# MINES STATEMENT.

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1935.

NEW ZEALAND.

# MINES STATEMENT.

BY THE HON. C. E. MACMILLAN, 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, 1934.

## GOLD-MINING.

During the year 542,863 oz. of bullion, valued at £1,195,840, was produced, a decrease in quantity of 49,384 oz., but an increase in value of £96,261, as compared with the previous year.

The gold-content of the bullion is estimated at 160,248 oz., valued at £1,158,607.

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

| Year. | Oz. | Year. | Oz. |
|---|---|---|---|
| 1930 .. .. | 120,931 | 1933 .. .. | 161,755 |
| 1931 .. .. | 129,861 | 1934 .. .. | 160,248 |
| 1932 .. .. | 166,354 | | |

Gold won from quartz-mining during 1934 shows a reduction of 11,714 oz. compared with the previous year, while increases of 8,160 oz. and 2,047 oz. respectively are recorded for alluvial mining and dredge mining.

The large drop in production from quartz-mining was principally due to industrial troubles at the Blackwater and Alexander Mines, where the joint output was 8,741 oz. below the figure for 1933. The Blackwater Mine was idle for three months and the Alexander Mine for five months. If these mines had worked their normal time there is no doubt that the total gold-production for the Dominion would have been a record for the past eleven years.

The gold-output from the Waihi and the Waihi Grand Junction Mines again showed a substantial drop, the reduction being 5,850 oz.

There has been an enormous increase in the number of small alluvial claims operating in the country. In 1932 1,907 claims produced 27,214 oz., in 1933 2,410 claims produced 35,381 oz., while in 1934 4,357 claims produced 43,541 oz. The position is no doubt largely due to the encouragement and financial assistance forthcoming from the Unemployment Board.

In regard to dredging the position is most interesting. In 1933 there were seven dredges operating in New Zealand. In 1934 the number increased to twelve. At the time of writing there are fifteen operating and two temporarily idle. Early in 1936 it is anticipated that twenty-three dredges will be at work, and within two years' time the information available to the Department indicates the likelihood that there will be over forty such plants producing gold.

During the past year a great amount of boring has been carried out by syndicates and companies in search of dredging properties. It is estimated that there are about sixty alluvial and keystone drills in operation, and it is considered that more scientific prospecting of alluvial areas is being undertaken at the present time than ever before in the history of the industry.

Dredging possibilities present an entirely new aspect not only on account of the price of gold, but also on account of the great depths to which modern machines can work and their low cost of operation per cubic yard.

A few details of the more important dredges being built or about to be built will not be out of place.

At the time of the dredging boom of thirty years ago, the largest dredge in New Zealand had buckets of 7 cubic feet capacity, which discharged at a rate of nine and a half per minute. The maximum depth to which the dredge could work was 50 ft.

The Rimu Gold Dredging Company's new plant near Hokitika, which commenced work in 1931, has buckets of 12 cubic feet capacity, which discharge at the rate of nineteen per minute. The largest gold-dredge in the world was built in California in 1934, and has buckets of 18 cubic feet capacity. At the present time there are two modern powerful dredges under construction in Otago for operation on the Clutha River, both of which will have buckets of 12 cubic feet capacity, while for the West Coast several dredges are at present being designed which will have bucket capacities from 14 to 18 cubic feet and will require about 1,000 horse-power each to operate. Modern machines of this type each have a digging-capacity equal to ten average dredges of thirty years ago, and one or two will excavate up to a depth of 115 ft.

It is hoped that as a result of the greatly increased activity in dredging the amount of gold exported will show a corresponding advance, the benefit of which will be felt by the whole Dominion.

Indeed, those companies which are carrying out intensive prospecting campaigns, or have already commenced constructional work, have assisted very appreciably in easing the unemployment situation.

The peak of gold-production from dredging occurred in 1902, when there were about two hundred plants in actual operation, and probably totalled about 160,000 oz. per annum. Provided the price of gold remains as at present, it is not beyond the realms of possibility again to reach this figure.

During the year the Mining Amendment Act, 1934, was passed. Several sections in this Act are designed to assist development by increasing the maximum size of dredging claims and so encouraging the introduction of the large amount of capital necessary to provide modern dredges.

## 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 1934 and 1933:—

| Mineral. | 1934. | | 1933. | |
|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. |
| | | £ | | £ |
| Gold and silver* .. .. .. | 542,863 oz. | 1,195,840 | 592,247 oz. | 1,099,579 |
| Platinum .. .. .. .. | .. | .. | 3½ ,, | 21 |
| Pig-iron .. .. .. .. | 1,337 tons | 6,484 | 3,286 tons | 16,842 |
| Stone .. .. .. .. | .. | 261,637 | .. | 196,481 |
| Pumice .. .. .. .. | 2,491 tons | 6,796 | 2,387 ,, | 8,544 |
| Coal .. .. .. .. | 2,060,315 ,, | 2,060,315 | 1,821,258 ,, | 1,821,258 |
| Tungsten-ore .. .. .. | 39 ,, | 4,678 | .. | .. |
| Quicksilver .. .. .. .. | 3,852 lb. | 516 | †9,000 lb. | 1,240 |
| Totals .. .. .. | .. | £3,536,266 | .. | £3,143,965 |

* The gold-silver bullion is generally exported unseparated. † Includes 1,500 lb. valued at £240 produced in 1932, but not recorded in that year.

The value of minerals, including kauri-gum, exported and of the coal used in the Dominion, which is shown in Table No. 1 accompanying this Statement, amounted to £3,482,490, as compared with £3,151,807, during 1933. The total value of such minerals exported to the end of 1934 amounted to £188,573,857.

## GOLD AND SILVER MINING.

The following statement shows the quantity and value of bullion-production, the dividends paid by registered companies, and the number of productive claims and gold-dredges during 1934 and 1933 :—

| Class of Gold-mining. | Production of Bullion. | | | | Dividends paid by Registered Companies. | | Number of Productive Claims and Dredges. | |
|---|---|---|---|---|---|---|---|---|
| | 1934. | | 1933. | | 1934. | 1933. | 1934. | 1933. |
| | Oz. | £ | Oz. | £ | £ | £ | | |
| Quartz .. .. | 475,230 | 699,273 | 534,821 | 721,692 | 155,099 | 163,870 | 73 | 51 |
| Alluvial .. .. | 43,541 | 306,248 | 35,381 | 217,854 | 11,222 | 19,648 | 4,357 | 2,410 |
| Dredging .. | 24,092 | 190,319 | 22,045 | 160,033 | 41,406 | 25,819 | 12 | 7 |
| Totals .. | 542,863 | 1,195,840 | 592,247 | 1,099,579 | 207,727 | 209,337 | 4,442 | 2,468 |

## GOLDFIELDS REVENUE AND GOLD DUTY.

The amount of goldfields revenue received and credited to the accounts of local bodies during the year ended 31st March, 1935, was £24,438 17s. 2d., an increase of £5,058 15s. over the previous year. During the same period the total of the three duties on exported gold amounted to £112,755 17s. 5d., of which £7,057 14s. 1d. was credited to the accounts of local bodies under section 12 of the Gold Duty Act, 1908. The special export duty of 12s. 6d. per ounce amounted to £102,616 16s. 7d., which sum was paid into the Consolidated Fund.

## MINING PRIVILEGES.

That interest is being maintained in the mining industry is shown by the fact that during the year ended 31st March, 1935, 3,051 licenses for mining privileges were granted under the provisions of the Mining Act, 1926, as compared with 3,093 for the previous year. Out of this number 437 were licenses for claims authorizing the holders to mine for gold. For the same period 79 mining privileges including 9 licenses for claims, were struck off the registers under the provisions of section 188 of the Act.

## PROSPECTING FOR OIL.

During the year the Moturoa Oil Fields, Ltd., was the only company actively engaged in boring for oil, No. 4 well being extended from 2,085 ft. to 2,186 ft.

A production of 155,698 gallons was obtained from Moturoa Nos. 2 and 4 wells at New Plymouth.

The Dominion's total production of crude petroleum oil to 31st December, 1934, is estimated at 2,223,162 gallons.

## COAL-MINING.

From the coal-mines operating in the Dominion 2,060,315 tons of coal was produced during the year 1934, representing an increase of 239,057 tons as compared with the figure for the previous year.

The annual production of coal since 1930 has been as follows :—

| | Tons. | | Tons. |
|---|---|---|---|
| 1930 .. .. .. | 2,542,092 | 1933 .. .. .. | 1,821,258 |
| 1931 .. .. .. | 2,157,756 | 1934 .. .. .. | 2,060,315 |
| 1932 .. .. .. | 1,842,022 | | |

The industry recovered 13·1 per cent. in its output in 1934, as compared with the following figures for several of the principal coal-producing countries of the world for the same period :—

| | Per Cent. | | Per Cent. |
|---|---|---|---|
| Great Britain .. .. .. | 6·7 | United States .. .. | 8·5 |
| Germany .. .. .. | 10·8 | Canada .. .. .. | 15·9 |
| France .. .. .. | 1·7 | New South Wales .. .. | 10·6 |

The output for 1934 is only 19 per cent. below the peak production of New Zealand mines, which occurred in 1930.

A notable feature, however, is that the output of the West Coast mines remained practically stationary, while the production of the North Island mines increased by 28·8 per cent. and that of the mines in Canterbury, Otago, and Southland increased by 14·2 per cent.

The quantity of coal imported into New Zealand shows a small increase, the figures being 99,272 tons for 1933 and 100,715 tons for 1934.

Although the industry is not yet in as satisfactory a position as it should be, I am being continually subjected to considerable pressure to grant further coal leases. I have, however, adhered to the policy laid down by the Government some years ago that the opening of new mines should be discouraged as far as possible, and in this policy I know the Government has the general support of the coal-mine owners and the United Mine workers.

During the year a second Inspector of Coal-mines for the West Coast District was appointed, as it was found that the work was unduly arduous for one officer, and that his visits to many small mines were too infrequent.

I am happy to state that since the explosion at the Dobson Mine on 5th January, 1934, there has been no other similar disturbing occurrence.

The industry has been particularly free from industrial troubles during the year under review, and recently the coal-mine owners granted their employees a 5-per-cent. increase in wages.

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

| Class of Coal. | Output of Coal during 1934. | | | | Total Output to the End of 1934. |
|---|---|---|---|---|---|
| | Northern District (North Island). | West Coast District (South Island). | Southern District (South Island). | Total. | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Bituminous and sub-bituminous | 94,938 | 736,764 | .. | 831,702 | 48,152,502 |
| Brown .. .. .. | 712,475 | 45,191 | 346,302 | 1,103,968 | 28,671,583 |
| Lignite .. .. .. | .. | 1,484 | 123,161 | 124,645 | 4,898,057 |
| Totals for 1934 .. | 807,413 | 783,439 | 469,463 | 2,060,315 | 81,722,142 |
| Totals for 1933 .. | 626,926 | 783,385 | 410,947 | 1,821,258 | 79,661,827 |

## CARBONIZING AND BRIQUETTING.

The coal-carbonizing and briquetting plant operated at Rotowaro by Waikato Carbonization, Ltd., was closed down temporarily during the summer months when stocks of carbonettes and oil were sufficient to supply the summer demand.

In April, 1934, operations were resumed, and the following figures show the production for the year :—

| | |
|---|---|
| Raw coal treated .. .. .. | 13,324 tons. |
| Carbonettes manufactured .. .. | 8,670 tons. |
| Tar treated .. .. .. | 183,645 gallons. |
| Oil made .. .. .. .. | 123,680 gallons. |
| Pitch made .. .. .. | 246 tons. |

On account of the fact that the Railway Department did not renew its contract for the supply of carbonettes, the domestic market, which is a seasonal one, had to be concentrated upon. The all-round excellence of the fuel for the domestic trade is proven by the increased tonnage being sold. The fuel oil is also finding a ready sale, and research is being conducted with a view to producing Diesel oil, disinfectants, &c.

Further plant has been installed for the purpose of increasing the yield of pitch from the tar.

A new briquetting plant, in which a mixture of West Coast and Waikato slack coals is being used, has been erected at Onehunga.

## LABORATORY INVESTIGATIONS.

The Dominion Laboratory has been responsible for the testing of prospectors' samples from all parts of the Dominion, chiefly for gold and silver, but occasionally for other metals also. Several were examined for manganese, for which a demand exists abroad.

Mine airs from numerous collieries have been examined as required by the inspection staff of the Mines Department for noxious and inflammable gases.

Some further work is in progress in connection with the utilization of New Zealand coal for gas-making at works equipped with vertical retort settings. The excessive swelling of some of our best coals is a handicap to their use in such retorts. Investigations in previous years have shown that blending with non-swelling coals, such as the brown (sub-bituminous) coals, overcomes the difficulty, but blending is laborious on a works scale. It has been suggested that exposure to the air by storage for several months prior to use might be a solution, and the Department and the laboratory are co-operating in a series of storage experiments with typical coals.

The progress of coal research in Great Britain, and, as far as possible, in other countries, is carefully followed by the Dominion Analyst, especially research dealing with the addition of pulverized coal to fuel oil, for oil firing, and with hydrogenation of coal to produce petrol and other oils. The Fuel Chemist of the Laboratory, who formerly worked under the Coal Research Association, is in Great Britain at present, and is making a special study of hydrogenation.

## PERSONS EMPLOYED IN OR ABOUT MINES AND STONE-QUARRIES.

The following table shows the number of persons employed in each inspection district during 1934 and 1933 :—

| Classification. | Inspection District. | | | Totals. | | |
|---|---|---|---|---|---|---|
| | Northern (North Island). | West Coast (of South Island). | Southern (rest of South Island). | 1934. | 1933. | Increase or Decrease. |
| Gold, silver, and tungsten ore | 1,271 | 2,951 | 2,318 | 6,540 | 6,212 | Inc. 328 |
| Coal .. .. .. | 1,452 | 2,081 | 945 | 4,478 | 4,386 | ,, 92 |
| Stone-quarries under the Stone-quarries Act | 1,324 | 107 | 387 | 1,818 | 1,711 | ,, 107 |
| Oil .. .. .. | 10 | .. | .. | 10 | 9 | ,, 1 |
| Cinnabar .. .. .. | 2 | .. | .. | 2 | .. | ,, 2 |
| Totals .. .. | 4,059 | 5,139 | 3,650 | 12,848 | 12,318 | Inc. 530 |

## MINING AND QUARRY ACCIDENTS.

In metalliferous mines, at which 6,542 men were ordinarily employed, six persons were killed and eleven persons seriously injured.

At stone-quarries under the Stone-quarries Act, employing 1,818 men, there were three fatal accidents and six serious accidents.

In coal-mines, where 4,478 persons were ordinarily employed, eight persons were killed and sixteen persons seriously injured.

## CO-OPERATIVE MINING, STATE COAL RESERVE.

Eighteen co-operative parties working portions of the State Coal Reserve near Greymouth produced during the year 1934 95,357 tons, the number of men employed being 159. During the previous year eighteen parties produced 90,883 tons, there being an increase this year of 4,474 tons.

## STATE COAL-MINES.

The output from the Liverpool Colliery showed a substantial increase for the year, while the James Colliery showed a reduction, due to the holding of heavy stocks at the beginning of the trading-year and the unusually warm summer, which affected the household demand.

The profit for the year ended 31st March, 1935, after providing for interest and depreciation, amounted to £13,005, an increase of £1,025 on the result for the previous year. A sum of £8,510 was transferred to the sinking fund, leaving a net surplus for the year of £4,495.

The Wanganui Depot, which has been showing a loss for several years, was closed in June, 1934. In its place a local agent for State coal was appointed. The rearrangement is proving very satisfactory.

Steps have been taken to keep in much closer touch with the Department's customers throughout the country generally, with a view to improving the service given, and increasing business. An advertising campaign has been embarked upon in several centres. As an indication of the results being obtained, the Liverpool Colliery has worked, between the end of the financial year under review and 17th August, 1935, 45 per cent. greater time than for the corresponding period last year, while at the James Colliery the increase is 25 per cent.

The employees at the State Collieries, in common with other coal-mine employees, recently received an increase of 5 per cent. in the rate of their wages.

The operations of the State coal-mines and State Coal Depots for the year ended 31st March, 1935, are briefly reviewed hereunder.

### Output and Sales.

*Liverpool Colliery.*—The gross output for the year was 102,484 tons, as compared with 93,769 tons for the previous year, an increase of 8,715 tons.

*James Colliery.*—The gross output for the year was 26,845 tons, as compared with 33,694 tons for the previous year, a decrease of 6,849 tons.

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

| Mine. | Output, in Tons, 1934–35. | | Output, in Tons, 1933–34. | |
|---|---|---|---|---|
| | Gross. | Net. | Gross. | Net. |
| Liverpool .. .. | 102,484 | 96,880 | 93,769 | 88,870 |
| James .. .. | 26,845 | 25,965 | 33,694 | 32,579 |

Note.—The difference between the gross and the net output is the allowance for mine consumption and waste. In addition to the above, 887 tons of coal was purchased for resale, of which 652 tons was purchased from co-operative parties on the West Coast.

The disposal, inclusive of stock on hand at the beginning of the year, was as follows : Supplied to—Depots, 38,890 tons ; railways, 26,666 tons ; other Government Departments, 2,818 tons ; shipping 5,947 tons ; gasworks, 51,053 tons ; other consumers, 2,919 tons : total, 128,293 tons.

The total sales of State coal from the Liverpool Mine for the year amounted to 99,328 tons, value £110,744,* as compared with 87,104 tons, value £104,191,* for the previous year—an increase of 12,224 tons, with an increase in value of £6,553.

The average price realized by the mine on the total sales for the year was £1 2s. 3·6d.,* a decrease of 1s. 7·5d. on the previous year's average.

The total sales of State coal from the James Mine for the year amounted to 28,965 tons, value £34,885,* as compared with 28,248 tons, value £41,328,* for the previous year—an increase of 717 tons, with a decrease in value of £6,443.

The average price realized by the mine on the total sales for the year was £1 4s. 1·1d.* per ton, a decrease of 5s. 2d. on the previous year's average.

The decrease in the amount realized and the average price realized per ton is due principally to the larger proportion of slack coal sold.

The sales of coal, &c., through the medium of the depots totalled 93,074 tons, value £140,586*, as against 86,176 tons, value £144,025*, for the previous year.

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

## ITEMS FROM ANNUAL ACCOUNTS AND BALANCE-SHEET.

The following details extracted from the audited accounts will enable honourable members to appraise the financial position of the Department's trading venture :—

| | £ |
|---|---|
| The payments for interest totalled | 4,497 |
| The cost of sea carriage of coal amounted to | 33,055 |
| The cost of railway haulage amounted to | 25,046 |
| The total wages paid for coal-winning were | 63,353 |
| The cost of management and office salaries (Head Office and mines) totalled | 3,630 |
| The gross capital expenditure on the whole undertaking to the 31st March, 1935, was | 681,971 |
| The total depreciation written off to 31st March, 1935 (equal to 76·3 per cent. of the gross capital expenditure) amounted to | 520,679 |
| The amount written off for depreciation for the year was | 8,990 |
| The present book value of permanent or fixed assets is | 161,292 |
| The loan capital as at 31st March, 1935, stood at | 105,833 |
| The net profits of the State Coal-mines Account from inception to 31st March, 1935, after charging the special depreciation of Colliery Development Accounts and after crediting interest on Sinking Fund Investments, were | 182,196 |
| The net profit for the year ended 31st March, 1935, was | 13,005 |
| The Sinking Fund as at 31st March, 1935, was in credit | 8,591 |
| The amount taken out of the Sinking Fund during the year and applied in reduction of loan capital was | 8,400 |
| General Reserve as at 31st March, 1935, stood at | 169,109 |
| The amount at credit of Profit and Loss as at 31st March, 1935, was | 4,495 |
| The cash in hand and in the Public Account as at 31st March, 1935, was (last year £3,301) | 8,273 |

## HOUSING.

Thirty-five loans have been granted to miners and others, under the Department's housing scheme, to enable the workmen to erect and own their own houses. The loans, which range from £250 to £300, are repayable, together with interest, by fortnightly instalments over a term of twenty years. No new loans were granted during the year under review.

## SOCIAL AMENITIES AT MINING TOWNSHIPS.

From the State Coal-mines Account grants were made to the Runanga Borough for street-lighting and street-maintenance.

On the estimates for the current year provision is being made for top-dressing the Runanga Domain.

## GEOLOGICAL SURVEY.

During the 1934–35 field season detailed geological examinations were continued in the Eketahuna, Amuri, and Naseby districts. Further work is to be done in the Amuri Subdivision, but the mapping of the other two areas is now finished. Early in 1935 the party working in the Naseby Subdivision was transferred to another auriferous district, that of which Waikaia is the centre. The detailed soil-survey of the Waipa County was continued, and a reconnaissance of part of Ashburton County carried out. In addition, hurried examinations of the underground water conditions in the Hamilton Basin and parts of Taranaki were undertaken.

The time of one officer was fully occupied and that of several other officers partly occupied in making geophysical surveys in connection with mining problems in other districts, the greater portion of the work being carried out at Waihi, Reefton, Ida Valley, Alexandra, and Waikaia. The information obtained by geophysical surveys directs the miner to the most favourable points to prospect, but it does not determine definitely the mineral-content of any deposit, and only very rarely should capital be expended on development-work before the value and extent of the deposit have been proved by the other usual well-known prospecting methods.

Palæontological work was continued, chiefly on fossils from the younger formations of New Zealand, which contain all the coal and possible oil, as well as a good deal of our gold resources.

During the year a Palæontological Bulletin, No. 14, has been issued as well as the Twenty-ninth Annual Report. In addition, several papers by members of the staff have appeared in the *Journal of Science and Technology*.

## SCHOOLS OF MINES.

Six scholarships, each tenable for four years at the University of Otago, are offered annually by the Department to students attending the various Schools of Mines within the Dominion. Three candidates sat for the annual Scholarship Examinations, held in November, 1934, but none was successful in gaining a scholarship.

The expenditure on Schools of Mines for the year ended 31st March, 1935, was £3,470, as compared with £3,269 for the previous year.

## MINERS' PENSIONS.

The Pensions Act, 1926, as amended, provides for payment of pensions to miners seriously and permanently incapacitated by miner's phthisis contracted while mining in New Zealand. The rate of pension for a miner is £1 2s. 6d. a week, with 9s. a week added for his wife, if he is married, and a maximum of 9s. a week for each dependent child under fifteen, subject to a limit of £3 16s. 6d. a week for the family.

The widow of a miner who dies of miner's phthisis while entitled to pension may be granted 15s. 9d. a week for the period of two years immediately following the husband's death.

The scheme, which originated in the Miner's Phthisis Act, 1915, is administered by the Pensions Department, and the following summary of operations for the year ended 31st March, 1935, has been supplied by the Commissioner of Pensions :—

| | £ |
|---|---|
| Payments from 1st November, 1915, to 31st March, 1934 | 693,631 |
| Payments, 1934–35 | 58,740 |
| | £752,371 |
| Number of new grants for year 1934–35 | 130 |
| Annual value of new grants | £10,577 |
| Number of pensions in force at 31st March, 1935 | 783 |
| Annual value of pensions in force at 31st March, 1935 | £60,510 |
| Average pension per annum | £77 5s. 7d. |
| Number of pensions granted to 31st March, 1935 | 2,255 |
| Dissection of pensions in force at 31st March, 1935 :— | |
| Unmarried miners | 196 |
| Married miners | 472 |
| Miners' widows | 115 |
| | 783 |

## 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 $3\frac{1}{2}$ per cent. as from the 1st April, 1933.

The interest earned for the twelve months ended 31st March, 1935, was £837 10s. 3d., as against £828 11s. 10d. for the previous year, while for the same periods the receipts from the $\frac{1}{2}$d. per ton contributions were £4,094 4s. 5d. and £3,805 10s. 8d. respectively.

During the year ended 31st March, 1934, the fund benefited to the extent of £595 14s. 10d., the balance from the Cardiff Mine Sick and Accident Fund which had not been previously transferred.

The total expenditure for the year ended 31st March, 1935, amounted to £4,199 3s. 1d., as against £4,605 7s. 10d. for the previous year.

The amount standing to the credit of the fund at the 31st March, 1935, was £24,482 0s. 3d., as against £23,749 8s. 8d. at the 31st March, 1934.

## STATE AID TO MINING.

### (*a*) Mines Department.

As in previous years, considerable use was made of the Government prospecting drills. They were hired by sixteen parties, and a total of 12,717 ft. was drilled.

The five alluvial drills manufactured in New Zealand last year have been in constant use and have given good service.

An alluvial drill, especially designed by the Department's Drill Superintendent for deep-lead boring, is being constructed, and will fill a long-felt want and enable testing of areas to be undertaken which is beyond the capacity of the present drills.

The cost of the drill is being met by the Unemployment Board.

The sum of £8,712 was voted for expenditure by way of subsidies for prospecting. The balance of unexpended authorities at the 31st March, 1934, and those issued during the year, less cancellations, amounted to £6,047 6s. 6d. Of this amount, £3,786 12s. 8d. was expended by way of actual subsidies during the year, leaving a balance of £2,260 13s. 10d. authorized but not spent at the 31st March, 1935. The number of men given employment through the subsidies granted by the Mines Department was 129.

In addition, the Department found the sum of £88 19s. 3d. towards the cost of supervising prospectors subsidized from the Unemployment Fund.

Provision totalling £1,610, including £1,410 in the Public Works Fund, was made for expenditure by way of direct grants and subsidies for roads and tracks. The balance of the unexpended authorities at the 31st March, 1934, and those issued during the year amounted to £1,498 4s. 8d. Of this amount the sum of £766 13s. 8d. was expended.

As usual, all applications for assistance in this direction were carefully investigated, and, with due regard to the necessity for curtailing expenditure as far as possible, assistance was granted in those cases where the results of the investigations warranted it.

The expenditure on Schools of Mines amounted to £3,470.

On the estimates for the current year provision is being made for the publication of a treatise entitled "Gold-mines of the Hauraki District."

This work has been written by Mr. J. F. Downey, M.I.M.M., Inspector of Mines, Waihi, and is the result of much careful research. The book should prove of considerable value to all persons interested in mining in the Thames and Coromandel districts.

### (*b*) Unemployment Board.

During the year the Unemployment Board continued to assist men to prospect for gold, the net expenditure by the Board for subsidies, supervisors, purchase of equipment, &c., being £187,689, including £3,169 paid to mining companies and syndicates by way of subsidy on the wages of the men employed. Except in special cases, the persons who are employed by companies and syndicates and whose wages are subsidized must be men who are eligible for relief and who were previously employed under one of the schemes of the Board.

Applications for subsidies made by companies and syndicates are thoroughly investigated by the Mines Department, and special reports furnished to the Board to assist it in coming to decisions. In such cases the amount of the subsidies received is refundable before dividends can be paid.

During the year an average of 3,600 men, including subsidized men employed by companies and syndicates, have received assistance.

From the inception of the Board's prospecting schemes to the 31st March, 1934, 9,983 oz. of gold, excluding gold obtained by subsidized companies and syndicates, was won by subsidized miners. For the twelve months ended 31st March, 1935, 8,370 oz. was obtained, making a total production of 18,353 oz.

Six advisory mining engineers and seventy-seven supervisors are employed, and their expert assistance and guidance are always available to the men.

## STAFF.

I desire to place on record my sincere thanks to the officers of the Department for their loyal co-operation and ready assistance at all times during the past year.

# TABLES TO ACCOMPANY MINES STATEMENT.

## No. 1.

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD AND OTHER MINERALS AND ALLIED SUBSTANCES EXPORTED DURING THE YEARS ENDED THE 31ST DECEMBER, 1934 AND 1933, AND THE TOTAL VALUE SINCE THE 1ST JANUARY, 1853. THE COAL-OUTPUT IS ALSO INCLUDED.

| Name of Metal or Mineral. | For Year ended the 31st December, 1934. | | For Year ended the 31st December, 1933. | | Total from the 1st January, 1853, to the 31st December, 1934. | |
|---|---|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. |
| Precious metals— | Oz. | £ | Oz. | £ | Oz. | £ |
| Gold* .. .. .. | 157,375 | 1,284,059 | 164,998 | 1,205,364 | 24,546,185 | 98,451,497 |
| Silver .. .. .. | 359,370 | 39,355 | 409,185 | 36,620 | 29,246,649 | 3,340,620 |
| Total gold and silver .. | 516,745 | 1,323,414 | 574,183 | 1,241,984 | 53,792,834 | 101,792,117 |
| Mineral produce, including kauri-gum— | Tons. | £ | Tons. | £ | Tons. | £ |
| Copper-ore .. .. | .. | .. | .. | .. | 1,504 | 19,390 |
| Chrome-ore .. .. | .. | .. | .. | .. | 5,869 | 38,002 |
| Antimony-ore .. .. | .. | .. | .. | .. | 3,785 9/20 | 55,081 |
| Manganese-ore .. .. | .. | .. | .. | .. | 19,386 1/20 | 62,011 |
| Hæmatite-ore .. .. | .. | .. | .. | .. | 77 | 469 |
| Tungsten-ore .. .. | 33 6/20 | 4,462 | 15 1/20 | 766 | 2,514 14/20 | 317,467 |
| Sulphur (crude) .. .. | .. | .. | .. | .. | 4,927 | 13,241 |
| Mixed minerals .. .. | 2,491† | 6,796 | 2,387 | 8,557 | 96,919 3/20 | 393,907 |
| Coal (New Zealand) exported | 40,361 | 51,489 | 34,131 | 53,690 | 6,550,175 | 7,316,625 |
| Coke exported .. .. | 14 | 76 | 7 | 39 | 17,763 | 28,227 |
| Coal, output of mines in Dominion (less exports) | 2,019,954 | 2,008,826 | 1,787,127 | 1,767,568 | 75,171,967 | 55,317,556 |
| Oil-shale .. .. | .. | .. | .. | .. | 14,444 | 7,236 |
| Kauri-gum .. .. | 3,209 | 86,917 | 3,089 | 77,973 | 428,546 | 23,186,889 |
| Pig iron .. .. .. | .. | .. | .. | .. | 1,614 | 6,615 |
| | lbs. | | lbs. | | lbs. | |
| Quicksilver .. .. | 3,825 | 510 | 9,000 | 1,230 | 87,993 | 19,024 |
| Total value of minerals .. | .. | 2,159,076 | .. | 1,909,823 | .. | 86,781,740 |
| Value of gold and silver, as above | .. | 1,323,414 | .. | 1,241,984 | .. | 101,792,117 |
| Total value of minerals, including gold and silver | .. | 3,482,490 | .. | 3,151,807 | .. | 188,573,857 |

* In respect of gold, ounces of the fineness of 20 carats and upwards. † Pumice-sand and stone.

## No. 2.

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD EXPORTED FROM NEW ZEALAND FOR THE YEARS ENDED THE 31ST DECEMBER, 1934 AND 1933, AND THE TOTAL QUANTITY AND VALUE FROM 1857 TO THE 31ST DECEMBER, 1934.

| District and County or Borough. | Year ended 31st December, 1934. | | Year ended 31st December, 1933. | | Total Quantity and Value from January, 1857, to 31st December, 1934. | |
|---|---|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. | | |
| AUCKLAND— | Oz. | £ | Oz. | £ | Oz. | £ |
| County of Ohinemuri .. | 8,240 | 58,923 | 6,405 | 41,596 | | |
| County of Coromandel .. | 466 | 3,380 | 209 | 1,358 | | |
| County of Thames .. .. | 298 | 2,035 | 77 | 537 | | |
| Borough of Waihi .. .. | 63,383 | 543,379 | 69,168 | 529,833 | | |
| Borough of Thames .. | 945 | 6,816 | 863 | 5,612 | | |
| | 73,332 | 614,533 | 76,722 | 578,936 | 7,950,318 | 31,752,595 |
| WELLINGTON .. .. | .. | .. | .. | .. | 188 | 706 |
| MARLBOROUGH— | | | | | | |
| County of Marlborough .. | 2,460 | 19,267 | 1,382 | 9,386 | | |
| County of Sounds .. .. | 182 | 1,381 | 170 | 1,170 | | |
| | 2,642 | 20,648 | 1,552 | 10,556 | 116,560 | 471,547 |
| NELSON— | | | | | | |
| County of Collingwood .. | 776 | 6,171 | 870 | 6,352 | | |
| County of Murchison .. | 5,708 | 44,958 | 4,343 | 30,436 | | |
| County of Waimea .. .. | 735 | 5,696 | 80 | 600 | | |
| | 7,219 | 56,825 | 5,293 | 37,388 | 1,758,585 | 7,021,906 |
| WEST COAST— | | | | | | |
| County of Grey .. .. | 7,560 | 60,930 | 3,994 | 29,287 | | |
| County of Buller .. .. | 3,775 | 30,156 | 2,647 | 18,751 | | |
| County of Inangahua .. | 17,124 | 137,653 | 28,545 | 203,492 | | |
| County of Westland .. | 22,350 | 181,283 | 23,219 | 168,104 | | |
| | 50,809 | 410,022 | 58,405 | 419,634 | 6,832,487 | 27,597,875 |
| CANTERBURY— | | | | | | |
| County of Ashburton .. | 2 | 16 | 2 | 12 | | |
| | 2 | 16 | 2 | 12 | 164 | 661 |
| OTAGO— | | | | | | |
| County of Taieri .. .. | 15 | 114 | 16 | 114 | | |
| County of Tuapeka .. | 2,524 | 20,021 | 3,046 | 21,466 | | |
| County of Vincent .. .. | 4,767 | 37,346 | 3,981 | 27,273 | | |
| County of Maniototo .. | 2,899 | 22,662 | 2,699 | 17,844 | | |
| County of Waitaki .. .. | 312 | 2,295 | 376 | 2,417 | | |
| County of Lake .. .. | 2,235 | 17,563 | 3,062 | 21,056 | | |
| County of Wallace .. .. | 1,144 | 8,662 | 1,152 | 8,061 | | |
| County of Southland .. | 8,107 | 62,725 | 7,921 | 55,338 | | |
| County of Waihemo .. | 1,261 | 9,797 | 736 | 5,030 | | |
| County of Bruce .. .. | 26 | 207 | 4 | 27 | | |
| County of Clutha .. .. | 32 | 253 | 16 | 113 | | |
| County of Waikouaiti .. | 6 | 45 | .. | .. | | |
| | 23,328 | 181,690 | 23,009 | 158,739 | 7,874,912 | 31,553,826 |
| Unknown .. .. .. | 43 | 325 | 15 | 99 | 12,971 | 52,381 |
| Totals .. .. | 157,375 | 1,284,059 | 164,998 | 1,205,364 | 24,546,185 | 98,451,497 |

NOTE.—The gold recorded in this table is the product of the mines of the Dominion and does not include jewellers' sweepings or old jewellery.

## No. 3.

TABLE SHOWING QUANTITY OF GOLD EXPORTED ANNUALLY FROM NEW ZEALAND FROM 1857 TO 1934.

| Year. | Quantity. Oz. | Year. | Quantity. Oz. | Year. | Quantity. Oz. | Year. | Quantity. Oz. |
|---|---|---|---|---|---|---|---|
| 1857 .. | 10,437 | 1877 .. | 371,685 | 1897 .. | 251,645 | 1917 .. | 218,624 |
| 1858 .. | 13,534 | 1878 .. | 310,486 | 1898 .. | 280,175 | 1918 .. | 11,987 |
| 1859 .. | 7,336 | 1879 .. | 287,464 | 1899 .. | 389,558 | 1919 .. | 320,210 |
| 1860 .. | 4,538 | 1880 .. | 305,248 | 1900 .. | 373,616 | 1920 .. | 212,973 |
| 1861 .. | 194,031 | 1881 .. | 270,561 | 1901 .. | 455,561 | 1921 .. | 149,595 |
| 1862 .. | 410,862 | 1882 .. | 251,204 | 1902 .. | 508,045 | 1922 .. | 131,848 |
| 1863 .. | 628,450 | 1883 .. | 248,374 | 1903 .. | 533,314 | 1923 .. | 169,512 |
| 1864 .. | 480,171 | 1884 .. | 229,946 | 1904 .. | 520,320 | 1924 .. | 133,631 |
| 1865 .. | 574,574 | 1885 .. | 237,371 | 1905 .. | 520,486 | 1925 .. | 114,696 |
| 1866 .. | 735,376 | 1886 .. | 227,079 | 1906 .. | 563,843 | 1926 .. | 125,777 |
| 1867 .. | 686,905 | 1887 .. | 203,869 | 1907 .. | 508,210 | 1927 .. | 130,171 |
| 1868 .. | 637,474 | 1888 .. | 201,219 | 1908 .. | 506,423 | 1928 .. | 118,722 |
| 1869 .. | 614,281 | 1889 .. | 203,211 | 1909 .. | 506,371 | 1929 .. | 116,848 |
| 1870 .. | 544,880 | 1890 .. | 193,193 | 1910 .. | 478,288 | 1930 .. | 133,749 |
| 1871 .. | 730,029 | 1891 .. | 251,996 | 1911 .. | 455,226 | 1931 .. | 139,974 |
| 1872 .. | 445,370 | 1892 .. | 238,079 | 1912 .. | 343,163 | 1932 .. | 167,784 |
| 1873 .. | 505,337 | 1893 .. | 226,811 | 1913 .. | 376,161 | 1933 .. | 164,998 |
| 1874 .. | 376,388 | 1894 .. | 221,615 | 1914 .. | 227,954 | 1934 .. | 157,375 |
| 1875 .. | 355,322 | 1895 .. | 293,491 | 1915 .. | 422,825 | | |
| 1876 .. | 322,016 | 1896 .. | 263,694 | 1916 .. | 292,620 | | |

## No. 4.

TABLE SHOWING THE OUTPUT OF COAL FROM THE VARIOUS COALFIELDS, AND THE COMPARATIVE INCREASE AND DECREASE, FOR THE YEARS 1934 AND 1933, 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, 1934. |
|---|---|---|---|---|---|
| | 1934. | 1933. | | | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| North Auckland .. .. | 94,938 | 96,499 | .. | 1,561 | 5,678,014 |
| Waikato (including Taranaki) .. | 712,475 | 530,427 | 182,048 | .. | 13,985,342 |
| Nelson .. .. .. | 25,844 | 24,760 | 1,084 | .. | 580,351 |
| Buller .. .. .. | 312,689 | 298,669 | 14,020 | .. | 23,948,136 |
| Reefton .. .. .. | 45,018 | 34,534 | 10,484 | .. | 869,451 |
| Grey .. .. .. | 399,888 | 425,422 | .. | 25,534 | 15,936,479 |
| Canterbury .. .. .. | 19,206 | 16,453 | 2,753 | .. | 1,034,569 |
| Otago .. .. .. | 202,687 | 194,313 | 8,374 | .. | 12,988,181 |
| Southland .. .. .. | 247,570 | 200,181 | 47,389 | .. | 6,701,619 |
| Totals .. .. | 2,060,315* | 1,821,258 | .. | .. | 81,722,142 |

* Increase, 239,057 tons.

## No. 5.

TABLE SHOWING THE OUTPUT OF DIFFERENT CLASSES OF COAL.

| Class of Coal. | Output. | | Increase. | Decrease. | Approximate Total Output to the 31st December, 1934. |
|---|---|---|---|---|---|
| | 1934. | 1933. | | | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Bituminous and sub-bituminous .. | 831,702 | 843,845 | .. | 12,143 | 48,152,502 |
| Brown .. .. .. | 1,103,968 | 860,238 | 243,730 | .. | 28,671,583 |
| Lignite .. .. .. | 124,645 | 117,175 | 7,470 | .. | 4,898,057 |
| Totals .. .. | 2,060,315 | 1,821,258 | .. | .. | 81,722,142 |

## No. 6.

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

| Year. | Coal and Shale raised in the Dominion. | | Coal imported. | | |
|---|---|---|---|---|---|
| | Tons. | Yearly Increase or Decrease. | Tons. | Increase over Preceding Year. | Decrease below Preceding Year. |
| Prior to 1878 .. | 709,931 | .. | .. | .. | .. |
| 1878 .. .. | 162,218 | .. | 174,148 | .. | .. |
| 1879 .. .. | 231,218 | Inc. 69,000 | 158,076 | .. | 16,072 |
| 1880 .. .. | 299,923 | ,, 68,705 | 123,298 | .. | 34,778 |
| 1881 .. .. | 337,262 | ,, 37,339 | 129,962 | 6,664 | .. |
| 1882 .. .. | 378,272 | ,, 41,010 | 129,582 | .. | 380 |
| 1883 .. .. | 421,764 | ,, 43,492 | 123,540 | .. | 6,042 |
| 1884 .. .. | 480,831 | ,, 59,069 | 148,444 | 24,904 | .. |
| 1885 .. .. | 511,063 | ,, 30,232 | 130,202 | .. | 18,242 |
| 1886 .. .. | 534,353 | ,, 23,290 | 119,873 | .. | 10,329 |
| 1887 .. .. | 558,620 | ,, 24,267 | 107,230 | .. | 12,643 |
| 1888 .. .. | 613,895 | ,, 55,275 | 101,341 | .. | 5,889 |
| 1889 .. .. | 586,445 | Dec. 27,450 | 128,063 | 26,722 | .. |
| 1890 .. .. | 637,397 | Inc. 50,952 | 110,939 | .. | 17,124 |
| 1891 .. .. | 668,794 | ,, 31,397 | 125,318 | 14,379 | .. |
| 1892 .. .. | 673,315 | ,, 4,521 | 125,453 | 135 | .. |
| 1893 .. .. | 691,548 | ,, 18,233 | 117,444 | .. | 8,009 |
| 1894 .. .. | 719,546 | ,, 27,998 | 112,961 | .. | 4,483 |
| 1895 .. .. | 726,654 | ,, 7,108 | 108,198 | .. | 4,763 |
| 1896 .. .. | 792,851 | ,, 66,197 | 101,756 | .. | 6,442 |
| 1897 .. .. | 840,713 | ,, 47,862 | 110,907 | 9,151 | .. |
| 1898 .. .. | 907,033 | ,, 66,320 | 115,427 | 4,520 | .. |
| 1899 .. .. | 975,234 | ,, 68,201 | 99,655 | .. | 15,772 |
| 1900 .. .. | 1,093,990 | ,, 118,756 | 124,033 | 24,378 | .. |
| 1901 .. .. | 1,239,686 | ,, 145,696 | 149,764 | 25,731 | .. |
| 1902 .. .. | 1,365,040 | ,, 125,354 | 127,853 | .. | 21,911 |
| 1903 .. .. | 1,420,229 | ,, 55,189 | 163,923 | 36,070 | .. |
| 1904 .. .. | 1,537,838 | ,, 117,609 | 147,196 | .. | 16,727 |
| 1905 .. .. | 1,585,756 | ,, 47,918 | 169,046 | 21,850 | .. |
| 1906 .. .. | 1,729,536 | ,, 143,780 | 207,567 | 38,521 | .. |
| 1907 .. .. | 1,831,009 | ,, 101,473 | 220,749 | 13,182 | .. |
| 1908 .. .. | 1,860,975 | ,, 29,966 | 287,808 | 67,059 | .. |
| 1909 .. .. | 1,911,247 | ,, 50,272 | 258,185 | .. | 29,623 |
| 1910 .. .. | 2,197,362 | ,, 286,115 | 232,378 | .. | 25,807 |
| 1911 .. .. | 2,066,073 | Dec. 131,289 | 188,068 | .. | 44,310 |
| 1912 .. .. | 2,177,615 | Inc. 111,542 | 364,359 | 176,291 | .. |
| 1913 .. .. | 1,888,005 | Dec. 289,610 | 468,940 | 104,581 | .. |
| 1914 .. .. | 2,275,614 | Inc. 387,609 | 518,070 | 49,130 | .. |
| 1915 .. .. | 2,208,624 | Dec. 66,990 | 353,471 | .. | 164,599 |
| 1916 .. .. | 2,257,135 | Inc. 48,511 | 293,956 | .. | 59,515 |
| 1917 .. .. | 2,068,419 | Dec. 188,716 | 291,597 | .. | 2,359 |
| 1918 .. .. | 2,034,250 | ,, 34,169 | 255,332 | .. | 36,265 |
| 1919 .. .. | 1,847,848 | ,, 186,402 | 391,434 | 136,102 | .. |
| 1920 .. .. | 1,843,705 | ,, 4,143 | 476,343 | 84,909 | .. |
| 1921 .. .. | 1,809,095 | ,, 34,610 | 822,459 | 346,116 | .. |
| 1922 .. .. | 1,857,819 | Inc. 48,724 | 501,478 | .. | 320,981 |
| 1923 .. .. | 1,969,834 | ,, 112,015 | 445,792 | .. | 55,686 |
| 1924 .. .. | 2,083,207 | ,, 113,373 | 674,483 | 228,691 | .. |
| 1925 .. .. | 2,114,995 | ,, 31,788 | 572,573 | .. | 101,910 |
| 1926 .. .. | 2,239,999 | ,, 125,004 | 483,918 | .. | 88,655 |
| 1927 .. .. | 2,366,740 | ,, 126,741 | 378,090 | .. | 105,828 |
| 1928 .. .. | 2,436,753 | ,, 70,013 | 247,861 | .. | 130,229 |
| 1929 .. .. | 2,535,864 | ,, 99,111 | 215,656 | .. | 32,205 |
| 1930 .. .. | 2,542,092 | ,, 6,228 | 157,943 | .. | 57,713 |
| 1931 .. .. | 2,157,756 | Dec. 384,336 | 179,060 | 21,117 | .. |
| 1932 .. .. | 1,842,022 | ,, 315,734 | 103,531 | .. | 75,529 |
| 1933 .. .. | 1,821,258 | ,, 20,764 | 99,272 | .. | 4,259 |
| 1934 .. .. | 2,060,315 | Inc. 239,057 | 100,715 | 1,443 | .. |

## No. 7.

TABLE SHOWING THE TOTAL QUANTITY AND VALUE OF COAL IMPORTED INTO AND EXPORTED FROM NEW ZEALAND FROM AND TO EACH COUNTRY DURING THE CALENDAR YEAR 1934.

*Imports.*

| Country whence imported. | Tons. | Value. |
|---|---|---|
| | | £ |
| Australia .. .. .. .. | 100,715 | 98,355 |
| Totals .. .. .. | 100,715 | 98,355 |

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

*Exports: Bunkers.*

| Country to which exported. | Produce of New Zealand. | | Produce of other Countries. | |
|---|---|---|---|---|
| | Tons. | Value. | Tons. | Value. |
| | | £ | | £ |
| United Kingdom .. .. | 9,274 | 18,525 | .. | .. |
| Australia .. .. .. | 13,083 | 14,533 | .. | .. |
| Fiji .. .. .. .. | 7,262 | 6,806 | .. | .. |
| Nauru Island .. .. .. | 4,369 | 4,151 | .. | .. |
| India .. .. .. .. | 370 | 555 | .. | .. |
| Gilbert and Ellice Islands.. .. | 1,364 | 1,228 | .. | .. |
| China .. .. .. .. | 1,657 | 2,487 | .. | .. |
| Tutuila .. .. .. | 2,759 | 2,759 | .. | .. |
| Totals .. .. | 40,138 | 51,044 | .. | .. |

*Exports: Cargo.*

| Country to which exported. | Produce of New Zealand. | | Produce of other Countries. | |
|---|---|---|---|---|
| | Tons. | Value. | Tons. | Value. |
| | | £ | | £ |
| United Kingdom .. .. | 57 | 58 | .. | .. |
| Fiji .. .. .. .. | 163 | 379 | .. | .. |
| Western Samoa .. .. .. | 3 | 8 | .. | .. |
| Totals .. .. | 223 | 445 | .. | .. |

No. 8.

NUMBER OF PERSONS ORDINARILY EMPLOYED AT OR ABOUT MINES OTHER THAN COAL-MINES DURING THE YEAR ENDED 31ST DECEMBER, 1934.

| County or Borough. | Number of Persons ordinarily employed at | | | | Total. | |
|---|---|---|---|---|---|---|
| | Gold-quartz Mines. | Gold Alluvial Mines. | Gold-dredges. | Mines other than Gold and Coal. | 1934. | 1933. |
| NORTHERN INSPECTION DISTRICT. | | | | | | |
| County of Piako .. .. | 10 | .. | .. | .. | 10 | 5 |
| ,, Thames .. .. | 99 | .. | .. | .. | 99 | 44 |
| ,, Ohinemuri .. .. | 203 | .. | .. | .. | 203 | 129 |
| ,, Coromandel .. .. | 151 | .. | .. | .. | 151 | 177 |
| ,, Bay of Islands .. .. | .. | .. | .. | 2 | 2 | .. |
| Borough of Thames .. .. | 142 | .. | .. | .. | 142 | 200 |
| ,, Waihi .. .. .. | 660 | .. | .. | .. | 660 | 640 |
| Great Barrier Island .. .. | 6 | .. | .. | .. | 6 | .. |
| County of Taranaki .. .. | .. | .. | .. | 10* | 10 | 9* |
| WEST COAST INSPECTION DISTRICT. | | | | | | |
| County of Marlborough .. .. | .. | 127 | .. | .. | 127 | 94 |
| ,, Waimea .. .. | .. | 77 | .. | .. | 77 | 88 |
| ,, Takaka .. .. | .. | 100 | .. | .. | 100 | 73 |
| ,, Collingwood .. .. | .. | 167 | .. | .. | 167 | 60 |
| ,, Murchison .. .. | .. | 496 | 16 | .. | 512 | 422 |
| ,, Buller .. .. .. | 5 | 361 | .. | .. | 366 | 265 |
| ,, Inangahua .. .. | 286 | 212 | 12 | .. | 510 | 523 |
| ,, Grey .. .. .. | .. | 540 | 14 | .. | 554 | 336 |
| ,, Westland .. .. | 6 | 442 | 90 | .. | 538 | 471 |
| SOUTHERN INSPECTION DISTRICT. | | | | | | |
| County of Taieri .. .. .. | .. | 20 | .. | .. | 20 | 26 |
| ,, Ashburton .. .. | .. | .. | .. | .. | .. | 5 |
| ,, Tuapeka .. .. | 4 | 365 | .. | .. | 369 | 444 |
| ,, Vincent .. .. | 14 | 728 | 21 | .. | 763 | 789 |
| ,, Maniototo .. .. | 12 | 268 | .. | .. | 280 | 436 |
| ,, Waihemo .. .. | 27 | 50 | .. | .. | 77 | 106 |
| ,, Waitaki .. .. | .. | 69 | .. | .. | 69 | 109 |
| ,, Lake .. .. .. | 23 | 257 | 11 | 20 | 311 | 279 |
| ,, Wallace .. .. | 4 | 139 | .. | .. | 143 | 147 |
| ,, Southland .. .. | .. | 223 | 11 | .. | 234 | 296 |
| ,, Waikouaiti .. .. | .. | 25 | .. | .. | 25 | 22 |
| ,, Bruce .. .. .. | .. | 9 | .. | .. | 9 | 16 |
| ,, Clutha .. .. .. | .. | 11 | .. | .. | 11 | 10 |
| ,, Fiord .. .. .. | .. | 7 | .. | .. | 7 | .. |
| Totals .. .. | 1,652 | 4,693 | 175 | 32 | 6,552 | 6,221 |

* Employed in oil-boring operations.

*Summary of Persons ordinarily employed in or about New Zealand Mines during 1934 and 1933.*

| —— | 1934. | 1933. | Increase or Decrease. |
|---|---|---|---|
| Gold, silver, and tungsten mines .. | 6,540 | 6,212 | Inc. 328 |
| Other metalliferous mines .. .. | 12* | 9 | ,, 3 |
| Coal-mines .. .. .. | 4,478 | 4,386 | ,, 92 |
| Totals .. .. | 11,030 | 10,607 | Inc. 423 |

* Includes ten persons employed in oil-boring operations.

# APPENDICES TO THE MINES STATEMENT.

## APPENDIX A.

### REPORTS RELATING TO METALLIFEROUS MINES AND STONE-QUARRIES.

THE INSPECTING ENGINEER OF MINES to the UNDER-SECRETARY OF MINES.

SIR,— Wellington, 15th June, 1935.

I have the honour to present my report on metalliferous mines and stone-quarries, together with statistical information, for the year ended 31st December, 1934.

In accordance with the usual practice, the tables showing expenditure on roads, bridges, tracks, prospecting operations, &c., are for the period covered by the financial year—viz., from the 1st April, 1934, to the 31st March, 1935.

The reports, &c., are divided into the following sections: I. Minerals produced and exported. II. Persons employed. III. Accidents. IV. Gold-mining—(1) Quartz-mining; (2) Dredge Mining; (3) Alluvial Mining. V. Minerals other than Gold. VI. Stone-quarry Inspection and Statistics. VII. State Aid to Mining—(1) Subsidized Prospecting; (2) Government Prospecting-drills; (3) Subsidized Roads on Goldfields.

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

#### I. MINERALS PRODUCED AND EXPORTED.

The following statement shows the quantity and value of the production of metal-mines and of the value of the production from stone-quarries under the Stone-quarries Act during 1934 and 1933:—

| Mineral. | 1934. | | 1933. | |
|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. |
| | Oz. dwt. | £ | Oz. dwt. | £ |
| Gold and silver (estimated) | 542,863 0 | 1,195,840 | 592,247 0 | 1,099,579 |
| Platinum | .. | .. | 3 10 | 21 |
| | Tons cwt. | | Tons cwt. | |
| Pig-iron | 1,337 0 | 6,484 | 3,286 0 | 16,842 |
| Stone | .. | 261,637 | .. | 196,481 |
| Pumice | 2,491 0 | 6,796 | 2,387 0 | 8,544 |
| Tungsten-ore | 39 0 | 4,678 | .. | .. |
| | lb. | | lb. | |
| Quicksilver | 3,852 0 | 516 | 9,000 0* | 1,240 |
| Totals | .. | 1,475,951 | .. | 1,322,707 |

* Includes 1,500 lb., valued at £240, produced in 1932 but not recorded in that year.

The following statement shows the value of New Zealand minerals (other than coal and coke) and allied substances exported during 1934 and 1933, and since 1st January, 1853:—

| — | 1934. | 1933. | Increase or Decrease. | Total from the 1st January, 1853, to the 31st December, 1934. |
|---|---|---|---|---|
| | £ | £ | £ | £ |
| Gold | 1,284,059 | 1,205,364 | Inc. 78,695 | 98,451,497 |
| Silver | 39,355 | 36,620 | ,, 2,735 | 3,340,620 |
| Tungsten-ore | 4,462 | 766 | ,, 3,696 | 317,467 |
| Kauri-gum | 86,917 | 77,973 | ,, 8,944 | 23,186,889 |
| Quicksilver | 510 | 1,230 | Dec. 720 | 19,024 |
| Sand, lime, and building-stone | 6,796 | 8,552 | ,, 1,756 | 595,952 |
| Other minerals | .. | 5 | ,, 5 | |
| Totals | 1,422,099 | 1,330,510 | Inc. 91,589 | 125,911,449 |

## II. PERSONS EMPLOYED.

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

| Classification. | Inspection District. | | | Total, 1934. |
|---|---|---|---|---|
| | Northern. | West Coast. | Southern. | |
| Gold, silver, and tungsten .. .. .. .. | 1,271 | 2,951 | 2,318 | 6,540 |
| Cinnabar .. .. .. .. .. .. | 2 | .. | .. | 2 |
| Totals for 1934 .. .. .. .. | 1,273 | 2,951 | 2,318 | 6,542 |
| Totals for 1933 .. .. .. .. | 1,195 | 2,332 | 2,685 | 6,212 |

* In addition ten persons were employed in oil-boring operations.

## III. ACCIDENTS.

During 1934 six fatal and eleven serious but non-fatal accidents occurred in or about metalliferous mines, at which 6,542 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.. .. .. .. .. .. | 5 | 5 | 2 | 2 |
| Explosives .. .. .. .. .. .. | .. | .. | 4 | 4 |
| Miscellaneous, on surface .. .. .. .. | 1 | 1 | 3 | 3 |
| Miscellaneous, underground .. .. .. .. | .. | .. | 2 | 2 |
| Totals .. .. .. .. .. | 6 | 6 | 11 | 11 |

An account of the fatal accidents follows:—

In 1934 four men were killed at alluvial gold-mines and two at quartz-mines.

At a sluicing-claim at Punakaikai, near the Greymouth–Westport road, logs of wood were used for crib-logging. A son of the deceased on the 28th February, 1934, was placing logs in a groove in a steep cliff above the claim and they were allowed to fall down in the groove to the claim below. One jumped out of the groove and struck the miner, who was working about a chain away, on the head, fracturing his skull. He died two days later.

On the 24th March a miner was "blocking-out" a strip of wash in an underground alluvial mine at Orepuki. He was assisted by a seventeen-year-old youth. The nearby tunnel was supported by sets of timber, and the ground being blocked out was supported by props and headboards, the nearest prop being 6¼ ft. from the face of the wash. The youth took a load of the wash out of the tunnel, and on his return found the miner buried under blue pug which had fallen between the prop and the face. He had been suffocated by the fall. Since this fatality additional regulations have been gazetted under the Mining Act stipulating the maximum allowable distances between the timber supports in alluvial workings.

A prospector, who worked alone, was suffocated on the 16th October, 1934, by a fall of soft sandstone in a cutting 12 ft. deep at Ahaura. Three days before the accident heavy rain had caused a slip in the cutting, about half a chain from where the fatality occurred. That, and further heavy rain, should have warned the prospector of the danger of working in the cutting. He was found at 4 a.m. on the 17th October under the fall.

At a small sluicing-claim on the Wataroa River, in Westland, a miner was fatally injured on the 4th December, 1934. He had been picking out the dirt from the front of a very large stone, which was standing on its edge, when it fell over and pinned him against another stone, rupturing the left bowel. He died five hours later. Previous to the accident his mate had suggested the packing of smaller stones under the front of the larger boulder to lessen the danger of its toppling over.

On the 18th October a miner was killed instantly in the Big River Mine by a lump of rock, weighing about two tons, falling from a "greasy back" in the hanging wall. The lump of rock was feather-edged at the bottom and 2 ft. thick at the top. That morning he and his mate had tried for some time to lever the rock out with a pick, but could not do so.

A trucker was killed in the Waihi Mine on the 29th October, 1934. He climbed into a pass and had been there only a few seconds when the quartz, which had been hung up, came away, crushing his head and chest. Evidence was given at the inquest that the company's officials had issued instructions that workmen were not to go into a pass in which the quartz had been hung up.

## IV. GOLD-MINING.

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

| — | Production of Bullion, 1934.* (All Mines.) | | Dividends paid, 1934. (By Registered Companies only.)† | Number of Persons ordinarily employed at Productive and Unproductive Mines. | Number of Productive Quartz-mines, Alluvial Mines, and Dredges, 1934. |
|---|---|---|---|---|---|
| | Quantity. | Value. | | | |
| | Oz. | £ | £ | | |
| Quartz-mining .. | 475,230 | 699,273 | 155,099 | 1,652 | 73 |
| Alluvial mining‡ .. | 43,541 | 306,248 | 11,222 | 4,693 | 4,357 |
| Dredge mining .. | 24,092 | 190,319 | 41,406 | 175 | 12 |
| Totals, 1934 .. | 542,863 | 1,195,840 | 207,727 | 6,520 | 4,442 |
| Totals, 1933 .. | 592,247 | 1,099,579 | 209,337 | 6,212 | 2,468 |

* In addition to the gold produced from the gold-mines, silver was obtained from them, hence the word "bullion" is used in preference to "gold."
† The profits of privately-owned dredges and mines are unobtainable, which renders this statement incomplete.
‡ The bullion-production is from 4,357 alluvial claims, but the dividends are only obtainable from those few that are the property of registered companies.

The total value of the bullion produced in 1934 was greater by £96,261 than that produced in 1933, but from quartz-mining the value of the bullion was less by £22,419. From alluvial mining the value of the gold produced increased by £88,394, and from dredging by £30,286.

### (1) Quartz-mining.

| Inspection District. | Statute Tons of Ore treated. | | Value of Bullion. | | Dividends paid (by Registered Companies only). | |
|---|---|---|---|---|---|---|
| | 1934. | 1933. | 1934. | 1933. | 1934. | 1933. |
| | | | £ | £ | £ | £ |
| Northern .. .. | 215,781 | 240,851 | 539,906 | 514,453 | 108,702 | 106,088 |
| West Coast .. .. | 35,824 | 52,193 | 154,162 | 202,227 | 46,397 | 57,782 |
| Southern .. .. | 1,743 | 1,575 | 5,205 | 5,012 | .. | .. |
| Totals .. .. | 253,348 | 294,619 | 699,273 | 721,692 | 155,099 | 163,870 |

The average value per ton of ore treated during 1934 amounted to £2 15s. 2d., as compared with £2 9s. during 1933.

At the Waihi Mine 185,210 long tons of quartz was mined and treated, from which 57,448 oz. of gold, valued at £393,519, and 343,012 oz. of silver, valued at £33,586, were recovered. The dividends for the year amounted to £99,181 8s., bringing the total dividends to date to £6,239,008 14s. 6d. Most of the development-work done during 1934 was above No. 10 level, but a large amount of stoping, much of it of somewhat low-grade ore, was done down to the No. 14 level. Investigation of the north branch, from No. 2 level down to No. 7 level, has proved it to be a dropper of the Martha lode, leaving the main lode between Nos. 2 and 3 levels, and having a general strike like the Martha. Down to the No. 5 level its dip is rather slight, but below that level it became much steeper.

From the Waihi Grand Junction area—also worked by the Waihi Gold-mining Co.—19,568 long tons of ore was mined, from which 5,887 oz. of gold, valued at £40,326, and 16,617 oz. of silver, valued at £1,627, were recovered. Prospecting in that area was continued in the Junction Nos. 6 and 7 levels, and in the Waihi Co.'s No. 11 level also. In an intermediate level, 40 ft. up from the Junction No. 6 level, payable ore was met, and fair values were got also in a crosscut to the north off the Junction No. 7 level. Stoping was continued from No. 6 to No. 10 Grand Junction levels, and from No. 11 to No. 13 Waihi Co.'s levels in the Grand Junction area.

From the Golden Dawn Mine 6,720 tons of ore was crushed, from which 4,105 oz. of gold, valued at £39,497, and 7,915 oz. of silver, valued at £785, were recovered. For other mines in the district the Golden Dawn battery treated 3,008 tons of ore, from which 3,150 oz. of gold, valued at £18,909, and 15,070 oz. of silver, valued at £1,234, were recovered. Development was continued in the Nos. 2, 3, and 4 levels and in several intermediate ones in the Golden Dawn mine, and from most of them quartz of fair value was mined.

From the Talisman-Dubbo Mine at Karangahake 2,094 tons of ore was mined, and treated at the Golden Dawn battery, yielding 2,478 oz. of gold, valued at £14,525, and 13,342 oz. of silver, valued at £1,071.

Several mines were reopened during the year in the Ohinemuri district, including that formerly known as Walker's at Maratoto, and the Komata Reefs, Alpha, St. Hippo and Scotia Mines at Waitekauri.

The interest in quartz mining in the Thames District continued. Many old mines have been reopened and are again being worked, on a small scale, in that district and in the Coromandel field.

At the Golden Point Mine, Macraes, from four to six men were employed intermittently at development-work until June, when the mine was again closed.

From the Round Hill Mine at Macraes 902 tons of quartz yielded 197 oz. of gold, valued at £1,423.

At the Golden Progress Mine, Oturehua, at the 150 ft. level, the last end drive was continued beyond the fault for a short distance. The battery treated 250 tons of quartz, which yielded 313 oz. of gold, valued at £2,283.

From the Blackwater Mine, Waiuta, 31,862 tons of ore was mined, from which 16,103 oz. of gold, valued at £130,471, was obtained. About 2,400 ft. of development-work was done during the year, much of it in the Nos. 10 south, No. 11 north, and No. 12 north levels. The "Prohibition" shaft was sunk another 300 ft. down to the Blackwater No. 12 level and is being equipped with an electric winding-engine. A strike of the miners caused the mine to close down in March, and work was not resumed until May.

From the Alexander Mine 2,164 tons of ore was mined, from which 1,807 oz. of gold, valued at £15,127, was obtained. The mine was idle from March to July through labour troubles.

The Big River Mine produced 1,009 tons of ore for a yield of 690 oz. of gold, valued at £5,715.

At the Mount Greenland Mine the battery crushed 462 tons of ore, the yield being 431 oz. of gold, worth £2,419.

At the Britannia Mine, in the Buller County, 327 tons of quartz was mined, yielding 68 oz. of gold, valued at £428.

### (2) Dredge Mining.

The following is a statement showing the capacity and production of bucket gold-dredges and dividends declared by dredging companies during 1934. (Note.—The dividends declared by privately-owned dredges are not obtainable for publication.)

| Name of Dredge. | Locality. | Capacity of Dredge-buckets, in Cubic Feet. | Number of Buckets discharged per Minute. | Nominal Horse-power of Engines. | O = Oil. S = Steam. E = Electrical. H = Hydraulic. | Average Depth of Ground dredged | Quantity and Value of Bullion obtained during 1934. | | Dividends declared. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | During 1934. | Total to End of 1934. |
| *Otago and Southland.* | | | | | | Ft. | oz. | £ | £ | £ |
| Aitken's (Freshford) .. | Waikaka .. | 6 | 10 | 32 | S | 12 | 203 | 1,573 | .. | .. |
| Goldfields .. .. | Shotover River .. | 8 | 18 | 305 | E | 23 | 707 | 4,994 | .. | .. |
| Nevis Crossing .. | Nevis .. .. | 3½ | 10 | 12 | S | 10 | 152 | 1,097 | .. | .. |
| Nevis Diesel .. | Upper Nevis .. | 7 | 10 | 205 | E | 35 | 73 | 483 | .. | .. |
| Rainbow .. .. | Waimumu .. | 2½ | 12 | 38 | O | 7 | 102 | 705 | .. | .. |
| *West Coast.* | | | | | | | | | | |
| Brian Boru .. .. | German Gully .. | 9 | 20 | 250 | E | 45 | 1,477 | 12,283 | 1,350 | 1,350 |
| Gillespies Beach .. | Gillespies .. | 5 | 13 | 225 | E | 19 | 1,736 | 12,461 | 2,917 | 2,917 |
| Mataki .. .. | Murchison .. | 7 | 20 | 120 | S | 16½ | 1,664 | 12,096 | 2,812 | 2,812 |
| Five Mile Beach .. | Okarito .. | 5 | 10 | .. | H | 20 | 1,630 | 11,845 | 3,500 | 24,500 |
| Rimu .. .. | Rimu .. .. | 12 | 19 | 325 | E | 41 | 14,965 | 122,526 | 27,627 | 64,068 |
| Stafford .. .. | Stafford .. | 8 | 12 | 100 | E | 25 | 328 | 2,541 | .. | .. |
| Worksop .. .. | Antonios, Reefton | 4 | 12 | 140 | O | 20 | 1,055 | 7,715 | 3,200 | 3,200 |
| Totals, 1934 .. | .. | .. | .. | .. | .. | .. | 24,092 | 190,319 | 41,406 | Unknown |
| Totals, 1933 .. | .. | .. | .. | .. | .. | .. | 22,045 | 160,033 | 25,819 | Unknown |

In 1933 seven dredges only were operating in New Zealand. The revival of interest in gold-dredging resulted in four other dredges commencing operations in 1934 and one resuming. Five others are in course of construction, namely, the Mossy Creek, Maori Gully, Bundi, Bendigo, Goldlight, and Waipapa Beach dredges.

During 1934 the Freshford dredge was dismantled and taken from the Waikaia River to an area in the Waikaka Valley, where it was re-erected, some alterations then being made to it.

New plant was installed on the Nevis-Diesel dredge, and, after alterations to the dredge, it resumed working in March and was operating for about two months. Work was then suspended, and the dredge has not been running since.

From where it had been working on the Shotover River the Goldfields dredge was taken up the river through a long narrow gorge, of nearly one and a half miles in length, to the Big Beach, and dredging was recommenced in August.

The repairs to the Nevis Crossing dredge having been completed, operations were resumed early in 1934. Except for the compulsory stoppage through the severe winter, the dredge has been running continuously, with very satisfactory results.

The pontoons of the Bendigo-Goldlight dredge were completed in July, but, owing to shortage of water in the paddock, as well as other reasons, the dredge was not ready for running by the end of 1934.

A small dredge, called the Rainbow, is working shallow ground near the Gore–Hedgehope main highway.

The Mataki dredge treated 669,274 cubic yards of gravel in 1934, which yielded 1,664 oz. of gold, or an average of 1·193 grains per cubic yard; the Rimu dredge treated 2,824,364 cubic yards for 14,965 oz., or an average of 2·54 grains; the Okarito dredge 312,453 cubic yards, yielding an average of 2·5 grains; and the Brian Boru dredge 594,594 cubic yards, yielding an average of 1·19 grains of gold per cubic yard. The Brian Boru dredge is now idle pending further boring being done on the area.

Three other dredges commenced working in the West Coast district in 1934—the Gillespies Beach dredge in February, the Worksop in July, and the Stafford dredge in October. By the end of the year the Gillespies Beach dredge had treated 505,322 cubic yards of gravel for an average return of 1·65 grains of gold; the Worksop dredge 151,128 cubic yards, which yielded an average of 3·35 grains per cubic yard; and the Stafford dredge 48,004 cubic yards for an average return of 3·28 grains of gold per cubic yard.

On the Waipapa Beach, near Otara, Southland, a dredge is being built, and preparations are under way at Alexandra and Clyde for the erection of two large dredges.

### (3) Alluvial Mining.

The following is a statement showing the value of production of, and dividends declared by alluvial gold-mines during 1934:—

| Name of Owner. | Estimated Quantity and Value of Gold produced. | | Dividends declared. | |
|---|---|---|---|---|
| | | | During 1934. | Total to End of 1934. |
| | oz. | £ | £ | £ |
| Snowy River Sluicing Co., Ltd. | 100 | 697 | .. | .. |
| Glenroy Gold, Ltd. | 106 | 756 | .. | .. |
| Koura Mining Co., Ltd. | 10 | 67 | .. | .. |
| Mahakipawa Goldfields, Ltd. | 2,324 | 16,915 | .. | .. |
| Hohonu Gold-sluicing Co., Ltd. | 124 | 920 | .. | .. |
| Lawsons Flat Gold-sluicing Co., Ltd. | 809 | 5,837 | .. | .. |
| Mining Industrials N.Z. | 76 | 555 | .. | .. |
| Waitahu Sluicing Co., Ltd. | 527 | 3,944 | .. | .. |
| Stafford Sluicing Ltd. | 112 | 846 | .. | .. |
| Addisons Flat Gold-mining Co., Ltd. | 751 | 5,564 | 1,982 | 2,795 |
| Charleston Sluicing Co., Ltd. | 398 | 2,746 | .. | .. |
| Golden Plateau, Ltd. | 32 | 199 | .. | .. |
| Mount David Sluicing Co., Ltd. | 28 | 184 | .. | .. |
| Bell Hill Gold-sluicing Co., Ltd. | 297 | 2,368 | .. | .. |
| Coast Exploration, Ltd. | 88 | 615 | .. | .. |
| Deep Lead, Ltd. | 493 | 3,632 | 500 | 500 |
| Golden Sands, Ltd. | 640 | 5,106 | 700 | 2,500 |
| Golden Coast Mining Co., Ltd. | 25 | 188 | .. | .. |
| Moonlight-Nelson Creek Sluicing Co., Ltd. | 81 | 622 | .. | .. |
| Golden Arrow Mining Co., Ltd. | 281 | 1,939 | .. | .. |
| Waimumu Sluicing Co., Ltd. | 118 | 876 | .. | .. |
| Kildare Consolidated Gold-mining Co., Ltd. | 255 | 1,838 | .. | 1,000 |
| Nokomai Gold-mining Co., Ltd. | 562 | 3,773 | .. | .. |
| King Solomon Deep Lead, Ltd. | 4,502 | 34,599 | 6,500 | 16,250 |
| Terrace Gold-mining Co., Ltd. | 5 | 33 | .. | .. |
| New Gabriel's Gully Gold-mining Co., Ltd. | 206 | 1,506 | .. | .. |
| Sailor's Gully Gold-mining Co., Ltd. | 409 | 2,956 | 420 | 13,295 |
| Paddy's Point Gold-mining Co., Ltd. | 363 | 2,584 | .. | 1,396 |
| Bell-Hooper Cromwell Gold, Ltd. | 1,239 | 9,004 | .. | .. |
| Bell-Kilgour Gold-mining Co., Ltd. | 961 | 6,884 | .. | .. |
| Maerewhenua Gold Development Co., Ltd. | 24 | 185 | .. | .. |
| Macraes Gold-mining Co., Ltd. | 1,053 | 7,120 | 1,000 | 1,000 |
| Ben Ledi Sluicing Co., Ltd. | 27 | 202 | .. | .. |
| Fourteen-mile Beach Gold-mining Co., Ltd. | 90 | 639 | .. | .. |
| Round Hill Gold-mining Co., Ltd. | 850 | 6,431 | .. | .. |
| Moonlight Mining Syndicate | 138 | 1,016 | 120 | 3,700 |
| Central Shotover Gold-mining Co., Ltd. | 67 | 485 | .. | .. |
| Upper Shotover Gold-mining Co., Ltd. | 163 | 1,160 | .. | .. |
| Tallaburn Hydraulic Sluicing Co., Ltd. | 92 | 714 | .. | 1,380 |
| Riverside Sluicing Co., Ltd. | 123 | 867 | .. | .. |
| Jones Nevis Sluicing Co., Ltd. | 278 | 1,956 | .. | .. |
| Rand Gold-mining Co., Ltd. | 501 | 3,505 | .. | .. |
| Skippers Ltd. | 153 | 1,117 | .. | .. |
| Coastal Mining Co., Ltd. | 45 | 257 | .. | .. |
| Verdon Sluicing Co., Ltd. | 25 | 175 | .. | .. |
| Nevis Sluicing Claims, Ltd. | 13 | 92 | .. | .. |
| All other claims | 23,977 | 162,574 | .. | .. |
| Total | 43,541 | 306,248 | 11,222 | Unknown. |

It is considered by many that geophysical surveys, made to locate ancient and buried river channels (where alluvial gold may have been deposited), will prove if such channels are actually gold-bearing ones.

This idea is totally incorrect, for the presence of gold can be ascertained only by further prospecting such as by boring, shafting, or driving.

Geophysical surveys recently made in New Zealand have, with fair accuracy, located the courses of the ancient rivers. In some cases, however, subsequent prospecting has proved them to carry little or no gold, but, owing to the somewhat prevalent conception that geophysical surveys are a magnified form of "divining," unjust criticism has been levelled against such surveys.

During 1934 prospecting by driving, shafting, and boring in Otago, Southland, and the West Coast of the South Island became much more intense, particularly in the districts where mining engineers engaged by the Unemployment Board have been directing and advising the men assisted by that Board.

In the Howard district, between Murchison and Blenheim, men have been allotted areas on the Maud, Maggie, and Louie Creeks in which to ground-sluice for gold.

Much prospecting was done, by shafts and cuts, on a large area of alluvial ground near Hokitika, and the results of that prospecting were so encouraging that the Unemployment Board has arranged for the reconstruction of about eleven miles of the old Humphries Gully water-race and an extension of it, by about ten miles, through tunnels and open race to the western end of the Blue Spur Range. It is anticipated that at least a hundred men will find steady work for several years in the many claims that will be allotted along Belfast Terrace and at nearby creek claims.

Several areas are being prospected by men employed by the Unemployment Board in the Grey District, including one near Marsden. Shafts have been sunk, and a long level-drive is being put in which, when it connects with the nearest shaft-bottom, will be over 1,000 ft. in length.

Intensive prospecting is being done by private companies also, and, beside many private-owned drills, the Mine Department's six, and the Unemployment Board's three, alluvial and keystone drills are being used almost continuously to prove areas intended for gold-dredging or alluvial mining.

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## V. MINERALS OTHER THAN GOLD.

### Iron.

At the Onakaka Ironworks work was not resumed until late in November, 1934. From then to the end of the year 2,806 tons of ore was mined, from which 1,337 tons of pig iron was produced.

### Sulphur.

No work was done at any of the sulphur-deposits during 1934.

### Quicksilver.

Preparatory to working the New Zealand Quicksilver Mine at Puhipuhi again, a good deal of retimbering has been done recently in the levels, and a small treatment plant has been put up near the mine.

### Tungsten.

Early in the year, as the result of a substantial rise in the price of tungsten, scheelite mining was resumed both at Glenorchy and Macraes, and from a total of 513 tons of ore, 39 tons of concentrates, valued at £4,678, was recovered.

Of that total the Glenorchy Scheelite Mining Co. treated 132 tons of ore, which yielded 10 tons 11 cwt. of concentrates, valued at £1,055, and from several small mines in the neighbourhood 16 tons 13 cwt. of concentrates, valued at £1,665, was recovered.

From the Otago Scheelite and Mining Company's Ounce Mine at Macraes, 285 tons of ore was produced for a return of 8 tons 4 cwt. of scheelite valued at £1,422. From other small mines in the neighbourhood, 3 tons 12 cwt. of scheelite valued at £536 was recovered.

At the Golden Point Mine at Macraes, mining was recommenced in January and carried on intermittently until June, when the mine was again closed down.

### Petroleum.

The drilling of the No. 4 well of Moturoa Oilfields, Ltd., was continued to a depth of 2,186 ft., and 40,713 gallons of petroleum, valued at £763, was obtained from it during the year by gas-flow through tubing. From the No. 2 well production was continuous, and 114,985 gallons, valued at £2,156, was obtained from that well. At the No. 1 well a derrick has been re-erected, and another attempt is being made to make it a productive one.

At Kotuku, in the West Coast district of the South Island, boring was commenced on 26th February, 1934, by the Kotuku Oil and Goldfields Co., Ltd., but ceased within a few months as, owing to its inadequate finance, the company could not continue.

No further boring for oil was done in Southland.

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## VI. 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 1934 :—

| Provincial District. | Name and Address of Government Inspector of Stone-quarries. | Number of Working Quarries under the Act. | Number of Persons ordinarily employed. | Output of Stone. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Stone or Gravel for Macadamizing or Ballast. | Stone for Harbour-works. | Building or Monumental Stone. | Limestone for Agriculture. | Limestone for Cement or Mortar. | Phosphate for Agriculture. | Miscellaneous. | Value at Quarry. |
| | | | | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. | £ |
| Auckland .. | James Newton, Mines Dept., Auckland | 175 | 890 | 407,614 | .. | 3,604 | 78,599 | 103,854 | .. | .. | 98,809 |
| | J. F. Downey, Mines Dept., Waihi (Hauraki Mining District only) | 12 | 63 | 63,209 | .. | 158 | .. | .. | .. | .. | 16,863 |
| Hawke's Bay | James Newton, Mines Dept., Auckland | 21 | 105 | 41,997 | .. | .. | 27,793 | .. | .. | .. | 13,590 |
| Taranaki .. | Ditto .. .. | 18 | 97 | 17,560 | .. | .. | 877 | .. | .. | .. | 2,631 |
| Wellington.. | „ .. .. | 36 | 169 | 54,184 | .. | .. | 8,603 | .. | .. | 5,000 | 16,584 |
| Nelson .. Westland .. Marlborough Canterbury.. Otago .. Southland .. | E. J. Scoble, Mines Dept., Reefton | 21 | 107 | 15,420 | 11,747 | .. | 5,763 | 24,895 | .. | 10,014 | 14,046 |
| | T. McMillan, Mines Dept., Dunedin | 44 | 387 | 141,444 | 55,494 | 27,738 | 140,305 | 39,913 | .. | .. | 99,114 |
| Totals, 1934 | .. | 327 | 1,818 | 741,428 | 67,241 | 31,500 | 261,940 | 168,662 | .. | 15,014 | 261,637 |
| Totals, 1933 | .. | 319 | 1,711 | 621,923 | 58,743 | 1,994 | 191,888 | 137,039 | .. | 17,821 | 196,481 |

There were 107 more men employed than during the previous year, with an increase in the value of the stone produced of £65,156.

### Quarry Accidents.

The following is a summary of serious accidents during 1934 at quarries under the Stone-quarries Act :—

| Cause. | Number of Accidents. | | Number of Sufferers. | |
|---|---|---|---|---|
| | Fatal. | Serious. | Killed. | Seriously injured. |
| Haulage .. .. .. .. .. .. .. | .. | .. | .. | .. |
| Machinery .. .. .. .. .. .. | .. | 1 | .. | 1 |
| Explosives .. .. .. .. .. .. | 1 | .. | 1 | .. |
| Falls of ground .. .. .. .. .. .. | 1 | 4 | 1 | 4 |
| Miscellaneous .. .. .. .. .. .. | 1 | 1 | 1 | 1 |
| Totals .. .. .. .. .. | 3 | 6 | 3 | 6 |

An account of the three fatal accidents at stone-quarries during 1934 follows :—

On 16th February, at the Paekakariki Quarry, the foreman was barring down some loose material above the ledge on which he was standing, when he stumbled back, or was struck by some falling stone, and fell to the floor of the quarry, a distance of about 150 ft. He sustained such severe injuries that he died almost immediately. The fatality could have been avoided had he, instead of passing the rope between his legs, fastened it around his body.

At Smeed's Quarry, Pukekawa, an employee was suffocated by stone-dust which he was trying to unload from a storage bin. No one saw the accident, but it is thought that, as the material was damp and did not flow from the bin, instead of using a steel bar to loosen it, he stepped into the bin and the material gave way under his feet and buried him.

A premature explosion at the Halswell Quarry, Christchurch, fatally injured the foreman. A 10½ ft. borehole, drilled at an angle, had been "bulled" with ten plugs of gelignite and then flushed out with water. Thirty plugs of lithyte had been loaded into the hole, by the deceased and another man, and another thirty plugs had been prepared. Twenty of them were tamped into the hole and then a piece of stone seemed to have blocked the hole about 6 ft. down. Failing to clear the obstruction with the wooden tamping rod, the foreman used a steel bar, resulting in the explosion of the charge.

## VII. STATE AID TO MINING.

### (1) Subsidized Prospecting.

Upon subsidized prospecting operations 129 persons were intermittently employed during the year.

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

| Name of Prospecting Party. | Number of Prospectors. | Locality of Operations. | Amount of Subsidy granted.* | Amount of Subsidy expended. | Distance driven or sunk. | Nature of Claim. | Character of Operations. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| *Northern Inspection District.* | | | £ s. d. | £ s. d. | Ft. | | | |
| Golden Dawn Gold-mines, Ltd. .. | 20 | Golden Dawn, Owharoa .. .. | 401 7 3 | 400 17 0 | 754 | Quartz .. | Driving, &c. .. | Work mainly on gold-bearing reef. Unexpended balance of subsidy cancelled. |
| James, S. C. .. .. .. | 2 | Golden Lily Claim, Colville .. .. | 19 16 11 | 10 7 11 | 22 | Quartz .. | Driving .. .. | Nothing of value located. |
| Gigantic Mines, N.L. .. .. .. | 6 | Grace's Find, Neavesville .. .. | 27 6 7 | 27 6 7 | .. | Quartz .. | Trenching and driving | Nothing of importance found. |
| Dawn of Hope Gold-mines, N.L. .. | 2 | Lucky Shot Mine, Thames .. .. | 56 14 0 | 40 3 4 | 85 | Quartz .. | Driving .. .. | Driving on gold-bearing leader. |
| Talisman-Dubbo Gold-mines, Ltd. .. | 4 | Talisman-Dubbo Mine, Karangahake .. | 69 11 9 | 7 7 0 | 14 | Quartz .. | Driving .. .. | Driving on gold-bearing reef. Unexpended balance of subsidy cancelled. |
| Morgan, H. L. .. .. .. | 2 | Scotia Claim, Waitekauri .. .. | 38 15 0 | 38 15 0 | 155 | Quartz .. | Driving .. .. | Nothing of value found. |
| School of Mines .. .. .. | .. | Thames .. .. .. .. | 108 10 0 | 72 0 0 | .. | Quartz .. | Crushing .. .. | .. |
| Kuranui Golden Hills .. .. | .. | Thames .. .. .. .. | 736 9 6 | 725 3 8 | .. | Quartz .. | Testing low-grade ores | Unexpended balance of subsidy cancelled. |
| Coromandel Gold-mines, Ltd. .. .. | 4 | Nil Desperandum Claim, Coromandel .. | 250 0 0 | 237 4 4 | 70 | Quartz .. | Shaft-sinking .. | Work in progress. |
| Schulzki, R. .. .. .. | 2 | New Talisman Claim, Karangahake .. | 52 10 0 | .. | 30 | Quartz .. | Driving .. .. | Work in progress. |
| Karangahake Prospecting and Tributary Association | .. | Karangahake .. .. .. | 37 0 0 | .. | .. | .. | Purchase explosives .. | Unexpended balance of subsidy cancelled. |
| Hardy, M. Y. .. .. .. | 1 | Waiorongomai .. .. .. | 25 0 9 | 25 0 9 | .. | Quartz .. | Battery .. .. | .. |
| Hardy's Gold-mines Development Syndicate | .. | Waiorongomai .. .. .. | 39 0 0 | .. | .. | .. | .. | Unexpended balance of subsidy cancelled. |
| Testing Low-grade Areas, Thames .. | .. | Thames .. .. .. .. | 1,275 0 0 | 731 7 3 | .. | .. | .. | Unexpended balance of subsidy cancelled. |
| *West Coast Inspection District.* | | | | | | | | |
| Toogood, A. J. (Pool Syndicate) .. | 4 | Baton River .. .. .. .. | 111 0 0 | .. | 171 | Alluvial .. | Shaft-sinking and tunnelling | Satisfactory. |
| New Zealand Mining Investments, Ltd. .. | .. | Awatuna Beach .. .. .. | 125 0 0 | .. | .. | Dredging .. | Drilling .. .. | Not taken up. |
| Big River Gold-mines, Ltd. .. .. | .. | Big River .. .. .. .. | 186 0 6 | .. | .. | Quartz .. | Driving, rising, &c. .. | Cancelled. |
| Borings Ltd. .. .. .. | .. | Fern Flat, Murchison .. .. .. | 89 0 0 | .. | .. | Dredging .. | Shaft-sinking .. | Not taken up. Cancelled. |
| Golden Electric Dredging Co., Ltd. .. | .. | Okarito .. .. .. .. | 210 0 0 | .. | .. | Dredging .. | Drilling .. .. | Not taken up. Cancelled. |
| Haast Development Syndicate .. | 4 | Haast Beaches, South Westland .. | 253 14 0 | 238 2 8 | 1,067 | Dredging .. | Drilling .. .. | Unsatisfactory. Balance of subsidy cancelled. |
| Hunters Plains Alluvials, Ltd. .. .. | .. | Upper Matakitaki .. .. .. | 60 0 0 | .. | .. | Dredging .. | Drilling .. .. | Not taken up. Cancelled. |
| Maori Gully Syndicate .. .. | 2 | Maori Gully, Arnold Survey District .. | 32 0 0 | 17 10 0 | 35 | Alluvial .. | Shaft-sinking .. | Indefinite. |
| Morgan, McFarlane, and Wallace .. | .. | "The Break," Kumara .. .. | 75 0 0 | .. | .. | Alluvial .. | Driving tail-race tunnel | Not taken up. |
| Murchison Development Syndicate, Ltd. | 4 | Buller River, Tutaki Survey District .. | 37 10 0 | 32 16 3 | 150 | Dredging .. | Drilling .. .. | Unsatisfactory. Balance of subsidy cancelled. |
| Robertson Maher Gold-prospecting Syndicate | .. | Armchair Valley, Marlborough .. .. | 125 0 0 | .. | .. | Dredging .. | Drilling .. .. | Not taken up. Cancelled. |
| Waikakaho Valley Co. .. .. .. | 4 | Waikakaho .. .. .. .. | 27 0 11 | 27 0 11 | 173 | Alluvial .. | Drilling .. .. | Satisfactory. |
| *Southern Inspection District.* | | | | | | | | |
| Adams Flat Gold-mining Syndicate .. | 2 | Adams Flat, South Otago .. .. | 21 9 7 | .. | 288 | Alluvial .. | Sinking .. .. | Results unsatisfactory. Unexpended balance of subsidy cancelled. |
| Bell Currie Syndicate .. .. | 4 | Rock and Pillar Survey District .. .. | 37 12 0 | 37 12 0 | 150 | Alluvial .. | Driving .. .. | Values located, but ground difficult to work. Further work is necessary to prove the ground. |

* Includes authorizations in previous years. The total of the subsidies granted, less cancellations, during the year ended 31st March, 1935, amounted to £2,010 3s. 7d.

| Name of Prospecting Party. | Number of Prospectors. | Locality of Operations. | Amount of Subsidy granted.* | Amount of Subsidy expended. | Distance driven or sunk. | Nature of Claim. | Character of Operations. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| *Southern Inspection District*—continued. | | | £ s. d. | £ s. d. | Ft. | | | |
| Bendigo Deep Lead Syndicate .. .. | 4 | Bendigo .. .. .. .. | 92 14 10 | .. | .. | Dredging.. | Boring .. .. | Operations not yet commenced. |
| Elsom, J. J., and party .. .. | 6 | Bonanza Mine, Budle .. .. .. | 35 12 0 | 28 8 0 | 71 | Reef .. | Driving and sinking .. | Work still in progress. |
| Ettrick Prospecting Syndicate .. .. | 4 | Ettrick Flat, near Roxburgh .. .. | 160 0 0 | 54 7 4 | 155 | Dredging.. | Boring .. .. | Unsatisfactory. Unexpended balance of subsidy cancelled. |
| Golden Point Gold and Scheelite Co. .. | 6 | Golden Point, Deep Dell, Macraes .. | 211 10 0 | 140 4 0 | 160 (driving) 67 (rising) | Reef .. | Driving rising, and sinking | Work not completed. Unexpended balance of subsidy cancelled. |
| Hadcroft and party .. .. .. | 2 | Saddle Hill .. .. .. .. | 50 7 6 | 24 14 0 | 76 | Reef .. | Driving and sinking .. | Unsatisfactory; nothing of importance located. Unexpended balance of subsidy cancelled. |
| Livingstone, G. J. R. .. .. | 2 | Hyde, Rock and Pillar Survey District .. | 20 1 8 | 19 11 4 | 98 | Alluvial deep lead | Sinking .. .. | Work not completed. Unexpended balance of subsidy cancelled. |
| Morrow, J. T. .. .. .. | 2 | Ettrick Flat .. .. .. .. | 18 0 0 | 18 0 0 | 204 | Alluvial deep lead | Boring .. .. | Nothing of importance yet located. |
| Nokomai Gold-mining Co., Ltd. .. | .. | Nokomai .. .. .. .. | 187 10 0 | .. | .. | .. | .. | This subsidy was not taken up. Cancelled. |
| O'Connell, J., and party .. .. | 6 | Macraes .. .. .. .. | 11 8 0 | .. | .. | Alluvial deep lead | Sinking and driving .. | Nothing of importance found. |
| Shotover Reefs Development Co. .. | 5 | Ballarat Creek, Skippers .. .. | 106 5 0 | 3 2 6 | .. | Reef .. | Driving .. .. | No work done during the year. Balance of subsidy cancelled. |
| Sutherland, D., and party .. .. | 3 | Highlay Creek .. .. .. | 48 12 0 | 48 4 0 | 83 | Alluvial deep lead | Driving .. .. | Nothing of importance found. Balance of subsidy cancelled. |
| Symes, R. T. .. .. .. | 2 | Symes Reef, Fruitlands .. .. | 75 0 0 | 60 10 0 | .. | Reef .. | Driving .. .. | Crosscut 121 ft. Lode channel not intersected. |
| Tripp, J. R., and Thompson, J. .. | 2 | Sawyers Gully, Skippers .. .. | 3 7 6 | 3 7 6 | 203 | Reef .. | Driving .. .. | Driving on highly payable reef. |
| Waimumu Sluicing Co. .. .. | 5 | Part Section 4A, Block VIII, Waimumu Hundred | 100 0 0 | 48 10 10 | 216 | Alluvial .. | Boring .. .. | Nothing of importance located. |
| Wesney, D. J. .. .. .. | 3 | Grindstone Creek, Block X, Longwood Survey District | 50 0 0 | 23 1 8 | .. | Alluvial .. | Sinking and boring .. | Unsatisfactory. Balance of subsidy cancelled. |
| Wetherstones Gold-mining Co., Ltd. .. | 10 | Wetherstones .. .. | 411 13 4<br>1,550 0 0 | 344 19 0<br>300 3 10 | 190 | Cement .. | Sinking .. .. | Work not yet completed. |
| Dillon and party .. .. .. | .. | Naseby .. .. .. .. | 150 0 0 | .. | .. | .. | .. | .. |
| Frye Giddens Syndicate .. .. | .. | Alexandra .. .. .. .. | 250 0 0 | .. | .. | .. | .. | .. |
| | 129 | | .. | 3,785 18 8† | | | | |

* Includes authorizations in previous years. The total of the subsidies granted, less cancellations, during the year ended 31st March, 1935, amounted to £2,010 3s. 7d.

† In addition 14s. was paid to a prospector as an adjustment on account of stores purchased by him.

(2) Government Prospecting Drills.

The following table gives details of the drilling done and the results obtained for twelve months ended 31st December, 1934 :—

Drills used: Diamond and Keystone drills. Percussion and Hand-placer drills.

| Number of Holes drilled. | Total Depth, in Feet. | Diameter of Hole. | Mineral sought. | Character of Country drilled through. | To whom lent. | Cost per Foot of Drilling. | Cost per Foot of Transport. | Cost per Foot of Carbon's Wear. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| | Ft. | In. | | | | s. d. | s. d. | s. d. | |
| 23 | 1,398 | 6 | Gold | Gravel .. | Ettrick Prospecting Syndicate | 6 1·06 | 0 6·88 | .. | .. |
| 26 | 816 | 6 | Gold | Sand .. .. | Gold Options, Ltd. | 4 8·25 | 0 5·50 | .. | .. |
| 3 | 197 | 6 | Gold | Gravel .. | Wild and Robertson | 8 1 | 3 0 | .. | .. |
| 1 | 98 | 6 | Gold | Gravel .. | Bendigo Deep Lead Syndicate | 13 7* | .. | .. | .. |
| 7 | 240 | 6 | Gold | Gravel .. | Luggate Syndicate | 10 2 | 2 4 | .. | .. |
| 5 | 286 | 6 | Gold | Sand and gravel | Investigations Ltd. | .. | .. | .. | In progress. |
| 115 | 2,331 | 6 | Gold | Gravel .. | Mining Trust and Finance, Ltd. | 24 11 | 0 4 | .. | .. |
| 9 | 633 | 6 | Gold | Gravel .. | Unemployment Board | 15 1* | .. | .. | .. |
| 13 | 806 | 6 | Gold | Clay and gravel | Austral Malay Tin, Ltd. | .. | .. | .. | In progress. |
| 19 | 581 | 3½ | Gold | Gravel .. | Austral Malay Tin, Ltd. | 3 5·47 | 2 9·70 | .. | .. |
| 18 | 1,427 | 6 | Gold | Sand and gravel | Investigations Ltd. | .. | .. | .. | In progress. |
| 3 | 105 | 3¾ | Gold | Sand .. .. | J. S. Langford | 18 0 | 2 2 | .. | .. |
| 13 | 574 | 3½ | Gold | Gravel and schist | Unemployment Board | .. | .. | .. | In progress. |
| 1 | 54 | 6 | Gold | Pug and coal .. | Argyle Mining Co. | .. | .. | .. | In progress. |
| 20 | 437 | 6 | Gold | Gravel .. | Upper Ahaura Gold-dredging Co., Ltd. | 15 9·5 | 5 10·5 | .. | .. |
| 12 | 449 | 6 | Gold | Gravel .. | Rimu Gold-dredging Co., Ltd. | .. | .. | .. | In progress. |
| 3 | 235 | 6 | Gold | Gravel .. | Investigations Ltd. | .. | .. | .. | In progress. |
| 21 | 324 | 6 | Gold | Gravel .. | Alluvial Holdings, Ltd. | .. | .. | .. | In progress. |
| 3 | 1,530 | 3 & 2⅜ | Coal | Shale, sandstone | State Coal-mines | .. | .. | .. | In progress. |
| 1 | 196 | 1 9/16 | Coal | Sandstone .. | Kaye and party | 1 9 | 0 8 | 0 4 | .. |
| 316 | 12,717 | | | | | | | | |

* Includes cost per foot of transport.

(3) Subsidized Roads on Goldfields.

The expenditure in the form of subsidies and direct grants upon roads on goldfields amounted to £766 13s. 8d., as compared with £1,227 1s. 10d. during the previous year.

Interest in gold-mining continued unabated, and, in consequence, the duties of the Inspectors of Mines tended to increase, but the Unemployment Board's appointment of qualified mining engineers, to direct and supervise the work of assisted miners and prospectors in several districts, has afforded the Inspectors some relief.

These engineers confer with and are guided by the Inspector's intimate knowledge of his district, and the enthusiasm with which they have taken up their tasks has proved the wisdom of appointing such men.

The Inspector of Stone-quarries, Mr. James Newton, after twenty years' faithful service, was to retire on superannuation at the end of 1934, but, to assist his successor, Mr. R. H. Schoen, who was appointed early in 1935, Mr. Newton kindly continued to act for another month.

The Inspectors of Mines have continued to render me all possible help, and are assiduous in watching that the safety of the workmen is always the first consideration.

I have, &c.,

George Duggan,

Inspecting Engineer of Mines.

# ANNEXURE A.

## SUMMARY OF REPORTS BY INSPECTORS OF MINES.

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

#### Quartz-mining.

I have to report as follows on the mining industry in the Northern Inspection District for the year ending 31st December, 1934:—

*Waihi Gold-mining Co., Ltd.* (J. L. Gilmour, Manager).—The following is a summary of the work done, and its results—No. 15 level: No further exploration was done. The remaining ore was drawn from Cod block. No. 14 level: On the Edward lode the estimated contents of stope on Trout block was drawn off, but there was a fall from the arch, making a further supply available. On the Martha lode, Gin block, 200 ft. in length, was opened up on somewhat low-grade ore. No. 13 level: On the Martha lode a further test was made by widening east and west of Cow rise, where the lode was from 20 ft. to 30 ft. wide. The ore was low grade, but at the increased price of gold could be made to pay its way, and a stoping-block 140 ft. in length was opened. On the Empire lode, McEnteer block, 57 ft. in length, was opened up immediately west of the Deviation crosscut, but at 53 ft. up values fell away and work in the stope was stopped. Some work was done on the south section of Martha lode eastward from No. 4 shaft north crosscut, but values were found too low to pay for working. No. 12 level: On the Martha lode, stoping of Fax block was continued. On the north section Martha lode, Tanner's block, 133 ft. in length, was opened up east of junction of north and south sections in ore of low grade. On the Empire lode stoping of Bath and Fahey blocks was continued. No. 11 level (70 ft. sub-level): On the Edward lode some fair values were got for a length of 66 ft. in a drive from 70 ft. down Snapper winze, while on the Empire lode, Porter block, 240 ft. in length, was opened up on ore of fair value. No. 11 level (38 ft. and 78 ft. sub-levels): Work was continued on Kingsford block on the north section Empire lode, from which a good deal of ore was won, and Heath block, 177 ft. in length, was opened up from the 78 ft. sub-level. No. 11 level: Paul block, 90 ft. in length, was opened up from Paul rise, which was put up for 82 ft. on payable ore at a point 270 ft. east of No. 2 shaft S.E. crosscut. On the Martha lode, north section, Tanner block was opened up for a length of 130 ft. east of Kauri north crosscut. The ore was rather low grade. On the Empire lode, Centre section, breaking of ore was completed on Mitchell East block, most of the ore being good grade. On the south part of Centre section, Empire lode, lying east and west of Pistol crosscut, a small branch was tested for 269 ft. in length, of which about 60 ft. in length carried fair values. This was stoped up for 40 ft., when values fell, and work was stopped. No. 10 level (58 ft. sub-level): Power block was opened up on the Empire lode footwall loop. The ore was of good grade, but values only lived up for 28 ft. No. 10 level: Shrinkage stoping of Ulster block was continued and carried up to 62 ft. above the level. The length of stope was 255 ft., of which the eastern 55 ft. was in Grand Junction ground. On the Martha lode shrinkage stoping of Horse block was continued up till May, when it stopped 25 ft. below No. 9 level. Martha footwall gangway: A footwall trucking-road was constructed at the back of Cow block and connected to the main footwall gangway. On the Empire lode the drawing-off of ore from Furze block was continued, but as a protection to No. 4 shaft a considerable amount of ore was left in the stope. No. 9 level (35 ft. sub-level): The work done was mainly stoping on Trout arch on square sets. No. 9 level (intermediate level 70 ft. up): On the Martha lode a good deal of development work was carried out, preliminary to the extraction by caving of a large block of ore under No. 8 level and over the old-time Cow block. At 87 ft. east in the new Martha footwall gangway, pile rise was put up, and in a crosscut, at 73 ft. up this, some sulphide ore of good quality was disclosed in the hanging-wall of the Martha, and an intermediate level 145 ft. in length was opened on it. Stoping of this ore is in hand. No. 8 level (45 ft. sub-level): A good deal of investigation was carried out on the Empire lode, westward from Worthington winze and from Worthington north crosscut, and a considerable amount of workable ore was opened up. No. 8 level (11 ft. sub-level): The breaking of ore from Roache and Cod arches was completed in June. No. 8 level (60 ft. sub-level): A short block, known as Bradman block, was opened up. No. 8 level: The extraction of ore from arches under No. 7 level by caving and square sets was carried on throughout the year, and this section of the mine was the biggest feeder to the battery. Operations were carried out on three sub-levels below No. 7 level, the sections worked being Jim, Wheel and Fosterson, Wyatt, Hamilton, and Venus arches. No. 7 level (34 ft. sub-level): Work was continued on the Ivy block in the western end of the arch under No. 7 level. No. 7 level: On the Empire lode, Hicks block, extending from 37 ft. E. to 50 ft. W. of Hicks rise, was opened up. No. 6 level: Apart from the work on Martha north branch, there was no development work of special importance to report. No. 5 level: A considerable amount of investigation was made of the Martha lode westward from No. 2 shaft. Some fairly strong bodies of quartz up to 30 ft. in width were intersected, but were mostly low grade. A good deal of work was also done on the north branch of the Martha lode, which proved to be rather small, but of rather good grade. No. 4 level: Work was mainly confined to the north branch of the Martha lode and a small parallel lode having the same northerly dip. In both reefs ore of good value was located. On the parallel reef a shrinkage stope, known as Fallon block, 122 ft. in length, was opened up. No. 3 level: Shrinkage stoping of Wallace block on the Martha lode, north branch, was continued, and stoping was also done on a footwall dropper off the north branch, which was met at 60 ft. in Wallace north crosscut. Investigation of this particular lode on the various levels, No. 2 to No. 7, has served to show that it is a footwall dropper of the Martha reef, which leaves the main lode between Nos. 2 and 3 levels. The general strike was identical with that of the Martha in this area, namely, N.E.–S.W. The lode dips flatly to the north-west down to about No. 5 level, but below that is somewhat steeper. As far as explored, the pay-shoot is strongest at No. 5 level, and is there about 400 ft. in length, with a width of about 4 ft. Surface workings: The drive eastward from Oates north crosscut was extended from 95 ft. to 146 ft. Between 104 ft. east and 145 ft. the lode was 7 ft. in width, but of rather low value. A footwall gangway heading eastward was started at 130 ft. in this drive and driven eastward 404 ft. and connected to Bell pass. Extraction of arches under the lower western Smithy level will now be proceeded with. Some exploration was also done in the Martha footwall country. At 70 ft. east of the starting-point of the footwall gangway above mentioned a small branch reef was intersected, which was later driven on W.N.W. for 150 ft., some fair values being got in it. At 107 ft. in this drive, a crosscut was put out north-west with a view to getting under the old Nut workings. This crosscut was driven 142 ft., and at 124 ft. it entered the overlying rhyolite. A deviation crosscut was then started from the 126 ft. mark and headed more directly northward, and at 93 ft. in it a formation 4 ft. in width was cut. This corresponded with a reef cut in the Nut adit levels overhead, but values were so low in it that work was not proceeded with. Where the crosscut stopped, the face was 230 ft. from the north wall of the Martha. Some ore was won from the opencut west of Merry pass on the Martha lode and by rill stoping of Dix block. From surface drives a small tonnage of ore was won from the Emily workings on the Welcome, from the Britannia dip, and from the south branch of the Martha. Output: A total of 185,210 long tons of quartz was mined and treated, from which gold and silver to the value of £427,105 was obtained. The gold recovered amounted to 57,448 oz., valued at £393,519, and the silver to 343,012 oz., valued

at £33,586. Dividends were paid during the year to the amount of £99,181 8s., bringing the total disbursements to £6,239,008 14s. 6d. The average number of men employed was 620. The total yield of bullion since beginning of operations was 26,018,401 oz. 3 dwt. 11 gr.; value, £18,123,718 13s. 10d.

*Waihi Grand Junction Gold-mining Co., Ltd.* (J. L. Gilmour, Manager).—The Waihi Co. continued the working of this mine, the more important workings carried out being summarized as follows—Junction No. 10 level: Drawing from the No. 9 pass stoping-block on the Empire lode was completed in July, and this was the only work done on the level during the year. Waihi Co.'s No. 13 level: Ore-breaking was resumed on Fahey stoping-block on the Empire lode and carried up to 67 ft. above the level. Junction No. 9 level (40 ft. sub-level): A stoping-block, known as No. 7 pass block, was opened up on the Empire lode for a length of 209 ft., and stoping was completed on it in August. Junction No. 9 level: Work was continued on No. 10 pass stoping-block on the Empire lode, and carried up to 68 ft. above the level. Waihi Co.'s No. 12 level (about 45 ft. above Junction No. 9): An east drive from the Waihi Co.'s area followed the course of the Royal lode, crossing the boundary-line at 447 ft., and following on for 44 ft. within Junction ground. At 447 ft. the reef was crosscut, showing it to be 28 ft. in width, but the quartz throughout was of low grade. Junction No. 8 level: Towards the end of the year ore-breaking was commenced in the Lowrie stoping-block on the Royal lode and carried to 30 ft. above the level. The block was about 47 ft. in length. Waihi Co.'s No. 11 level: From an intermediate level 54 ft. up Putan rise a good deal of exploratory work was done on the Dominion lode. Two small blocks, known as Putan and Putan West, were opened up and stoped out. The work on the various levels has served to show that all the payable ore contained in the lode has now been mined. Junction No. 7 level: On Chalker stoping-block, 105 ft. in length, on the Royal lode, ore-breaking was commenced in January, and by end of year had been carried to 75 ft. above the level. At 300 ft. east of No. 1 shaft S.E. crosscut a crosscut was driven north which intersected two sections of the Empire lode at 18 ft. and 36 ft. in. The first-mentioned section was 5 ft. wide and the other 4 ft., and both carried fair values. On the first-named section 82 ft. was driven east and west of the crosscut, and on the other vein a total of 79½ ft. was driven. Blocks on both veins are being got ready for stoping. Junction No. 6 level: The Royal S.E. prospecting crosscut was extended to 410 ft., where work was stopped, the country being unfavourable. At 347 ft. in a body of quartz 8 ft. in width was intersected and driven on for a short distance east and west, but as the values were very low further driving was abandoned. A former crosscut driven from No. 9A pass situated at 100 ft. east of No. 1 shaft S.E. crosscut was extended 36 ft. to a total of 72 ft., but the country was found to be much faulted and disturbed, and work was stopped. A drive east was commenced on a vein 18 in. wide intersected at 27 ft. in the drive, and carried in to 79½ ft. The quartz was broken, ill-defined, and of low value. A rise was then put up at the 31 ft. mark, which holed through to an old intermediate level about 80 ft. up which had been driven by the former Junction Co. which had stoped the ore above it. At 40 ft. up the rise an intermediate level was opened and driven east 177 ft., 163 ft. of which showed payable ore varying from 2 ft. to a width greater than the drive. Seventy-seven feet was also driven west from the rise on ore of fair grade. On Gibbons stoping-block ore-breaking was stopped at 77 ft. above the level owing to the value falling. On the Berry stoping-block on the Martha lode, extending from No. 1 shaft N.W. crosscut to 55 ft. west, stoping was carried to 30 ft. above the level, when ore-breaking was stopped owing to the value falling. Waihi Co.'s No. 10 level: Breaking of ore in the Ulster stoping-block on the Ulster lode was commenced in March, and at end of year the stope had been carried to 62 ft. above the level. Output: The ore won from the mine amounted to 19,568 long tons, which yielded gold and silver to the value of £41,953. The gold amounted to 5,887 oz., valued at £40,326, and the silver to 16,617 oz., valued at £1,627. Dividends to the amount of £6,906 5s. 4d. were paid. An average of forty men was employed. The total value from the area since commencing work may be set down as £2,602,482 3s.

*Golden Dawn Gold-mines, Ltd., Owharoa* (J. Wotherspoon, Manager).—Work was continued for the year, an average of 116 men being employed, and, as during previous year, development was carried on on Nos. 2, 3, and 4 levels and several intermediate levels. On No. 2 level a rise was put up for 32 ft. on No. 1 reef from north end of old stopes on stone 12 in. wide of low value. On an intermediate level 90 ft. above No. 3 level the east wall branch reef was driven on for 97 ft. north and 173 ft. south, reef averaging from 14 in. to 18 in. of fair-class quartz. A rise was put up on the same reef for 8 ft. A crosscut west from the north drive on No. 1 reef was carried in for 83 ft. Two reefs were cut, one at 32 ft. and the other at 52 ft. The former was 6 in. wide and the latter 16 in. The first-mentioned reef was low grade, but the latter carried fair values. The latter reef was driven on for 24 ft. north and 8 ft. south. In an intermediate 70 ft. above No. 3 level the east wall branch of No. 3 reef was driven on south for 50 ft. and north for 75 ft. on reef varying from 2 ft. to 4 ft. in width of fair value. On the same level No. 1 reef was driven on south for 27 ft. on quartz up to 3 ft. wide of fair value. The drive north on No. 1 reef was extended for 119 ft.; the reef was small and poor. In the south end of the mine the drive on east wall branch of No. 3 reef was extended 5 ft. on quartz 14 in. wide of low value. A crosscut west from south end of Meagher's stope on No. 3 reef was put out for 26 ft., where it cut the east wall branch reef, which was subsequently driven on for 51 ft. north and 227 ft. south. On No. 4 level intermediate the drive north on No. 1 reef from shaft was extended 37 ft. on quartz 10 in. wide of low value. A drive north on No. 3 reef was extended for 28 ft. on reef 18 in. wide. A rise put up on No. 3 reef from face of south drive connected with winze from No. 3 level. A rise was put up on No. 3 reef north of crosscut east to connect with intermediate level, which was subsequently driven south on the reef for 40 ft. and north for 386 ft.; quartz about 2 ft. wide of fair value. Output: For the year 6,720 tons of quartz was mined for a return of 4,105 oz. 10 dwt. gold, valued at £39,497 7s., and 7,915 oz. 3 dwt. silver, valued at £785 6s. 10d., the total value of output being £40,282 13s. 10d. The company's battery also treated ore for outside suppliers to the amount of 3,008 tons, which yielded 3,149 oz. 14 dwt. gold, valued at £18,909 10s. 5d., and 15,070 oz. 7 dwt. silver, valued at £1,234 0s. 3d. The total yield of the Golden Dawn mine since beginning of operations was 50,916 oz. 15 dwt. 15 gr. bullion, value, £110,313 3s. 9d.

*Talisman-Dubbo Gold-mines, Ltd., Karangahake* (W. M. McConachie, Manager).—Work was carried on steadily for the period, an average of thirty men being employed. The drive south on No. 1 Talisman level was advanced 349 ft., making total of 1,018 ft. from portal and 473 ft. south of main rise. From the main rise to 160 ft. south the lode was 15 in. wide and of good value. From 160 ft. to 208 ft. south the reef was mixed with clay, and values were low. From 208 ft. to 473 ft. south the reef was of good value, and varied from 4 in. to 4 ft. in width. At 473 ft. south the drive connected with one of the old Dubbo workings previously driven from the southern side of Karangahake mountain. A rise was put through to connect with the level 100 ft. above. This was on a footwall section of the reef. Practically the only other development work was dome-driving done on McIntyre's leader. The leader was driven on 106 ft., and varied from ½ in. to 6 in. in width, but the quartz was of high value. A rise was also put up on the leader for 24 ft., following two veins of quartz of high value, but which were only from ½ in. to 2 in. wide. During the year the company mined 2,034 tons of ore, all of which was treated at the Golden Dawn battery, and yielded 2,428 oz. 7 dwt. gold, valued at £14,228 11s. 3d., and 13,179 oz. 14 dwt. silver, valued at £1,057 2s. 9d. Besides this, 60 tons were mined by tributers for a return of 49 oz. 18 dwt. gold, valued at £296 6s. 11d., and 162 oz. 6 dwt. silver, valued at £14 0s. 11d., making the total output of the claim for the year 2,094 tons of quartz, which yielded 2,478 oz. 5 dwt. gold, valued at £14,524 18s. 2d., and 13,342 oz. silver, valued at £1,071 3s. 8d. Total output since commencement of operations 18,453 oz. 0 dwt. 5 gr. bullion, valued at £18,396 6s. 6d. Dividends to the amount of £2,614 5s. 6d. were paid.

*New Talisman Claim, Karangahake* (R. Schulzki, Owner).—A good deal of work was done by way of reopening old workings below the Talisman No. 8 level, on Shephard's reef. The owner mined 10 tons of quartz from a hanging-wall section of Shephard's reef for a return of 14 oz. 17 dwt. gold, valued at £105 8s. 5d., and 45 oz. 15 dwt. silver, valued at £4 18s. 11d., while tributers mined 20 tons for 16 oz. 5 dwt. gold, valued at £81 2s. 10d., and 73 oz. silver, valued at £5 7s. 11d., making the total output of the claim for the year 31 oz. 2 dwt. gold, valued at £186 11s. 3d., and 118 oz. 15 dwt. silver, valued at £10 6s. 10d. Total output since start of operations 164 oz. 11 dwt. 7 gr. bullion; value, £361 9s. 8d.

*Waiawa Claim, Karangahake* (L. Turnbull, Owner).—Eight tons of ore from this mine was crushed at the Golden Dawn battery for a yield of 10 oz. 14 dwt. gold, valued at £63 7s. 11d., and 9 oz. 10 dwt. silver, valued at 13s. 2d. The quartz treated came mainly from the Crown reef at the Monastery level. Practically no development work was done on the claim during the year, but during the period the owner erected a small treatment plant for himself at Karangahake Township, in which it is proposed to treat any further ore won from the claim. Total output since beginning of operations 74 oz. 5 dwt. 8 gr. bullion; value, £203 19s. 11d.

*New Talisman Extended Claim, Karangahake* (C. C. O'Brien, Owner).—This claim is portion of the New Talisman, purchased from R. Schulzki. During the year the owner mined from surface portions of it 131 tons of quartz, which yielded 132 oz. 18 dwt. gold, valued at £849 4s. 6d., and 263 oz. 7 dwt. silver, valued at £28 9s. 6d., making the total output for the year 396 oz. 5 dwt. bullion, valued at £877 14s., which also represents the total output since start of operations.

*Tawa Claim, Karangahake* (O'Brien Bros., Owners).—From this claim 195 tons of quartz was mined during the year, which yielded 120 oz. gold, valued at £817 4s. 4d., and 146 oz. 19 dwt. silver, valued at £12 11s. 2d., making a total output for the year of 266 oz. 19 dwt. bullion, valued at £829 15s. 6d., which also represents the total output since start of operations. The quartz came from a surface portion of the Crown reef.

*The Brothers Claim, Karangahake* (O'Brien Bros., Owners).—From this claim 190 tons of ore was mined, which yielded 129 oz. 5 dwt. gold, valued at £893 14s. 6d., and 141 oz. 4 dwt. silver, valued at £12 15s., making the total output for the year 270 oz. 9 dwt. bullion, valued at £906 9s. 6d., which also represents the total output since start of operations.

*Imperial Prospecting Syndicate, Karangahake.*—The Imperial Prospecting Syndicate, which has now taken over portion of the Imperial claim from the previous owners, continued work fairly continuously through the year in the hope of locating the source of a quantity of rich "floater" found on the surface of the claim. Stackpoole's drive was extended a further distance to a total of 600 ft. from the portal, but no reef was located in it. The syndicate abandoned work there and started the driving of another shallow adit a few hundred feet farther to the north. To the end of the year this had been carried in 175 ft. Loose auriferous quartz was found practically the whole way embedded in slip material. A good deal of this was saved, but no crushing was done.

*Star Claim, Karangahake* (H. A. Meagher, Owner).—A small crushing of 2 cwt. of quartz from this claim, treated at Golconda battery, Thames, returned 11 oz. 7 dwt. gold, valued at £34 10s. 7d., while a further 5½ tons, treated at the Golden Dawn battery, yielded 4 oz. 19 dwt. gold, valued at £34 12s. 1d., and 56 oz. 9 dwt. silver, valued at £6 2s. 11d., making the total production for the year 72 oz. 15 dwt. bullion, valued at £75 5s. 7d., which also represents the total output since start of operations.

*Talisman Battery-site* (R. M. Aitken, Owner).—A tribute party cleaning up around this old battery-site recovered 254 tons of quartz, which on treatment at the Golden Dawn battery yielded 125 oz. 1 dwt. gold, valued at £849 9s. 5d., and 619 oz. 5 dwt. silver, valued at £60 3s. 5d.

*Tasman United Mines, Ltd., Maratoto.*—This company now holds the Maratoto Consolidated and Mount Cecil claims (the latter formerly known as Walker's Maratoto), and during the year reopened a considerable portion of the old workings, which were subsequently sampled on behalf of Mining Finance, Ltd., of Auckland. Towards the end of the year this company started diamond-drilling operations on the Mount Cecil claim, and by the end of the year the first hole had been drilled to about 300 ft. to cut the Payrock reef below the Payrock low level. The drill is expected to reach the reef at about 800 ft.

*Golden Crown Gold-mining Co. (N.L.).*—This company, which now holds the Te Ao Marama and Komata reefs claims, cleaned out the old low level of the mine and retimbered and laid the rails in it for the main ore pass, a distance of about 4,000 ft. Some work was done in the Golden Crown level, which is 20 ft. above the old Hopper level, driving on what is known as the hanging-wall leader of No. 2 reef. After driving 66 ft. the leader was cut off by a fault, but on driving through the fault it was picked up again and driven on a further 37 ft. The ore broken has been stacked for treatment. The erection of a battery was also started, and by the end of the year the plant had been got into position.

*Waiwai Claim, Waitekauri* (J. A. Keoghan, Owner).—Operations at this claim, formerly the old Alpha, at Waitekauri, were confined to breaking out on a small reef left in the old Alpha Nos. 2 and 3 adits, and 39 tons of the material was put through the owner's own treatment plant for a yield of 77 oz. 15 dwt. gold, valued at £283 10s. 8d., which represents the total output since start of operations.

*St. Hippo Claim, Waitekauri* (W. J. Gibbs, Owner).—Operations here were confined to reopening the old St. Hippo low level, with a view to sampling a reef on which approximately 1,000 ft. of driving had been done some years ago. To the end of the year the main crosscut had been reopened for 740 ft. The same owner also had done some work on the Southern Cross claim, adjacent to the Mount Cecil claim. On this, 214 ft. of driving was done, as well as a good deal of surface prospecting.

*Scotia Claim, Waitekauri* (H. L. Morgan, Owner).—A low level 37 ft. below previous workings was driven for a distance of 320 ft. One reef was met with, but gave disappointing results. A rise was then put up from the drive to connect with the upper level, and from it 23 tons of quartz was mined which yielded 8 oz. 2 dwt. gold, valued at £54 13s. 2d., and 8 oz. 1 dwt. silver, value 13s. 9d., making the total output from commencement of operations 110 oz. 14 dwt. bullion; value, £259 4s. 8d.

*Remuera, Golden Belt, and Champion Claims, Neavesville* (M. Grace, Owner).—Gigantic Mines N.L., which had been testing these claims under option, ceased operations about April, and no work of any importance was done on the claims during the rest of the year. The result of the sampling done was not satisfactory. Some fair values were got in pockets or pipes, but on the whole the samples showed only low values. Cleaning up about old plants and doing some surface sluicing, several parties of tributers won 10 oz. gold, valued at £40.

*Monowai Gold, Copper, and Lead Mines, Ltd., Thames.*—Work on the claims held by this company was restricted to the Monowai section, where a new level, No. 5, was started about 220 ft. vertically below No. 4 and carried in a distance of 104 ft. It is expected a total of 600 ft. will require to be driven to meet the main objective, the Monowai reef.

*New Waiotahi Claim, Thames* (Preece and party, Owners).—A shaft was sunk for 48 ft. just south of Waiotahi Creek and close to the Waiotahi-Cambria reef, in which the party struck some fair quartz, four loads taken out yielding 1½ oz. to the load. Heavy water made it impossible, however, for work to be carried on at this point, and the party then drove an adit from near the old Golden Crown shaft, in which they located a flat-lying reef in the footwall country of the Caledonian reef, which carried fair values. From various places 95 tons of quartz was mined, which yielded 67 oz. 5 dwt. gold, valued at £324 6s. 1d., representing the total output since commencement of operations.

*Anniversary Claim, Thames* (Phillips and McLean, Owners).—These owners opened an old drive in what was formerly the old Unicorn claim, and continued it, with the result that a small rich leader was intersected, as well as two larger reefs carrying more or less gold. From the small leader referred to 35 tons of quartz was mined, which yielded 73 oz. 17 dwt. gold, valued at £392 19s. 10d., while a party of tributers, working

on a surface leader on what is known as the Middle Star section of the claim, mined a further 20 tons, which yielded 31 oz. 2 dwt. gold, valued at £151 13s. This made the total output of the claim for the year 104 oz. 19 dwt. gold, valued at £544 12s. 10d., which represents the output since start of operations.

*Dawn of Hope Gold-mines (N.L.), Thames.*—Work in the Lucky Shot and Evening Star claims was carried on continuously. The company only employed two men, mainly at repairing-work and doing some prospecting from the Lucky Shot level on a hanging-wall dropper of the Golden Age reef. Some twenty-four tributers were, however, employed in various other parts of the claims. On its own behalf the company mined 47 tons of quartz from the Golden Age hanging-wall dropper referred to, which yielded 87 oz. 11 dwt. gold, valued at £423 10s. 7d., while the tributers mined 111 tons of quartz, which yielded 324 oz. 11 dwt. gold, valued at £1,632 4s. 9d., making the total production for the year 412 oz. 2 dwt. gold, valued at £2,055 15s. 4d. The total output from commencement of operations by the company amounts to 894 oz. 6 dwt. bullion, valued at £4,297 17s. 8d. Of the tributers the most successful party was Sarich and Cropp, which was also working on the hanging-wall leader previously mentioned on the Lucky Shot level. This party recovered 146 oz. 1 dwt. gold, valued at £730 16s. 11d. Towards the end of the year the company started to drive on the hanging wall of the Golden Age reef from an intermediate level 50 ft. below the Lucky Shot level to pick up the leader at that horizon.

*Golconda Mines, Ltd., Thames* (S. G. Baker, Manager).—Operations were mainly confined to prospecting on the 80 ft. level of the incline shaft sunk from the Moanataiari tunnel-level. A considerable footage of driving and crosscutting was done here, mainly in the country between the shaft and the Moanataiari slide. Occasionally good indications were got, but nothing of a payable nature was located. For the year, 49 tons of quartz was treated for a yield of 20 oz. 12 dwt. gold, valued at £105 1s. 1d., making the total since commencement of operations 98 oz. gold, valued at £402 7s.

*Christmas Eve Claim, Thames* (Dabb, Polton, and Clarke, Owners).—During the year this party drove 90 ft. on a leader carrying fair values. For 30 ft. in length the vein was stoped out, and a further 35 ft. was stoped up for 25 ft., where values became poor. Further west another drive was put in to cut the leader 50 ft. above the workings mentioned, and about 150 ft. west of them. Four men were employed. For the year 40 tons of quartz was mined which yielded 58 oz. 18 dwt. gold, valued at £319 13s. 3d., making the total output from commencement of operations 73 oz. 13 dwt. gold, valued at £390 18s. 9d.

*Star Claim, Thames* (C. A. Martin, Owner).—Working from a prospecting crosscut put in during the year by the Mines Department and Unemployment Board in conjunction with the Thames Prospecting Association, some 15 tons of quartz was mined from a small leader cut during the testing-work, which yielded 25 oz. gold, valued at £124 7s. 8d., which represents the total since commencement of operations. Towards the end of the year the claim was surrendered and incorporated with the Tinakori and Ajax claims under the name of the Progress claim.

*Victoria Gold-mining Co., Ltd., Thames.*—This company was formed during the year to take over the Victoria and Faith-in-Thames claims. On the former a drive was put in for 165 ft. at a point somewhat south of the old Prince Imperial shaft and about 30 ft. above sea-level, and a crosscut was then started northerly to test any reefs that may occur. The company itself did not crush any quartz, but prior to its taking over the property a tributing party mined 45 tons of quartz from a small reef at shallow distance below surface close to the Prince Imperial shaft which yielded 28 oz. 17 dwt. gold, valued at £146 17s. 1d.

*Kuranui Golden Hills Claim, Thames.*—This company did not resume operations on its area. During the year three crosscut adits totalling 550 ft. of driving were put in on the area by the Mines Department, Unemployment Board, and Thames Prospecting Association, acting in conjunction with one another, with a view to determining the possibilities of the Kuranui Hill as a low-grade mining proposition. These crosscuts revealed no payable values whatever, and the only values of any kind that were got were in small veins or leaders that had been left. Following the result of this testing the Kuranui Golden Hills Co. gave up any further intention of working the area and started to dismantle its plant. The only gold won from the area during the year was by a party of tributers and amounted to 1 oz. 2 dwt., valued at £5 13s. 8d., making the total since commencement of operations 245 oz. 1 dwt. gold, valued at £1,004 1s. 9d.

*True Blue Claim, Thames* (E. C. Sherlock, Owner).—Working under Unemployment Board conditions, the owner mined 5 tons of quartz from this claim, which yielded 8 oz. 8 dwt. gold, valued at £43 11s. 9d., which represents the total output since commencement of operations.

*Hopeful Claim, Thames* (Rabe and Duncan, Owners).—From shallow adit workings 25 tons of quartz was produced which yielded 47 oz. 7 dwt. gold, valued at £238 8s. 1d., making the total output since commencement of operations 128 oz. 8 dwt. gold, valued at £605 2s. 6d.

*Blue Jumbo Claim, Thames* (E. W. Cole, Owner).—From this claim 8 tons of quartz was mined which yielded 7 oz. 12 dwt. bullion, valued at £36 9s. 7d., making the total output since commencement of operations 31 oz. 17 dwt. gold, valued at £155 18s. 6d.

*Success Claim, Thames* (H. A. Thompson, Owner).—From this claim 7½ tons of ore was mined which yielded 21 oz. 16 dwt. gold, valued at £94 14s., which also represents the total output since commencement of operations.

*Virginia Extended Claim, Thames* (Smith and Howe, Owners).—The owners have been engaged in driving a low-level adit to come under the old workings on the Windfall reef in the adjoining Virginia claim. The only quartz mined during the year was a test parcel of 5 tons, which was sent to the Golden Dawn battery for treatment, and yielded 7 oz. 2 dwt. gold, valued at £35 6s. 4d., and 19 oz. silver, value £1 16s. 11d., which represents the whole output since commencement of operations.

*Tarata Gold-mining Co., Ltd., Thames.*—This company erected a small treatment plant near the head of Tararu Creek, in which 12 tons of quartz was treated for a yield of 1 oz. 3 dwt. gold, valued at £6 15s. 10d.

*Ida Claim, Thames* (Timmins and mate, Owners).—From this claim 2½ tons of ore was mined for a yield of 4 oz. 16 dwt., valued at £23 15s. 11d.

*Hauraki Consolidated Gold-mines, Ltd., Coromandel.*—This company did no work on its claims during the year, but a number of parties of tributers working near the surface in various parts mined 36 tons of quartz, which yielded 44 oz. gold, valued at £235 13s. 4d., making the total output since commencement of operations 649 oz. 17 dwt. gold, valued at £2,258 15s. 1d.

*Lone-hand Claim, Waikoromiko* (W. J. Pearce, Owner).—A new level was driven about 60 ft. below previous workings, in which the footwall leader, about 5 in. in width, was intersected. The level will need to be driven a further 30 ft. to come vertically below where payable quartz was got in the floor of No. 2 level. A stope on the footwall leader above No. 2 level yielded 11 tons of quartz, which on treatment returned 32 oz. 13 dwt. gold, valued at £177 11s. 4d., making the total output since commencement of operations 78 oz. 3 dwt. gold, valued at £390 19s. 8d.

*Chapman's Find Gold-mining Co., Ltd., Pukewhau.*—This company in the early part of the year erected a small three-stamp battery in connection with the working of its Gladys claim, and a good deal of development work was carried out on a number of small leaders. On No. 1 leader, 6 in. in width, an upper level was carried in for 160 ft. on good stone, and another level a few feet lower was driven on it for 25 ft. No. 2 leader, 9 in. in width, was driven on for 60 ft. in good-grade ore and for a further 70 ft. in barren ore. No. 3 leader when picked up close to the surface showed good values, but it became dislocated by surface slips and was not subsequently relocated. Several other small leaders were cut, but did not show important values. A low-level crosscut is now being driven to intersect the leaders at greater depth. To the end of the year this had been driven 162 ft. No. 1 leader had been intersected, and it was expected to meet the No. 2 any day. No. 2 leader was stoped from upper level to surface. For the year 78 tons of quartz was mined for a yield of 209 oz. 12 dwt. gold, valued at £1,201 3s. 8d., which represents the output since commencement of operations.

*Mahakirau Mines, Ltd., Mahakirau.*—This company mined from the Day Dawn reef mainly from a short distance below the outcrop 124 tons of quartz, which yielded 21 oz. 18 dwt. gold, valued at £130 6s. 2d., which represents the output since commencement of operations.

*Royal Oak Claim, Tokatea* (H. Chipman, Owner).—A good deal of work was done on this claim by way of reopening old levels and prospecting, but the only quartz treated amounted to a little over 5 cwt., evidently selected stone, which yielded 93 oz. 7 dwt. gold, valued at £494 15s. 9d., which represents the total output since commencement of operations.

*Northcote Claim, Waikoromiko* (Boswell, Shrimpton, and Shutes, Owners).—During the year 82 ft. of crosscutting, 85 ft. of driving, and 18 ft. of rising and sinking were done on Cuirassier reef, and stoping was also done on the same reef between Nos. 1 and 2 levels. The various levels and surface tramways were cleaned up and repaired and the aerial put in order. Seventeen tons of ore was mined and treated for a return of 32 oz. 14 dwt. gold, valued at £178 1s. 4d., which represents the total output since commencement of operations.

*Progress Claim, Tiki* (Miss M. G. Westby, Owner).—A good deal of work was done in a surface adit on the claim, and two small auriferous veins were located. A crushing of 2 tons, at the Hauraki battery, yielded 18 oz. 19 dwt. gold, valued at £90 16s. 3d., which represents the total output since commencement of operations. Towards the end of the year the claim was forfeited on suit by T. Anderson.

*Coromandel Gold-mines, Ltd., Coromandel* (J. Caisley, Manager).—Work was mainly concentrated on sinking the shaft, which was extended to 140 ft., an average of four men being employed.

*Lillis's Claim, Waitekuri* (T. M. Lillis, Owner).—About 394 ft. of driving, crosscutting, and rising was done, as well as a considerable amount of surface-trenching, but nothing of importance seems to have been located. A crushing of 2 tons of quartz yielded 2 oz. 14 dwt. gold, valued at £17 9s. 4d., which represents the total output since commencement of operations.

*Rangihau Mines, Ltd., Kapowai.*—This company was formed in August to take over claims previously held by Kapowai Amalgamated Gold-mines, Ltd., which had gone into liquidation. The present company put a rise through from a new level (Webb's) for 58 ft. to connect with O'Connor's level above it, and from the latter are driving in the hope of locating what was known as O'Connor's patch. Since it took over the company has treated 49 tons of quartz for a yield of 12 oz. 10 dwt. gold, valued at £33 8s., but the Kapowai Amalgamated Gold-mines, Ltd., in the early part of the year crushed a further 81 tons for a yield of 25 oz. 5 dwt. gold, valued at £91 9s. 3d.

*Heather Bell Claim, Boat Harbour* (Farmer and Scanlon, Owners).—These owners erected a small treatment plant on their claim, which is about three-quarters of a mile up a small creek entering boat harbour. A good deal of work had been done on the claim many years ago, several levels having been driven. In the low level a fairly large reef was showing, and the present owners, in crosscutting through this, found somewhat better values on the footwall than had previously been located. Some 30 tons from the reef was crushed for a return of 15 oz. gold, valued at £82 8s. 4d., which represents the total output since commencement of operations.

*Speedmint Claim, Tokatea* (Anderson and Shelverton, Owners).—This claim forms part of what was formerly the old North Star claim. The owners drove a shallow adit 166 ft., and from a small vein crushed 56 lb. of stone for a return of 19 oz. 18 dwt., valued at £106 0s. 10d.

*Harbour View Gold-mines, Ltd., Tokatea.*—Work was confined for the year to prospecting from the old Welcome low level. A good deal of driving and crosscutting was done, but no quartz was crushed.

*Emily Claim, Tiki* (S. K. Chapman, Owner).—Prospecting by means of shallow adits was carried on, and a small leader was intersected carrying a little gold. One ton of quartz was crushed and yielded 3 oz. 11 dwt. gold, valued at £19 12s. 5d.

*Success Claim, Tokatea* (Maling and Johnstone, Owners).—Some 5 tons of quartz from this claim was crushed for 9 oz. 13 dwt. gold, valued at £52 18s. 9d.

*Saddle Gold-mines, Ltd., Tokatea.*—Several hundred feet of driving and crosscutting were done in two levels on the crest of the range at the Tokatea Saddle. From a small vein located at surface 150 lb. of quartz was crushed for a yield of 8 oz. 14 dwt. gold, valued at £50, which represents the total output since commencement of operations.

*New Albion Claim, Coromandel* (J. T. Hinchco, Owner).—On this claim, situated on the foreshore of Coromandel Harbour, the owner sank a shaft to about 20 ft. in depth from which some 16 tons of material, consisting of alluvium and detritus, was mined and treated for a yield of 12 oz. 9 dwt. gold, valued at £72 6s. 11d., which was the total output since commencement of operations.

*Flying Cloud Claim, Tokatea* (Brooke, Fraser, and McIntosh, Owners).—Some 16 cwt. of quartz taken from shallow workings yielded 4 oz. 4 dwt. gold, valued at £22 13s. 11d.

*Waiorongomai Gold-mines, Ltd., Waiorongomai.*—Work was confined to the Cadman and Bonanza sections, some eight men being employed. On the former section No. 2 level was continued for 102 ft., making a total of 1,197 ft. from portal. Within the next 50 ft. to 100 ft. it is expected this level will intersect the Waitoki, Werahiko, and Moa reefs, each of which produced a certain amount of ore at 360 ft. higher. On the Bonanza section No. 1 level was extended 160 ft., and intersected the Goldsworthy reef, 2 ft. in width, which is said to have carried ore showing gold.

## Quicksilver and Sulphur Mines.

No work was done in any of the sulphur deposits during the year. Regarding quicksilver claims, no active mining was done by Kaikohe Development, Ltd., but in the course of cleaning up about the plant in the early part of the year 3,825 lb. of mercury was recovered, valued at £510. At Puhipuhi, Mercury Mines (New Zealand), Ltd., took over the New Zealand Quicksilver Mine, and towards the end of the year erected a small treatment plant on it, consisting of two retort units with six retorts in each, a 90-horse-power producer for supplying gas for heating the retorts, a 25-horse-power Tangye gas engine for driving generator, and a 50-horse-power Cambridge gas-producer for supplying gas for the engine. In the mine a good deal of work was done by way of renewing timbers and getting levels in order for working. Only one short run was given the plant before the end of the year, when 850 lb. of ore was put through as a trial parcel and yielded 26½ lb. mercury, valued at £5 12s. 7d. An average of two men was employed.

## Oil-wells.

*Moturoa Oilfields, Ltd.*—This was the only company to carry on any operations. During the period the No. 4 well was continued and completed to a depth of 2,186 ft. The principal production for the year was from No. 2 well, which produced for the year 114,985 imperial gallons of petroleum, valued at £2,156. No. 4 well produced 40,713 imperial gallons, valued at £763 7s. The company undertook the plugging of the New Plymouth (New Zealand) Oil Wells, Ltd., No. 1 well. It also dismantled the company's derrick and rig, which was subsequently re-erected on the Moturoa Oil Fields, Ltd., No. 1 well, where production tests are now in progress. An attempt is being made to get production from the well at 2,073 ft. Production from No. 2 well is obtained by bailing and from No. 4 well by gas-flow through tubing. The petroleum recovered is all disposed of to the local refinery. An average of ten men was employed. Towards the end of the year a geophysical survey of the company's area was commenced, with a view to obtaining some more definite information as a guide for future operations.

ACCIDENTS.

One fatal accident occurred during the year. This was at the Waihi Mine on the 29th October, when William Oscar Mair, single, twenty-three years of age, was killed by a fall of rock. Deceased and a mate were working on a sub-level below No. 11 level, trucking ore from a shrinkage stope their party had completed breaking out. At the time they were drawing from two end passes on the stope, about 10 ft. apart. Deceased had not got sufficient ore from his pass to fill his truck, and had climbed into the pass to see if any more rock was available, when some material fell from the hanging-wall side, crushing his head and chest and causing instantaneous death. An inquest was held before the Coroner and jury of six, and a verdict returned that deceased met his death accidentally and that no blame was attachable to any one. Two other accidents occurred through falls of rock, one at Thames and the other at Coromandel. In the former, George Snelgar, a prospector under the Unemployment Board's scheme, had started to take a leading stope off a drive put in on a small leader when a slab fell from the hanging-wall side fracturing his leg. The other accident occurred to another Unemployment Board prospector, W. G. Perry. He was working with his party in a drive at Waitekuri, when a piece of rock fell from the side of the drive, fracturing his leg. Three accidents were reported as the result of the use of explosives, the injured men being S. McClinchie, employed at the Talisman-Dubbo Mine; H. Thomas, employed at the Golden Dawn Mine; and John Boggs, employed at the Waihi Mine. With regard to the two first mentioned, each of the accidents occurred while the men were inserting fuses in detonators, explosions occurring which cost each of the men the loss of several fingers or portions of them. No information could be gathered tending to lead to the conclusion that the accidents were the results of any defects in the detonators. At the time of the accident to John Boggs, he was, with a mate, employed at trucking ore from a pass on a shrinkage stope on No. 10 level. The pass hung up, and in attempting to get it to run again, the injured man, who was a miner of many years' experience, got into an empty truck and proceeded to fire a small charge on one of the boulders of quartz that caused the hang up. He had lit the fuse and was putting the stopper boards in preparatory to moving away, when the material in the pass started unexpectedly to run. Before he could get out of the truck the material had pinned one of his feet, and before this could be released the charge he had placed on the rock, and which had fallen into the truck with the falling material, exploded close to his imprisoned foot, shattering it so badly that it had to be amputated at the ankle. The only other serious accident of any kind reported was to a miner named J. Smith, employed at the Golden Dawn Mine. He was employed at the time underground shaving a wooden plug with a tomahawk, when the latter slipped and cut off two fingers of his left hand.

PROSPECTING.

Practically all the effort in this direction was under the Unemployment Board's schemes at Thames and Coromandel. In the former locality an average of about 103 men was employed, and in the latter about 100. In the Thames area the subsidized men won 371 oz. 7 dwt. gold, valued at £2,100, and in the Coromandel area 205 oz. were won, valued at £1,164, but probably an additional £1,000 worth of gold was won at Thames by men who had been originally helped under the scheme to locate veins on which they were working. In neither district was any discovery made of importance.

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

QUARTZ-MINING.

*Buller County.*

*Britannia Mine.*—W. McLellan, manager, and five men employed. There has been a fair amount of prospecting and development work undertaken on this property, with little to report in the way of discoveries. The battery crushed 327 tons of ore for a yield of 68 oz. 7 dwt. 12 gr. of gold, of which 58 oz. 16 dwt. was recovered by amalgamation, and 9 oz. 11 dwt. 12 gr. by cyanidation, the value of the whole being £428 18s. 3d. The total worth of the yield since the commencement of operations amounts to £2,527 3s.

*Inangahua County.*

*Blackwater Mine.*—R. A. Stewart, manager, and two hundred and sixteen men employed. In all, 2,393 ft. of development work was carried out on this property, and of this, 25 ft. is represented by driving on the Snowy River area. No less than 74·3 per cent. of the total distance driven, risen, and sunk was done on reef, which is an excellent record for this mine. No. 10 level, south, was advanced 279 ft. in country rock, with nothing of note to record. No. 11 level, north, was extended for a distance of 421 ft., practically all being on reef, with an average value of 11·06 dwt. of gold per ton, over a width of 22 in. A fault (probably the Prohibition fault) was disclosed in the face at the point mentioned, and this is expected to continue for 120 ft. before the next block of stone is reached. No. 12 level, north, progressed for a distance of 694 ft., of which 638 ft. disclosed reef having an average value of 11·64 dwt. of gold over a width of 23 in. A short distance only separates the end of this drive from the Prohibition area. The Prohibition shaft was sunk to No. 12 level (Blackwater shaft), or from a depth of 1,925 ft. to a depth of 2,225 ft. An aerial tramway, capacity 25 tons per hour, one mile in length, of the mono-cable type, erected between this shaft and the battery, will be used for transportation purposes at a later date. Tramway gradients are in favour of the load, and produce an excess tension that is equivalent to 16 horse-power, which is dispensed or regulated, through gearing, by a fan. It is proposed to equip the Prohibition shaft with a 500-horse-power modern-type electric winding-engine. The battery crushed 31,862 tons of ore for a yield of 16,103 oz. 8 dwt. of gold, of which 12,865 oz. 8 dwt. was obtained by amalgamation, 1,902 oz. 5 dwt. by cyanidation, and 1,335 oz. 15 dwt. by the treatment of concentrates; the value of the whole being £130,471 6s. The total yield of gold since the commencement of operations amounts to 498,551 oz. 19 dwt., valued at £2,199,825 17s. 2d.

*Alexander Mine.*—J. Bolitho, manager, and thirty-five men employed. Development operations and ore-extractions were confined to the McVicar section for the year, and consist of the following: No. 3 level north was extended for a distance of 30 ft., mostly on stone of a bouldery nature. There is nothing but reef track showing in the face. No. 3 intermediate level was driven on reef over a distance of 230 ft. Work is in progress there, and 4 ft. of stone is to be seen in the face. Stoping operations indicate that this reef does not live to a greater height than 8 ft. above the level on the extreme north end of the block. No. 4 level was driven a distance of 220 ft. north of the main crosscut, the last 30 ft. being on reef track, with occasional boulders of stone showing. The country rock carries a lot of water, and the level face looks promising. Stoping was done on No. 4 level, and in No. 3 intermediate level. It was found in stoping above No. 4 level that the stone operated on was not identical with that got on No. 3 intermediate level. Crosscutting from No. 4 level stope (in view of same) was then undertaken, with the result that an ore-body was disclosed at a distance of 14 ft. This lode was driven on for 90 ft., from which point a connection was made with the intermediate above. The stone averaged 4 ft. in width. The race mentioned in my last annual report, together with the work of erecting an 110-horse-power impulse water-wheel, direct-coupled to a three-phase A.C. (electric) generator set, was completed. A 70-horse-power motor and a "Brotherhood" air compressor were installed at the mine. The plant last mentioned is used for operating three power-drill machines and for ventilating-purposes. A four-panel "Edwards" roaster, for treating battery concentrates, was erected and put into commission during

the latter part of the year also. The returns from this plant were satisfactory, there being a saving shown in cost over the method previously prevailing—that of shipping to, and having the concentrates treated in, Australia. The battery crushed 2,164 tons of ore for a yield of 1,806 oz. 15 dwt. of gold, worth £15,127 5s. 2d. The total yield of gold since the commencement of operations amounts to 24,189 oz. 16 dwt., valued at £128,850 15s. 9d.

*Wealth of Nations Battery.*—A. P. Watson, superintendent, and three men employed, but nothing produced. Work is now suspended.

*Murray Creek Mine.*—J. Thomson, manager, and ten men employed. Very little work, apart from the advancing of Nos. 3 and 4 levels (for prospecting purposes), was done for the period. Operations ceased at about the middle of the year, and were not again resumed.

*Big River Mine.*—T. Thomson, manager, and twenty men employed. Development work on this property was practically confined to crosscutting, in an easterly direction, on Nos. 3 and 4 levels. The work done on No. 3 level proved nothing of importance, but that undertaken on No. 4 resulted in the discovery of a block of stone at a distance of 311 ft. from the shaft. This stone has a length of 100 ft., an average width of 6 ft., and values of about 1 oz. of gold per ton. It is possible that further prospecting on this line of reef may reveal additional blocks of payable ore. Several small blocks of stone situate on Nos. 2 and 3 levels were worked to the exhaustive stage during the period. The shaft is to be reconditioned down to No. 5 level so as to enable the expected downward continuation of the reef, found on No. 4 level, to be exploited. The battery crushed 1,099 tons of ore for a yield of 690 oz. 11 dwt. of gold, of which 558 oz. 17 dwt. was obtained by amalgamation, 71 oz. 19 dwt. by cyanidation, and 59 oz. 15 dwt. by the treatment of concentrates, the value of the whole being £5,715 9s. 3d. These figures represent the total yield of gold and value thereof since the commencement of operations of the reconstructed company.

*Homer Mine.*—D. Absalom, manager, and two men employed. It is stated that a considerable amount of development work has been carried out on the property for the year, also that surface-prospecting has resulted in a continuation of the existing reef being found to the north and to the south of the mine workings. The property is reported to be under option to a group of London investors. No stone has been produced for the period. The total yield of gold since the commencement of operations amounts to 162 oz. 3 dwt. 9 gr., valued at £791 3s. 6d.

*Westland County.*

*Mount Greenland Mine.*—W. O. Bierwirth, manager, and six men employed. It is stated that the reef has been found on the west side of the well-known fault-line on this property, and that surface prospecting between the known reef channels has revealed other ore-bodies. It is proposed to install additional treatment plant (of a modern nature) during the coming period. The battery crushed 462 tons of stone for the year, the yield being 431 oz. 10 dwt. of gold, worth £2,419 7s. 6d. The gold produced since the commencement of operations amounts to 3,619 oz. 7 dwt. 5 gr., worth £15,616 9s. 9d.

*Dredge-mining.*

*Mataki Dredge, Murchison County.*—T. B. Gilbooly, dredgemaster, and sixteen men employed. This dredge worked for 91·2 per cent. of the possible digging-time, or for a total of 6,699 hours 55 minutes during the period. The gravels treated (average depth of ground 16½ ft.) amounted to 669,274 cubic yards, and from this was obtained 1,663 oz. 18 dwt. 2 gr. of gold, valued at £12,096 3s. 1d. The total yield since the commencement of operations amounts to 2,194 oz. 7 dwt. 10 gr. of gold, worth £15,517 12s. 1d.

*Worksop Dredge, Inangahua County.*—T. F. Turner, dredgemaster, and twelve men employed. 151,128 cubic yards of gravels treated by this dredge gave a yield of 1,055 oz. 5 dwt. 10 gr. of gold, valued at £7,715 2s. 10d. Dredging did not commence until July, and the depth of ground worked averaged 20 ft. The dredge is operated with a Diesel oil-engine.

*Brian Boru Dredge, Grey County.*—N. Curnow, dredgemaster, and fourteen men employed. For the period 594,594 cubic yards of gravels were treated, with a resulting yield of 1,477 oz. 6 dwt. 9 gr. of gold, valued at £12,283 8s. 2d. The total yield since the commencement of operations amounts to 2,476 oz. 19 dwt. 9 gr., worth £19,496 11s. 11d.

*Rimu Dredge, Westland County.*—F. B. Lewis, dredgemaster, and forty-eight men employed. This dredge (buckets 12-cubic-feet capacity), was in operation for a total of 6,805 hours and 23 minutes, which represents 91·8 per cent. of the possible digging-period. A superficial area of 44·037 acres was excavated during the time referred to, and from this a total of 2,824,364 cubic yards of gravels was dug and treated. The ground averaged 41 ft. in depth. The decrease in yardage handled, when compared with that of the previous years' operations, was due to the digging of a large area of shallow, though payable, gravel on the south side of the property, and this involved the excavating of from 15 ft. to 18 ft. of Brighton bottom, which, owing to the clayey and sticky nature of its formation, greatly retarded digging-work. The yield amounted to 14,965 oz. of gold, valued at £122,526, which represents an average gold content of 10·4d. per cubic yard, based on gold prices and exchange-rates ruling throughout the world. The total yield since the commencement of operations amounts to 162,794 oz. of gold, worth £890,140 9s.

*Stafford Dredge, Westland County.*—D. M. Pettigrew, dredgemaster, and fifteen men employed. This dredge (commissioned near the end of the year) treated 48,004 cubic yards of gravels for a return of 328 oz. 4 dwt. of gold, worth £2,540 11s. 1d. The dredge is operated with electric power throughout. Ground depths averaged 25 ft. for the period.

*Okarito Five Mile Beach Dredge, Westland County.*—D. A. Mitchell, dredgemaster, and eleven men employed. The screening-apparatus referred to in last report was duly installed on the dredge, together with a pump of modern design. The straightening of the supply pipe-line, and the substitution of an improved type of turbine or impulse wheel for the one in use, gave an increased water-pressure of 23 lb. per square inch (from 75 lb. per square inch to 98 lb. per square inch). The changes made were reflected in the time worked and the quantity of material treated for the period. The former amounted to 5,274 hours 25 minutes, or 73·1 per cent. of the possible digging-time, and the latter to 312,453 cubic yards. The yield amounted to 1,630 oz. of gold, worth £11,845. The total recovery amounts to 10,033 oz. 18 dwt., valued at £62,298 6s. 3d.

*Gillespies Beach Dredge, Westland County.*—D. Caithness, dredgemaster, and sixteen men employed. This dredge (a new one) is fitted with buckets that have a capacity of 5½ cubic feet, and which travel at the rate of thirteen per minute. The dredge is operated with electric current that is generated at the company's own power-station on Lake Lyttle, ten miles distant from dredging-operations. The power is transmitted from the generating-station at a pressure of 11,000 volts to the claim, where it is stepped down to a pressure of 400 volts. Actual dredging commenced on 10th February, and the material treated from then on to the end of the year amounted to 595,522 cubic yards, which gave a yield of 1,735 oz. 12 dwt. of gold, worth £12,460 17s. 7d. The ground worked was 19 ft. in depth on an average.

*Alluvial Mining.*

*Mahakipawa Mine.*—F. C. Calvert, manager, and thirty-two men employed. Development work on this property has been carried out continuously in a southerly direction, a total of 840 ft. of driving and 135 ft. of crosscutting having been undertaken. A rich run of wash was discovered early in the year, and this was blocked out over a length of 160 ft. and a width of about 25 ft. Values then got poor, and the bottom rose sharply. Crosscutting proved, however, that the lead had continued in a more or less straight line to the

south-west (at the higher level referred to), and it was again picked up, but the values were not as good as those found on the lower level. A crosscut advanced to the west disclosed some low ground approximately 25 ft. away from the main lead, and this was followed, with nil results, by means of a diagonal drive. Driving-work for a further distance of 100 ft. resulted in the rich lead being once more located. It was followed for 100 ft., and at this point reached a position that was 60 ft. north and 40 ft. east of the Golden Gate shaft. Values were erratic over the last distance stated, but two dishes of wash dirt, obtained from one place, alone yielded 34 oz. 15 dwt. of gold. This amount included a 4 oz. nugget. Connections were made with both the Alice Fell and Golden Gate shafts, and these openings (thoroughly reconditioned and provided with efficient ladders for their full length) are to be equipped and used in connection with the working of the mine. A geophysical survey of the whole of the company's area, by the seismic method, to supplement a magnetic survey previously made, was carried out by the Department of Scientific and Industrial Research. The possible occurrence of a second gutter east of, and adjacent to, the present workings was indicated by the seismic survey, but crosscutting in that direction for a distance of 50 ft. revealed nothing more than sharply rising schist country rock. The last 20 ft. of crosscutting was in brown wash, and the schist itself was brown and oxidized. The anomaly recorded was no doubt brought about by the explosion wave (of the seismic survey) having to penetrate more deeply into the weathered-schist surface before attaining its maximum velocity. 4,340 cubic yards of gravels were treated for a return of 2,323 oz. 18 dwt. 9 gr. of gold, which realized £16,915 10s. 10d. The total yield of gold since the commencement of operations amounts to 7,341 oz. 7 dwt. 9 gr., valued at £45,048 11s. 10d.

*Glenroy Sluicing Claim.*—R. T. Stewart, manager, and fifteen men employed. 25,280 cubic yards of gravels were excavated and treated for a yield of 106 oz. 6 dwt. 1 gr. of gold, valued at £756 7s. 9d.

*Addison's Flat Sluicing and Elevating Claim.*—J. M. Powell, manager, and ten men employed. 140,000 cubic yards of gravels were treated for the year, the recovery being 751 oz. 11 dwt. 8 gr. of gold, worth £5,564 0s. 6d.

*Charleston Sluicing Claim.*—S. Powell, manager, and ten men employed. The quantity of gravels treated at this claim amounted to 220,000 cubic yards, which gave a yield of 398 oz. 8 dwt. 6 gr. of gold, valued at £2,746 6s. 3d.

*Waitahu Sluicing and Elevating Claim.*—P. P. Thomas, manager, and twelve men employed. 173,000 cubic yards of gravels were treated for the year, the recovery being 527 oz. 5 dwt. 1 gr. of gold, worth £3,943 15s. 11d.

*Mount David Sluicing Claim.*—M. A. Aynsley, manager, and twelve men employed. The claim was worked during January and February only, and produced 28 oz. 3 dwt. 22 gr. of gold, valued at £183 15s. 9d., during the time stated. No record was kept of the yardage treated.

*Deep Lead Sluicing and Elevating Claim.*—T. Donnellan, manager, and seven men employed. This claim treated 108,900 cubic yards of gravels for a return of 492 oz. 16 dwt. 3 gr. of gold, valued at £3,632 10s. 3d.

*Moonlight-Nelson Creek Sluicing Claim.*—A. J. Tippett, manager, and six men employed. 16,320 cubic yards of material were run through the sluice-boxes at this claim for a yield of 80 oz. 11 dwt. 16 gr. of gold, worth £622 4s. 5d.

*Bell Hill Sluicing Claim.*—R. Quinn, manager, and six men employed. The treating of 177,000 cubic yards of gravels on this property gave a return of 296 oz. 15 dwt. of gold, valued at £2,368 0s. 8d.

*Golden Sands Sluicing and Elevating Claim.*—J. M. Dennehy, manager, and ten men employed. 72,000 cubic yards of gravels were excavated for a return of 639 oz. 10 dwt. 10 gr. of gold, worth £5,106 1s. 5d.

*Hohonu Sluicing Claim.*—J. A. Peever, manager, and four men employed. 147,500 cubic yards of gravels were sluiced for nine months of the year, the return being 123 oz. 18 dwt. 13 gr. of gold, which realized £919 11s. 2d., and represented a yardage value of 1·5d. Values were low in the ground worked, and the plant was therefore transferred to the company's eastern face, where higher-grade wash is known to exist. The change-over referred to occupied the last three months of the year.

*Lawson's Flat Sluicing Claim.*—H. Lowther, manager, and thirteen men employed. The treatment of 216,000 cubic yards of material resulted in the production of 809 oz. 7 dwt. 9 gr. of gold, worth £5,836 19s. 6d.

*Mahinapua Sluicing Claim.*—A. F. Downer, manager, and ten men employed. 19,895 cubic yards of material was excavated and treated at this claim for a yield of 75 oz. 15 dwt. 2 gr. of gold, valued at £555 1s. 7d.

*Stafford Sluicing Company's Claim.*—E. J. Mitchell, manager, and five men employed. Output 26,000 cubic yards of gravels, and yield therefrom 112 oz. 5 dwt. 12 gr. of gold, worth £845 16s.

*Collingwood (Rocky, Aorere, and Slate Rivers, &c.).*—One hundred and sixty-seven men were employed, winning 758 oz. 3 dwt. 22 gr. of gold, valued at £5,232 18s. 4d.

*Takaka (Anatoki, Leslie, and Takaka Rivers, &c.).*—One hundred men were employed, winning 415 oz. 13 dwt. of gold, valued at £2,879 10s. 1d.

*Marlborough (Wakamarina, Onamalutu, Cullensville, &c.).*—One hundred and twenty-seven men were employed, winning 2,711 oz. 16 dwt. 2 gr. of gold, valued at £19,620 4s. 1d. These figures include the yield from the Mahakipawa Co.'s work.

*Waimea (Wangapeka, Baton, &c.).*—Seventy-seven men were employed, winning 385 oz. 9 dwt. of gold, valued at £2,642 17s. 2d.

*Murchison (Howard, Matakitaki, and Maruia).*—Four hundred and ninety-six men were employed, winning 4,076 oz. 11 dwt. 16 gr. of gold, valued at £27,632 18s. 8d. These figures are inclusive of those pertaining to the Glenroy Sluicing Co.'s operations.

*Buller (Charleston, Birchfield, Lyell, &c.).*—Three hundred and sixty-one men were employed, winning 2,625 oz. 18 dwt. 6 gr. of gold, valued at £18,513 13s. These figures include those dealing with operations conducted by the Addison's Flat Gold-mining Co. and the Charleston Sluicing Co.

*Inangahua (Merrijigs, Blackwater, Ikamatua, &c.).*—Two hundred and twelve men were employed, winning 1,703 oz. 10 dwt. 15 gr. of gold, valued at £11,983 18s. 9d. These figures are inclusive of those connected with work carried out by the Waitahu Sluicing Co. and the Mount David Sluicing Co.

*Grey (Ahaura, Moonlight, and Burrytown).*—Five hundred and forty men were employed, winning 4,645 oz. 17 dwt. 10 gr. of gold, valued at £33,229 9s. 1d. These figures include the yields from the Deep Lead Sluicing and Elevating Claim, the Moonlight-Nelson Creek Sluicing Claim, the Bell Hill Sluicing Claim, and the Golden Sands Sluicing and Elevating Claim.

*Westland (Kumara, Callaghans, Blue Spur, Rimu and Kanieri, South Westland, &c.).*—Four hundred and forty-two men were employed, winning 4,451 oz. 18 dwt. 10 gr. of gold, valued at £31,152 2s. 7d. These figures are inclusive of those pertaining to operations carried out by the Hohonu, Lawson's Flat, Mahinapua, and Stafford Sluicing Co. claims.

### Minerals other than Gold.

*Onakaka Iron and Steel Co., Ltd. (in Liquidation).*—All pig iron held in stock at these works was sold out by October. Smelting-operations were then commenced, and this work resulted in the production of 1,337 tons of pig iron by the end of the year. It seems probable that production will continue into 1935 for several months so as to allow stocks to again accumulate.

*Petroleum.*—The Kotuku Oil and Goldfields, Ltd., commenced drilling-work during the month of February, and carried on for several weeks, when operations were completely suspended. Drilling reached a depth of 104 ft. The company went into voluntary liquidation on 17th September.

*Asbestos.*—Four hundredweight of hand "cobbed" fibre was obtained from an area situate in Block I, Flora Survey District, Takaka County. The fibre was produced in the form of samples only, and its value is stated at £2 per cwt.

PROSPECTING.

Great activity is still being shown in this class of work, but it is almost wholly confined to the examination of possible alluvial gold-bearing ground. There are upwards of two thousand men employed under the Unemployment Board's prospecting scheme, and these operate throughout the length and breadth of the district. A large number of them are obtaining satisfactory amounts of gold, and the majority are more or less satisfied with their lot. A rich but small reef was discovered on the Taipo River. It has an elevation of about 4,000 ft., but considerable work remains to be done in order to prove its size or extent both in a downward and lateral direction. Drilling-operations have been carried out on areas located at Langley Dale and Rock Ferry, Marlborough County; Murchison, Nine Mile, and Rappahanock, Murchison County; Bradshaw's Creek and Waimangaroa, Buller County; Big River and Hukarere, Inangahua County; Ahaura and New River, Grey County; and at Tucker Flat (Kanieri), Arahura, Ruatapu, Bruce Bay, and Hunt's Beach, Westland County. Satisfactory values were obtained from the Murchison, Nine Mile, New River, Tucker Flat, and Arahura areas.

ACCIDENTS.

There were seven major accidents during the year, four being fatal and the others non-fatal. The first fatality occurred on the upper reaches of the Punakaiki River, where prospecting was in progress. One of the men so engaged, Robert Samuel Fleming, was struck on the head and killed by a log that rolled down a declivity in the locality. The second fatality took place at Riverview, Ahaura, when a man named Walter Duggan was buried with a fall of earth in his sluicing-claim. Charles Edward Cooper was the victim of the third fatal accident. He was employed at the Big River Mine, and was struck by a fall of rock when engaged at stoping-work. Donald O'Leary, the fourth victim, was crushed by a large rock that fell on him while engaged at sluicing-work on the Wataroa River. John A. McEwin, battery superintendent, Blackwater Mine, Archie John Jacobsen, miner, Mahakipawa Mine, and Stephen McLeod Honey, dredge hand, Stafford Gold Dredging Co., were the victims of the non-fatal accidents. The first-named man was struck by a beam of timber while erecting a diagonal brace under a flume for carrying water. He sustained a fractured skull. The second man suffered a compound fracture of the skull through being forced against shaft timbers by a bucket striking the opposite end of a wooden plank on which he was standing. The third man received injuries which consisted of a broken leg and two broken ribs. These were brought about by the victim being struck by a wire rope which had pulled away from an eyebolt to which it was attached.

GENERAL REMARKS.—MINING.

The gold obtained from alluvial work was much greater than that won from the same source last year, the amounts and values being—1933, 15,365 oz., worth £93,456, and 1934, 21,775 oz., valued at £152,888, which increase is gratifying. Gold-recoveries from dredging-operations show increased returns also, the figures being—1933, 20,145 oz., worth £146,941, and 1934, 22,855 oz., valued at £181,467. Returns from gold-quartz mining show a considerable falling off when compared with those got during the preceding period, the figures being—1933, 28,163 oz., worth £202,227, and 1934, 19,100 oz., valued at £154,162. The decrease in gold won from this source was due to industrial trouble which eventuated at the Blackwater and Alexander Mines. The former was idle during the months of March, April, and May, and the latter for a period extending from March to July, both months inclusive, for the reason stated.

PROSECUTIONS.

Four informations were laid during the year. One was dismissed and the others were successful. The first information was laid against a person for making a false statement in a Gold-dealer's Book. The charge was dismissed. A company was convicted and fined for using the cyanide-of-potassium process in connection with a mine without same being under the management and charge of a duly certificated battery superintendent. Two licensed gold-dealers were convicted and ordered to pay costs and witnesses' expenses for failing to forward gold-buyer's returns, as required by regulations.

## SOUTHERN INSPECTION DISTRICT (T. McMILLAN and G. W. LOWES, Inspectors of Mines).

### QUARTZ AND ALLUVIAL MINING.

*Waitaki County.*

*Livingstone and Maerewhenua.*—The Maerewhenua Goldfields Development Co., Ltd. (C. A. Gillett, Manager), continued active operations throughout the year. A battery of seven pulsators was installed at the lower end of Duffer's Gully, and connected to the working-face by means of a rock tail-race over 1,000 ft. long. Trial sluicing with this layout gave unsatisfactory results, and in June a change of consulting engineers was decided on, followed by the appointment of a new manager. Development then proceeded on orthodox lines, the giant monitors and pulsators being set aside. A timber tail-race 3 ft. wide by 2½ ft. deep by 1,500 ft. long was constructed in Duffer's Gully and paved with old railway irons. Gold-saving with the usual angle iron riffles and undercurrent proved to be satisfactory. Pipes were laid to Holloway's Claim, which will be used as a spare-water working; but, apart from this, all work since June has been concentrated in Duffer's Gully. Sluicing commenced in September, the output to the end of the year being approximately 60,000 cubic yards. On an average fifteen men were employed throughout the year. The gold won amounted to 24 oz. 9 dwt. 10 gr., valued at £185 1s. 10d.

*The Ben Ledi Sluicing Co.* (D. Deegan, Manager).—This company has commenced sluicing-operations in the Ben Ledi district on the east side of Dansey's Pass. During the year a water-race 5½ miles in length was constructed, 550 yards of 3 ft. by 12 ft. steel fluming erected, and 13 in. to 7 in. pipes, together with the necessary valves and fittings installed and sluice-boxes erected. Mining operations were commenced in the latter part of the year, but on account of the long dry spell of weather experienced during the summer the water-supply was considerably affected. Twenty men were employed on the construction work for part of the year. Five men were employed after actual mining operations commenced in November, and 6,000 cubic yards of material was treated for a return of 27 oz. 5 dwt. 23 gr., valued at £201 12s. 7d.

*Kurow.*

During the year the water-race being constructed to convey water into Digger's Gully has been completed. The mining areas have been taken over by Messrs. T and J. H. Nimmo, and the auriferous deposit in this gully is being worked. Fourty-four men have been employed fossicking, prospecting, cradling, sluicing, and driving in the Maerewhenua, Livingstone, Dansey's Pass, Kurow, and Herbert areas. The gold won amounted to 406 oz. 1 dwt. 11 gr., valued at £2,737 11s. 4d.

The chief producers were C. E. Adams, W. J. Fenning, and J. W. Cooper, who are ground-sluicing on the Maerewhenua field.

*Waihemo County.*

*Golden Point Gold and Scheelite Co., Ltd., Deep Dell, Macraes* (A. W. Turner, Manager).—Underground operations were commenced in January, and work was carried on intermittently until June. A connection from the Home Reef Rise to the old Home Reef Dip workings was driven. The low-level crosscut was extended 160 ft., and 67 ft. of rising was done. The connection with the old Home Reef Dip improved ventilation considerably. Operations were suspended in June. From four to six men were employed intermittently from January to June. No crushing was done, all work done being development work.

*Callery and Bradbrook, Round Hill* (between Macraes Township and Golden Point Mine).—Active operations have been continued during the year, and 902 tons of quartz was lorried to the battery in Deep Dell and yielded 197 oz. 13 dwt. 18 gr., valued at £1,423 10s. 4d. The battery was further improved by the installation of a Wilfley table and the provision of electric light.

*The Macraes Flat Gold-mining Co.* (R. T. McKenzie, Manager).—Work has been carried on continuously during the year in the partially worked ground on Macraes Flat, opposite the township, by electrically-driven gravel-pump methods. The early part of the year was very favourable from a sluicing point of view, as the rainfall was large. The deeper ground has also yielded better values. Seven men were employed and 42,350 yards of alluvial material was treated for a return of 1,053 oz., valued at £7,120 4s. 9d. Another gravel-pump plant is being erected by this company farther down the Flat and will be operating early in 1935.

*Tate's Reef* (A. K. Smeal, Manager).—This mine, situated on the boundary of Block X, Waihemo Survey District, and Block IX, Highlay Survey District, was operated intermittently until October, when operations were suspended. The stone above the level was stoped out and a winze was sunk, in the western section of the mine, to a depth of 26 ft. the reef being about 9 in. wide and dipping steeply to the north. When the mine was operating four men were employed. One hundred and sixty-one tons of quartz crushed at the battery erected in Shamrock Gully, close to the Dunback-Macraes Main Road, yielded 98 oz. 2 dwt. 12 gr., valued at £694 5s. 7d. D. Ferguson was acting-manager at the end of the year.

*Ross, Forest, and Party, now Sutherland and Party*, left-hand branch of Highlay Creek.—These prospectors extended the drive and sunk to bed-rock, but prospects were poor and operations have been discontinued.

*O'Connell and Party*, Section A 1, Block I, Town of Macraes.—Further shaft-sinking was carried out, but nothing of importance was disclosed and operations were discontinued.

*Elsom and Party*, Bonanza Reef.—Driving alongside the reef, cleaning out and sinking a surface winze to a depth of 40 ft., has been done, but further work is required in order to test this section of the Bonanza Reef.

*The Otago Scheelite and Mining Co.* (W. M. Langdon, Manager).—This company was formed to take over the mine known as the Ounce Mine, on Section 6, Block 8, Dunback Survey District. The eight-head stamp battery was reconditioned and the mining field developed by means of open cuts, drives, levels, rises, and winzes. A cookhouse, hot and cold shower, and comfortable huts have been provided for the workmen. Seventeen men were employed from about May. Two hundred and eighty-five tons of quartz yielded 28 oz. 10 dwt. of gold valued at £207 10s., and 8 tons 4 cwt. of scheelite valued at £1,422.

Forty-three men were employed fossicking, prospecting, cradling, sluicing, driving, and sinking in the Highlay, Macraes, Shag River, Horse Shoe Range, and Hillgrove areas. The gold won amounted to 114 oz. 16 dwt. 11 gr., valued at £765 11s. 3d. Thirty-seven tons of quartz won by three small parties of miners, was treated at Callery and Bradbrook's battery, Deep Dell, Macraes, yielding 2 tons 19 cwt. of scheelite concentrates, which, with other small parcels treated by small producers amounting to 13 cwt., were valued at £536.

*Maniototo County.*

*Golden Progress Quartz Mining Co., Oturehua* (E. Gaytan, Manager).—Mining operations were continued during the year with a reduced staff of men. At the 150 ft. level the east-end drive was extended for a short distance beyond the fault. All the small blocks of quartz, above the 80 ft. prospecting-level and the 150 ft. main level, were stoped out and filled. Operations were then transferred to the winze below the 150 ft. west level, where driving and stoping are now in progress. Eight men were employed, the quartz treated at the battery amounting to 250 tons, yielding 312 oz. 17 dwt. 12 gr., valued at £2,283 6s. 6d.

*The British Developments, Ltd.* (E. Shiels, Manager).—This company has been prospecting an area formerly worked by sluicing and elevating methods, and held by the Morgan Brothers near the Cambrians Township. A dip drive has been sunk in order to test the values ahead of the last elevating paddock. This dip had reached a length of 300 ft. at the end of the year, and is being extended. Three men were employed.

The various privately-owned alluvial claims in the Cambrian, Vinegar Hill, St. Bathans, Naseby, and Patearoa areas were working steadily during the year whenever weather conditions were favourable. In the Serpentine, Earl, Wilson, and party were engaged during the warmer weather prospecting for reefs by driving and sinking. This work is still in progress.

Two hundred and fifty-three men were employed prospecting, sluicing, elevating, driving, and sinking, in the St. Bathans, Cambrians, Blackstone Hill, Wedderburn, Naseby, Kyeburn, Patearoa, and Serpentine areas, winning 2,020 oz. 18 dwt. 8 gr., valued at £14,490 16s. 6d. The chief producers were M. Brown, Kyeburn; Roche and George, Naseby; Carr Bros., Patearoa; and N. Nicolson, Cambrians.

*The Kildare Consolidated Gold-mining Co., Ltd., St. Bathans* (W. Johnson, Manager).—Active mining operations were discontinued in the St. Bathans section of the Kildare Deep Lead early in the year, and operations were then directed to the reopening of the old Surface Hill Mine workings which have been flooded since the year 1904. The Scandinavian water-race has been cleaned and repaired and a pipe-line consisting of 22 in. to 30 in. pipes has been laid to the Surface Hill Claim. The old tail-races were cleared from accumulated debris, and the large water-filled paddock of the old Surface Hill Mine, 20 chains in length by 5 chains in width, has been dewatered to a depth of 40 ft. to the end of December. Fifteen men have been employed on the race-cleaning and reopening operations. The gold won during the year amounted to 255 oz. 2 dwt. 13 gr., valued at £1,838 7s. 1d.

*Tuapeka County.*

*New Gabriel's Gully Sluicing Co., Blue Spur, Lawrence* (J. Hore, Manager).—Active operations have been continued during the year, and the plant was removed from the old Smithy Section and erected near the balance of the remaining cement-deposit lying on the Western Reef between the gully and the Blue Spur-Munro's Gully Road. Experiments were carried out with a Hammer Crusher during the early part of the year. After a trial period, crushing-operations were discontinued. The cement face is cracked and split and comes down in large blocks, which are broken up by means of "eruptite," the holes being drilled by means of Jackhammer drills. The broken cement is then sluiced by high-pressure water to the elevator. Seven men were employed during the year, winning 205 oz. 12 dwt., valued at £1,505 10s. 9d.

*The Wetherstones Gold-mining Co., Ltd., Wetherstones* (H. T. Gordon, Manager).—Driving and sinking operations were continued during the year until the 21st July, when all active mining operations were suspended. The following work was done—835 ft. level: The crosscut west was advanced 176 ft. to 313 ft. to the schist-conglomerate contact, and a drive north on the contact started and advanced to 13 ft. The values here were low, though a decided improvement on those at the 510 ft. level. Inclined shaft: Sinking was resumed on the 14th February from 923 ft. At 1,190 ft. schist appeared on the north side, disappearing again at 1,196 ft. At 1,210 ft. the schist-floor was again exposed. At 1,225 ft. a fault plane was encountered and the face was entirely in schist, and sinking was stopped at 1,237 ft. The borehole was met at 1,222 ft. A fan was fitted to the top of the borehole, which has since been used as a down-casting ventilating-channel. 1,193 ft. level: A drive north was started here and continued 26 ft., following the contact. Owing to the disturbed nature of the country and the presence of the fault already encountered in the incline, this drive finally turned due west, and it was realized that it was necessary to get on the eastern side of the fault. A drive north-east at right angles to the strike of the fault was therefore started. This was driven horizontally through the schist and then on the dip following the contact. Values of over 2s. 6d. per yard were met with to 190 ft., when the contact dipped away too suddenly to be followed. This drive was continued to 262 ft., when the contact was again met with. An exploratory drive to the north-west was continued to 67 ft. In the inclined shaft the light rails were lifted and a 3 ft. gauge track was laid down with 40 lb. rails, and the change over to the self-dumping skip made. Vertical shaft: This was started up in June and sunk to 130 ft., when work was stopped on the 14th July.

The results did not come up to expectations, so it was decided to cease operations on the 14th July pending the result of a geophysical survey of the claim. A seismic survey was carried out by the Department of Scientific and Industrial Research. From the data obtained by this survey it has been decided to continue the Dip Drive, started from the 1,193 ft. level of the main incline shaft, to the north-east and thus prospect the deep ground lying to the east. This further work will prove the value of the Wetherstones field. Work had not been resumed at the end of the year, but it is expected that operations will be resumed shortly. Twenty-three men were employed until operations ceased in July.

*Mr. R. S Thompson, of Wetherstones*, is now sluicing and elevating on his freehold land adjoining the old Wetherstones School grounds. Five men were employed (Mr. Walker, manager).

*Paddy's Point Gold-mining Co., Forsyth* (R. Webb, Manager).—Work has been carried out continuously throughout the year in the freehold land alongside the Lawrence-Waitahuna Main Road. On account of the shallow ground a large area has been sluiced and elevated. Seven men were employed, the gold won amounting to 363 oz., valued at £2,584. The total yield of gold since operations commenced amounts to 2,378 oz., valued at £14,110.

*The Sailors Gully Sluicing Co., Waitahuna* (A. W. Eaton, Manager).—Sluicing and elevating operations have been continued. The plant was removed from the western section to the eastern reef section in the old Scandinavian area. Both the high and the low pressure pipe-lines have been renewed with new welded steel pipes. Nine men were employed, the gold won amounting to 409 oz. 5 dwt., valued at £2,956 8s. 4d. Since operations commenced the yield of gold is 14,594 oz. 12 dwt. 23 gr., valued at £61,780 6s. 10d.

*The Tallaburn Sluicing Company, Horse-shoe Bend* (between Beaumont and Miller's Flat), (W. G. Meyer, Manager).—Sluicing and elevating operations were continued for a yield of 92 oz. 7 dwt. 22 gr., valued at £713 19s. 2d. Two men were employed. The available area of workable ground is practically exhausted.

During the year the *Riverside Sluicing Co.* (N. Matheson, manager) took over the areas held by James Bell and party on the boundary of Block IX, Beaumont Survey District, and Block XII, Tuapeka West Survey District, being partly mining reserve and partly land held by H. T. Paterson, along the left-hand bank of the Clutha or Molyneux River about two miles down river from Beaumont. No gravity water being available, a suction-gas plant was installed to provide water for sluicing and elevating purposes. The plant consists of a "Mather and Platt" high-pressure pump with a capacity of 2,250 gallons per minute to a head of 160 ft. belt driven by 160 indicated horse-power Twin Tangye gas-engines, the producer gas being generated in a down-draft producer using brown coal for fuel. Mining operations were commenced in September and yielded 123 oz. 1 dwt. 20 gr., valued at £866 12s. 8d. Ten men were employed.

During the year the *Fifty Five Gold-mining Co.*, which took over the areas held by McIver, Williamson, and party on the banks of the Clutha River on Mining Reserve, Block I, Waitahuna West Survey District, erected a plant to sluice and elevate. No gravity water being available, a suction-gas plant was installed to provide the necessary water by pumping from the river. This consisted of a Mather and Platt "Medivane" pump with a capacity of 1,000 gallons per minute to a head of 210 ft. belt-driven by a pair of Tangye gas-engines each of 65 indicated horse-power, producer gas being generated in a down-draft producer using brown coal for fuel. The plant was operating for only a short time, and is at present inoperative.

*Messrs. A and R. Brown* continued sluicing and elevating operations at Tuapeka Mouth when water was available to work the low-pressure turbine in the Tuapeka River.

*The Fourteen Mile Beach Gold-mining Co.* (A. Donnelly, Manager).—Sluicing and elevating operations were continued during the year when river conditions would allow, but on account of abnormally high river practically 50 per cent. of the working-time was lost. The old workings of Quayle have also been encountered and had to be worked through. Virgin ground has now been reached. Four men were employed during the working-periods, and the yield was 90 oz. 3 gr., valued at £639 2s. 11d.

*The Molyneux Deep Lead Co.* has acquired the area held by W. J. Manuel at Coal Creek, Roxburgh, and the claim was being equipped with the necessary hauling and pumping and treatment plants at the end of the year. A main drive is being driven, and this lead will be mined by driving and blocking-out methods.

In addition, 320 men were employed in the Tuapeka County fossicking, prospecting, cradling, sluicing, elevating, driving, and sinking for a yield of 1,619 oz. 3 dwt., valued at £10,274 3s. 9d. The largest producers were R. S. Thompson, Wetherstones, and A. and R. Brown, Tuapeka Mouth.

### *Southland County.*

*Nokomai Gold-mining Co.* (C. G. Sew Hoy, Manager).—Drag-line operations were continued until the 12th April, when it was decided to discontinue using the mechanical excavator on account of its unsuitability for the treatment of this deposit. The hydraulic elevator was again installed, and sluicing and elevating methods have been employed since the change-over. Twenty-two men have been employed, and the gold won amounted to 561 oz. 18 dwt. 4 gr., valued at £3,773 3s. 5d.

*King Solomon Deep Lead, Ltd, Waikaia* (R. C. Ruffin, Manager).—Successful mining operations have been continued during the year. In the early part of the year the northern section was developed and a rise was put through to the surface, thus providing improved ventilation and a second travelling road for the workers in this and adjoining sections. The rock barrier was encountered to the north-west, and considerable prospect driving has been done in this section. The eastern section was developed later in the year, and the prospecting-work done therein has opened up a large area of fair-grade auriferous wash. During the latter part of the year a considerable amount of driving was done in the southern section for a distance in rather difficult ground, face boards having to be used in places. Blocking-out and stripping has been carried out in the various working sections. The quality of the timbering has been maintained. The drives are all timbered with sets lathed on top and sides where necessary; the blocking-strips are taken out on blocking-sets close-lathed on top, and when it is necessary to hold the blocked-out ground timber bulk-heads or pigsties are used. Consequently, a large quantity of timber is used during the course of a year, and considerable supplies are now being obtained from the upper Waikaia Bush. This gives employment to a number of contract timber-cutters and lorry-drivers. A second boiler was installed at the surface during the year. This will enable the stand-by electrical plant to operate for a lengthy period should there be a failure of the Southland power now supplying energy for the main shaft and underground electrically-driven pumps. An average of sixty-four men has been employed at the mine during the year. The gold won amounted to 4,501 oz. 12 dwt. 17 gr., valued at £34,598 17s. 10d. The total gold won since the commencement of operations is 13,299 oz. 9 dwt. 8 gr., valued at £88,162 13s. 10d.

*A. Mutch, Happy Valley, Waikaia.*—Four men have been steadily employed in the lower section of Happy Valley sluicing, and elevating a mixed shallow auriferous deposit below the site of the first Waikaia Township.

*Dome Creek Syndicate* (Right-hand Terrace in Mr. Sutton's Run, Dome Creek, Waikaia).—Intermittent sluicing and elevating operations have been carried on during the year.

*The Union Mining Syndicate* (J. Murchison, Manager).—During the year operations were resumed in the upper reaches of the Waikaia River, at the junction of the Waikaia and Little Waikaia Rivers. The syndicate reopened this old mining field. A considerable amount of work was done in reconditioning old water-races, transporting and erecting steel fluming, pipes, and elevator in this remote area. A wing dam is being built in the river, and elevating operations will be commenced early in 1935. Four men were employed.

The Upper Dome Creek area has also been prospected during the year by the *Nicholson party*.

*The Waimumu Sluicing Co., Ltd.* (J. S. Butts, Manager).—This company was formed during the year and took over the plant and equipment of the Terrace Sluicing Co. Another freehold area farther downstream was prospected and the steam pumping-plant was removed to about 30 chains downstream. The water is now

pumped from the Waimumu Stream through a line of 15 in. pipes into a reservoir on the hill top. This water is then used for sluicing and elevating on the left-hand river-flats. Active operations were commenced about July. During the latter part of the year water became scarce and impeded operations. Five men were employed, and the gold yield was 118 oz. 11 dwt. 23 gr., valued at £876 11s. 7d.

*Stewart Gold Company, Waikaka* (R. T. Stewart, General Manager and Engineer, W. G. Stewart, Works Manager).—Sluicing operations have been carried on throughout the year with the water pumped from the Little Waikaka Stream to the site of the workings by Diesel engines and electric motor, four heads of water being used. The greater portion of the work done during the year has been in the direction of obtaining an opening into the deeper ground, which has been already worked to some extent from shafts, some of which were over 80 ft. in depth, put down by the diggers over sixty years ago. Props of brown and red birch used by these early diggers in securing the ground while the wash was being driven out, are still standing and are as sound as when first put in. The ground now being worked is approaching 80 ft. in depth, and consists of a white quartz wash, with a surface layer of clay from 6 ft. to 10 ft. in thickness. The wash lies upon a bottom of pipeclay, the surface of which is very uneven and broken in places by bands of fine quartz drift. The bottom wash is delivered to the boxes, 3 ft. in width, by a hydraulic elevator lifting to a height of 24 ft. The gold, which is of a very fine nature, is saved on coconut matting, the fine material passing over a set of tables measuring 12 ft. in width. Eight men were employed.

*The Coastal Mining Co., Ltd.* (C. W. Thomson, Manager).—During the early part of the year a self-contained gravel pump mounted on caterpillar tractors, built in Dunedin to the plans and specifications of the late Mr. R. S. Cree Brown, was erected near to the Haldane Estuary and taken on to the Haldane or Six-mile Beach, Block IX, Waikawa Survey District. The designer, Mr. Cree Brown, was fatally injured during a trial run of the machine on the 26th May, 1934. This was an extremely regrettable happening, as he had made a special study of hydraulics as related to gravel-pump mining. This gravel pump is mounted on caterpillar tractors so that it can be moved easily when pumping, or when it is necessary to shift the machine to another place on the beach, or to a place of safety. The 8 in. Kelly Lewis gravel pump is chain-driven by a 35 brake horse-power, twin cylinder, vertical, Ruston Hornsby full Diesel engine. An auxiliary centrifugal pump is fitted to provide water for priming the gravel pump and for providing clean water for the main-pump gland. The treatment boxes, 15 ft. wide and 15 ft. in length, are fitted directly above the machine and are mounted on a swivel frame which can be kept horizontal by means of levelling-screws. The gravel pump delivers the material into a distributory box provided with grizzly bars to prevent the rough material from going on to the tables. The flow of the material is regulated by movable gates. The waste material and water are delivered well away from the machine by means of a line of pipes, 100 ft. in length by 10 in. in diameter, suspended from a gantry. Two large rollers or castors are provided to take the weight of the delivery-pipe. The gravel-pump intake pipe, 40 ft. in length, is also suspended from the gantry, and both the intake and delivery pipes can be lowered or raised by means of winches provided in the operating-cabin, movable joints being provided where these pipe-lines leave the machine. This machine is thus self-contained and can be easily moved from place to place under its own power. Much of the sheltered beach has been worked extensively by the early beach miners. Six men have been employed since active operations commenced, the gold won amounting to 45 oz. 4 dwt. 1 gr., valued at £257 9s. 3d.

The sluicing and elevating claim operated by Wilson and party on the banks of the Waipapa Creek at the Eastern end of the Waipapa Beach has been taken over by the *Waipapa Beach Dredging Co.* who are now building a dredge to work the areas. There has been considerable activity on the sea-beaches from Wallace Beach to the Bluff during the year.

In addition, 127 men were engaged fossicking, prospecting, cradling, sluicing, elevating, gravel pumping, driving, sinking, and treating beach sands at Waikaia, Waikaka, Waimumu, Mataura River, Nokomai, Glenham, Bush Siding, Haldane, Wallace Beach, Otara, Waituna, and Awarua for a return of 1,486 oz. 14 dwt. 8 gr., valued at £10,053 3s. 3d. The chief producers were the Stewart Gold Co., Little Waikaka; A. Copeland, Victoria Gully; J. Robertson, Te Wai Beach; W. Campbell, Te Wai Beach; S. W. Copeland, Nokomai; and A. Mutch, Waikaia.

*Wallace County.*

*Round Hill Gold-mining Co., Ltd.* (F. Hart, Manager).—Active operations have been continued during the year, and approximately 5 acres of bottom with an average depth of 60 ft., has been sluiced and elevated. The water-supply in the Longwood is good on account of a copious rainfall, therefore, in order to obtain a maximum output, it has been decided to install a 27 in. pipe-line to replace the 74 chains of 18 in. pipe- inc. The pipe-track for this line has been prepared, and the new pipes will be installed early in 1935. Four men are employed constantly on water-race maintenance and repair work. An average of eighteen men has been employed during the year. The gold-yield was 849 oz. 15 dwt. 1 gr., valued at £6,431 1s. 9d.

*Orepuki Mining Syndicate, Orepuki.*—Sluicing operations have been continued during the year in the old township workings, previously driven out by early miners.

*Try Again Sluicing Party, Orepuki.*—Sluicing operations have been actively carried on during the year in the mid-section of the old township workings in island blocks and partially driven sections.

Several parties have been employed in these old township workings sluicing island blocks, driving, and blocking-out sections which were the sites of dams during the previous early mining days. In and around Orepuki, Round Hill, Pahia, Wakapatu, Longwoods, Tuatapere, Waiau, Te Oneroa, West Coast Sounds, and Stewart Island 128 men have been engaged fossicking, prospecting, and mining on the alluvial areas and sea-beaches for a return of 1,107 oz. 19 dwt., valued at £7,182 16s. 10d. The chief producers have been the Orepuki Mining Syndicate: The Try Again Party; J. Brookland, Te Wai Point; Lennon and Pahl, Orepuki; and Shaw and Braid, Orepuki.

In the Preservation Inlet and West Coast Sounds several parties have continued prospecting operations during the past year, but no discoveries of importance have been reported.

*Canterbury.*

The only gold won was in the Ashburton area—4 oz. 8 dwt. 16 gr., valued at £28 15s. 6d.

*Taieri County.*

Twenty men were employed fossicking, prospecting, and mining, winning approximately 13 oz. 6 dwt. 3 gr., valued at £89 6s. 6d.

*Bruce County.*

Nine men were employed fossicking, prospecting, and mining, winning approximately 11 oz. 18 dwt. 12 gr., valued at £86 14s. 4d.

*Clutha County.*

Eleven men were engaged fossicking, prospecting, and mining, winning approximately 6 oz. 6 dwt. 2 gr., valued at £40 19s. 8d.

*Waikouaiti County.*

Twenty-five men were engaged fossicking, prospecting, and mining, winning approximately 13 oz. 18 dwt. 7 gr., valued at £90 12s.

*Lake County.*

*Rees Valley.*—The only mining activities in this locality were the sluicing operations of Paulin Bros. in the Upper Rees, who had only a partial clean-up before the season ended in April, and a party of three subsidized men who were prospecting for scheelite in the vicinity of the Invincible Mine.

*Lower Rees Valley, Oxburn.*—Five subsidized men, working in two parties, have consistently worked their claims, which are situated at the junction of the Oxburn and Rees Rivers. Peterson and mate have combined sluicing and driving operations. Some fine gold specimens have been recovered, but the return for the year's work is not commensurate with the labour put into the claim.

A party of three men is ground-sluicing a deposit of wash 15 ft. thick. They have brought water in through pipes and fluming, and their claim will return good wages should all the ground prospect as favourably as the face now opened out.

*Glenorchy Scheelite Mining Co.*—A small tonnage of ore has been produced during the year from No. 1 A level. The extension of the No. 1 B crosscut is being pushed on, and the lode should be cut early in the year. The development of this level, which will be the lowest in the mine, will provide a relatively large amount of ore. George Reid, manager. Average number of men employed, four. The ore won from the mine during the year amounted to 132 tons and yielded 10 tons 11 cwt. of $CaWO_4$ concentrates, which realized £1,055.

Several small mines are operating in the Glenorchy Survey District, and produced 16 tons 13 cwt. of concentrates, which realized £1,665, from 59 tons of ore treated at the Glenorchy Scheelite Mining Co.'s mill.

The price of scheelite has been payable for the whole year. Starting in January it was quoted at 27s. per unit, reached a maximum of 47s. in June, and for the remainder of the year has stood around 40s. The enhanced prices have not resulted in an active prosecution of the industry by the numerous claimholders in a district where scheelite-bearing lodes occur over a wide area.

*Lake Wakatipu District.*—The Twenty-five Mile, Twelve Mile, and Seven Mile Creeks bordering on the lake have been worked by subsidized miners with varying results. Some of the men have made a considerable addition to their subsidy where water could be utilized to break down the ground. Pick and shovel parties have not financially improved their position.

*Moke and Moonlight Creeks.*—Subsidized and private parties are working in the bed and terraces of Moke Creek, and have reached a stage where plant and capital are necessary to win any gold remaining in this area.

*Moonlight No. 1 Claim.*—This claim is a consistent producer, the manager and three men recovered 138 oz. 8 dwt. 6 gr., which realized £1,016 4s. 8d., during the working season. As the face at the north end of the claim is nearing the storage dam, operations are now being confined to the Moke Creek side of the area.

*Moonlight Extended Gold-mining Co.*—This company carried on with race-construction up to the end of March. Their financial position would not permit of the completion of the work, although it was within reasonable distance of reaching the stage whereby water could be put on the terraces they intended to sluice. Construction work has not been resumed, although the Unemployment Board, acting on the recommendation of the Mines Department, offered the company substantial assistance, with the object of bringing the claim to a producing stage.

*Upper Shotover Gold-mining Co.*—Early in the year this company completed their diversion tunnel across the narrow neck which separates the Shielburn and Polnoon Creeks. The tunnel is approximately 800 ft. in length and 8 ft. by 8 ft. in cross-section. It carries the whole flow of the Polnoon, and leaves about 5 miles of creek bed exposed, except in flood-time. An average of six men is employed in the working season. Gold recovered, 163 oz. 2 dwt. 23 gr., valued at £1,160.

*Sandhills Gold-mining Co.*—In an effort to divert the Shotover through a cut put through the sandhill, in places 200 ft. deep, and from which it is estimated that ten million cubic yards of material were removed, a tunnel and side chambers were driven and charged with 1¼ tons of explosives. This charge was fired early in March, and a large mass of rock heaved across the river. Additional rock was added to complete a dam, and a strong flow of water was diverted through the cut. The remainder of the year was devoted to deepening the cut in order that the dried-up portion of the river-bed could be worked. This objective has not yet been attained, the flow of water in the natural channel having not been reduced to a quantity low enough to permit of mining operations being attempted. An average of five men was employed during the year, under the management of Mr. P. T. Lynch.

*White Crystal Mine, Skippers* (J. Tripp, manager and owner).—Development work on this mine has been confined to driving the top, or No. 1 level, which has been 70 ft. west of the crosscut on an ore-body varying in width from 2 ft. to 6 ft., and the ore crushed from this lode has averaged approximately 1 oz. per ton. An eight-head stamp battery and oil-engine will be installed to replace the two-head water-driven plant now in use. Three men were employed in mine and battery. Although many lode-prospecting licenses are held in the Skippers District, the White Crystal Mine, with the exception of some prospecting on Advance Peak, is the only claim which has produced gold or carried out prospecting and development. The output from this mine was 145 tons, which (by amalgamation only) yielded 134 oz. 4 dwt. 10 gr., valued at £595 19s. 11d.

*Mountain Terrace Mine, Skippers* (Mr. R. McDonald).—This company has constructed three miles of race and 1¼ miles of fluming over difficult country, and the laying of a 3,000 ft. pipe-line 9 in. in diameter is nearly completed. Sluicing operations on a 30 ft. face of wash will commence early in the ensuing year. The prospects of this company are good, the capital is small, and mostly held by men employed on the claim. An average of seven men was employed during the year.

*Caspar's Flat, Skippers.*—Scott and Beale laid 1,000 ft. of 13 in. and 11 in. pipe-line and reconditioned one of the old Bullendale races for the purpose of working this flat, which has never been prospected. A hydraulic elevator was used and a paddock sunk to a depth of 25 ft. Owing to a dry season the water failed before bottom was reached.

*Skippers Ltd., Shotover River.*—R. Climie, manager, and twenty-five men employed. This company carried out extensive construction work with a gang of fifty men in the Shotover as a preliminary to exploiting the river-bed. Steel piling, 15 in. by 5 in., was driven in the river-bed to divert the stream through a sectional steel fluming 20 ft. wide and 8 ft. deep, capable of carrying 2,000 heads of water when running full. To supplement the race-water supply, which is stored in a dam on the terrace above the river, a 300-horse-power Diesel engine, coupled to a generator, provides power to operate a 200-horse-power motor direct-coupled to 10 in. "Mather and Platt" pump, which delivers 2,600 gallons per minute at a pressure of 100 lb. to the square inch. Actual mining commenced in June and was carried, by three shifts, to the end of the year, except when the river was in flood and carrying more water than the capacity of the flume. The gold won amounted to 153 oz. 8 dwt. 19 gr., valued at £1,116 15s.

*Central Shotover Gold-mining Co., Ltd.* (F. J. Whelan, Manager).—This claim is adjoining the south end of Skippers Ltd., and is worked by hydraulic elevator. An 18 in. pipe-line from Deep Creek conveys water under a head of 150 ft. to the plant on the river-bed. A water-supply of fourteen heads is available at the nozzles. A 9 in. throat and 4⅜ in. jet is used on the elevator and is doing satisfactory work. Seven men are employed. The gold return is 67 oz. 3 dwt. 12 gr., which realized £484 11s. 3d.

*Oxenbridge Shotover Gold-mining Co., Ltd.* (E. Fitzpatrick, Manager).—Seven men employed. This claim is situated near the junction of the Shotover and Moonlight Creeks. This company constructed a concrete arch dam in Moke Creek, and installed a 36 in. and an 18 in. pipe-line to convey the water from the dam to the claim. Owing to the amount of construction work carried on, and the frequent flooding of the Shotover, no gold was won during the year, except when putting in dam foundations. The gold won amounted to 1 oz 9 dwt. 10 gr., amounting to £10 12s. 7d.

*Atley Bros., Shotover.*—Operations on this claim are carried on by the owners when river conditions permit. Water taken in a race from Long Gully is used to elevate wash from the river-bed.

*Arthurs Point.*—Two parties of two men each are ground-sluicing on terraces overlooking the Shotover. At the claim half a mile upstream from the bridge an attempt is being made to locate the old channel of the Shotover, which existed before the river had cut its present course through the gorge on to the Big Beach.

*Arthurs Point Gold-mining Co.* (A. Vernon, Manager). — This company is carrying on ground-sluicing operations on a terrace situated on the south side of the Shotover and overlooking the Big Beach. In order to deal with the large boulders which hamper operations, an electric winch has been installed, power being taken from the Wye Creek Station. Seven men employed. Gold won amounted to 27 oz. 1 dwt. 8 gr., which realized £192 9s. 9d.

*Ballarat Mine, Advance Peak, Skippers Creek Survey District* (S. Pascoe, Manager).—A party of five men has driven 150 ft. on the low level. As the reef, outcropping on the surface, was not cut at this distance, 20 ft. was risen from the end of the drive. This work showed that faulting had displaced the ore-body. Further prospecting on the surface was undertaken on the outcrop, and 65 tons of ore won. A small prospecting battery is to be erected to treat the available ore, and with the funds realized from this source further prospecting will be undertaken.

*Tipperary Mine, Macetown.*—Messrs. McLeod and McLean, who hold this claim, are opening out the 2,000 ft. low-level adit which gives access to the lode which was formerly worked from higher levels. Their objective is a shaft which was sunk 92 ft. below the adit on the lode up to 7 ft. wide, and good values reported. The mine was abandoned in 1900 on account of ventilation difficulties caused chiefly by using an oil-engine at the shaft for hoisting-purposes.

The Garibaldi, Maryborough, Homeward Bound, and Sunrise Mines were taken over by a Christchurch Syndicate, which, late in the year, erected an assay plant and placed a mining engineer and eight men on the field to carry out a prospecting policy. Levels on the Garibaldi and Homeward Bound were opened and some ore-bodies sampled. A considerable amount of surface trenching was done and some important discoveries reported.

*Upper Arrow Sluicing Co., Macetown.*—J. H. Lynch, Manager, and three men employed. These men reconditioned a water-race and laid a pipe-line for the purpose of hydraulic elevating in the bed of the Arrow River at Macetown and expect to commence mining about the beginning of 1935.

*Soho Creek.*—Two parties of two men each have been engaged during the year on prospecting by driving and sinking on an area at the junction of the Soho and Arrow Rivers. A high-level bed of both streams is believed to exist, but it is now covered with debris, which has slipped from the mountains into the valleys through which the rivers flow. Although a considerable amount of work has been done the problem remains unsolved.

*Sims Prospecting Syndicate.*—A shaft is being sunk by this syndicate in the bed of the Soho Creek, at a point approximately three miles above the junction. At a depth of 50 ft. large glacial boulders were met; a pump has been installed, and sinking is to be continued to the basement schist.

*Shamrock Alluvial Mine* (J. Smith, Owner and Manager).—Two men are sluicing on a terrace east of the Arrow River. The ground worked is in part of the old glacial terrace, which extends to Macetown.

*Hamilton and Sons, Arrow River.*—This party occasionally operates two hydraulic plants in the Arrow River, according to the water-supply available, which is taken from the Public Works Department pipe-line which conveys water from their weir to the Arrow Flats for irrigation. Most of the ground has been worked, some twice over. With gold at the present price the claims pay, in spite of the disadvantages of flood, frost, and shortage of water in the summer months. The average number of men employed is six.

*Golden Arrow Gold-mining Co.*—Hydraulic mining is carried on by this company on their claim on the Arrow River close to the township. Water from the Public Works Department pipe-line is used to elevate wash and recently-deposited tailings of a thickness of 15 ft. to 20 ft. Most of the river-bed which is included in their claim has been previously worked, but the gold recovered by the company now operating covers all working-expenses and leaves a margin of profit. The gold won amounted to 281 oz. 7 dwt. 15 gr., valued at £1,938 11s. 11d.

*Junction Reward Gold-mining Co.*—Six men employed. This company is operating a hydraulic plant at the junction of the Bush and Arrow Creeks, Arrowtown, with water from the Public Works Department.

*Henderson's Claim*: A dip drive, under the terrace and starting from the level of the Arrow River, is being put into the claim, which is situated a short distance from the township and held by a Christchurch syndicate. The Arrow River was diverted in this locality by a landslide. The syndicate's object is to prove the value of the wash in the buried portion of the river-bed. There were two men employed.

Reef-mining in the Arrowtown District has been confined to prospecting a low-level tunnel on German Hill to find a lode that was followed down 30 ft. by a shaft. The low-level drive is not far enough advanced to prove the downward continuation of the lode.

*Shannahan and Party* drove 100 ft. on a wide lode, situated on the north-west side of the Arrow River, and reported values up to 8 dwt. Further prospecting by a syndicate is contemplated.

*The Criterion Mine*, Arrowtown, was not worked during the year.

On the Crown Terrace a winze was sunk by a Dunedin syndicate to a depth of 80 ft. on McFee's freehold. A short distance was driven on the lode from the bottom of the winze, and the outcrop was stripped for 150 ft. The strong quartz lode varied in width from 5 ft. to 1 ft. 6 in., and the sampling done as the work progressed gave assay values which were highly payable. The syndicate was preparing to form a company with a working capital sufficient to carry on further development and erect a battery. They were advised to check-sample all the exposed lode in winze, drive, and on the outcrop. The result of the check-sampling caused the syndicate to drop the area and wind up its affairs.

Some trenching and sinking on lode formations were done on Martin's freehold, a property adjoining McFee's. Evidently the results were not favourable, as the syndicate concerned ceased operations.

*Cardrona Valley.*—Approximately a score of subsidized miners are fossicking and prospecting between the township and county nursery. The whole valley, from Pembroke to the township, was taken up for dredging, but no boring has been done on these areas during the year.

*Matatapu River.*—A camp of subsidized miners is getting fair returns in the upper reaches of this river. An average of twelve men is sluicing on the banks.

The number of subsidized men in Lake County shows a decrease for the year, chiefly on account of many of the men finding employment with companies in the district.

The Unemployment Board during the year initiated a lode-prospecting scheme for the purpose of testing the numerous reefs and lode formation which exist in the county. The parties are equipped with tools, &c., and paid standard wages. The Macetown and Skippers Lode systems will be investigated in a systematic manner, the working parties being under the control of a supervisor with a knowledge of the fields, who will be directed by a mining engineer, who will carry out the surveying and sampling.

In addition, 186 men were employed in alluvial mining in the various districts in the Lake County, winning 805 oz. 10 dwt., valued at £5,507 3s. 4d.

In the Lake County at Glenorchy twenty men were engaged in scheelite mining, producing 16 tons 13 cwt. of concentrates, which realized £1,665.

*Vincent County.*

*Kawarau River.*—From the Roaring Meg to the mouth of the gorge at Cromwell several parties of miners are working claims on the terraces above the river. Most of them are subsidized men. The gates at the Kawarau Falls were not closed during the winter, consequently no work was done in the river-beaches, which can be worked only when the river is exceptionally low.

*Frye and Giddens Syndicate, Cromwell Flat.*—This syndicate ceased operations early in the year after driving 460 ft. north from the shaft. The distance was driven on the south sidling of the gutter, and the face was stopped short of the point where a geophysical survey had indicated the deepest part of the gutter. There were seven men employed. The gold won amounted to 2 oz., valued at £13 18s. 2d.

*R. J. Bell, Horn's Freehold.*—A second shaft was sunk on this property, approximately 6½ chains north of the shaft that bottomed at 126 ft., and abandoned. The north shaft bottomed at 146 ft. Driving towards the south shaft was started and continued until a rising floor was met at 180 ft. At 70 ft. south of the shaft crosscutting was carried both east and west, also a drive was put out north from the shaft 90 ft. to the north, and the bottom was found to be dipping in this direction.

*Bell-Kilgour Gold-mining Co.* (H. de Latour, Manager).—During the year this company carried out extensive prospecting operations to the west of their main drive. This work proved that the greater part of their claim was unpayable by the present method of mining, which necessitates the use of a large amount of timber. By November all the payable wash was extracted from the section served by the main drive, and the working staff was reduced. A drive was put into Murray's Claim, which was acquired by the company. Prospecting on this area is now being carried out. An average of twenty-four men was employed. The gold produced amounted to 961 oz. 2 dwt. 13 gr., valued at £6,884 3s. 3d.

*Bell Hooper Gold-mining Co.* (A. J. Walker, Manager).—By the end of the year the payable ground adjoining the Bell-Kilgour Claim had been recovered, and blocking-out of ground developed from the No. 4 drive was being carried out by a reduced staff. The future of the mine lies in the development of the gutter to the east of the present workings. The available ground to the west and north is limited by the boundaries of adjoining claims. The maximum number of men employed by the company was fifty, the minimum eighteen, and an average of thirty. The gold won amounted to 1,239 oz. 10 gr., valued at £9,004 3s. 4d.

*Cornish Point Gold-mining Co.* (M. Moye, Manager).—This company abandoned the workings on the Clutha River side of their claim, and started an incline shaft on the Kawarau, opposite the old coal-mine. The first 60 ft. were sunk through loose gravel, and the remainder through schist, the total depth of the shaft being 159 ft. on a 1-in-3 grade. At this depth a pump chamber was cut, and driving south was commenced through rock to reach the gutter. At 74 ft. south of the shaft wash was struck, also a flow of water equalling 200 gallons per minute. This level was driven a total distance of 153 ft. At this point the bed rock had risen to the roof of the level. This development cut across the gutter, and from the lowest part driving east was commenced. Three hundred and fifty feet was driven, and a considerable amount of crosscutting from the east level in both north and south directions was carried out. Values were low in all parts of the mine. Number of men employed, seven. The gold won amounted to 4 oz. 7 dwt. 22 gr., valued at £31 11s. 10d.

On the Cairnmuir side of the Kawarau, between the Cromwell footbridge and Bannockburn Creek, seven claims are being worked by driving, and employ on an average sixteen men. Four have been worked for a considerable time, chiefly by subsidized miners, who recover a fair amount of gold by following the narrow runs, which are payable while they last. Three claims are in the prospecting-stage. They are driving on the sandstone floor and under the Cairnmuir Flat. Most of the driving has to be close-timbered, the ground being wet and loose in some of the claims. The work done on this area during the past two years has established the fact that there is a large area of ground that would yield good returns if cheap water or power to pump it from the river was available. As a sluicing venture it has possibilities. Mining, by driving and blocking-out, is proved to be uneconomical even when tried by working parties with no overhead costs.

*Bendigo Rise and Shine Gold-mining Co.*—The syndicate which took over this claim from the prospectors after cutting the lode at the end of 1933 floated a company. Work at the mine was suspended for several months until the company flotation was finalized. In September six men and a working-manager commenced to drive east and west on the lode, with the object of ascertaining the length, width, and value of this ore-body, also to prospect a large low-grade north and south lode that is expected to join the smaller lode at depth.

*New Bendigo Gold-mining Co.*—Debentures were offered and taken up in order that operations in the low-level drive could be continued. Recognizing the importance of lode mining to this district, the Unemployment Board granted substantial aid to the company, as the mine had been an important producer and employer of labour. The cessation of past operations was chiefly on account of the exhaustion of free milling-ore. The sulphides coming in at depth presented treatment problems which had not been solved thirty years ago. Tenders were called and a contract let for 1,000 ft. of driving, and operations are to be resumed early in 1935.

*Luggate.*—A camp of subsidized men are working under a supervisor in this area. A water-race was constructed by the Unemployment Board, and upwards of twenty men are profitably employed in ground-sluicing.

*Quartz Reef Point.*—A gang of men receiving the Unemployment Board's subsidy is working in the east banks and terraces of the Clutha River, under the control of a supervisor.

*Jones Nevis Sluicing Co.* (F. Jones, Manager).—The mining privileges of Jones and party are now held by the above company, which is constructing another race and pipe-line. The increased power available will enhance the returns from this claim in the near future, as a considerable increase in the yardage treated will be possible. There were seven men employed. The gold won amounted to 278 oz. 6 dwt., valued at £1,956 3s. 10d.

*McLean Bros.*—A party of three men is hydraulic-elevating on ground which is giving them good returns. Operating with a good plant and water-supply, the owners can reasonably anticipate a profitable season.

*Nevis Sluicing Co.* (J. Johnson, Manager).—This company has taken over the mining privileges formerly held by Johnston and Williams. The water-race has been enlarged and a new pipe-line laid on to ground alongside Schoolhouse Creek. This extension will allow of two faces being worked, which should more than double the past returns. There were six men employed. The gold won amounted to 12 oz. 19 dwt., valued at £92.

*Sutherland and Party.*—A party of five subsidized men brought in a race and was provided with pipe-line and monitor by the Unemployment Board to work their claim, situated on a terrace east of the Nevis River and two miles north of the Nevis Sluicing Claim. With the plant the men are making a fair living, where formerly they were fossicking for a few pennyweight per week.

*Nevis River.*—A party of five men has been engaged in wing-damming a stretch of river several miles above its junction with the Kawarau. Their efforts have been only moderately successful owing to the heavy floods. Each rise of the river destroyed, in a few hours, the work which had taken weeks to complete.

*Carrick Range.*—Attention has been turned to lode-mining in this district. The Unemployment Board has two parties of prospectors engaged in trenching and sampling lode channels. In the near future attention is to be devoted to reopening and exploring some of the old mines which were formerly worked and yielded payable returns.

*Waenga, Clutha River.*—Bruce and party have brought in water from Leaning Rock to work their claim, situated about three miles downstream from Cromwell. A terrace between the river and railway was prospected by driving. This method of mining was unprofitable, and the party built a storage dam on the flat and has constructed a pipe-line with the intention of ground-sluicing the deposit. Mining operations are to commence early in the new year if water is available.

*Morton and Party.*—A party of ten men has won a considerable amount of gold at their Waenga River claim. A payable lead was exposed on the river-bank and followed into the terrace. Owing to the claim being at low-water level, a slight rise in the river causes suspension of operations.

*Clyde Development Co., Clyde.*—This company, employing six men, carried out a considerable amount of prospecting and development work under the Clyde Domain. A level was driven 320 ft., and boreholes put

down from the level gave results which the directors considered sufficiently encouraging to put down an inclined drive 420 ft. in length. The hopes raised by borehole prospects were not realized, and the company ceased operations. The gold won amounted to 8 oz. 2 dwt. 16 gr., valued at £56 4s.

*Waikerikeri.*—In Waikerikeri Valley, six miles from Clyde, the Unemployment Board subsidized a party of four men to drive across the quartz drifts which lie at the foot of the Dunstan Range and dip at a high angle. A considerable amount of gold was won in this district by alluvial miners. It was recognized that the gold was derived from the quartz drift deposits which are continuous along the foot of the range from Waikerikeri to St. Bathans. The drive was continued until the schist rock was reached, a distance of 520 ft. The quartz grits passed through were lying in exactly the same order as at Matakanui and elsewhere. Two coal-seams were cut, also a bed of shale. Fine gold was got in several thin seams, but nothing payable was located.

On the *Devonshire, Matakanui, and Drybread goldfields* parties of men are sluicing when water is available after the irrigation season closes. Owing to the nature of the deposits on these fields expensive prospecting and development is required before gold-production can reach its former figures.

A considerable amount of prospecting by subsidized men is being carried on around Alexandra. On the Galloway side of the Manuherikia River some payable patches have been struck, but operations are only on a small scale owing to lack of water. At Conroys Gully three parties of prospectors, paid by the Unemployment Board, have done a considerable amount of sinking, driving, and trenching on the lode system. A ball-mill is being erected for the treatment of prospectors' samples and is expected to be in operation early in 1935.

*Symes Reef, Old Man Range, Alexandra.*—A small amount of crosscutting was carried out during the early part of the year, but nothing of importance was discovered. It is the intention of the proprietor to extend the low level another 150 ft. It is now in 725 ft., and was discontinued before the ore channel was cut.

### Dredge-mining.

*Shotover River.*

*Goldfields Dredging Co.* (S. Chapman, Dredgemaster).—The directors of this company decided to discontinue dredging on the river below the gorge, and preparations were made in April to shift the dredge on to Big Beach. On the 12th of August the hazardous journey of 110 chains through a deep, narrow channel was safely completed. This achievement required both skill and courage to overcome the difficulties that often threatened disaster to the machine and crew. After a few days spent in overhauling the plant, dredging was started on Big Beach. The total yardage dredged was 1,339,970, and gold recovered 706 oz. 16 dwt. 14 gr., which realized £4,994 6s. 8d.

*Nevis Diesel Electric Gold-dredging Co., Upper Nevis* (D. Caithness, Dredgemaster).—Reconstruction of this dredge and installation of new plant was completed early in March. Dredging was carried on till 12th May, when operations ceased and were not resumed during the year. Gold recovered for the period of dredging amounted to 72 oz. 12 dwt., valued at £482 19s. 2d.

*Nevis Crossing Dredge, Lower Nevis* (S. Fache, Manager and Owner).—Repairs and adjustments to the plant and pontoons of this dredge were completed early in the year, and the plant has operated continuously during the open season at this altitude. Satisfactory returns have been won from ground 8 ft. to 10 ft. deep.

*Bendigo Goldlight Gold-dredging Co., Bendigo Creek, Cromwell.*—This company has worked continuously during the year on the reconstruction of the dredge purchased by them. The wooden pontoons were completed and launched in July, and it was anticipated that the dredge would be operating before the year ended. Owing to a shortage of water in the dredge-paddock construction work was held up until water could be brought in to the claim, and the ladder and tailings elevator yet remain to be placed in position. The following description of pontoons, plant, and gold-saving tables was kindly supplied by the company's consulting engineer, Mr. Fletcher Roberts: Wood pontoons, 126 ft. long, 28 ft. beam, 8 ft. 2 in. deep; ladder, 93 ft. 6 in. centres; buckets, 7¼-cubic-feet capacity; dredging depth 48 ft., with ladder at 45°; elevator, 91 ft. centres, bucket type, stacks to about 40 ft.; screen, reciprocating type, two screens each 21 ft. long by 4 ft. 6 in. wide; pumps, 12 in. centrifugal; tables, six tables 15 ft. 6 in. long and two tables 12 ft. long, all 3 ft. wide, in addition to a shower-box under the screens which is 22 ft. long by 4 ft. 6 in. wide. Each table has a cast-iron boil-box at its head. The remainder of the tables are made of wood. *Power Plant:* A Ruston 62-horse-power four-cylinder Diesel engine for the operation of pump and screens; a 20-horse-power internally fired boiler; a 20-horse-power compound condensing Marshall engine transmits power through a five-rope drive to buckets, elevator, and winches. A considerable amount of new material has gone into the construction of this dredge, and the result is a substantial machine with ample power and well-designed gold-saving appliances.

*The Molyneux Gold-dredging Co.* is preparing a site at Clyde and making preparations to construct their dredge. The first shipment of material is expected early in the coming year.

*The Clutha River Gold-dredging Co.* is making preparations at Alexandra to commence the erection of their dredge, which was designed in England by Payne and Son. Both plants will be in operation by the end of 1935 if no unexpected delays are experienced.

*The Rainbow Dredging Co., Ltd.* (A. Cook, Dredgemaster).—A small dredge was built and equipped on a freehold property close to the Gore-Hedgehope Main Road, in Block I, Waimumu Hundred. Pontoons 31 ft. in length, 18 ft. in width, and 4 ft. in depth, with a ladder 22 ft. in length carrying eighteen buckets with a capacity of 2½ cubic feet, discharging twelve buckets per minute into a sluice-box. A Gardner high-speed crude-oil engine of thirty-eight brake horse-power furnishes the power required for the bucket-ladder, winches, and pumps. The depth dredged is shallow, being about 7 ft.

When the *Freshford Dredging Co.* went into liquidation the dredge was purchased by J. A. S. Aitken, of Gore. The dredge was dismantled, transported to the Waikaka Valley on to freehold property between Maitland and Willowbank, and re-erected in an old dredge-paddock. The dredge pontoons have been strengthened and small alterations have been made in the superstructure in order to increase efficiency. Dredging operations were commenced during the latter part of the year under the superintendence of R. M. Smail, dredgemaster. This dredge is a steam-driven one and has the following dimensions: pontoons, 80 ft. 6 in. overall length by 29 ft. wide. The main engine is a 16-horse-power Marshall compound, fitted with condenser, feed-water heater, and other auxiliaries. The boiler is a 39-horse-power internal-fired, marine return-tubed type. The winches are driven by two 5-horse-power Marshall engines. The bucket-line is equipped with thirty-one buckets of 6-cubic-feet capacity, and delivers ten buckets per minute into a 79 ft. sluice-box.

An area on the Waipapa Beach near Otara, Southland, has been taken over by the *Waipapa Beach Dredging Co.* A dredge is now under construction and is expected to be completed and operating in the early part of the year.

### Minerals other than Gold.

*Scheelite.*—In the Glenorchy Area 191 tons were treated for a yield of 27 tons 4 cwt. of concentrates, valued at £2,720.

In the Macraes District 322 tons were treated for 11 tons 3 cwt. of concentrates, valued at £1,875.

The total yield of concentrates from 513 tons of ore treated at the various batteries was 38 tons 7 cwt. and this, with other parcels of concentrates treated by small producers totalling 13 cwt., brought the aggregate to 39 tons, valued at £4,678.

*Oil-wells: Southland Oil, Ltd.*—No boring has been done at either No. 1 or No. 2 bore during the year.

### Fatal Accidents.

There was one fatal accident during the year. On the 24th March Robert Albert Barrett, miner, of Orepuki, was killed by a fall of roofstone when taking out a blocking-strip in his small alluvial mine in the old township workings at Orepuki, Southland.

### Non-Fatal Accidents.

On the 9th January David Wylie was injured by an explosion of gelignite which occurred when he was charging a hole. The injured man was employed by the Moonlight Extended Gold-mining Co. in enlarging a water-race which had been cut through rock. The exploded charge shattered the injured man's right hand, and amputation of the injured member was found necessary.

On the 20th October, when working on the Goldfields Dredge on the Shotover River, O. Kelly had his right arm broken close to the shoulder and his shoulder-bone fractured. The accident was caused by a winch-handle striking the injured man owing to a gust of wind throwing all the weight on to the subsidiary stern-line worked from a hand-winch.

### Boring.

#### *Lake County.*

*Millers Flat*, between Arthurs Point and Arrowtown, Shotover Survey District.—As a belief had been long held that this valley was an old river-bed and possibly gold-bearing, the Unemployment Board, at the request of the Lake County Mining Executive, decided to bore a section of the valley in order to substantiate this theory or prove its fallacy. Nine holes were bored of a total depth of 633 ft., by the Government No. 2 steam-drill, using 6 in. casing and a 7½ in. cutting-shoe, on the freehold of Messrs. W. S. Reid and Butel. The holes were put down across the buried channel along two lines selected after a magnetic survey by the Department of Scientific and Industrial Research. The work was supervised by Mr. W. Campbell and carried out under the direction of the Mines Department. It was conclusively proved that the channel was not gold-bearing, and that the valley had been formed by glacial erosion.

#### *Vincent County, Cromwell.*

*The Molyneux Gold Dredging Co.*, using two machines, bored thirty-six holes, totalling 1,803 ft., on the Athenæum Reserve, Cromwell Survey District. The machines used 6 in. casing. The drill superintendents were Messrs. R. C. Crow and R. Hall, the engineer Mr. P. R. Lake.

This company, using the same machines, bored eighteen holes, of a total depth of 1,486 ft., on the north-east bank of the Clutha River on Block VII, Leaning Rock Survey District. The boring was commenced at Muttontown Gully, and continued along the terrace towards Alexandra.

*Cromwell.—The Oroville Gold Dredging Co.* bored twenty-five holes, a total depth of 1,378 ft., on the east bank of the Clutha, north of Lowburn, on Blocks I and IV, Wakefield Survey District. Drilling was done with a machine using 5½ in. casing. G. Mellor, superintendent.

*Luggate.—The Luggate Syndicate* bored seven holes, totalling 225·5 ft., on Blocks VII and VIII, Tarras Survey District. Six inch casing and a 7½ in. cutting-shoe were used with the oil-driven No. 4 Government drill. M. Murray, superintendent.

*Manuherikia Valley, Devonshire.—Gold Development Corporation* bored nine holes, totalling 213 ft., on Block II, Run 223o, Lauder Survey District. Six inch casing was used. J. P. O'Brien, supervisor.

*Alexandra.— Mining House (N.Z.), Ltd.*, bored eleven holes to a total depth of 609 ft. on Section 4, Block 42, Alexandra Borough. Six inch casing was used. L. E. Sinclair, superintendent.

*Nevis.—Tin Investigations, Ltd.*, bored six holes, total depth 214 ft., on Run 345A, Nevis Survey District. Six inch casing and 7⅛ in. cutting-shoe used. E. R. Bremner, drill superintendent.

*Mining Trust, Manuherikia Valley, Omakau*, bored twenty-two holes, to a total depth of 372 ft., on Block II, Tiger Hill Survey District. Six inch casing used. R. M. Crozier, Superintendent.

#### *Tuapeka County.*

*Island Block, Benger Survey District.*—Further drilling was done by Tin Investments, and ninety holes, with a total depth of 4,790 ft., were drilled in this area by Mr. McDougall's Keystone type machines, Nos. 1 and 2, using 6 in. casing. E. T. Anderson, supervising engineer.

*Ettrick.—The Ettrick Prospecting Syndicate* drilled twenty-three holes, with a total depth of 1,398 ft., in parts of Blocks I and VI, Benger Survey District, between the main road and the river. The department's No. 3 Alluvial drill, with 6 in., casing was used. William Gibson, drill superintendent; George Nelson, supervising engineer.

#### *Southland County.*

*The Wendon Prospecting Syndicate* drilled nine holes, with a total depth of 743 ft., in Run 254B, Wendon Survey District, between the road and the Winding Creek. A Keystone type machine was used. G.E.D. Seale, supervising engineer.

*The Argyle Mining Syndicate* is now drilling in Block X, Waikaia Survey District, on the property of Mr. John Dennis. The department's No. 2 Steam Keystone drill (Mr. Campbell, drill superintendent), and the No. 4 Alluvial drill (Mr. Bissett, drill superintendent) have been used up to the 31st December. Drilling is still in progress.

*Waimumu Sluicing Co.* drilled a hole to a depth of 215¾ ft., in part Section 4A, Block VIII, Waimumu Hundred, using McDougall's Keystone type drill, with 6 in. casing. F. Birse, drill superintendent.

*Tin Investments* drilled fifteen holes, to a total depth of 273 ft., on Mr. J. O'Donnell's freehold property, in Block III, Mataura, and Block X, Lindhurst Hundred, using one of McDougall's drilling-machines. E. Anderson, supervising engineer.

*Investigations Ltd.* drilled two holes, to a total depth of 211 ft., in Section 20, Block XI, Chatton Survey District, on Chand's and Whiteley's freehold, using one of McDougall's machines. G. Bissett, drill superintendent. They also drilled eight holes, to a depth of 304 ft., in Run 420, Campbelltown Hundred, Awarua Bay, using one of McDougall's machines, with 6 in. casing. D. K. Kerr, drill superintendent; and two holes, to a total depth of 306 ft., in Block XIV, Chatton Survey District, in Patterson's freehold, Waikaka Valley, using one of McDougall's machines with 6 in. casing. G. Ruston, drill superintendent.

Ferens and Jeavons drilled thirty-one holes, with a total depth of 620 ft., on the Goldfields Reserve, Waipapa Beach, Otara District. Six inch casing was used. W. A. Bowden, drill superintendent. This party also drilled seventeen holes, to a total depth of 309 ft., in Section 16, Block II, Otara Survey District, in the Ordinary Prospecting License held in the name of Ericcson and Ferens. A hand-boring plant was used with 4 in. casing. M. McGrath, drill superintendent.

#### *Wallace County.*

*Investigations Ltd.* drilled forty holes, to a total depth of 1,929 ft. 5 in., in Sections 1 and 22, Block V, Longwood Survey District. W. Tyree and H. W. Clifford, drill superintendents. They also drilled eleven holes, to a total depth of 439 ft., in the Orepuki District, adjoining the area bored at Pahia. Six inch casing was used. G. Bissett, drill superintendent. They also drilled seven holes, to a total depth of 308 ft., in the Waimeamea District, in the Waihoaka. Six inch casing was used. G. Bissett, drill superintendent. Also six holes, to a total depth of 330 ft., in the Te Temutu area, west of Orepuki. Six inch casing was used. G. Bissett, drill superintendent; and eight holes, to a total depth of 356 ft., in the Wakapatu area between the railway-line and the sea-coast. Three inch casing was used. T. Gallagher, drill superintendent.

*Round Hill Gold-mining Co.*—Twenty-nine holes were drilled, to a total depth of 1,678½ ft., in Blocks VII and X, Longwood Survey District.

*The Burma Malay Tin, Ltd.*, acquired an option from the Bendigo Goldlight Dredging Co., over Ordinary Prospecting Licenses in Bendigo Creek, Clutha River, and bored four holes thereon, a total depth of 324 ft. Six inch casing was used, and a machine owned by J. M. Stewart. E. T. Anderson, supervisor.

### General Remarks.

The year has been uneventful from a mining point of view. Claims have proved unpayable and closed down, and new ventures have sprung up and almost balanced the number that are producing gold and employing labour from month to month.

Intensive prospecting, chiefly by boring, has taken place on many areas. British mining companies are spending freely in the search for dredging claims, their prospecting being thorough and supervised by experienced engineers.

Lode-mining has not made much progress, in spite of the fact that gold is at a high price. Practically every quartz and scheelite mine in Otago and Southland that formerly produced is held under either a claim or prospecting license, but the holders, generally speaking, are endeavouring to float companies to provide capital. The decrease in the quantity of gold won by quartz-mining amounted to 39 oz. 17 dwt. 12 gr., with an increase in value of £192 2s. 8d. The number of men employed increased by five.

Alluvial mining attracts most attention. Subsidized men and public companies have devoted much time and money to the production of gold from river-beds and gravel terraces. The claims on the Kawarau, Shotover, and Arrow Rivers have been hampered by numerous floods. The increase in the quantity of gold won by alluvial mining amounted to 1,750 oz., with an increase in value of £28,962. The number of men employed decreased by 453.

Dredging showed more activity, and gold-production from this source will materially increase in the near future. The decrease in the quantity of gold won by dredging amounted to 663 oz., with a decrease in value of £4,240. The number of men increased by fourteen.

The subsidized county mining schemes in the Tuapeka, Lake, Maniototo, and Vincent Counties, together with the 8A Subsidy Scheme in the rest of the Otago and Southland Districts, have continued to operate during the year. No discoveries of importance have been recorded. However, returns are being won and records are being obtained from the many areas being prospected and tested.

Special parties of experienced prospectors are now prospecting in the various reefing areas. One treatment plant has been installed in Conroys Gully, near Alexandra, and is being used to crush the ore won by the parties operating in the neighbourhood.

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# ANNEXURE B.

## STONE QUARRIES.

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

(James Newton.)

I have the honour to present my report for the year ending 31st December, 1934, covering quarries worked under the Stone Quarries Act, 1910, with statistics regarding the output of various classes of stone, men employed, values, &c.

### Working of Quarries.

During the year the previous policy with regard to the method of working has been adhered to. A large number of quarries producing stone for roadwork are operating in greywacke with fairly high faces. Owing to the highly shattered nature of this rock, and the prevalence of "backs" running at all angles it is in many cases difficult to work to advantage by a benching system. I have therefore found it preferable in most of these cases, from a point of view of safety, to insist more on a thorough inspection of the face, prompt removal of all loose or hanging stone, and the maintenance of a reasonable backward slope of the face. This, combined with the removal of overburden as required, has given safe working-conditions in most cases.

In quarries working other classes of rock, the danger of the high faces has, in some instances been minimized by a system of firing large shots, using tunnels, or large bores behind the face. These methods, combined with careful trimming after the shots, besides increasing safety, considerably reduce the cost of stone at the quarry, and, where the output is large, should be more generally used.

Generally, the quarry-managers endeavour to work their quarries in such a way that due regard is paid to the safe winning of the stone, and in very few cases have I found it necessary to point out defects in this respect.

### Output of Stone.

The total output of stone for the year was 749,685 tons, valued at £131,614. This shows an increase of 179,259 tons when compared with the 1933 output, with a value increase of £36,132. Stone for roadwork accounted for the greater part of this larger output, production rising from 394,891 tons in 1933 to 521,355 tons in 1934, an increase of 126,464 tons. Agricultural limestone showed an increase of 29,967 tons, building stone 2,904 tons, limestone for cement 19,680 tons, and a soft class of stone used in brickmaking 244 tons. This large increase, over 31 per cent., in the amount of stone won during the period, evidently reflects better general conditions in farming and in the building trade; the amount of stone drawn from county and privately-owned quarries for roading-purposes during the year shows an increase of 32 per cent.

### Men employed.

A small increase in the number of men employed is shown over the previous year, the numbers being 1,241 and 1,261 for 1933 and 1934 respectively. The number of quarries working increased by one.

The following serious accidents occurred during the year:—

Thomas McNamara sustained a fractured pelvis owing to a fall at Kallils' Quarry, Ohura, on 31st January, 1934.

On the 10th February, 1934, a fatality occurred at Paekakariki Quarry, Wellington. Thomas Gollop, quarryman, was engaged in barring stone from a narrow bench approximately 12 ft. from the top of the quarry-face, when a small amount of rubble slipped from the face above him. While trying to avoid this he stumbled and fell off the ledge down the quarry-face, receiving fatal injuries. Though his safety rope was in use and securely fastened above, he had evidently not made it secure around his body.

On the 1st March, 1934, a labourer working at the Superfine Lime Co.'s Quarry, Hangatiki, lost the second finger of his left hand, due to a boulder, weighing about 1 ton, shifting just enough to crush his finger against a spawl he was picking up.

On the 14th March, 1934, an accident occurred at the crushing plant connected with Smeed's Quarry, Pukekawa, Alfred Charles Baigent being suffocated while unloading a hopper of stone-dust. Baigent evidently stepped into the hopper to run the dust, when the surface of the heap gave way and he was covered and suffocated before he could be extricated.

On the 6th April, 1934, B. Bentley had two ribs fractured at the Agricultural Lime Co.'s Quarry, Te Kuiti. Bentley was barring down at the bottom of the face when a small quantity of stone, about 12 ft. up became dislodged, a portion striking him and causing the injury.

# ANNEXURE C.

## MINING STATISTICS.

### Table 1.

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE NORTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1934.

| Locality and Name of Mine. | Average Number of Men employed. | Quartz crushed. | Bullion obtained. | | Value. |
|---|---|---|---|---|---|
| | | | Amalgamation. | Cyanidation. | |
| **WAIHI BOROUGH.** | | | | | |
| Waihi— | | Tons cwt. qr. lb. | Oz. dwt. gr. | Oz. dwt. gr. | £ s. d. |
| Waihi Gold-mining Co., Ltd. .. | 620 | 185,210 0 0 0 | .. | 400,460 0 0 | 427,105 0 0 |
| Waihi Grand Junction Gold Co. | 40 | 19,568 0 0 0 | .. | 22,504 0 0 | 41,953 0 0 |
| | 660 | 204,778 0 0 0 | .. | 422,964 0 0 | 469,058 0 0 |
| **OHINEMURI COUNTY.** | | | | | |
| Karangahake— | | | | | |
| Talisman-Dubbo .. .. | 30 | 2,094 0 0 0 | .. | 15,820 5 0 | 15,596 1 10 |
| Crown .. .. .. | 6 | 52 0 0 0 | .. | 409 8 0 | 559 11 6 |
| New Talisman .. .. | 5 | 30 0 0 0 | .. | 149 17 0 | 196 18 1 |
| Waiawa .. .. .. | 3 | 8 0 0 0 | .. | 20 4 0 | 64 1 1 |
| New Talisman Extended .. | 3 | 131 0 0 0 | .. | 396 5 0 | 877 14 0 |
| Tawa .. .. .. | 2 | 195 0 0 0 | .. | 266 19 0 | 829 15 6 |
| The Brothers .. .. | 2 | 190 0 0 0 | .. | 270 9 0 | 906 9 6 |
| Star .. .. .. | 2 | 5 11 0 0 | .. | 72 15 0 | 75 5 7 |
| Waitawheta .. .. .. | 1 | 43 0 0 0 | 11 11 0 | .. | 45 6 3 |
| Talisman Battery Site .. | 2 | 254 7 0 0 | .. | 744 6 0 | 909 12 10 |
| Waitekauri— | | | | | |
| Waiwai .. .. .. | 2 | 39 0 0 0 | 77 15 0 | .. | 283 10 8 |
| Scotia .. .. .. | 2 | 23 0 0 0 | .. | 16 3 0 | 55 6 11 |
| Maoriland .. .. .. | 1 | 3 16 0 0 | .. | 13 9 0 | 21 0 9 |
| Owharoa— | | | | | |
| Golden Dawn .. .. .. | 116 | 6,720 0 0 0 | .. | 12,020 13 0 | 40,282 13 10 |
| Prospectors .. .. .. | 6 | 70 0 0 0 | .. | 169 10 0 | 267 3 0 |
| | 183 | 9,858 14 0 0 | 89 6 0 | 30,370 3 0 | 60,970 11 4 |
| **THAMES COUNTY.** | | | | | |
| Neavesville— | | | | | |
| Golden Belt .. .. .. | 4 | .. | 10 0 0 | .. | 40 0 0 |
| Thames— | | | | | |
| Gold Seal .. .. .. | 1 | .. | 8 11 0 | .. | 42 8 4 |
| Prospectors .. .. .. | 39 | 82 0 0 0 | 260 1 0 | .. | 1,384 3 3 |
| | 44 | 82 0 0 0 | 278 12 0 | .. | 1,466 11 7 |
| **THAMES BOROUGH.** | | | | | |
| Thames— | | | | | |
| Golconda .. .. .. | 5 | 49 0 0 6 | 20 12 0 | .. | 105 1 1 |
| Evening Star and Lucky Shot .. | 26 | 158 0 0 0 | 412 2 0 | .. | 2,055 15 4 |
| True Blue .. .. .. | 2 | 5 0 0 0 | 8 8 0 | .. | 43 11 9 |
| Cambria .. .. .. | 3 | 2 10 0 0 | 0 18 0 | .. | 4 11 4 |
| New Waiotahi .. .. | 3 | 95 0 0 0 | 67 5 0 | .. | 324 6 1 |
| Kuranui Golden Hills .. | 2 | 2 10 0 0 | 1 2 0 | .. | 5 13 8 |
| Hopeful .. .. .. | 2 | 25 0 0 0 | 47 7 0 | .. | 238 8 1 |
| Victoria .. .. .. | 5 | 45 0 0 0 | 28 17 0 | .. | 146 17 1 |
| Anniversary .. .. | 6 | 55 0 0 0 | 104 19 0 | .. | 544 12 10 |
| Blue Jumbo .. .. | 2 | 8 0 0 0 | 7 12 0 | .. | 36 9 7 |
| Christmas Eve .. .. | 4 | 40 0 0 0 | 58 18 0 | .. | 319 13 3 |
| Occidental .. .. .. | 2 | 2 10 0 0 | 2 15 0 | .. | 15 5 1 |
| Star .. .. .. | 4 | 15 0 0 0 | 25 0 0 | .. | 124 7 8 |
| Golden Hills .. .. | 1 | 2 10 0 0 | 2 17 0 | .. | 15 8 5 |
| Siam .. .. .. | 2 | .. | 1 4 0 | .. | 5 7 7 |
| Tarata .. .. .. | 6 | 12 0 0 0 | 1 3 0 | .. | 6 15 10 |
| Souvenir .. .. .. | 1 | .. | 1 3 0 | .. | 5 11 8 |
| Success .. .. .. | 2 | 7 10 0 0 | 21 16 0 | .. | 94 14 0 |
| Virginia Extended .. .. | 4 | 5 0 0 0 | .. | 26 2 0 | 37 3 3 |
| Ida .. .. .. | 2 | 2 10 0 0 | 4 16 0 | .. | 23 15 11 |
| Commissioner .. .. | .. | .. | 2 9 0 | .. | 14 2 9 |
| Prospectors .. .. .. | 32 | 67 0 0 0 | 90 7 0 | .. | 417 7 7 |
| School of Mines .. .. | .. | .. | 14 0 0 | .. | 55 16 6 |
| Collections .. .. .. | .. | .. | 42 17 0 | .. | 212 14 6 |
| | 116 | 599 0 0 6 | 968 7 0 | 26 2 0 | 4,853 10 10 |

**Table 1—*continued.***

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE NORTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1934—*continued.*

| Locality and Name of Mine. | Average Number of Men employed. | Quartz crushed. | Bullion obtained. | | Value. |
|---|---|---|---|---|---|
| | | | Amalgamation. | Cyanidation. | |
| **COROMANDEL COUNTY.** | | | | | |
| | | Tons cwt. qr. lb. | Oz. dwt. gr. | Oz. dwt. gr. | £ s. d. |
| Coromandel— | | | | | |
| Hauraki .. .. .. | 17 | 36 7 0 0 | 44 0 0 | .. | 235 13 4 |
| Nil Desperandum .. .. | 4 | .. | 4 11 0 | .. | 34 14 7 |
| New Albion .. .. .. | 2 | 16 0 0 0 | 12 9 0 | .. | 72 6 11 |
| Waikoromiko— | | | | | |
| Lone Hand .. .. .. | 2 | 11 0 0 0 | 32 13 0 | .. | 177 11 4 |
| Northcote .. .. .. | 3 | 17 0 1 24 | 32 14 0 | .. | 178 1 4 |
| Pukewhau— | | | | | |
| Gladys .. .. .. | 6 | 77 13 3 0 | 209 12 0 | .. | 1,201 3 8 |
| Emily .. .. .. | 2 | 1 0 0 0 | 3 11 0 | .. | 19 12 5 |
| Kapowai— | | | | | |
| Kapowai .. .. .. | 2 | 130 0 0 0 | 37 15 0 | .. | 124 17 3 |
| Mahakirau— | | | | | |
| Day Dawn .. .. .. | 3 | 124 0 0 0 | 21 18 0 | .. | 130 6 2 |
| Twa Macs .. .. .. | 2 | .. | 1 4 0 | .. | 5 0 7 |
| Tokatea— | | | | | |
| Royal Oak .. .. .. | 4 | 0 5 0 20 | 93 7 0 | .. | 494 15 9 |
| Success .. .. .. | 2 | 5 5 0 0 | 9 13 0 | .. | 52 18 9 |
| Speedmint .. .. .. | 2 | 0 0 2 0 | 19 18 0 | .. | 106 0 10 |
| Solomon's Reefs .. .. | 2 | .. | 1 16 0 | .. | 9 6 6 |
| Flying Cloud .. .. | 3 | 0 16 0 0 | 4 4 0 | .. | 22 13 11 |
| Saddle .. .. .. | 2 | 0 1 1 10 | 8 14 0 | .. | 50 0 0 |
| Waitekuri— | | | | | |
| Waitekuri .. .. .. | 4 | 0 2 0 0 | 1 12 0 | .. | 10 11 10 |
| Lillis .. .. .. | 3 | 2 0 0 0 | 2 14 0 | .. | 17 9 4 |
| Boat Harbour— | | | | | |
| Heather Bell .. .. | 4 | 30 0 0 0 | 15 0 0 | .. | 82 8 4 |
| Colville— | | | | | |
| Constance .. .. .. | 1 | 4 0 0 0 | 1 0 0 | .. | 4 0 0 |
| Golden Lily .. .. .. | 5 | .. | 1 10 0 | .. | 8 1 3 |
| Tiki— | | | | | |
| Progress .. .. .. | 2 | 2 0 2 0 | 18 19 0 | .. | 90 16 3 |
| Solomon .. .. .. | .. | .. | 1 3 0 | .. | 6 7 9 |
| Prospectors .. .. .. | 31 | 6 4 2 10 | 81 7 0 | .. | 422 5 7 |
| | 108 | 463 16 1 8 | 661 4 0 | .. | 3,557 3 8 |
| **SUMMARY.** | | | | | |
| Waihi Borough .. .. | 660 | 204,778 0 0 0 | .. | 422,964 0 0 | 469,058 0 0 |
| Ohinemuri County .. .. | 183 | 9,858 14 0 0 | 89 6 0 | 30,370 3 0 | 60,970 11 4 |
| Thames County .. .. | 116 | 599 0 0 6 | 968 7 0 | 26 2 0 | 4,853 10 10 |
| Thames Borough .. .. | 44 | 82 0 0 0 | 278 12 0 | .. | 1,466 11 7 |
| Coromandel County .. .. | 108 | 463 16 1 8 | 661 4 0 | .. | 3,557 3 8 |
| Totals, 1934 .. .. | 1,111 | 215,781 10 1 14 | 1,997 9 0 | 453,360 5 0 | 539,905 17 5 |
| Totals, 1933 .. .. | 970 | 240,851 9 3 21 | 1,476 4 0 | 504,369 17 18 | 514,452 12 11 |

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE WEST COAST INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1934.

| Locality and Name of Mine. | Average Number of Men employed. | Quartz crushed. | Bullion obtained by | | Value. |
|---|---|---|---|---|---|
| | | | Amalgamation. | Cyanidation and Concentration. | |
| **INANGAHUA COUNTY.** | | | | | |
| | | Tons cwt. qr. | Oz. dwt. gr. | Oz. dwt. gr. | £ s. d. |
| Waiuta— | | | | | |
| Blackwater Mine .. .. | 216 | 31,862 0 0 | 12,865 8 0 | 3,238 0 0 | 130,471 6 0 |
| Alexander River— | | | | | |
| Alexander .. .. .. | 35 | 2,164 0 0 | 1,241 18 0 | 564 17 0 | 15,127 5 2 |
| Big River— | | | | | |
| Big River .. .. .. | 20 | 1,009 0 0 | 558 17 0 | 131 14 0 | 5,715 9 3 |
| **BULLER COUNTY.** | | | | | |
| Stoney Creek— | | | | | |
| Britannia .. .. .. | 5 | 327 0 0 | 58 16 0 | 9 11 12 | 428 18 3 |
| **ROSS BOROUGH.** | | | | | |
| Ross— | | | | | |
| Mt. Greenland .. .. | 6 | 462 0 0 | 431 10 0 | .. | 2,419 7 6 |
| Totals, 1934 .. | 282 | 35,824 0 0 | 15,156 9 0 | 3,944 2 12 | 154,162 6 2 |
| Totals, 1933 .. | 323 | 52,193 0 0 | 21,737 3 9 | 6,426 7 12 | 202,226 18 8 |

**Table 1**—*continued.*

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE SOUTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1934.

| Locality and Name of Mine. | Average Number of Men employed. | Quartz crushed. | Bullion obtained by | | Value. |
|---|---|---|---|---|---|
| | | | Amalgamation. | Concentration. | |
| **LAKE COUNTY.** | | | | | |
| Skippers— | | Tons cwt. qr. | Oz. dwt. gr. | Oz. dwt. gr. | £ s. d. |
| White Crystal .. .. | 4 | 145 0 0 | 134 4 10 | .. | 595 19 11 |
| **WAIHEMO COUNTY.** | | | | | |
| Macrae's Flat— | | | | | |
| Ounce .. .. .. | 17 | 285 0 0 | 28 10 0 | .. | 207 10 0 |
| Callery and Bradbrook .. .. | 4 | 902 0 0 | 197 13 18 | .. | 1,423 10 4 |
| Tate's Reef .. .. .. | 4 | 161 0 0 | 98 2 12 | .. | 694 5 7 |
| **MANIOTOTO COUNTY.** | | | | | |
| Oturehua— | | | | | |
| Golden Progress .. .. | 8 | 250 0 0 | 286 17 12 | 26 0 0 | 2,283 6 6 |
| Totals, 1934 .. | 37 | 1,743 0 0 | 745 8 4 | 26 0 0 | 5,204 12 4 |
| Totals, 1933 .. | 32 | 1,575 0 0 | 717 14 22 | 93 10 18 | 5,012 9 8 |

SUMMARY OF INSPECTION DISTRICTS.

| Inspection District. | Average Number of Men employed. | Quartz crushed. | Bullion obtained. | Value. |
|---|---|---|---|---|
| | | Statute Tons. | Oz. dwt. gr. | £ s. d. |
| Northern (North Island) .. .. | 1,111 | 215,781 | 455,357 14 0 | 539,905 17 5 |
| West Coast (South Island) .. .. | 282 | 35,824 | 19,100 11 12 | 154,162 6 2 |
| Southern (Otago and Southland) .. .. | 37 | 1,743 | 771 8 4 | 5,204 12 4 |
| Totals, 1934 .. .. | 1,430 | 253,348 | 475,229 13 16 | 699,272 15 11 |
| Totals, 1933 .. .. | 1,325 | 294,619 | 534,820 18 7 | 721,692 1 3 |

In addition, 222 persons were employed at unproductive quartz-mining.

# Table 2.

## Statement of Affairs of Mining Companies.

| Name of Company. | Date of Registration. | Subscribed Capital. | Amount of Capital actually paid up in Cash. | Value of Scrip given to Shareholders on which no Cash paid. | Number of Shares allotted. | Amount paid per Share. | Arrears of Calls. | Number of Shareholders at present. | Number of Men employed. | Quantity and Value of Gold and Silver produced since Registration. | | Total Expenditure since Registration. | Total Amount of Dividends paid. | Amount of Debts owing by Company. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Quantity. | Value. | | | |
| **AUCKLAND DISTRICT.** | | | | | | | | | | | | | | |
| | | £ | £ | £ | | | £ | | | Oz. | £ | £ | £ | £ |
| Ahumata Gold and Silver Mining Co., Ltd. .. | 16/9/32 | 4,500 | 1,700 | 2,600 | 4,500 | £1 | 200 | 25 | Nil | Nil | Nil | 2,300 | Nil | 207 |
| Chapman's Find Gold-mining Co., Ltd. .. .. | 11/12/33 | 4,500 | 2,500 | .. | 4,500 | £1 | Nil | 65 | 9 | 199 | .. | 1,322 | Nil | .. |
| Mount Tokatea Mineral Fertilizer Co., Ltd. .. | 22/1/31 | 66,381 | 6,154 | Nil | 66,381 | £1 | 189 | 215 | Nil | Nil | Nil | 6,637 | Nil | Nil |
| Kurunui Golden Hills, Ltd. .. .. .. | 10/11/32 | 7,474 | 7,474 | Nil | 29,898 | 5/- | 4 | 61 | Nil | .. | 926 | 8,097 | Nil | .. |
| Dawn of Hope Gold-mines (No Liability) .. .. | 26/11/32 | 12,999 | 2,542 | .. | 51,999 | Various | 236 | 110 | 5 | 93 | 501 | 2,759 | Nil | Nil |
| Gold Prospectors, Ltd. .. .. .. .. | 20/11/33 | 1,000 | 1,000 | Nil | 1,000 | £1 | Nil | 3 | Nil | Nil | Nil | 1,000 | Nil | Nil |
| Sylvia Mines Development, Ltd. .. .. .. | 31/5/34 | 1,965 | 658 | 1,000 | 1,965 | Various | Nil | 21 | 4 | Nil | Nil | 650 | Nil | Nil |
| Golden Crown Gold-mining Co. (No Liability) .. | 12/10/32 | 15,000 | 6,875 | Nil | 150,000 | 6d. and 2/- | Nil | 138 | 18 | Nil | Nil | 5,130 | Nil | Nil |
| Opitonui Developments, Ltd. .. .. .. | 11/6/33 | 5,000 | .. | 2,000 | 5,000 | Various | 312 | 64 | Nil | Nil | Nil | 1,599 | Nil | Nil |
| Long Trail Gold-mining Co., Ltd. .. .. | 30/6/32 | 15,237 | 4,310 | 10,850 | 152,376 | 2/- | Nil | 241 | Nil | 28 | 162 | 3,049 | Nil | 3,109 |
| Caledonian (1934) Ltd. .. .. .. .. | 23/11/34 | 1,866 | 1,389 | 450 | 37,325 | 1/- | 26 | 87 | 5 | Nil | Nil | 1,001 | Nil | Nil |
| Hauraki Mines Consolidated, Ltd. .. .. .. | 28/11/25 | 87,354 | 55,808 | 28,750 | 349,419 | Various | Nil | 1,101 | 1 | 353 | 1,547 | 44,776 | Nil | 539 |
| Saddle Gold-mines, Ltd. .. .. .. | 26/3/34 | 25,500 | 1,120 | 24,380 | 510,000 | 1/- | Nil | 136 | Nil | 8 | 45 | 936 | Nil | Nil |
| Golconda Mines, Ltd. .. .. .. .. | 12/5/32 | 7,992 | 7,031 | 3,197 | 223,791 | 11d. and 1/- | 300 | 219 | 4 | 88 | 429 | 7,275 | Nil | 541 |
| Victoria Gold-mining Co., Ltd. .. .. .. | 15/5/34 | 5,000 | 2,500 | 3,000 | 80,000 | 1/- | Nil | 125 | 4 | Nil | Nil | 2,406 | Nil | Nil |
| Boulder Reefs, Ltd. .. .. .. .. | 5/9/34 | 1,000 | 412 | 500 | 1,000 | Various | 87 | 10 | 1 | Nil | Nil | 32 | Nil | Nil |
| Waiau Flats Development, Ltd. .. .. .. | 30/1/34 | 1,088 | 648 | 440 | 1,088 | £1 | 8 | 101 | Nil | Nil | Nil | 562 | Nil | 58 |
| Three Brothers Quartz Claim, Ltd. .. .. | 8/10/30 | 2,000 | 1,000 | 1,000 | 80 | £25 | 14 | 25 | Nil | Nil | Nil | 1,119 | Nil | 6 |
| Kapowai Amalgamated Gold-mines, Ltd. .. .. | 3/5/32 | 7,967 | 1,967 | 6,000 | 106,236 | 1/6 | Nil | 55 | 2 | 61 | 231 | 2,379 | Nil | 50 |
| Tasman United Mines, Ltd. .. .. .. | 2/6/33 | 8,569 | 2,069 | 6,500 | 171,380 | 1/- | Nil | 30 | Nil | Nil | Nil | 2,294 | Nil | 70 |
| Rangihau Mines, Ltd. .. .. .. .. | 31/7/34 | 1,845 | 600 | 1,245 | 36,900 | 1/- | Nil | 15 | 2 | 12 | 37 | 268 | Nil | 79 |
| Metals Trust, Ltd. .. .. .. .. | 5/5/33 | 1,809 | 616 | Nil | 7,237 | Various | 24 | 30 | 1 | Nil | Nil | 524 | Nil | Nil |
| Golden Dawn Gold-mines, Ltd. .. .. .. | 20/11/29 | 20,000 | 16,037 | 3,125 | 80,000 | 5/- and 3/- | Nil | 289 | 128 | .. | 104,603 | 124,000 | Nil | 3,401 |
| Talisman Dubbo Gold-mines, Ltd. .. .. | 31/10/29 | 9,588 | 9,462 | 4,800 | 38,353 | 5/- and 4/6 | 22 | 94 | 31 | .. | 17,824 | 23,321 | 3,049 | 359 |
| Thames New Shotover Gold-mining Co., Ltd. .. | 23/11/34 | 20,000 | Nil | 20,000 | 20,000 | £1 | Nil | 10 | Nil | Nil | Nil | 98 | Nil | Nil |
| Coromandel Gold-mines, Ltd. .. .. .. | 7/6/33 | 13,415 | 4,905 | 8,500 | 134,150 | 2/- | 10 | 185 | 4 | Nil | Nil | 3,340 | Nil | 26 |
| Guineagold Ltd. .. .. .. .. | 27/8/34 | 3,500 | 1,100 | 2,400 | 70,000 | 1/- | Nil | 34 | Nil | Nil | Nil | .. | Nil | 9 |
| Golconda Holdings, Ltd. .. .. .. | 6/6/33 | 7,000 | 2,500 | 2,000 | 140,000 | 1/- | Nil | 112 | Nil | Nil | Nil | .. | 1,050 | 45 |
| Mining Trust, Ltd. .. .. .. .. | 16/12/33 | 16,190 | 1,190 | 15,000 | †1,569 | £10 | Nil | 35 | Various | Nil | Nil | .. | Nil | 6 |
| | | | | | ‡ 500 | £1 | | | | | | | | |
| Minerals Concentrator Co., Ltd. .. .. .. | 27/5/31 | 5,555 | 2,480 | 3,075 | 5,555 | £1 | Nil | 22 | 2 | Nil | Nil | 2,612 | Nil | 1,009 |
| Waiorongomai Gold-mines, Ltd. .. .. .. | 8/11/33 | 3,750 | 1,500 | 3,937 | 61,500 | 1/- and 2/6 | Nil | 23 | 10 | Nil | Nil | 1,463 | Nil | Nil |
| **NELSON DISTRICT (INCLUDING WEST COAST).** | | | | | | | | | | | | | | |
| Lawson's Flat Gold-sluicing Co., Ltd. .. .. | 4/2/33 | 17,143 | 14,143 | 3,000 | 342,875 | 1/- | Nil | 253 | 13 | 1,352 | 9,501 | 27,277 | Nil | 738 |
| Dredging Developments, Ltd. .. .. .. | 14/11/34 | 1,500 | 656 | .. | 30,000 | 6d. and 3d. | 93 | 39 | 7 | Nil | Nil | 280 | Nil | 40 |
| Mahakipawa Goldfields, Ltd. .. .. .. | *12/10/23 | 23,914 | 33,362 | 15,603 | 856,089 | 1/- | Nil | 1,028 | 31 | 7,402 | 44,954 | 89,257 | Nil | 736 |
| Alexander Mines, Ltd. .. .. .. .. | 9/3/26 | 75,000 | 34,500 | 29,000 | 75,000 | 15/- | 190 | 342 | .. | 23,663 | 131,263 | 131,489 | 33,750 | 5,738 |
| Big River Gold-mines, Ltd. .. .. .. | 29/9/29 | 30,000 | 28,234 | .. | 593,762 | 1/- | 1,454 | 565 | 21 | 1,647 | 10,634 | 24,898 | Nil | Nil |
| Waikakaho Victory Gold-mining Co., Ltd. .. .. | 23/1/32 | 2,350 | 1,524 | 500 | 9,400 | 5/-, 4/-, 3/-, 2/- | 41 | 125 | Nil | Nil | Nil | 1,786 | Nil | 326 |
| Murray Creek Gold-mining Co., Ltd. .. .. | 12/7/32 | 30,000 | 10,865 | 17,500 | 29,355 | £1 | 275 | 135 | 8 | Nil | Nil | 11,761 | Nil | 603 |
| Britannia Gold Reefs, Ltd. .. .. .. | —/9/32 | 900 | 700 | 200 | 900 | £1 | 69 | 8 | 5 | 264 | .. | 2,707 | 135 | Nil |
| Western Mines, Ltd. (In Liquidation) .. .. | 19/6/33 | 1,115 | 515 | 600 | 4,463 | 5/- | Nil | 70 | Nil | Nil | Nil | 1,155 | Nil | 65 |
| Mining Research Co., Ltd. .. .. .. | 25/7/33 | 6,532 | 1,532 | 5,000 | 130,650 | 1/- | Nil | 86 | Nil | Nil | Nil | 2,609 | 3,261 | 1,856 |

* Capital reduced 16/12/33 by order of Supreme Court, Christchurch. † Ordinary shares. ‡ Deferred shares.

## Table 2—*continued.*

STATEMENT OF AFFAIRS OF MINING COMPANIES—*continued.*

| Name of Company. | Date of Registration. | Subscribed Capital. | Amount of Capital actually paid up in Cash. | Value of Scrip given to Shareholders on which no Cash paid. | Number of Shares allotted. | Amount paid per Share. | Arrears of Calls. | Number of Shareholders at present. | Number of Men employed. | Quantity and Value of Gold and Silver produced since Registration. | | Total Expenditure since Registration. | Total Amount of Dividends paid. | Amount of Debts owing by Company. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Quantity. | Value. | | | |
| NELSON DISTRICT (INCLUDING WEST COAST)—*continued.* | | | | | | | | | | | | | | |
| Barrytown Gold-dredging, Ltd. .. .. .. | 21/9/34 | 128,750 | 66,250 | Nil | 200,000 | 1/- and 10/- | Nil | 386 | Nil | Nil | Nil | 258 | Nil | Nil |
| Scorpion Gold, Ltd. .. .. .. .. | 28/9/34 | 10,000 | 3,993 | Nil | 100,000 | Various | Nil | 122 | 15 | Nil | Nil | 2,595 | Nil | Nil |
| New River Alluvials, Ltd. .. .. .. | 6/8/32 | 3,000 | 2,300 | 700 | 300 | £10 | Nil | 41 | Nil | Nil | Nil | 2,077 | Nil | Nil |
| New Big River Gold-mining Co., Ltd. .. .. | 19/8/07 | 2,400 | 2,400 | Nil | 24,000 | 2/- | Nil | 75 | Nil | 93,687 | 375,742 | 299,440 | 112,800 | Nil |
| New River Gold-dredging Co., Ltd. .. .. | 17/11/34 | 20,000 | 4,525 | 5,500 | 400,000 | Various | 911 | 181 | Nil | Nil | Nil | 3,254 | Nil | 2,000 |
| White's Electric Gold-dredging Co. (Barrytown), Ltd. | 13/12/34 | 16,671 | 3,111 | 7,000 | 333,405 | Various | 3,140 | 171 | Nil | Nil | Nil | 2,909 | Nil | 1,080 |
| Argo Gold-dredging Co., Ltd. .. .. .. | 16/7/34 | 20,000 | 9,815 | 5,000 | 400,000 | Various | 1,434 | 189 | .. | Nil | Nil | 4,428 | Nil | Nil |
| Murchison Development Syndicate, Ltd. (In Liquidation) | 13/3/32 | 2,500 | 625 | 1,250 | 2,500 | 10/- | Nil | 24 | Nil | Nil | Nil | 625 | Nil | Nil |
| Teramakau Development Syndicate, Ltd. .. .. | 29/3/34 | 5,000 | 2,500 | 2,500 | 5,000 | 10/- | Nil | 11 | Nil | Nil | Nil | 364 | Nil | Nil |
| Moonlight Nelson Creek Sluicing Co., Ltd. .. .. | 1/8/33 | 16,000 | 14,490 | 1,500 | 320,000 | 1/- | 10 | 389 | 6 | 82 | 562 | 16,400 | Nil | 2,404 |
| Hatter's Flat Mining Co., Ltd. .. .. .. | 1/9/33 | 6,000 | 4,865 | 1,100 | 120,000 | 1/- | 35 | 167 | Nil | Nil | Nil | 4,864 | Nil | 58 |
| Glenroy Gold, Ltd. .. .. .. .. | 19/10/33 | 12,000 | 12,000 | 4,000 | 320,000 | 1/- | Nil | 225 | 16 | 134 | 967 | 16,484 | Nil | 441 |
| Cumberland Prospecting Co., Ltd. .. .. | 21/12/34 | 3,520 | 783 | 2,500 | 3,520 | £1 and 15/- | 6 | 33 | 5 | Nil | Nil | 780 | Nil | 14 |
| Minerva Mines, Ltd. .. .. .. .. | 3/3/34 | 9,000 | 3,000 | 6,000 | 9,000 | £1 | Nil | 13 | 1 | 20 | 161 | 3,500 | Nil | 600 |
| Bell Hill Gold-sluicing Co., Ltd. .. .. .. | 16/9/30 | 11,999 | 11,979 | 3,000 | 47,996 | 5/- | 20 | 185 | 7 | 669 | 5,029 | 17,640 | Nil | 1,470 |
| Deep Lead, Ltd. .. .. .. .. | 9/3/32 | 6,000 | 5,600 | 400 | 120,000 | 1/- | Nil | 69 | 10 | 493 | 3,632 | 9,310 | 500 | 486 |
| Moonlight Goldfields Co., Ltd. .. .. .. | 21/11/33 | 29,817 | 13,621 | 12,800 | 596,350 | 1/- | 1,833 | 195 | 10 | Nil | Nil | 25,468 | Nil | 34 |
| Pacific Development Co., Ltd. .. .. .. | 17/6/31 | 50 | 50 | Nil | 50 | £1 | Nil | 2 | Nil | Nil | Nil | 930 | Nil | 880 |
| Golden Electric Dredging Co., Ltd. .. .. | 29/9/33 | 300 | Nil | Nil | 300 | Nil | Nil | 2 | Nil | Nil | Nil | Nil | Nil | Nil |
| Golden Coast Mining Co., Ltd. .. .. .. | 29/3/33 | 2,151 | 1,671 | 480 | 43,020 | 1/- | Nil | 30 | 2 | 26 | 210 | 2,341 | Nil | 252 |
| Stafford Sluicing, Ltd. .. .. .. .. | 7/11/33 | 3,515 | 2,896 | 600 | 70,300 | 1/- | Nil | 96 | 6 | 112 | 845 | 4,598 | Nil | 820 |
| Maori Gully (Kokiri) Gold-dredging Co., Ltd. .. | 27/10/33 | 22,500 | 16,500 | 6,000 | 450,000 | 1/- | Nil | 456 | Nil | Nil | Nil | 13,189 | Nil | Nil |
| Upper Ahaura Gold-dredging Co., Ltd. .. .. | 26/3/34 | 23,948 | 4,727 | 5,833 | 478,966 | 3d. | Nil | 214 | Nil | Nil | Nil | 4,637 | Nil | 2,749 |
| Orion Gold Reefs Syndicate, Ltd. .. .. | 9/11/31 | 2,700 | 1,876 | 700 | 270 | Various | Nil | 35 | 1 | Nil | Nil | 1,735 | Nil | 15 |
| Gillespie's Beach Gold-dredging Co., Ltd. .. .. | 10/2/32 | 35,000 | 29,250 | 575 | 700,000 | 1/- | Nil | 603 | 15 | 1,736 | 12,461 | 39,085 | 2,913 | 683 |
| Addison's Flat Gold-mining Co., Ltd. .. .. | 7/2/33 | 6,500 | 4,950 | 1,550 | 130,000 | 1/- | Nil | 111 | 10 | 965 | 7,034 | 8,330 | 2,795 | 45 |
| Phœnix Gold-mines, Ltd. .. .. .. | 26/9/34 | 1,200 | 1,200 | Nil | 1,200 | £1 | Nil | 12 | Nil | Nil | Nil | Nil | Nil | Nil |
| Mount David Sluicing Co., Ltd. .. .. .. | 2/9/30 | 50,000 | 30,000 | 20,000 | 200,000 | 5/- | Nil | 265 | 1 | 525 | 3,295 | 48,420 | Nil | 18,470 |
| Addison Exploration, Ltd. .. .. .. | 3/2/33 | 9,745 | 5,745 | 4,000 | 9,745 | £1 | Nil | 25 | 2 | 14 | 94 | 7,091 | Nil | Nil |
| Gold Investigations, Ltd. .. .. .. | 5/6/33 | 1,641 | 441 | 1,200 | 1,641 | £1 | Nil | 57 | Nil | Nil | Nil | 639 | Nil | 165 |
| Minerals Divining Co., Ltd. .. .. .. | 9/6/33 | 173 | 173 | Nil | 173 | £1 | Nil | 12 | Nil | Nil | Nil | 172 | Nil | 15 |
| New Zealand Mining Estates, Ltd. .. .. | 29/11/34 | 600 | 111 | Nil | 6,007 | 6d. | Nil | 9 | Nil | Nil | Nil | 80 | Nil | Nil |
| Maruia Prospecting, Ltd. .. .. .. | 8/8/32 | 2,100 | 1,485 | .. | 2,100 | £1 | 137 | 31 | Nil | 10 | 65 | 1,141 | Nil | .. |
| Coast Exploration, Ltd. .. .. .. .. | 26/4/33 | 2,500 | 2,500 | Nil | 2,500 | £1 | Nil | 5 | 1 | 314 | 2,421 | 7,439 | Nil | 10 |
| Diamond's Flat Gold-mining Co., Ltd. .. .. | 29/9/34 | 6,000 | 2,000 | 2,000 | 120,000 | 6d. | Nil | 58 | Nil | Nil | Nil | Nil | Nil | Nil |
| Brian Boru Gold-dredging Co., Ltd. .. .. | 2/9/31 | 27,000 | 18,000 | 9,000 | 540,000 | 1/- | Nil | 359 | 14 | 2,516 | 19,496 | 37,223 | 1,315 | 262 |
| Moutapu Gold-mining Co., Ltd. .. .. .. | 25/11/30 | 3,584 | 1,595 | 1,989 | 71,680 | 1/- | 13 | 57 | Nil | Nil | Nil | 1,515 | Nil | Nil |
| Eureka Gold Development, Ltd. .. .. .. | 16/11/32 | 1,940 | 1,182 | 750 | 1,940 | £1 | 7 | 78 | Nil | Nil | Nil | 1,133 | Nil | Nil |
| Waitapu Gold-mining Co., Ltd. .. .. .. | 17/3/32 | 40,000 | 34,000 | 6,000 | 160,000 | 5/- | Nil | 352 | 12 | 527 | 3,943 | 39,621 | Nil | 3,522 |
| Okarito Five Mile Beach Gold-dredging Co., Ltd. .. | 29/10/28 | 35,000 | 30,500 | 4,500 | 140,000 | 5/- | Nil | 434 | 13 | 10,365 | 64,221 | 69,099 | 24,500 | 665 |
| New Zealand Minerals, Ltd. .. .. .. | 30/11/33 | 2,000 | 100 | 1,900 | 2,000 | £1 | Nil | 3 | 3 | Nil | Nil | 1,770 | Nil | 1,671 |
| Maruia Gold, Ltd. .. .. .. .. | 6/11/34 | 5,000 | Nil | 5,000 | 5,000 | £1 | Nil | 4 | Nil | Nil | Nil | Nil | Nil | Nil |
| Westport Gold, Ltd. .. .. .. .. | 29/3/34 | 10,000 | Nil | 10,000 | 10,000 | £1 | Nil | 4 | Nil | Nil | Nil | Nil | Nil | Nil |
| Steeples Gold, Ltd. .. .. .. .. | 15/1/35 | 1,000 | Nil | 1,000 | 1,000 | £1 | Nil | 3 | Nil | Nil | Nil | Nil | Nil | Nil |
| Haast Prospecting and Development Co., Ltd. .. | 18/5/32 | 500 | .. | Nil | 20 | £25 | Nil | 11 | Nil | Nil | Nil | 275 | Nil | Nil |
| Barrytown Gold-sluicing Co., Ltd. .. .. | 29/3/33 | 12,000 | 495 | Nil | 48,000 | 2/- on 5,157 | Nil | 9 | Nil | Nil | Nil | 522 | Nil | Nil |
| Mataki Gold-dredging, Ltd. .. .. .. | 15/1/32 | 33,740 | 24,340 | 9,400 | 337,409 | 2/- | Nil | 544 | 16 | 2,194 | 15,517 | 36,938 | 2,812 | 886 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Koura Mining Co., Ltd. .. .. .. .. | 29/3/34 | 1,260 | 440 | 820 | 126 | £10 | Nil | 15 | 4 | 4 | 33 | 2,012 | Nil | 1,258 |
| West Coast Gold Concessions, Ltd. .. .. | 2/5/30 | 600 | 600 | Nil | 600 | £1 | Nil | 3 | Nil | Nil | Nil | 784 | Nil | 5 |
| West Coast Gold Development Co., Ltd. .. .. | 8/4/31 | 2,482 | 2,482 | Nil | 2,482 | £1 | Nil | 59 | Nil | Nil | Nil | 1,145 | Nil | 187 |
| Waikakaho Deep Lead, Ltd. .. .. .. | 7/9/34 | 5,406 | 1,351 | Nil | 108,130 | 3d. | Nil | 67 | Nil | Nil | Nil | Nil | Nil | 890 |
| Snowy River Sluicing Co., Ltd. .. .. .. | 10/12/31 | 26,116 | 25,138 | Nil | 522,325 | 1/- | 977 | 350 | 1 | 174 | 1,217 | 2,112 | Nil | 47 |
| Worksop Extended Gold Dredging Co., Ltd. .. | 8/9/33 | 16,000 | 9,000 | 7,000 | 320,000 | 1/- | Nil | 188 | 14 | 1,245 | 7,725 | 5,197 | 3,200 | Nil |
| N.Z. Goldfields Prospecting Co., Ltd. .. .. | 15/10/34 | 1,535 | 1,415 | 2,500 | 4,035 | £1 | 120 | 26 | 5 | Nil | Nil | 1,518 | Nil | 123 |
| Golden Sands, Ltd. .. .. .. .. | 1/2/32 | 4,000 | 4,000 | 3,000 | 140,000 | 1/- | Nil | 142 | 12 | 1,416 | 9,675 | 3,828 | 2,219 | 232 |
| Charleston Sluicing Co., Ltd. .. .. .. | 8/2/33 | 8,900 | 8,900 | 1,725 | 212,500 | 1/- | Nil | 180 | 10 | 487 | 3,305 | 4,314 | Nil | 642 |
| **OTAGO DISTRICT.** | | | | | | | | | | | | | | |
| Routine Flush Gold-mining Co., Ltd. .. .. | 2/12/34 | 1,200 | 600 | 600 | 1,200 | £1 | Nil | 5 | 2 | Nil | Nil | 467 | Nil | 493 |
| Nokomai Gold-mining Co., Ltd. .. .. .. | 17/3/32 | 62,053 | 42,053 | 20,000 | 248,215 | 5/- | Nil | 470 | 20 | 1,834 | 11,194 | 54,701 | Nil | 10,884 |
| Coastal Mining Co., Ltd. .. .. .. | 2/10/33 | 2,875 | 2,875 | Nil | 2,875 | £1 | Nil | 48 | 6 | 46 | 319 | 3,846 | Nil | 618 |
| Fourteen Mile Beach Gold-mining Co., Ltd. .. | 14/10/32 | 6,250 | 5,650 | 600 | 12,500 | 10/- | Nil | 67 | 5 | 243 | 1,732 | 7,668 | Nil | 64 |
| Mountain Terrace Gold-mining Co., Ltd. .. .. | 3/5/34 | 3,000 | 2,660 | Nil | 4,000 | 12/9 | 340 | 24 | 7 | Nil | Nil | 2,466 | Nil | 38 |
| Junction Reward Gold-mining Co., Ltd. .. .. | 9/11/34 | 1,300 | 650 | .. | 26,000 | 6d. | Nil | 43 | 4 | Nil | Nil | 433 | Nil | 500 |
| Round Hill Gold-mining Co., Ltd. .. .. | 30/10/32 | 37,292 | 9,792 | 15,350 | 37,292 | £1 | Nil | 35 | 18 | 1,026 | 7,641 | 21,696 | Nil | 2,582 |
| Sailors' Gully (Waitahuna) Gold-mining Co., Ltd. .. | 3/6/96 | 8,400 | 6,200 | 2,200 | 8,400 | £1 | Nil | 26 | 9 | 14,595 | 61,780 | 49,547 | 13,295 | 202 |
| Wallace Beach Sluicing Co., Ltd. .. .. .. | 10/2/33 | 350 | 140 | 210 | 350 | £1 | Nil | 5 | Nil | Nil | Nil | 152 | Nil | 43 |
| New Gabriel's Gully Gold-mining Co., Ltd. .. | 16/9/33 | 16,800 | 5,475 | 8,800 | 67,200 | 3/6 | 52 | 58 | 7 | 273 | 1,951 | 3,880 | Nil | 62 |
| Oxenbridge Shotover Gold, Ltd. .. .. .. | 14/7/33 | 12,500 | 6,225 | 6,275 | 250,000 | 1/- | Nil | 166 | 7 | Nil | Nil | 6,900 | Nil | 1,870 |
| Upper Arrow Sluicing Co., Ltd. .. .. .. | 12/9/34 | 1,200 | 600 | .. | 24,000 | 6d. and 9d. | Nil | 18 | 4 | Nil | Nil | 549 | Nil | 293 |
| Bendigo Rise and Shine Gold-mining Co., Ltd. .. | 19/9/34 | 19,186 | 9,415 | .. | 383,730 | 6d. | Nil | 233 | 7 | Nil | Nil | 9,066 | Nil | 1,046 |
| Nevis Sluicing Claims, Ltd. .. .. .. | 28/2/34 | 5,297 | 4,100 | Nil | 105,950 | Various | 153 | 71 | 6 | 13 | 100 | 2,400 | Nil | 868 |
| Otago Gold Prospecting Co., Ltd. .. .. | 4/7/33 | 4,050 | 3,050 | .. | 4,050 | £1 | Nil | 9 | Nil | Nil | Nil | 4,125 | Nil | 907 |
| Cromwell Mines, Ltd. .. .. .. .. | 18/7/33 | 500 | 400 | .. | 1,000 | 10/- | Nil | 18 | Nil | Nil | Nil | 557 | Nil | 187 |
| New Zealand Mining Options, Ltd. .. .. | 17/4/34 | 2,147 | 954 | .. | 42,950 | 9d. | Nil | 32 | 3 | Nil | Nil | 721 | Nil | Nil |
| Golden Arrow Mining Co., Ltd. .. .. .. | 21/11/33 | 1,000 | 1,000 | 100 | 1,100 | 2/- | Nil | 33 | 7 | 454 | 3,122 | 2,896 | Nil | 205 |
| Ben Lomond Gold-mining Co., Ltd. .. .. | 22/8/33 | 1,000 | 700 | 300 | 1,000 | £1 | Nil | 15 | 3 | 2 | 13 | 1,133 | Nil | 123 |
| Clyde Gold Development, Ltd. .. .. .. | 9/5/34 | 2,000 | 1,500 | 500 | 2,000 | £1 | Nil | 7 | 6 | 8 | 61 | 1,386 | Nil | 91 |
| Vinegar Hill Hydraulic Sluicing Co., Ltd. .. .. | 23/9/00 | 6,000 | 6,000 | Nil | 6,000 | £1 | Nil | 16 | * | 5,493 | 21,099 | 23,011 | 1,050 | 216 |
| New Bendigo Gold-mining Co., Ltd. .. .. | 27/2/33 | 4,393 | 4,335 | Nil | 17,575 | 5/- | 58 | 75 | 1 | Nil | Nil | 4,144 | Nil | 601 |
| Bell-Kilgour Gold-mining Co., Ltd. (In Liquidation).. | 23/6/33 | 28,500 | 28,500 | 6,500 | 700,000 | 1/- | Nil | 667 | 14 | 1,063 | 7,617 | 33,829 | Nil | 265 |
| Tate's Gold-mining Co., Ltd. .. .. .. | 27/11/33 | 2,675 | 1,375 | .. | 2,675 | £1 | Nil | 20 | 7 | 97 | .. | 1,359 | Nil | 814 |
| Coronet Peak Prospecting Co., Ltd. .. .. | 29/3/34 | 800 | 400 | 400 | 800 | £1 | Nil | 9 | Nil | Nil | Nil | 840 | Nil | 48 |
| Branches Flat Prospecting Co., Ltd. .. .. | 28/11/32 | 900 | 700 | 200 | 900 | £1 | Nil | 17 | Nil | Nil | Nil | 434 | Nil | Nil |
| Hamilton's Development Syndicate, Ltd. .. .. | 17/9/33 | 220 | 220 | Nil | 1,200 | 4/- | 20 | 12 | Nil | Nil | Nil | 196 | Nil | 5 |
| Fifty-five Gold-mine, Ltd. .. .. .. | 27/6/34 | 4,000 | Nil | Nil | 4,000 | Nil | Nil | 5 | 7 | Nil | Nil | .. | Nil | .. |
| Ben Ledi Sluicing Co., Ltd. .. .. .. | 16/9/33 | 8,500 | 6,529 | 1,750 | 170,000 | 1/- | 220 | 159 | 5 | 27 | 185 | 531 | Nil | 389 |
| New Zealand Mining Investments, Ltd. .. .. | 12/8/31 | 7,291 | 6,756 | 500 | 145,830 | 1/- | 35 | 239 | 4 | Nil | Nil | 5,361 | Nil | 105 |
| Macrae's Gold-mining Co., Ltd. .. .. .. | 23/11/31 | 4,930 | 4,330 | 600 | 5,000 | £1 | 70 | 15 | 7 | 1,684 | 10,153 | 10,530 | 1,000 | 2,117 |
| Tallaburn Hydraulic Sluicing Co., Ltd. .. .. | 3/12/04 | 1,200 | 1,200 | Nil | 12 | £100 | Nil | 9 | Nil | 3,758 | 14,202 | 15,908 | 1,380 | Nil |
| Portobello Gold (No Liability), (In Liquidation) .. | 30/4/34 | 6,203 | 1,145 | 300 | 6,203 | 5/- and 2/- | Nil | 30 | Nil | Nil | Nil | 1,027 | Nil | 115 |
| Lammerlaw Reefs, Ltd. .. .. .. .. | 10/8/34 | 830 | 200 | 630 | 3,320 | 4/- | 75 | 13 | 5 | Nil | Nil | 88 | Nil | 15 |
| Nevis Diesel Electric Dredging Co., Ltd. .. .. | 2/6/33 | 39,000 | 39,000 | Nil | 780,000 | 1/- | Nil | 875 | 1 | 73 | 483 | 42,893 | Nil | 3,443 |
| Moonlight Extended Gold-sluicing Co., Ltd. (In Liquidation) | 20/8/30 | 11,930 | 11,766 | 3,000 | 119,300 | Various | 8 | 146 | 1 | Nil | Nil | 15,877 | Nil | 1,702 |
| Tuapeka Mouth Gold-mining Co., Ltd. .. .. | -/9/26 | 1,200 | 600 | 600 | 1,200 | £1 | Nil | 6 | Nil | 198 | 776 | 1,374 | Nil | Nil |
| Kildare Consolidated Gold-mining Co., Ltd. .. | 19/6/28 | 8,000 | 4,000 | 4,000 | 80,000 | 2/- | Nil | 173 | 10 | 2,546 | 13,275 | 18,491 | 1,000 | 246 |
| Golden Progress Quartz-mining Co., Ltd. .. .. | 26/10/28 | 14,755 | 10,805 | 3,950 | 147,550 | 2/- | Nil | 174 | 8 | 3,555 | 20,937 | 34,738 | 1,844 | 2,585 |
| St. Bathan's Channel Co. .. .. .. | 4/1/82 | 4,590 | 4,590 | Nil | 81 | £100, £40, £30 | Nil | 2 | .. | 1,507 | 5,817 | 11,179 | Nil | Nil |

* Property being worked on tribute.

## Table 2—*continued.*

STATEMENT OF AFFAIRS OF MINING COMPANIES—*continued.*

| Name of Company. | Date of Registration. | Subscribed Capital. | Amount of Capital actually paid up in Cash. | Value of Scrip given to Shareholders on which no Cash paid. | Number of Shares allotted. | Amount paid per Share. | Arrears of Calls. | Number of Shareholders at present. | Number of Men employed. | Quantity and Value of Gold and Silver produced since Registration. | | Total Expenditure since Registration. | Total Amount of Dividends paid. | Amount of Debts owing by Company. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Quantity. | Value. | | | |
| **OTAGO DISTRICT—*continued.*** | | | | | | | | | | | | | | |
| Otago Scheelite and Mining Co., Ltd. .. .. | 26/3/34 | 8,865 | 4,565 | .. | 8,865 | 15/- | 87 | 73 | 10 | *28 | 201 | 5,446 | Nil | 460 |
| Jones Nevis Sluicing Co., Ltd. .. .. .. | 30/11/33 | 16,257 | 16,257 | Nil | 325,150 | 1/- | Nil | 328 | 9 | 278 | 1,954 | 15,239 | Nil | 3,788 |
| Bendigo Goldlight Dredging Co., Ltd. .. .. | 22/8/33 | 25,000 | 19,400 | 5,600 | 500,000 | 1/- | Nil | 376 | 14 | Nil | Nil | 20,923 | Nil | 4,146 |
| Central Shotover Gold-mining Co., Ltd. .. .. | 13/3/33 | 11,000 | 9,000 | 2,000 | 220,000 | 1/- | Nil | 196 | 8 | 595 | 4,078 | 14,726 | Nil | 261 |
| Waipapa Beach Gold-dredging Co., Ltd. .. .. | 12/7/34 | 10,000 | 4,250 | .. | 200,000 | 6d. | Nil | 71 | 1 | Nil | Nil | 1,943 | Nil | 13 |
| Goldfields Dredging Co., Ltd. .. .. .. | -/5/33 | 31,000 | 31,000 | Nil | 620,000 | 1/- | 784 | 440 | 11 | 1,098 | 7,875 | 36,548 | Nil | 178 |
| Arthurs Point Sluicing Co., Ltd. .. .. .. | 27/3/34 | 5,500 | 5,500 | Nil | 110,000 | 9d. | Nil | 79 | 7 | 14 | 99 | 4,129 | Nil | 1,290 |
| Wetherstones Gold-mining Co., Ltd. .. .. | 5/10/32 | 55,000 | 42,000 | 13,000 | 220,000 | 5/- | Nil | 527 | 3 | Nil | Nil | 47,567 | Nil | .. |
| Paddy's Point Gold-mining Co., Ltd. .. .. | 4/8/28 | 14,010 | 11,500 | 2,500 | 56,040 | 5/- | Nil | 210 | 7 | 2,376 | 14,110 | 24,714 | 1,396 | 625 |
| Shotover Reefs Development Co., Ltd. .. .. | 20/5/32 | 3,083 | 3,074 | Nil | 12,332 | 5/- | Nil | 66 | Nil | Nil | Nil | 3,266 | Nil | 29 |
| Molyneux Deep Lead, Ltd. .. .. .. | 22/3/34 | 7,897 | 5,154 | Nil | 229,750 | Various | 1,414 | 184 | 8 | Nil | Nil | 4,451 | Nil | 1,397 |
| King Solomon Deep Lead, Ltd. .. .. .. | 14/11/29 | 13,000 | 10,237 | 2,762 | 260,000 | 1/- | Nil | 480 | 62 | 13,302 | 86,558 | 74,666 | 16,250 | 341 |
| Upper Shotover Gold-mining and Hydro-electric Co., Ltd. | 2/12/32 | 10,000 | 6,536 | 2,000 | 200,000 | 10d. | 163 | 242 | 8 | 163 | 1,178 | 2,389 | Nil | 188 |
| Riverside Sluicing Co., Ltd. .. .. .. | 2/3/34 | 2,000 | 1,500 | 500 | 2,000 | £1 | Nil | 16 | 10 | 123 | 860 | 849 | Nil | 1,391 |
| Waimumu Sluicing Co., Ltd. .. .. .. | 7/12/33 | 11,847 | 9,831 | 1,500 | 236,950 | Various | 204 | 186 | 5 | 118 | 882 | 762 | Nil | 79 |
| Macrae's Flat Gold Prospecting Co., Ltd. (In Liquidation) | 28/9/31 | 1,100 | 604 | Nil | 1,100 | Various | 82 | 37 | Nil | Nil | Nil | 528 | Nil | Nil |
| New Cornish Point Mines, Ltd. .. .. .. | 1/8/33 | 12,000 | 5,044 | 4,975 | 240,000 | Various | 224 | 240 | 7 | 4 | 31 | 3,831 | Nil | 570 |
| Golden Point Gold and Scheelite Co., Ltd. .. .. | 6/8/30 | 18,001 | 6,993 | 11,000 | 680,025 | 6d. and 1/- | Nil | 490 | 1 | 1,394 | 7,509 | 23,348 | Nil | 10,326 |
| Skippers Ltd. .. .. .. .. .. | 23/9/33 | 57,000 | 57,000 | 18,000 | 1,500,000 | 1/- | Nil | 1,367 | 23 | 153 | 1,116 | 1,363 | Nil | 11 |
| Maerewhenua Goldfields Development Co., Ltd. .. | 10/12/32 | 46,000 | 33,000 | 13,000 | 920,000 | 1/- | Nil | 672 | 7 | 24 | 185 | 925 | Nil | 6,200 |
| Scheelite Mines, Ltd. .. .. .. .. | 14/11/34 | 1,500 | 562 | Nil | 1,500 | 7/6 | Nil | 19 | 3 | † | 200 | 283 | Nil | 97 |
| Cairnmuir Sluicing, Ltd. .. .. .. | 11/12/34 | 1,000 | 510 | Nil | 20,000 | 6d. and 1/- | Nil | 59 | 2 | Nil | Nil | 127 | Nil | Nil |

* Also produced 5 tons scheelite valued at £786. † 28 cwt. scheelite.

**FOREIGN COMPANIES.**

| Name of Company. | Date of Registration of Office in Dominion. | Subscribed Capital. | Amount of Capital actually paid up in Dominion. | Value of Scrip given to Shareholders on which no Cash paid. | Number of Shares on Dominion Register. | Amount paid up per Share, Dominion Register. | Arrears of Calls, Dominion Register. | Number of Shareholders on Dominion Register. | Number of Men employed in Dominion. | Quantity and Value of Gold and Silver produced since Registration. | | Total Expenditure since Registration. | Total Amount of Dividends paid in Dominion. | Amount of Liabilities of Company in New Zealand. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Quantity. | Value. | | | |
| | | £ | £ | £ | | | £ | | | Oz. | £ | £ | £ | £ |
| New Zealand Crown Mines Company, Ltd. .. | 13/1/14 | 38,118 | 11,367 | 20,025 | 22,381 | 2/- | Nil | 130 | Nil | *13,780<br>† 4,001 | 17,104 | 49,049 | Nil | Nil |
| Clutha Development, Ltd. .. .. .. | 27/8/34 | 15,000 | Nil | Nil | Nil | Nil | Nil | Nil | Nil | .. | Nil | 10,014 | Nil | Nil |
| Waihi Grand Junction Gold Co., Ltd. .. .. | 22/12/97 | 41,437 | 40,494 | 112,500 | 255,790 | 2/- | Nil | 955 | 1 | .. | 2,411,690 | 2,356,109 | 165,601 | 913 |

* Silver. † Gold.

# 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, 1st June, 1935.

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, 1934, in accordance with section 42 of the Coal-mines Act, 1925. The report is divided into the following sections :—

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

### SECTION I.—OUTPUT.

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

| Class of Coal. | Output of Coal during 1934. | | | | Total Output to the End of 1934. |
|---|---|---|---|---|---|
| | Northern District (North Island). | West Coast District (South Island). | Southern District (South Island). | Totals. | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Bituminous and sub-bituminous | 94,938 | 736,764 | .. | 831,702 | 48,152,502 |
| Brown .. .. .. | 712,475 | 45,191 | 346,302 | 1,103,968 | 28,671,583 |
| Lignite .. .. .. | .. | 1,484 | 123,161 | 124,645 | 4,898,057 |
| Totals for 1934 .. | 807,413 | 783,439 | 469,463 | 2,060,315 | 81,722,142 |
| Totals for 1933 .. | 626,926 | 783,385 | 410,947 | 1,821,258 | 79,661,827 |

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

| Year. | Coal produced. | Coal imported. | Total Quantity of Coal produced and imported. | Year. | Coal produced. | Coal imported. | Total Quantity of Coal produced and imported. |
|---|---|---|---|---|---|---|---|
| | Tons. | Tons. | Tons. | | Tons. | Tons. | Tons. |
| 1911 .. | 2,066,073 | 188,068 | 2,254,141 | 1923 .. | 1,969,834 | 445,792 | 2,415,626 |
| 1912 .. | 2,177,615 | 364,359 | 2,541,974 | 1924 .. | 2,083,207 | 674,483 | 2,757,690 |
| 1913 .. | 1,888,005 | 468,940 | 2,356,945 | 1925 .. | 2,114,995 | 572,573 | 2,687,568 |
| 1914 .. | 2,275,614* | 518,070 | 2,793,684* | 1926 .. | 2,239,999 | 483,918 | 2,723,917 |
| 1915 .. | 2,208,624 | 353,471 | 2,562,095 | 1927 .. | 2,366,740 | 378,090 | 2,744,830 |
| 1916 .. | 2,257,135 | 293,956 | 2,551,091 | 1928 .. | 2,436,753 | 247,861 | 2,684,614 |
| 1917 .. | 2,068,419 | 291,597 | 2,360,016 | 1929 .. | 2,535,864 | 215,656 | 2,751,520 |
| 1918 .. | 2,034,250 | 255,332 | 2,289,582 | 1930 .. | 2,542,092 | 157,943 | 2,700,035 |
| 1919 .. | 1,847,848 | 391,434 | 2,239,282 | 1931 .. | 2,157,756 | 179,060 | 2,336,816 |
| 1920 .. | 1,843,705 | 476,343 | 2,320,048 | 1932 .. | 1,842,022 | 103,531 | 1,945,553 |
| 1921 .. | 1,809,095 | 822,459 | 2,631,554 | 1933 .. | 1,821,258 | 99,272 | 1,920,530 |
| 1922 .. | 1,857,819 | 501,478 | 2,359,297 | 1934 .. | 2,060,315 | 100,715 | 2,161,030 |

* Includes 21 tons shale.

From New Zealand coal-mines the gross output of coal during 1934 was 2,060,315 tons. This shows the substantial increase of 239,057 tons above the 1933 output, but the number of persons employed in or about the coal-mines increased by 92 only.

From the Northern District mines the output increased by 180,487 tons, but the low prices at which much of the Waikato coal was sold allowed only two of the coal-mining companies to show a profit on the year's work. The failure of the pumping-plant at the Hikurangi Mine to cope with the

greatly increased flow of water into the mine from the swamp caused the abandonment of that mine in September. Then the inflow into the adjoining Waro Mine proved too great, and that mine was abandoned also at the end of the year. The Hikurangi district's output is now obtained from many small mines, and prospecting by means of bores and shafts is proceeding in an endeavour to locate further coal-supplies.

From the West Coast coal-mines the output was a little higher than that of the previous year, the increase being the small one of 54 tons. Further dismissals of men employed at those mines have not been necessary; in fact, 17 more men were working at West Coast coal-mines in 1934 than in 1933. Idle time, however, is still prevalent at some of the mines, and it is sincerely hoped that such a condition can soon be remedied. The output from the Grey district mines decreased by 25,534 tons, but in the Nelson, Buller, and Reefton districts the combined increases were 25,588 tons. From the Westport-Main Mine no coal was produced during the year, nor from four smaller mines and, except for a small lignite pit near Karamea, no new mine was opened up.

From the Southern district the output increased by 58,516 tons, of which increase 47,389 tons came from Southland coal-mines, while the South Otago increase was 7,154 tons.

The use of Waikato and Southland coals for steam purposes is increasing, and they are partially replacing the West Coast bituminous coals for that purpose.

Coal-cutting machines are proving their utility in the Northern and Southern districts. Another electrically-driven one was purchased for a Waikato mine during the year, and two air-driven ones for a Southland mine.

The use of protector helmets, commonly called "Hard" hats, by coal-miners working in high places has been advocated by the officers of this Department. Small supplies have been ordered for some Southland, South Otago, and West Coast mines, and Waikato mine-managers are considering ordering supplies also.

Firedamp detectors of an improved type were introduced in West Coast, Southland, and South Otago mines. Their use will probably become more general in New Zealand mines. The rather unfavourable result obtained from another type of detector a few years ago made managers very chary of trying others.

The electric cap-lamp is still the favourite of coal-miners who have to use a safety lamp, and the number of electric cap-lamps in use in our mines should continue to increase. Four-volt lamps should replace any damaged or worn-out two-volt ones.

Consideration has been recently given to replacing the ordinary "permitted" explosives by others of the new non-freezing type. A small consignment of "Polar" explosives, both "permitteds" and "non-permitteds," is to arrive soon from England, where explosives of the older type are no longer used. It is anticipated that within two years all gelatinous explosives used in New Zealand mines will be of the non-freezing type.

For the stemming of shots a sand-and-clay mixture is being extensively used in coal-mines in Great Britain and the Continent of Europe. The Inspectors of Mines are advocating its use here instead of the ordinary clay tamping.

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

| Name of Colliery. | Locality. | Class of Coal. | Output for 1934. | Total Output to 31st December, 1934. | Total Number of Persons ordinarily employed. |
|---|---|---|---|---|---|
| | | | Tons. | Tons. | |
| *Northern District.* | | | | | |
| Hikurangi .. .. .. | Hikurangi .. | Sub-bituminous | 42,713 | 587,679 | 159 |
| Waro .. .. .. .. | ,, .. | ,, | 22,757 | 681,905 | 59 |
| Rotowaro .. .. .. | Huntly .. | Brown .. | 171,330 | 1,990,459 | 261 |
| Pukemiro .. .. .. | ,, .. | ,, .. | 120,388 | 2,252,439 | 188 |
| Wilton .. .. .. .. | Glen Massey .. | ,, .. | 83,101 | 304,327 | 150 |
| Glen Afton .. .. .. | Glen Afton .. | ,, .. | 57,331 | 1,532,323 | 73 |
| MacDonald .. .. .. | Waikokowai .. | ,, .. | 139,985 | 409,548 | 179 |
| Renown .. .. .. | ,, .. | ,, .. | 105,847 | 538,367 | 142 |
| *West Coast District.* | | | | | |
| Westport-Stockton .. .. | Ngakawau .. | Bituminous .. | 102,793 | 3,215,020 | 289 |
| Millerton .. .. .. | Millerton .. | ,, .. | 47,965 | 8,286,365 | 85 |
| Denniston .. .. .. | Denniston .. | ,, .. | 111,838 | 10,441,893 | 379 |
| Cascade .. .. .. | Cascade Creek | ,, .. | 19,642 | 109,666 | 22 |
| Paparoa .. .. .. | Roa .. | Semi-bituminous | 26,442 | 763,934 | 45 |
| Blackball .. .. .. | Blackball .. | Bituminous .. | 32,881 | 4,020,381 | 95 |
| Liverpool (State) .. .. | Rewanui .. | ,, .. | 95,640 | 2,574,053 | 315 |
| James (State) .. .. .. | Rapahoe .. | Sub-bituminous | 26,479 | 398,386 | 84 |
| Dobson .. .. .. | Dobson .. | Bituminous .. | 41,689 | 675,395 | 126 |
| Brunner .. .. .. | Wallsend .. | ,, .. | 53,467 | 528,119 | 155 |
| *Southern District.* | | | | | |
| Kaitangata (2 collieries) .. .. | Kaitangata .. | Brown .. | 111,622 | 5,215,206 | 265 |
| Linton (2 collieries) .. .. | Ohai .. | ,, .. | 89,185 | 1,017,740 | 121 |
| Black Lion .. .. .. | ,, .. | ,, .. | 18,394 | 123,332 | 31 |
| Mossbank (2 collieries) .. .. | ,, .. | ,, .. | 42,464 | 460,462 | 66 |
| 196 other collieries .. .. | All coalfields .. | Various .. | 496,362 | 10,167,381 | 1,189 |
| Collieries abandoned or suspended, &c. | Various .. | ,, .. | .. | 25,337,762 | .. |
| Totals .. .. .. | .. | .. | 2,060,315 | 81,722,142 | 4,478 |

## SECTION II.—PERSONS EMPLOYED.

| Inspection District. | Average Number of Persons employed during 1934. | | |
|---|---|---|---|
| | Above Ground. | Below Ground. | Total. |
| Southern .. .. .. .. | 284 | 661 | 945 |
| West Coast .. .. .. .. | 588 | 1,493 | 2,081 |
| Northern .. .. .. .. | 357 | 1,095 | 1,452 |
| Totals, 1934 .. .. | 1,229 | 3,249 | 4,478 |
| Totals, 1933 .. .. | 1,192 | 3,194 | 4,386 |

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1934 :—

| Year. | Output, in Statute Tons. | Persons ordinarily employed. | | | Tons raised per each Person employed below Ground. | Lives lost by Accidents in or about Collieries. | | |
|---|---|---|---|---|---|---|---|---|
| | | Above Ground. | Below Ground. | Total. | | Per Million Tons produced. | Per Thousand Persons employed. | Number of Lives lost. |
| Prior to 1900 | 13,444,437 | * | * | * | * | * | * | 165 |
| 1900 .. | 1,093,990 | 617 | 1,843 | 2,460 | 593 | 3·65 | 1·62 | 4 |
| 1901 .. | 1,239,686 | 688 | 2,066 | 2,754 | 600 | 2·42 | 1·09 | 3 |
| 1902 .. | 1,365,040 | 803 | 2,082 | 2,885 | 655 | 1·46 | 0·69 | 2 |
| 1903 .. | 1,420,229 | 717 | 2,135 | 2,852 | 665 | 2·81 | 1·40 | 4 |
| 1904 .. | 1,537,838 | 763 | 2,525 | 3,288 | 609 | 2·60 | 1·21 | 4 |
| 1905 .. | 1,585,756 | 833 | 2,436 | 3,269 | 651 | 3·78 | 1·83 | 6 |
| 1906 .. | 1,729,536 | 1,174 | 2,518 | 3,692 | 687 | 3·46 | 1·62 | 6 |
| 1907 .. | 1,831,009 | 1,143 | 2,767 | 3,910 | 662 | 6·55 | 3·07 | 12 |
| 1908 .. | 1,860,975 | 992 | 2,902 | 3,894 | 641 | 2·68 | 1·28 | 5 |
| 1909 .. | 1,911,247 | 1,159 | 3,032 | 4,191 | 630 | 3·66 | 1·67 | 7 |
| 1910 .. | 2,197,362 | 1,136 | 3,463 | 4,599 | 634 | 7·28 | 3·48 | 16 |
| 1911 .. | 2,066,073 | 1,365 | 2,925 | 4,290 | 706 | 6·77 | 3·26 | 14 |
| 1912 .. | 2,177,615 | 1,130 | 3,198 | 4,328 | 681 | 4·13 | 2·08 | 9 |
| 1913 .. | 1,888,005 | 1,053 | 3,197 | 4,250 | 590 | 3·18 | 1·41 | 6 |
| 1914 .. | 2,275,614 | 1,176 | 3,558 | 4,734 | 639 | 21·53 | 10·35 | 49† |
| 1915 .. | 2,208,624 | 1,050 | 3,106 | 4,156 | 711 | 4·07 | 2·16 | 9 |
| 1916 .. | 2,257,135 | 988 | 3,000 | 3,988 | 752 | 2·65 | 1·50 | 6 |
| 1917 .. | 2,068,419 | 1,090 | 2,893 | 3,983 | 715 | 1·93 | 1·00 | 4 |
| 1918 .. | 2,034,250 | 1,102 | 2,892 | 3,994 | 703 | 2·95 | 1·50 | 6 |
| 1919 .. | 1,847,848 | 1,095 | 2,849 | 3,944 | 648 | 5·41 | 2·53 | 10 |
| 1920 .. | 1,843,705 | 1,152 | 2,926 | 4,078 | 630 | 0·54 | 0·24 | 1 |
| 1921 .. | 1,809,095 | 1,218 | 3,149 | 4,367 | 574 | 5·52 | 2·28 | 10 |
| 1922 .. | 1,857,819 | 1,191 | 3,365 | 4,556 | 552 | 3·23 | 1·31 | 6 |
| 1923 .. | 1,969,834 | 1,353 | 3,647 | 5,000 | 540 | 2·53 | 1·00 | 5 |
| 1924 .. | 2,083,207 | 1,364 | 3,505 | 4,869 | 594 | 4·80 | 2·05 | 10 |
| 1925 .. | 2,114,995 | 1,288 | 3,489 | 4,777 | 606 | 3·78 | 1·67 | 8 |
| 1926 .. | 2,239,999 | 1,336 | 3,823 | 5,159 | 586 | 6·69 | 2·90 | 15 |
| 1927 .. | 2,366,740 | 1,386 | 3,988 | 5,374 | 593 | 4·23 | 1·86 | 10 |
| 1928 .. | 2,436,753 | 1,366 | 4,010 | 5,376 | 608 | 3·69 | 1·67 | 9 |
| 1929 .. | 2,535,864 | 1,370 | 4,127 | 5,497 | 614 | 4·73 | 2·18 | 12 |
| 1930 .. | 2,542,092 | 1,437 | 4,430 | 5,867 | 574 | 5·50 | 2·38 | 14 |
| 1931 .. | 2,157,756 | 1,414 | 4,331 | 5,745 | 498 | 1·85 | 0·69 | 4 |
| 1932 .. | 1,842,022 | 1,257 | 3,379 | 4,636 | 545 | 6·51 | 2·59 | 12 |
| 1933 .. | 1,821,258 | 1,192 | 3,194 | 4,386 | 570 | 3·84 | 1·59 | 7 |
| 1934 .. | 2,060,315 | 1,229 | 3,249 | 4,478 | 634 | 3·88 | 1·78 | 8 |
| Totals .. | 81,722,142 | .. | .. | .. | .. | .. | .. | 478 |

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

## SECTION III.—ACCIDENTS.

The following is a summary of accidents in and about coal-mines during 1934, with their causes :—

| — | Fatal Accidents. | | Serious Non-fatal Accidents. | |
|---|---|---|---|---|
| | Number of Separate Fatal Accidents. | Number of Deaths. | Number of Separate Non-fatal Accidents. | Number of Persons injured, including those injured by Accidents which proved Fatal to their Companions. |
| Explosions of fire-damp or coal-dust .. | .. | .. | .. | .. |
| Falls of ground .. .. .. | 5 | 5 | 7 | 7 |
| Explosives .. .. .. .. | 1 | 1 | .. | .. |
| Haulage .. .. .. .. | 2 | 2 | .. | .. |
| Miscellaneous—Underground .. .. | .. | .. | 6 | 6 |
| On surface .. .. | .. | .. | 3 | 3 |
| Totals .. .. .. | 8 | 8 | 16 | 16 |

For the year under review the fatal accidents were at the rate of 1·78 per thousand persons employed in the industry, and at the rate of 3·88 per million tons of coal produced.

In Annexure A appear accounts of the Inspectors of Coal-mines at Greymouth and Dunedin regarding eight fatal accidents which occurred during 1934 in coal-mines in their districts.

In the West Coast coal-mines there were seven fatal accidents, four through falls of coal or stone, one by explosives, one by the collapse of a bridge when the deceased was riding on a rake of coal-trucks across it, and one, which was not witnessed, was probably caused by the deceased being struck by a fast-moving rope on a steep incline.

The sole fatality in the Southern district was through a fall of coal when a working-place was being examined after a shot had been fired there.

It is pleasing to record that there was no fatal accident in the Northern district during the year.

Of the sixteen serious non-fatal accidents, seven were caused by falls of coal or stone, two by falls from staging, and two by derailed trucks knocking out props which fell and caused the injuries.

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

### (*a*) Permitted Explosives.

(Regulations 233 to 237 inclusive.)

The following is a table showing the quantity of permitted explosives used and the number of shots fired at New Zealand coal-mines during 1934 :—

| Inspection District. | Quantity of Permitted Explosives used (lb.). | | | Number of Shots fired. | Number of Misfired Shots. | | | | | Approximate Quantity of Coal produced. |
|---|---|---|---|---|---|---|---|---|---|---|
| | A2 Monobel. | Ligdynite. | Samsonite. | | By Defective Explosive. | By Defective Detonators. | By Defective Leads. | Other Causes. | Total. | |
| | | | | | | | | | | Tons. |
| Northern (*i.e.*, North Island) | 109,654 | .. | .. | 122,696 | 7 | 23 | 9 | .. | 39 | 569,435 |
| West Coast (of South Island) | 101,594 | .. | 113,114 | 267,988 | 21 | 137 | 75 | 2 | 235 | 782,414 |
| Southern (*i.e.*, Canterbury, Otago and Southland) | 1,141½ | .. | 54,201½ | 91,371 | .. | 13 | 7 | .. | 20 | 278,551 |
| Totals .. .. | 212,389½ | .. | 167,315½ | 482,055 | 28 | 173 | 91 | 2 | 294 | 1,630,400 |

### (*b*) List of Mines at which Permitted Explosives are used.

The following is a list of mines as at the 31st December, 1934, at which permitted explosives are used :—

*Northern Inspection District.*

Pukemiro, Pukemiro—Throughout South Mine.
Rotowaro, Rotowaro—Throughout No. 1 and No. 3 Mines.
Glen Afton, Glen Afton—All sections of the mine.
MacDonald, Waikokowai—Throughout West section.
Waikato Extended Colliery, Huntly—All sections.
Renown, Waikokowai—All sections.
Wilton, Glen Massey—All sections.
New Kamo, Kamo—All sections.

*West Coast Inspection District.*

Wynndale, Murchison.
Mount Burnett, Collingwood.
Puponga, Puponga.
Owen (Seymour), Owen River.
Cardiff Bridge, Seddonville.
Charming Creek, Ngakawau.
Cascade, Burnett's Face.
Chester's, Seddonville.
Westport Coal Co.'s Denniston mines.
Westport Coal Co.'s Millerton mines.
Westport-Stockton, Ngakawau.
Archer's, Capleston.
Clele, Merrijigs.
Coghlan's, Capleston.
Collins, Murray Creek.
Morrisvale, Reefton.
Defiance, Reefton.
Burke's Creek, Reefton.
Waitahu Colliery, Reefton.
Honey's (Times Street), Reefton.
Lankey's Creek, Reefton.
Sparkless, Reefton.
Venture, Reefton.
Dennehy's, Twelve Mile.
Schultz Creek, Twelve Mile.
Cox Creek, Twelve Mile.
Hilltop, Ten Mile.
Bellbird, Ten Mile.
Brady's, Ten Mile.
Briandale, Ten Mile.
Mussel Point, Nine Mile.
Bellvue, Rapahoe.
Cain's, Rapahoe.
Jubilee, Rapahoe.
Baddeley's, Dunollie.
Braehead, Dunollie.
Castlepoint, Dunollie.
Hunter's, Dunollie.
Moody Creek, Dunollie.
New Point Elizabeth, Dunollie.
Fiery Cross, Dunollie.
Smith's, Dunollie.
Duggan's, Rewanui.
Old Runanga, Rewanui.
Spark's, Rewanui.
State Collieries (Liverpool and James').
Goldlight, Rewanui.
Blackball, Blackball.
Blackball Creek, Blackball.
Paparoa, Roa.
Dobson, Dobson.
Wallsend, Brunnerton.
Stillwater (Boustridge's), Stillwater.

*Southern Inspection District.*

Kaitangata No. 1, Kaitangata.
Kaitangata No. 2, Kaitangata.
Wairaki, Ohai.
Birchwood, Ohai.
Linton, Ohai.
Black Diamond, Ohai.
Black Lion, Ohai.
Star, Ohai.

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

The following is a list of the mines as at the 31st December, 1934, required by law to use safety-lamps :—

*Northern Inspection District.*

Pukemiro, Pukemiro—Throughout south mine section.
Rotowaro, Rotowaro—Throughout No. 1 and No. 3 Mines.
Glen Afton, Glen Afton—Main headings.
Renown, Waikokowai—Main headings.
New Kamo, Kamo—All sections.

*West Coast Inspection District.*

Dobson, Dobson.
Spark's, Rewanui.
State Mine (Liverpool No. 2), Rewanui.
Old Runanga, Rewanui.
Moody Creek, Dunollie.
Paparoa, Roa.
Wallsend, Brunnerton.
Millerton (Old Dip Section), Millerton.
Owen, Owen River.

*Southern Inspection District.*

Kaitangata No. 1, Kaitangata.
Kaitangata No. 2, Kaitangata.
Wairaki, Ohai.
Birchwood, Ohai.
Linton, Ohai.
Black Diamond, Ohai.
Black Lion, Ohai.
Star, Ohai.

(*d*) Dangerous Occurrences reported.

(Regulation 82.)

On Friday, the 5th January, 1934, at about 1.30 p.m., an explosion occurred in the East Rise Section of the Dobson Mine. In this section, about 20 acres in extent, pillars were being extracted back from the Dobson and the Buckley faults. No person had been in the section for three hours prior to the explosion. The mine was idle that day, as work had not recommenced after the New Year holidays. The only persons in the mine at the time were Deputy Dando and James Purton, the pumpman. They were coming up from the lower workings, which were not affected by the explosion. About twenty-five minutes after the first explosion a second one occurred. By that time Dando and Purton were safely past the entrance to the East Rise Section, but they were affected by the after-damp from the first explosion. The effects of the second explosion made it impossible to decide as to the exact place where the explosions originated. There was no evidence of spontaneous combustion, and there was no electrical apparatus or safety lamp in the section, so the explosion must have been due to some natural cause. For some months prior to the explosion fire-damp had been reported on several occasions in the East Rise Section, which must have been coming from the goaf there. The ventilating current, although ample to keep the working-places clear of gas, could not remove that which was lodging in the waste area to the rise. Overlying the coal-seam is a very hard quartzitic sandstone, and heavy falls of that rock had taken place in the goaf. After a lengthy examination by the mine officials and three Inspectors of Coal-mines all agreed that the first explosion must have been caused by the movement of a large mass of the quartzitic sandstone in the goaf against other masses of the stone producing a temperature high enough to cause the ignition of fire-damp. The section where the explosions occurred and another rise section, called Ruane's, where pillars had been in process of extraction, were effectively sealed off by concrete stoppings 2 ft. thick. In future the complete extraction of pillars from the rise will not be allowed in the Dobson Mine, or in any other mine which has a similar sandstone over the coal-seam.

Full accounts of the other dangerous occurrences which happened during the year are given in the reports of the District Inspectors (Annexure A).

Heating was reported on twenty-two occasions in various mines, including five in the Linton Mines and two each in the Black Diamond, Renown, and Blackball Mines.

### (*e*) Electricity at Collieries.

(Regulation 243.)

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

| | |
|---|---|
| Number of collieries at which electrical apparatus is installed | 58 |
| Number of continuous-current installations | 9 |
| Number of alternating-current installations | 50 |
| Number of collieries electrically lighted | 45 |
| Number of collieries using electrical ventilating-machines | 44 |
| Number of collieries using electrical pumping plants | 34 |
| Number of collieries using electrical haulage plants | 41 |
| Number of collieries using electrical screening plants | 28 |
| Number of collieries using electrical coal-cutting machines | 4 |
| Number of collieries using electrical miscellaneous plants | 27 |
| Number of collieries using electrical locomotives | 1 |
| Total horse-power employed from motors on surface | 7,793 |
| Total horse-power employed from motors below ground | 3,300½ |

### (*f*) Prosecutions.

Twenty-nine informations were laid by the District Inspectors during the year for breaches of the Coal-mines Act and Regulations; two of them were withdrawn and twenty-seven convictions obtained. Accounts of the individual prosecutions are given in the reports of the District Inspectors (Annexure A).

## SECTION V.—LEGISLATION AFFECTING COAL-MINES.

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

The District Inspectors have performed their duties in a most efficient manner, rendering help to all efforts to improve the safety of the mines and reduce the loss of coal by faulty methods of mining. Although coal-mining in the West Coast district has, so far, shown little sign of the otherwise general recovery of industry, the adoption of better mining methods almost invariably receives the support of the mine-managers there as well as in the more favoured Northern and Southern districts.

I have, &c.,

George Duggan,

Inspecting Engineer and Chief Inspector of Coal-mines.

# ANNEXURE A.

## SUMMARY OF REPORTS BY INSPECTORS OF MINES.

### NORTHERN INSPECTION DISTRICT (William Barclay, Inspector of Coal-mines).

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

#### Output of Coal.

The Northern District, comprising coal-mines in the Waikato, North Auckland, and Taranaki Districts, produced 807,413 tons of coal for the year 1934, compared with 626,926 tons for the year 1933, an increase of 28·8 per cent. The number of workmen ordinarily employed in and about the mines was 1,452, an increase of 5·7 per cent. on the number employed during the previous year.

The increased output was due entirely to the increased amount of Waikato coal purchased by the Railway Department for locomotive use.

No fatal or serious accidents (resulting in permanent disablement) occurred to any workman during the year.

The application of coal-cutting machines to bord-and-pillar faces, and the fullness of time worked during the winter months resulted in the annual output per person employed being increased by 104 tons, or equal to 23 per cent., above the output for the preceding year.

Mining operations ceased in the Hikurangi and Waro Collieries during the month of September, due to a combination of adverse circumstances, and, finally, to the fact that the installed pumping-machinery at the Hikurangi Mine failed to cope with an inrush of water encountered during the driving of a dip heading advancing under the Hikurangi Swamp area.

The bord-and-pillar method of mining, on the panel system, is adopted in all mines. In the Waikato District the seams vary in thickness from 12 ft. to 20 ft. The bords of the first working are usually driven from 12 ft. to 14 ft. wide by 9 ft. high, and pillars from 50 ft. to 70 ft. square are formed in support of the roof-cover. The panels contain from 6 acres to 10 acres, and in districts where spontaneous combustion follows the extraction of the pillars small panels not exceeding 4 acres in extent are preferable, as affected areas can be more rapidly and effectively sealed off and the fires suppressed. In the Hikurangi and Taranaki Districts the seams vary in thickness from 3 ft. to 8 ft. The thin seams are generally worked by small parties of miners working on co-operative principles.

#### Waikato Carbonization Plant.

The low-temperature carbonization plant erected at Rotowaro operated intermittently during the year. Quantities of carbonettes and fuel oil have been produced and stored in anticipation of an increased demand.

SUMMARY OF OPERATIONS OF EACH COLLIERY FOR THE YEAR 1934.

*North Auckland District.*

*Hikurangi Shaft Colliery* (Hikurangi Coal Co., Ltd., Owners).—Mining operations in the Hikurangi Shaft Colliery ceased during the month of September, due to an increased flow of water from the workings opening out in the seam under the Hikurangi Swamp area, and to the inadequacy of the installed pumping-machinery to cope with the flow.

The colliery was established during the year 1921 by two circular shafts, sunk 350 ft. and 320 ft. respectively, to the coal seams bordering the Hikurangi Swamp area. The total output raised from the working amounted to 587,679 tons. Numerous floodings have occurred during the life of the colliery, and on three previous occasions—namely, during the years 1926, 1929, and 1930—the mine was abandoned, in each instance for several months, until arrangements could be made for the purchase and installation of additional pumping-machinery.

Since the inception of the colliery the inflow of water has increased from 10,000 gallons per hour to 160,000 gallons per hour, due to the workings being extended under the Hikurangi Swamp area, where the roof cover is a stratum of porous limestone.

The following pumps were in commission at the beginning of September:—

| | | |
|---|---|---|
| One 7 in. Sulzer | .. .. .. | Capacity 50,000 gallons per hour. |
| One 7 in. Sulzer | .. .. .. | Capacity 60,000 gallons per hour. |
| One 4 in. Boving | .. .. .. | Capacity 10,000 gallons per hour. |
| Total capacity | .. .. .. | 120,000 gallons per hour. |

and taking 580 amperes.

The plant consisted of four boilers and three generators of a combined capacity of 485 kv.a., or 721 amperes, leaving little margin of power for emergencies.

On the 4th September a new "Pulsometer" pump, of a rated capacity of 120,000 gallons per hour against a 400 ft. head of water, was installed and brought into commission, and, together with one of the existing units, the combination was discharging 160,000 gallons per hour up the shaft as recorded by a water-indicator at the surface spillway. At this time an outburst of water, heavily impregnated with carbonic-acid gas, known as "soda-water," occurred in the dip headings, and its incidence largely contributed to the failure of the pumping machinery.

Subsequently an attempt was made by a diver to salvage the pumps and motors submerged in the pump chamber. Owing to the extremely dirty water submarine lamps were of little use, and the diver had to feel a way down through 70 ft. of water in the shaft and along the shaft-level to the pump chamber. After two weeks of arduous work under difficult conditions the diver was successful in recovering the new "Pulsometer" pump, which was valued at £1,000 and was the main objective of his salvaging operations.

As so many dangers and difficulties had been encountered during the working of the field the company's directors were not prepared to continue mining operations under the Hikurangi Swamp area, and have since turned their attention to a field southward of the Hikurangi Township, where boring operations conducted during the years 1908 and 1910 located thin coal seams and indications of erosion. The field is to be further proved by bore holes drilled by the company's diamond drill, which is being reconditioned.

Prior to the flooding of the colliery, 150 men were employed on a co-operative basis in production of the output.

*Waro Colliery* (Wilsons' Collieries, Ltd.: Sublessees, McGlashan and Party).—In common with the neighbouring Shaft Colliery, the Waro Mine workings were flooded at the end of the year, due to the percolation of the Hikurangi Mine water through crevices in the floor and roof of the barrier pillar of coal left between the workings of the two collieries.

The pillars remaining in No. 4 and No. 5 dip sections were being extracted prior to the flooding, and, as the Waro company's plant was unable to deal with the additional water, the mine plant was withdrawn ahead of the rising water, and intermittent pumping was done by three pumps, which were gradually removed up the dip in relays as the water rose. A project to work an area of coal lying between the Hikurangi West workings and Perrett's dip workings was also abandoned due to the increase in the mine flow.

The first indications of water-increase were detected at a point 42 chains down the dip, and eighty miners were employed on three shifts for four months extracting the roadside pillars clear of the water, and additional precautions were taken for their safety. The average weekly output was 1,000 tons, and of that quantity 200 tons per week were required for generating power for drainage purposes.

The total putput won from the Waro Mine was 681,905 tons. The coal was chiefly used by the Wilson's Portland Cement Co., Ltd., for the manufacture of cement.

*Hikurangi Coal Co., Ltd., No. 6 Section.*—Subsequent to the cessation of mining in the Shaft Colliery, three old drives—namely, the Kahikatea, Dunn's and Phœnix—driven under the Waro Railway Reserve, and containing pillars supporting the private railway, were dewatered and the pillars attacked for the production of a weekly output of 300 tons of coal by fifty miners retained by the Waro Coal-mines, Ltd.

A prospecting shaft was also sunk in close proximity to the Hikurangi Company's railway siding for the purpose of proving the continuity of the seam under the top portion of Perrett's West area. Another prospecting shaft sunk on Section 39 S.W. located 4 ft. of coal at 40 ft., and preparations are being made to work the seam.

*Crown Leases.*

*Silverdale Colliery* (Crown Lease: Foot and Party).—The working-seam is only 3 ft. thick, and at least 2 ft. of stone has to be uplifted from the floor to provide height for the trucking-roads. The pillars are being extracted, and the workable coal is almost exhausted.

*Glen Nell Colliery* (Crown Lease: Sublease from McIntyre and Party to S. Foot).—A drive 4 chains in length has been advanced under a limestone formation, and a seam of coal 3 ft. 6 in. thick has been exposed for extraction. The roof is of strong structure.

*Phoenix Colliery* (Crown Lease: McKinlay and Party).—Operations on the east side of the lease have been abandoned, and the plant has been removed to the western side for purposes of working out the remaining pillars, and, by agreement with Mr. Foot, a small area of detached coal contained in the Glen Nell Colliery is being worked by the party.

The coal in the mine is almost exhausted. A total output of 17,554 tons has been extracted by the party.

*McInnes's Coal-mine* (Prospecting-area subleased to Mackie and Party).—A small coal-mine is being opened out under a prospecting license on part Section 2, Block XVI, Hukerenui Survey District. A drive from the surface tapped old workings left by the Northern Coal Co., Ltd. (in liquidation). The seam is 5 ft. thick, but contains several bands of intervening stone. Prospecting is also being conducted by the party.

*McInnes's Coal-mine* (Crown Lease: Tunstall and Party).—Mining operations are being carried out on part Section 2, Block XVI, Hukerenui Survey District. A seam of coal 5 ft. thick was followed 3 chains, water free, from the surface and then old workings were met. The pillars are now being brought back by good mining methods as regards safety. A new drive is being commenced from the surface to reach a proved area of new ground. The output is 12 tons per day.

*Northern Co-operative Colliery* (Tauranga Block Freehold).—The party has been engaged in working out the remaining pillars of stony coal of a bottom seam lying near the Marua Road boundary. The coal in the mine is now almost exhausted, and the pillars have been removed to the bottom of the dip. Four miners are employed. This party has been working the area for sixteen years, so the miners will probably turn their attention to further prospecting on the area.

*Ruatangata Colliery.*—Operations were confined to the extraction of previously abandoned pillars of coal remaining along the fringe of the northern outcrop. The bulk of the output is used in the kilns of the brick-making plant established near the mine.

*New Kamo Coal-mine* (Kamo Collieries, Ltd., Owners).—The dip drive through sandstone intersected the proved seam at 450 ft. A shaft 85 ft. deep was sunk near the railway and connected to the heading advanced from the bottom of the stone dip. Inflammable gas was detected when the coal-seam was first cut, and safety lamps were subsequently introduced throughout the mine-workings. A fault, of deep displacement, of the coal-seam was encountered at a point 1 chain eastward of the main heading. The fault converged on the main south heading, and the working-area in consequence is now limited to an area of inclined coal to the west of the main drive. The western area lies between the Old Kamo Mine workings, abandoned during the year 1893, and Harrison's Waro Mine workings, abandoned during the year 1930, and, as the plans of the former workings may not be correctly delineated, substantial barriers of solid coal should be left between the old and new workings. Development has been slow, and only five places have been available for coal-production.

*The Rocks Area.*

*Acker's Coal-mine* (Sublease from Hikurangi Coal Co., Ltd.).—Eight men were employed in winning coal from the bottom seam, averaging 4 ft. in thickness. A post of fireclay, from 6 ft. to 8 ft. thick, occurs between the worked-out top seam and the bottom seam. Surface water is troublesome during heavy rainfalls, and the installed syphon is unable to cope with the water. An output of 18 tons per day is sold to the Hikurangi Coal Co., Ltd.

*Fearnley's Coal-mine* (Rocks Area).—Operations were confined to the extraction of pillars in the bottom seam. The seam is almost exhausted in the drive being worked, and another drive, lower down the hill, is in course of driving to open out a fresh area of bottom seam. Fireclay is also being extracted from the mine.

*Rothwell's Coal-mine* (Rocks Area).—Operations were conducted by Rothwell and party on an area of abandoned ground. An attempt was made to reach an area of thin bottom seam, 4 ft. in thickness, lying under a pillared working of the top seam. Subsequently the workings were abandoned owing to water trouble.

*Flannagan's Coal-mine* (Rocks Area).—A small coal-mine was opened out on Flannagan's freehold on a small area of thin coal proved ahead by boring. The dip drive is being continued in anticipation of a thickening of the coal-seam.

*Laurie's Coal-mine* (Rocks Area: McLeod's Freehold).—A party of four miners is engaged in opening out the bottom seam, 5 ft. thick, under the old workings of the top seam. Surface water is troublesome, and pumping is required should the workings extend.

*Orr and Party* (Rocks Area).—Two miners were engaged in uncovering the surface clay from shallow pillars of coal left by a former working. This work can only be carried out during the summer months when the clay is dry and tough.

*Coutt's Coal-mine.*—The party was engaged in working thin areas of coal left by the Hikurangi Coal Co., Ltd. A drive was driven along a fringe of the outcrop of the northern boundary, and the pillars are being extracted to the haulage road.

*New Kiripaka Coal-mine* (Hart and Higgins, Owners).—A party of four miners recommenced working this small coal-mine situated on the Ngungaru Hill half a mile east of the post-office and twelve miles from Whangarei. The seam being worked is 4 ft. thick, and was abandoned by the Northern Coal Co. when in occupation of the land twenty years ago. The available coal from the opening being worked is almost exhausted, and boring is in progress for the location of another area of workable coal.

*Whareora Coal-mine* (Foot and Fox, Owners).—Operations are being conducted by four miners in a thin seam which contains three bands of stone from 6 in. to 8 in. thick. The stone affects the marketing of the coal. The output is carted to Whangarei by motor-lorries, a distance of seven miles.

*Hicks and Party* (Perrett's Area).—Four miners were engaged in working out old pillars in shallow ground left by the Hikurangi Coal Co., Ltd. Prospecting along a fault revealed that the previous workings had not been carried right up to the fault, and the party should recover at least a thousand tons of coal from this area.

*Turnbull and Doel* (Perrett's Area).—Miners were engaged in working out isolated blocks of pillar coal left by the Hikurangi Coal Co., Ltd. Two smalls drives have been driven into areas of apparently solid ground.

*Jones and Party* (Tauranga Block).—A small output has been obtained from short drives in shallow coal left by previous operations.

*Parahaki Coal-mine.*—A party of coal-miners have opened out a small coal-mine in the Parish of Parahaki, six miles east of Whangarei on the Whareora Road. Boring disclosed a seam of coal 4 ft. 8 in. thick, lying at a dip of 1 in 2. The party consists of experienced miners, and much wet and dirty work has been done in driving 50 ft. of the dip. The future prospects are not encouraging.

*Nikau Coal-mine.*—A party of Hikurangi miners has opened out a small coal-mine in the Whau Valley three miles from Whangarei. The mine was formerly worked by the Whau Valley Coal Co. fifty years ago. The remaining pillars are being extracted by roadways driven from the outcrop. The seam is 4 ft. thick, and has a fairly strong roof.

*Avoca Coal-mine.*—This coal-mine, situated eight miles east of Tangowahine, has been in operation for a period of six years. Many problems have been faced since the old dip was dewatered two years ago. The 30 ft. seam is highly inclined and lying almost vertical. Three short dips, slanting from the floor to the roof, have been driven in an endeavour to provide working-places. A fault was met in the dip at 90 ft. from the surface, and boreholes from the surface have so far failed to locate the seam through the fault. The output is transported to Dargaville and surrounding districts.

*Waikato District.*

*Rotowaro Collieries* (Taupiri Coal-mines, Ltd., Owners).—The workings of No. 1 Mine Section (top seam) have been advanced one mile and a half towards the eastern boundary. Strong coal roof prevails in the section, so systematic timbering is carried out only in the pillar workings and in isolated places near the outcrops. The average roof-cover is only 70 ft. of jointy fireclay, which falls readily when the pillars are extracted. The coal-cutting machines have been temporarily withdrawn due to the inclination of the seam, which precludes the flitting of heavy machines up the steep jigs. No inflammable gas has been detected in No. 1 Mine Section for five years, but electric safety-lamps of the cap type are still in use throughout the mine as a precautionary measure of safety against the risks of fires and emissions of gas.

In No. 3 Mine Section (bottom seam) the workings have been extended a considerable distance under and ahead of the workings of the top seam. The faces are mechanically cut by coal-cutting machines and a high daily output per miner is got in this section. Difficulties have been experienced in timbering the roof due to a fretting action, which is confined to the coal near the roof. Fire-damp is occasionally detected and reported in main headings, and in every case its presence is due to the brattice being in disrepair. Requisite applications of stone-dust in treatment of the coal-dust were maintained close up to the faces. An average daily output of 850 tons is drawn from seventy working-faces, and a total of 260 men is engaged in the company's mines.

The bottom seam has been bored and explored in relation to its continuity and depth under the top seam, and a recent borehole proved that the intervening post of fireclay between the seams is thinning to the east to such an extent that the future development of the bottom seam could be more advantageously followed by a connection from the top seam and its established system of haulage and ventilation.

By arrangement, the neighbouring colliery companies dump the bulk of their unmarketable slack coal near the Rotowaro Mine. The dump contains 50,000 tons, and vigilant attention is required to prevent the heap firing.

*Pukemiro Collieries* (Pukemiro Collieries Ltd., Owners).—Operations during the year have been confined to the extraction of the pillars in the east and north mine sections. In the east section the pillars have been withdrawn to the jig head, and only roadside pillars remain for extraction. In the north mine section, comprising four working districts, the work of depillaring has been continuously carried out in all districts, and no extensive areas of solid coal remain for working. The seam varies from 8 ft. to 16 ft. in thickness, and the roof-cover averages 80 ft. At this shallow depth 30 per cent. of the coal was got by the first working, and at least 60 per cent. is now being won from the extraction of the pillars. The system of endless-rope haulage to the faces has been maintained with satisfactory results as regard haulage costs. Drainage, from the pillar sections which are liable to be flooded through breaks to the surface caused by pillar-extraction, has been discharged from the workings through the drainage pipes laid out to the surface before pillar-extraction was commenced. An average daily output of 530 tons was maintained during the year. The south mine section, with bords completed to the boundaries, was not reopened for output. This section is being maintained in working order should the demands of trade warrant additional output.

*Glen Afton No. 1 Colliery* (Glen Afton Collieries, Ltd., Owners).—The total output since the commencement of mining operations by the company amounts to almost 2,000,000 tons; of that quantity 1,532,323 tons have been extracted from No. 1 Mine. Operations, as during the previous year, have been confined solely to the extraction of pillars in K3 and K4 Sections, the farthest inbye sections in the mine. There is a roof-cover of about 400 ft. of fireclay and limestone over the workings, and the adopted method of pillar-extraction, in straight line, is resulting in a high percentage of pillar coal being extracted under favourable conditions as regards safety and control of the roof weight. The floor is yielding to the weight, and many renewals of roof-timber supports are required before the pillars are completely extracted. The dust on the roadways is dry, and increasing quantities of incombustible dust are applied to the roof, sides, and floor of the roadways in treatment of the coal-dust produced in working, and from fretting of small coal from the pillars. The panel system is adopted, and huge reserves of coal remain in the 1-chain-square pillars formed to the boundaries of the first working. Haulage and ventilation have been maintained at a high standard, and generally the mine is equipped and developed for double the present output should it be required.

*Glen Afton No. 2 Colliery* (MacDonald State Coal-mine Reserve under lease to the Glen Afton Collieries, Ltd.).—The output for the year, 139,985 tons, was derived from the first working. Three coal-cutting machines are employed in the faces, all of which are machine-cut. The average daily output per miner is 13 tons. The main west headings have been advanced to the dip within eight chains of the boundary. The panel system, with substantial barriers between panels and roadways, is being carried out, and modern methods of mining are practised throughout the field. The seam averages 15 ft. in thickness, and, as the coal is strong and the bords are only driven to a height of 9 ft., safe roof prevails in all the working-places. In the north section the main headings have been extended 36 chains in workable coal to an outcrop from which a drain-level can be connected for the drainage of water in the rise sections. Six panels of workable coal have been formed, and in the course of formation in this section, and, as the districts are conveniently situated and connected by subsidiary haulages to the main haulage system, a large output could be obtained. The field has been extensively prospected by boring, with the result that a system of laying out the sections can be planned from the record of bores and topographical surveys.

*Graham Colliery* (Party of Miners, Owners).—Operations during the past year have been confined to the extraction of the pillars from the southern boundary. The seam is from 3 ft. to 4 ft. thick. Two headings are proceeding to the west in an endeavour to locate another workable area. The output is connected to rail near Glen Afton Railway-station.

*Waikato Extended Colliery* (Roose Shipping Co., Owners).—This small coal-mine, situated on the west bank of the Waikato River three miles south of Huntly, and owned by the Roose Shipping Co., was worked for the production of fuel for the company's river steamers. Pillars were extracted from the barrier left between abandoned workings.

*Huntly Brick Works.*—An opencast fireclay quarry is in operation to supply the company's brickmaking and tile plant established on the ground. The faces were maintained in safe order.

*Taupiri East Colliery* (Auckland University Council Endowment Lease).—A party of miners is still engaged in splitting the rise pillars of the old Kimihia Mine dip. The seam is 18 ft. thick, and places 10 ft. wide by 12 ft. in height are driven through the pillars. Boreholes at frequent intervals are drilled into the roof for testing the thickness of overhead coal. Electric power is connected to the pump and winch.

*Campbell Colliery* (Crown Lease, Whatawhata).—Little development has been carried out during the year, and operations have been confined to the extraction of pillars in the dip section where a series of faults prevents dip extension. Close attention to a fire in old workings, fanned by air, breathing through loosely packed surface falls, was required to prevent the fire spreading to the new dip area. The output satisfies a demand in the Raglan and Frankton districts.

*Renown Colliery* (Renown Collieries, Ltd., Owners).—The total output, from the commencement of operations seven years ago, has reached the half-million mark, and the coal yet to be won lies conveniently within working distance of the main roadways and installed haulages. The pillars have been extracted from No. 3 and No. 4 south sections. In No. 2 south and No. 3 north sections bords of the first working are still proceeding to the boundaries of the panels. The main headings, turned south at No. 4 section, have been extended 20 chains in provision of two additional sections. No development work was done in No. 1 south section, where an area of proved coal lies ahead. A roof-fall of considerable magnitude occurred on the haulage road in this section, and an attempt made to retimber a roadway through the fall was abandoned owing to the moist condition of the fallen claystone. The roof and sides of a portion of the return airway through a faulted zone, where the timber supports had only a short life due to a highly saturated mine atmosphere, have been supported by steel arching of elliptical shape, lined with durable timber laths. The seam generally is moderately inclined, and after the advancing headings have made available one or more sections for machine work one of the headings is widened and straightened in provision of subsidiary haulage and an intake airway. Two coal-cutting machines have been continuously employed in holing 90 per cent. of the working-faces. Prior to the completion of pillar-extraction in No. 3 south panel a crushing movement, attended by a heating of the goaf, necessitated the erection of brick stoppings to seal off the affected area.

*Wilton Colliery* (Wilton Collieries, Ltd., Owners).—The main headings have been advanced 48 chains through a narrow area of clean coal averaging 11 ft. in thickness. Endless rope haulage has been extended to within working limits of the faces and the haulage costs reduced accordingly. In No. 2 dip section the pillars have been withdrawn back to the dip-supporting pillars. The first working of No. 3 dip section is completed to the outcrop boundary. Concentration on output is confined to the rope-end section. The seam in this section occurs at a shallow depth and 1-chain-square pillars are formed in the first working, leaving 80 per cent. of the coal in reserve for pillar-extraction. Two drives have been turned out to the surface in the rope-end section in provision of intake airways and a third means of escape for the workmen. The coal is generally friable and jointy, and therefore easily mined. Occasional shots are fired for dislodging stone balls in the seam. A total of 83,101 tons was produced during the year, and 150 men were ordinarily employed in the mine.

*Hunua Colliery* (Cowan's Freehold).—Prospecting, by following the thin seam into the hillside, has been carried out by two miners. Only a few tons of coal were won before the mine was abandoned.

*Glendale Colliery, Opaheke.*—The mine is situated seven miles east of Opaheke, and is being worked by a party of Hikurangi miners. The seam is 5 ft. thick, with intervening bands of shaley coal, which increases the ash-content and makes it difficult to market. A new drive at a higher level is being extended into the hillside, with the view of intersecting the seam at a point where the future workings will be to the rise, thus dispensing with pumping operations. The output is carted to Papakura and surrounding districts.

*Rangitoto Coal-mine* (Native Lease, Tahia).—A small output was obtained from two headings, to the rise, proceeding into the hillside. The old workings are used for purposes of drainage. The output is used locally, and three men are employed.

*Relief Coal-mine* (Auckland University Council Endowment Lease).—A party of eight unemployed miners, assisted by the Unemployment Board, have opened out a small coal-mine on the above lease, two miles south of Huntly. There is little demand for the coal, due to its soft nature and dull appearance. The output is bagged at the mine and transported down an aerial ropeway to the county roadway.

*Taranaki District.*

*Old Stockman Colliery, Mokau.*—Wright and party continue to win coal from a small mine opened out on the west bank of the Mokau River. The roof is of hard sandstone. The quality of the coal is good, and the only drawback is the water transport to the market.

*Mokau Colliery* (Mokau Collieries, Ltd., Owners).—Operations ceased during the year owing to difficulties experienced in transporting the output over 3½ miles of surface tramway and then by steamer to New Plymouth.

*Egmont Colliery* (Crown Lease: Egmont Collieries, Ltd., Owners).—The company's mine at Tangarakau was closed down during the month of July, due to the stony character of the coal-seam and to the fact that half of the seam contained unmarketable coal.

The company prospected an area of Crown land near Tatu with satisfactory results, as regards the quality of the coal and the thickness of the seam as compared with the seam worked at Tangarakau. Developing headings revealed 7 ft. of clean coal covered by a strong roof, and as the seam was situated 400 ft. above the Tatu Valley, at a height precluding road access, one mile of aerial ropeway was installed for purposes of lowering the coal to the valley. From there it is carted a distance of approximately five miles either to Heao or Mangaparo Railway-stations. From the outcrop the seam dips moderately to the north, and apparently extends under precipitous hills which prohibit the transport of heavy boring-machinery. The only other way of testing the field is to push headings rapidly ahead, on the strike of the seam, in order to prove if a workable area exists sufficient to warrant the extension of the aerial ropeway to Mangaparo, a further distance of four miles. An output of 11,838 tons was obtained from both mines.

*Gilberd's Colliery* (Crown Lease, Tatu).—The seam was troubled by faults and heavy roof, which required close timbering. The mine was closed at the end of the year, and some prospecting is being carried out on an area ahead of the present workings.

SERIOUS NON-FATAL ACCIDENTS.

On the 6th March J. Dryburgh, who was in charge of the Sullivan electric coal-cutting machine at the MacDonald Colliery, sustained an electric shock whilst handling the control lever preparatory to switching the machine into service.

On 13th March W. Thomson, a miner employed in the Wilton Colliery, had his foot injured by a piece of roof-coal which fell whilst he was engaged in filling a skip.

On 28th May R. Moore, a trucker employed in the Wilton Colliery, sustained a fractured right collar-bone due to a derailed skip displacing a prop which fell on him.

On 19th July William Hawser, miner of the Hikurangi Shaft Colliery, fractured some of his left ribs whilst engaged in lifting a full skip.

On 17th August F. Smith, employed as Deputy in the Rotowaro Colliery, was injured by a fall of stone. His injuries consisted of bruising and a rather painful injury through the pick point entering his side and puncturing his intestines.

DANGEROUS OCCURRENCES (REGULATION 82 OF THE COAL-MINES ACT, 1925).

On 3rd June a heating was discovered in a working-place in the east section of the Pukemiro Colliery. The area was effectively sealed with brick stoppings.

On 1st August steam was observed issuing from a fall to the surface over old workings in the Whatawhata Mine. The vent-hole was subsequently filled in.

On 19th September the Hikurangi Mine was flooded and abandoned as a result of an increased flow of mine water and the inadequacy of the installed pumping-machinery. The flooding also affecting the neighbouring Waro Colliery, which was abandoned at the end of the year.

On 4th October a temporary wooden stopping against the goaf in No. 2 south pillar section of the Renown Colliery showed indications of heating. Brick stoppings were subsequently erected and the fire suppressed.

On 17th November a further heating of the goaf was discovered in a working-place in No. 3 south section of the Renown Colliery. Stoppings were erected and the fire sealed off.

On 12th December a heating of the coal occurred in the third level of the Avoca Colliery. The fire was subsequently controlled by stoppings.

PROSECUTIONS.

A miner was convicted and fined £2 and costs for wilfully rendering useless, contrary to section 195 of the Act, the boxes provided to conduct the ventilating air-current in to his working-place.

A mine-owner was charged that, being the owner of a mine, he did work such mine for more than three days without there being a duly qualified manager appointed for such mine. A conviction was recorded and a fine of £2 and costs inflicted.

A miner was charged under Regulation 67 of the Act for fighting. He was convicted and fined 10s. and costs.

Proceedings were taken against a Deputy for behaving in a violent manner towards a miner. He was convicted and fined £3 and costs.

A permit was cancelled by reason of misconduct by the holder in the performance of his duties.

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

The combined output from the Nelson, Buller, Reefton, and Grey districts was 783,439 tons, being an increase of 54 tons on the output for the previous year. The Nelson, Buller, and Reefton districts show increases of 1,084 tons, 14,020 tons, and 10,484 tons respectively, while the Grey district shows a decrease of 25,534 tons. The total number of persons engaged underground and on the surface was 2,081.

During the year no new mining development work of any magnitude was carried out. In the majority of the larger mines, the bulk of coal won was from pillar-extraction. The use of the "panel" system of working continues to extend and in practically every mine of any size this system has been adopted. In the work of pillar-extraction the straight-line system is almost always adopted. Another point of importance which has been forcibly illustrated as the result of men working only partial time is the increased risk to the workmen in the extraction of pillars.

GREY DISTRICT.

*Liverpool State Colliery, Rewanui.*—Two seams are still being developed at this colliery.

Morgan Seam: In this seam all workings are to the rise and, with the exception of a small area in the No. 3 west section, which is being developed, the output from this seam was obtained from pillar-extraction, the straight-line system being used. A barrier from 1½ chains to 2 chains in width was left to protect these workings from those of the old No. 1 Mine. Several pillars were left behind to protect the workings from creeks overhead.

Kimbell Seam: Operations in this seam consisted of development work in the Anderson dip section and No. 8 bank, Kimbell east section, and also the extraction of pillars from three rise sections. In all places worked in No. 8 bank, Kimbell east section, the seam became intersected with stone and dirt bands. Development work in the Anderson dip section proceeded in a satisfactory manner, the coal produced therefrom being of excellent quality.

*James State Colliery, Rapahoe.*—Development operations at this mine during the year consisted of opening up a new dip section in the crosscut area situated on the northern side of the crosscut dip, a barrier of coal 1½ chains in width separating the two sections. At the initial stage of development work in the new dip section, the seam was inclined to be soft and friable, but, as the workings were extended, it improved considerably in quality, and towards the end of the year clean hard coal, up to 7 ft. in thickness, was being worked in the places. In the remaining section coal was won from pillar-extraction. The underground conditions were ideal for this class of work, the roof being exceptionally hard. In the west section the work of coal-winning being completed, the pillared area was sealed off by means of concrete stoppings.

Prospecting: Work under this head was confined to drilling by means of a diamond drilling plant on the State Reserve between the Nine-mile and Kiwi Creeks. During the year three holes were drilled, the total depth of which amounted to 1,530 ft. In each of the three holes drilled, two seams were cut, varying in thickness from 11 ft. to 23 ft. Drilling operations were then suspended.

*Blackball Coal-mines Pty., Ltd., Blackball.*—All coal produced was recovered from former abandoned workings, more particularly in the neighbourhood of the old No. 16 bank, where a dip was put down and pillars extracted from the old No. 1 level section. The stone drive was continued to the dip a distance of 9 chains, and at this point was turned north-west and driven level. Coal was struck about 4 chains along the level on the 18th September. The seam struck was lying at a very high angle and necessitated some alteration in grading before any effective work could be carried on. This regrading was nearing completion at the end of the year, and coal should be produced from the area early in 1935.

*Blackball Creek Coal Co., Ltd., Blackball.*—The work of extracting coal from the top seam in the areas already opened up was continued throughout the year. No new work of any kind was attempted.

*Briandale Collieries, Ltd., Ten-mile.*—Development work in No. 1 aerial section was completed, and pillar-extraction was commenced. In No. 2 section development work was carried out in three working-faces between two parallel fault-lines running on a bearing of 33°, the coal varying in thickness from 5 ft. to 7 ft.

Prospecting: Towards the end of the year, drilling operations were commenced, but were not sufficiently advanced for any results to be obtained. Boring is to be continued during 1935.

*Wallsend Colliery (Brunner Collieries, Ltd.), Brunner.*—The driving of the main headings on three shifts was continued. The main roads were brushed and regraded where necessary and heavy rails laid throughout. The main west levels were advanced a total distance of 30 chains from the bottom of the main stone tunnel. During the last 10 chains of driving, the grade eased somewhat, while the seam thinned to approximately 6 ft. with very uniform conditions and a good roof. Adjacent to the heading face, a fourth rise panel was opened out. The third rise panel was well developed, but here a cross intrusion, with a thinning of the seam, inferior coal, and at times a troublesome roof were encountered. A somewhat similar zone was met in the initial stages of the second rise panel. After this was pierced, coal of very good quality, with fairly uniform conditions, was encountered generally. The first rise panel yielded splendid coal throughout, although the roof generally was not as good as in the other sections. Development here advanced to the end of the intended panel in a northerly direction, and the section is being worked towards the fault which bears off considerably towards the east. The first pair of rise headings is nearing the boundary, but, as the Kimberly fault-line is not far distant, it is intended to advance these headings with a view to proving the existence or variation of this fault. The slant dip was advanced a distance of 17 chains and the first dip panel is being opened out. The coal in the dip was of good quality, 12 ft. in thickness, conditions generally being fairly uniform. During the year a new fan motor (150 horse-power no-lag motor) was installed with a view to improving the ventilation.

*Dobson Mine (Grey Valley Collieries, Ltd.), Dobson.*—As the result of the explosion on the 5th January, 1934, it was found necessary to seal off 25 acres of pillar coal in the east and Ruane's sections. The work of sealing off prevented the resumption of coal-production until the 6th March, 1934. During the year, the output of the mine was largely won from development workings. In the No. 2 west-level section, the main level is within 1½ chains of the boundary on the western side of the lease. Ten chains from the dip to No. 2 west section, another set of levels, known as No. 3 west, are being driven. From these levels a panel of working is in course of development to the dip. A farther 10 chains from No. 3 west levels another set of developing levels has been set away. These being at the 1,000 yards mark down No. 1 main dip, will constitute a main lift in the general laying-out of the mine. It is proposed to install an endless rope haulage to operate this lift of 1,000 yards. The extent of normal working in an easterly direction was curtailed due to the existence of a severe anticline, the effect of which was to alter the level countour to a direction approximately parallel with the main No. 1 dip. Levelling records show that workings in the easterly direction will require to be laid, having a gradient varying from 1 in 2 to 1 in 1½. A pair of prospecting levels, known as No. 3 east, have been commenced and follow the level course contour of the anticline. To the dip of No. 3 east, a panel of workings is in course of development. The dip drive opening up this area struck a downthrow fault of about 8 ft. displacement. This proved rather difficult to negotiate, the grade having to be made much steeper to drive across the fault. The No. 3 east levels were broken away from No. 1 dip opposite No. 3 west. A further pair of levels was broken away at a point coincident with No. 4 west, known as No. 4 east. For the year, the mine worked 126 days on a greatly reduced output.

*Tyneside Collieries Ltd., Brunner.*—This mine remained closed throughout the year.

*Paparoa Colliery, Roa.*—Coal-winning operations were carried out in both the aerial and west sections during the year.

In the west-level section the main development places going north-easterly were stopped near the outcrop, and the work of cutting up a block of coal 9 chains by 5 chains into pillars was commenced. In No. 1 panel development work was continued throughout the year. In the No. 2 panel, the main level going north-westerly was stopped on a fault near the outcrop, no development work being undertaken since the explosion in November, 1933. In the aerial section the work of splitting and extracting pillars was carried on.

*United Brunner Mines, Ltd., Brunner.*—Very little work was done during the year. A small amount of coal was won from pillars left behind in the working of the old Brunner Mine. Considerable quantities of black-damp, given off from the old workings, caused a suspension of mining operations until ventilation appliances had been installed.

*Co-operative Mines in Grey District.*

*Spark and Party's Mine, Rewanui.*—Development work during the year consisted of driving a pair of levels in a northerly direction in coal 7 ft. in thickness. The pillars formed are slightly in excess of one chain square in area. Dirt bands from 8 in. to 15 in. in thickness made their appearance in the coal-seam.

*Duggan and Party's Mine, Rewanui.*—Coal-production from this mine was confined to the extraction of pillars left behind in the old No. 3 Liverpool State Mine. The work of extraction is nearing completion, and this mine will shortly be closed.

*Old Runanga Mine (O'Brien and Party), Rewanui.*—Three separate mines have been developed at this colliery. In No. 1 Mine two main levels were driven northerly a distance of 21 chains in coal from 4 ft. to 6 ft. in thickness. In No. 2 Mine a pair of parallel levels was driven northerly a distance of 7 chains. In No. 3 Mine the seam overlies No. 2 Mine. Parallel levels were driven 4 chains north-westerly in coal 3 ft. in thickness.

*Goldlight Colliery (Williams and Party), Rewanui.*—The work of pillar-extraction was continued throughout the year, and an area of approximately 5 acres goafed. No development work was undertaken during the year.

*Moody Creek Mine (Simpson and Party), Dunollie.*—In the old mine coal-winning operations were suspended and work confined to opening up two new seams east of the present workings. The seams pitch steeply on a grade of approximately 1 in 1½. Two parallel dip headings were advanced a distance of 4 chains in a south-easterly direction. Parallel levels were then driven a distance of 7 chains south-westerly. The coal, which is of good quality, varies from 6 ft. to 8 ft. in thickness.

*New Point Elizabeth Mine (Guy and Party), Dunollie.*—The work of pillar-extraction between the two faults was continued during the year. A stone-drive was projected in a north-westerly direction through a fault, and a new section was opened out. The coal in the new section was somewhat broken, evidently under the influence of the faulting.

*Fiery Cross Mine (Currie and Party), Dunollie.*—On the north-eastern boundary pillar-extraction was commenced, and the major portion of the output during the year was won from pillar-extraction.

Development work: A new drive was opened in coal 4 chains below the old mine workings, and a level driven 3 chains northerly in coal from 3 ft. 6 in. to 4 ft. 6 in. in thickness.

*Baddeley and Party, Dunollie.*—All solid work to the rise having been completed, a dip on a grade of 50° to 65° was driven for a distance of 3 chains easterly and levels broken away and driven in a northerly direction in coal 7 ft. in thickness.

*Castlepoint Mine, Dunollie.*—The bulk of coal won from this mine was from pillar work on the northerly portion of the lease. No development work was undertaken during the year.

*Hilltop Mine (Armstrong and Party), Ten-mile.*—The main dip going south-easterly was stopped adjacent to the fault-line and pillar-extraction commenced in coal from 14 ft. to 16 ft. in thickness. A total area of 7 acres of workable coal standing in pillars remained to be extracted. During November, an outbreak of fire occurred in this mine and was sealed off by means of twelve wooden stoppings covered with brattice, the whole being treated with a wash of three parts of stone-dust to one part of cement. The manager decided that it was advisable to flood the workings in an endeavour to put out the fire. Coal-winning operations were therefore suspended and all material removed from the mine. In December development operations were commenced in a small seam lying to the west of the old mine.

*Brady and Party's Mine, Ten-mile.*—Development work was mainly to the south on the strike of the seam. The coal in the level face gradually increasing in thickness to 9 ft. was of good quality. Conditions at this mine are favourable for economical development.

*Hunter and Party's Mine, Dunollie.*—The output was obtained from pillar-extraction to the east of the main level. No development work was undertaken during the year.

*Cox Creek Mine (Coates' Lease Worked by Kaye and Party), Twelve-mile.*—Pillar-extraction having been completed, the mine closed down.

*Schultz Creek Mine (Marshall and Party), Twelve-mile.*—Development work throughout the year consisted of driving No. 2 incline on a bearing of 17°. The coal-seam varied from 2 ft. to 3 ft. in thickness. All development work to the east was stopped on the fault.

*Dennehy's Mine, Twelve-mile.*—The work of extracting the pillars was continued during the year, the coal being 3 ft. in thickness.

*Cain's Mine, Rapahoe.*—The work of pillar-extraction was continued during the year.

Development work: Preparations were made to develop a small block of coal lying to the east of the present main drive. Towards the end of the year this work was stopped. A Keith-Blackman fan, capable of producing 25,000 cubic ft. of air per minute, was installed.

*Bellbird Mine (Fauth and Party), Ten-mile.*—The main dip was extended a total distance of 12 chains in a southerly direction, at which point the coal-seam split and thinned. Places driven east and west from the strike of the seam have reached parallel faults 9 chains apart.

*Bellvue Mine (Hadcroft and Party), Rapahoe.*—The work of pillar-extraction was continued throughout the year on the south-western boundary of the lease. During the year two outbreaks of fire occurred in the pillared area, one adjacent to Cain's Mine and one on the eastern boundary of the mine. These were successfully sealed off and coal-winning resumed.

*Jubilee Mine (Pinn and Party), Rapahoe.*—In the old mine pillar-extraction was continued.

Development work: A dip-drive was commenced and projected a distance of 5 chains in a north-easterly direction, the coal being from 4 ft. to 6 ft. in thickness.

*Musselpoint Mine (Curtis and Party), Nine-mile.*—The work of extracting pillars was continued throughout the year. Only a small amount of coal remained to be won at the end of the year.

*Smith and Party's Mine, Dunollie.*—Development work was continued on the strike of the seam, and five levels were advanced in a northerly direction a total distance of 13 chains from the main dip, the coal varying from 4 ft. to 6 ft. in thickness.

*Braehead Mine (Boote and Party), Dunollie.*—Throughout the year pillar-extraction was continued in the north-easterly portion of the lease.

Development work: A dip was commenced and driven in a southerly direction for a distance of 5 chains. From the main dip, levels were broken away and driven east and west. Lack of power for haulage purposes prevented the carrying-on of mining operations farther to the dip.

*Stillwater Mine (Boustridge's), Stillwater.*—Development work was carried on in a vertical seam running north and south. The thickness of the seam was extremely variable and stone intrusions seriously hampered mining operations. The coal varied from 18 in. to 8 ft. in thickness, the average thickness being in the vicinity of 4 ft.

*Remarks on Co-operative Mines in Grey District.*

No extensive development work was undertaken at any of the mines during the year. Several of the mines are nearing exhaustion, and the proprietors thereof are endeavouring to locate suitable coal-bearing lands for future development.

### Reefton District.

*Archer's Mines, Capleston.*—In the No. 1 seam development operations were hampered by lack of power. Pillar-extraction was commenced, and towards the end of the year the mine was abandoned.

*Hopeful Mine (Archer's Lease).*—In No. 1 section, the main level was driven a distance of 375 ft. in a northerly direction when the seam pinched out between the hanging and the foot walls. Stoping operations were then commenced. The coal was extremely friable, having been crushed between two fault-lines.

In No. 2 Section a stone-drive was projected 306 ft. in a south-westerly direction in order to reach No. 2 seam. Coal has not yet been reached. The country is very much broken.

*Smith and McCormack's Mine (Archer's Freehold).*—This small party being unable to make a success of the mine, operations were suspended. Towards the end of the year, Mr. F. Archer commenced to reopen the mine by reconditioning and timbering the main level in order to win coal to the rise.

*Coghlan's Mines, Capleston.*—Eone Mine (Leasehold): Mining operations ceased during the year. Coghlan's Freehold: The bulk of the output was won from pillars to the rise. The work of driving the main level was recommenced and several small rolls crossed. The drive is in faulted country, the coal being of inferior quality. From the main level a main return airway was commenced and is being driven to connect with the old Eone Colliery to the rise.

*Waitahu Mine (A. D. Williams), Reefton.*—The work of coal-winning in the No. 3 Mine was suspended due to the slackness of the coal trade, and the No. 1 Mine was reopened and a dip-drive commenced and pushed forward for a distance of 52 ft. on a bearing of 62°. At this point levels were broken away to the right and left. A hand-winch and hand-pump were installed.

*Golden Point Mine (T. S. Patterson), Reefton.*—The mine remained closed during the year.

*Venture Mine (Old Beechwood Mine (J. and I. Patterson's Lease), Reefton.*—The main level going northerly was extended in friable coal. Very little coal of a marketable nature was won from this mine during the year.

*Morrisvale Collieries, Reefton.*—Perfection Mine: This mine worked intermittently during the year. Pillar-extraction to the east of the main level was continued. A dip-drive was extended southerly a total distance of 3½ chains. Three levels were broken away. The two top levels were driven for a distance of 5 chains and the bottom level a distance of 3 chains in a north-easterly direction. A small amount of pillar coal was extracted from the top levels. The mine was temporarily closed due to slackness in the coal trade. Surprise Mine: The west levels were driven a distance of 8 chains from the main dip. This section was stopped on account of proximity to surface gravels. The east levels were driven a distance of 11 chains through troubled country into good coal. The panel adjoining the main dip was stopped owing to the poor quality of the coal and a new panel is in the process of development. A 75 kw. generator was installed on the surface. Welcome Mine: A fire broke out in this mine during the year and spread over the whole of the section. It was found impossible to prevent the spread of the fire, and the mine was abandoned. Higrade Mine: Pillar-extraction was continued intermittently during the year. No fresh development work was undertaken.

*Burkes Creek Collieries, Ltd., Reefton.*—North-east Panel: Coal-winning operations were nearing completion when a heating occurred below a fall in the old workings. Attempts were made to fill out the heated material, but fresh falls occurred, making it impossible to get at the seat of the fire. Four concrete stoppings were then erected, completely sealing off this panel. To the south-west of the dip two drives were commenced and projected through the fallen ground, and two panels were developed. In No. 1 panel, four acres in extent, development work at the end of the year was nearing completion and No. 2 panel was commenced. All places were driven from 6 ft. to 10 ft. in width. The roof breaks readily and heavy timbers are required to secure the main drives. The coal was of good quality from 8 ft. to 12 ft. in thickness. During the year the main dip was retimbered and all old workings were sealed off, a total of twenty concrete stoppings being required to complete this work.

*Sparkless Mine (Lockington's Lease), Reefton.*—Prospecting operations were continued throughout the year. A small amount of marketable coal was produced.

*Times Street Mine (H. A. Honey's Lease), Reefton.*—Parallel headings were driven in a north-easterly direction in the No. 4 seam.

*Phœnix and Venus Mines (N. Collins' Lease), Reefton.*—Several small drives were put in from the outcrop during the year, the object of which was to locate and extract small blocks of coal that were left between the fire and the fault-line.

*Defiance Mine (D. McLaughlin's Lease), Murray Creek.*—Development work consisted of driving the main level on the strike of the seam.

*Wealth of Nations Mine (Lankey's Creek Pty.), Crushington.*—The bulk of the coal produced during the year was won from pillar-extraction. A level was commenced one chain below the present mine mouth and driven in a north-easterly direction parallel with the outcrop.

*Clele Mine (Alborn and Party), Merrijigs.*—During the year a block of coal approximately 3 chains in width and from 7 chains to 8 chains in length, outcropping on both sides of the spur, was developed by means of a pair of levels. The coal varied in thickness from 4 ft. to 4 ft. 6 in. Towards the end of the year pillar-extraction was commenced.

*White Rose Mine (W. Osborn's Lease), Merrijigs.*—A small amount of pillar coal was won from this mine during the year.

*Remarks on Reefton District Mines.*

The larger mines show some improvement in mining conditions. At the Morrisvale Mine electric plant has been installed. The smaller mines continue to carry on mining operations in a very primitive manner, without the aid of machinery for pumping, hauling, and screening.

BULLER DISTRICT.

*Mitchell's Mine, Charleston.*—46 tons of coal were won from opencast workings during the year.

*Price's Freehold, Brighton.*—The mine remained closed throughout the year.

*Rocklands Mine (J. P. Burley's), Buller Gorge.*—A small amount of pillar coal was obtained from the rise workings.

*Whitecliffs Mine (J. H. Burley's), Buller Gorge.*—No coal was won from this mine during the year.

*Coal Creek Mine (McGuire and Party), Seddonville.*—A small amount of prospecting-work was done, but no coal was produced.

*Glasgow Mine, Seddonville.*—A small amount of coal was obtained from pillar-extraction for local sales.

*Cardiff Bridge Mine, Seddonville.*—The remaining pillars having been extracted, the mine closed towards the end of the year. Prospecting operations having been carried out on Kynnersley's area, the plant was removed and preparations made to open up a new mine.

*Chester's Mine, Seddonville.*—This mine worked intermittently throughout the year. No new development work was undertaken.

*Westport–Stateville Mine, Seddonville.*—The mine remained closed throughout the year.

*St. Helen's Mine, Seddonville.*—This mine was closed down and all plant removed.

*Charming Creek Mine, Ngakawau.*—Towards the end of the year the suspension bridge over the Ngakawau River was carried away and the mine-manager, who was riding on a rake of trucks that was crossing the bridge at the time, was drowned.

Three main headings were advanced on a bearing of 78°. In the panel to the dip the main headings reached the fault. All places driven in a northerly direction towards the No. 7 borehole in coal 20 ft. thick were also stopped on a fault. In the top panel, two headings were extended in 17 ft. of clean coal. The floor was undulating, and as there was no power available for pumping, difficulty was experienced in driving the winning places. Roof conditions in the mine were good. Working-faces were driven from 12 ft. to 14 ft. wide and 7 ft. to 9 ft. in height.

*Westportmain Mine, Granity (Westport-Granity Coal-mines, Ltd.).*—This mine remained closed throughout the year.

*Westport-Cascade Mine, Cascade Creek.*—In Moynahan's section solid work was nearing completion and pillar-extraction commenced, the coal at this point being some 50 ft. in thickness. In Durkin's section, the main levels having reached the gravel, pillar-extraction was commenced. All development work in the Cascade Mine is now practically completed.

*Westport Coal Co., Ltd., Denniston Mines.*—Prospecting, developing, and solid work: With the exception of the new area, very little prospecting was done during the year. Surface prospecting disclosed several outcrops, but they appeared to be broken. Ironbridge Mine: In Garing's dip section two headings were driven in a north-easterly direction. The seam was split with stone bands and several small faults were in evidence. The coal was of good quality and eight pairs of miners were engaged in coal-production in this section. Deep Creek Mine: Eleven pairs of men were employed in this section. The major portion of the solid work was completed and pillar-extraction was carried on. The dip that was being driven in a south-westerly direction was temporarily stopped. The coal-seam is uniform and fairly hard, with the exception of several bands against the sandstone roof, the coal varying from 12 ft. to 14 ft. in thickness. No. 2 pillar section: Four pairs of miners were employed on pillar-extraction in the bottom seam. The coal was of a hard nature and 9 ft. in thickness. Coalbrookdale mine—Openshaw's section: Four pairs of men were employed in this section. The work of opening out the panel was nearing completion, and pillar-extraction will shortly commence. Waterloo section: Two main headings were commenced and driven in a south-westerly direction into thin coal and were stopped. Thirteen pairs of men were employed in the two sections in solid work. Whareatea Extended Mine: Four pairs of colliers were employed in the developing section known as "Wiseman's Dip." The coal was hard and of good quality. Pillar Work (Wharcatea Extended): Eleven pairs of colliers were engaged on pillar-extraction in coal of excellent quality. Cascade Mine: Headings were driven in a north-easterly direction towards an area of coal left behind when No. 8 Section fire was sealed off. Good progress was made, but the undertaking presented many difficulties. Pillar-extraction (Cascade section): Five pairs of men were employed on this work during the year. Haulage: A small subsidiary haulage was installed in No. 2 section, Ironbridge Mine, during the year. Ventilation: A 50 in. Sirocco fan, complete with 50-horse-power synchronous motor, was installed adjacent to the entrance to the Ironbridge Mine alongside Deep Creek haulage road, to ventilate Garing's dip and No. 2 sections. Fires: No trouble was experienced with fires during the year.

*Westport Coal Co., Ltd., Millerton Mine.*—Coal-winning operations were confined to the third and fifth west sections of the colliery. These were subdivided into artificial panels by means of concrete stoppings. The pillars were robbed instead of being totally extracted. This was done to prevent a cave to the surface which is only from 80 ft. to 100 ft. above the coal-seam. The stumps or small pillars were left behind to support the roof. After this operation was completed the panels were sealed off and filled with water to a depth varying from 10 ft. to 15 ft. This was done to prevent any possibility of spontaneous combustion within the panel. The panels were small in area and work was concentrated in order to effect a speedy extraction. It was hoped by these means that a greater percentage of coal could be won by eliminating the fire hazard. A total of eighty-five men was employed at this time. Since the completion of the water-seal stoppings in the No. 2 dip area, no $H_2S$ has been found in the return airway.

*Westport-Stockton Coal Co., Ltd., Ngakawau.*—Development work was confined to the new east and south-west sections. A large area was formed into pillars in the new east section. Towards the south the seam rose steeply, rendering the handling of large trucks difficult. The main headings were advanced a further distance of 5 chains. Roof conditions in the section improved. To the left of the new panel the workings continued to be very wet. In the south-west section operations were confined to penetrating the south-west fault. The headings were advanced a distance of 4 chains beyond the fault, the first 3 chains of which were through very troubled and wet ground. Towards the end of the driving, conditions improved, revealing an excellent quality coal of good thickness. In the old east and west areas operations were confined solely to piller extraction.

### Nelson District.

*Puponga Mine, Puponga.*—The crosscut dip was driven 4½ chains towards the supposed line of fault. The coal was 5 ft. 4 in. in thickness, containing a band of stone varying from 3 in. to 5 in. Below the main level pillar-extraction was carried on between the level and the fault.

*Mount Burnett Mine, Collingwood.*—Two levels were continued from the foot of the main dip, which was driven a distance of 7 chains. Going south, the bottom level struck a fault 8 chains from the foot of the dip. In the north level the coal thinned within a distance of 5 chains. The seam pitches steeply on a grade of 47°.

*Broxbourne Mine, Takaka.*—This mine was closed.

*Motupipi Mine (Winter's), Motupipi.*—A small amount of coal was recovered by stripping operations on the beach.

*Abbotsford Mine (Irvine's), Takaka.*—No work was done at this mine during the year.

*Seymour Mine (Owen Collieries, Ltd.), Owen River.*—In the early part of the year coal was won from pillars to the rise. Towards the end of the year this work was stopped and a dip started at a point 2 chains from the mine-entrance and driven a distance of 75 yards. From this dip levels were broken away and driven on the strike of the seam, the coal being about 3 ft. in thickness. In order to recommence operations to the dip it will be necessary that extra machinery be provided for haulage and pumping purposes.

*O'Rourke's Mine, Murchison.*—Coal-winning operations were confined to extending the bottom level, the coal-seam being 2 ft. in thickness.

*Wynndale Mine, Murchison.*—The seam is practically vertical. Eight levels were driven immediately above one another in a north and south direction, the distance apart of the levels being 20 ft. vertical measurement. The outcrop was reached at various points. In the northern portion of the lease a drive was opened up across the creek and proved the seam at this point to be 10 ft. thick between the hanging and foot walls.

*Clarke Mine (Hartshorne's), Baton.*—In the main drive, which is evidently following a fault-line, the coal pinched and became dirty. The last 50 ft. of driving was through rubble from which no coal of any commercial value was obtained. It is proposed to remove the small amount of coal remaining in pillars.

*Burnwell Mine, Baton.*—This mine remained closed throughout the year.

### Fatal Accidents, 1934.

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

On the 15th January, 1934, John Thomas Nicholas, miner, Stockton Mine, was killed instantaneously by a fall of roof coal in his working-place in No. 1 dip section.

On the 12th March, 1934, Holland Eckersley, roadman, employed on the Westport Coal Co.'s lower incline at Denniston, was found dead, lying across the rails of the incline. There being no witnesses to the accident, it was surmised that he was struck by a moving rope and fell under a coal-wagon and was killed instantly.

On the 19th March, 1934, Joseph Smith, miner, Denniston Mine, was buried under a fall of stone and coal in Wallace's section of the Cascade Mine. Death was due to suffocation.

On the 27th April, 1934 Colin Sneddon, miner, Liverpool Colliery, was killed by a fall of coal in his working-place in No. 1 bank east, Morgan section.

On the 13th June, 1934, Lawrence Pattinson, miner, New Point Elizabeth Mine (Guy and Party's), was charging a shot-hole with defective explosive when it detonated, inflicting fatal injuries to his face and chest.

On the 1st October, 1934, owing to the collapse of the suspension bridge, precipitating into the Ngakawau River a rake of trucks on which he was riding, Alexander G. Marshall, mine-manager, Charming Creek Mine, lost his life through drowning. The river was in flood at the time.

On the 13th November, 1934, William Timlin, miner, Liverpool Colliery, was buried by a fall of roof coal in No. 3 bank, Morgan section. His death, which occurred after he had been extracted from the coal, was due to shock and internal injuries.

### Serious Non-fatal Accidents, 1934.

Seven serious accidents were notified during the year, as follows:—

On the 9th February, 1934, William Wick, engine-driver and pumpman at Smith and Party's Co-operative Mine, received severe injuries to his spine and a fractured skull. He was working adjacent to the bin stacking planks on an old gantry, which collapsed, throwing him to the ground, a distance of 17 ft. This gantry had previously been condemned as being unsafe.

On the 10th February, 1934, Thomas Gutberlet, carpenter, Wallsend Mine, received a fractured skull. Hearing a moving rake of empty trucks derailed, he stepped out in the main haulage road to signal to the winchman to stop the rake, at the same time standing behind a large prop. The winchman obeyed the signal, but one of the derailed trucks bumped the prop before stopping, dislodging it, and knocking Gutberlet down. In fending off the prop, which fell with him, he either bumped his head on the floor or rib, inflicting the above-mentioned injury.

On the 28th March, 1934, Samuel Marsh, miner, Puponga Mine, was repairing timber in the roadway when a stone fell from the roof, causing a compound facture of the left leg. He was removed to the Nelson Hospital, and his leg was amputated above the knee.

On the 14th June, 1934, James Rattray, trucker, Ironbridge Mine, Denniston, was cutting a steel-wire rope when a piece of flying wire penetrated the left eyeball.

On the 27th July, 1934, Nathan Heward, aged nineteen years, who was employed in the fitting-shop, Liverpool Colliery, Rewanui, met with a serious injury to his right eye, which afterwards had to be removed. He was engaged punching a piece of $\frac{1}{4}$ in. plate with the punching-machine when a piece of steel flew off the point of the punch, striking him in the eye.

On the 22nd August, 1934, John Corcoran, miner, Stockton Mine, received a dislocated clavicle and fractured ribs when he was buried beneath a fall of roof coal in the Fly Creek section of the mine.

On the 4th October, 1934, John McEnaney, miner, Bellbird Mine (Fauth and Party) was struck by a fall of roof stone at his working-face and received fractured pelvis and burst bladder.

### Dangerous Occurrences in Coal-mines (Regulation 82, Coal-mines Act, 1925).

On the 5th January, 1934, an explosion occurred in the east rise section of the Dobson Mine. A secondary explosion, which occurred about twenty-five minutes later and which was much less violent, obscured much of the evidence as to the site of the point of origin of the first one. The mine, fortunately, was idle that day, but two workmen were underground—viz., Deputy Walter Dando and Pumpman James Purton, who, apart from suffering severe shock, escaped injury. These workmen were, at the time of the first explosion, proceeding up the No. 1 dip towards the bottom of the stone-drive after completing their day's work, and, as they were not in the area affected by the explosion, they could not have contributed towards it. During 1933 the work of extracting pillars in the east rise section had been carried out and several heavy roof falls had taken place in the goafed area. Fire-damp on the edge of the goaf in the east section had been reported that morning by the deputy during his morning examination. During the previous four months gas had been reported on many occasions and was evidently exuding from the goaf in such a manner that the ventilation current could not keep the places clear. After a careful examination of the mine by the inspection staff and the management, the conclusion arrived at was that the explosion was caused by the ignition of fire-damp from heat due to the movement of the hard quartzitic sandstone roof rock in one of the goaf areas. The confining of the explosion to the east and west sections was largely due to the use of stone-dust and the blanketing effect of water dammed back in the bords wherever possible.

Stoppings: It was decided that the east pillar and Ruane's pillar sections be sealed off with concrete stoppings 2 ft. in thickness to prevent any recurrence of this nature. The coal company called in two independent mining engineers to report on the position. It has been decided that complete extraction of pillar coal from the rise downward will not again be attempted.

On the 31st January, 1934, a heating occurred on the boundary between Bellvue (Hadcroft and Party) Mine and Cain's Mine. Wooden stoppings were immediately erected and the fire sealed off.

Early in the year evidence of heating was observed to the west of the main rope-road in the James State Colliery. Twelve concrete stoppings were erected and the whole of the suspected area sealed off.

On 14th April, 1934, an incipient fire was discovered in some old timber in a road approximately 16 yards from Whareatea rope-road, Coalbrookdale Mine, Denniston. The fire was quickly under control and extinguished in about three hours. It was suspected that a burning cigarette or match had been thrown on to the timber.

On the 2nd June, 1934, a fire was discovered raging in some old workings in the Welcome Mine, which is situated on the Morrisvale Lease, Reefton, and worked by Mr. W. Wood. A dam was erected, blocking the mouth of one of the drives and a small creek was diverted into the mine, but this had little effect on the fire. It is probable that the fire was due to spontaneous combustion in the slack left in the old workings. This mine is a total loss.

On the 16th June, 1934, a heating occurred in Smith and Party's Co-operative Mine in the pillared portion lying to the south of the main dip. Three board stoppings were erected, effectively sealing off the heated area.

On the 24th July, 1934, a heating occurred in the panel on the north-eastern side of the main dip in the Burke's Creek Mine. On the 2nd August, 1934, this heating was reported as being more active, and the section was sealed off with four concrete stoppings.

On the 26th July, 1934, notification was received that a heating had occurred in the goaf in No. 6 opening in the Blackball Creek Mine. The workmen were withdrawn and the section sealed off.

On the 16th August, 1934, the mine-manager notified that a workman in the Old Runanga Co-operative Party's Mine was slightly burned around the head and arms by gas issuing from a break in the floor coming in contact with his naked light. Safety lamps are now being used in this section of the colliery.

On the 6th September, 1934, a heating occurred in the north-eastern portion of the Bellvue Mine, and was sealed off with wooden stoppings.

On the 12th October, 1934, a large slip, which demolished the winch-house and binns, occurred at the Blackball Creek Coal Co.'s No. 3 Mine. Fortunately no one was there at the time. Evidence of fire was discovered in the abandoned No. 6 section in this mine, and the section was sealed off.

On the 10th November, 1934, a report was received from the mine-manager of the Hill-top Mine (Armstrong and Party) that a fire had broken out at the goaf edge near the inside workings of No. 2 level pillars. On inspection it was revealed that the fire had been blazing for several days and the position was serious. Temporary stoppings were erected to keep the fire in check. Flooding has since been resorted to.

### Prosecutions under the Coal-mines Act, 1925.

Fifteen informations were laid during the year. Two were withdrawn and thirteen convictions recorded.

For failing to enter in a report-book kept for the purpose full particulars of every discovery of inflammable gas by an official or workman, as required by Regulation 82, a mine-manager was convicted and fined 5s. and costs 10s.

An information was laid against a mine-manager under Regulation 238 (3) (*g*) for failing to take representative samples of road-dust every three months. A conviction and fine of 5s. and costs 10s. were recorded.

A mine-manager was charged with failure to continuously produce by means of a mechanical ventilation appliance an adequate amount of ventilation during the eight hours preceding the entry of men into the mine, as required by Regulation 181 (1). He was convicted and fined 5s. with costs 10s.

For failure to provide a water-gauge and either an automatic indicator registering the number of revolutions of the fan, or an automatic indicator registering the water-gauge as required by Regulation 182, a mine-manager was convicted and fined 5s., with costs 10s.

An information was laid against a mine-owner under section 81 for failing to furnish a correct half-yearly return for the preceding six months specifying the quantity of coal produced from the mine and the number of persons ordinarily employed above and below ground. This charge was withdrawn after the return was received.

Two mine-managers, who also acted as firemen-deputies of their respective mines, were charged with failing to inspect with a locked safety-lamp within two hours immediately before the commencement of work, every part of the mine in which workmen were to work or pass during the shift, as required by section 128 (1). One was convicted and fined £3 and costs 12s., and the other was convicted and fined £1 and costs 10s.

A second information laid against one of the mine-managers for failing to mark with chalk the day of the month upon the face of each working-place, as required by Regulation 96, was withdrawn.

A mine-manager of a mine in which mechanical ventilation appliances had been installed was charged with failing to run the fan at least two hours before the workmen entered the mine, contrary to Regulation 181 (2). He was convicted and fined £1 and costs 10s.

For failing to appoint a qualified person to act as fireman-deputy in the mine, a mine-manager was convicted and fined 10s., and costs 12s.

An information was laid against a mine-manager for failing to take such steps as were necessary for enforcing the observance in the mine of the provisions of Regulation 224 (4) regarding explosives.

The same mine-manager was charged under Regulation 223 (2) for failing to keep detonators stored in the magazine specially provided for that purpose. In both cases a conviction and fine of £1 and costs 11s. were recorded.

An information was laid against a workman for failing to comply with the instructions given to him by an official of the mine in pursuance of section 143 with respect to working his place. He was convicted and fined 10s. and costs 10s.

A mine-manager was charged with failing to take such steps as were necessary for enforcing the observance in the mine of the provisions of section 117 (1) regarding the systematic timbering at his working-face. A conviction and fine of £2 and costs 10s. were recorded.

For failing to send a notice in writing to the Inspector of Mines of a case of fire or heating below ground as required by Regulation 82, a mine-manager was convicted and fined £2 and costs 11s.

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

### Coal Output.

The output for the Southern District again shows a material increase of 58,516 tons. The bulk of this district's output is used for domestic purposes, and a comparison over the last ten years' output would seem to indicate that the diminished output during recent years has not been due to the inroads made by other forms of domestic heating, such as electricity and gas, so much as the result of the general depressed conditions recently experienced. The output this year is almost on a par with the years 1926 to 1930.

Mechanical coal-winning was introduced in one of the larger Southland mines during the year, a "Korfmann" coal-cutter and a radial puncher-type machine being put into use with reasonably satisfactory results. With the exception of one of the larger mines, it is to my mind unfortunate that more attention has not been paid to development work in the Southland field, and I am afraid the result of this omission will ultimately be severe unless soon remedied; the operation of cheap pillar-extraction is pleasing, but only while it lasts.

The mining operations in general, and particularly in the larger mines, have been carried out in a reasonably safe manner. During the year samples of "hard hats" or safety helmets were received from England. The helmets appear to be of a comfortable and neat type, and, in view of the fact that the cost is reasonable, there does not appear to be any valid reason why their use should not become general, particularly in mines working thick seams. Several dozen helmets have already been ordered by managers of two of the mines, and their initiative in this respect is gratifying. It is to be hoped that the miners will co-operate and avail themselves of this added measure of safety

Another pleasing feature is the procuring of "McLuckie" gas-detectors for use in two of the larger mines. To my mind the possession of a methane detector by the manager of a gassy mine is invaluable as a means of assisting him in his efforts in ventilation. Periodical sampling of the return air gives a definite guide as to which sections are emitting $CH_4$ most freely, and therefore allows of the correct quantity of air being circulated in each split, or, in other words, the analysis shows at a glance where the danger-points in a mine exist, and where particular ventilating attention is required.

Steel arches for the support of a main roadway were adopted at one of the larger Southland mines, and the result, from a ventilation viewpoint alone, made the introduction well worth while. I am sure this method of support of main roadways could be extended with beneficial and economical results.

### *Canterbury Mines.*

*Springfield Mine.*—Operations were suspended early in the year at the old mine, and a new drive was commenced about 5 chains south of the old mine. The operations continue to be of a limited and crude nature.

*Konomy Mine, Springfield.*—Operations ceased at this small mine in October, following upon a futile attempt to develop the seam to the dip and to the east, the seam proving to be too thin for profitable working.

*Bonanza Mine.*—Pillar-extraction has been continued throughout the year, approximately 50 per cent. of the rise pillars having been won in a satisfactory manner.

*Clearview Mine.*—The whole of the output has been obtained from pillar-extraction, this work having been carried out in a satisfactory manner.

*Lucknow Clay-pit.*—The work of extracting the pillars at this mine has been continued in a reasonably satisfactory manner.

*Klondyke Mine.*—The whole of the output at this mine continues to be won from pillar-extraction. This work has been continued along the method mentioned in my last report, and has, so far, proved to be a safe and efficient method of pillar-extraction under conditions such as exist here.

*Bush Gully Mine.*—Pillar-extraction was continued along the higher levels and development work carried out in the 3 ft. and 4 ft. seams with satisfactory results. Attempts to locate the big seam here have, so far, failed.

*Homebush Fireclay Mine.*—A limited amount of work has been carried out intermittently during the year.

*Homebush Mine.*—Several attempts to locate a workable area of coal at various points have been made again during the year, but, so far, with unsatisfactory results. The interception of old workings is repeated with monotonous regularity, the results being invariably a foul atmosphere with broken and dangerous ground.

*Solitude Mine.*—This is a new mine situated between South Malvern and Glentunnel. Two levels have been driven 3 chains, the thickness of coal being 3 ft.

*Sunnydale Mine.*—Work at this mine continues to be of a prospecting nature, very little work of any importance having been carried out.

*Blackburn Coal Co.*—No development work of importance has taken place, several places being driven a short distance north, and to the rise, but the quality of coal showed no improvement. A small area of coal was stripped and worked opencast, the thickness of the seam there being 10 ft.

*Mount Somers Coal Co.*—Development work was carried out north and east, the main east level being driven approximately 8 chains, and several places driven north until the gravel wash was encountered overlying the coal-seam. A prospecting-shaft was sunk to the coal measures on the north side of the creek, and it is proposed to prospect this area.

*Meadowbank Mine, Waihao Forks.*—No development work of any importance has been carried out. The seam has been prospected in several places, for a short distance, in a westerly direction, and the quality of lignite appears reasonably good, and its thickness maintained.

*Woodbank Mine, Albury.*—A limited amount of development work has taken place to the north. All places are being driven narrow. The market for this lignite appears to be very limited.

*North Otago Mines.*

*Airedale Mine.*—Development work was continued to the dip, and also to the north and south. The coal proved to be friable to the north, and development was suspended in this direction. The seam continued in a satisfactory condition to the dip and to the south, the bulk of the production being obtained from the latter direction. As a result of an increased demand for this coal arrangements are being made for the installation of an electrical haulage plant.

*St. Andrews Mine, Papakaio.*—A small amount of development has been carried out in the main level. This has been partially hampered by the presence of a fault running almost parallel with the main level. Pillars have been extracted to the dip, and a limited amount of development work done to the rise. Roof conditions continue to be very unfavourable and require a liberal erection of roof supports.

*Ngapara Mine.*—Pillar-extraction has been continued in a satisfactory manner in the west area, no new development work having been carried out during the year.

*Shag Point Mine (Old Mine).*—Development work to the dip, also along the levels to the north and south, has been carried on during the year. The seam is maintaining its thickness. Towards the end of the year the fault to the north of the main dip was proven and the seam located on the north side of the fault at its normal thickness. It is quite possible that a reasonable area of coal will exist in this area.

*Shag Point Coal-mining Co.*—Operations at this mine during the current year have been of a disappointing nature. The working of the mine by means of a co-operative party did not prove successful, and an attempt to develop the seam to the dip also met with disappointing results. A dip heading was commenced from the inbye end of the east level, but intercepted a fault at about 40 ft. The lower side of the fault was tested by boring, and the result was so disappointing that the work was abandoned. The present position is that the remaining pillars are being gradually extracted.

*Diamond Hill Mine.*—Operations were suspended at this mine in October. The coal-seam was only 3 ft. 6 in. thick, and the mine is difficult of access.

*Willett's Mine.*—Development work has taken place to the west for about 10 chains, with fairly satisfactory results. Work to the north and south has indicated inferior coal in this direction. However, it is quite possible the seam will extend for a reasonable distance to the west.

*Rockvale Mine.*—This is a new mine situated about four and a half miles west of Herbert. A drive has been driven 300 ft. south. The thickness of the coal-seam is 10 ft., with a band of stone 12 in. thick in the centre of the seam. The mine is very difficult of access.

Otago Central Mines.

*Shepherd's Creek Mine, Bannockburn.*—No development of any importance has taken place during the year, the bulk of the output having been obtained from pillar-extraction.

*Nevis Crossing.*—Only a small amount of coal was won in the opencast pit.

*Fache's Pit, Nevis.*—This is a new pit opened to supply a steam-dredge which was recommissioned at the lower end of the Nevis. Operations were carried out on the opencast method.

*Oturehua Mine.*—No attempt was made during the year to develop the underground workings, the output being obtained from opencast mining at the south end of the pit.

*Armitage's Coal-pit.*—Only a very limited amount of opencast mining was carried out during the year.

*Idaburn Pit.*—Opencast mining was continued during the year in a satisfactory manner.

*Rough Ridge Pit.*—Opencast mining on a small scale was carried out intermittently.

*Parfit's Coal-pit.*—Opencast mining operations were continued on a small scale.

*Cambrian Pit, St. Bathans.*—Mining operations have decreased in volume at this opencast pit. Insufficient regard has been paid to the surface-stripping requirements, with the result that the producing-capacity of the pit has been considerably reduced.

*Coal Creek Flat.*—Opencast mining has been continued during the year in an efficient manner.

South Otago Mines.

*Freeman's Mine.*—Pillar-extraction from the rise section has been continued during the year, and a commencement made to gain access to a few pillars to the dip. A Blackman propellor fan was installed during the year to cope with the accumulation of $CO_2$ in the dip workings.

*Jubilee Mine.*—The working of this mine has been very difficult. It was expected that the new mine would have been satisfactorily developed during the period of pillar-extraction in the old mine. The results obtained from the development of the new mine have unfortunately been disappointing, and, as the pillars in the old mine are almost exhausted, the immediate prospects for this old-established mine are not bright.

*Green Island Mine.*—The work of dewatering this old mine was completed during the year, and the main dip heading proceeding east has been developed to a total distance of approximately 800 ft. The coal is proving to be a good-quality lignite, and levels are being driven north-east and below the original workings. The coal is inclined to be of a friable nature, and, although the places are driven narrow, the roof coal frets away and forms high and ragged-looking places. A fairly considerable quantity of water is making in the mine, and this will probably prove to be an expensive factor as the development work is extended. A propellor-type ventilating fan was installed during the year.

*Hodson's Mine.*—Development work has been continued to the dip and for a distance of 8 chains along the west levels. The area at present leased is very limited, and, unless an additional area is procured, the boundaries will soon be reached. The quality and thickness of the coal have been maintained. A Blackman propellor fan was installed during the year.

*McColl's Mine, Brighton.*—Development work has been continued westerly. All places are still being driven narrow, and the quality and thickness of the seam are being maintained.

*Saddle Hill Mine.*—Very little work of importance was done during the year, several small stumps of coal being won.

*Kirkland's Mine* (previously Fairfield Colliery).—Operations were resumed in June when the middle seam was intercepted. The development of this seam to the west was disappointing, proving the seam too thin in this direction. However, the seam improved to 10 ft. in thickness, going north-east, and also improved to the dip. A connection still requires to be made to the return air-drive.

*Allbright Mine.*—It would appear to have been proved that very little coal exists here, and the year's operations have consisted of the extraction of a few pillars. Trouble has been experienced with spontaneous combustion in the old workings.

*Willowbank Mine.*—Work at the old mine has been confined to pillar-extraction, the development work having been carried on from the new mine. The main heading has been driven 11 chains, the latter 8 chains of which have been in reasonably good-quality lignite, and it would appear that a reasonable extent of coal will be found here.

*East Taieri Mine.*—These operations have been confined to investigating along the outcrop, several attempts to develop the seam beyond the old workings having so far proved futile.

*Burnweil Mine, Saddle Hill.*—Only a limited amount of fossicking work amongst Harris's old workings was carried out during the year.

*New Fernhill Mine.*—Development work was completed early in the year, and operations have been mainly confined to the splitting and robbing of the pillars.

*Essbank Mine, Milton.*—The work of pillar-extraction was completed during the year, and work during the latter part of the year has been confined to prospecting.

*Elliotvale Mine, Milton.*—Development work has been extended east for a distance of 6 chains; a commencement was also made to develop the top portion of the seam. At the end of the east level the seam was split by a band of stone 2 ft. 6 in. thick in the centre of the seam.

*Kai Point Mine.*—Pillar-extraction has continued in the old mine, and a small amount of development, of little importance, has taken place in the new mine.

*Burnwell, Lovell's Flat.*—A limited amount of development, of little importance, was carried out in a southerly direction.

*Benhar Mine.*—Development work has been continued to the dip and along the levels going north and south also. A barrier will now be left between past and future workings. Stone intrusions in the seam continue to be met in various directions.

*Taratu Mine.*—Development carried out during the year, to the rise and along the main level, proved disappointing and was abandoned. Almost the whole of the rise pillars have been extracted and the area partially sealed off. A little trouble was experienced with spontaneous combustion in the pillar area, but it was effectively dealt with. The north-east dip was dewatered and developed for a distance of 12 chains. A commencement has been made to form panels to the north and south of the main dip, and a rearrangement of haulage has been effected.

*Kaitangata No. 1 Mine.*—Pillar-extraction was continued in the No. 2 section of this mine for the greater portion of the year. As was to be expected, there was considerable crush exerted on the remaining pillars; however, the work of extraction was carried out with comparative safety and a satisfactory percentage of the seam was won. During the second half of the year a decreased demand for the coal rendered the operations much more difficult and costly, and the few remaining pillars were abandoned in August and the area effectively sealed off. The development of the No. 3 section was pushed on expeditiously for the greater part of the year. A pair of main headings was driven east for a distance of 1,400 ft. on the coal seam. The thickness of the coal averaged about 7 ft. These headings run parallel to the edge of the old No. 2 section workings, and approximately 300 ft. distant therefrom, but at this point a downthrow fault was struck. The direction of the headings was then changed to south-east and continued for 400 ft., when the coal thinned to 4 ft. 6 in. and the headings were stopped. The main haulage headings were then driven 13 chains through the fault and on to the coal-seam, at which point the seam is approximately 8 ft. thick. Towards the end of the year operations were temporarily suspended in this mine and only sufficient staff was retained to keep the mine in repair, pending the seasonal increased demand for coal.

*Kaitangata No. 2 Mine.*—In the section to the north of the main dip the development headings were driven 800 ft., and levels were driven north at various points to prove the fault-line or belt of stony coal in this direction. This fault shows a tendency to veer away from the heading; however, prospects do not seem bright in this direction. The main rise headings were driven 1,300 ft., at which point a fault was met and a commencement was made to extract a small section of pillars on the north side of the heading, where the coal is 22 ft. thick. The main south dip headings have been driven 1,000 ft. in good-quality coal, and levels have also been driven east and west for distances of 700 ft. and 800 ft. respectively. Preparations have been made to push on this southerly development work a farther 1,000 ft. immediately, as the future expectations are chiefly in this direction. The results of all development work at this mine can be said to be satisfactory. A fairly extensive area has already been proven, and to date nothing has occurred to interfere with an optimistic outlook. The ventilation arrangements have proved adequate so far, and operations generally have been conducted on reasonably sound lines. A Turbo-alternating set of 1,000 kv.a capacity has been installed and is now in operation. A new brick lamp-cabin was erected during the year, and an ambulance-room has been provided for the reception and treatment of injured persons.

*Tait's Mine.*—This is a small mine commenced in what appears to be a small area of coal left from ancient workings. The area available for working will probably prove very limited.

*Lakeside Mine.*—No new work of any importance has been done during the year, the output having been obtained from pillar-extraction.

*Conical Hills.*—A very limited amount of development work has been carried out during the year, and it would appear that the demand for lignite in this locality is very limited.

*Wangaloa.*—A limited amount of development has been carried out during the year, difficulty having been experienced in marketing the coal. The new cross-measure stone-drive was completed, and the output is now won from this point.

*Kaituna Mine.*—No work of any importance was done here, a small amount of prospecting along the edge of old workings having produced a small output.

### *Southland Mines.*

*Hakatere Pit.*—An attempt has just been commenced to work this deposit by underground mining. A drive has been driven for 60 ft. It will probably be found difficult to compete with opencast pits.

*Hamilton's Pit, Waimumu.*—Opencast mining has been continued mostly in the lower portion of the deposit.

*Kingdon's Pit.*—Operations ceased at this pit in June.

*Croydon Pit.*—Opencast mining operations were continued during the year. The lignite deposit is over 40 ft. thick at this point.

*Whiterig Pit.*—Opencast mining was continued under more difficult conditions, the overburden increasing in thickness.

*Otikerama Mine.*—A limited amount of development work was done to the dip and north-east, and in a very crude manner.

*Milne's Pit, Hakatea.*—This is a new opencast pit in the Waimumu Valley. About 8 ft. of lignite is being worked with 6 ft. of overburden.

*Beattie Coster Mine, Mataura.*—The underground workings have been allowed to flood, and operations have been confined to opencast mining. A small additional area was purchased to the north, and mining continued in this direction.

*Green's Mine, Gore.*—Work has been confined to the completion of development to the north-east, and a commencement was made to split the pillars in this section in such a manner as to prevent surface subsidence.

*Boghead Mine, Mataura.*—Development work has been continued to the dip and also along the levels north and south. The south levels are driven about 5 chains and the north levels 9½ chains, the extent of the south levels being influenced by the measures dipping in this direction and on the north side by the boundary.

*Tynui Mine, Gore.*—Operations have been very limited; a small amount of development was done in a northerly direction and a connection made to the surface for ventilation.

*Glenlee Mine.*—Several pillars were extracted to the west of the main level, and a small amount of development work carried out to the east.

*Greenvale Mine.*—A small amount of development work was carried out to the west. However, operations were suspended in August.

*Springfield Mine, Gore.*—A limited amount of work was carried out to the north on the opencast method.

*Hokonui Mine.*—No active mining operations were carried out during the year.

*Ota Creek Pit.*—Opencast mining was continued during the latter portion of the year, the pit being flooded for a time.

*Terrace Mine.*—Underground mining ceased in November and opencast operations were resumed immediately afterwards.

*North Chatton Mine.*—Operations were suspended in July.

*Raby Pit.*—This is a new pit started at Croydon Bush, and opencast mining was carried out under normal conditions.

*Otama Valley Mine.*—A limited amount of development was carried out to the dip and levels north and south. Owing to the isolated position of this mine, it is doubtful if much coal will be won therefrom.

*Lawrence's Pit.*—Opencast mining was continued under difficult conditions; however, a little gold was saved from the surface stripping.

*Northcote and Lahey.*—Very little work was done here owing to the excessive thickness of surface cover.

*Argyle Pit.*—Owing to diminishing demand for this lignite, very little work was done. The surface cover is becoming much thicker.

*Diamond Pit.*—Opencast operations have been mostly continued to the south. A little lignite was won on the west side. Approximately 40 ft. of lignite is worked here.

*Star Mine.*—The development of this mine has proved disappointing, the area having proved to be faulted at various points to such an extent that development work was practically abandoned early in the year, and a commencement made with pillar-extraction. A downthrow fault was met in the main dip heading, and, an attempt to prove this fault underground having failed, a borehole approximately 150 ft. deep was put down from the surface to the south of the fault with a nil result. Faulting was also encountered to the west at about 10 chains from the main dip, the bulk of the year's output having been won from this area from pillar-extraction. Indications of heating were experienced in the pillars to the east and were effectively dealt with.

*Nightcaps Syndicate Mine.*—All available coal was won and operations suspended in February.

*Lobbs Hill Mine.*—Following upon several years of repeated disappointments in an effort to develop a mine here, at various points, operations were suspended in September.

*Morley Vale Mine.*—Underground operations were commenced early in the year to develop this area. However, the result has only been to prove excessive faulting. The west dip heading encountered a series of faults after being driven 4 chains. The levels north and south also faulted. The gradient of the seam—*i.e.*, 1 in 2—seems to indicate that this block of coal is a small area detached from the main measures. Surface boring operations have been commenced to the north of the mine.

*New Brighton Mine.*—Several attempts to locate a workable area of coal having failed, a commencement was made early in the year to gain access to the rise pillars in the old mine, per medium of the old McKenzie drive. The work of clearing up this drive has been carried out to within one chain from the coal seam.

*Orepuki Pit.*—A small amount of opencast mining was continued during the latter portion of the year.

*Birchwood Mine.*—The bulk of the output has again been obtained from pillar-extraction in the east rise section. The conditions experienced with this work during the year have fortunately proved to be much safer than was the case previously, and a very limited amount of coal now remains to be extracted in this area. An almost negligible amount of development work was carried out during the year, this being due chiefly to the inability of the ventilation arrangements to cope with the emission of methane in the new dip section during the greater part of the year. However, a larger ventilating-fan has been installed and the work of enlarging the return airways completed during the latter portion of the year, thus enabling development work to be resumed. Development to the dip was carried on for a short distance, but from a point 7 chains along the lower west level. So far a good-quality coal, 20 ft. thick has been met, but insufficient work has yet been done to prove the area.

*Black Diamond Mine.*—The output for the year has been won from the pillars in the north-east area. Owing to the extreme liability of this seam to heat during pillar-extraction, coupled with the great thickness of the seam—*i.e.*, from 40 ft. to 50 ft. thick—and the intermittent working of the mine owing to diminished markets, it has been found preferable to conduct a system of splitting and robbing of pillars instead of attempting total extraction. It is unfortunate that it has been found necessary to adopt this practice. However, under the conditions prevailing there did not appear to be any alternative.

*Wairaki Mine.*—Work has been conducted on a small scale during the year, and practically no development has taken place; in fact, the demand was so diminished as to render development work unnecessary. Pillar-extraction was completed in the No. 1 west section, and the area permanently sealed off. Pillar-extraction was continued in No. 2 west and No. 2 east under normal conditions. The No. 3 east level has been reconditioned, and future development will proceed in this area.

*Black Lion Mine.*—Almost the whole of the output was again obtained from pillar-extraction. In the area lying to the dip of the main level—*i.e.*, the sump section— pillar-extraction was completed and the area sealed off. The main level section pillars are now being extracted, the bulk of the output being obtained from this area. A prospecting drive was driven 9 chains in a westerly direction — *i.e.*, towards the Linton area — but although the coal measure is maintaining its total thickness, the actual clean coal has thinned in the last 2 chains to 1 ft. 6 in. in thickness. During the year a belt conveyor was installed to convey the coal from the tippler to the screening plant.

*Mossbank No. 1 Mine.*—All operations continue to be confined to pillar-extraction, this work having been carried out back along the main east level and to the north of it, also in the west corner to the south of the main level. Extensive surface subsidence has taken place during the year, an embankment having been formed on the surface and around the workings which it is presumed will prevent flood-water finding its way underground. This, however, will depend on the extent of the rainfall.

*Mossbank No. 3 Mine.*—Practically the whole of the pillars have been extracted from the section lying to the east of the main dip, and pillar-extraction has also been carried out to the south of the dip and in the west area adjacent to the Linton and Wairaki tram-lines. A small amount of development work was done in the south-west area, but with somewhat disappointing results, excessive stone intrusions occurring and the coal thinning. Conditions for pillar-extraction are reasonably good, and a very satisfactory percentage of extraction is obtained.

*Linton No. 2 Mine.*—The work of pillar-extraction has been continued throughout the year. Sections 6 and 7 have been worked out, and the output towards the end of the year was being obtained from sections 4 and 5 north. During the process of pillar-extraction, excessive weight has been thrown on to the lower places, this at times having been aggravated by working the higher places too close to the dip heading, and by premature splittings of the higher pillars. However, a liberal supply of timber was always used, and the work was carried

out without accident. The fire stopping in No. 2 south at one time threatened danger, but was effectively dealt with, and water was laid on behind the stopping as an added precaution, after which no further trouble was experienced.

*Linton No. 1 Mine.*—The bulk of the colliery output has been obtained from this mine, and development work was put in hand in several sections during the year. The new No. 6 level was completed and arrangements made to win the whole of the No. 4 section coal from this point. The No. 3 panel was developed in the lower workings by means of the "Korfmann" coal-cutting machine, the lower portion of this development work being now almost completed. Pillar-extraction was continued in the No. 2 panel, but was interrupted twice owing to indications of heating. The work in this section was carried out on the "double-story" or "gallery-working" principle, and has, during the year, proved to be reasonably satisfactory. The No. 1 panel in No. 4 section was successfully reopened towards the end of the year, after being sealed off for indications of heating, and pillar-extraction was again commenced. Pillar-extraction was continued in the No. 3 section under reasonable conditions and with good results. No. 5 section was developed first by means of the "Korfmann" machine, and later by the "Ingersoll-Rand" radial coal-cutter. Two sets of headings were driven north-east and north respectively, the progress of these places being ultimately checked owing to the interception of a fault running north-west. The headings were driven 400 ft. The main dip heading was advanced 1 chain in stone and 4 chains in coal at a gradient of 1 in 4. The coal seam at this point is 30 ft. thick, and of good quality. It is proposed to carry out boring operations to further prove the area to the dip, and also to the north-east of the fault-line intercepted in the No. 5 section. The year's operations at this colliery saw the total output to date reach seven figures.

*Terrace Mine*, Kingston Crossing.—During the latter portion of the year this mine was reopened, an old level from the surface was reconditioned, and a small output obtained.

### Fatal Accident.

James McKenzie, shot-firer, Mossbank No. 1 Mine, sustained fatal injuries on the 23rd March. The deceased had fired a shot in the top coal in a place where pillar-extraction was proceeding, and during his examination of the place after firing, a piece of coal, which appeared to have been resting on a "greasy parting," came away and struck the deceased.

### Serious Accidents.

T. Todd, manager of the Star Mine, sustained a partial fracture of the vertebra just below the neck, on the 19th February. Todd was assisting with the tipping of a truck and fell about 5 ft. from a staging.

D. Marshall, engineer, Kaitangata, sustained a fracture of the skull on the 9th March. Marshall was supervising the erection of machinery when the rope connecting the block and tackle fouled a detached beam on a higher level, which fell and struck him.

Archibald Adams, miner, Black Lion Mine, sustained a simple fracture of the tibia of the right leg on the 5th November. Adams was working at pillar-extraction in a place 8 ft. high, when a piece of coal burst off the side of a small stump of coal and struck his leg as he was moving away.

William Hinks, miner, Solitude Mine, Glentunnel, sustained a fractured pelvis on the 18th December. Hinks was preparing to erect a set of timber when a piece of stone fell from the roof and struck him.

### Dangerous Occurrences (Regulation 82 of the Coal-mines Act, 1925).

*Black Diamond Mine.*—On the 3rd March leakage at a fire stopping was reported in the upper workings, and was effectively dealt with.

*Black Diamond Mine.*—On the 26th April excessive heating of a fire stopping in the lower workings was reported. This was dealt with by erecting a new stopping.

*Linton No. 2 Mine.*—On the 24th May the fire in the sealed off No. 1 south section came over a stopping adjacent to the haulage road. It was effectively suppressed by water and the stopping extended.

*Linton No. 2 Mine.*—On the 16th August fire worked around the side of a stopping in the horse level of the old mine. It was suppressed by water and the stopping extended.

*Klondyke Mine.*—On the 27th August signs of heating were reported in the waste, which was then effectively sealed off.

*Linton No. 1 Mine.*—On the 21st September heating was reported in the goaf of No. 2 panel, No. 4 section. Stoppings were erected and the area effectively sealed off.

*Linton No. 1 Mine.*—On 16th October heating was reported in the goaf of No. 3 section. Stoppings were erected and the area sealed off.

*Linton No. 1 Mine.*—On the 19th November heating was reported in the goaf of No. 4 panel. Stoppings were erected and the area sealed off.

### Prosecutions.

During the year the following prosecutions took place:—

On the 26th January a mine-manager was convicted and fined £7 10s. and costs for a breach of section 140 (1), Coal-mines Act, 1925.

On the 9th March a mine-owner was convicted and fined £2 and costs for a breach of section 81, Coal-mines Act, 1925.

On the 28th March a shot-firer was convicted and fined £2 and costs for a breach of Regulation 224 (5) (*b*), Coal-mines Act, 1925.

On the same date a miner was convicted and fined £2 and costs for a breach of Regulation 223, Coal-mines Act, 1925.

On the 1st May a miner was convicted with costs for a breach of Regulation 170, Coal-mines Act, 1925.

On the 29th June a shot-firer was convicted and fined £1 and costs for a breach of Regulation 224 (*b*), Coal-mines Act, 1925.

On the 4th September a shot-firer was convicted and fined £1 and costs for a breach of Regulation 234 (*e*), (ii) Coal-mines Act, 1925; he was also convicted and fined £3 and costs for a breach of Regulation 234 (*a*), (ii) Coal-mines Act, 1925.

On the 11th December a mine-manager was convicted and fined £3 and costs for a breach of section 117, Coal-mines Act, 1925.

On the same date a mine-manager was convicted and fined £2 and costs for a breach of Regulation 223 (2) of the Coal-mines Act, 1925.

# ANNEXURE B.

## COLLIERY STATISTICS, 1934.

| 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 (Bituminous, Sub-bituminous, or Lignite). | Number of Seams worked. | Thickness of Coal-seams. | Thickness worked. | System of Underground Working. | Number of Winding-shafts. | Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam. | Total Output for 1934. | Total Output to 31st December, 1933. | Total Output to 31st December, 1934. | Number of Persons ordinarily employed. | | | Means of Ventilation. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Above. | Below. | Total. | |
| | | | | | | | NORTHERN INSPECTION DISTRICT. | | | | | Tons. | Tons. | Tons. | | | | |
| *North Auckland District.* | | | | | | | | | | | | | | | | | | |
| Hikurangi Shaft, Hikurangi .. | Crown lease and freehold | H. Brady (1st C.) .. | Hikurangi Coal Co., Ltd., Auckland | 12 | Sub-bituminous | 1 | 7′ to 10′ | 7′ to 9′ .. | Bord and pillar | 2 | S. 350′, S. 340′ | 42,713 | 544,966 | 587,679 | 47 | 112 | 159 | Fan. |
| Silverdale, Hikurangi .. .. | Crown lease .. | E. A. Foot (U.) .. | S. G. Foot, Hikurangi .. .. | 16½ | Ditto .. | 1 | 3′ to 5′ | 3′ .. | Ditto .. | .. | .. | 1,739 | 43,929 | 45,668 | 1 | 4 | 5 | Natural. |
| Northern Co-operative, Hikurangi | Crown lease and freehold | E.A.Cunningham(P.) | Cunningham and party, Hikurangi | 16 | ,, .. | 1 | 3′ .. | All .. | ,, .. | .. | .. | 950 | 35,265 | 36,215 | 1 | 3 | 4 | ,, |
| Waro, Hikurangi .. .. | Ditto .. | H. Brady (1st C.) .. | Waro Coal-mines, Ltd., Auckland | 17 | ,, .. | 1 | 6′ to 10′ | 8′ .. | ,, .. | .. | D. 3,900′ .. | 22,757 | 659,148 | 681,905 | 22 | 37 | 59 | Fan. |
| Ruatangata, Kamo .. .. | Freehold .. | G. Cross (2nd C.) .. | Kamo Potteries, Ltd., Whangarei | 14 | ,, .. | 2 | 6′ .. | 5′ 6″ .. | ,, .. | .. | .. | 4,102 | 34,026 | 38,128 | 1 | 8 | 9 | ,, |
| Phœnix, Hikurangi .. .. | Crown lease .. | W. J. McKinlay (D.) | McKinlay and party, Hikurangi.. | 7½ | ,, .. | 1 | 3′ to 10′ | All .. | ,, .. | .. | .. | 1,480 | 16,074 | 17,554 | 1 | 5 | 6 | Natural. |
| Coutt's, Hikurangi .. .. | Freehold (sub-lease, Hikurangi Coal Co., Ltd.) | G. Coutts (P.) .. | G. Coutts, Hikurangi .. .. | 5½ | ,, .. | 1 | 2′ to 7′ | ,, .. | ,, .. | .. | .. | 1,109 | 7,999 | 9,108 | .. | 3 | 3 | ,, |
| Fearnley's, Waro .. .. | Ditto .. | C. Carstairs (P.) .. | Reed and party, Hikurangi .. | 6 | ,, .. | 1 | 1′ to 4′ | ,, .. | ,, .. | .. | .. | 2,820 | 10,276 | 13,096 | 1 | 3 | 4 | ,, |
| Glen Nell, Hikurangi .. .. | Crown lease .. | S. G. Foot (U.) .. | S. G. Foot, Hikurangi .. .. | 10 | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | .. | 2,147 | 8,959 | 11,106 | .. | 8 | 8 | ,, |
| Whareora, Hikurangi .. .. | Freehold .. | R. Fox (1st C.) .. | Foot and Fox, Hikurangi .. | 4 | ,, .. | 1 | 5′ .. | ,, .. | ,, .. | .. | .. | 1,151 | 3,267 | 4,418 | 1 | 2 | 3 | ,, |
| McInness's, Hikurangi .. | Crown lease .. | R. Steele (D.) .. | J. R. McInness, Hikurangi .. | 4½ | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | .. | 799 | 2,765 | 3,564 | .. | 4 | 4 | ,, |
| Hicks, Hikurangi .. .. | ,, .. | J. E. Cook (P.) .. | Hicks and party, Hikurangi .. | 2½ | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | .. | 172 | 1,334 | 1,506 | .. | 2 | 2 | ,, |
| Ackers, Hikurangi .. .. | Freehold (sub-lease, Hikurangi Coal Co., Ltd.) | R. Cherrie (2nd C.) | W. Ackers, Hikurangi .. .. | 2 | ,, .. | 1 | 4′ .. | ,, .. | ,, .. | .. | .. | 5,159 | 3,221 | 8,380 | 1 | 11 | 12 | ,, |
| New Kiripaka, Kiripaka .. | Freehold .. | T. Higgins (P.) .. | Hart and Higgins, Whangarei .. | 5½ | ,, .. | 1 | 4′ .. | ,, .. | ,, .. | .. | .. | 69 | 1,460 | 1,529 | .. | 2 | 2 | ,, |
| Stewart's Glenbervie, Kiripaka .. | ,, .. | R. Stewart (D.) .. | R. Stewart and party, Hikurangi | 1½ | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | .. | 46 | 86 | 132 | .. | 2 | 2 | ,, |
| New Kamo, Kamo .. .. | ,, .. | J. Makinson (1st C.) | New Kamo Collieries Ltd., Whangarei | 2 | ,, .. | 1 | 18′ .. | 7′ .. | ,, .. | .. | D. 450′ .. | 3,644 | .. | 3,644 | 6 | 11 | 17 | ,, |
| Perrett's Old Workings, Hikurangi | ,, .. | J. Hamilton (D.) .. | Hicks and party, Hikurangi .. | 1/2 | ,, .. | 1 | 3′ to 6′ | All .. | ,, .. | .. | .. | 577 | .. | 577 | .. | 4 | 4 | ,, |
| Tunstall's, Hikurangi .. .. | Crown lease .. | H. Timms (D.) .. | J. R. McInness and party, Hikurangi | 1/2 | ,, .. | 1 | 2′ to 6′ | ,, .. | ,, .. | .. | .. | 1,039 | .. | 1,039 | .. | 4 | 4 | ,, |
| Orr's, Hikurangi .. .. | Freehold .. | T. Rothwell (D.) .. | J. B. Orr, Hikurangi .. .. | 1 | ,, .. | 1 | 2′ 6″ .. | ,, .. | ,, .. | .. | .. | 240 | .. | 240 | .. | 2 | 2 | ,, |
| Belton's Area, Hikurangi .. | Freehold (sub-lease, Hikurangi Coal Co., Ltd.) | A. Edwards (P.) .. | Turnbull and Doel, Hikurangi .. | 1 | ,, .. | 1 | 7′ .. | ,, .. | ,, .. | .. | .. | 80 | .. | 80 | .. | 2 | 2 | ,, |
| Flannagan's, Waro .. .. | Ditto .. | A. Mee (D.) .. | Flannagan and party, Hikurangi | 1/2 | ,, .. | 1 | 2′ 6″ .. | ,, .. | ,, .. | .. | .. | 325 | .. | 325 | .. | 5 | 5 | ,, |
| Tauranga Block, Hikurangi .. | Freehold .. | J. Jones (D.) .. | J. Jones, Hikurangi .. .. | 1/2 | ,, .. | 1 | 2′ 6″ .. | ,, .. | ,, .. | .. | .. | 210 | .. | 210 | .. | 2 | 2 | ,, |
| Nikau, Kamo .. .. | ,, .. | W. Abercrombie (D.) | Davidson and party, Hikurangi .. | 1/2 | ,, .. | 1 | 4′ .. | ,, .. | ,, .. | .. | .. | 223 | .. | 223 | 1 | 4 | 5 | ,, |
| Rothwell's, Hikurangi .. | ,, .. | T. Rothwell (D.) .. | T. Rothwell, Hikurangi .. | 1/2 | ,, .. | 1 | 2′ 6″ to 5′ | ,, .. | ,, .. | .. | .. | 88 | .. | 88 | .. | 2 | 2 | ,, |
| Laurie's, Waro .. .. | ,, .. | T. Rothwell (D.) .. | B. J. Laurie, Waro, Hikurangi .. | 1/2 | ,, .. | 1 | 5′ .. | ,, .. | ,, .. | .. | .. | 202 | .. | 202 | 1 | 4 | 5 | ,, |
| Avoca, Tangowahine .. .. | ,, .. | P. Sheehan (D.) .. | Avoca Coal Co., Dargaville .. | 5 | ,, .. | 1 | 8′ .. | ,, .. | ,, .. | .. | .. | 1,097 | 5,780 | 6,877 | 2 | 2 | 4 | ,, |
| *Waikato District.* | | | | | | | | | | | | | | | | | | |
| Rotowaro, Rotowaro .. .. | Crown lease and freehold | J. Watson (1st C.).. | Taupiri Coal-mines, Ltd., Auckland | 17 | Brown .. | 2 | 7′ to 15′ | All .. | ,, .. | .. | D. 1,600′ .. | 171,330 | 1,819,129 | 1,990,459 | 54 | 207 | 261 | Fan. |
| Pukemiro, Pukemiro .. .. | Freehold .. | A. Burt (1st C.) .. | Pukemiro Collieries, Ltd., Auckland | 19 | ,, .. | 1 | 8′ to 16′ | 8′ to 14′ .. | ,, .. | .. | .. | 120,388 | 2,132,051 | 2,252,439 | 48 | 140 | 188 | ,, |
| Wilton, Glen Massey .. .. | ,, .. | T. Geddes (1st C.) | Wilton Collieries, Ltd., Auckland | 4 | ,, .. | 1 | 7′ to 12′ | 5′ to 9′ .. | ,, .. | .. | .. | 83,101 | 221,226 | 304,327 | 38 | 112 | 150 | ,, |
| Waikato Extended, Huntly West | ,, .. | J. Honey (U.) .. | Roose Shipping Co., Ltd., Mercer | 18 | ,, .. | 1 | 16′ .. | 14′ .. | ,, .. | .. | .. | 4,082 | 94,660 | 98,742 | 3 | 3 | 6 | ,, |
| Glen Afton No. 1, Glen Afton .. | Crown lease and freehold | P. Hunter (1st C.) | Glen Afton Collieries, Ltd., Auckland | 14 | ,, .. | 1 | 4′ to 16′ | 9′ .. | ,, .. | .. | .. | 57,331 | 1,474,992 | 1,532,323 | 17 | 56 | 73 | ,, |
| MacDonald, Waikokowai .. | Crown lease .. | J. W Glendenning (1st C.) | Ditto .. .. .. | 4 | ,, .. | 1 | 6′ to 20′ | 10′ .. | ,, .. | .. | .. | 139,985 | 269,563 | 409,548 | 42 | 137 | 179 | ,, |
| Taupiri East, Kimihia .. | Auckland University lease | J. Holland (P.) .. | Holland and party, Huntly .. | 13 | ,, .. | 1 | 10′ to 18′ | 12′ .. | ,, .. | .. | .. | 2,088 | 19,543 | 21,631 | 1 | 4 | 5 | Natural. |
| Whatawhata Campbell, Whatawhata | Crown lease .. | A. Penman (1st C.) | Whatawhata Campbell Coal Co., Ltd., Hamilton | 13 | ,, .. | 1 | 12′ .. | 8′ .. | ,, .. | .. | .. | 5,657 | 45,391 | 51,048 | 4 | 6 | 10 | ,, |
| Renown, Renown .. .. | Freehold .. | S. Pendleton (1st C.) | Renown Collieries, Ltd., Auckland | 7 | ,, .. | 2 | 15′ .. | 7′ to 9′ .. | ,, .. | .. | .. | 105,847 | 432,520 | 538,367 | 33 | 109 | 142 | Fan. |

## COLLIERY STATISTICS, 1934—*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 (Bituminous, Sub-bituminous, or Lignite). | Number of Seams worked. | Thickness of Coal-seams. | Thickness worked. | System of Underground Working. | Number of Winding-shafts. | Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam. | Total Output for 1934. | Total Output to 31st December, 1933. | Total Output to 31st December, 1934. | Number of Persons ordinarily employed. | | | Means of Ventilation. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Above. | Below. | Total. | |
| **NORTHERN INSPECTION DISTRICT—*continued.*** | | | | | | | | | | | | | | | | | | |
| *Waikato District*—continued. | | | | | | | | | | | | Tons. | Tons. | Tons. | | | | |
| Graham, Glen Afton | Freehold | J. Tweedie (2nd C.) | Graham Coal Co., Glen Afton | 11 | Brown | 1 | 3′ to 6′ | 4′ | Bord and pillar | | | 7,346 | 102,097 | 109,443 | 2 | 10 | 12 | Fan. |
| Rangitoto, Te Kuiti | Native lease | J. Chevins (P.) | A. Morgan, Te Kuiti | 8 | ,, | 1 | 7′ | 6′ | Ditto | | | 315 | 2,567 | 2,882 | .. | 2 | 2 | Natural. |
| Hunua (late Cowan's), Hunua | Freehold | T. Marsh (D.) | T. Marsh, Hunua | 2½ | ,, | 1 | 3′ 6″ | All | ,, | | | 12 | 338 | 350 | .. | 2 | 2 | ,, |
| Opaheke, Hunua | ,, | F. Dunn (P.) | Glendale Coal Co., Takanini | 2½ | ,, | 1 | 4′ | ,, | ,, | | | 863 | 436 | 1,299 | 1 | 3 | 4 | ,, |
| Relief Colliery, Huntly South | Auckland University lease | R. Wilson (D.) | Relief Committee, Huntly | 1½ | ,, | 1 | 4′ 6″ | ,, | ,, | | | 206 | 59 | 265 | 4 | 6 | 10 | ,, |
| Mangatangi, Mangatangi | Freehold | W. D. Tilsley (P.) | Mangatangi Coal Co., Mangatangi | ½ | ,, | 1 | 12′ | 7′ | ,, | | | 440 | .. | 440 | 1 | 2 | 3 | ,, |
| *Taranaki District.* | | | | | | | | | | | | | | | | | | |
| Egmont, Tangarakau | Crown lease | A. W. Whittleston (1st C.) | Egmont Collieries Ltd., Stratford | 8 | ,, | 1 | 5′ | All | ,, | | | 5,138 | 79,319 | 84,457 | 7 | 14 | 21 | Fan. |
| Egmont, Tatu | Prospecting license | A. W. Whittleston | ,, ,, | ⅓ | ,, | 1 | 6′ 10″ | ,, | ,, | | | 6,700 | .. | 6,700 | 9 | 25 | 34 | Natural |
| Tatu, Tatu | Crown lease | E. Kerry (2nd C.) | J. Cairns and party, Huntly | 4 | ,, | 1 | 6′ 6″ | 5′ 6″ | ,, | | | 411 | 1,233 | 1,644 | 1 | 2 | 3 | ,, |
| Old Stockman, Mokau | Freehold | C. Wright (P.) | Chambers Bros., Havelock | 14 | ,, | 1 | 4′ 6″ | All | ,, | | | 804 | 5,609 | 6,413 | .. | 2 | 2 | ,, |
| Mangapeehi, Mangapeehi | Crown lease | J. Spence (1st C.) | A. Clark, Mangapeehi | ⅔ | ,, | 1 | 14′ | 7′ | ,, | | | 80 | .. | 80 | 5 | 2 | 7 | ,, |
| Fernbrook, Ohura | Native lease | R. Godden (D.) | W. J. Higgins, Ohura | ½ | ,, | 1 | 4′ 6″ to 6′ | All | ,, | | | 351 | .. | 351 | 1 | 3 | 4 | ,, |
| Output of collieries included in previous statements at which operations are abandoned or suspended | | | | | | | | | | | | .. | 10,776,675 | 10,776,675 | .. | .. | .. | .. |
| **WEST COAST INSPECTION DISTRICT.** | | | | | | | | | | | | | | | | | | |
| *Nelson District.* | | | | | | | | | | | | | | | | | | |
| Motupipi, Motupipi | Crown lease | D. Winter (P.) | J. and D. Winter, Motupipi | 7 | Lignite | 2 | 2′ 10″ and 3′ | All | Opencast | | | 83 | 1,028 | 1,111 | 1 | .. | 1 | Natural. |
| Clarke, Baton | Coal prospecting license | S. Hartshorne (P.) | S. Hartshorne, Tapawera | 3½ | Bituminous | 2 | 2′ and 4′ | ,, | Bord and pillar | | | 464 | 215 | 679 | .. | 2 | 2 | ,, |
| O'Rourkes, Murchison | Freehold | A. O'Rourke (P.) | A. O'Rourke, Murchison | 15 | Lignite | 1 | 2′ | ,, | Ditto | | | 660 | 2,072 | 2,732 | .. | 1 | 1 | ,, |
| Wynndale, Murchison | Coal prospecting license | W. Burchfield (U.) | G. and A. H. Wynn, Murchison | 2 | Sub-bituminous | 1 | 7′ | ,, | ,, | | | 2,814 | 1,241 | 4,055 | 2 | 5 | 7 | ,, |
| Mount Burnett, Collingwood | Crown lease | R. J. Wearn (1st C.) | Onakaka Iron and Steel Co., Ltd., Onakaka | 5 | Ditto | 1 | 18′ | ,, | ,, | | D. 7 ch. | 4,524 | 12,833 | 17,357 | 9 | 9 | 18 | ,, |
| Puponga, Puponga | ,, | A. Thomson (1st C.) | Puponga Coal-mines, Ltd., Puponga | 31 | ,, | 1 | 5′ to 5½′ | ,, | ,, | | D. 11 ch. | 14,267 | 342,703 | 356,970 | 13 | 26 | 39 | ,, |
| Seymour, Owen River | ,, | C. Blackburn (1st C.) | Owen Collieries, Ltd., Nelson | 5 | ,, | 1 | 2′ to 4′ | ,, | Double-stall | | | 3,032 | 10,760 | 13,792 | 3 | 7 | 10 | Fan. |
| *Buller District.* | | | | | | | | | | | | | | | | | | |
| Allan's, Charleston | Crown lease | T. D. Allan (P.) | T. D. Allan, Charleston | 5 | Lignite | 1 | 42′ | 10′ | Opencast | | | 3 | 39 | 42 | 1 | .. | 1 | Natural. |
| Bowater and Bryan's, Charleston | ,, | F. M. Mitchell (P.) | Bowater and Bryan, Westport | 4½ | ,, | 1 | 30′ | 10′ | ,, | | | 240 | 861 | 1,101 | 2 | .. | 2 | ,, |
| Hunter's, Fox's River | ,, | Andrew Hunter (P.) | Alex. Hunter, Westport | 2 | ,, | 1 | 14′ | 7′ | Bord and pillar | | | 365 | 319 | 684 | .. | 2 | 2 | ,, |
| Cardiff Bridge, Seddonville | ,, | J. Dymond (2nd C.) | Cardiff Bridge Co-op. party, Westport | 14 | Bituminous | 1 | 6′ to 25′ | All | Ditto | | | 12,423 | 249,964 | 262,387 | 5 | 9 | 14 | ,, |
| Cascade, Cascade Creek | ,, | H. McAvoy (1st C.) | Cascade-Westport Coal Co., Ltd., Westport | 8 | ,, | 1 | 9′ to 20′ | 9′ | ,, | | | 19,642 | 90,024 | 109,666 | 9 | 13 | 22 | ,, |
| Charming Creek, Ngakawau | ,, | W. Parsonage (1st C) | Charming Creek-Westport Coal Co., Ltd., Westport | 7 | ,, | 1 | 1′ to 20′ | 9′ | ,, | | D. 11½ ch. | 15,038 | 37,886 | 52,924 | 9 | 24 | 33 | Fan. |
| Chester's, Seddonville | ,, | J. Mercer (U.) | Chester and Penberth, Seddonville | 14 | ,, | 1 | 3′ | All | ,, | | | 1,853 | 21,382 | 23,235 | 1 | 4 | 5 | Natural. |
| Glasgow, Seddonville | ,, | D. Q. O'Brien (U.) | Glasgow Co-operative party, Seddonville | 10 | ,, | 1 | 8′ | ,, | ,, | | | 18 | 36,158 | 36,176 | 1 | 3 | 4 | ,, |
| St. Helens, Seddonville | ,, | R. Mulholland (D.) | Roger Bros., Seddonville | 5 | ,, | 1 | 4′ 6″ | ,, | ,, | | | 205 | 7,046 | 7,251 | 1 | 3 | 4 | ,, |
| Mitchell's, Charleston | ,, | F. M. Mitchell (P.) | F. T. Mitchell, Charleston | 11 | Lignite | 1 | 1′ to 3′ | ,, | Opencast | | | 46 | 453 | 499 | 1 | .. | 1 | ,, |
| Powell's, Charleston | ,, | J. H. Powell | J. H. Powell, Charleston | 6 | ,, | 1 | 8′ | ,, | ,, | | | 21 | 74 | 95 | 1 | .. | 1 | ,, |
| Warne's, Charleston | ,, | G. N. Warne (P.) | G. N. Warne, Charleston | 9 | ,, | 1 | 6′ to 8′ | ,, | ,, | | | 8 | 95 | 103 | 1 | .. | 1 | ,, |
| Rocklands, Buller Gorge | ,, | J. P. Burley (P.) | J. P. Burley, Berlins, Buller Gorge | 32 | Brown | 1 | 27′ | 8′ | Bord and pillar | | | 173 | 10,766 | 10,939 | .. | 2 | 2 | ,, |
| Denniston, Denniston | ,, | J. McArthur (1st C) / A. Smith (1st C.) | Westport Coal Co., Ltd., Dunedin | 54 | Bituminous | 9 | 3′ to 30′ | All | Ditto | | | 111,838 | 10,330,055 | 10,441,893 | 113 | 266 | 379 | Fan. |
| Millerton, Granity | ,, | O. J. Davis (1st C.) | ,, ,, | 43 | ,, | 1 | 4′ to 40′ | 12′ | ,, | | D. 78 ch. | 47,965 | 8,238,400 | 8,286,365 | 30 | 55 | 85 | ,, |
| Westport-Stockton, Ngakawau | ,, | T. McGhie (1st C.) | Westport-Stockton Coal Co., Ltd., Christchurch | 26 | ,, | 3 | 4′ to 20′ | 10′ | ,, | | | 102,793 | 3,112,227 | 3,215,020 | 114 | 175 | 289 | Fans. |
| Watson's, Karamea | Coal prospecting license | H. Watson | A. J. and H. Watson, Karamea | ½ | Lignite | 1 | 10′ | All | Opencast | | | 58 | .. | 58 | 2 | .. | 2 | Natural. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Reefton District.* | | | | | | | | | | | | | | | | | | | |
| Archer's, Capleston .. .. | Crown lease and freehold | F. W. Archer (2nd C.) | F. W. Archer, Reefton .. | 39 | Brown .. | 3 | 9′ to 18′ | 8′ to 16′ .. | Bord and pillar .. | .. | 4,229 | 58,533 | 62,762 | 1 | 5 | 6 | Natural. |
| Burke's Creek, Burke's Creek .. | Crown lease .. | C. D. Buist (1st C.) | Burke's Creek Collieries, Ltd., Wellington | 33 | ,, .. | 1 | 8′ to 12′ | 8′ to 10′ .. | Ditto .. .. | .. | 17,073 | 219,125 | 236,198 | 11 | 30 | 41 | Fan. |
| Clele, Merrijigs .. .. | ,, .. | R. Alborn (U.) .. | V. W. Alborn and party, Reefton | 48 | ,, .. | 3 | 5′ to 6′ | All .. | ,, .. .. | .. | 4,391 | 53,588 | 57,979 | 2 | 3 | 5 | Natural. |
| Coghlan's, Capleston .. .. | Freehold .. | E. Cohen (U.) .. | J. Coghlan, Reefton .. .. | 37 | ,, .. | 1 | 12′ .. | 8½′ .. | ,, .. .. | .. | 2,756 | 26,295 | 29,051 | 1 | 4 | 5 | ,, |
| Eone, Capleston .. .. | Crown lease .. | A. Harris (D.) .. | ,, .. .. | 8 | ,, .. | 1 | 12′ .. | 8½′ .. | ,, .. .. | .. | 209 | 6,233 | 6,442 | 1 | 2 | 3 | ,, |
| Collins, Murray Creek .. .. | ,, .. | N. Collins (P.) .. | N. Collins, Reefton .. .. | 42 | ,, .. | 1 | 15′ .. | 7′ .. | ,, .. .. | .. | 887 | 60,536 | 61,423 | 1 | 2 | 3 | ,, |
| Defiance, Murray Creek .. .. | ,, .. | D. McLaughlin (P.) | D. McLaughlin, Reefton .. | 6 | ,, .. | 1 | 8′ .. | 8′ .. | ,, .. .. | .. | 130 | 2,554 | 2,684 | 1 | 2 | 3 | ,, |
| Morrisvale, Reefton .. .. | ,, .. | J. Banks and C. Curtis (2nd C.) | W. J. Morris, Reefton .. .. | 22 | ,, .. | 2 | 12′ .. | 8′ .. | ,, .. .. | .. | 11,373 | 118,711 | 130,084 | 11 | 22 | 33 | Fan. |
| Sparkless, Reefton .. .. | ,, .. | J. Watson (2nd C.) | H. A. Lockington, Reefton .. | 28 | ,, .. | 1 | 12′ .. | 9′ .. | ,, .. .. | .. | 258 | 23,250 | 23,508 | .. | 2 | 2 | Natural. |
| Times Street, Reefton .. .. | ,, .. | W. Burnett (D.) .. | H. A. Honey, Reefton .. .. | 6 | ,, .. | 1 | 25′ .. | 9′ .. | ,, .. .. | .. | 441 | 2,926 | 3,367 | .. | 2 | 2 | ,, |
| Venture, Reefton .. .. | ,, .. | H. Clark (P.) .. | J. and I. Patterson, Reefton .. | 2 | ,, .. | 1 | 7′ .. | All .. | ,, .. .. | .. | 195 | 191 | 386 | 1 | 2 | 3 | ,, |
| Waitahu, Reefton .. .. | ,, .. | A. D. Williams (1st C.) | A. D. Williams, Reefton .. | 25 | ,, .. | 1 | 6′ .. | ,, .. | ,, .. .. | .. | 294 | 8,076 | 8,370 | 1 | 1 | 2 | ,, |
| Wealth of Nations, Crushington | ,, .. | C. S. McMaster (D.) | Wealth of Nations Gold-mines, Ltd., Reefton | 28 | ,, .. | 1 | 6′ to 20′ | 6′ .. | ,, .. .. | .. | 2,650 | 33,019 | 35,669 | 1 | 3 | 4 | ,, |
| White Rose, Merrijigs .. .. | ,, .. | W. Osborn (P.) .. | W. Osborn, Merrijigs .. .. | 11 | ,, .. | 1 | 4′ .. | All .. | ,, .. .. | .. | 132 | 473 | 605 | .. | 1 | 1 | ,, |
| *Greymouth District.* | | | | | | | | | | | | | | | | | | | |
| Baddeley's, Bend Creek .. | State Reserve | R. Barker (U.) .. | Baddeley and party, Runanga .. | 14 | Sub-bituminous | 1 | 7′ .. | All .. | Bord and pillar .. | .. | 3,594 | 49,080 | 52,674 | 2 | 5 | 7 | Natural. |
| Bellbird, Ten Mile .. .. | ,, | F. Fauth (D.) .. | Fauth and party, Greymouth .. | 7 | Ditto .. | 1 | 8′ .. | ,, .. | Ditto .. .. | .. | 2,995 | 17,259 | 20,254 | 1 | 4 | 5 | Fan. |
| Bellvue, Rapahoe .. .. | ,, | S. Hewison (2nd C.) | Bellvue Co-operative party, Greymouth | 8 | ,, .. | 1 | 7′ .. | 6½′ .. | ,, .. .. | .. | 5,215 | 50,657 | 55,872 | 1 | 4 | 5 | ,, |
| Blackball, Blackball .. .. | Freehold .. | J. G. Quinn (1st C.) | Blackball Coal-mines Pty., Ltd., Christchurch | 43 | Bituminous | 2 | 17′ .. | 15′ .. | ,, .. .. | D. 19 ch. .. | 32,881 | 3,987,500 | 4,020,381 | 26 | 69 | 95 | ,, |
| Blackball Creek, Blackball .. | ,, .. | J. G. Quinn (1st C.) | Blackball Creek Coal Co., Ltd., Blackball | 3½ | ,, | 2 | 17′ .. | 15′ .. | ,, .. .. | .. | 16,956 | 44,257 | 61,213 | 5 | 25 | 30 | ,, |
| Brady's, Ten Mile .. .. | State Reserve | G. Brady (U.) .. | Brady and party, Ten Mile .. | 2 | Sub-bituminous | 1 | 7′ .. | All .. | ,, .. .. | .. | 1,215 | 2,581 | 3,796 | 2 | 6 | 8 | Natural. |
| Braehead, Dunollie .. .. | ,, | W. Brown (1st C.) | Boote and party, Dunollie .. | 14 | Ditto .. | 1 | 7′ .. | ,, .. | ,, .. .. | .. | 8,138 | 72,055 | 80,193 | 3 | 11 | 14 | ,, |
| Briandale, Ten Mile .. .. | Crown lease .. | T. Howard (1st C.) | Briandale Collieries, Ltd., Christchurch | 8 | ,, .. | 1 | 6′ .. | ,, .. | ,, .. .. | .. | 4,788 | 70,102 | 74,890 | 5 | 6 | 11 | ,, |
| Brunner, Wallsend .. .. | Crown lease and freehold | G. Smith (1st C.) .. | Brunner Collieries, Ltd., Wellington | 11 | Bituminous | 1 | 18′ .. | 8′ to 10′ | ,, .. | 2 .. | 53,467 | 474,652 | 528,119 | 35 | 120 | 155 | Fan. |
| Cain's, Rapahoe .. .. | State Reserve | J. Scott (D.) .. | E. Cain, Rapahoe .. .. | 10 | Sub-bituminous | 1 | 4′ to 7′ | All .. | ,, .. .. | .. | 719 | 6,366 | 7,085 | 1 | 3 | 4 | ,, |
| Castlepoint, Dunollie .. .. | ,, | J. Duggan (U.) .. | Castlepoint Co-operative party, Runanga | 8 | Ditto .. | 1 | 5½′ .. | ,, .. | ,, .. .. | .. | 6,370 | 52,383 | 58,753 | 1 | 9 | 10 | ,, |
| Cox Creek, Twelve Mile .. | Crown lease .. | C. Kaye (D.) .. | T. E. Coates, Greymouth .. | 8 | ,, .. | 1 | 3½′ to 4′ | ,, .. | ,, .. .. | .. | 350 | 10,412 | 10,762 | 1 | 2 | 3 | Natural. |
| Dennehy's, Twelve Mile .. | ,, .. | W. Wood (1st C.) .. | J. M. Dennehy, Barrytown .. | 6 | ,, .. | 1 | 3′ .. | ,, .. | ,, .. .. | .. | 189 | 1,317 | 1,506 | .. | 2 | 2 | ,, |
| Dobson, Dobson .. .. | Crown lease and freehold | C. Hunter (1st C.) | Grey Valley Collieries, Ltd., Christchurch | 12 | Bituminous | 1 | 9′ to 16′ | 9′ .. | Bord and pillar and panel .. | D. 18 ch. .. | 41,689 | 633,706 | 675,395 | 22 | 104 | 126 | Fan. |
| Duggan's, Rewanui .. .. | State Reserve | W. Richmond (D.) | Duggan and party, Runanga .. | 13 | ,, | 1 | 4′ .. | All .. | Bord and pillar .. | .. | 5,124 | 51,940 | 57,064 | 1 | 7 | 8 | Natural. |
| Fiery Cross, Dunollie .. .. | ,, | J. Sharp (U.) .. | Currie and party, Dunollie .. | 6 | Sub-bituminous | 1 | 5′ .. | ,, .. | Ditto .. .. | .. | 4,189 | 22,569 | 26,758 | 2 | 8 | 10 | Fan. |
| Goldlight, Rewanui .. .. | ,, | J. Kelly (2nd C.) .. | Williams and party, Runanga .. | 7 | Ditto .. | 1 | 7′ .. | ,, .. | ,, .. .. | .. | 8,235 | 43,320 | 51,555 | 1 | 9 | 10 | ,, |
| Hilltop, Ten Mile .. .. | ,, | V. Armstrong (1st C.) | Armstrong and party, Runanga | 4 | ,, .. | 2 | 3′ to 18′ | ,, .. | ,, .. .. | .. | 9,340 | 28,403 | 37,743 | .. | 7 | 7 | ,, |
| Hunter's, Rewanui .. .. | ,, | J. Neilson (1st C.) | Hunter and party, Greymouth .. | 14 | ,, .. | 1 | 4½′ .. | ,, .. | ,, .. .. | .. | 7,555 | 63,706 | 71,261 | 1 | 8 | 9 | ,, |
| Jubilee, Rapahoe .. .. | ,, | T. Maguigan (U.) .. | Pinn and party, Runanga .. | 7 | ,, .. | 1 | 4′ to 6′ | ,, .. | ,, .. .. | .. | 3,759 | 16,651 | 20,410 | 2 | 7 | 9 | Natural. |
| Moody Creek, Dunollie .. | ,, | J. Simpson (U.) .. | Moody Creek Co-operative party, Runanga | 12 | Sub-bituminous | 1 | 6′ to 8′ | ,, .. | ,, .. .. | .. | 4,402 | 53,346 | 57,748 | 2 | 8 | 10 | Fan. |
| Musselpoint, Nine Mile .. | Crown lease .. | N. Forsyth (D.) .. | Curtis and party, Greymouth .. | 3½ | Ditto .. | 1 | 5½′ .. | 4′ .. | ,, .. .. | .. | 2,780 | 4,476 | 7,256 | 1 | 4 | 5 | Natural. |
| New Point Elizabeth, Dunollie .. | State Reserve | P. Manderson (U.) | New Point Elizabeth Co-operative party, Greymouth | 8 | ,, .. | 1 | 8′ .. | All .. | ,, .. .. | .. | 9,014 | 54,519 | 63,533 | 2 | 7 | 9 | Fan. |
| Old Runanga, Rewanui .. | ,, | J. W. Smith (2nd C.) | Old Runanga Co-operative party, Runanga | 8 | Bituminous | 2 | 4½′ and 4′ | ,, .. | ,, .. .. | .. | 7,057 | 39,430 | 46,487 | 3 | 13 | 16 | ,, |
| Paparoa, Roa .. .. | Crown lease .. | A. O'Donnell (1st C.) | Paparoa Coal Co., Ltd., Wellington | 26 | Semi-bituminous | 2 | 8′ to 25′ | ,, .. | ,, .. .. | D. 48½ ch. .. | 26,442 | 737,492 | 763,934 | 12 | 33 | 45 | Fans. |
| Schultz Creek, Rapahoe .. | ,, .. | W. Page (D.) .. | Marshall and party, Rapahoe .. | 10 | Sub-bituminous | 1 | 3′ .. | ,, .. | ,, .. .. | .. | 2,294 | 26,036 | 28,330 | .. | 8 | 8 | Fan. |
| Smith's, Dunollie .. .. | State Reserve | A. Ferguson (2nd C.) | Smith and party, Dunollie .. | 14 | Ditto .. | 1 | 4′ .. | ,, .. | ,, .. .. | .. | 5,549 | 67,158 | 72,707 | 2 | 10 | 12 | ,, |
| Spark's, Rewanui .. .. | ,, | J. Unwin (D.) .. | Spark and party, Rewanui .. | 13 | Bituminous | 1 | 7′ .. | ,, .. | ,, .. .. | D. 1 ch. .. | 2,887 | 40,579 | 43,466 | 2 | 4 | 6 | ,, |
| James, Rapahoe .. .. | ,, | J. Armstrong (1st C.) | New Zealand Government, Wellington | 12 | Sub-bituminous | 1 | 4′ to 8′ | ,, .. | ,, .. .. | D. 15 ch. .. | 26,479 | 371,907 | 398,386 | 21 | 63 | 84 | ,, |
| Liverpool, Rewanui .. .. | ,, | T. King (1st C.) .. | Ditto .. .. | 22 | Bituminous | 3 | 8′ to 34′ | 8′ .. | ,, .. .. | D. 36 ch. .. | 95,640 | 2,478 413 | 2,574,053 | 80 | 235 | 315 | ,, |
| United Brunner, Wallsend .. | Crown lease .. | W. Richardson (U.) | United Brunner Coal-mines, Ltd., Christchurch | 3½ | ,, | 1 | 6′ to 20′ | 8′ .. | ,, .. .. | D. 4 ch. .. | 132 | 1,277 | 1,409 | .. | 2 | 2 | Natural. |
| Stillwater, Stillwater .. .. | ,, | W. Whitfield (P.) .. | T. H. Boustridge, Greymouth .. | 7 | ,, | 1 | 4′ .. | All .. | ,, .. .. | .. | 444 | 2,012 | 2,456 | .. | 3 | 3 | ,, |
| Output of collieries included in previous statements at which operations have been abandoned or suspended | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7,746,255 | 7,746,255 | .. | .. | .. | .. |

## COLLIERY STATISTICS, 1934—*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 (Bituminous, Sub-bituminous, or Lignite). | Number of Seams worked. | Thickness of Coal-seams | Thickness worked. | System of Underground Working. | Number of Winding-shafts. | Depth of Shaft or Length of Stone Drive (if any) to reach Coal-seam. | Total Output for 1934. | Total Output to 31st December, 1933. | Total Output to 31st December, 1934. | Number of Persons ordinarily employed. | | | Means of Ventilation. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Above. | Below. | Total. | |
| **SOUTHERN INSPECTION DISTRICT.** | | | | | | | | | | | | | | | | | | |
| *Canterbury District.* | | | | | | | | | | | | | | | | | | |
| Homebush, Glentunnel | Freehold | H. J. Robb (P.) | Homebush Brick and Tile Co., Glentunnel | 61 | Brown | 2 | 2′ 6″ to 9′ | 4′ to 5′ | Bord and pillar | | D. 198′ | 1,153 | 361,867 | 363,020 | 1 | 2 | 3 | Natural. |
| Solitude, Glentunnel | ,, | A. Taylor (P.) | Burnbright Coal Co., Glentunnel | $\frac{3}{12}$ | ,, | 1 | 3′ | All | Ditto | | | 336 | | 336 | 1 | 3 | 4 | ,, |
| Bush Gully, Coalgate | ,, | E. Charles (P.) | A. Charles, Coalgate | 17 | ,, | 1 | 4′ | ,, | ,, | | D. 250′ | 1,288 | 45,921 | 47,159 | | 4 | 4 | ,, |
| Clearview, Glenroy | ,, | G. Aitken (D.) | Clearview Coal Co., Glentunnel | 15 | ,, | 1 | 9′ | 8½′ | ,, | | D. 150′ | 1,570 | 26,139 | 27,709 | 1 | 2 | 3 | ,, |
| Klondyke, Bush Gully | ,, | J. Campbell (D.) | Klondyke Collieries, Ltd., Coalgate | 6 | ,, | 1 | 20′ to 30′ | 8′ | ,, | | D. 300′ | 6,278 | 11,321 | 17,599 | 1 | 6 | 7 | ,, |
| Bonanza, Bush Gully | ,, | W. Leeming (D.) | J. Dean's Estate, Coalgate | $3\frac{1}{2}$ | ,, | 1 | 7′ | All | ,, | | D. 50′ | 2,396 | 3,349 | 5,745 | | 4 | 4 | ,, |
| Springfield, Springfield | ,, | J. Taylor (P.) | J. N. Taylor, Springfield | 51 | ,, | 1 | 4′ | ,, | ,, | | D. 99′ | 57 | 93,284 | 93,341 | 1 | 1 | 2 | ,, |
| Konomy, Springfield | ,, | P. Mitchell (P.) | P. Mitchell, Christchurch | $2\frac{3}{4}$ | ,, | 1 | $2\frac{3}{4}$′ | ,, | ,, | | | 53 | 163 | 216 | | 1 | 1 | ,, |
| Tripp's, Mount Somers | ,, | M. Menaglio (D.) | Mount Somers Coal Co., Ashburton | 68 | ,, | 3 | 10′ to 27′ | 10′ | ,, | | | 2,600 | 92,208 | 94,808 | 3 | 2 | 5 | ,, |
| Blackburn, Mount Somers | Crown lease | T. Harris (D.) | Blackburn Coal Co., Ashburton | 5 | ,, | 1 | 30′ | 10′ to 11′ | ,, | | | 2,003 | 6,704 | 8,707 | 2 | 4 | 6 | ,, |
| Sunnydale, Mount Somers | Freehold | G. S. Harris (D.) | South Canterbury Pottery and Mining Co., Mount Somers | $2\frac{1}{2}$ | ,, | 1 | 8′ | 6′ | ,, | | | 258 | 160 | 418 | 1 | 1 | 2 | ,, |
| Woodbank, Albury | Crown lease under Lands Act | S. Benson (P.) | J. H. Smillie, Albury | 10 | Lignite | 1 | 20′ | 8′ | ,, | | | 854 | 6,534 | 7,388 | 1 | 2 | 3 | ,, |
| Meadowbank, Waihao Forks | Crown lease | J. C. Campbell (D.) | B. J. Moyle, Waihao Forks | 8 | Brown | 1 | 20′ | 7′ | ,, | | | 410 | 3,177 | 3,587 | 1 | 2 | 3 | ,, |
| *North Otago District.* | | | | | | | | | | | | | | | | | | |
| Airedale, Papakaio | Crown lease | J. Griffen (2nd C.) | Airedale Coal Co., Oamaru | 8 | Lignite | 1 | 10′ | 6′ | Bord and pillar | | D. 330′ | 6,374 | 10,100 | 16,474 | 1 | 8 | 9 | Fan. |
| St. Andrews, Papakaio | Freehold | T. Nimmo, jun. (U.) | T. and J. H. Nimmo, Peebles | 55 | ,, | 1 | 10′ | All | Ditto | | D. 198′ | 2,601 | 74,317 | 76,918 | 1 | 4 | 5 | ,, |
| Willett's, Airedale | ,, | D. R. Gaudion (D.) | G. H. Willetts, Airedale | 2 | ,, | 1 | 9′ | 6′ | ,, | | D. 40′ | 1,395 | 959 | 2,354 | 1 | 3 | 4 | Natural. |
| Ngapara, Ngapara | ,, | W. Nimmo (U.) | W. Nimmo, Ngapara | 56 | ,, | 1 | 25′ | 8′ to 10′ | ,, | | D. 50′ | 834 | 48,146 | 48,980 | 1 | 3 | 4 | Fan. |
| Diamond Hill, Herbert | ,, | T. Green (D.) | T. Green, Herbert | 7 | Brown | 1 | 3′ 6″ | All | ,, | | D. 50′ | 183 | 906 | 1,089 | 1 | 1 | 2 | Natural. |
| Shag Point (old mine), Shag Point | Crown lease | W. McLaren (P.) | Bruce Railway and Coal Co., Dunedin | 20 | ,, | 1 | 5′ 6″ | ,, | ,, | | D. 60′ | 2,500 | 424,813 | 427,313 | 2 | 4 | 6 | ,, |
| Shag Point, Shag Point | Freehold | A. S. Gillanders (1st C.) | Shag Point Coal-mining Co., Dunedin | 26 | ,, | 1 | 3′ 6″ | ,, | ,, | | D. 500′ | 6,558 | 322,853 | 329,411 | 10 | 15 | 25 | Fan. |
| Rockvale, Herbert | ,, | D. Kerr (U.) | W. Marshall, Herbert | $\frac{5}{12}$ | Lignite | 1 | 10′ | 7′ | ,, | | | 26 | | 26 | | 2 | 2 | Natural. |
| *Central Otago District.* | | | | | | | | | | | | | | | | | | |
| Rough Ridge, Oturehua | Crown lease | E. Beck (P.) | Margaret Beck, Oturehua | 47 | ,, | 1 | 20′ | All | Opencast | | | 28 | 35,749 | 35,777 | 2 | | 2 | Open. |
| Idaburn, Oturehua | Freehold | D. McDonald (P.) | Mrs. M. Fisher, Oturehua | 64 | ,, | 1 | 20′ | ,, | ,, | | | 1,349 | 57,898 | 59,247 | 3 | | 3 | ,, |
| Oturehua, Oturehua | Crown lease | A. Brown (P.) | Brown and Upston, Oturehua | 40 | ,, | 1 | 16′ | ,, | ,, | | | 185 | 8,203 | 8,388 | 2 | | 2 | ,, |
| Cambrian, Cambrian | ,, | D. Jones (P.) | R. Craig, Ophir | 73 | ,, | 1 | 22′ | 10′ | ,, | | | 325 | 53,911 | 54,236 | 1 | | 1 | ,, |
| McPherson's, Coal Creek Flat | ,, | N. Harliwich (P.) | N. Harliwich, Coal Creek Flat | 64 | ,, | 1 | 40′ | 15′ | ,, | | | 2,095 | 105,461 | 107,556 | 2 | | 2 | ,, |
| Bannockburn, Bannockburn | ,, | J. Hodson (2nd C.) | J. Hodson, Bannockburn | 57 | ,, | 1 | 6′ to 20′ | 10′ | Bord and pillar | | D. 200′ | 2,246 | 130,583 | 132,829 | 1 | 3 | 4 | Natural. |
| Nevis Crossing, Nevis | | R. Ritchie (P.) | R. Ritchie, Nevis | 31 | Brown | 1 | 60′ | All | Opencast | | | 18 | 18,358 | 18,376 | 1 | | 1 | Open. |
| Parfit's, Upper Idaburn | ,, | I. Parfit (P.) | I. Parfit, Naseby | 9 | Lignite | 1 | 15′ | ,, | ,, | | | 100 | 1,178 | 1,278 | 1 | | 1 | ,, |
| Armitage's, Blackstone Hill | ,, | G. Armitage (P.) | G. Armitage, Blackstone Hill | $46\frac{1}{2}$ | ,, | 1 | 12′ | 12′ | ,, | | | 44 | 4,837 | 4,881 | 1 | | 1 | ,, |
| Fache's, Nevis | ,, | R. Ritchie (P.) | S. C. Fache, Nevis | 1 | Brown | 1 | 18′ | All | ,, | | | 178 | | 178 | 2 | | 2 | ,, |
| *South Otago District.* | | | | | | | | | | | | | | | | | | |
| Freeman's, Abbotsford | Freehold | R. Anderson (D.) | Freeman's Coal Co., Abbotsford | 54 | Lignite | 1 | 10′ to 12′ | All | Bord and pillar | | D. 100′ | 2,206 | 629,188 | 631,394 | 1 | 3 | 4 | Natural. |
| Jubilee, Fairfield | ,, | A. Cain (2nd C.) | Jubilee Coal Co., Dunedin | 37 | ,, | 2 | 4′ to 8′ | ,, | Ditto | | | 7,342 | 603,443 | 610,785 | 4 | 11 | 15 | Fans. |
| New Fernhill, Abbotsford | ,, | J. Robertson (1st C.) | New Fernhill Coal Co., Dunedin | 2 | ,, | 1 | 14′ to 26′ | 7′ | ,, | | D. 120′ | 5,111 | 2,523 | 7,634 | 2 | 8 | 10 | Natural. |
| Saddle Hill, Saddle Hill | ,, | G. McMaster (P.) | G. McMaster, Fairfield | 4 | ,, | 1 | 14′ | All | ,, | | | 258 | 2,954 | 3,212 | 1 | | 1 | ,, |
| Fairfield, Fairfield | ,, | M. Walsh (D.) | Fairfield Coal-mining Co., Ltd., Dunedin | 2 | ,, | 1 | 8′ | 5′ 6″ | ,, | | | 625 | 326 | 951 | 1 | 5 | 6 | Fan. |
| Allbright, Fairfield | ,, | J. Robertson (1st C.) | Allbright Colliery, Ltd., Dunedin | 2 | ,, | 1 | 3′ to 9′ | 6′ | ,, | | | 3,198 | 3,610 | 6,808 | 2 | 4 | 6 | ,, |
| Burnweil, Saddle Hill | ,, | G. F. Whittleston (2nd C.) | N. Laverty, Saddle Hill | 39 | ,, | 1 | 5′ | All | ,, | | | 228 | 82,030 | 82,258 | 1 | 2 | 3 | Natural. |
| Brighton, Brighton | ,, | N. McColl (P.) | N. McColl, Brighton | 19 | ,, | 1 | 5′ | ,, | ,, | | D. 150′ | 495 | 11,106 | 11,601 | | 2 | 2 | Fan. |
| East Taieri, East Taieri | ,, | J. Burleigh (2nd C.) | James Dunery and A. Burley, East Taieri | 15 | ,, | 1 | 10′ | ,, | ,, | | | 895 | 42,356 | 43,251 | 1 | 2 | 3 | Natural. |
| Willowbank, Riccarton | ,, | G. Barclay (U.) | G. Scurr and Co., Ltd., Mosgiel | 14 | ,, | 1 | 20′ | 6′ | ,, | | | 5,718 | 53,655 | 59,373 | 3 | 5 | 8 | Fan. |
| Taratu, Lovell's Flat | ,, | R. H. Schoen (1st C.) | Sargood and Cheeseman, Dunedin | 33 | ,, | 1 | 14′ | 7½′ | ,, | | D. 420′ | 14,368 | 754,912 | 769,280 | 8 | 23 | 31 | ,, |
| Burnwell, Lovell's Flat | ,, | J. McKinney (P.) | J. McCorkindale, Lovell's Flat | 2 | ,, | 1 | 15′ | 7′ | ,, | | | 56 | 62 | 118 | 1 | 1 | 2 | Natural. |
| Elliotvale, Milton | ,, | P. Campbell (1st C.) | A. Ferguson, Dunedin | 5 | ,, | 1 | 25′ | 7′ | ,, | | D. 100′ | 2,491 | 5,326 | 7,817 | 1 | 3 | 4 | ,, |
| Essbank, Milton | ,, | H. O. Kear (P.) | Beardsmore and Adams, Milton | 4 | ,, | 2 | 8′ | All | ,, | | | 1,235 | 9,141 | 10,376 | 1 | 2 | 3 | ,, |
| Benhar, Stirling | ,, | J. Walls (2nd C.) | McSkimming and Son, Ltd., Benhar | 71 | ,, | 3 | 14′ | 10′ | ,, | | D. 100′ | 6,147 | 304,942 | 311,089 | 1 | 6 | 7 | Fan. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tuakitoto, Kaitangata | ,, | J. Throp (P.) | J. Throp, Kaitangata | 24 | ,, | 1 | 20′ | 7′ | ,, | D. 100′ | 1,247 | 13,285 | 14,532 | 1 | 1 | 2 | ,, | |
| Wangaloa, Kaitangata | Crown lease | W. Barclay (D.) | W. Barclay, Kaitangata | 12 | ,, | 1 | 12′ | 10′ | ,, | | 341 | 8,974 | 9,315 | 1 | 2 | 3 | Natural. | |
| Kaitangata Nos. 1 and 2, Kaitangata | Freehold | F. Carson (1st C.) | Kaitangata Coal Co., Kaitangata | 58 | Brown | 2 | 8′ to 25′ | All | ,, | D. 825′, D. 528′, D.1,188′, D.4,950′, D. 1,386′ | 111,622 | 5,103,584 | 5,215,206 | 55 | 210 | 265 | Fans. | |
| | | | | 22 | ,, | 1 | 20′ | ,, | ,, | | | | | | | | | |
| Kai Point, Kaitangata | ,, | S. Newburn (2nd C.) | S. Newburn, Kaitangata | 7 | Lignite | 1 | 20′ | 12′ | ,, | D. 198′ | 787 | 5,964 | 6,751 | 1 | 3 | 4 | Natural. | |
| Conical Hill, Conical Hill | Crown lease | A. S. Lowrey (P.) | A. S. Lowrey, Conical Hill | 3 | ,, | 1 | 20′ | 9′ | ,, | | 138 | 427 | 565 | .. | 1 | 1 | ,, | |
| Kaituna, Kaitangata | Freehold | T. Heyes (1st C.) | J. Snaill, Kaitangata | 25 | ,, | 1 | 5′ | All | ,, | | 405 | 26,874 | 27,279 | .. | 1 | 1 | ,, | |
| Green Island, Green Island | ,, | R. McDonald (2nd C.) | C. and W. Shiel, Dunedin | 35 | ,, | 1 | 9′ | 6′ | ,, | D. 100′ | 5,486 | 140,836 | 146,322 | 4 | 15 | 19 | Fan. | |
| Hodson and Co., Fairfield | ,, | J. L. Baird (D.) | Hodson and Co., Fairfield | 3 | ,, | 1 | 6′ | 5′ | ,, | D. 99′ | 5,186 | 2,903 | 8,089 | 2 | 7 | 9 | ,, | |
| Tait's, Fairfield | ,, | W. Hollows (D.) | B. E. S. Tait, Caversham | 1 | ,, | 1 | 6′ | All | ,, | | 63 | . | 63 | 1 | 2 | 3 | Natural. | |
| *Southland District.* | | | | | | | | | | | | | | | | | | |
| Green's, Gore | Freehold | F. Barclay (2nd C.) | F. Barclay, Gore | 46 | ,, | 1 | 19′ | 11′ | ,, | D. 200′ | 5,223 | 383,587 | 388,810 | 3 | 6 | 9 | Fan. | |
| Whiterig Opencast, Gore | ,, | J. S. Wilks (P.) | J. S. Wilks, Gore | 4 | ,, | 1 | 6′ to 18′ | All | Opencast | | 1,920 | 4,230 | 6,150 | 3 | .. | 3 | Open. | |
| Croydon, Gore | ,, | W. W. McKean (P.) | W. W. McKean, Gore | 19 | ,, | 1 | 30′ | ,, | ,, | | 1,364 | 26,383 | 27,747 | 2 | .. | 2 | ,, | |
| North Chatton, Chatton | ,, | G. Daly (P.) | A. S. Burns, Waikaka | 30 | ,, | 1 | 20′ | ,, | ,, | | 527 | 110,024 | 110,551 | 3 | .. | 3 | ,, | |
| Otikerama, Otikerama | ,, | J. Hoffman (P.) | J. Hoffman, Gore | 45 | ,, | 1 | 20′ | 8′ | Bord and pillar | | 1,964 | 52,632 | 54,596 | 1 | 2 | 3 | Natural. | |
| Waimumu, Waimumu | ,, | A. Maxwell (P.) | J. B. Graham and R. P. Neale, Gore | 6 | ,, | 1 | 25′ | All | Opencast | | 2,293 | 7,096 | 9,389 | 2 | .. | 2 | Open. | |
| Hakatea, Waimumu | ,, | J. Milne (P.) | J. Milne, Gore | 6 | ,, | 1 | 16′ | ,, | ,, | | 527 | 4,712 | 5,239 | 1 | .. | 1 | ,, | |
| Kingdon's, Waimumu | ,, | P. Larking (P.) | P. Larking, Mataura | 4 | ,, | 1 | 9′ | ,, | ,, | | 820 | 3,540 | 4,360 | 2 | .. | 2 | ,, | |
| Hokonui, Hokonui | ,, | C. M. Orr (D.) | R. Frisby, Browns | 13 | ,, | 1 | 7′ | ,, | ,, | | 12 | 52,216 | 52,228 | 1 | .. | 1 | ,, | |
| Glenlee, Waikaka | ,, | F. W. Edge (P.) | F. W. Edge, Waikaka | 41 | ,, | 1 | 14′ | 7′ 6″ | Bord and pillar | | 1,158 | 36,473 | 37,631 | .. | 2 | 2 | Natural. | |
| Landslip, Waikaia | Crown lease | B. Lawrence (P.) | C. L. Lawrence, Freshford | 35 | ,, | 2 | 6′ | All | Opencast | | 85 | 1,808 | 1,893 | 1 | .. | 1 | Open. | |
| Lawrence's, Waikaia | ,, | ,, | B. Lawrence, Freshford | 11 | ,, | 1 | 6′ | ,, | ,, | | 179 | 12,737 | 12,916 | 1 | .. | 1 | ,, | |
| Argyle, Waikaia | ,, | T. Woodward (P.) | T. Woodward, Waikaia | 43 | ,, | 1 | 11′ | ,, | ,, | | 12,901 | 87,479 | 100,380 | 1 | 7 | 8 | Fan. | |
| Boghead, Mataura | Freehold | T. Gaudion (P.) | C. E. Rowe, Mataura | 29 | ,, | 1 | 17′ to 22′ | 11′ | Bord and pillar | | 4,547 | 388,955 | 393,502 | 4 | .. | 4 | ,, | |
| Mataura Lignite, Mataura | ,, | J. Pearson (D.) | Beattie, Coster, and Co., Mataura | 58 | ,, | 1 | 16′ | 15′ | Bord and pillar and opencast | | | | | | | | | |
| Terrace, Mataura | ,, | C. Peck (P.) | R. Haywood, Mataura | 4 | ,, | 1 | 15′ | All | Opencast | | 892 | 958 | 1,850 | 1 | .. | 1 | Open. | |
| Ota Creek, Wyndham | Crown lease | E. Genge (P.) | E. Genge, Wyndham | 54 | ,, | 1 | 8′ | ,, | ,, | | 484 | 32,008 | 32,492 | 1 | .. | 1 | ,, | |
| Diamond Lignite, Ashers | ,, | A. McMillan (P.) | S. McMillan, Invercargill | 32 | ,, | 1 | 36′ | ,, | ,, | | 1,109 | 39,252 | 40,361 | 3 | .. | 3 | ,, | |
| Princhester Creek, The Key | ,, | J. A. Denton (P.) | J. A. Denton, Lumsden | 32 | Brown | 1 | 4′ | ,, | ,, | | 27 | 4,159 | 4,186 | 1 | .. | 1 | ,, | |
| Lynwood, Te Anau | ,, | E. C. Govan (P.) | E. C. Govan, Te Anau | 20 | Lignite | 1 | 8′ | ,, | ,, | | 62 | 3,820 | 3,882 | 1 | .. | 1 | ,, | |
| Black Diamond, Nightcaps | ,, | A. Colligan (2nd C.) | Black Diamond Coal Co., Invercargill | 19 | Brown | 1 | 25′ | 8′ | Bord and pillar | D. 200′ | 7,468 | 237,445 | 244,913 | 5 | 8 | 13 | Fan. | |
| Birchwood, Ohai | ,, | J. Lewis (1st C.) | Birchwood Coal Co., Dunedin | 11 | ,, | 1 | 9′ to 25′ | 6′ to 8′ | Ditto | | 17,465 | 132,366 | 149,831 | 14 | 34 | 48 | ,, | |
| Black Lion, Ohai | ,, | T. Young (1st C.) | Black Lion Coal Co., Benhar | 13 | ,, | 1 | 28′ | All | ,, | D. 264′ | 18,394 | 104,938 | 123,332 | 8 | 23 | 31 | ,, | |
| Mossbank (Nos. 1 and 3), Ohai | ,, | J. McLelland (1st C.) | Mossbank Coal Co., Invercargill | 20 | ,, | 2 | 6′ to 24′ | 7′ | ,, | | 42,464 | 417,998 | 460,462 | 16 | 50 | 66 | ,, | |
| Wairaki No. 1, Ohai | ,, | J. T. Mosley (1st C.) | Wairaki Coal Co., Gore | 21 | ,, | 1 | 7′ to 25′ | All | ,, | | 14,049 | 421,730 | 435,779 | 7 | 20 | 27 | ,, | |
| Wairaki No. 2, Ohai | Freehold | ,, | ,, | 16 | ,, | 1 | 7′ to 18′ | ,, | ,, | | | | | | | | | |
| New Brighton, Nightcaps | Crown lease | J. Ford (2nd C.) | Southland Coal Co., Invercargill | 21 | ,, | 1 | 7′ | 6′ | ,, | | 122 | 123,891 | 124,013 | .. | 2 | 2 | Natural. | |
| Linton, Ohai | ,, | G. Gilbert (1st C.) | Linton Coal Co., Invercargill | 19 | ,, | 1 | 30′ to 40′ | All | ,, | | 89,185 | 928,555 | 1,017,740 | 39 | 82 | 121 | Fan. | |
| ,, | Freehold | ,, | ,, | 4½ | ,, | 1 | 30′ to 40′ | ,, | ,, | | | | | | | | | |
| Silverfern, Ohai | Crown lease | P. Magee (D.) | Spowart, Magee, and Marelich, Nightcaps | 5 | ,, | 1 | 5′ | ,, | ,, | | 750 | 2,232 | 2,982 | 1 | 3 | 4 | Natural. | |
| Star, Ohai | Freehold | J. Broome (2nd C.) | Star Coal Co., Ltd., Ohai | 3 | ,, | 1 | 9′ | ,, | ,, | D. 200′ | 10,368 | 11,741 | 22,109 | 5 | 12 | 17 | Fan. | |
| Morleyvale, Ohai | ,, | A. McKenzie (D.) | Morleyvale Coal Co., Ltd., Ohai | 26 | ,, | 1 | 30′ | 7′ | ,, | | 6,480 | 6,242 | 12,722 | 3 | 5 | 8 | Natural. | |
| Nightcaps Syndicate, Nightcaps | ,, | J. Dockerty (D.) | Nightcaps Syndicate, Nightcaps | 3 | ,, | 1 | 8′ | 7′ | ,, | | 119 | 1,552 | 1,671 | .. | 1 | 1 | ,, | |
| Waimeamea, Orepuki | Crown lease | A. Hunter (2nd C.) | New Zealand Coal and Oil, Ltd., Orepuki | 29 | Lignite | 3 | 17′ | All | Opencast | | 231 | 37,003 | 37,234 | 2 | .. | 2 | Open. | |
| Springfield, Waikaka | Freehold | D. McAskill (P.) | R. L. Reid, Gore-Waikaka R.D. | 31 | ,, | 1 | 13′ | ,, | ,, | | 172 | 60,276 | 60,448 | 2 | .. | 2 | ,, | |
| Tynui, Otaramika | ,, | J. Henderson (P.) | J. Henderson, Mandeville | 2 | ,, | 1 | 20′ | 10′ | Bord and pillar | | 458 | 8 | 466 | 1 | 2 | 3 | Natural. | |
| Glendhu, Waimumu | ,, | F. A. Barber (P.) | F. A. Barber, Gore | 6 | ,, | 1 | 12′ | All | Opencast | | 72 | 1,092 | 1,164 | 1 | .. | 1 | Open. | |
| Sparke's, Motu-rimu | ,, | R. J. Sparke (P.) | Mrs. L. F. Sparke, Woodend | 2 | ,, | 1 | 7′ | ,, | ,, | | 40 | 272 | 312 | 1 | .. | 1 | ,, | |
| Firelight, Waimumu | ,, | H. G. Peart (P.) | H. G. Peart, Gore | 2 | ,, | 1 | 10′ | ,, | ,, | | 462 | 9 | 471 | 1 | .. | 1 | ,, | |
| Greenvale, Greenvale | ,, | A. H. Edge (D.) | A. H. Edge, Waikaka | 5 | ,, | 1 | 15′ | 10′ | Bord and pillar | | 373 | 1,140 | 1,513 | 1 | 1 | 2 | Natural. | |
| Otama Valley, Otama | Crown lease | H. Moffitt (P.) | R. S. White, Gore | 2 | ,, | 1 | 13′ | 8′ | Ditto | | 662 | 302 | 964 | .. | 1 | 1 | ,, | |
| Raby Pit, Gore | Freehold | C. McGregor (P.) | D. McGregor, Gore | 1 | ,, | 1 | 18′ | All | Opencast | | 914 | .. | 914 | 1 | 1 | 2 | ,, | |
| Thornbury Pit | ,, | W. Duggan | Thornbury Lignite Co., Riverton | 1 | ,, | 1 | 8′ | ,, | ,, | | 518 | .. | 518 | 1 | .. | 1 | Open. | |
| Hakatere, Waimumu | ,, | A. H. Edge (D.) | A. H. Edge, Gore | ⅙ | ,, | 1 | 16′ | 10′ | Bord and pillar | | 94 | .. | 94 | .. | 1 | 1 | Natural. | |
| Terrace, Kingston | ,, | P. L. Magee (D.) | L. Magee and A. Lee, Nightcaps | 12 | ,, | 1 | 18′ | All | Ditto | D. 100′ | 20 | 12,601 | 12,621 | .. | 2 | 2 | ,, | |
| Milne's, Waimumu | ,, | J. Milne (P.) | J. H. Millar, Waimumu | ½ | ,, | 1 | 10′ | ,, | Opencast | | 430 | .. | 430 | 1 | .. | 1 | Open. | |
| Titapua, Mataura | ,, | P. Larking (P.) | P. Larking, Mataura | 1 | ,, | 1 | 7′ | ,, | ,, | | 86 | .. | 86 | 2 | .. | 2 | ,, | |
| Output of collieries included in previous statements at which operations are abandoned or suspended | | | | | | | | | | | .. | 6,518,158 | 6,518,158 | .. | .. | .. | .. | |
| Totals, Southern District, South Island | | | | | | | | | | | 469,463 | 20,067,263 | 20,536,726 | 284 | 661 | 945 | | |
| Totals, West Coast District, South Island | | | | | | | | | | | 783,439 | 40,441,927 | 41,225,366 | 588 | 1,493 | 2,081 | | |
| Totals, Northern District, North Island | | | | | | | | | | | 807,413 | 18,855,963 | 19,663,376 | 357 | 1,095 | 1,452 | | |
| Grand totals | | | | | | | | | | | 2,060,315 | 79,365,153 | 81,425,468 | 1,229 | 3,249 | 4,478 | | |
| Output of collieries prior to 1890 not included in the above statement | | | | | | | | | | | .. | .. | 296,653 | | | | | |
| Shale exported, 1914 | | | | | | | | | | | .. | .. | 21 | | | | | |
| | | | | | | | | | | | | | 81,722,142 | | | | | |

# APPENDIX C.

## REPORT OF BOARDS OF EXAMINERS.

Geological Survey Office, Wellington, 19th August, 1935.

SIR,—

On behalf of the Boards of Examiners under the Mining and Coal-mines Acts, I have the honour to submit the following brief report on the work of the Boards during 1934 :—

The annual examination of candidates for mine-managers' certificates under the Coal-mines Act, 1925, was held at Huntly, Reefton, Westport, Greymouth, and Dunedin on the 23rd October and two following days. In addition, candidates were examined at the same places, with the exception of Reefton, for mine-surveyors' certificates under the Coal-mines Act.

Three examinations were held for candidates who desired to obtain underviewers' and firemen-deputies' certificates—one at Dunedin on the 3rd and 4th October, one at Greymouth on the 21st and 22nd November, and one at Huntly on the 27th November.

The total of all candidates sitting the various examinations was the same as last year, but, comparing the total with three years ago, the number who sat last year shows a considerable falling off and reflects the position of the coal industry to-day.

The continued activity on the metal-mining side of the industry resulted in the number of candidates who sat for mine-managers' and battery superintendents' certificates during the previous two years again being maintained this year, while an increasing number of candidates are coming forward for dredgemasters' certificates.

Examinations of candidates for mine-managers' certificates under the Mining Act, 1926, were held at Waihi, Reefton, and Dunedin on the 23rd, 24th, and 25th October, while on the same dates candidates were examined at Waihi and Reefton for battery superintendents' certificates. An examination was also held at Dunedin and Greymouth on the 14th November for those candidates who desired to obtain dredgemasters' certificates.

Several applications for certificates by exchange were also dealt with. Apart from the several amendments to the Mining Act dealing with the Board's procedure and the consequential amendments of the regulations, there is nothing that calls for special mention.

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

| Act and Examination. | Number of Candidates. | | | Number of Certificates issued. | |
|---|---|---|---|---|---|
| | Examined. | Passed. | Partial Pass. | By Examination. | By Recognized Credentials. |
| 1. *Coal-mines Act, 1925*— | | | | | |
| Mine-manager's certificate— | | | | | |
| (*a*) First class— | | | | | |
| Written examination | 10 | .. | 2 | .. | .. |
| Oral examination .. | 3 | | | | |
| (*b*) Second class— | | | | | |
| Written examination | 8 | 5 | 1 | 5 | |
| Oral examination .. | 7 | | | | |
| Underviewer's certificate .. .. | 11 | 5 | .. | 5 | .. |
| Fireman-deputy's certificate .. | 31 | 14 | 14 | 14 | .. |
| Mine-surveyor's certificate— | | | | | |
| Written examination .. .. | 6 | 2 | .. | 2 | .. |
| Oral examination .. .. | 2 | | | | |
| 2. *Mining Act, 1926*— | | | | | |
| Mine-manager's certificate— | | | | | |
| First class— | | | | | |
| Written examination .. | 4 | 1 | 2 | 1 | .. |
| Oral examination .. | 5 | | | | |
| Battery superintendent's certificate— | | | | | |
| Written examination .. | 4 | 3 | .. | 3 | .. |
| Oral examination .. .. | 3 | | | | |
| Dredgemaster's certificate— | | | | | |
| Class A .. .. .. | 6 | 3 | .. | 3 | .. |
| Class B .. .. .. | 4 | 4 | .. | 4 | .. |
| Class B certificate (by exchange) | 2 | 2 | .. | .. | 2 |

A list of the certificates issued since my last report and which have been confirmed by the Boards is appended :—

## COAL-MINES ACT, 1925.

### Second-class Mine-managers' Certificates.

*Issued after Examination.*—Adamson, James, Greymouth ; Forsyth, Neil, Westport ; Hector, William, Runanga ; Marshall, Robert, Dobson ; Quinn, Harry, Blackball.

### Mine-surveyors' Certificates.

*Issued after Examination.*—Inglis, William Carrick, Pukemiro ; Lennox, Gordon Murray, Renown.

### Underviewers' Certificates.

*Issued after Examination.*—Alborn, Roderick Victor, Reefton ; Cohen, Ernest, Capleston ; Jamieson, Alexander Clelland, Blackball ; Smith, Basil, Dunollie ; Snedden, William Hector, Kaitangata.

### Firemen-deputies' Certificates.

*Issued after Examination.*—Airns, Abraham, Dunollie ; Barclay, William John, Kaitangata ; Brazier, Charles James, Ohai ; Brown, Archibald, Oturehua ; Charles, Ernest, Coalgate ; Dodds, John, Dunedin ; Fauth, Frederick, Blaketown ; Gray, John, Hikurangi ; McAuley, Robert Thomas, Kaitangata ; McQueen, David, Sheffield ; Queen, John Joseph, Burnett's Face ; Robb, Henry James, Whitecliffs ; Short, Robert, Twelve-Mile, Greymouth ; Williams, James Mitchell, Reefton.

## MINING ACT, 1926.

### First-class Mine-manager's Certificate.

*Issued after Examination.*—Thomson, George Watt, Dunedin.

### Battery Superintendents' Certificates.

*Issued after Examination.*—Clifton, Leslie, Waikino ; Hoyle, Harold Edwin, Thames ; Walsh, Arthur James, Waihi.

## MINING AMENDMENT ACT, 1927.

### Dredgemasters' Class A Certificates.

*Issued after Examination.*—Anderson, Edward Thomas, Dunedin ; Hamer, Frederick Robert, Cardrona ; Orr, William James, Murchison.

### Dredgemasters' Class B Certificates.

*Issued after Examination.*—Caithness, David, Upper Nevis ; Cook, Alexander Young, Waimumu ; Keith, Alexander, Ngahere ; McPherson, Ben Binnie, Reefton.

*Issued on Production of Certificate from a Recognized Authority outside of the Dominion.*—Pearson, Gordon Alexander, Parawa ; Walker, Andrew, Caversham, Dunedin.

### Dredgemasters' Certificates endorsed as Class A Certificates.

French, Thomas Edward Kerswell, Murchison ; Turner, Thomas Francis, Atarau.

One duplicate battery superintendents' certificate was issued.

Fifty-five gas-testing certificates were issued under the Coal-mines Act during the year.

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

The Under-Secretary, Mines Department, Wellington.

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