardage and subsequent smaller gold returns than for the previous year. It was anticipated that the dredge would in the near future reach the original profitable lead temporarily abandoned some three years ago.

ALLUVIAL MINING

Buller County

Addison's Flat Gold-mining Co., Ltd., Addison's Flat.—During the year this company treated 6 acres containing 100,000 cubic yards, this quantity being about half of that dealt with during the previous year. Shortage of labour and heavier wash dirt were the main factors that led to reduced production. During the latter half of the year the company commenced to shift the plant to a more suitable area, and sluicing will be resumed early in 1944.

Inangahua County

Mount David Sluicing Claim, Blackwater.—Water-race repairs and pipe-line adjustments were not completed until nearly the end of the year and at a time which coincided with an unusually severe drought in this district, which lowered the level of the Big River to a degree that made it impossible to fill the Mount David race.

Grey County

Moonlight Sluicing Claim, Blackball.—This company treated 58,100 cubic yards of wash for a return that was only barely payable. It operated under disadvantages of scarcity of suitable labour and inability to put through an increased yardage due to the very compact and stony wash that has to be worked.

Golden Sands Claim, Barrytown.—Owing to shortage of labour this claim could not be operated continuously on three shifts, but to counteract this disadvantage the area worked during the year under review was of much higher value than usual, consequently the company's operations yielded satisfactory returns for the amount of ground treated.

MISCELLANEOUS MINERALS

Asbestos.—The Hume Pipe Company (Aust.), Ltd., from a mineral license situated in Block 1, Flora Survey District, crushed 1,747 cubic yards of serpentine rock which yielded 186 tons 13 cwt. of asbestos fibre. Considerable improvements were effected in the dressing plant, resulting in the production of higher-grade fibre.

Mica.—A short period at the beginning of the year was spent prospecting the mica deposits at Matukituki Range, South Westland, and sufficient information was gained to warrant the construction of a pack-track to expedite further prospecting. A survey was commenced in June, but owing to the severe climatic conditions it was not completed until near the end of the year. Tenders are invited for the construction of two and a half miles of track, and it is hoped to have the work put in hand early in 1944.

Petroleum.—The New Zealand Oil Concessions, Ltd., using the Superior Oil Co.'s drilling plant, completed No. 2 hole at Marsden and then terminated their operations on the license held in this district. The New Zealand Oil Exploration, Ltd., carried out an additional 571 ft. of structural drilling, making a total of 1,364 ft. drilled by rotary and keystone rigs for the purpose of gaining geological data. On the company's behalf the Superior Oil Co. drilled a hole, "Kawhaka No. 1," in the Arapura Valley. The boring of this hole was quickly completed, and the results obtained led to its abandonment.

Pottery Clay.—Messrs. K. A. Polglaze and party produced 1,300 tons of pottery clay from underground workings at Kaka, which realized £1,722 10s. Due to lack of prospecting either by driving from the workings or by surface boring, the amount of this valuable clay that can be commanded from existing excavations is strictly limited.

From a clay-pit situated on the Tadmor Saddle, 50 tons of inferior pottery clay were produced, its value being only 12s. 6d. per ton, against that of £1 6s. 6d. per ton paid for material won by Polglaze and party.

Iron-ore.—In the Onakaka district 316 tons were quarried, which realized £190. The fine-ground ore is used chiefly in gasworks.

Talc and Magnesite.—From the Upper Takaka district the Lime and Marble Co. obtained 62 tons of talc, valued at £201 10s. An amount of 171 tons of magnesite, valued at £153 16s. was also obtained. These minerals were ground to the desired fineness at the company's plant at Mapua, Motueka, and subsequently delivered to various users throughout the Dominion.

GENERAL REMARKS: MINING AND PROSPECTING

A repetition of the previous year's difficulties was experienced by the metalliferous mining industry, and the weaker concerns had to cease production.

Contraction of operations, due principally to difficulty in obtaining replacements, led to a diminished gold return, and prospecting has now practically ceased in all parts of this district, excepting a small amount of check boring on producing dredging claims. A total footage of 3,255 ft. was drilled by larger operating companies, the work being carried out between original prospecting holes or lines of borholes as circumstances warranted.

FATAL ACCIDENTS

One fatal accident occurred during the year. On 25th November, H. Taggart stackerman, employed on the Ngahere Dredge, was killed. Deceased, who was in charge of the screen, was effecting repairs to the screen along with three other men. The screen started to revolve in the reverse direction and trapped Taggart, who was crushed between the ribs of the screen and the screen casing, suffering fatal injuries.

SERIOUS NON-FATAL ACCIDENTS

On 19th April J. Gougich, employed as snigger at the Arapura Dredge, received a fractured skull and rib injuries. He was clearing bush ahead of the dredge when the strop holding the bush block carried away, and Gougich was struck down.

On 8th June Herbert R. Cooper, labourer, employed as assistant wash-up man and general hand on the Marsden Dredge, slipped and fell on the deck whilst carrying an oxygen cylinder and fractured his left arm.

On 24th July G. E. Armstrong, labourer, Kanieri Dredge, suffered a fractured right wrist. While priming the high-pressure pump, he was hit by the handle of a small crab winch.

PROSECUTIONS UNDER THE MINING ACT

On 29th June at Reefton a dregemaster was charged with failing to record in writing his opinion as to the condition and safety of the buildings, pontoons, safety appliances, &c., as required by section 32 (3) of the Mining Amendment Act, 1937. He was convicted and fined £1 and costs.

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

QUARTZ AND ALLUVIAL MINING

Waitaki County

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

Waihemo County

Repair work only was done in the Golden Point Gold and Scheelite Mining Co.'s Deep Dell Mine. The Lewis co-operative party cleaned out the tail-races and Donaldson Battery site and obtained good returns: they also tested the deep-lead gravels overlying the schist bedrock on the hillslope below the original reef outcrops. Four men were employed and 350 ton of sands treated.

Callery Party, Deep Dell, Macrae's.—Driving, rising, sinking, stopping, and prospecting operations were carried out on both sides of Round Hill, and 165 tons of ore were treated at the Deep Dell Battery during the year.

The Innes Freehold Mines.—Sinking, driving, rising, and stopping operations were carried out at the hilltop mine, and driving and sinking operations at the open-face outcrops on the southern slope near the main road.

The Macrae's Flat Gold-mining Co.—The No. 2 graver-pumping plant has continued to operate steadily at the upper section of the Macrae's Flat, and the depth of the auriferous gravels elevated by the electrically operated gravel-pump has been from 4 ft. to 20 ft.

Maniototo County

The alluvial mines at Naseby, Kyeburn, St. Bathans, Cambrians, Vinegar Hill, and Patearoa operated steadily whenever water was available. The quartz-mine operated by M. S. Earl at Ophir was closed down and all plant and equipment sold for removal.

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 also operated steadily near the head of Gabriel's Gully. Very little work was done at the Tuapeka Mouth alluvial mine.

Southland County

The Nokomai Gold-mining Co. closed down in February for the duration of the war. Sluicing operations were carried on in the Waikara Goldfields.

Wallace County

The Round Hill Gold-mine operated steadily during the year. Two acres have been elevated to a depth of 75 ft., and another 2 acres have been stripped to a depth of 35 ft. This mine is the chief alluvial producer in the Southern District.

Sluicing operations were carried on steadily at the Old Township diggings, Orepuki.

Lake County

State Scheelite-mines.—In the Glenorchy State Mine the No. 7 or main trucking level has been extended to a distance of 1,187 ft. from the portal. The reef averages about 1 ft. in thickness, but the scheelite content is low. No. 7 rise has been risen a distance of 214 ft. in a south-westerly direction in order to connect with the No. 6 level. The reef varied from 1 ft. to 4 ft. in thickness and then thinned down, to a reef track only, for the final 40 ft. to No. 6. The reef was low grade and in places carries a small amount of gold. No. 4 rise was extended a distance of 108 ft. in order to connect with the old workings, and stopping operations have been carried out in low-grade ore. Stopping has also been carried out off No. 2 rise. No. 1A rise was extended to a distance of 150 ft. in order to connect with the old workings. The south-west side of this rise was stoped out with good results, and the north-east side of the rise is now being stoped. In the No. 4 stope above No. 1A rise the reef has carried ore on both the hanging and footwall sections, and has yielded fair-grade ore. Nos. 1 and 2 stopes below No. 6 level have been worked, and although some small lenses of good ore were located, the ore has generally been low grade. Rising and stoping has been carried out above the No. 6 level, but results generally have been poor. In the No. 5 level a considerable amount of prospecting-work failed to reveal any stoping ore. In the No. 4 level much prospecting-work has been carried out in an endeavour to locate the reef on the east side of the fault, but nothing of value has been located. In the No. 3 level considerable driving and rising work was done but the results were poor and work has been discontinued. Near the end of the year a winze was commenced below No. 7 level in order to test the reef to the dip. During the year 25 tons 8 cwt. of scheelite concentrates were won from this mine, principally from the rises and stopes between Nos. 6 and 7 levels. The ventilation of the mine has been considerably improved. An average of twenty-five men has been employed at the mine, five at the treatment plant and four at headquarters.

Paradise State Mine.—The No. 1 or intermediate level on the east reef has been extended to a distance of 665 ft. from the portal. From 315 ft. where the west reef joins up with the east reef the reef has been very broken and of low value. A distance of 185 ft. was driven in the west reef, which varied from 6 in. to 4 ft. in width, but yielded only low-grade ore. Stopping was also carried out above this level, but the ore yielded can only be classed as second-grade ore. The No. 2 or Low Level: This level was extended a further 345 ft. to a distance of 892 ft. from the portal. The reef became very broken, and from 550 ft. only a track remained with a few small lenses of ore, so that the last 340 ft. of driving yielded nothing of any value. In order to ascertain if parallel reefs existed after the junction of the east and west reefs, crosscuts were put out to the east and west, but nothing of importance was located. Rise No. 3 was risen to No. 1 level at 440 ft. from portal and was 59 ft. on the underlie of the reef. At 548 ft., No. 4 rise was risen and the reef was nearly vertical at this point and the distance risen was 37 ft. No. 5 rise was risen at 656 ft. and was 38 ft. The rises did not expose first-grade ore. On the west or big reef, 168 ft. of driving was carried out until it joined up with the east or small reef. A rise was also put up to the No. 1 level. Stopping operations were also carried out, but the results were poor, the reef pinching in places to a track only. On the west reef, stopping operations have also been carried out over a length of 298 ft. The results obtained from the ore stoped has not attained the value obtained from the same section of the No. 2 level. A drive known as No. 3 was driven south from the bank of the Dart River on the calculated line of the reef; 151 ft. of driving was carried out, but the extension of the reef was not located. Another reef-line was located approximately 1,000 ft. west of the main reef, and stripping operations revealed a reef channel carrying a slight scheelite content, but values were low and operations were discontinued. On account of a dry season early in the year, increased water-race and water-storage accommodation had to be provided. The result of the year's operations yielded 11 tons 16 cwt. of concentrates, and twenty-two men were employed.

Mount Larkin Reefs.—Operations were carried on at the lower end of the big slip and also on a vertical reef-line on the right-hand side of the Larkin Creek about 30 chains above its junction with the Buckleburn.

Heather Joek Scheelite Syndicate (Wylie Bros.), Western Slope, Mount Larkin.—During the summer season an aerial ropeway was erected from Forbe's reef to the track on the left-hand side of the Bonnie Jean Creek. This has improved the transport position and enabled this party to transport a compressor to Forbe's reef. Sluicing and mining operations were carried out during the working season at this high-elevation mine.

Elliot Bros. and Tripp, Bonnie Jean Mine, South-western Slopes of Mount Larkin.—Sluicing and mining operations were carried out effectively during the working season and a large quantity of overburden was sluiced away during the flush-water season. In the slack-water period a drive was put in on the reef in the southern section of the claim. When operations were resumed in the spring an aerial ropeway was erected from the storage-bin to the left-hand terrace of the Bonnie Jean Creek in order to reduce transport costs and speed up operations.

Sharpe Bros., Harris, and Wetherston.—Prospecting and mining operations were carried out at the Gorge Mine in a heavy, faulted section of the reef. Prospecting drives failed to locate solid payable reef. All the ore in sight was stoped out and this section of the reef was closed down. In the spring three drives totalling 150 ft. were driven, but only crushed pug reef was located in this very heavy country. Operations are now temporarily suspended.

Groves Mine, owned and operated by J. R. Tripp and situated on the left-hand terrace of the Bonnie Jean, has been opened up by sinking and driving. A third connection to the surface has been made from the foot of the dip. Stopping operations have been carried out to right and left of main dip, and the mine has been a steady producer.

Bonnie Jean Crossing Reef.—Driving operations were continued intermittently in the Battery Gully reef exposure, and intermitted sluicing and driving operations carried out near the southern end of the exposed reef line.

Eureka Reef, near the Glenorchy Terminus of the Buckleburn Aerial Ropeway.—Ground sluicing, trenching, and driving operations were carried out at the north and south sections of this reef exposure.

The Valpy Buckleburn River Alluvial Mine has been in operation during the working season, but only low-grade gravels were exposed.

The Hercules or Ross Mine, on the right-hand terrace of the Buckleburn near the terminus of the Mount McIntosh Long Gully, has been operated steadily. Several hundred feet of development driving and rising were carried out, also stopping operations below the top level as the extension of the low level drained the seepage water from this stope.

Thompson's Reef, on the Southern Slope of Mount McIntosh.—A section of the reef outcrop in the creek has been stripped, but very little work was done.

Gollop and Veint continued to sluice a crushed section of reef on the slope of Mount McIntosh midway between Thompson reef and Long Gully.

Long Gully Mine, in the Big Slip near the Head of Long Gully.—Sluicing operations were continued intermittently when water was available, and good use has been made of flush-water periods in order to remove a large mass of slip debris off the reef exposures.

Mount McIntosh Mine (Hall and Ross Reef-line), on the South Side of the Mountain.—Driving, stopping, and sinking operations were carried out during the working season.

Black Peak and Precipice Creek Reefs.—Mining operations have been carried out on the south side of Black Peak and also in upper Precipice Creek.

Mid-Precipice Creek.—A sluicing plant was installed and an area of reef-bearing country tested, but no payable reef was located. A reef-line outcropping on the right-hand side of the lower Precipice Creek Gorge was also tested by trenching and driving, but values were low.

The Paulin Bros. and Scott Party have opened up a section of reef on the left-hand terrace of the Rees Valley about one mile north of the Precipice Creek Gorge. The reef-line was stripped by sluicing methods. Trenching, sinking, driving, and stopping work was carried out and good ore won. A small treatment plant has been erected at the mine.

Muddy Terrace, Upper Rees Valley.—Trenching and gravel-sluicing operations were carried out during the season and good ore was won with the low-pressure water-supply.

Very little work has been done in the alluvial gold-mines in the Moonlight, Skippers, Upper Shotover, and Arrow River districts, and none by the Mount Aurum Syndicate at Currie's Reef, Dynamo Flat, and Skippers Creek on account of shortage of labour due to war conditions.

Vincent County

Scott and Wells Mine, Kawarau Gorge.—Further prospecting failed to locate any payable auriferous gravels, and operations were suspended.

W. Thomas and Son, Lower Cairnmuir.—Sluicing and mining operations have been carried out steadily whenever water was available.

Shine Again Gold-mining Co., Upper Bendigo Creek.—No work was done at this mine during the year.

Nevis

The Williamson Alluvial Mine operated during the working season on the Upper Nevis deep lead near the stone huts. The McLean Bros.' Alluvial Mine at the upper end of the old township workings, Mid-Nevis, operated steadily during the working season. Sluicing operations were carried on intermittently at Matakau and Gorge Creek.

DREDGING

Vincent County

On account of war conditions, the Nevis Crossing Dredge did not operate in the Lower Nevis.

Austral New Zealand Mining, Ltd.—The large electrically operated dredge continued to work on the Athenæum Reserve between Cromwell and Lowburn and dug 3,482,000 cubic yards of alluvial material during the year. During the company's annual period ending 2nd October, 1943, the dredge worked 5,887 hours, dredging an area of 42 acres and digging 3,541,000 cubic yards.

Molyneux Gold-dredging Co., Ltd.—The electrically operated river dredge ceased operations on the Kawarau River at Scotland's Point on the 5th March, and is now tied up in a stretch of river between the Bell Hooper and Bell Kilgour Mine entrances.

Clutha River Gold-dredging Co., Ltd.—The work of refitting as a paddock dredge has been retarded by the shortage of skilled labour, and was not concluded at the end of the year.

Southland

Rainbow Dredging Co., Maitland, Waikaku Valley, Southland.—This small Diesel-operated dredge was tied up during the year on account of shortage of labour due to war conditions.

ACCIDENTS

There were no fatal accidents at the mines in the Southern District during the year. On 20th July, there was one serious accident whereby two men were injured at the Paradise State Scheelite-mine through an explosion of gelignite during drilling operations. J. H. Thomson sustained injuries to his right eye, together with numerous wounds, abrasions, and burns on face, arms, and body; J. M. Wright suffered numerous wounds, abrasions, and burns on face, arms, and body.

STONE-QUARRIES ACCIDENTS

During the year there were two fatal accidents at the stone-quarries in the Southern District, resulting in the loss of three lives.

On the 3rd May Edward Charles Tippet, a shotfirer, was fatally injured at the Limehills Lime-quarry, Southland, through an explosion of gelignite in a shotfirer's canister he was carrying.

On the 15th November, Allan McIntosh, quarry faceman, employed by the Oamaru Harbour Board, and Frederick John Maynard, electrical inspector, employed by the Waitaki Power Board, were fatally injured through being hit by falling pieces of rock which had been blown into the air when a tunnel blast was exploded at the Harbour Board Quarry, Cape Wanbrow.

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, 1943, for stone-quarries and tunnels worked in the North Island District under the Stone-quarries Act, 1910.

STONE-QUARRIES

A total of 225 quarries was worked during 1943, a decrease of 12 when compared with the number for the previous year. The number of men employed at such quarries was 1,057, an increase of 33 on the figure for 1942. The decrease in the number of quarries worked is small and may be regarded as of little consequence.

OUTPUT OF STONE

The output of hard stone used for roading, aerodrome-construction, and concrete work totalled 834,426 tons, as compared with 1,176,390 tons for the previous year. The considerable decrease may be accounted for by a lessened demand for this class of stone due to the completion of certain defence works. During 1943, 290,454 tons of limestone for agricultural requirements was quarried, compared with 321,351 for 1942, also 271,246 tons of limestone for cement as against 278,389 tons for 1942. There was a decrease of 30,897 tons of limestone for agricultural use.

A total of 1,407,851 tons of stone, valued at £333,659, was produced for 1943, compared with 1,835,344 tons, valued at £345,962, for 1942.

TUNNELS

There has been no tunnelling of any consequence for the period. The Gisborne Borough Council have a water-supply scheme in view, and the estimated length of a tunnel to be driven in connection therewith is one mile and a quarter. This work was started late in the year.

ACCIDENTS

One serious accident occurred in a tunnel, and one fatal and two serious accidents occurred in stone-quarries, during 1943.

Fatality

On 4th March W. Green died from cerebral injury as a result of being struck by a piece of flying rock during blasting operations at Wilson's Portland Cement Co.'s Quarry, Waro, on the previous day.

Serious Accidents

On 11th March F. J. Hancock sustained a broken right femur when struck by a piece of rock falling from the roof of a defence works tunnel.

On 2nd December J. Black, quarryman, during blasting operations at Pinedale Quarry, Putaruru, received injuries to his nose and head from a flying fragment of rock after he had taken shelter.

On 14th December John L. Kaire, quarryman, whilst barring down at the Ruatangata Lime-quarry, Ruatangata, was struck by a stone which lacerated his arm, cutting an artery.

PROSECUTIONS

There were no prosecutions under the Stone-quarries Act 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, 1944.

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, 1943, in accordance with section 42 of the Coal-mines Act, 1925.

OUTPUT

The output from New Zealand collieries for 1943 was 2,787,868 tons, being 107,827 tons greater than the 1942 output.

There were increases of 91,169 tons from the Northern District and 42,785 tons from the Southern District, but the output from the West Coast District was 26,127 tons less than the 1942 output.

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1943 :—

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 1939	90,477,430	*	*	*	*	*	*	501
1939 ..	2,342,639	1,220	3,542	4,762	661	7.26	3.57	17
1940 ..	2,516,099	1,277	3,769	5,046	668	3.18	1.58	8
1941 ..	2,639,507	1,358	3,633	4,991	726	1.51	0.80	4
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
Totals ..	103,443,584	..	..	..	..	..	..	544

* 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 1943 with their causes :—

	Fatal Accidents.		Serious Non-fatal Accidents.	
	Number of Separate Fatal Accidents.	Number of Deaths.	Number of Separate Non-fatal Accidents.	Number of Persons injured, including those injured by Accidents which proved Fatal to their Companions.
Carbon-monoxide poisoning .. ..	..	..	..	..
Explosions of fire-damp or coal-dust .. ..	..	..	..	..
Falls of ground	6	6	8	8
Explosives .. ..	..	..	..	..
Haulage	2	2	16	16
Miscellaneous—Underground .. ..	..	..	4	4
On surface .. ..	..	..	2	2
Totals	8	8	30	30

During 1943 five fatalities occurred in West Coast collieries, two in Southern mines, and one in the Northern District.

Thirty serious non-fatal accidents were reported to the District Inspectors during 1943, fifteen of them in the West Coast District—six caused by falls of coal or stone; eight in the Southern District, of which two were due to falls of coal; and seven in the Northern District. Sixteen persons were injured in haulage accidents, most of them having been caught between mine tubs, or mine tub and rib of place.

DANGEROUS OCCURRENCES REPORTED

Of the twenty-eight dangerous occurrences reported to the Inspectors during 1943, sixteen were related to fires or heating in underground workings. There were seven reports of firedamp accumulations.

PROSECUTIONS

Seventeen informations were laid during 1943 by Inspectors of Coal-mines for breaches of the Coal-mines Act and the regulations thereunder. Sixteen convictions were obtained, and in the remaining case decision was suspended for twelve months.

LEGISLATION AFFECTING COAL-MINES

No amendments were made to the Coal-mines Act, 1925, or to the regulations under that Act during 1943.

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 1943

North Auckland District

Kamo Colliery.—No. 3 Mine: The greater part of the development of this mine during 1943 has been due to the extension of the No. 2 east (slant dip) development headings for a distance of 9 chains into the coalfield to the north-east. The coal dips in this direction at an average grade of 1 in 5, and the face is now standing on a small upthrow fault at a distance of 37 chains from the main dip. The coal is of good quality 8 ft. thick. As the main drive has not been extended during the year, these headings have become the main development headings of the mine, and it seems likely that a fairly large field of workable coal will be proved in this direction. Development is proceeding to north and south of the headings, and to provide for increased output a larger winch has been installed during the year for direct haulage from these workings.

No. 1 East Section: A fault, which crosses the main drive at the junction with the No. 1 east section, has been pierced by a stone drive which has been continued in coal to hole into the end of the first level north of the No. 2 east headings at a distance of 12 chains from the main drive. It is intended to continue a pair of development headings in the seam in this direction with the idea of opening up further panels to the north on the lower side of the fault which cut off the original No. 1 east headings.

No. 2 West Section: Development has been continued to the south-west of the Railway Reserve for a distance of 6 chains, the coal continuing to be of good quality. At this point, a pair of development headings were turned off to the west, and have been driven 8 chains with the intention of connecting to No. 1 west section, leaving a strong barrier of coal against the eastern edge of the old Harrison Mine workings.

No. 4 Mine: Pillaring of the Whangarei Colliery area was completed during the year, and work has been continued on pillar-extraction of a small area north of Meldrum Street. The coal is of good quality, and a small but steady output is being maintained by two pairs of miners.

Waro Colliery, Hikurangi.—No extension of the main drive was made during the year. A small output has been maintained from low workings to the east of the main drive, where the limit of development has been reached at 12 chains. The seam here has been consistently thin, in general 3 ft. 6 in. to 4 ft., and ventilation and haulage difficulties have been great. Splitting of the pillars in this section, to the south-east of the main drive, was commenced in October. Development of the No. 3 slope to the west of the main drive has been hindered by frequent faults which culminated in the seam dipping at a grade of 1 in 2 to the west. Although the coal here is up to 6 ft. thick and the quality is good, owing to frequent disturbances it is unlikely that any development of value can be expected.

Keteikau Colliery (Pollock and Party).—Owing to the thinning of the seam and the exhaustion of the coal which could be reached from their drives, this party ceased work and the drives were sealed in September.

Avoca Colliery (Foot and Party).—Work at this mine was resumed in June and continued during the remainder of the year. A small block of coal left to protect the old mine entrance is being extracted by pillaring methods.

Kiripaka Fireclay-mine.—Four men have been employed fairly steadily at this mine throughout the year. Robbing of the fireclay pillars was continued until November, when underground work was stopped owing to the difficulty of maintaining the timbering. Work has since continued on the surface, the face worked being 20 ft. high.

Waikato District

Rotowaro Collieries (Taupiri Coal-mines, Ltd.).—No. 1 Mine: Pillar-extraction was continued throughout the year in No. 4 east and Hill 60 right sections. In the New Haulage section, extraction was continued until August, when, owing to heating at the rope-end pillars, the section was closed, the number of places left making it impracticable to operate the haulage economically. Hill 60 pillar section which had been closed owing to heating since August, 1940, was reopened and pillar-extraction continued.

Callaghan's Dip Section (Bottom Seam): Development has continued throughout the year, the main development headings being extended to 44 chains from the No. 1 Mine haulage in a south-east direction, two sets of headings for panel development being started to the west.

No. 4 panel has been developed by machine-cutting almost to its limit, and pillar-extraction should commence here early in 1944.

No. 3 dip section is being opened up to the west of the main haulages. Machine bords are being driven at 49 ft. 6 in. centres, leaving 12-yard-square pillars to support the overlying creek and swamp area. A permanent endless-rope haulage was installed in August to handle the increased output from the Callaghan's dip section, and the rope has been extended close up to the main heading face.

No. 4 Mine: Pillar-extraction of the remaining roadside pillars has continued throughout the year.

No. 3 Mine: Pillar-extraction continued in Brown's Jig, Moodie's Jig, Wilkie's Dip, and B section, while in October a section was opened up opposite A section in a small block of coal previously unworked.

Alison Colliery.—No. 1 Mine: Pillar-extraction continued during the year in No. 1 panel, Nos. 1 and 2 dips, and at the rope-end pillars, and towards the end of the year extraction commenced of pillars below the fault in No. 2 panel. Development of Nos. 1A and 2A panels was continued, and at the end of the year the bords in both these areas were nearing the barriers.

No. 2 Mine: The main dip headings were driven to a distance of 15 chains north-east from the main haulage in good hard coal 20 ft. thick. Development was carried out in No. 1 rise panel and Nos. 1 and 2 north panels.

Early in the year twenty new cottages were completed at Rotowaro Township, and twelve more were completed at the end of June.

Willon Colliery.—No. 1 Mine: Pillar-extraction at this mine, which has been continued throughout the year, still gives employment to ten pairs of miners. The working-face at the end of the year was 13 chains from the entrance, and as the unworked coal is nowhere more than 6 chains wide, this mine should be worked out in some three months.

No. 2 Mine: Pillar-extraction from the fault in the main drive proceeded during the year to a point 17 chains from the mine entrance. Some development in No. 2 dip was also carried out towards the boundary.

No. 3 Mine: During the year the east section headings were driven 16 chains from the entrance, the coal between there and the outcrop, 6 chains to the east, being developed as a panel. The coal has been of good quality, 6 ft. to 7 ft. high, and easily worked. About half of this panel has been extracted and very little coal has been lost.

From the east headings a pair of development headings has been driven west 12 chains, and from these a connection has been made to the main mine entrance by a stone drive 5 chains long. The main drives have also been continued to the south for a distance of 18 chains from the mine entrance. The coal here is of good quality and has increased in thickness to 9 ft. The endless-rope haulage has been extended into the main drive.

During the year a large bathhouse of good design was completed at No. 3 Mine and is now in use. Access to the mine by road was provided late in 1942, but some difficulty was experienced in obtaining a bus service. The company now runs a service from Glen Massey to the No. 3 Mine.

Renown Colliery.—No. 1 Mine: The top-seam section near the mine mouth, which has been standing since development was completed in May, 1929, was cleaned up and retimbered late in November. Pillar-extraction has now commenced. This seam averages about 6 ft. in height.

Pillar-extraction in the No. 2 north section continued throughout the year, a steady output being maintained from this section.

The withdrawal of pillars at the rope end of No. 3 south haulage and in panels to the west of the haulage has also continued steadily. In this locality the No. 4 east headings were connected to headings driven from the New Drive workings (No. 2 Mine) late in November. The handling of coal from the east workings to the surface will be greatly simplified when haulage through this new route is connected up.

No. 4 south headings have been extended to a distance of 21 chains from the main drives and development of No. 2 panel has been completed. Owing to thinning of the seam, it is unlikely that further development in this direction can be expected.

No. 2 Mine: The main headings have now been driven 38 chains from the mine entrance. Good-quality coal 14 ft. thick has so far been met with, and bores ahead of the drives show that the thickness of the seam is likely to continue for a considerable distance into the new field.

An airshaft has been constructed to serve this mine and has been completely lined with concrete. A propeller fan has been installed and is in use.

Pukemiro Colliery.—North Mine: Pillar-extraction continued throughout the year, giving employment to an average of sixteen pairs of miners. The pillar section at the head of the stone drive was worked out early in the year, and a section to the west of this drive was worked in addition to two sections to the south of the main drives. The coal is of good quality, and though mining conditions are difficult owing to the height and width of the first workings many years ago, and the long narrow pillars then left, the management have been successful in obtaining a fair proportion of the pillar coal and in producing from this mine nearly half the total output of the colliery.

South Mine: In the Taupiri section the panel between the west dip headings and the main Taupiri headings has been completed, and from this three headings have been driven to the east to test the seam in this direction. By the end of the year they had reached a point 16 chains east of the west dip headings. The coal has been of good quality, but at the faces which are now beyond the line of the Taupiri section main headings and are approaching the limit of workable coal as established to the east, the coal has become dirty, and horizontal stony intrusions are showing.

Pillar-extraction has continued in the south of the Taupiri section and also in the mid section and Nelson's Jig section. The Rope End pillaring has practically been completed, only two places still being worked at the end of the year.

In the No. 1 right haulage, the headings parallel to and south of the main road have been completed to the next development roads below Horne's. A heating beyond this point will require to be dealt with before further development is possible.

Glen Afton No. 1.—Pillar-extraction of E3 panel was completed in December, 1943, and development of the two panels on each side of the rope road, but in the State area, was proceeded with. The main headings were also advanced and have now reached a distance of 8 chains beyond the State boundary.

Extraction of a small section of pillars north-east of the end of L haulage was completed in July. The stone dip in L section was continued to a distance of 11½ chains from L haulage. The coal-seam is known to be only a few feet below the drive and should be reached very soon.

Preparations were begun in August to extract pillars in H section, and a haulage was installed in the old E rope road. Pillar-extraction was begun in December and is proceeding.

An improvement to the mine ventilation has been made by retimbering and increasing the size of the main return, particularly near the fan. This work is being continued.

The stoppings at F section were improved and strengthened, and arching of the travelling-road with concrete has resulted in a general cooling of the stoppings.

Glen Afton No. 2 (McDonald Colliery).—Korfman Section: To the west of H section main headings, development of H3 left panel, against the boundary, has been almost completed, while to the east H2 right panel has been almost completed, and H3 right panel, against the boundary, is completed and pillar-extraction has been started from the north-east corner.

From the main drives below H section headings, three companion drives are being extended in the seam across the State boundary into the Glen Afton lease. They have reached a point 11 chains from the main haulage.

Three small panels are being developed from the tail-rope headings at the boundary end of E section main headings, while in E4 right panel some pillars have been split beneath surface swamps at the north-east corner of the panel.

No. 4 Mine: To the west of the main haulage panel, development has been completed and pillar-extraction is proceeding.

In the Tail-rope section pillar-extraction has commenced from the line of outcrop to the south-east of the main headings and from the barrier to the north-west. The main drives are being extended to develop a small area of coal still unworked against the barrier to the north-east.

Taupiri East Colliery.—The output for this colliery was obtained until October from pillar splits and top coal in a small Crown lease south-west of the main haulage. On completion of this, pillar-extraction was resumed east of the main haulage.

Whatawhata Campbell Colliery, Whatawhata.—The output from this colliery has been somewhat increased during the year owing to development of the new south drives in good coal up to 10 ft. thick. An area of approximately 7 acres has been proved by this development, which is being continued to the south and east.

Waikato Extended Colliery (Roose Shipping Co., Ltd.).—An area some 3½ chains long has been worked by opencasting to a width of 1 chain. The coal-seam under a ridge to the east of the opencast was tested by driving and found to thicken to some 16 ft. However, it is rising fairly steeply in this direction and will probably outcrop near the top of the ridge. The cover is 6 ft. to 8 ft. thick.

Glen Afton Potteries Opencast.—Coal for firing the kilns has been obtained as required from an 8 ft. seam on the company's property. This has been stripped and is worked opencast. Quarrying of clay and fireclay has also been carried on throughout the year.

Huntly Brickworks.—Fireclay for use in brickmaking has been worked continuously from two faces 40 ft. high.

Dally's Mine, Kawhia.—No work has been done at this mine during 1943.

Taranaki District

Mangapahi State Colliery.—Top East Levels: The fault which was struck in the main level has been proved by a dip drive which has been extended 2 chains beyond it, the coal being of good quality and 20 ft. thick. A crosscut has been driven in the coal between the twin levels beyond the fault, and further development is proceeding.

Nos. 1, 2, and 3 panels to the rise have completed development to the 10 ft. downthrow fault which runs almost parallel to the main east level and some 7½ chains from it. The top coal has been extracted above the workings of Nos. 1 and 2 panels. It is intended to undertake further development, beyond the fault bounding Nos. 2 and 3 panels, by stone drives piercing the fault in extension of No. 3 panel entries, as it has been shown by survey that there is probably an area of some acres of workable coal beyond the fault and between it and the outcrop of the seam.

Bottom East Levels: The level faces are in troubled country at 15 chains from the main haulage, and are being driven further to test the seam in this direction. A panel is being developed to the rise of these panels.

Top West Section: Development was completed in 1942, and no further work has been done in this section.

Bottom West Section: The seam at 10 chains west of the main haulage has become thin and the coal stony and of poor quality. Further driving in this direction has been stopped, and development of the panel to the rise is approaching completion.

A great improvement to the main dip has been made by brushing and arching the coal roof for a considerable distance. The lower part of the dip has been reopened and retimbered with a view to prospecting the disturbed area in which extension of the main drive was stopped in 1939. Driving has been continued a short distance beyond the original face of the dip and a seam of coal 3 ft. 3 in. thick is showing in the present face.

A new bathhouse is being erected near the mine mouth, and a new haulage road into the mine has been planned, and work on this is proceeding.

An average of eighteen pairs of miners has been employed at this colliery during the year.

Tatu State Colliery, Ohura.—Development of workings to the north-west of the main headings has been stopped owing to faulting at about 16 chains from the main drive. A panel has been formed to the right of the north-west development headings, workings here having been driven to a distance of 11 chains from the headings, at which point the workings have reached the line of the high sandstone bluffs showing on the surface. It is proposed by the management to proceed with the second working of this north panel by splitting the pillars.

The south-west headings in continuation of the line of the main drives have been advanced to a distance of 30 chains from the mine entrance. Bad roof conditions have slowed down development in this direction, though the coal-seam continues to be of good quality and thickness, while the haulage from the north-west headings to this section also caused considerable delay owing to heaving floor and bad roof conditions having to be dealt with.

A pair of development headings has been driven 7 chains south from a point 6 chains from the present face of the south-west headings. These are in good coal from 8 ft. thick. Another pair of headings has been driven north-west from approximately the same point and has gone about 6 chains in good coal. A start has been made in continuing the main headings of the mine on the three-drive system.

Connection of the main headings through the fault has not yet been made, but work on this is proceeding. Extension of the main haulage to the new developments to the south-west will greatly assist rapid extension of the mine workings in this direction.

Considerable improvement at the surface was carried out during the year, a large bathhouse of modern design and many other buildings having been erected and brought into use. A substation is being equipped at the mine, and electric supply to the mine-mouth has been provided and will be used in future mining operations.

A village has been built about one mile from the mine-mouth, and further accommodation has been erected for miners at Ohura, which is twelve miles away.

Stockman Colliery.—Work at this mine continued throughout the year, the coal being brought by launch to Mokau from twenty-seven miles up the Mokau River.

Aria Colliery.—Work was resumed in October, the main drive having been retimbered and a small fan installed. A small but regular output is being obtained and sold locally.

State Opencast Mining.—Late in the year consideration was given to the production of coal by opencasting in several areas in the Waikato and other parts of the North Island. Surveys and boring were carried out, and stripping of the first area to come into production, some 7 acres near Glen Afton, was commenced with modern machinery, and by the end of the year was well forward. This area is now producing.

RESCUE-STATION

During 1943 Mr. A. Lennox, Superintendent of the District Rescue Station situated in Rotowaro Township, continued the training of rescue brigades. In addition to two-monthly refresher courses for the forty-nine fully-trained men, twenty-five fresh men were trained and certificated during the year. Twelve additional men applied for training during 1944 and are now taking the course.

Two visits were made by Mr. Lennox to Benneydale to conduct refresher courses for men working there.

The greater part of the refresher training consists of visits of the trained men to as many mines as possible in the district and the use of the apparatus in these mines. This part of the training is most valuable, as it gives members of brigades first-hand knowledge of the lay-out of mines other than the ones in which they work.

In several cases teams have been asked by mine-managers to assist in the construction of stoppings and in exploration of old workings, using the rescue apparatus. These occasions are used by Mr. Lennox as opportunities for training in what approximates to emergency conditions, and thanks are due to the mine-managers concerned in making such opportunities available whenever possible.

Members of the teams have given of their best in such work and have benefited by increased confidence in themselves and in the apparatus, which in every case has functioned perfectly.

HUNTLY SCHOOL OF MINES

Regular classes were held at Huntly, Rotowaro, and Glen Massey throughout the year, and some forty-five students took advantage of these.

FATALITIES

James Innes Tipton, a trucker employed at No. 4 Mine, Kamo Collieries, received fatal injuries when struck by an iron jig-brake handle on 31st May, 1943. It is thought that he pushed a race over the brow and ran back to the brake handle. When the brake was put on hard, the bracket holding down the brake gear and handle became detached and allowed the handle to fly up, striking deceased on the side and causing the injuries. Through bolts and a stopper have since been fitted to this brake to prevent a recurrence.

SERIOUS NON-FATAL ACCIDENTS

Tui Waikato, a trucker employed at the McDonald Colliery, received a fracture of the right leg when caught between two full skips. The second skip, which he thought he had secured on a flat, followed him down a grade.

Arthur Walters, a surface worker employed at Whatawhata Colliery, received a fracture of the left arm when it was caught in the rope of a capstan winch he was using.

J. Brown, a rope-boy on the surface at Rotowaro Colliery, on 12th August received a fracture of the right radius due to being struck by a sprag he was inserting into the wheel of a moving skip.

James White, a pumpman employed at Kamo Colliery, on 23rd July, received a cracked pelvis while pipe-fitting in the main layby of the mine. White was leaning over a race of skips to put a pipe into place when passing skips on the other line caught the electric-lamp battery on his belt and jammed him, causing the injury.

On 1st November L. Davies, a clipper employed at Renown Colliery, received an injury, later described by the doctor as a "greenstick" fracture of the right tibia, through being caught between two full skips at the No. 5 West Diamond, No. 3 south headings. Davies was clipping, and a skip which he thought was secure followed round the curve behind him.

On 12th November Wynyard Panaho, a trucker employed at Waro Colliery, Hikurangi, sustained a transverse fracture of the right tibia due to slipping when turning a skip on a flatsheet.

On 29th November a miner, Francis Duggan, employed at Tatu State Colliery cut off his left thumb with an axe while trimming a wedge.

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

On 27th March at 9 a.m. firestink with traces of smoke and vapour was found coming off a pillar-place in No. 3 jig, Alison No. 1 Mine. The place was sealed off.

On 2nd April the examining deputy reported firestink and smoke in a pillar place in Wilkie's Dip section, No. 3 Rotowaro Mine. The place was sealed with brick stoppings.

On 28th April a short-circuit occurred on a portion of the power-lines (V.I.R. cable in conduit) in E section, MacDonald Mine, igniting a short length of the cable. This length was afterwards renewed.

On 6th June a small inrush of water occurred in Brown's Jig section, No. 1 Rotowaro Mine, owing to a pillar fall to the surface adjacent to a small creek. The stream was diverted and the hole filled by bulldozer.

On 20th July a slight heating took place in No. 3 slope dip, Waro Colliery. The heating was controlled by the erection of stoppings, and has given no further trouble.

On 9th August a heating occurred in a coal filling at a jighead in the Bottom West section, Mangapehi State Colliery. Water was used to control the heating, and no further trouble has occurred, though a close watch is being kept for any rise in temperature.

On 20th August a small fire occurred in the No. 3 section, North Mine, Pukemiro Colliery. The affected area was promptly sealed off, and no further trouble has been caused.

On 27th August smoke was found issuing from goaf in a pillar place in No. 3 jig, No. 1 Alison Mine. Two stoppings were erected and sealed off the place.

On 6th November a fall in a barrier road in E section old workings, Glen Afton Colliery, was found to be heating. This was at once controlled by stoppings.

On 9th December on E rope road, Glen Afton Colliery, a roller frame was found to be smouldering. The frame was sent to the surface.

PROSECUTIONS

On 25th November a miner was prosecuted for using abusive language to and striking a mine official while acting as member of a deputation at a conference in the mine office. On the first charge, under Regulation 71, he was convicted and fined £2 10s., costs 10s. The second charge was suspended for twelve months by agreement, the case to be heard on seven days' notice should any further trouble be caused by the same man.

On 2nd December a mine surface worker was prosecuted under Regulation 64 (2) for introducing strangers into a mine without the manager's permission. He was convicted with costs, no fine being inflicted, as the case was brought as a warning.

WEST COAST INSPECTION DISTRICT (C. HUNTER and R. T. H. DALE, Inspectors of Coal-mines)

GREYMOUTH DISTRICT

Liverpool State Colliery, Rewānui.—The greater portion of the output was obtained from pillar-extraction in the Morgan and Kimbell sections. Development is being carried on in the Morgan dip and Kimbell dip sections. The Morgan east dips have been advanced about 10 chains, and the headings off the east level about 8 chains to the rise. The east workings are dusty, and water has been laid on to allay the dust. A stone drive was started about the middle of the year to connect from the main haulage road to the Morgan Dip workings. This drive will cut off the long haulage at present being used from this section. The completed drive will be about 17 chains long and one-half of this has now been done.

Kimbell Section: Pillaring in the Kimbell east level has been carried on during the year, but owing to heating in November the section was sealed, practically all the available coal being extracted.

Plant Electrification: The electrification of the screening plant and the haulage winch from the timber-yards has been completed. The middle brake main haulage is also electrically operated. A substation at the power-house, with the necessary switch gear, has been erected.

Strongman State Colliery.—Development: This is being continued in the north No. 2 heading, No. 2 south, and No. 1 south dip. The No. 2 south heading has become extremely wet with bad roof conditions, and the seam has thinned to 8 ft. The fault encountered on the west side of No. 2 north heading, was passed through, and there are prospects of a good section opening out beyond the fault. All the coal, with the exception of that from two pairs of miners, was from development work. The number of miners was increased from forty-eight to sixty-six pairs, the additional men being from the James Mine, which closed down on the 27th July, 1943. In the main east heading, which has been standing on the Bob fault for some time, a start has been made to cross the fault. New Plant: An electric-driven compressor has been installed.

Blackball State Colliery, Blackball.—All the coal won was from developing places. A pair of headings was driven off No. 2 south level to meet No. 4 bore and extended a distance of 16 chains. The floor was extremely undulating, and the coal maintained an average thickness of about 10 ft. to 12 ft. Between the south heading and main drive a section has been developed with a "Jeffrey" coal-cutting machine and this section will eventually be used as a sump. The main drive was extended for about 10 chains, then stopped in about 4 ft. of coal. The driving of the main dip crossed a roll in the floor with a vertical height of about 12 ft. North of the main drive and 2 chains back from the face two levels have been developed for a distance of 5 chains. These levels were stopped as the roof was struck, resulting in a large inflow of water. About 1 chain from the face a pair of headings is being driven towards No. 1 north, from which it is hoped to develop a panel. During the year a "Sirocco" fan was installed, effecting a marked improvement in the ventilation.

Baldersstone and Party.—The output for the year was obtained from splitting and extraction of pillars in Nos. 3 and 4 sections in the top-seam workings of the old Blackball Mine. A gangway between the portal of No. 1 tunnel and the

party's bin has been completed, and reconditioning of No. 1 tunnel is in progress. On the completion of this work the coal from the mine will be brought out through No. 1 tunnel and the present fluming system, in the Blackball Creek, dispensed with.

Brimdale Collieries, Ltd., Ten-mile Creek.—Development in No. 1 section and the robbing of pillars in Nos. 1 and seams were completed. Prospecting is now being carried out on an outcrop to the east of the bin at the bottom of the incline to No. 1 section.

Wallsend Colliery.—No. 1 Slant Dip: During the year this section reached the Taylorville fault for the full width of the panel, at approximately 23 chains from the main roperoad. Since that time eight pairs of miners have been engaged splitting pillars. No. 2 Slant Dip: This section is also cut off by the Taylorville fault, and two miners have been splitting the pillars next to the fault on the west side, while in the east side places have been driven about 5 chains towards the barrier. This section was stopped for over three months due to a blower of gas, which was eventually piped to the return. *Dip Extension Section:* Seven pairs of miners are developing places in this section. Two levels have been driven west a distance of 9 chains, the greater part being on top of a stone band. The coal here is maintaining its quality and is slightly increasing in thickness. "B" and "C" Panels: Four pairs of miners are engaged splitting pillars, and one pair is developing in "C" panel, where the coal is approximately 5 ft. thick. Plant: During the year additions were made to the plant including a new surge bin, a new drive for the creeper, and an extra 600 ft. Reavell compressor. A new electric haulage winch has been installed on the dip extension, and the winch at the top of the stone drive has been shifted to the bottom of the main shaft. A start has been made to effect an improvement in the auxiliary winding arrangements.

Dobson Slate Colliery.—This colliery was taken over by the Mines Department on 22nd February, 1943. The main dips have been extended but they have met considerable disturbance in the general lay of the seam. Development to the west in the No. 4 level section also showed the approach of the "Dobson" or another fault. Development in No. 4 east has been completed, and that in No. 5 east is rapidly approaching the steep rise towards Mount Buckley. The main endless haulage system has been extended to No. 5 level.

Paparoa Colliery (Paparoa Coal Co., Ltd.).—Aerial Section, No. 1 Seam: Throughout the year six pairs of miners were continually employed in this section on day shift, with one pair "brushing" and retimbering on night shift. A line of pillar-extraction along the fault in the dip extension was completed in the first half of the year, a high percentage of coal being won. Work in the main south level was abandoned with the completion of the new return airway. The panel of the main north level, No. 2, was completed, and pillar-extraction along the fault-line is now in progress. No. 1 main north level has been reopened, and a new main level is being developed, 8 chains from the main dip, in good-quality coal. A main return airway for this section has been driven to the rise of the main level and is nearing completion.

West Level Section, No. 2 Seam: Two pairs of miners are still employed in the old slant heading area and are approaching the old west level workings.

CO-OPERATIVE MINES IN THE GREY DISTRICT

Spark and Party's Mine, Rewanui.—The output from this mine was won solely from development work to the east of the main dip.

Old Runanga Mine (O'Brien and Party).—No. 1 Seam: The work of extracting roadside pillars on the rise side of the horse road has been continued.

No. 2 Seam: Output from this seam was secured partly from pillar-extraction and partly from development work to the dip from the haulage roperoad. The dip has been advanced to a distance of 5½ chains in coal of 3 ft. 6 in. in thickness.

Moody Creek Mine (Simpson and Party).—Pillar extraction was continued throughout the year.

Goldlight Colliery (McKenzie and Party).—The output was won from development work. A considerable amount of reorganizing has been carried out during the year, chiefly in the method of handling the output. This included the erection of new bins and the hauling of coal to the surface from a lower level, thereby eliminating the dip haulage inside the mine.

New Point Elizabeth Colliery (Guy and Party).—The output was entirely from pillar-extraction. The present operational area is quickly becoming worked out, and it is the intention to commence further development to the dip from the horse road.

Fiery Cross Mine (Currie and Party).—Coal-production at this mine ceased in May and all plant has been withdrawn from the mine.

Castlepoint Mine (Duggan and Party).—The work of pillar-extraction was continued throughout the year.

Hilltop Mine (Armstrong and Party).—The work of solely advancing developing dips has been continued, and the boundary of the area reached 16 chains from the surface. Future work will consist of driving levels from the bottom of the dips and extracting pillars retreating from the boundary.

Boote and Party (previously Kaye and Party's Mine), Ten-mile.—Development to the south and east has been carried on by the extension of the dip and levels from it.

Hunter and Party's Mine, Dunollie.—Output during the year was secured from the driving of three levels to the south. The distance from the surface, including 4½ chains of stone drive, is 23½ chains. The original boundary of the lease has been crossed, the face of main level being 1 chain into an extended area. Coal continues to be of good quality.

Schalt Creek Mine (Marshall and Party), Twelve-mile.—Working-conditions at this mine are difficult, the height of seam varying from 2 ft. to 2 ft. 9 in. A modified method of short-wall work is employed, debris from the lifting of floor stone being used to build a centre pack-wall.

Bellbird Mine (Stuart and Party), Ten-mile.—Work throughout the year consisted of pillar-extraction, and the driving of a dip from the entrance of the mine in an easterly direction to develop the seam beyond the 45 ft. upthrow fault intercepted in dip workings.

Cain's Mine, Rapahoe.—This mine closed down in October and all plant was offered for sale. Output was secured from part extraction and robbing of pillars.

Bellvue Mine, Rapahoe.—Solid work was continued between a line of faulting to the east and the old goaf of the James Mine. This was completed in July, when pillar-extraction commenced.

Jubilee Mine, Rapahoe.—Output was secured solely from development work to the east of the level from the surface.

Cliffside Mine (Moore and Party), Nine-mile.—Development work has been carried out during the year. A considerable amount of trouble has been experienced due to the disturbed nature of the country and incidental faulting.

Smith and Party's Mine, Dunollie.—Pillar-extraction has provided the major portion of the output. A level is being driven through the barrier pillar between adjacent mines preparatory to extraction of same.

Braehad Mine, Dunollie.—The entire work at this mine has consisted of pillar-extraction from both sides of the haulage dip.

Harrison and Party's Mine, Ten-mile.—Development work has been continued throughout the year in the section south of a fault encountered in the main dip.

REEFTON DISTRICT

Archer's Mine, Caplestone.—During the year this mine changed ownership, and is now known as Alborn's Mine, Boatmans. Development work is being carried out in No. 1 seam, contact with this seam having been made by a 50 ft. level stone measure drift from the No. 2 seam. From a dip driven for a distance of 54 ft., two levels were driven east and west; the westerly level, 4½ chains, to connect on to a tunnel from the surface, and the easterly in the direction of old workings in Archer's Mine. The height of the seam is 10 ft., but only 6 ft. is being worked.

Doran's Mine, Caplestone.—The major portion of output during the year was secured from solid working; towards the end of the year extraction of pillars commenced.

Archer Bros. (altered Name to Klean Coal-mine), Caplestone.—Work in the upper portion of No. 4 seam was stopped during the year and coal-production carried out from a lower tunnel 260 ft. long and 60 ft. vertically below the upper portion. Nos. 3 and 4 seams were intersected in the tunnel, the work of opening up being carried out in No. 4 seam, in which levels to the north and south have been advanced 5 chains and 4 chains respectively.

Coghlan's Mine, Caplestone.—The output from this mine was won from the extraction of pillars.

Coghlan's Freehold, Low Level.—Very little work was carried out at this mine, the two miners having been transferred to another portion of the Coghlan Freehold area.

Waitahu Mine (A. D. Williams), Reeflon.—Top Mine: Work was confined to the driving of three places in the solid, two levels and one rise heading; height of working, 5 ft. 6 in.

McKinlay's Mine: Output was secured partly from solid work and partly from pillar-extraction. The dip to the west was restarted and advanced to a distance of 280 ft. from the horse road, and from the dip a level to the north has been broken away.

Lewis and Parry's Mine.—The output from this mine has been secured from two developing levels, one north and one south.

Victory Mine (Rollerson and Parry), Waitahu.—Trouble has been encountered in the working of this mine due to faulting, and production ceased towards the end of the year.

Pyramid Mine, Reeflon.—Operations have been confined to the extraction of pillars from the lower and upper levels.

Burke's Creek Mine, Reeflon.—Pillar-extraction from the rise side of the horse road was carried out during the year. In the slant dip section solid work was completed during July at a point 24 chains inbye from slant dip. Pillar-extraction was then commenced and continued. A 63-in.-diameter single inlet "Sirocco" fan was installed in July.

Burnwell Mine, Reeflon.—The output during the first half of the year was from developing the places; during the latter half, from the cleaning up of fallen top coal in old workings and extraction of two pillars.

Terrace Mine, Reeflon.—Three development levels were driven in an easterly direction. Towards the end of the year a level cross-measure drive was set away to try to locate the No. 2 seam. A small fan has been installed.

Defiance Mine.—The output was won from development work and extraction of pillars in both the upper and the "Butler" seam mines. These are now being operated by two parties.

Clele Mine, Merrijigs.—Pillar-extraction in No. 1 section and part development and extraction of pillars in No. 2 section have been continued.

Imperial Coal Syndicate, Caplestone.—Production from this mine ceased early in the year, only about 200 tons having been won.

Nicholls' Mine, Caplestone.—Development work has continued.

BULLER DISTRICT

Mitchell's Mine, Charleston.—A small output was secured during the year from opencast work.

Warne's Mine, Charleston.—Production for the year was only six tons.

Bowdler and Bryan's Mine, Charleston.—Opencast work was carried on for an output of approximately 500 tons.

Powell's Mine, Charleston.—No production.

Allan's Mine, Charleston.—Six tons of coal produced for the year.

Brighton Mine, Brighton.—A small quantity of coal has been produced by the leaseholder during the year.

Gleeray Mine, Buller Gorge.—The output was secured chiefly from pillar-extraction.

Coal Creek Mine, Seddonville.—Work in the Lawrence section has ceased. Developing work is proceeding in Taipo section. A new section is being opened up from outbye the surface entrance to the Taipo section.

Cardiff Coal Co., Mokihini.—Operations were confined to development work.

Hydro Coal-mines, Ltd., Seddonville.—The output for the year was secured solely from pillar-extraction.

Charming Creek - Westport Coal Co., Ltd., Ngakawau.—Work was chiefly carried on in No. 2 east section, where six pairs of miners were employed on pillar-extraction and four pairs completing solid work in the section. New work consisted of the extension of the locomotive track to the mouth of the new drive, at which point new bins have been erected.

Westport-Cascade Mine, Cascade Creek.—The major portion of the output was secured from the extraction of pillars in sections known as Moynihan's and Durkin's; a new section known as Mill Creek is in process of being opened up, and development work is being carried out by one pair of miners.

Westport Coal Co., Ltd., Denniston.—Ironbridge Mine: Pillar-extraction is being carried out by four pairs of miners.

Coalbrookdale Mine: The output was won from the extraction of pillars in the Wharatea, Wharatea Extended, Cascade, and part of Forsyth's sections. In Forsyth's section development work is also being carried out. Percentage of output: 75 per cent. pillar and 25 per cent. solid coal. A heating occurred in the Wharatea Extended section, and this was sealed off by concrete brick stoppings.

Westport Coal Co., Ltd., Millerton Mine.—In the Mangatini area pillar-extraction was continued, on which three pairs of miners were employed. Mine Creek Area: The partial extraction of pillars, in conjunction with the working of coal left in depressions due to undulating of floor, has been carried out. Old Dip Area: Operations have consisted of partial extraction of pillars.

Westport-Stockton Coal Co., Ltd., Ngakawau.—Development work has been carried on in the old No. 2 area off the locomotive track road and also in the south side section. In the south section exceptionally wet conditions prevail. In McCabe's jig section ten pairs have been employed in the partial extraction of pillars. Pillaring has also been carried out in the west dip and stable sections. During the year work has been carried on in the making of a haulage road for locomotives preparatory to the opening-up of a new area of 400 acres secured from the Westport Coal Co.

Watson's Mine, Karamoa.—This mine was abandoned during the year.

Harris' Mine, Karamoa.—Work was resumed at this mine during the year.

Comet Mine, Taungahua.—Due to encountering badly faulted country, development work was terminated and pillar-extraction commenced in a section on the north side of the creek; towards the end of the year prospecting work was commenced on the south side.

Paine Bros.' Mine, Buller Gorge.—Production was commenced from this mine at the beginning of the year in an area adjacent to the old Rocklands Mine. Height of seam, 7 ft. 6 in. A mechanically operated ventilating fan is being installed.

Buller Gorge Mine, Rabui.—Owing to the steepness of the coal-seam opencast work had to be abandoned, and a pair of levels were driven underground. All available coal to the rise was extracted, and the present output is being secured from the levels. The life of the mine appears to be very limited.

NELSON DISTRICT

Paponga Mine, Paponga.—Operations at this mine ceased during the year.

Owen Colliery, Owen River, Marchison.—Output during the year was secured solely from the extraction of pillars.

Six-mile Mine, Marchison.—Prospecting-work was carried out at this mine, and the output secured from prospect levels in the 5 ft. vertical seam.

O'Rourke's Mine, Arika.—Production from this mine is secured from the driving of one place only.

Westhaven Mine, Mangarakau.—The output during the year was obtained solely through the driving of three places in the solid.

Glenhope Mine, Glenhope.—Work was intermittently carried on during the year for an output of approximately 100 tons.

MINE RESCUE STATION

All the trained men from the district mines attended the two-monthly practices, the number of trained rescue men on the station register being sixty-two at the end of the year.

FATAL ACCIDENTS

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

On 27th April Joseph Morrow, miner, Wallsend Colliery, who was trimming loose coal, was struck by a slab of coal weighing approximately 1 cwt. He suffered a fracture of the base of the skull, from which injury he died on 28th April.

On 24th May Alexander Gennon, miner, Stockton Colliery, was struck by a large fall of coal and suffered multiple injuries, as the result of which he died shortly afterwards.

On 15th October Joseph Rowse, miner, Liverpool Colliery, was struck on the head and shoulder by a piece of stone which fell from a cavity in the roof. He continued to work on to the end of the wet-time shift, but in the evening he became unconscious and was taken to hospital, where he succumbed on the 16th October.

On 22nd October Thomas Brown Wilson, miner, Millerton Colliery, was killed by a fall of coal from an overhanging rib in his working-place.

On 30th October Joseph Davies, timber-cutter, Wallsend Colliery, while walking on the roperoad, was struck by a moving empty truck. He was found lying unconscious with severe head injuries, and succumbed in hospital on the 31st October.

SERIOUS NON-FATAL ACCIDENTS

On 10th February E. O'Brien, trucker, Dobson Colliery, fell off a trolley used for conveying the men out of the mine and sustained a fractured tibia and laceration of the left leg.

On 17th February E. Bourke, shuffman, Strongman Colliery, was assisting a trucker to load a bar on to an empty truck when his foot slipped, allowing the bar to fall on the first finger of his right hand, causing a fracture of such finger between the first and second joints.

On 24th February J. Blair, miner, Stockton Colliery, sustained fractured ribs through being struck by a fall of coal whilst engaged in extracting a stump of pillar and dropping top coal.

On 3rd May J. Mann, miner, Stockton Colliery, received a fractured femur through being struck on the leg by a piece of coal.

On 4th May R. Mollison, acting-underviewer, Wallsend Colliery, while passing a moving race of boxes in No. 2 slant dip, received a simple fracture of the right forearm when his arm was caught between the boxes and the coal-rib.

On 2nd June R. Bell, trucker, Dobson Colliery, whilst unloading rails had his small finger amputated, losing two joints.

On 5th June A. McHardy, manager, Puponga Colliery, sustained fracture of thigh and two ribs when the locomotive in which he was riding fell through the loading wharf 16 ft. to the beach below.

On 11th June W. Wilde, deputy, Dobson Colliery, whilst putting up brattice in Whitfield's Place in No. 5 dip was struck on the arm by a piece of coal, causing fracture of the forearm in two places.

On 16th June J. Corcoran, miner, Stockton Colliery, was struck by a piece of coal which rolled off a loose heap and jammed his leg against a prop, breaking the fibula.

On 22nd June James Hill, miner, Denniston Colliery, received head injuries as the result of a fall of stone in the Extended section, due to roof movement.

On 24th June J. Dowie, miner, Stockton Colliery, while walking towards the magazine at Fly Creek, slipped and fell heavily, breaking his left wrist.

On 30th June Charles Wright, miner, Strongman Colliery, sustained dislocation of the left hip when buried by a fall of roof coal whilst working in No. 2 south section.

On 16th August A. Tikey, trucker, Wallsend Colliery, was struck on the elbow by a box coming from behind whilst he was pushing a full box, and sustained a fractured radius of the right arm.

On 17th November E. Raffie, surface rope-boy, Denniston Colliery, suffered a fractured radius bone when a full box of coal was being steadied around a curve landing on the main roperoad.

On 22nd December S. Braggins, fan attendant, Denniston Colliery, was hit by a full box of coal when passing through Coalbrookdale sheds. He was caught around the legs, and suffered a fracture of the left tibia.

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

Wallsend Colliery.—On 7th January an accumulation of CH₄ was discovered in the top airway of "B" panel (25,000 cubic feet). The men were withdrawn from the place and steps taken to remove the gas. The following morning a further accumulation of 3,000 cubic feet was discovered in a dead-end in the far end of "C" panel, and this was cleared by the end of the shift, the mine being idle that day. The cause of these accumulations was found to be a damaged regulator in the return from No. 2 slant dip.

Jubilee Colliery.—On 18th January gas was found, and one man was slightly burned. Safety-lamps were installed.

Wallsend Colliery.—On 15th February an accumulation of 12,000 cubic feet of gas was found in Uren's heading, caused by a stoppage of fan (motor trouble) and a fall of stone, which knocked the brattice down. The gas was subsequently cleared.

Burnwell Colliery.—On 13th March indications of heating were found in a fall of roof in a portion of the workings at roof level. A temporary stopping was built, which was later reinforced by a permanent stopping.

Wallsend Colliery.—On 24th March a feeder of CH₄ was found in Hales level, No. 2 slant dip, and the men were placed elsewhere. An examination revealed that a heavy blower of gas and water was issuing from a small crack in the roof, there being approximately 2 per cent. of CH₄ in the air. Brattice was tightened and regulator enlarged a further 2½ square feet.

Wallsend Colliery.—On 25th March a further blower of CH₄ was struck in Hales place. The section was knocked off, and as there was still 2½ per cent. in air the following morning, the men were placed elsewhere. However, on examination about 2 per cent. of CH₄ was found in the air with the blower easing off rapidly. Later in the morning the blower was down considerably in pressure.

Wallsend Colliery.—On 29th March a further blower of gas and water was struck in Hales place, making it necessary to again withdraw the men on the return side of the place.

Wallsend Colliery Shaft.—On 20th October a miner was struck a light blow on the head by the descending cage as the result of a misunderstanding of signals given whilst he and another man were unloading timber from a trolley which had run into the shaft bottom.

Liverpool Colliery.—On 26th October a miner was found to be charging a shot before the shot-firer arrived to fire it.

Denniston Colliery.—On 23rd November a heating occurred in Coalbrookdale Mine where pillars had been extracted in a section known as Junction Extended. Sealing operations were carried out, and production was recommenced on 7th December.

Liverpool Colliery.—On 26th November a heating occurred in the Kimbell east section, and sealing operations were carried out.

PROSECUTIONS UNDER THE COAL-MINES ACT, 1925

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

On the 9th March two shot-firers were charged with having committed a breach of Regulation 226 (g) (i) of the Coal-mines Regulations 1939. Each was convicted and fined £10, with costs 10s.

On the 9th March an examining deputy was charged, under Regulation 168 of the Coal-mines Regulations, 1939 with using a defective safety-lamp when making inspections in the mine. He was convicted and fined £2, with costs 10s.

On the 5th April a shot-firer was prosecuted for a breach of Regulation 225 (3) of the Coal-mines Regulations 1939. He was convicted and fined £5, with costs 10s.

On the 28th July three charges were heard against a mine-manager. The first charge, under section 97 (a) of the Coal-mines Act, 1925, was that he did use, for the purpose of making his inspection before the commencement of work, a lamp which had not been thoroughly examined. He was convicted and fined £10, with Court costs 10s. On the second charge, for a breach of section 128 (1) of the Coal-mines Act, 1925, he was convicted and discharged. On the third charge, under Regulation 221 (1) of the Coal-mines Regulations 1939, he was convicted and fined £5, with costs 10s.

On the 17th August two charges were heard against a mine-manager. The first charge was under section 129 of the Coal-mines Act, 1925, and the second charge under section 61 of the Coal-mines Act, 1925. In both cases he was convicted and fined £1 and costs.

On the 11th October a shot-firer was charged with having committed a breach of Regulation 224 (2) of the Coal-mines Regulations 1939. He was convicted and fined £5, with costs 10s. For aiding and abetting the commission of such offence a miner was convicted and fined £5, with costs 10s.

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

CANTERBURY DISTRICT

Acheron Mine (Anthracite), Brockley Mine (Anthracite).—These mines continued to produce a small quantity of anthracite. Pillar-extraction is proceeding at the former mine, and a limited amount of development work has been carried out under difficulties at the Brockley Mine. The thickness of the almost vertical coal-seam worked at the Brockley Mine varies from 2 ft. to 3 ft. 6in.

Clearview Mine.—The whole of the output from this mine was obtained from pillar-extraction.

Steventon Mine.—The bulk of the output from this mine was obtained from pillar-extraction. However, towards the end of the year a commencement was made to extend the main dip heading. Development work at this mine was hampered during the year owing to insufficient power.

Lucknow Clay Mine and Sheffield Clay Mine.—Fireclay continued to be mined throughout the year. This work was carried out intermittently and on a small scale.

Victory Mine.—A seam of coal approximately 12 ft. thick was discovered towards the end of the year, but the amount of development work carried out has been too limited to allow of a reasonable forecast being made as to the prospects of this seam.

Klondyke Mine.—No development work was carried out at this mine during the year. A regular and reasonable output was obtained from pillar-extraction in the No. 3 and No. 3 north level sections. It will soon be necessary to extend the main dip heading.

Mount Somers Mine.—Several levels have been driven north for about 9 chains, and this work is being continued.

Blackburn Mine.—Development of this area has been completed, and pillar-extraction was commenced towards the end of the year.

Sunrydale Clay Mine.—A very small amount of work was carried out intermittently.

Woodbank Mine (Albury).—Opencast operations were continued during the first half-year, after which a commencement was made to develop the coal-seam underground, and electrical power was connected to the mine for this purpose.

New Burnwell Mine.—A prospecting cross-measure drive commenced in this new area adjacent to Mount Somers Mine, is being driven in a northerly direction through sand measures.

NORTH OTAGO DISTRICT

Airedale Mine.—Development work has been continued to the south-east as far as the boundary, and pillar-extraction commenced.

St. Andrews Mine (Papakaio).—Development was continued to the north-west, and towards the end of the year prospects in this direction had improved. A small amount of pillar-extraction also took place in this section.

Ngapara Mine.—The whole of the output has again been won from pillar-extraction.

Willetts Mine.—Pillar-extraction was continued until June. Since then a small amount of development work has been done to the west, but prospects of opening up much coal in this direction are doubtful.

Rockvale Mine and Shag Point Mine.—The whole of the output from these mines has been won from pillar-extraction.

CENTRAL OTAGO DISTRICT

Shepherd's Creek Mine.—The whole of the output from this mine has been produced from pillar-extraction.

Cairnmuir Mine.—Development work at this mine has proven the area rather difficult to work. The seam is faulty, and the saturated overlying sand makes the roof at times almost impossible to control. A series of levels have now been driven north. The coal-seam is approximately 9 ft. thick and almost vertical.

Oturehua Mine and Idaburn Mine.—Opencast operations have been continued at these pits.

SOUTH OTAGO DISTRICT

New Fernhill Mine.—No. 1 Mine: Pillar-extraction has continued throughout the year.

No. 2 Mine: This is a new mine adjacent to and south-east of Green's old mine. The coal-seam has been proven by old mines on both sides of the area now being worked, and it seems safe to presume that an area of coal exists here for development.

Jubilee Mine.—This mine became exhausted in April and was finally closed down.

Fairfield Mine.—Pillar-extraction was continued throughout the year.

Willowbank Mine.—Towards the end of the year a commencement was made to extend the main dip heading development work. Previous to this the whole of the output was obtained from pillar-extraction from the top seam.

East Taieri Mine.—Pillar-extraction only was continued throughout the year.

Elliotdale Mine.—Operations at this mine were suspended early in the year.

Benhar Mine.—The main dip heading has been extended a short distance and a limited amount of development work carried out, but the bulk of the output was obtained from the recovery of top coal from the old levels.

Wangaloa Mine.—The main dip heading was extended to the boundary and a commencement made to extract the pillars. There is now a reasonable amount of coal in sight available for extraction.

Kaitangata Mine.—In the south dip heading section, pillar-extraction has continued throughout the year. This area has been the most productive part of the mine for several years and is rapidly nearing exhaustion. In Samson's seam, pillar-extraction has also kept pace with development work, and as this seam is lying at a very steep gradient it does not lend itself to the same degree of concentrated production as is usually the case at this mine. A cross-measure dip heading was driven in an easterly direction from the main seam with the object of working a 6 ft. seam of coal which, it is stated, was worked under the old No. 2 mine workings. Up to date the result of this work is disappointing. Unless more coal is quickly made available for development at this mine, difficulty may be experienced in maintaining the usual output. The development has not kept pace with pillar-extraction.

SOUTHLAND DISTRICT

Beattie-Cosler, Firelite, Harknani Coal-mines.—Operations were abandoned at these mines during the year.

Hedgehope, Cosler, Waimumu, Croydon, Raby, Argyle, Ota Creek, and Asher's Siding Coal-mine.—Opencast operations were continued during the year.

Malawa Paper-mills and Newvale Coal-mines.—Opencast operations were continued during the year. At the former mine the coal-seam continues to be stripped, mined, and loaded mechanically, and at the latter mine a similar, but smaller, machine is used.

Balfour Mine.—Development of this mine continues in a southerly direction.

Boghead Mine.—A small amount of development work has been carried out to the dip, and lower levels have been driven to the north and south.

Otikarama Mine.—Development work has continued to the east. However, the boundary has almost been reached, and it is doubtful if much more work will be carried out at this mine.

Black Diamond Mine. The whole of the mine output has again been won from pillar-extraction, and no new development work at this mine is in sight.

Black Lion Mine. A limited amount of development work has been carried out to the north-west, but the prospects of this work opening up an area of coal are doubtful. A small amount of pillar-extraction has also been continued in the north-west area. Towards the end of the year an area of coal was stripped and made available for opencast mining, and the company also proposes to carry out some boring operations to the north-west of the present workings. A bathhouse was erected during the year.

Mossbank Mine.—The development of Nos. 1 and 2 panels was completed and pillar-extraction in the higher portion of No. 1 panel carried out. Various efforts to develop new areas met with very disappointing results, and towards the end of the year a dip heading was commenced from the lower level of No. 1 panel and driven in a westerly direction. This dip has now been driven approximately 600 ft., and levels driven south-east from it are in good-quality coal, as also is the main dip itself. The levels driven north-west have encountered a fault, and the prospects are not encouraging in this direction. A bathhouse was erected during the year.

Star Mine.—Pillar-extraction has continued throughout the year in the No. 2 east level. Development work was carried out to the south, and an additional area of coal is being developed from the No. 2 east level, which has been driven a distance of approximately 15 chains. Boring operations are being carried out to the south of the present workings, but so far no workable coal has been proven.

Birchwood Mine. The bulk of the output at this mine has been obtained from pillar-extraction. In the No. 1 west section, development work is proceeding to the west. A fault encountered in this section was proven and the coal-seam shown to be 16 ft. thick beyond the fault-line and at a slightly lower level, the fault being a down-throw fault of small displacement. Development work at this mine has not kept pace with pillar-extraction.

Wairaki, No. 1 Mine: Pillar-extraction has been continued in the several sections of this mine throughout the year.

No. 3 Mine: The main south-west headings have now been driven a total distance of 23 chains, and at present are being driven through faulted ground to a point where the coal-seam has been proven by a bore-hole, this bore-hole being approximately 6 chains ahead of the development places referred to. Other development work during the year was the completion of the No. 2 panel from the No. 1 west level, and also the development of a panel to the dip of the same level. The dip headings into the last-mentioned panel have been driven approximately 7 chains and a fairly large area of coal developed. The development of this mine can be said to be satisfactory, as also are the prospects for the mine.

Linton, No. 1 Mine: Development work at this mine has been confined to the Nos. 9 and 10 sections. In the No. 9 section, main development headings have been driven north-east for a distance of approximately 500 ft. In the No. 10 section the main development headings have been driven a distance of approximately 900 ft. south-west. At this point a fault was intercepted, but the coal was again proven on the west side. The main dip headings have been standing on a fault throughout the year. In the Nos. 6, 7, and 8 sections, pillar-extraction was continued throughout the year. A new travelling roadway for the workmen was constructed, and an additional separate return airway was also constructed for the Nos. 9 and 10 sections.

No. 3 Mine: The main development north headings have now been driven a total distance of approximately 2,000 ft. All coal to the rise, and to the dip from the main headings up to a point 1,300 feet inbye, has been developed and some of the pillars extracted. The inbye end of the main development headings is now standing in coal at least 50 ft. thick, but is not far distant from a fault. Development work in the inbye section is being continued to the north-west. The strata thereabouts is faulty and of irregular contour, thereby presenting difficulty in arranging the development work.

FATAL ACCIDENTS

On the 16th March John Dahren, miner, Birchwood Mine, was killed by a fall of top coal during pillar-extraction.

On the 7th July D. L. Baird, miner, Black Diamond Mine, sustained a fractured humerus as a result of being struck by a piece of coal falling from the rib of a pillar place. Complications set in as a result of the accident, and he died on the 26th July.

SERIOUS ACCIDENTS

On the 16th February James Brown, trucker, Kaitangata Mine, sustained a fractured pelvis as a result of being crushed between a truck and the "rib."

On the 9th June W. J. McFarlane, trucker, Linton Mine, sustained extensive crushing and lacerations to the forearm. He was running back to the jig wheel after pushing the full boxes over the brow of the incline when he slipped, clutched the on-going rope, and was dragged into the jig wheel.

On the 11th June F. M. Bee, shifftman, Mossbank Mine, sustained a fractured patella. He was struck by a runaway box on a "cuddy" incline.

On the 1st July George Finch, trucker, Kaitangata Mine, sustained a fractured leg. He slipped and fell whilst ascending a steep incline.

On the 1st September L. W. Hunt, miner, Black Diamond Mine, sustained a fractured pelvis as a result of being struck by a fall of top coal in a pillar-splitting place.

On the 21st September James McAuley, miner, Kaitangata Mine, sustained a fractured vertebra as a result of being struck by a fall of top coal whilst renewing a prop in a pillar place.

On the 9th October James Kaye, trucker, Kaitangata Mine, sustained a fractured skull, fractured ribs, and various contusions and abrasions as a result of being crushed between the roof and a full box. From the evidence available it would appear that Kaye was riding on the boxes ascending the incline.

On the 21st December W. O'Brien, roadman, Mossbank Mine, sustained a fractured pelvis as a result of being crushed between the rib and a rake of trucks which were being hauled from a laybye.

DANGEROUS OCCURRENCES

Wairaki Mine.—Heatings occurred in the No. 1 Mine on the 17th March and the 8th June. The heated areas were promptly and effectively sealed off. On the 17th June and 31st August fires broke out adjacent to fire stoppings in two sealed-off sections in the No. 1 Mine. In both cases new stoppings were erected and the areas effectively resealed.

Mossbank Mine.—Heating occurred in the No. 1 panel pillar section on the 25th August. The area was temporarily sealed off, and a premature attempt was made to reopen the area some weeks later. The result was an immediate reheating, and a permanent sealing-off of the area was finally directed and carried out.

Black Diamond Mine.—Heating occurred in the lower pillar area in September, and after some delay the area was effectively sealed off.

PROSECUTIONS

On the 10th March a coal-mining company was prosecuted for failing to comply with the direction of the Mining Controller to transfer portion of the output of its colliery to the Railways Department. The company was convicted and fined £50, £25, and costs respectively on two informations.

On the 9th June a trucker employed at the Linton Mine was convicted and fined £3 and costs for a breach of section 98 of the Coal-mines Act, 1925.

On the 15th September two truckers employed at the Kaitangata Mine were convicted and fined £3 and costs and £2 and costs respectively for breaches of section 98 of the Coal-mines Act, 1925.

OHAI RESCUE-STATION

The rescue-station has now been equipped, and several brigades of trainees have satisfactorily completed their training course.

ANNEXURE B

STATISTICS OF WORKINGS IN COAL-MINES, 1945

Name of Mine and Locality.	Title held (Crown Lease or otherwise).	Name of Mine-manager and Class of Certificate.	Name and Address of Owner.	Number of Years worked.	Classification of Coal.	Number of Seams worked.	Thickness of Coal-seams.	Thickness worked.	System of Under-ground Working.	Depth or Length of Shaft Drive (if any) to reach Coal-seam.	Total Output for 1945.	Total Output to 31st December, 1942.	Total Output to 31st December, 1943.	Number of Persons ordinarily employed.		Means of Ventilation.	
														Above.	Below.		Total.
NORTHERN INSPECTION DISTRICT																	
<i>Waikato District</i>																	
Rotowaro, Rotowaro ..	Crown lease and freehold	W. N. Currie (1st C.)	Taupiri Coal-mines, Ltd., Auckland	26	Brown	2	7, 15', and 27'	Full	Bord and pillar	..	219,643	3,393,744	3,613,387	103	276	379	Fans.
Pukemiro, Pukemiro ..	Ditto	G. Keown (1st C.)	Pakeniro Collieries, Ltd., Auckland	28	"	1	4' to 18'	4' to 14'	Ditto	..	138,530	3,342,833	3,342,833	50	220	270	"
Wilton, Glen Massey ..	Freehold	T. L. Andrews (1st C.)	Wilton Collieries, Ltd., Glen Massey	13	"	1	6' to 8'	7' 6"	"	..	84,276	1,001,311	1,024,787	51	128	179	"
Waikato Extended, Hundly West	Freehold	J. Honey (1st C.)	Roose Shipping Co., Mercer	27	"	1	14'	9'	"	..	3,778	124,978	157,836	7	99	106	Natural.
Glen Affton No. 1 ..	Crown lease and freehold	W. C. Inglis (1st C.)	Glen Affton Collieries, Ltd., Auckland	23	"	1	4' to 16'	9'	"	..	39,486	2,168,221	2,168,221	29	99	128	Fan.
MacDonald, Waikowhai ..	Ditto	W. Scurr (D.)	Holland and party, Huntly	13	"	1	6' to 20'	9' to 14'	"	..	182,223	1,612,962	1,795,101	73	234	307	"
Taupiri East, Kimihia ..	Crown lease	A. Penman (1st C.)	Wharawhara Campbell Coal Co., Ltd., Hamilton	22	"	1	10'	10'	"	..	4,361	42,807	52,768	2	5	7	"
Whatawhata, Campbelloi, Whatawhata	"	"	"	22	"	1	10'	10'	"	..	7,410	93,876	101,286	6	11	17	"
Renown, Renown ..	Freehold	T. Giddes (1st C.)	Taranaki Collieries, Ltd., Auckland	16	"	2	15'	7' 6" to 9'	Open-cast	..	141,974	1,506,263	1,648,237	64	194	258	Natural.
Glen A Potteries, Glen Affton	"	J. Howie (P.)	Taranaki Brick and Land Co., Ltd., New Plymouth	74	"	1	8'	8'	"	..	122	2,411	2,533	1	..	1	"
<i>Taranaki District</i>																	
Old Stockman, Moku ..	Freehold	H. W. Jones (D.)	Chambers Bros., Havelock	23	Brown	1	4' 6"	4' 6"	Bord and pillar	..	1,022	13,555	14,577	1	1	2	Natural.
Manganahi, Manganahi (State)	Crown lease	H. Quinn (1st C.)	N.Z. Government, Wellington	93	"	1	8' to 20'	7' to 8'	Ditto	..	67,134	120,366	137,500	28	94	122	Fan.
Tatu, Ohura (State) ..	"	A. J. McMillan (1st C.)	"	7	"	1	7'	Full	"	..	29,380	163,084	134,464	35	61	96	"
Aria, Aria ..	"	A. Pratt ..	J. Spence, Papakura	31	"	1	12'	9'	"	..	36	..	36	1	1	2	"
<i>Hikurangi District</i>																	
Waro, Hikurangi ..	Freehold	P. T. Peattie (1st C.)	Waro Coal-mines, Ltd., Auckland	9	Sub-bituminous	1	3' to 4' 6"	All	Bord and pillar	..	18,813	131,449	150,262	16	68	84	Fan.
New Kaimo, Kaimo ..	Crown lease and freehold	J. Makinson (1st C.)	Kaimo Collieries, Ltd., Whangarei	93	Ditto	1	5' to 12'	8'	Ditto	..	62,469	293,296	337,765	21	91	112	Fans.
Avoca, Tangowahine ..	Freehold	S. G. Foot (T.)	S. G. Foot, Hikurangi	131	"	1	3' 6" to 4"	3' 8"	"	..	203	..	203	..	..	..	"
Pollock's Mine, Kaimo	Freehold	J. A. Pollock	A. E. Pollock, 176, Kaimo Road,	11	"	1	3' 6" to 4"	3' 8"	"	..	343	..	486	..	..	..	"
Output of collieries included in previous statements at which operations have been suspended or abandoned ..																	
WEST COAST INSPECTION DISTRICT.																	
<i>Nelson District</i>																	
Westhaven, Collingwood	Freehold	J. Graham (D.)	G. and A. H. Wynn, Manuarakau	5	Sub-bituminous	1	6'	Full	Bord and pillar	..	3,249	10,893	14,142	2	5	7	Fan.
Puponga, Puponga ..	Crown lease	A. J. McHardy (2nd C.)	Puponga Coal-mines, Ltd., Puponga	40	"	1	3'	"	Ditto	..	949	424,093	425,042	1	4	5	Natural.
Owen, Owen River ..	"	O. J. Gilroy (D.)	Owen Collieries, Ltd., Nelson	14	"	1	4' to 6'	"	Double stall	..	3,391	42,951	46,342	1	6	7	Fan.
Strathmore, Ariki ..	"	R. E. O'Rourke (P.)	R. E. F. O'Rourke, Ariki, Murchison	24	"	1	4'	"	Bord and pillar	..	165	257	422	..	2	2	Natural.
Six-mile, Murchison	Freehold	J. Gillespie (P.)	Six-mile Coal Co., Murchison	24	"	1	5'	"	Ditto	..	783	1,198	1,981	1	3	4	"
Victory, Glenhope ..	"	R. H. O'Brien (P.)	H. McConochie, Glenhope	2	Bituminous	1	6'	"	"	..	98	64	162	..	1	1	"

STATISTICS OF WORKINGS IN COAL-MINES, 1943—continued

Name of Mine and Locality.	Title held (Crown lease or otherwise).	Name of Mine-manager and Class of Certificate.	Name and Address of Owner.	Years worked.	Classification of Coal.	Number of seams worked.	Thickness of Coal-seams.	Thickness worked.	System of Under-ground Working.	Number of Winders.	Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam.	Total Output for 1943.	Total Output to 31st December, 1942.	Total Output to 31st December, 1943.	Number of Persons ordinarily employed.		Means of Ventilation.
															Above.	Below.		Total.
WEST COAST INSPECTION DISTRICT—continued																	
<i>Buller District</i>																	
Allan's Charleston	Crown lease	T. D. Allan	T. D. Allan, Charleston	11	Lignite	1	40'	40'	Opencast	..	..	6	84	90	1	1	Natural.
Bowater and Bryan, Charleston	"	F. M. Mitchell (P.)	Bowater and Bryan, Westport	131	"	1	40'	40'	Board and pillar	..	..	47	3,922	3,726	2	2	"
Brighton, Fox River	"	A. Hunter (P.)	Andrew Hunter, Ironoreana	11	"	1	12' to 16'	12'	Ditto	..	..	62	3,733	3,735	..	2	"
Cascade, Cascade Creek	"	W. Brown (1st C.)	Cascade-Westport Coal Co., Ltd., Westport	17	Bituminous	1	30'	7'	"	..	..	17,753	257,332	275,715	10	10	"
Charming Creek, Ngakawau	"	R. J. Wearn (1st C.)	Charming Creek - Westport Coal Co., Ltd., Westport	16	"	1	8' to 20'	10'	"	..	..	39,104	296,429	335,533	27	37	Fan.
Coal Creek, Seddonville	"	T. Quinn (D.)	Coal Creek mining party, Seddon.	26	"	1	22'	8'	"	..	..	3,305	118,378	121,633	1	5	Natural.
Hydro, Seddonville	"	E. Martin (U.)	Hydro Coal-mines, Ltd., Westport	8	"	1	20'	Full	"	..	..	13,681	67,568	81,229	2	8	Fan.
Dove S., Seddonville	"	T. Dove (D.)	T. Dove, Seddonville	13	"	1	20'	8'	"	..	..	119,472	119,687	119,687	..	1	Natural.
Mitchell's, Charleston	"	F. N. Mitchell (P.)	F. N. Mitchell, Charleston	18	Lignite	1	40'	8'	Opencast	..	..	48	1,547	1,595	..	1	"
Warne's, Charleston	"	C. N. Warne (P.)	C. N. Warne, Charleston	18	"	1	40'	8'	"	..	..	6	163	163	1	1	"
Rocklands, Buller Gorge	"	N. B. Paine (U.)	Paine Bros., Buller Gorge	41	Brown	1	12' to 18'	9'	Board and pillar	..	..	2,610	19,249	21,859	1	4	Fan.
Glencrag, Buller Gorge	"	N. Forsyth (2nd C.)	Forsyth and Bateson, Westport	20	Bituminous	1	20'	10'	Ditto	..	..	2,256	10,950	13,206	1	2	Natural.
Denniston, Denniston	"	A. Opehawa (1st C.) and R. Marshall	Westport Coal Co., Ltd., Dunedin	63	Bituminous	7	3' to 30'	Full	"	..	..	163,304	11,714,635	11,877,959	86	206	Fans.
Millerton, Granby	"	O. J. Davis (1st C.)	Westport-Stockton Coal Co., Ltd., Christchurch	52	"	1	4' to 40'	12'	"	..	..	108,990	8,933,280	9,042,370	48	107	"
Stockton, Ngakawau	"	T. McGhie (1st C.)	Westport-Stockton Coal Co., Ltd., Christchurch	35	"	3	4' to 20'	10'	"	..	..	120,282	4,296,589	4,416,851	98	190	Fan.
Harris', Karamea	Freehold	J. Harris (P.)	John Harris, Karamea	71	Lignite	1	12'	8'	"	..	..	34	27	61	..	3	"
Cardiff, Mokihinau	Crown lease	J. Boyd (D.)	Cardiff Coal Co., Ltd., Westport	11	Bituminous	1	10' to 12'	10'	"	..	..	3,080	23,009	26,089	..	5	Natural.
Buller Gorge, Rahui	"	R. Chester (D.)	Buller Coal-mining Co., Westport	11	Brown	1	11'	7'	"	..	..	3,439	790	4,229	1	3	"
<i>Reefton District</i>																	
Alborn's (late Archer's)	Crown lease and freehold	N. R. Alborn (D.), J. J. Moran (P.), and P. McCormack (D.)	V. W. Alborn, Christchurch	48	Brown	3	8' to 18'	9'	Board and pillar	..	..	10,704	114,466	125,170	1	15	Natural.
Burke's Creek, Reefton	Crown lease	C. D. Buist (1st C.)	Burke's Creek Collieries Ltd., Reefton	42	"	1	8' to 12'	9'	Ditto	..	..	30,497	411,105	441,602	15	54	Fan.
Glele, Merrisjes	"	R. V. Alborn (1st C.)	R. V. Alborn, Christchurch	57	"	2	4' and 5'	Full	"	..	..	3,762	104,055	107,817	1	6	Natural.
Goghlan's, Capleston	Crown lease and freehold	J. Banks and E. Patterson (U.)	J. H. Coghlan, Reefton	46	"	2	10' to 40'	10'	"	..	..	3,815	53,461	57,276	5	13	"
Defiance, Murray Creek	Crown lease	G. Turner (2nd C.)	McClatchie and Co., Ltd., Christchurch	15	"	1	6'	Full	"	..	..	11,217	38,472	49,689	3	15	Fan.
Morrisvale, Reefton	"	C. D. Curtis (2nd C.)	W. J. Morris, Reefton	31	"	1	12'	Full	"	..	..	10,376	194,560	204,936	3	14	"
Wairu, Reefton	"	A. D. Williams (1st C.)	Burnwell Coal Co., Reefton	15	"	1	40'	13'	"	..	..	5,637	14,893	20,530	7	7	"
Waitahu, Reefton	"	A. D. Williams (1st C.)	A. D. Williams, Reefton	34	"	1	6' to 13'	Full	"	..	..	11,871	47,896	59,767	3	14	"
Terrace, Reefton	"	G. H. Millar (U.)	Terrace Coal-mine, Ltd., Reefton	16	"	1	40' to 9'	8'	"	..	..	7,393	20,517	27,910	..	10	"
Comet, Reefton	"	C. Taylor (D.)	Comet mining party, Inangahua Junction	21	"	1	10'	8'	"	..	..	3,024	3,674	6,698	..	6	Natural.
Nicholls, Capleston	"	W. Nicholls (D.)	W. Nicholls, Reefton	3	"	1	6'	Full	"	..	..	877	..	877	..	3	"
<i>Grey District</i>																	
Cliffdale (formerly known as Bellbird)	State reserve	A. Coppersmith (2nd C.)	Stuart and party, Runanga	16	Bituminous	1	6'	Full	Board and pillar	..	..	5,736	48,878	54,614	..	7	Fan.
Bellvue, Rapahoe	"	W. Hughes (D.)	Bellvue Mines, Ltd., Greytown	17	"	1	11'	8'	Ditto	..	..	4,101	97,646	101,747	2	5	"
Blackball, Blackball	"	L. C. Cook (1st C.)	New Zealand Government, Wellington	52	"	2	8' to 17'	8'	"	..	..	37,060	4,210,388	4,247,443	26	63	94
Blackball Creek, Blackball	"	R. J. Bowman (U.)	Ditto	121/2	"	1	5'	4' 6"	"	..	..	6,171	157,889	164,060	2	10	"
Harrison's, Ten-mile	"	G. H. Gaskell (2nd C.)	Harrison and party, Runanga	23	"	1	8' to 9'	5' to 9'	"	..	..	7,374	37,022	37,022	1	9	"
Braehead, Dunollie	"	T. Howard (1st C.)	Boote and party, Dunollie	11	"	1	6' to 9'	Full	"	..	..	6,586	150,628	157,214	1	10	"
Briandale, Ten-mile	Crown lease	T. Howard (1st C.)	Briandale Collieries, Ltd., Christchurch	17	"	1	6'	..	"	..	..	1,538	98,929	100,467	3	3	"

Location	Ownership	Manager	Area (Acres)	Depth (Fathoms)	Production (Tons)	Notes
Wallsend, Brunton	Crown lease and freehold	F. E. Lockington (1st C.)	1	18'	..	..
Raja (Cain's), Rapahoe	State reserve	R. Longstaff (U.)	1	5'	Full	..
Castlepoint, Dunollie	"	D. Bell (D.)	1	5'	"	..
Dobson, Dobson	Crown lease	J. G. Quinn (1st C.)	1	9' to 16'	"	..
Fiery X, Dunollie	State reserve	J. R. Brown (D.)	1	5'	"	..
Goddight, Rewanui	"	E. J. Keating (D.)	1	2'	"	..
Hilfrop, Ten-mile	"	R. J. Armstrong (D.)	1	22'	10'	..
Kave's, Ten-mile	"	J. F. Turner (1st C.)	1	8'	Full	..
Hunter's, Rewanui	"	B. Haddock (U.)	1	8'	"	..
Jubilee, Rapahoe	"	F. Hassan (U.)	1	9'	"	..
Moody Creek, Dunollie	"	J. W. Patterson (2nd C.)	1	10'	"	..
Cliffside, Nine-mile	"	R. C. Chandler (U.)	1	11'	9'	..
New Point Elizabeth, Dunollie	"	J. M. Williams (2nd C.)	1	9' to 11'	Full	..
Old Runanga, Rewanui	"	J. J. Queen (2nd C.)	2	3' and 6'	"	..
Paparua, Rora	Crown lease	A. O'Donnell (1st C.)	2	8' to 25'	"	..
Schultz Creek, Twelve-mile	State reserve	D. Cameron (D.)	1	3'	"	..
Smith's, Dunollie	"	T. Halliday (D.)	1	6'	"	..
James, Rapahoe	"	J. Adamson (1st C.)	1	4' to 8'	"	..
Strongman, Nine-mile	"	A. Smith (1st C.)	1	20'	9'	..
Liverpool, Rewanui	"	J. Kelly (2nd C.)	1	10'	8'	..
Spark's, Rewanui	"	"	1	10'	8'	..

Output at collieries included in previous statements at which operations have been abandoned or suspended

SOUTHERN INSPECTION DISTRICT

Location	Ownership	Manager	Area (Acres)	Depth (Fathoms)	Production (Tons)	Notes
Acheron Anthracite, Coalgate	Freehold	A. J. Clark (D.)	3 1/2	8'	7'	Altered lignite
Blackburn, Mount Somers	Crown lease	A. McLean (U.)	14	8'	7'	Lignite
Brockley Anthracite, Whitecliffs	Freehold	E. W. Broad (D.)	5	3'	3'	Altered lignite
Clearview, Glenroy	"	J. W. Marsh (D.)	24	10 1/2'	8'	Lignite
Klondyke, Coalgate	"	A. Nimmo (2nd C.)	15	1 20'	"	"
Steventon, Whitecliffs	"	M. Fowler (2nd C.)	15 1/2	6' to 7'	5' to 6'	"
Tripps, Mount Somers	"	G. J. Porteous (D.)	77	10'	8'	"
Victory, Coalgate	"	D. McQueen (D.)	2	6' and 14'	6' and 8'	"
Woodbank, Albury	Crown lease	J. H. Shuttle (D.)	18	1 20'	10'	"
Airedale, Papakao	Crown lease	A. Beardsmore (D.)	17	24'	14'	Lignite
Ngapara, Ngapara	Freehold	C. M. Nimmo (P.)	65	1 21'	14'	"
Rockvale, Herbera	"	D. R. Gaudin (D.)	9	1 7'	6'	"
Shag Point, Shag Point	Crown lease	W. McLaren (D.)	29	1 6'	6'	Brown lignite
St. Andrews, Peebles	Freehold	J. H. Nimmo (D.)	64	1 6' to 7'	6'	"
Willets, Alredate	Freehold and Crown lease	R. Cartwright (D.)	11	1 10'	6'	"
Cairnmuir, Cromwell	Freehold and Crown lease	W. Hodson (D.)	3	1 20'	8'	Lignite
Idahurn, Oturua	Freehold	R. Barber (D.)	73	1 30'	30'	"
McPherson's, Coal Creek	Crown lease	N. J. Harlwich (P.)	73	1 10'	10'	"
Oatubua, Oturua	"	A. Brown (D.)	49	1 12'	12'	"
Shepherd's Creek, Bannockburn	"	J. Hodson (2nd C.)	66	1 6' to 20'	10'	"

North Otago District

Central Otago District

STATISTICS OF WORKINGS IN COAL-MINES, 1943—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 Beams worked.	Thickness of Coal-seams.	Thickness worked.	System of Under-ground Working.	Number of Winders at Shaft.	Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam.	Total Output for 1943.	Total Output to 31st December, 1942.	Total Output to 31st December, 1943.	Number of Persons ordinarily employed.		Means of Ventilation.	
															Above.	Below.		
SOUTHERN INSPECTION DISTRICT—continued																		
<i>South Otago District</i>																		
Benthar, Benthar	Freehold and Crown lease	J. Findlater (D.)	McSkimming and Sons, Benthar	80	Lignite	1	14'	8'	Bord and pillar	1	140'	6,526	369,734	376,260	1	8	9	Fan.
Fairfield, Fairfield	Freehold	J. G. Barclay (U.)	Fairfield Coal-mining Co., Ltd., Dunedin	11	"	1	8' to 10'	6'	Ditto	1	650'	4,775	20,912	31,687	1	7	8	"
Jubilee, Saddle Hill	Freehold and Crown lease	F. Barclay (2nd C.)	Jubilee Coal Co., Ltd., Dunedin	46	"	1	5' to 6'	4' 6" to 5'	"	1	2 ch.	1,568	674,102	675,670	3	7	10	"
Kaitangata, Kaitangata	Ditto	F. Carson (1st C.)	Kaitangata Coal Co., Ltd., Dunedin	67	Brown Lignite	2	8' to 20'	8' to 20'	"	2	12 to 30 ch.	143,852	6,226,252	6,369,664	66	220	286	"
New Fernhill, Abersford	Freehold	M. Hewitson (D.)	Fernhill Coal Co., Ltd., Dunedin	11	"	1	10' to 14'	6' to 14'	"	2	40' to 258'	7,642	41,106	48,748	3	8	11	"
Ocean View, Brighton...	"	N. Smith (U.)	Tilley, Tilley, Bush, and Smith, Brighton	1	"	1	5'	5'	"	1	50'	1,571	"	1,571	1	3	4	Natural.
Wangaloa, Kaitangata	Freehold and Crown lease	R. McVie (D.)	Wangaloa Coal Co., Ltd., Dunedin	21	"	1	25'	7'	"	"	5½ ch.	3,663	26,845	30,508	1	3	4	Fan.
Willowbank No. 1, East Taieri	Freehold	G. Scurr (D.)	G. Scurr, East Taieri	23	"	2	9'	6'	"	"	5 ch.	6,158	105,105	111,263	2	6	8	"
Willowbank No. 2, East Taieri (late East Taieri)	"	J. Dunlop (D.)	"	24	"	1	12'	7'	"	"	10 ch.	2,972	56,434	59,406	2	4	6	"
<i>Southland District</i>																		
Arctyle, Waikaka	Crown lease	C. Hall (P.)	Mrs. C. Hall, Waikaka	52	Lignite	1	14'	11'	Opencast	1	12 ch.	245	14,893	15,138	1	1	1	"
Birchwood, Ohai	"	J. Lewis (1st C.)	Birchwood Coal Co., Ltd., Dunedin	20	Brown	1	9' to 25'	6' to 8'	Bord and pillar	1	"	37,596	367,029	404,625	16	53	60	Fan.
Black Diamond, Nightcaps	"	R. McDonald (2nd C.)	Black Diamond Coal Co., Ltd., Nightcaps	28	"	1	25'	25'	Ditto	"	"	21,141	349,232	370,373	5	15	20	"
Black Lion, Ohai	"	J. Penman (1st C.)	Black Lion Coal Co., Ltd., Penman	22	"	1	8'	8'	"	1	5½ ch.	13,591	253,278	266,869	4	13	17	"
Bochard, Mataura	Freehold	J. S. Harvey (D.)	C. E. Rowe and Son, Mataura	38	Lignite	1	23'	10' to 11'	Opencast	1	"	7,934	151,301	159,435	1	5	6	"
Coster's Edendale	"	D. A. Coster (P.)	D. A. Coster, Mataura	71	"	1	12'	20'	"	"	"	1,342	7,477	8,810	1	1	1	"
Croydon, Gore	"	D. McGregor (P.)	D. McGregor, Gore	25	"	1	20'	20'	"	"	"	1,689	42,971	44,660	1	1	1	"
Diamond Lignite, Asher's Siding	Crown lease	A. McMillan (P.)	S. McMillan, Invercargill	41	"	1	36'	36'	"	"	"	1,140	49,047	50,187	1	1	1	"
Geullee, Waikaka	Freehold	J. G. Burgess (P.)	F. W. Edlee, Waikaka	50	"	1	14'	8'	Bord and pillar	1	"	2,034	48,015	50,049	1	1	1	Fan.
Gold Light, Waikaka	"	R. J. Meechang (P.)	R. J. Meechang, Gore	2	"	1	14'	10'	Ditto	"	"	522	152	674	1	1	2	Natural.
Hedgehope, Waimumu	Freehold and Crown lease	W. Coster (P.)	P. Larking, Mataura	5	Brown	1	20'	20'	Opencast	"	"	7,834	21,630	29,464	5	5	5	"
Linton, Ohai	"	A. Colligan (1st C.)	Linton Coal Co., Ltd., Invercargill	28	"	1	30' to 40'	30' to 40'	Bord and pillar	"	"	101,245	1,843,724	1,946,969	47	121	168	Fan.
Mataura Lignite, Waikaka	Freehold	J. Pearson (D.)	Beattie, Coster, and Co., Ltd., Mataura	67	Lignite	1	14'	14'	Opencast	"	"	1,377	422,917	424,294	3	3	3	"
Mataura Paper-mills, Mataura	"	A. W. Coster (P.)	N.Z. Paper-mills, Ltd., Dunedin	5	"	1	16' to 24'	16' to 24'	Bord and pillar	1	1,400'	25,888	76,621	102,509	4	4	4	"
Mossbank, Ohai	Crown lease	J. T. McLelland (1st C.)	Mossbank Coal-mining Co., Ltd., Invercargill	3	Brown	1	18'	5'	"	"	"	25,025	682,800	707,826	12	36	48	Fan.
New Vale, Waimumu	Freehold	R. J. Bryant (P.)	New Vale Coal Co., Gore	63	Lignite	1	18'	12'	Opencast	"	"	5,313	8,320	14,693	3	3	3	"
Ota Creek, Wyncham	"	E. Genge (P.)	E. Genge, Wyncham	34	"	1	9'	9'	Opencast	"	"	382	36,613	36,613	1	1	1	"
Otitkerama, Otitkerama	Freehold	J. J. Hoffman (P.)	J. J. Hoffman, Gore	54	"	1	20'	8'	Bord and pillar	"	"	3,291	79,315	82,806	3	3	3	Natural.
Raby, Gore	"	J. S. Wilks (P.)	Transport (Gore), Ltd., Gore	10	Brown	1	30'	30'	Opencast	"	"	1,012	27,804	29,716	1	1	1	"
Star, Ohai	"	J. Baird (1st C.)	Star Coal Co., Ltd., Invercargill	12	"	1	20'	8'	Bord and pillar	"	"	88,624	162,620	201,244	16	38	54	Fan.
Terrace, Balfour	"	A. C. Dixon (D.)	A. C. Dixon, Balfour	3	Lignite	1	16'	9'	Ditto	"	"	1,122	16,457	17,579	2	2	2	Natural.
Waiuamea, Orepuke	Freehold	G. S. Harris (D.)	J. L. Hennessey, Orepuke	38	"	1	16'	7'	Opencast	"	"	41	38,669	38,710	2	4	2	"
Waimumu, Waimumu	Freehold	A. Maxwell (P.)	Waimumu Coal Co., Ltd., Gore	15	Lignite	1	30'	30'	Opencast	"	"	7,359	32,874	40,233	5	5	5	"
Watraki, Ohai	Freehold and Crown lease	T. Young (1st C.)	Watraki Coal Co., Ltd., Invercargill	30	Brown	1	7' to 22'	7' to 22'	Bord and pillar	1	20 to 40 ch.	60,874	727,092	793,966	30	70	100	Fan.
Output of collieries included in previous statements at which operations are abandoned or suspended																		
Totals, Southern District, South Island																		
Totals, West Coast District, South Island																		
Totals, Northern District, North Island																		
Grand totals																		
Output of collieries prior to 1890, not included in above statement																		
Shale exported, 1944																		

Approximate Cost of Paper.—Preparation, not given; printing (775 copies), £80.