# MINES STATEMENT.

## CONTENTS.

APPENDICES TO THE MINES STATEMENT—*continued.*

1934.

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, 1933.

## GOLD-MINING.

During the year 592,247 oz. of bullion, valued at £1,099,579, was produced, a decrease in quantity of 136,899 oz., but an increase in value of £79,765 as compared with the previous year.

The gold content of the bullion for 1933 is estimated at 161,755 oz., valued at £1,063,543, as compared with 166,354 oz., valued at £974,734, for 1932.

The amount of bullion produced from the Waihi and the Waihi Grand Junction Mines was 144,782 oz. less than was won in 1932, but, owing to the higher price of gold, the value of the bullion was only £52,082 less than that of the previous year.

With a view to extending the life of the field, close investigation is being made of areas near the Waihi Mine, over which the Waihi Gold-mining Co. has acquired mining rights.

For some months past an officer of the Department of Scientific and Industrial Research has been engaged on a magnetic geophysical survey in the locality, and it is hoped that the data which will be obtained from that work and from the application of other geophysical methods will be of value in selecting the most suitable sites for boreholes.

## 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 1933 and 1932:—

| Mineral. | 1933. | | 1932. | |
|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. |
| | | £ | | £ |
| Gold and silver* .. .. .. | 592,247 oz. | 1,099,579 | 729,146 oz. | 1,019,814 |
| Platinum .. .. .. .. | 3½ ,, | 21 | .. | .. |
| Pig-iron .. .. .. .. | 3,286 tons | 16,842 | .. | .. |
| Stone .. .. .. .. | .. | 196,481 | .. | 241,920 |
| Pumice .. .. .. .. | 2,387 tons | 8,544 | 3,166 tons | 11,812 |
| Coal .. .. .. .. | 1,821,258 ,, | 1,821,258 | 1,842,022 ,, | 1,842,022 |
| Quicksilver .. .. .. .. | †9,000 lb. | 1,240 | .. | .. |
| Totals .. .. .. | .. | £3,143,965 | .. | £3,115,568 |

* 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 £3,151,807, as compared with £2,883,211 during 1932. The total value of such minerals exported to the end of 1933 amounted to £185,091,367.

## 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 1933 and 1932 :—

| Class of Gold-mining. | Production of Bullion. | | | | Dividends paid by Registered Companies. | | Number of Productive Claims and Dredges. | |
|---|---|---|---|---|---|---|---|---|
| | 1933. | | 1932. | | 1933. | 1932. | 1933. | 1932. |
| | Oz. | £ | Oz. | £ | £ | £ | | |
| Quartz .. .. | 534,821 | 721,692 | 684,272 | 758,231 | 163,870 | 177,230 | 51 | 49 |
| Alluvial .. .. | 35,381 | 217,854 | 27,214 | 151,054 | 19,648 | 3,465 | 2,410 | 1,907 |
| Dredging .. | 22,045 | 160,033 | 17,660 | 110,529 | 25,819 | 7,000 | 7 | 4 |
| Totals .. | 592,247 | 1,099,579 | 729,146 | 1,019,814 | 209,337 | 187,695 | 2,468 | 1,960 |

It will be noted that there were about five hundred more claims in production in 1933 than in 1932.

## 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, 1934, was £19,380 2s. 2d., an increase of £3,556 16s. 8d. over the previous year. During the same period the total of the three duties on exported gold amounted to £129,820 4s. 8d., of which £8,177 9s. 2d. 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 £117,089 16s. 7d., which sum was paid into the Consolidated Fund.

## MINING PRIVILEGES.

That increased interest is being maintained in the mining industry is shown by the fact that during the year ended 31st March, 1934, 3,093 licenses for mining privileges were granted under the provisions of the Mining Act, 1926, as compared with 1,982 for the previous year. Out of this number 554 were licenses for claims authorizing the holders to mine for gold. For the same period 92 mining privileges including eighteen licenses for claims, were struck off the registers under the provisions of section 188 of the Act.

## PROSPECTING FOR OIL.

During the year one company was actively engaged in boring for oil in the Dominion, the aggregate footage bored in two wells being 3,128 ft.

A production of 169,675 gallons of oil was obtained from Moturoa Nos. 1 and 2 wells at New Plymouth.

The Dominion's total production of crude petroleum oil to the 31st December, 1933, is estimated at 2,067,464 gallons.

## COAL-MINING.

From the coal-mines operating in the Dominion 1,821,258 tons of coal was produced during the year 1933, or a decrease of 20,764 tons when compared with the previous year's figures.

Despite the continued decrease in the consumption of coal, applications for coal-mining rights are still being made, but, except for an occasional grant in a district where the circumstances warrant another mine being opened up for the purpose of supplying local requirements, or except where an extension of an exhausted or partially exhausted mine is justified, the Government adheres to its general decision not to grant further coal leases or coal-prospecting licenses.

The better use of the lower-grade coals in many plants has resulted in the displacement to a certain extent of the high-calorific-value coals. This tendency appears to be reflected in the increased yearly productions of 19,457 tons from the Northern mines and 20,404 tons from the Southern District, these two increases together accounting for about two-thirds of the decreased output from the bituminous mines of the West Coast.

In the Northern and Southern Districts the use of coal-cutting machines is extending, and has resulted in an appreciable reduction in the percentage of slack coal, the demand for which is very restricted. The use of such machines also relieves the coal-miner of a very arduous part of his work.

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

| Class of Coal. | Output of Coal during 1933. | | | | Total Output to the End of 1933. |
|---|---|---|---|---|---|
| | Northern District (North Island). | West Coast District (South Island). | Southern District (South Island). | Total. | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Bituminous and sub-bituminous | 96,499 | 747,346 | .. | 843,845 | 47,320,800 |
| Brown .. .. .. | 530,427 | 34,775 | 295,036 | 860,238 | 27,567,615 |
| Lignite .. .. .. | .. | 1,264 | 115,911 | 117,175 | 4,773,412 |
| Totals for 1933 .. | 626,926 | 783,385 | 410,947 | 1,821,258 | 79,661,827 |
| Totals for 1932 .. | 607,469 | 844,010 | 390,543 | 1,842,022 | 77,840,569 |

The quantity of coal imported again shows a small reduction for the year, the figures being 99,272 tons for 1933, as compared with 103,531 tons for 1932.

On the 5th January, 1934, another explosion, which did a considerable amount of damage underground, fortunately without fatal results, occurred in the Dobson Mine. At the time there were only two men in the mine and they were not in the section where the explosion occurred, nor had any other person been in that section for three hours prior to the occurrence.

There were no electrical appliances of any sort in that section, nor was there any evidence of spontaneous combustion. These facts and a subsequent careful investigation by mine officials, officers of the Mines Department, and miners' representatives led all to agree that the explosion could be due only to a natural cause—viz., the ignition of firedamp, contained in high waste ground, by frictional heat set up by heavy falls of the hard roof rock. That decision is to some extent confirmed by the result of experiments made in Great Britain, which have proved that frictional movement of certain classes of rock is capable of producing conditions which may result in the ignition of firedamp.

It was decided to seal off—with thick concrete walls—the two sections of pillar workings where such conditions prevailed and to alter the method of work, particularly in connection with the extraction of pillar coal. The Dobson Coal Co. engaged the services of a leading mine-manager from the North Island and also those of a manager from the Maitland District of New South Wales to furnish independent reports on the cause of the explosion and to recommend the best methods for future working of the mine. Both authorities agreed with the action of the mine-manager and the Department's Inspectors in sealing off the pillared areas.

From several sources requests were received that a Royal Commission be set up to inquire into the explosion, but in view of the very definite concurrence in the opinions of all concerned as to its origin and the means that should be taken to prevent a recurrence, I decided that a Commission was unnecessary.

For a period of two years there were two Inspectors of Coal-mines for the West Coast District, but a readjustment of the staff resulted in the transfer of one Inspector to the Southern District.

Although the output from the West Coast Mines has continued to decrease, the actual number of mines in operation has slightly increased, and it has been found that the inspection work has become unduly arduous for one officer. A second Inspector of Coal-mines is therefore to be appointed for that district.

## NEW USES FOR COAL—CARBONIZING AND BRIQUETTING.

In recent years various methods of extending the use of coal have been adopted in older countries.

Many "low-temperature" carbonizing plants are in operation in Great Britain and other countries, but in New Zealand the scope for such plants is very limited. Except for the small enterprise at Sockburn, which commenced as a low-tenperature plant and is now a high-temperature one, none have been constructed in the Dominion.

A coal-briquetting machine capable of producing 50 tons of ovoids per eight-hour day has been added to the aforementioned carbonizing plant at Sockburn.

Bituminous and sub-bituminous slack coals from the West Coast mines are blended for the purpose of manufacturing the ovoids which are transported from the briquetting press by belt conveyer to storage-bins. From there they are bagged or delivered loose to motor-trucks and railway wagons.

During the year ended 31st December, 1933, the coal carbonizing and briquetting plant at Rotowaro, operated by Waikato Carbonization, Ltd., carried on continuously until October, when it was closed down for a period during the summer months, chiefly on account of the discontinuance by the Railway Board of the use of carbonettes.

Nevertheless there was an increased demand for carbonettes from other consumers in all parts of the North Island, while the encouraging sales of by-products, such as fuel oil and weed-killer, led the directors still further to prosecute research in the company's laboratory in regard to the production of Diesel oils, disinfectant, and sheep-dip.

The following figures show the totals of production during the year :—

| | |
|---|---|
| Raw coal treated .. .. .. .. | 21,936 tons. |
| Carbonettes manufactured .. .. .. | 12,425 tons. |
| Oil made .. .. .. .. | 135,320 gallons. |
| Pitch made .. .. .. .. | 300 tons. |

For the production of motor-spirit a large hydrogenation plant is being built in England. As motor-spirit has to be vaporized before being used in internal-combustion engines some eminent British engineers consider that hydrogenation is a needless process, as coal-gas, produced at gasworks, can be compressed into cylinders for use in motor-vehicles. Rupa-Diesel engines, capable of operating with various types of powdered fuel, such as powdered coal, lignite, or wood-waste, are being manufactured in Germany.

The use, in stationary steam-plants, of slack coal from our sub-bituminous seams is extending, but it is urgent that other uses should be found to avoid the present large waste of such slack.

## LABORATORY INVESTIGATIONS.

The work carried out for the Department by the Dominion Analyst has consisted chiefly of the testing of prospectors' samples from all parts of the Dominion, analyses of coal from the State Coal-mines, and examination of mine-air from numerous collieries for noxious and inflammable gases, on behalf of the Chief Inspector of Coal-mines and his staff. Work having as its object the rendering of concrete impervious to sulphide and sulphated mine-waters underground has been continued, with a fair amount of success. Ready means for the detection and estimation of sulphuretted hydrogen in mine atmospheres have been further investigated. Regular and systematic work on the special properties of New Zealand coals has not been possible since the disbandment of the Coal Research Association two years ago. It is gratifying, however, to note, as a result of the briquetting investigation carried out by the association, that a commercial plant has been erected near Christchurch for the briquetting of slack coal.

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

The following table shows the number of persons employed in each inspection district during 1933 and 1932 :—

| Classification. | Inspection District. | | | Totals. | | |
|---|---|---|---|---|---|---|
| | Northern (North Island). | West Coast (of South Island). | Southern (rest of South Island). | 1933. | 1932. | Increase or Decrease. |
| Gold, silver, and tungsten ore | 1,195 | 2,332 | 2,685 | 6,212 | 3,636 | Inc. 2,576 |
| Coal .. .. .. | 1,373 | 2,064 | 949 | 4,386 | 4,636 | Dec. 250 |
| Stone-quarries under the Stone-quarries Act | 1,304 | 139 | 268 | 1,711 | 1,888 | ,, 177 |
| Oil .. .. .. | 9 | .. | .. | 9 | 16 | ,, 7 |
| Totals .. .. | 3,881 | 4,535 | 3,902 | 12,318 | 10,176 | Inc. 2,142 |

## MINING AND QUARRY ACCIDENTS.

In metalliferous mines, at which 6,212 men were ordinarily employed, seven persons were killed and thirteen persons seriously injured.

At stone-quarries under the Stone-quarries Act, employing 1,711 men, there were no fatal accidents but six serious accidents.

In coal-mines, where 4,386 persons were ordinarily employed, seven persons were killed and twelve 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 1933 90,883 tons, the number of men employed being 163. During the previous year eighteen parties produced 98,925 tons, there being a decrease this year of 8,042 tons.

## STATE COAL-MINES.

Through the reduced consumption of coal caused by present economic conditions and the increasing use of fuel oil and electricity the output from the State collieries, in common with other collieries, showed a further slight reduction as compared with the previous year, resulting in a consequent reduction in the number of days worked by the men.

Notwithstanding the decreased business, the Department did not dismiss the excess number of men employed.

Considering the very difficult trading year, the financial results must be considered as satisfactory, the profit made for the year ended 31st March, 1934, after providing for interest and depreciation, being £11,985. Of this amount, the sum of £8,078 was transferred to the sinking fund, leaving a net surplus for the year of £3,907.

The operations of the State coal-mines and State coal-depots for the year ended 31st March, 1934, are briefly reviewed hereunder.

### Output and Sales.

*Liverpool Colliery.*—The gross output for the year was 93,769 tons, as compared with 99,290 tons for the previous year, a reduction of 5,521 tons.

*James Colliery.*—The gross output for the year was 33,694 tons, as compared with 29,981 tons for the previous year, an increase of 3,713 tons.

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

| Mine. | Output, in Tons, 1933–34. | | Output, in Tons, 1932–33. | |
|---|---|---|---|---|
| | Gross. | Net. | Gross. | Net. |
| Liverpool .. .. | 93,769 | 88,870 | 99,290 | 93,780 |
| James .. .. | 33,694 | 32,579 | 29,981 | 29,020 |

Note.—The difference between the gross and the net output is the allowance for mine consumption and waste. In addition to the above 3,366 tons of coal was purchased for resale, of which 2,573 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, 30,786 tons; railways, 20,924 tons; other Government Departments, 2,595 tons; shipping 7,548 tons; gasworks, 50,282 tons; other consumers, 3,217 tons: total, 115,352 tons.

The total sales of State coal from the Liverpool Mine for the year amounted to 87,104 tons, value £104,191,* as compared with 94,031 tons, value £114,432,* for the previous year—a decrease of 6,927 tons, with a decrease in value of £10,241.

The average price realized by the mine on the total sales for the year was £1 3s. 11·1d., a decrease of 5·0d. on the previous year's average.

The total sales of State coal from the James Mine for the year (inclusive of coal purchased—14 tons) amounted to 28,248 tons, value £41,328,* as compared with 27,424 tons, value £36,131,* for the previous year—an increase of 824 tons, with an increase in value of £5,197.

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

The average price realized by the mine on the total sales for the year was £1 9s. 3·1d. per ton, an increase of 2s. 10·9d. on the previous year's average.

The sales of coal, &c., through the medium of the depots totalled 86,176 tons, value £144,025, as against 89,482 tons, value £158,873, for the previous year.

## 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 | 6,837 |
| The cost of sea carriage of coal amounted to | 33,520 |
| The cost of railway haulage amounted to | 26,734 |
| The total wages paid for coal-winning were | 64,491 |
| The amount paid for management and office salaries (Head Office and mines) totalled | 3,429 |
| The gross capital expenditure on the whole undertaking to the 31st March, 1934, was | 677,894 |
| The total depreciation written off to date (equal to 75·5 per cent. of the gross capital expenditure) amounts to | 511,689 |
| The amount written off for depreciation for the year was | 8,766 |
| The present book value of permanent or fixed assets is | 166,205 |
| The loan capital stands at | 114,233 |
| The net profits of the State Coal-mines Account from inception to 31st March, 1934, after allowing for the special depreciation of Colliery Development Accounts, are | 169,132 |
| The net profit for the year ended 31st March, 1934, was | 11,985 |
| The Sinking Fund is in credit | 8,422 |
| The amount taken out of the Sinking Fund during the year and applied in reduction of loan capital was | 8,000 |
| The amount taken out of the General Account during the year and applied in reduction of loan capital was | 11,500 |
| General Reserve stands at | 156,802 |
| The amount at credit of Profit and Loss is | 3,907 |
| The cash in hand and in the Public Account as at 31st March, 1934, was (last year £11,676) | 3,301 |

## 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.

The facilities for recreation, already provided at mining townships and referred to in previous statements, continue to be patronized by the miners and their families. The tennis-courts and bowling-greens are extensively used and regular tournaments have become a feature of the social life of these communities.

From the State Coal-mines Account grants were made to the Runanga Borough Council for street-lighting and to the Committee of the Seddon Memorial Institute for the painting of the building.

## GEOLOGICAL SURVEY.

During the 1933–34 field season the Geological Survey continued detailed investigations of areas (1) north of Masterton where indications of petroleum are numerous, (2) in the Amuri district, North Canterbury, and (3) in the Maniototo depression in Otago Central. The mapping of the first and last of these areas is now nearly finished.

In the Soil Survey branch detailed work was continued in the Waikato, and a reconnaissance survey carried out in the Ashburton district.

The whole of Hauraki, most of the West Coast, and a good deal of Otago had been mapped in detail before the activity in gold-mining of recent years began. This work is being continued. In addition to the systematic survey of the Maniototo district, one officer has devoted his whole time to detailed investigation of gold diggings in Otago, another officer has spent six months on the alluvial deposits on the West Coast, and several visits have also been paid to Hauraki. Many of these special examinations were undertaken as a preliminary step to geophysical surveys.

As in other years, a large amount of useful work was done by the palæontologist. Fundamental research of this kind, which has proved of value in the past in the search for coal and oil, will be found still more essential in the future.

Other office work of the Geological Survey Department comprised the preparation of reports, the drawing of maps, the giving of general information to the public, and the identification of rocks and minerals.

During the year the only official publications were the annual report and Bulletin No. 34, "The Geology of the Dargaville-Rodney Subdivision." A number of other short reports and papers by members of the staff appeared in technical and scientific journals.

During the year geophysical survey parties were established by the Department of Scientific and Industrial Research, and much important ground work has been accomplished. It is hoped that in the coming year the application of modern geophysical methods will result in increased activity in gold production.

## SCHOOLS OF MINES.

Six scholarships 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, 1933, and, of these candidates, one from the Dunedin School was successful in gaining a scholarship, which is tenable for four years at the University of Otago.

The expenditure on Schools of Mines for the year ended 31st March, 1934, was £3,269, as compared with £3,438 for the previous year.

## MINERS' PENSIONS.

The Pensions Act, 1926, as amended, provides for payment of pensions to miners seriously and permanently incapacitated by miners' phthisis contracted while mining in New Zealand. The rate of pension for a miner is £1 2s. 6d. a week, and, if married, an additional 9s. a week for his wife, 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 miners' phthisis while eligible for a pension is entitled to receive 15s. 9d. a week for the period of two years immediately following the husband's death.

The scheme is administered by the Pensions Department, and the following summary of operations for the year ended 31st March, 1934, has been supplied by the Commissioner of Pensions :—

| | £ |
|---|---|
| Payments from 1st November, 1915, to 31st March, 1933 | 636,821 |
| Payments, 1933–34 .. .. .. .. | 56,810 |
| | £693,631 |
| Number of new grants for year 1933–34 .. .. | 70 |
| Annual value of new grants .. .. .. | £5,438 |
| Number of pensions in force at 31st March, 1934 .. | 736 |
| Annual value of pensions in force at 31st March, 1934 .. | £56,184 |
| Average pension per annum .. .. .. | £76 6s. 9d. |
| Number of pensions granted to 31st March, 1934 .. | 2,125 |
| Dissection of pensions in force at 31st March, 1934 :— | |
| Unmarried miners .. .. .. .. | 178 |
| Married miners .. .. .. .. | 439 |
| Miners' widows .. .. .. .. | 119 |
| | 736 |

## COAL-MINERS' RELIEF FUND.

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

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

The interest earned for the twelve months ended 31st March, 1934, was £828 11s. 10d., as against £920 1s. 4d. for the previous year, while for the same periods the receipts from the ½d. per ton contributions were £4,401 5s. 6d. and £3,804 17s. 8d. respectively.

The total expenditure for the year ended 31st March, 1934, amounted to £4,605 7s. 10d., as against £4,722 4s. 5d. for the previous year.

The amount standing to the credit of the fund at the 31st March, 1934, was £23,749 8s. 8d., as against £23,124 19s. 2d. at the 31st March, 1933.

## STATE AID TO MINING.

### (*a*) Mines Department.

As in previous years, considerable use was made of the Government prospecting drills. They were hired by nineteen parties, and a total of 10,806 ft. was drilled.

Owing to the increased demand for such plant for testing alluvial areas, five new additional alluvial drills, three of which were paid for by the Unemployment Board, were procured early in the year.

These drills, which were specially designed for New Zealand conditions by the Department's Drill Superintendent, were constructed locally and have proved very satisfactory. Even with the additional equipment the Department cannot meet all applications.

The sum of £6,185 was voted for expenditure by way of subsidies for prospecting. The balance of unexpended authorities at the 31st March, 1933, and those issued during the year, less cancellations, amounted to £7,202 13s. 8d. Of this amount £3,165 10s. 9d. was expended by way of actual subsidies during the year, leaving a balance of £4,037 2s. 11d. authorized but not spent at the 31st March, 1934. In addition, the sum of £46 7s. 6d. was expended by the Department in connection with the Unemployment Board's prospecting schemes. The number of men given employment through the subsidies granted by the Mines Department was 190.

In addition, the Department found the sum of £589 13s. 7d. towards the cost of supervising prospectors subsidized from the Unemployment Fund.

Provision totalling £3,114, including £2,839 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, 1933, and those issued during the year amounted to £1,966 12s. 3d. Of this amount the sum of £1,227 1s. 10d. was expended.

As usual, all applications for assistance in this direction were carefully investigated, and, having 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 £3,269.

### (*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 £198,334, including £7,293 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 this 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.

Already one company which could not have carried on but for substantial assistance from the Board has refunded the full amount of the subsidy paid. The assistance rendered this company has not cost the country anything, and has enabled thirty men to be retained in employment, as well as enabling the company to find work for additional men.

During the year an average of 3,657 men, including subsidized men employed by companies and syndicates, have received assistance.

Since the inception of the Board's prospecting schemes to the 31st March, 1934, approximately 10,000 oz. of gold, excluding gold obtained by subsidized companies and syndicates, has been won by subsidized miners. Many claims which have required time to develop are now reaching the production stage, and it is reasonable to expect that the amount of gold won in the coming year will show an increase.

Four advisory Mining Engineers and seventy-four Supervisors are employed, so that expert assistance and guidance are always available to the men.

Very close co-operation exists between the Mines Department and the Unemployment Board, and every endeavour is made to see that the men are given a fair chance to succeed and become independent of assistance. Already quite a number of men previously in receipt of financial aid are now able to carry on without the subsidy.

## STAFF.

Mr. A. H. Kimbell, who has been Under-Secretary for Mines for the past fourteen years retired on the 30th November, 1933. Mr. A. Tyndall was appointed to succeed him and took up his duties on 1st February, 1934.

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 a strenuous 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, 1933 AND 1932, 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, 1933. | | For Year ended the 31st December, 1932. | | Total from the 1st January, 1853, to the 31st December, 1933. | |
|---|---|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. |
| Precious metals— | Oz. | £ | Oz. | £ | Oz. | £ |
| Gold* .. .. .. | 164,998 | 1,205,364 | 167.784 | 925,950 | 24,388,810 | 97,167,438 |
| Silver .. .. .. | 409,185 | 36,620 | 517,878 | 40,547 | 28,887,279 | 3,301,265 |
| Total gold and silver .. | 574,183 | 1,241,984 | 685,662 | 966,497 | 53,276,089 | 100,468,703 |
| Mineral produce, including kauri-gum— | Tons. | £ | Tons. | £ | Tons. | £ |
| Copper-ore .. .. | .. | .. | .. | .. | 1,504 | 19,390 |
| Chrome-ore .. .. | .. | .. | .. | .. | 5,869 | 38,002 |
| Antimony-ore .. .. | .. | .. | .. | .. | $3,785\frac{9}{20}$ | 55,081 |
| Manganese-ore .. .. | .. | .. | .. | .. | $19,386\frac{1}{20}$ | 62,011 |
| Hæmatite-ore .. .. | .. | .. | .. | .. | 77 | 469 |
| Tungsten-ore .. .. | $15\frac{1}{20}$ | 766 | $7\frac{14}{20}$ | 710 | $2,481\frac{3}{20}$ | 313,005 |
| Quicksilver .. .. | 4 | 1,230 | .. | .. | $37\frac{1}{20}$ | 18,514 |
| Sulphur (crude) .. .. | .. | .. | .. | .. | 4,927 | 13,241 |
| Mixed minerals† .. .. | 2,387 | 8,557 | $3,170\frac{8}{20}$ | 11,832 | $94,428\frac{3}{20}$ | 387,111 |
| Coal (New Zealand) exported | 34,131 | 53,690 | 35,866 | 56,321 | 6,509,814 | 7,265,136 |
| Coke exported .. .. | 7 | 39 | 2 | 13 | 17,749 | 28,151 |
| Coal, output of mines in Dominion (less exports) | 1,787,127 | 1,767,568 | 1,806,156 | 1,785,701 | 73,152,013 | 53,308,730 |
| Oil-shale .. .. | .. | .. | .. | .. | 14,444 | 7,236 |
| Kauri-gum .. .. | 3,089 | 77,973 | 2,068 | 62,137 | 425,337 | 23,099,972 |
| Pig iron .. .. .. | .. | .. | .. | .. | 1,614 | 6,615 |
| Total quantity and value of minerals | $1,826,760\frac{1}{20}$ | 1,909,823 | $1,847,270\frac{2}{20}$ | 1,916.714 | $80,253,467\frac{2}{20}$ | 84,622,664 |
| Value of gold and silver, as above | .. | 1,241,984 | .. | 966,497 | .. | 100,468,703 |
| Total value of minerals, including gold and silver | .. | 3,151,807 | .. | 2,883,211 | .. | 185,091,367 |

*In respect of gold, ounces of the fineness of 20 carats and upwards. † Including pumice-sand and stone, 2,387 tons.

## No. 2.

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD EXPORTED FROM NEW ZEALAND FOR THE YEARS ENDED THE 31ST DECEMBER, 1933 AND 1932, AND THE TOTAL QUANTITY AND VALUE FROM 1857 TO THE 31ST DECEMBER, 1933.

| District and County or Borough. | Year ended 31st December, 1933. | | Year ended 31st December, 1932. | | Total Quantity and Value from January, 1857, to 31st December, 1933. | |
|---|---|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. | | |
| AUCKLAND— | Oz. | £ | Oz. | £ | Oz. | £ |
| County of Ohinemuri .. | 6,405 | 41,596 | 6,187 | 32,444 | | |
| County of Coromandel .. | 209 | 1,358 | 242 | 1,431 | | |
| County of Thames .. .. | 77 | 537 | 5 | 30 | | |
| County of Piako .. .. | .. | .. | 7 | 41 | | |
| Borough of Waihi .. .. | 69,168 | 529,833 | 77,162 | 438,241 | | |
| Borough of Thames .. | 863 | 5,612 | 439 | 2,685 | | |
| | 76,722 | 578,936 | 84,042 | 474,872 | 7,876,986 | 31,138,062 |
| WELLINGTON .. .. | .. | .. | .. | .. | 188 | 706 |
| MARLBOROUGH— | | | | | | |
| County of Marlborough .. | 1,382 | 9,386 | 1,974 | 10,282 | | |
| County of Sounds .. .. | 170 | 1,170 | 54 | 302 | | |
| | 1,552 | 10,556 | 2,028 | 10,584 | 113,918 | 450,899 |
| NELSON— | | | | | | |
| County of Collingwood .. | 870 | 6,352 | 467 | 2,915 | | |
| County of Murchison .. | 4,343 | 30,436 | 1,757 | 10,611 | | |
| County of Waimea .. .. | 80 | 600 | 43 | 233 | | |
| County of Takaka .. .. | .. | .. | 6 | 32 | | |
| | 5,293 | 37,388 | 2,273 | 13,791 | 1,751,366 | 6,965,081 |
| WEST COAST— | | | | | | |
| County of Grey .. .. | 3,994 | 29,287 | 2,054 | 11,767 | | |
| County of Buller .. .. | 2,647 | 18,751 | 1,112 | 6,384 | | |
| County of Inangahua .. | 28,545 | 203,492 | 34,266 | 179,558 | | |
| County of Westland .. | 23,219 | 168,104 | 21,533 | 116,623 | | |
| | 58,405 | 419,634 | 58,965 | 314,332 | 6,781,678 | 27,187,853 |
| CANTERBURY— | | | | | | |
| County of Ashburton .. | 2 | 12 | 3 | 13 | | |
| | 2 | 12 | 3 | 13 | 162 | 645 |
| OTAGO— | | | | | | |
| County of Taieri .. .. | 16 | 114 | 19 | 101 | | |
| County of Tuapeka .. | 3,046 | 21,466 | 3,066 | 16,725 | | |
| County of Vincent .. .. | 3,981 | 27,273 | 2,262 | 12,397 | | |
| County of Maniototo .. | 2,699 | 17,844 | 3,707 | 21,543 | | |
| County of Waitaki .. .. | 376 | 2,417 | 502 | 2,532 | | |
| County of Lake .. .. | 3,062 | 21,056 | 2,115 | 11,575 | | |
| County of Wallace .. .. | 1,152 | 8,061 | 673 | 3,574 | | |
| County of Southland .. | 7,921 | 55,338 | 6,951 | 37,642 | | |
| County of Waihemo .. | 736 | 5,030 | 1,107 | 5,953 | | |
| County of Bruce .. .. | 4 | 27 | 8 | 39 | | |
| County of Clutha .. .. | 16 | 113 | 6 | 30 | | |
| | 23,009 | 158,739 | 20,416 | 112,111 | 7,851,584 | 31,372,136 |
| Unknown .. .. .. | 15 | 99 | 57 | 247 | 12,928 | 52,056 |
| Totals .. .. | 164,998 | 1,205,364 | 167,784 | 925,950 | 24,388,810 | 97,167,438 |

## No. 3.

TABLE SHOWING QUANTITY OF GOLD EXPORTED ANNUALLY FROM NEW ZEALAND FROM 1857 TO 1933.

| 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 | | |
| 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 1933 AND 1932, 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, 1933. |
|---|---|---|---|---|---|
| | 1933. | 1932. | | | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| North Auckland .. .. | 96,499 | 118,127 | .. | 21,628 | 5,583,076 |
| Waikato (including Taranaki) .. | 530,427 | 489,342 | 41,085 | .. | 13,272,867 |
| Nelson .. .. .. | 24,760 | 23,007 | 1,753 | .. | 554,507 |
| Buller .. .. .. | 298,669 | 331,662 | .. | 32,993 | 23,635,447 |
| Reefton .. .. .. | 34,534 | 32,646 | 1,888 | .. | 824,433 |
| Grey .. .. .. | 425,422 | 456,695 | .. | 31,273 | 15,536,591 |
| Canterbury .. .. .. | 16,453 | 13,750 | 2,703 | .. | 1,015,363 |
| Otago .. .. .. | 194,313 | 190,550 | 3,763 | .. | 12,785,494 |
| Southland .. .. .. | 200,181 | 186,243 | 13,938 | .. | 6,454,049 |
| Totals .. .. | 1,821,258* | 1,842,022 | .. | .. | 79,661,827 |

* Decrease, 20,764 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, 1933. |
|---|---|---|---|---|---|
| | 1933. | 1932. | | | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Bituminous and sub-bituminous .. | 843,845 | 928,234 | .. | 84,389 | 47,320,800 |
| Brown .. .. .. | 860,238 | 806,397 | 53,841 | .. | 27,567,615 |
| Lignite .. .. .. | 117,175 | 107,391 | 9,784 | .. | 4,773,412 |
| Totals .. .. | 1,821,258 | 1,842,022 | .. | .. | 79,661,827 |

## 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 |

## 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 1933.

*Imports.*

| Country whence imported. | Tons. | Value. |
|---|---|---|
| | | £ |
| Australia .. .. .. .. | 99,272 | 103,909 |
| Totals .. .. .. | 99,272 | 103,909 |

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 .. .. | 16,096 | 33,090 | .. | .. |
| Australia .. .. .. | 13,058 | 14,534 | .. | .. |
| Fiji .. .. .. .. | 1,394 | 1,261 | .. | .. |
| Nauru Island .. .. .. | 555 | 500 | .. | .. |
| Canada, via West Coast .. .. | 100 | 209 | .. | .. |
| Tuamotu Archipelago .. .. | 1,106 | 995 | .. | .. |
| India .. .. .. .. | 500 | 750 | .. | .. |
| Tonga .. .. .. .. | .. | 1 | .. | .. |
| China .. .. .. .. | 360 | 360 | .. | .. |
| United States of America, via East Coast | 500 | 1,025 | .. | .. |
| Uruguay .. .. .. | 100 | 222 | .. | .. |
| Totals .. .. | 33,769 | 52,947 | .. | .. |

*Exports: Cargo.*

| Country to which exported. | Produce of New Zealand. | | Produce of other Countries. | |
|---|---|---|---|---|
| | Tons. | Value. | Tons. | Value. |
| | | £ | | £ |
| United Kingdom .. .. | 1 | 2 | .. | .. |
| Fiji .. .. .. .. | 8 | 33 | .. | .. |
| Western Samoa .. .. .. | 1 | 4 | .. | .. |
| Netherlands .. .. .. | 352 | 704 | .. | .. |
| Totals .. .. | 362 | 743 | .. | .. |

No. 8.

NUMBER OF PERSONS ORDINARILY EMPLOYED AT OR ABOUT MINES OTHER THAN COAL-MINES DURING THE YEAR ENDED 31ST DECEMBER, 1933.

| County or Borough. | Number of Persons ordinarily employed at | | | | Total. | |
|---|---|---|---|---|---|---|
| | Gold-quartz Mines. | Gold Alluvial Mines. | Gold-dredges. | Mines other than Gold and Coal. | 1933. | 1932. |
| NORTHERN INSPECTION DISTRICT. | | | | | | |
| County of Piako .. .. | 5 | .. | .. | .. | 5 | 2 |
| ,, Thames .. .. | 44 | .. | .. | .. | 44 | 27 |
| ,, Ohinemuri .. .. | 129 | .. | .. | .. | 129 | 114 |
| ,, Coromandel .. .. | 177 | .. | .. | .. | 177 | 58 |
| Borough of Thames .. .. | 200 | .. | .. | .. | 200 | 67 |
| ,, Waihi .. .. .. | 640 | .. | .. | .. | 640 | 625 |
| County of Taranaki .. .. | .. | .. | .. | 9 | 9 | 10 |
| WEST COAST INSPECTION DISTRICT. | | | | | | |
| County of Marlborough .. .. | .. | 94 | .. | .. | 94 | 45 |
| ,, Waimea .. .. | .. | 88 | .. | .. | 88 | 12 |
| ,, Takaka .. .. .. | .. | 73 | .. | .. | 73 | 11 |
| ,, Collingwood .. .. | .. | 60 | .. | .. | 60 | 48 |
| ,, Murchison .. .. | .. | 407 | 15 | .. | 422 | 210 |
| ,, Buller .. .. | 6 | 259 | .. | .. | 265 | 79 |
| ,, Inangahua .. .. | 322 | 201 | .. | .. | 523 | 366 |
| ,, Grey .. .. .. | .. | 316 | 20 | .. | 336 | 147 |
| ,, Westland .. .. | 6 | 409 | 56 | .. | 471 | 246 |
| SOUTHERN INSPECTION DISTRICT. | | | | | | |
| County of Taieri .. .. .. | .. | 26 | .. | .. | 26 | .. |
| ,, Ashburton .. .. | .. | 5 | .. | .. | 5 | 10 |
| ,, Selwyn .. .. | .. | .. | .. | .. | .. | 3 |
| ,, Tuapeka .. .. | .. | 444 | .. | .. | 444 | 299 |
| ,, Vincent .. .. | 2 | 777 | 10 | .. | 789 | 439 |
| ,, Maniototo .. .. | 18 | 418 | .. | .. | 436 | 166 |
| ,, Waihemo .. .. | 10 | 96 | .. | .. | 106 | 84 |
| ,, Waitaki .. .. | .. | 109 | .. | .. | 109 | 62 |
| ,, Lake .. .. .. | 2 | 266 | 11 | .. | 279 | 145 |
| ,, Wallace .. .. | .. | 147 | .. | .. | 147 | 101 |
| ,, Southland .. .. | .. | 288 | 8 | .. | 296 | 272 |
| ,, Waikouaiti .. .. | .. | 22 | .. | .. | 22 | 4 |
| ,, Bruce .. .. .. | .. | 16 | .. | .. | 16 | .. |
| ,, Clutha .. .. .. | .. | 10 | .. | .. | 10 | .. |
| Totals .. .. | 1,561 | 4,531 | 120 | 9* | 6,221 | 3,652 |

* Employed in oil-boring operations.

*Summary of Persons ordinarily employed in or about New Zealand Mines during 1933 and 1932.*

| —— | 1933. | 1932. | Increase or Decrease. |
|---|---|---|---|
| Gold, silver, and tungsten mines .. | 6,212 | 3,636 | Inc. 2,576 |
| Other metalliferous mines .. .. | 9* | 16 | Dec. 7 |
| Coal-mines .. .. .. | 4,386 | 4,636 | ,, 250 |
| Totals .. .. | 10,607 | 8,288 | Inc. 2,319 |

* 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, 2nd July, 1934.

I have the honour to present my report on metalliferous mines and stone-quarries, together with statistical information, for the year ended 31st December, 1933.

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, 1933, to the 31st March, 1934.

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 1933 and 1932:—

| Mineral. | 1933. | | 1932. | |
|---|---|---|---|---|
| | Quantity. | Value. | Quantity. | Value. |
| | Oz. dwt. | £ | Oz. dwt. | £ |
| Gold and silver (estimated) | 592,247 0 | 1,099,579 | 729,146 0 | 1,019,814 |
| Platinum | 3 10 | 21 | .. | .. |
| | Tons cwt. | | Tons cwt. | |
| Pig-iron | 3,286 0 | 16,842 | .. | .. |
| Stone | .. | 196,481 | .. | 241,920 |
| Pumice | 2,387 0 | 8,544 | 3,166 0 | 11,812 |
| | lb. | | | |
| Quicksilver | 9,000 0* | 1,240 | .. | .. |
| Totals | .. | 1,322,707 | .. | 1,273,546 |

* 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 1933 and 1932, and since 1st January, 1853:—

| — | 1933. | 1932. | Increase or Decrease. | Total from the 1st January, 1853, to the 31st December, 1933. |
|---|---|---|---|---|
| | £ | £ | £ | £ |
| Gold | 1,205,364 | 925,950 | Inc. 279,414 | 97,167,438 |
| Silver | 36,620 | 40,547 | Dec. 3,927 | 3,301,265 |
| Tungsten-ore | 766 | 710 | Inc. 56 | 313,005 |
| Kauri-gum | 77,973 | 62,137 | ,, 15,836 | 23,099,972 |
| Quicksilver | 1,230 | .. | ,, 1,230 | 18,514 |
| Sand, lime, and building-stone | 8,552 | 11,820 | Dec. 3,268 | 589,156 |
| Other minerals | 5 | 12 | ,, 7 | |
| Totals | 1,330,510 | 1,041,176 | Inc. 289,334 | 124,489,350 |

## 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, 1933. |
|---|---|---|---|---|
| | Northern. | West Coast. | Southern. | |
| Gold, silver, and tungsten | 1,195 | 2,332 | 2,685 | 6,212 |
| Cinnabar | .. | .. | .. | .. |
| Totals for 1933 | 1,195 | 2,332 | 2,685 | 6,212 |
| Totals for 1932 | 893 | 1,164 | 1,579 | 3,636 |

* In addition 9 persons were employed in oil-boring operations.

## III. ACCIDENTS.

During 1933 six fatal and six serious but non-fatal accidents occurred in or about metalliferous mines, at which 6,212 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 | 2 | 3 | 1 | 1 |
| Explosives | .. | .. | 1 | 1 |
| Miscellaneous, on surface | 3 | 3 | .. | .. |
| Miscellaneous, underground | 1 | 1 | 4 | 11 |
| Totals | 6 | 7 | 6 | 13 |

An account of the fatal accidents follows :—

The shift-boss of the Kuranui-Golden Hills opencast workings, in the Thames district, was casing a quantity of broken material with a pick when he slipped and was carried down the channel into the hopper where he was suffocated by the material which followed him.

In an untimbered shaft, on the area now being worked by the Brian Boru Dredge, a workman was buried by a fall of gravel.

At Callaghan's claim, near Kumara, a trucker was electrocuted when a steel truck which he was pushing punctured a C.T.S. cable carrying a 230-volt A.C. current.

At the Blackwater Mine, Waiuta, a horse-driver was buried by a large slip of earth which came away near the entrance to the drive as he was entering with a rake of trucks.

Two prospectors who were fossicking in the Kawarau Gorge near Cromwell undermined a large rock, which came away and killed both of them.

A dredge hand was swept into the flood-waters of the swiftly flowing Kawarau River and drowned.

A very serious accident, fortunately without fatal results, occurred at the Waihi Co.'s No. 2 winding-shaft during the afternoon of the 26th July, 1933. The west winding-drum at that shaft is permanently connected to the engine, but the east drum is loose on the shaft and is engaged by a large dog clutch. At 3 p.m. the engine-driver commenced work and hoisted ore until 3.20 p.m., then, with the west cage at No. 15 level and east cage sitting on the clips at the surface, he engaged the dog clutch in the drum preparatory to winding-up the men. At 3.40 p.m. the shift bosses were hoisted to the surface and from then until 4 p.m. the driver was occupied in lubricating and examining the winding-engine. At 4 p.m. he commenced to lower the afternoon shift. Two full cages, each carrying fourteen men were lowered safely, but when the third cage, carrying 12 men, was about 300 ft. down it got out of control and fell down the shaft. The other cage, the west and ascending one, was, judging by its position after the accident, then a little below the No. 13 level. The engine-driver was watching the indicator for the west cage, but noticing the increasing speed of the east cage he applied the hand brake to the west cage as, had the clutch been in, that would have had a braking-effect on the east cage also. The driver then applied the foot brake to the east drum, but without effect. Then he endeavoured to get the clutch in but owing to the speed of the falling cage the dogs could not enter the recesses in the drum. He then applied the hand brake. In its fall the cage swayed and when passing No. 12 level it struck the edge of a flat sheet on the floor of the chamber. That caused one of the shoes to cut into the 8 in. by 4½ in. wooden guides. This checked the speed of the cage, but it continued to fall with lessening velocity for another 100 ft. or so, until it came to rest with a few inches of its floor on one of the members of a set of timber in the shaft. The rope continued to pay out from the revolving drum and slackened when the cage came to rest. Then the safety grippers came into action. The velocity of the falling cage caused the drum to continue revolving at an enormous speed and the extra rope, about 1,000 ft., was quickly paid out. When it was all out it was severed—as by a knife—where it comes through the drum's exterior. The rope then fell down the shaft, most of it on to the east cage, but luckily the cage cover was thick enough to protect the men in it from the 2 tons of rope. All the men were removed to hospital suffering chiefly from broken legs, cuts, and bruises, and the one man in the west cage was wounded by falling timber. Tests of the engine and brakes made subsequently showed that the

machinery had been in good running order, but to prevent a similar accident occurring, a novel clutch-locking device and automatic indicator, designed by the Waihi Co.'s Engineer, has been fitted to the engine. The indicator is mounted above the eastern main bearing, and shows, by a large sign visible to the driver, the exact position of the clutch.

## 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, 1933.* (All Mines.) | | Dividends paid, 1933. (By Registered Companies only.)† | Number of Persons ordinarily employed at Productive and Unproductive Mines. | Number of Productive Quartz mines, Alluvial Mines, and Dredges, 1933. |
|---|---|---|---|---|---|
| | Quantity. | Value. | | | |
| | Oz. | £ | £ | | |
| Quartz-mining .. | 534,821 | 721,692 | 163,870 | 1,561 | 51 |
| Alluvial mining‡ .. | 35,381 | 217,854 | 19,648 | 4,531 | 2,410 |
| Dredge mining .. | 22,045 | 160,033 | 25,819 | 120 | 7 |
| Totals, 1933 .. | 592,247 | 1,099,579 | 209,337 | 6,212 | 2,468 |
| Totals, 1932 .. | 729,146 | 1,019,814 | 187,695 | 3,636 | 1,960 |

* 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 2,410 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 1933 was greater by £79,765 than that produced in 1932, but from quartz-mining the value of the bullion was less by £36,539. From alluvial mining the value of gold produced increased by £66,800 and from dredging by £49,504.

### (1) Quartz-mining.

| Inspection District. | Statute Tons of Ore treated. | | Value of Bullion. | | Dividends paid (by Registered Companies only). | |
|---|---|---|---|---|---|---|
| | 1933. | 1932. | 1933. | 1932. | 1933. | 1932. |
| | | | £ | £ | £ | £ |
| Northern .. .. | 240,851 | 216,563 | 514,453 | 555,994 | 106,088 | 106,188 |
| West Coast .. .. | 52,193 | 47,887 | 202,227 | 189,802 | 57,782 | 69,198 |
| Southern .. .. | 1,575 | 5,247 | 5,012 | 12,435 | .. | 1,844 |
| Totals .. .. | 294,619 | 269,697 | 721,692 | 758,231 | 163,870 | 177,230 |

The average value per ton of ore treated during 1933 amounted to £2 9s., as compared with £2 16s. 3d. during 1932.

At Waihi Mine 175,812 long tons of quartz was mined and treated, from which 59,240 oz. of gold was recovered, valued at £370,003. 359,741 oz. of silver, valued at £30,068, was obtained also. The dividend for the year amounted to £99,181 8s., bringing the total dividends to date £6,139,827. During the year much exploratory work was done in the Nos. 11, 12, 13, and 14 levels, and several runs of payable ore were opened up. Much investigation of the north branch of the Martha lode was made in Nos. 2, 3, 4, 5, and 6 levels also, and several lengths of thin but payable ore were proven, and on the No. 5 level the Martha lode was tested for 380 ft. Due to the greatly enhanced value of gold, much low-grade ore is still being broken and sent to the mill, and it pays for its breaking and treatment. The Waihi Grand Junction Area—also worked by the Waihi Gold-mining Co.—produced 24,804 long tons of ore from which 9,945 oz. of gold, valued at £62,115, and 54,242 oz. of silver, valued at £4,534, were recovered. Prospecting in the Grand Junction area was chiefly in the Nos. 6, 9, and 10 levels. To locate the main portion of the Royal lode much driving was done in No. 6 level, and on the Austin Reef in No. 10 level. Stoping was continued in Nos. 6, 7, and 9 Grand Junction levels, and in Nos. 10 and 11, Waihi Co.'s levels in the Grand Junction Mine.

From the Golden Dawn Mine 8,047 tons of ore was crushed, from which 4,486 oz. of gold, valued at £34,604 and 12,230 oz. of silver, valued at £1,077 were recovered. For other mines the Golden Dawn Battery treated 821 tons of ore, from which 726 oz. of gold and 3,192 oz. of silver were recovered.

From the stopes of the Zeehan and the Monowai Mines 286 tons of ore was mined from which 99 oz. of gold, valued at £690 and 940 oz. of silver, valued at £101, were recovered.

From the Blackwater Mine 45,366 tons was mined, from which 22,621 oz. of gold, valued at £163,935, was obtained.

At the Alexander Mine 4,426 tons of ore was crushed, for a yield of 4,030 oz. of gold, valued at £28,103.

At the Big River Mine 1,520 tons of ore was crushed, yielding 828 oz. of gold, valued at £6,030.

From the Mount Greenland Mine 488 tons of ore was crushed, and yielded 377 oz. of gold, valued at £1,887.

At the Golden Progress Mine, Central Otago, 247 tons of quartz yielded 348 oz. of gold, valued at £2,233.

(2) Dredge Mining.

The following is a statement showing the capacity and production of bucket gold-dredges and dividends declared by dredging companies during 1933. (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. | S = Steam. E = Electrical. H = Hydraulic. | Average Depth of Ground dredged | Quantity and Value of Bullion obtained during 1933. | | Dividends declared. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | During 1933. | Total to End of 1933. |
| *Otago and Southland.* | | | | | | Ft. | oz. | £ | £ | £ |
| Freshford .. .. | Freshford .. | 6 | 10 | 32 | S | 21 | 472 | 2,956 | .. | .. |
| Upper Nevis .. .. | Upper Nevis .. | 7 | 10 | 205 | E | 20 | 164 | 1,018 | .. | .. |
| Goldfields .. .. | Shotover River .. | 8 | 18 | 305 | E | 20 | 1,264 | 9,118 | .. | .. |
| *West Coast.* | | | | | | | | | | |
| Rimu .. .. | Rimu .. .. | 12 | 19 | 325 | E | 50 | 14,673 | 110,671 | 11,819 | 36,441 |
| Five Mile Beach .. | Okarito .. | 5 | 10 | .. | H | 20 | 3,942 | 25,637 | 14,000 | 21,000 |
| Brian Boru .. .. | German Gully .. | 9 | 20 | 250 | E | 45 | 1,000 | 7,212 | .. | .. |
| Mataki .. .. | Murchison .. | 7 | 20 | 120 | S | 15 | 530 | 3,421 | .. | .. |
| Totals, 1933 .. | .. | .. | .. | .. | .. | .. | 22,045 | 160,033 | 25,819 | Unknown |
| Totals, 1932 .. | .. | .. | .. | .. | .. | .. | 17,660 | 110,529 | 7,000 | Unknown |

The Goldfields (formerly the Golden Terrace) dredge was worked by Messrs. Sparrow and Sons, of Dunedin, from the 1st January to the 7th August. During that period 874 oz. of gold, valued at £6,567, was recovered The dredge was then taken over by Goldfields Dredging Co., and, to the end of the year, won 390 oz. of gold, valued at £2,551.

With the Upper Nevis dredge the old company won 164 oz. of gold, valued at £1,018. In August another company took over the dredge and made extensive alterations to it, renaming it the Nevis Diesel electric dredge. Dredging operations were resumed in March, 1934.

The Nevis Crossing dredge was not worked during the year. It was purchased recently by a small syndicate and is being overhauled to work some virgin ground left by former miners.

The Freshford dredge commenced operations in March, 1933, in shallow ground. Returns have been poor, and further boring is to be done; 472 oz. of gold, valued at £2,956, was won during the year.

The Mataki dredge, in the Murchison district, was first operated in August, and, until the end of the year, had been worked for 2,196 hours, yielding 530 oz. of gold, valued at £3,421.

The Rimu dredge put through nearly three million cubic yards of material, from which 14,673 oz. of gold, having a New Zealand value of £110,671, was obtained, or 9·01d. per cubic yard of material treated. The average cost of treatment, including depreciation and overhead expenses, was 4·92d. per cubic yard.

The Brian Boru dredge was put into commission early in the year and yielded 1,000 oz. of gold, valued at £7,212.

The Five Mile Beach dredge worked almost continuously throughout the year, and won 3,942 oz. of gold, worth £25,637, at an average cost, including overhead expenses, of 4·2d. per cubic yard treated.

(3) Alluvial Mining.

The following is a statement showing the value of production of, and dividends declared by alluvial gold-mines during 1933:—

| Name of Owner. | Estimated Value of Gold produced. | Dividends declared. | |
|---|---|---|---|
| | | During 1933. | Total to End of 1933 |
| | £ | £ | £ |
| Mahakipawa Goldfields, Ltd. .. .. .. .. | 7,885 | .. | .. |
| Addison's Flat Gold-mining Co. .. .. .. | 1,453 | 812 | 812 |
| Addison's Exploration, Ltd. .. .. .. .. | 103 | .. | .. |
| Charleston Sluicing Co. .. .. .. .. | 559 | .. | .. |
| Waitahu Sluicing Co. .. .. .. .. .. | 251 | .. | .. |
| Snowy River Sluicing Co. .. .. .. .. | 398 | .. | .. |
| Mount David Sluicing Co. .. .. .. .. | 1,612 | .. | .. |
| Bell Hill Sluicing Co. .. .. .. .. .. | 1,928 | .. | .. |
| Deep Lead, Ltd. .. .. .. .. .. | 148 | .. | .. |
| Golden Sands, Ltd. .. .. .. .. .. | 5,049 | 1,800 | 1,800 |
| Hohonu Gold-sluicing Co. .. .. .. .. | 1,193 | .. | .. |
| Stubbs, Steel, and Ford .. .. .. .. | 753 | .. | .. |
| Callaghan's Gold-mining Co. .. .. .. .. | 774 | .. | .. |
| Lawson's Flat Gold-sluicing Co. .. .. .. | 3,595 | .. | .. |
| King Solomon Deep Leads .. .. .. .. | 28,304 | 9,750 | 9,750 |
| Nokomai Gold-mining Co. .. .. .. .. | 4,235 | .. | .. |
| Paddy's Point Gold-mining Co. .. .. .. .. | 4,148 | 1,396 | 1,396 |
| Sailor's Gully Sluicing Co. .. .. .. .. | 3,627 | 1,890 | 12,875 |
| Gabriel's Gully Sluicing Co. .. .. .. .. | 1,524 | 1,800 | 22,375 |
| New Gabriel's Gully Gold-mining Co. .. .. .. | 446 | .. | .. |
| Kildare Consolidated Gold-mining Co. .. .. .. | 2,651 | 1,000 | 1,000 |
| Central Shotover Gold-mining Co. .. .. .. | 2,049 | .. | .. |
| Moonlight Mining Syndicate .. .. .. .. | 1,939 | 1,200 | 3,580 |
| Bell-Kilgour Gold-mining Co. .. .. .. .. | 2,420 | .. | .. |
| Bell-Hooper Gold-mining Co. .. .. .. .. | 8,417 | .. | .. |
| Fourteen Mile Beach Gold-mining Co. .. .. .. | 1,076 | .. | .. |
| Macrae's Flat Gold-mining Co. .. .. .. .. | 1,867 | .. | .. |
| Terrace Gold-mining Co. .. .. .. .. | 1,965 | .. | .. |
| Round Hill Gold-mining Co. .. .. .. .. | 986 | .. | .. |
| All other claims .. .. .. .. .. | 126,499 | .. | .. |
| Total .. .. .. .. | 217,854 | 19,648 | Unknown. |

At the Mahakipawa Mine 5,719 cubic yards of gravels were treated during the year, and yielded 1,166 oz. of gold, which realized £7,885.

Several deep-lead mines were worked in Cromwell Flat, the two best-known being the Bell-Hooper and the Bell-Kilgour Mines. The Bell-Hooper Mine produced 1,492 oz. of gold, worth £8,417, and from the Bell-Kilgour Mine 344 oz. of gold, worth £2,420, was won during the year.

A short distance down from the mouth of the Kawarau Gorge a fair amount of driving was done on the Four X and the Ounce Claims, but with poor results, and below the Bell-Hooper Claim a drive, about 400 ft. long, was put in but did not reach payable ground.

The Cornish Point Mine has been taken over by a new company and, from the Kawarau side, a new inclined shaft is being driven.

On various claims in Cromwell Flat eight prospecting-shafts have been sunk, but not one of those that bottomed was reported as having reached payable wash.

From the King Solomon Mine 4,386 oz. of gold, valued at £28,304, was won ; the total since work commenced being 8,797 oz., valued at £53,563.

At the Wetherstones Gold-mining Co.'s Claim the inclined shaft was sunk at an angle of 25 degrees for 923 ft. From the 510 ft. level and the 835 ft. level crosscuts were driven to the schist contact.

---

## V. MINERALS OTHER THAN GOLD.

### Iron.

There was 3,286 tons of pig-iron produced at the Onakaka Ironworks from January to May, 1933. Then the furnace was " blown down " and, as there was sufficient pig-iron in stock to meet requirements for some time, no further work was done during the year.

### Sulphur.

A small amount of prospecting and testing was done at the Arcadian Mine, near Taupo.

### Quicksilver.

No work was done at any quicksilver-mine during the past year.

### Tungsten.

During the year no scheelite was produced from any New Zealand mine.

### Petroleum.

The drilling of the No. 3 well of Moturoa Oilfields, Ltd., was continued to 2,260 ft., but, as no oil was struck, the hole was plugged and filled. In November the No. 4 well was commenced and, by the end of the year, it was down 1,930 ft. From the No. 2 well 169,375 gallons of oil was produced, valued at £2,999 5s. 11d. From that well a total of 471,734 gallons of oil has been produced, of a value of £7,999 3s. 3d. From the No. 1 well 300 gallons only was obtained during the year, of a value of £5 12s. 6d.

No boring was done during the year at the Southland Oil, Ltd.'s Nos. 1 and 2 wells.

At a site selected by the new company at Kotuku a wooden derrick was constructed and plant assembled to bore for petroleum. Drilling operations commenced early in 1934.

---

## 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 1933 :—

| 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 | 171 | 901 | 301,783 | .. | 700 | 69,071 | 83,746 | .. | 756 | 73,726 |
| | J. F. Downey, Mines Dept., Waihi (Hauraki Mining District only) | 13 | 63 | 45,984 | .. | .. | .. | .. | .. | .. | 11,209 |
| Hawke's Bay | James Newton, Mines Dept., Auckland | 32 | 120 | 26,397 | .. | .. | 16,834 | .. | .. | .. | 8,228 |
| Taranaki .. | Ditto .. .. | 16 | 97 | 17,310 | .. | .. | .. | .. | .. | .. | 2,984 |
| Wellington.. | ,, .. .. | 30 | 123 | 49,401 | .. | .. | .. | 428 | .. | 4,000 | 10,544 |
| Nelson .. Westland .. Marlborough | E. J. Scoble, Mines Dept., Reefton | 20 | 139 | 48,956 | 10,883 | .. | 5,452 | 22,151 | .. | 13,065 | 16,670 |
| Canterbury.. Otago .. Southland .. | T. McMillan, Mines Dept., Dunedin | 37 | 268 | 132,092 | 47,860 | 1,294 | 100,531 | 30,714 | .. | .. | 73,120 |
| Totals, 1933 | .. | 319 | 1,711 | 621,923 | 58,743 | 1,994 | 191,888 | 137,039 | .. | 17,821 | 196,481 |
| Totals, 1932 | .. | 332 | 1,888 | 714,732 | 86,240 | 884 | 201,735 | 151,100 | .. | 5,020 | 241,920 |

There were 177 fewer men employed than during the previous year, with a decrease in the value of the stone produced of £45,439.

### Quarry Accidents.

The following is a summary of serious accidents during 1933 at quarries under the Stone-quarries Act :—

| Cause. | Number of Accidents. | | Number of Sufferers. | |
|---|---|---|---|---|
| | Fatal. | Serious. | Killed. | Seriously injured. |
| Haulage .. .. .. .. .. .. .. | .. | .. | .. | .. |
| Machinery .. .. .. .. .. .. .. | .. | .. | .. | .. |
| Explosives .. .. .. .. .. .. .. | .. | .. | .. | .. |
| Falls of ground .. .. .. .. .. .. | .. | 1 | .. | 1 |
| Miscellaneous .. .. .. .. .. .. | .. | 5 | .. | 5 |
| Totals .. .. .. .. .. | .. | 6 | .. | 6 |

Accounts of the accidents are given in the District Inspectors' reports attached hereto.

## VII. STATE AID TO MINING.

### (1) Subsidized Prospecting.

Upon subsidized prospecting operations 190 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. |
|---|---|---|---|---|---|---|---|---|
| | | | £ s. d. | £ s. d. | Ft. | | | |
| *Northern Inspection District.* | | | | | | | | |
| Golden Dawn Gold Mines, Ltd. .. | 12 | Golden Dawn Mine, Owharoa .. .. | 452 5 0 | 450 17 9 | 845 | Quartz .. | Driving, &c. .. | Work mainly on payable reef. |
| McNeil, J. A. .. .. .. | 3 | Paul's Creek, Coromandel .. .. | 12 0 0 | 12 0 0 | .. | Quartz .. | Prospecting .. | Nothing of value found. |
| James, S. C. .. .. .. | 2 | Golden Lily Claim, Colville .. .. | 63 15 9 | 43 18 10 | 93 | Quartz .. | Driving .. .. | Work in progress. |
| Toogood, A. J. .. .. .. | 6 | Grace's Find, Neavesville .. .. | 400 0 0 | 372 13 5 | .. | Quartz .. | Trenching and driving | Small auriferous formation located. |
| Hardy's Gold-mining Syndicate .. | 2 | Hardy's Mines, Te Aroha .. .. | 32 10 0 | .. | .. | Quartz .. | Driving, &c. .. | No work yet done. |
| Dawn of Hope Gold-mines, N.L. .. | 2 | Lucky Shot Mine, Thames .. .. | 75 12 0 | 18 18 0 | 40 | Quartz .. | Crosscutting .. | Nothing of value located. |
| Talisman-Dubbo Gold-mines, Ltd. .. | 4 | Talisman-Dubbo Mine, Karangahake .. | 180 0 0 | 110 8 3 | 188 | Quartz .. | Driving and rising .. | Work on payable reef. |
| Morgan, H. L. .. .. .. | 2 | Scotia Claim, Waitekauri .. .. | 75 0 0 | 36 5 0 | 145 | Quartz .. | Driving .. .. | Work in progress. |
| School of Mines .. .. .. | .. | Thames .. .. .. .. | 100 0 0 | 91 10 0 | .. | Quartz .. | Crushing .. .. | .. |
| Kuranui Golden Hills Gold-mining Co. .. | .. | Thames .. .. .. .. | 43 9 6 | 43 9 6 | .. | Quartz .. | Testing low-grade ores | .. |
| *West Coast Inspection District.* | | | | | | | | |
| Arnold Flat Syndicate .. .. | 3 | Candlelight Creek .. .. .. | 125 0 0 | 45 12 6 | 433 | Dredging.. | Drilling .. .. | Results unsatisfactory. |
| Big River Gold-mines, Ltd. .. .. | 20 | Big River .. .. .. .. | 1,500 0 0 | 719 8 2 | 784 | Quartz .. | Driving, rising, &c. .. | Results satisfactory. |
| Callaghans Gold-mining Co., Ltd. .. | 9 | Callaghans .. .. .. .. | 12 10 0 | .. | .. | Alluvial .. | .. | Not taken up. |
| Daylight Gold-prospecting Syndicate .. | 3 | Ahaura .. .. .. .. | 100 0 0 | 78 15 0 | 252 | Dredging.. | Drilling .. .. | Results satisfactory. |
| Golden Electric Dredging Co. .. .. | .. | Okarito .. .. .. .. | 210 0 0 | .. | .. | Dredging.. | Drilling .. .. | Not yet taken up. |
| Haast Development Syndicate .. | 3 | Haast Beach .. .. .. .. | 287 5 0 | 51 6 0 | 270 | Dredging.. | Drilling .. .. | Results unsatisfactory. |
| Maori Gully (Riverton) Syndicate .. | 2 | Maori Gully .. .. .. .. | 32 0 0 | .. | .. | Dredging.. | Shaft-sinking .. | Results unsatisfactory. |
| Murchison Development Syndicate .. | 3 | Murchison .. .. .. .. | 37 10 0 | .. | .. | Dredging.. | Drilling .. .. | Results unsatisfactory. |
| New Zealand Mining Investments, Ltd. .. | 3 | Stillwater .. .. .. .. | 50 0 0 | .. | .. | Dredging.. | Drilling .. .. | Results unsatisfactory. |
| Placer Development, Ltd. .. .. | .. | Mossy Creek .. .. .. .. | 100 0 0 | .. | .. | Dredging.. | Drilling .. .. | Not taken up. |
| Robertson-Maher Gold-prospecting Syndicate | .. | Armchair Valley, Wairau .. .. | 125 0 0 | .. | .. | Dredging.. | Shaft-sinking .. | Results unsatisfactory. Failed to reach bottom. |
| Rotomanu Prospecting Syndicate .. | 3 | Rotomanu .. .. .. .. | 120 0 0 | 30 0 0 | 75 | Sluicing .. | Shaft-sinking .. | Results unsatisfactory. |
| Waikakaho Victory Co. .. .. | 3 | Waikakaho .. .. .. .. | 90 0 0 | 62 19 1 | 282 | Alluvial .. | Drilling .. .. | Results satisfactory. |
| Allan, J. M., and party .. .. | .. | Ross .. .. .. .. | 21 0 0 | .. | .. | Alluvial .. | .. | Not taken up. |
| Campbell, A. .. .. .. | 1 | Kirwan's Hill .. .. .. | 19 10 0 | 7 10 0 | .. | Quartz .. | Driving .. .. | Work not completed. |
| Eyre, J. .. .. .. | 1 | Parapara .. .. .. .. | 30 0 0 | 5 0 0 | .. | Alluvial .. | Development .. | Results satisfactory. |
| Fitzgerald and Hollingsworth .. .. | 2 | Mahakipawa .. .. .. .. | 23 10 0 | 23 10 0 | 48 | Quartz .. | Driving and prospecting generally | Results unsatisfactory. |
| Gagliardi, J. .. .. .. | .. | Waikaka Creek, Havelock .. .. | 30 0 0 | .. | .. | Quartz .. | .. | Not taken up. |
| Havill, S. G., and party .. .. | .. | Callaghans Flat .. .. .. | 25 0 0 | .. | .. | Alluvial .. | .. | Not taken up. |
| Houston, W. J., and Sons .. .. | .. | Greek's and Foxes Creeks .. .. | 75 0 0 | .. | .. | Dredging.. | .. | Not taken up. |
| Kissane, T., and party .. .. | 4 | Waikakaho .. .. .. .. | 57 4 0 | 57 4 0 | 174 | Alluvial .. | Driving .. .. | Results unsatisfactory. |
| Manzoni, Jules .. .. .. | .. | Callaghans .. .. .. .. | 105 0 0 | .. | .. | Sluicing .. | .. | Not taken up. |
| Mayne, W. P., and Son .. .. | 2 | Rutherglen .. .. .. .. | 45 0 0 | 45 0 0 | 140 | Sluicing .. | Development .. | Results satisfactory. |
| Morgan, F., and party .. .. | .. | "The Break," Kumara .. .. | 75 0 0 | .. | .. | Alluvial .. | .. | Not taken up. |
| Quinn, E., sen. and jun. .. .. | .. | Maori Creek .. .. .. .. | 100 0 0 | .. | .. | Sluicing .. | .. | Not taken up. |
| Roberts, J. T. .. .. .. | 2 | Rutherglen .. .. .. .. | 21 0 0 | 21 0 0 | 120 | Sluicing .. | Development .. | Results satisfactory. |
| Thompson and Wimpenny .. .. | 2 | Blackball .. .. .. .. | 25 0 0 | 12 10 0 | 100 | Alluvial .. | Driving .. .. | Results unsatisfactory. |
| Wickes and Griggs .. .. .. | 2 | Deep Creek, Marlborough .. .. | 40 0 0 | 40 0 0 | 100 | River .. | Development .. | Results satisfactory. |
| Borings Ltd. .. .. .. | 4 | Fern Flat, Murchison .. .. .. | 261 3 9 | 151 18 9 | 807 | Dredging.. | Drilling .. .. | Results unsatisfactory. |
| Hunter's Plains Alluvials .. .. | 4 | Upper Matakitaki .. .. .. | 60 10 0 | .. | .. | Dredging.. | Drilling .. .. | .. |

| 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.* | | | £ s. d. | £ s. d. | Ft. | | | |
| Adams Flat Gold-mining Syndicate .. | 2 | Adams Flat, South Otago .. .. | 29 19 8 | 8 10 1 | 217 | Alluvial .. | Sinking .. .. | Results unsatisfactory. |
| Bell Currie Syndicate .. .. | 4 | Rock and Pillar Survey District.. .. | 50 0 0 | 12 8 0 | 32 | Alluvial .. | Driving .. .. | Work in progress. |
| Bendigo Deep Lead Syndicate .. .. | 4 | Bendigo .. .. .. .. | 250 0 0 | 45 0 0 | 2,100 | Dredging.. | Boring .. .. | Results satisfactory. |
| Ettrick Prospecting Syndicate .. .. | 4 | Ettrick Flat, near Roxburgh .. .. | 160 0 0 | .. | 284 | Dredging.. | Boring .. .. | Work in progress. |
| Golden Point Gold and Scheelite Co. .. | 6 | Golden Point, Deep Dell, Macrae's .. | 211 10 0 | .. | 87 | Reef .. | Driving .. .. | Work in progress. |
| Hakapoua Prospecting Syndicate .. | 3 | Aan River, Hakapoua Survey District .. | 75 0 0 | 54 2 7 | .. | Alluvial .. | Prospecting .. | Results unsatisfactory. |
| Wetherstones Gold-mining Co., Ltd. .. | 10 | Wetherstones, near Lawrence .. .. | 1,666 13 4 | 116 13 4 | 35 | Cement .. | Sinking .. .. | Shaft not yet completed. |
| Shotover Reefs Development Co., Ltd. .. | 5 | Ballarat Creek, Skippers .. .. | 168 15 0 | 62 10 0 | 266 | Reef .. | Driving .. .. | Results unsatisfactory |
| Beer and party .. .. .. | 3 | Diggers Creek, Sunnyside Run, Monowai Survey District | 60 0 0 | 60 0 0 | .. | Alluvial .. | Opening up and development | Main lead not located. |
| Bradley, A. .. .. .. .. | .. | Branch Creek, Cardrona .. .. | 200 0 0 | .. | .. | .. | Boring and pitting .. | Work not started. |
| Elsom, J. J., and others .. .. | 6 | Bonanza Mine, Budle and Hummockside Survey District | 120 0 0 | 84 8 0 | 211 | Dredging, mech. digging and reef | Driving crosscut .. | Work not completed. |
| Hadcroft and party .. .. .. | 2 | Saddle Hill .. .. .. .. | 50 7 6 | .. | .. | Reef .. | Driving and sinking .. | Work in progress. |
| Hamer and McIver .. .. .. | 2 | Waikaia, Wendon Survey District .. | 55 12 6 | .. | .. | Deep lead alluvial | Driving .. .. | Work discontinued. |
| Livingstone, G. J. R. .. .. | 2 | Hyde, Rock and Pillar Survey District .. | 20 1 8 | .. | .. | Alluvial deep lead | Sinking .. .. | Work in progress. |
| McDonald, A. .. .. .. .. | .. | Sunnyside, Monowai Survey District .. | 65 15 0 | .. | .. | Reef and alluvial | .. | No report. |
| O'Connell, J., and party .. .. | 6 | Macrae's Township .. .. .. | 85 0 0 | 73 12 0 | 161 | Alluvial deep lead | Sinking and driving .. | Work not completed. |
| Ross and party .. .. .. | 6 | Highlay Creek, Highlay Survey District .. | 74 12 0 | .. | .. | Alluvial deep lead | Driving .. .. | Deep lead intersected; work discontinued. |
| Sharpe and party .. .. .. | 2 | Rees Valley, Earnslaw Survey District .. | 3 7 6 | 3 7 6 | 11 | Reef .. | Driving .. .. | Result unsatisfactory. |
| Sutherland and party .. .. | 3 | Highlay Creek, Highlay Survey District .. | 65 2 0 | 16 10 0 | 30 | Alluvial deep lead | Driving .. .. | Work in progress. |
| Symes, R. T. .. .. .. | 2 | Symes Reef, Fruitlands .. .. | 75 0 0 | .. | 73 | Reef .. | Driving .. .. | Work in progress. |
| Tate Bros. .. .. .. .. | .. | Macrae's Flat .. .. .. | 44 14 0 | .. | .. | Reef .. | Sinking and driving .. | Subsidy not taken up. |
| Thompson and party .. .. .. | 4 | Rise and Shine, Pomahaka River .. | 108 0 0 | 49 10 0 | .. | Alluvial .. | Reconditioning water-races, &c. | Work not yet completed. |
| Tripp and Thomson .. .. .. | 2 | Sawyers Gully, Skippers Survey District .. | 50 12 6 | 47 5 0 | .. | Reef .. | Driving .. .. | Results promising. |
| Wesney, D. J. .. .. .. | 3 | Grindstone Creek, Block X, Longwood Survey District | 50 0 0 | .. | 263 | Alluvial .. | Sinking and boring .. | Nothing of importance yet located; work not completed. |
| | 190 | | .. | 3,165 10 9 | | | | |

* Includes authorizations in previous years. The total of the subsidies granted during the year ended 31st March, 1934, amounted to £7,202 13s. 8d.

## (2) Government Prospecting Drills.

The following table gives details of the drilling done and the results obtained for twelve months ended 31st December, 1933 :—

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. | |
| 5 | 1,221 | 3 & 2⅜ | Coal | Shale, sandstone, and conglomerate | State Coal-mines | .. | .. | .. | In progress. |
| 35 | 850 | 6 | Gold | Gravel .. | Borings Ltd. .. | 7 11·8 | 0 7·2 | .. | .. |
| 2 | 95 | 3 | Gold | Gravel .. | Ross Unemployment Committee | 30 0* | .. | .. | .. |
| 3 | 150 | 6 | Gold | Gravel .. | Ahaura Prospecting Syndicate | 7 2 | 3 11·1 | .. | .. |
| 1 | 81 | 6 | Gold | Gravel .. | S. A. N. Sullivan | .. | .. | .. | .. |
| 7 | 185 | 6 | Gold | Clay and gravel.. | New Zealand Mining Investments, Ltd. | .. | .. | .. | .. |
| 29 | 1,082 | 6 | Gold | Gravel .. | Haast Development Syndicate | 8 0·5* | .. | .. | .. |
| 18 | 887 | 6 | Gold | Sand and gravel | Hunters Plains Alluvials, Ltd. | 14 11·1 | 2 9·9 | .. | .. |
| 12 | 270 | 6 | Gold | Gravel .. | T. Learmont .. | 5 0 | 5 2 | .. | .. |
| 3 | 160 | 6 | Gold | Gravel .. | New Zealand Mining Investments, Ltd. | 9 1 | 2 5 | .. | .. |
| 7 | 130 | 6 | Gold | Sand and gravel | New Zealand Mining Investments, Ltd. | .. | .. | .. | .. |
| 15 | 532 | 6 | Gold | Gravel .. | R. M. S. Sinclair | 5 3·25 | 1 3·25 | .. | .. |
| 8 | 231 | 6 | Gold | Gravel .. | R. M. S. Sinclair | 0 5 | 4 5·4 | .. | .. |
| 14 | 717 | 6 | Gold | Gravel .. | Murchison Development Syndicate | 9 4 | 0 4·9 | .. | .. |
| 4 | 108 | 6 | Gold | Gravel .. | T. Learmont .. | 6 9 | 5 6 | .. | .. |
| 4 | 89 | 6 | Gold | Gravel .. | T. Learmont .. | 6 0 | 13 3·5 | .. | .. |
| 13 | 242 | 6 | Gold | Silt, clay, and mud | H. Halliday .. | 6 0 | 2 7 | .. | .. |
| 4 | 251 | 6 | Gold | Gravel .. | Investigations, Ltd. | 17 1·79 | 7 0·89 | .. | .. |
| 23 | 671 | 6 | Gold | Sand and gravel | C. W. Stuart .. | 4 9 | 0 6 | .. | .. |
| 2 | 108 | 6 | Gold | Sand and gravel | Messrs. Tate and Corcoran | 5 0 | 7 6 | .. | .. |
| 5 | 221 | 6 | Gold | Gravel .. | W. A. Mitson and Co. | 7 3·5 | 3 5 | .. | .. |
| 2 | 68 | 6 | Gold | Gravel .. | W. A. Mitson and Co. | | | | |
| 6 | 170 | 6 | Gold | Sand and gravel | Gold Development Corporation, Ltd. | 16 0 | 1 7 | .. | .. |
| 17 | 1,088 | 6 | Gold | Schist and gravel | Bendigo Deep Lead Syndicate | 10 7* | .. | .. | .. |
| 7 | 603 | 6 | Gold | Gravel .. | ,, | 10 11* | .. | .. | .. |
| 6 | 510 | 6 | Gold | Gravel .. | ,, | 5 4* | .. | .. | .. |
| 3 | 86 | 6 | Gold | Gravel .. | Goldfields Dredging Co., Ltd. | .. | .. | .. | .. |
| 255 | 10,806 | | | | | | | | |

* 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 £1,227, as compared with £1,182 during the previous year.

The immense fillip given to gold-mining by the substantially increased value of the metal resulted in much extra work for the District Inspectors, and the duties of the Inspector for the Southern District became too onerous for one person. Towards the end of the year, Mr. G. W. Lowes was appointed an Inspector for Cromwell and the surrounding district. For some time he had been mining adviser for that district to the Unemployment Board.

Mr. McMillan then confined his attentions to the remainder of the Southern District.

Together with the Inspectors of the Northern and West Coast Districts, they have rendered me all possible help and have co-operated in guarding the safety of the workmen and the interests of the growing industry.

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 the 31st December, 1933:—

*Waihi Gold-mining Company, Ltd.* (J. L. Gilmour, Manager).—The following is a brief summary of the work carried out, and its results: No. 15 level (1,880 ft. below collar of No. 4 shaft): No further exploration carried out. Shrinkage stoping of Cod block on Edward lode completed, and the arch under No. 14 level broken down. No. 14 level (1,752 ft. below collar of No. 4 shaft): On south section of Martha lode a short shrinkage stope known as Austin block, 82 ft. in length, was opened up east and west of No. 4 shaft west crosscut. The value of the quartz fell at 92 ft. up, and work was stopped. On the Martha lode considerable further investigation was carried out below Gin block on No. 13 level, at which point the lode was from 60 ft. to 80 ft. wide. Crosscutting south from the winze revealed no values, but in crosscutting north where the lode was 78 ft. wide some 30 ft. was found to be of payable grade. The lode was then investigated on No. 14 level, where in a crosscut driven northward on the footwall of the lode a run of payable ore was opened up for 190 ft. in length. No. 13 level (1,578 ft. below collar of No. 4 shaft): Further investigation of the Martha lode south section east of No. 4 shaft north crosscut was carried out from a point 340 ft. north in the crosscut, 168½ ft. being driven easterly on the lode. Some fair samples were got, but the reef on the whole was of low grade. A winze was also sunk on the lode for 49½ ft., but values were found to be low. No. 12 level (1,447 ft. below collar of No. 4 shaft): The removal of ore from Andrewartha block on Empire lode was practically completed. East and west of Bath crosscut on the same lode investigations led to the opening-up of two stoping-blocks, the Bath and Fahy blocks, totalling 323 ft. in length. On the Martha lode, a section extending from 50 ft. west of Fax rise to 33 ft. east was opened up and stoped out. A further payable section of the lode is being stoped from about 30 ft. west to 75 ft. east of Fax crosscut. The Martha lode in this part of the mine is up to 70 ft. wide, but payable only in patches. On the Royal lode investigation was continued. A sub-level was opened up at 80 ft. below No. 11 level, in which a run of good ore was found for a length of about 133 ft. Investigations were then made on No. 12 level in the hope of finding a downward continuation of this ore. In general the lode on the level was not found payable, but runs of payable ore were got between 84 ft. and 213 ft. westward in a drive from the No. 4 shaft south-east crosscut, also between 248 ft. and 285 ft. in an east drive from the same crosscut. Four stoping-blocks are being opened on these. No. 11 level (70 ft. sub-level): On the Empire lode the drive eastward was continued from 28 ft. from the sub-level crosscut to 227 ft., at which point the lode split up. Samples taken from between the 25 ft. and 209 ft. marks showed the ore, which varied from 3 ft. to 5 ft. in width, to be consistently good. On the Edward lode a good deal of driving and crosscutting was done. No. 11 level (38 ft. sub-level): A shrinkage stope known as Kingsford dip block was opened up and yielded a good deal of ore, but at 27 ft. up the value fell away and work in a considerable length of the stope had to be suspended. No. 11 level (1,301 ft. below collar of No. 5 shaft): Stoping was continued on Mitchell east block on Empire lode to 95 ft. up. During the process of widening No. 11 level preparatory to stoping, quartz was noticed going off on the north wall at 76 ft. east of Power crosscut. This was followed for 75 ft. and proved to be a reef 3½ ft. wide of good-grade ore. On the Empire lode, a drive west from Power crosscut on a sub-level at 60 ft. below No. 10 level revealed a loop for 85 ft. in length of good ore from 4 ft. to 5 ft. in width. On the Edward lode west section at 70 ft. above No. 11 level a block known as Berryman's was opened up. No. 10 level (52 ft. sub-level): A drive westward on the Empire lode from Rolker south crosscut was extended 188 ft. to a total of 484 ft. on ore from 3 ft. to 5 ft. in width, and of fair value. Connor block was opened up on it. No. 10 level (1,152 ft. below collar of No. 5 shaft): Shrinkage stoping was continued on Furze block to 124 ft. above the level, when breaking of ore was stopped, an arch of 20 ft. being left under No. 9 level. On the Ulster lode, at a point near the boundary of the Grand Junction area, driving was done for 129½ ft., about 63 ft. of which was in Junction ground. For 123 ft. the lode, from 4 ft. to 5 ft. in width, gave good values, and the Ulster block was being opened up on it. On the Martha lode south section, a drive westward from Boundary reef north crosscut for 135 ft. enabled a short stoping block, known as Horse block, to be opened up. No. 9 level (65 ft. and 16 ft. sub-levels): Boggs block on the Edward lode on the 65 ft. sub-level was stoped to within 6 ft. of No. 9 level. It was then found the payable ore was continuing southward. This was driven on for 55½ ft. at 16 ft. below No. 9 level, thus opening up a second Boggs block. This was stoped up to 70 ft. above No. 9 level, where breaking was stopped owing to ventilation difficulties. No. 9 level (86 ft. sub-level): All the broken ore in Leather block on Empire lode north section was drawn off. The ground underfoot was then tested by a winze which connected with a rise from an old stope above No. 10 level. From this a sub-level was opened at 86 ft. below No. 9, in which a stope known as Feather block was opened up. No. 9 level (35 ft. sub-level): Towards the end of the year a start was made to extract Trout arch on the Edward lode. No. 8 level (100 ft. sub-level): On the Welcome lode north section, Daisy block was stoped out for a length of 71 ft. No. 8 level (45 ft. sub-level): Starting from Worthington winze, 15 ft. west of No. 4 shaft north crosscut and a few feet south of Empire lode, a footwall gangway at 45 ft. below No. 8 was driven westward 527 ft. to provide access for extracting a big arch under No. 8 level. No. 8 level (21 ft. sub-level): The extraction of the high-grade arch under No. 8 level on the Edward lode near Perch winze was continued, and further work was carried out on the west section of the same lode at 21 ft. and 60 ft. below No. 8 level. No. 8 level (855 ft. below collar of No. 4 shaft): All the payable ore was drawn from Pileson block on the Martha lode north section, also from Cowan block on the north branch of Martha lode. On the main Martha lode the extraction of ore from the arches under No. 7 level by caving and square-setting was in continuous progress and the quantity won from this source amounted to 74,189 short wet tons. No. 7 level (34 ft. sub-level): Mining of the arches under No. 7 level was in continuous operation. A considerable amount of ore yet remains to be extracted. No. 7 level (705 ft. below collar of No. 4 shaft): Shrinkage stoping of Red block on No. 2 reef was completed at 139 ft. up. No. 6 level (60 ft. sub-level): The stoping of White block on No. 2 reef was completed, breaking of ore being carried to within 5 ft. of No. 6 level. On the south part of No. 2 reef Joe block was opened up for 70 ft. in length and stoped to 109 ft. above the level. No. 6 level (545 ft. below collar of No. 4 shaft): An intermediate level on H branch lode was driven east and west at Cropp rise at 46 ft. above the level, which resulted in the opening-up of a stoping block 203 ft. in length. With the object of intersecting the downward continuation of the north branch of the Martha lode the Espir west crosscut was commenced from a point 124 ft. west of

No. 2 shaft new north-west crosscut along Martha footwall gangway, and put out a total of 234 ft., at which point a vein 1 ft. 6 in. in width was cut assaying £2 11s. 9d. per ton. The face of the crosscut had not yet reached the line of the north branch of the Martha lode. The remainder of the ore in stopes on No. 2 and Olsen's reefs was drawn off. No. 5 level (24 ft. sub-level): The mining of the arch on Bull's south-east crosscut on Martha lode was proceeded with. No. 5 level (432 ft. below collar of No. 5 shaft): Following the opening-up of the north branch of the Martha lode in the area west of No. 2 shaft, a good deal of investigation of the Martha lode itself was made in this part of the mine. The work was started by crosscutting to the north-west from the north part of the Surprise lode. The Martha lode was met with at 90 ft. and was traversed diagonally for 33 ft. By the end of the year driving westward had been carried out for 512½ ft. from the No. 2 shaft new north-west crosscut. At 260 ft. west a crosscut disclosed a width of 10 ft. but values were low. Samples taken during the course of the driving ranged from 7s. 3d. to £1 17s. 4d. per ton. At 395 ft. west a branch lode from 4 ft. to 5 ft. in width came in on the south wall of the Martha. Driving on this for 8 ft. showed good values. No. 4 level (341 ft. below collar of No. 5 shaft): Investigation of the Edward lode at this level was continued, also of the Jellicoe reef westward from No. 2 shaft new south-east crosscut. Levels Nos. 2, 3, 4, 5, and 6: A special investigation of the Martha lode north branch was made on these levels, and much driving and crosscutting was done. A considerable length of reef was opened up, which, though small, was largely of good grade. On No. 5 level the lode was tested for a total length of 380 ft. Surface workings: The adit level on the Martha lode, known as the School drive, was extended in a general easterly direction to 335 ft. and was then turned towards the south-east to crosscut the lines of the Martha and Martha south branch lodes, the total length from the entrance being 484 ft. At 95 ft. in the crosscut what is known as Oats' crosscut was driven north, and from it the Martha lode was driven on 47 ft. west and 70 ft. east. It varied from 4 ft. to 9 ft. in width. In the western drive it was of poor value, but improved to the eastward, where a stope will be opened on it. On the Martha south branch lode, a stoping block extending for 105 ft. east of Oats crosscut was opened up on ore of fair value. Output: A total of 175,812 long tons of quartz was mined and treated from which gold and silver to the value of £400,071 was obtained. The gold recovered amounted to 59,240 oz., valued at £370,003, and of silver, 359,741 oz., valued at £30,068. The company paid dividends during the year to the amount of £99,181 8s., bringing the total disbursements to £6,139,827 6s. 6d. The average number of men employed was 593. The total yield of bullion since beginning of operations was 25,617,941 oz. 3 dwt. 11 gr.; value, £17,696,613 13s. 10d.

*Waihi Grand Junction Gold-mining Co., Ltd.* (J. L. Gilmour, Manager).—The Waihi Co. continued the working of this mine, the following being a summary of the work done and its results: Junction No. 10 level: A stoping block known as No. 9 Pass block was opened up on the Empire lode from 175 ft. to 280 ft. east of No. 1 shaft south-east crosscut. This was stoped out, leaving an 8 ft. arch under No. 9 level. Junction No. 9 level (40 ft. sub-level): An investigation at No. 7 winze on the Empire lode, about 30 ft. west of No. 1 shaft south-east crosscut, showed good assay values to 40 ft. below No. 9 level, and this sub-level was opened up at that depth. A total of 118 ft. was driven eastward, the ore being of good grade for 74 ft. Westward from the winze 160 ft. was driven of which about 20 ft. was on the north part of the Empire lode. The reef varies from 1 ft. to 5 ft. in width, with erratic assay values. At 115 ft. a crosscut was run south 43 ft., the main portion of Empire lode being intersected at 37 ft., where it was 5 ft. wide and of good value. The lode was then driven on west 44 ft. and east 14 ft. Junction No. 9 level: After some preliminary investigation, Kemp rise, at 10 ft. west of the 200 ft. east crosscut, was put up on State reef north section for 67 ft., where it holed to a winze sunk by the former Junction Co. At this height an intermediate level was driven which resulted in the opening-up of a stoping block about 65 ft. in length. Waihi Co.'s No. 11 level: The breaking of ore in Putan block on the Dominion lode was completed at 33 ft. up, the roof of the stope being very close to old workings. Putan rise was put up 88½ ft. in the north wall country, and at 80 ft. up an intermediate level was opened on a stoping-block 80 ft. in length. On the north part of the State reef all the available ore in Anderson's stoping-block was drawn off, while on the south part of the same reef the breaking of ore in Harvey's block was completed at 112 ft. up. An extension of this stope was made by driving west of State winze at 85 ft. up for a length of 41 ft. in good grade ore from 3 ft. to 5 ft. wide. Junction No. 7 level: The widening and timbering of a stoping-block on the Royal lode from 180 ft. to 285 ft. west of No. 1 shaft south-east crosscut was put in hand. Waihi Co.'s No. 10 level (30 ft. sub-level): The remainder of the broken ore in the Nelson block on the 103 ft. reef was drawn off. In the adjacent Glasgow block, breaking operations were carried up to 102 ft., where work was stopped owing to the value falling. The whole of the ore in Wells and Wells West stoping-blocks was drawn off. Waihi Co.'s No. 10 level: Driving on the Austin reef was commenced in Waihi Co.'s area, and after continuing eastward for 20 ft. the boundary was crossed. The drive was then advanced 63½ ft. from the boundary in Grand Junction ground on reef about 5 ft. wide of fair value. In an intermediate level at 66 ft. up, breaking of ore on the Martha lode south section in Weeks' block was carried up to the No. 9 level. The McConnell rise under Weeks' block, following a sulphide seam of good quality, was put up 66 ft., where it connected with the 66 ft. intermediate level, and a stoping block extending from 130 ft. to 235 ft. east of Boundary reef north crosscut was commenced from No. 10 level and carried up to the intermediate level. Junction No. 6 level: The stoping of Slevin block on the Martha lode was completed right up to Waihi Co.'s No. 9 level, and all the broken ore was drawn off. With a view to locating a possible extension of the main portion of the Royal lode, the driving of the Royal south-east prospecting crosscut was started. The crosscut was commenced south from a point 780 ft. east of No. 1 shaft south-east crosscut, and at the end of the year had been extended 336 ft. A number of small veins, mostly calcite, were intersected, and at 250 ft., a promising looking mineralized vein about 3 in. wide was met. Driving west was commenced on this and carried to 52 ft., where calcite replaced the quartz. The drive was continued to 70 ft., at which point a crosscut was commenced and advanced south to 73½ ft. At 10 ft. in, quartz 3 ft. wide was met, but it was of low value. At 18 ft. a band of faulted country 3 ft. wide was passed through. At 29 ft. another body of quartz 11 ft. wide was met dipping north, the first 2 ft. of which assayed 17s. 9d. per ton and the last 9 ft. 2s. 9d. per ton. Driving west on this vein was commenced and at the end of the year had been carried in for 11 ft. Stoping of Gibbons' block on the Royal lode was started in October. The block extends from 80 ft. to 270 ft. west of No. 1 shaft south-east crosscut. It was about 5 ft. in width, and averaged about £1 7s. per ton. Waihi Co.'s No. 9 level: The remainder of the broken ore in Jamieson block on the Martha lode south section was withdrawn. Output: The ore won from the mine amounted to 24,804 long tons, which yielded gold and silver to the value of £66,649. The gold amounted to 9,945 oz., valued at £62,115; and the silver to 54,242 oz., valued at £4,534. Total value of bullion since commencing work, £2,560,529 3s. 6d. Dividends to the amount of £6,906 5s. 4d. were paid. The average number of men employed was 47.

*Golden Dawn Gold-mines, Ltd., Owharoa* (J. Wotherspoon, Manager).—Work was carried out on the property continuously during the year, an average of ninety-eight men being employed. Development work was carried out on Nos. 2, 3, and 4 levels, also on several intermediate levels. On No. 2 level the drive north on No. 3 reef from the eastern crosscut was extended 37 ft. to a total of 46 ft. on reef averaging 1 ft. wide, while the drive south on the same reef was extended 5 ft. to a total of 15 ft. on reef of about the same width. A rise from the level on No. 1 reef at the north end of stopes was put up 8 ft. on reef 1 ft. wide. On No. 3 level a drive north on the west wall branch of No. 1 reef north was driven 45 ft. on reef averaging 1 ft. A drive north on east wall branch of No. 1 reef from north winze was driven 20 ft. on reef 10 in. wide. A drive north on No. 3 reef east branch from north end of old stopes was driven 215½ ft. to a total of 389½ ft. on reef 1 ft. wide. On No. 3 reef west branch from north end of north block of stopes 155 ft. was driven on reef of average width of 9 in. A drive south on No. 3 reef east branch was carried in for 25 ft. on reef averaging 1 ft. 3 in. A drive south on No. 3 reef east branch from east crosscut was driven 49 ft. on reef 1 ft. 8 in. wide. On No. 3 reef east branch a drive north from east crosscut was extended 20 ft. on reef 1 ft. 2 in.

wide. A winze on No. 3 reef at flat-sheet was sunk 73 ft. on reef 2 ft. wide, and connection was made with a rise from No. 4 level. An intermediate level was driven north on No. 1 reef from north end of stopes for 54 ft. The reef was small and in broken country. The underground shaft to No. 4 level from No. 3 was unwatered and repaired and No. 4 level was put in order. On it a drive north on No. 1 reef from the shaft was extended 33 ft. to a total of 119 ft. on reef 1 ft. 2 in. wide. North of the shaft a crosscut east was put out for 71 ft., intersecting No. 3 reef at 60 ft. The reef was about 2 ft. wide but split up into stringers. A drive south on the same level on No. 3 reef from the east crosscut was put in 21 ft. on reef 1 ft. 3 in. wide, and driving was done north on the same reef for 8 ft. on reef 1 ft. 2 in. wide. Stoping was carried out in five blocks on No. 1 reef on No. 3 level over a stoping length of 650 ft. of reef averaging 2 ft. in width, also on five blocks on No. 3 reef for a stoping length of 520 ft. on reef 1 ft. 8 in. wide. Some stoping was also carried out on this level on the Magazine reef over a length of 40 ft. Some underhand stoping was done on No. 1 reef for a length of 160 ft. by a depth of 14 ft. on reef 1 ft. wide, and on another block on the same reef for 70 ft. south of the winze on reef 1 ft. 2 in. wide. Further underhand stoping was done in a block south of east crosscut for a length of 86 ft. on reef about 2 ft. wide. On No. 2 level stoping was done in two blocks on No. 1 reef of an average width of 2 ft., the total stoping length being 300 ft. So far the development work on No. 4 level has not revealed pay values. For the year 8,047 tons of quartz were treated from the mine for a return of 4,486 oz. 10 dwt. of gold, valued at £34,604 2s. 9d., and 12,229 oz. 10 dwt. silver, valued at £1,077 6s. 9d., the total value of output being £35,681 9s. 6d. The company's battery also treated ore for outside suppliers to the amount of 821 tons, which yielded 726 oz. 9 dwt. gold, valued at £3,942 0s. 10d., and 3,192 oz. 4 dwt. silver, valued at £206 13s. 9d. Total yield since beginning of operations 38,896 oz. 3 dwt. 15 gr. bullion, valued at £70,030 9s. 11d.

*Talisman-Dubbo Gold-mines, Ltd., Karangahake* (F. C. Calvert, Manager).—Work was confined to the Talisman No. 1 level, which was extended a further 240 ft., the last 180 ft. of which was on reef. An aerial tramway was installed for the transport of ore from the mouth of the level to a point on the county road near No. 8 Talisman level. Stoping was started over the back of No. 1 adit, and during the year the company mined 331 tons of ore, which was sent to the Golden Dawn plant at Owharoa for treatment. This ore yielded 307 oz. 8 dwt. gold, valued at £1,976 7s. 9d., and 1,693 oz. 4 dwt. silver, valued at £129 11s. 2d. From other parts of the company's property parties of tributers mined a further 74 tons 9 cwt. quartz, which was also treated at the Golden Dawn plant, for a yield of 32 oz. 15 dwt. gold, valued at £207 6s. 10d., and 177 oz. 1 dwt. silver, valued at £13 5s. 1d., making the total value of gold and silver produced from the mine for the year and since commencement of operations £2,800 4s. 8d. An average of four men was employed by the company, and there was about a similar number of tributers.

*New Talisman Claim, Karangahake* (R. Schulzki, Owner).—A good deal of work was done by the owner in the way of reopening and repairing old workings with a view to starting operations on Sheppard's reef. He crushed no stone for himself, but a party of tributers took several crushings from reef outcrops at surface which were put through the Golden Dawn battery. They totalled 35 tons 13 cwt. of quartz, and yielded 11 oz. 3 dwt. 14 gr. gold, valued at £74 7s. 5d., and 16 oz. 7 dwt. 18 gr. silver, valued at £1 4s. 10d. Total yield since commencement of operations 66 oz. 3 dwt. 16 gr. bullion; value, £153 12s. 3d.

*Imperial Prospecting Syndicate, Karangahake.*—This syndicate, working the area formerly held by the Imperial Gold-mining Co., did a considerable amount of surface work in the way of trenching and pitting with a view to locating the source of a quantity of "float" stone found on the claim. An old drive known as Stackpoole's was also reopened and repaired, and extended for several hundred feet with the same object in view, but in none of the workings was any reef found *in situ*. Some 7 tons 4 cwt. of the "float" was collected, which on treatment at the Golden Dawn battery yielded 3 oz. gold, valued at £18 12s. and 7 oz. 16 dwt. 7 gr. silver, valued at 12s. 6d. A tribute party also crushed 3 tons 7 cwt. of quartz from another part of the claim, which yielded 1 oz. 16 dwt. 22 gr. gold, valued at £11 6s., and 2 oz. 2 dwt. silver, valued at 3s. 2d. These results represented the total output of the claim since start of operations by the syndicate.

*Crown Claim, Karangahake* (J. N. Cherry, Owner).—The old 5A level of the mine was cleaned up and repaired for about 1,000 ft., and a light aerial was erected to transport quartz from it to the tramline in Waitawheta Gorge. The owner mined 62 tons of quartz from a small block over the level, which yielded 52 oz. gold, valued at £278 4s. 9d., and 188 oz. 12 dwt. 14 gr. silver, valued at £13 18s., making the total value £292 2s. 9d. Several parties of tributers also mined from other parts of the property 37 tons 16 cwt. of quartz, which yielded 40 oz. 8 dwt. 3 gr. gold, valued at £251 13s. 2d., and 274 oz. 14 dwt. 15 gr. silver, valued at £21 1s. 2d., making the total output of the claim from the commencement of operations 649 oz. 11 dwt. 2 gr. bullion, valued at £668 14s. 2d.

*Waiawa Claim, Karangahake* (L. Turnbull, Owner).—Comparatively little active mining was done by the owner on the property during the year, but a party of tributers crushed 18 tons 13 cwt. of quartz for a yield of 13 oz. 19 dwt. 8 gr. gold, valued at £91 4s. 6d., and 16 oz. 3 dwt. silver, valued at £1 4s. 5d. Total production since commencement of operations, 54 oz. 1 dwt. 8 gr. bullion; value, £139 18s. 10d.

*Mount Cecil Claim, Maratoto.*—This claim was taken over during the year by Tasman United Mines, Ltd. Two men were employed repairing old workings.

*Maratoto Consolidated Claim, Maratoto.*—This claim, which adjoins the Mount Cecil, was also taken over during the year by the Tasman United Mines, Ltd. Two men were employed reopening and repairing old levels.

*Komata Reefs and Te Ao Marama Claims, Komata.*—The Golden Crown Gold-mining Co., N.L., which holds these claims, drove two crosscuts, one for 16 ft. and the other for 48 ft., with the object of locating the true footwall of the new reef on which some driving was done the previous year, but in neither was it found. In the northern end of the drive the company claims to have located some good milling-ore, a quantity of which has been stacked in the level. In a winze sunk for 12 ft. at the north end of the drive the reef was shown to be 16 ft. wide. Some surface prospecting was also done with a view to picking up the continuation of the No. 2 reef north of the company's workings, and some good prospects are said to have been got.

*Remuera, Golden Belt, and Champion Claims, Neavesville.*—These claims have been held under option during the year by the Neavesville Syndicate, which towards the end of the period transferred to Gigantic Mines, N.L. A good deal of prospecting was done on them, particularly in connection with what is known as Grace's New Find on the Remuera claim. A number of trenches was sunk along the line of this find with a view to tracing its continuation southward, and some driving was done at about 40 ft. below the find. Payable ore was not found south along the line from the original find, but in the drive mentioned a narrow belt of ironstone stringers was followed for about 120 ft., which carried fair values. No stone was crushed.

*Huia Claim, Te Aroha* (Northern Goldfields, Ltd., Owners).—During the year 6 tons 3 cwt. of quartz taken from the Huia reef was crushed for a yield of 3 oz. 5 dwt. gold, valued at £21 8s. 8d., and 4 oz. 17 dwt. silver, valued at 8s. 11d., or a total of £21 17s. 7d., which represents the total output since start of operations.

*Tui Mine, Te Aroha.*—This property was taken over by Milton and Co. (N.Z.), Ltd., in September, and between then and the end of the year several men were employed reconditioning the old levels.

*Scotia Claim, Waitekauri.*—Up to the end of November this ground was held as a prospecting license by F. J. Butcher, but was then taken up as a special quartz claim by H. L. Morgan. The owner has reopened and repaired the old No. 2 level, and stoped from it 49 tons 11 cwt. of quartz, which yielded 28 oz. 10 dwt.

11 gr. gold, valued at £186 10s. 10d., and 61 oz. 14 dwt. silver, valued at £4 14s. From another part of the claim a further 1 ton 16 cwt. of ore was mined, which yielded 1 oz. 19 dwt. 14 gr. gold, valued at £12 10s. 10d. and 1 oz. 7 dwt. silver, valued at 2s. 1d., making the total output for the year 51 tons 7 cwt. quartz, yielding 30 oz. 10 dwt. gold and 63 oz. 1 dwt. silver, of a total value of £203 17s. 9d., This represents the total recovery since start of operations.

*New Waiotahi Mine, Thames.*—This claim was forfeited on suit by R. M. Aitken during the year and was granted to him. The only work done on it was by Preece and party, tributers, who, from small reefs on, or just below, the bottom adit mined 40 tons of quartz, which yielded 62 oz. 12 dwt. gold of a total value of £281 11s. 8d., which represents the total yield under present ownership.

*Golconda Gold-mines, Ltd., Thames* (S. G. Baker, Manager).—The main operations in this mine consisted in driving on various reefs on the 160 ft. level of the inclined shaft sunk from the Moanataiari tunnel level. A considerable footage of work was done, but no values were located at that horizon. From stopes over the 80 ft. level of the shaft, 174 tons of quartz was won, which yielded 67 oz. 8 dwt. gold, valued at £327 5s. 1d., representing the total output since commencement of operations by the company.

*Dawn of Hope Gold-mines, N.L., Thames* (T. Gillan, Manager).—In this mine, which covers the Lucky Shot and Evening Star claims, the company employed three men, putting the Lucky Shot main level in repair, crosscutting eastward of the creep, with a view to picking up reefs which were expected to occur there, and prospecting other parts of the mine. The quartz won by it amounted to about 10 tons, which yielded 5 oz. 12 dwt. gold, valued at £34 11s. 3d. Besides this, however, some ten parties of tributers mined a further 136 tons, which yielded 422 oz. 2 dwt. gold, valued at £1,960 11s. 4d., which, however, includes a considerable sum in premiums paid on gold won during 1932, but not previously accounted for. The total output from commencement of operations by the company amounts to 482 oz. 4 dwt. bullion, valued at £2,242 2s. 4d.

*Cambria Mine, Thames* (A. F. Sawyer, Owner).—This claim was held under option by the Thames Prospecting Association during the year, but no work was done on it by the option-holders. Several parties of tributers worked various parts of it, but only one party had any stone crushed. This amounted to 7½ tons, which yielded 9 oz. 14 dwt. gold, valued at £44 4s. 9d.

*Monowai Gold, Copper, and Lead Mines, Ltd., Thames.*—This company operated during the first five months of the year, work being largely confined to stoping in the Zeehan and Monowai Mines. The treatment plant was burned down in May, since when practically nothing has been done on the areas. Prior to the fire, 286 tons of ore, mainly from the Zeehan Mine, were treated for a return of 99 oz. 8 dwt. gold, valued at £690, and 940 oz. silver, valued at £101, making a total of 1,039 oz. 8 dwt. bullion, worth £791, which represents the total output since commencement of operations. An average of ten men was employed.

*Kuranui Golden Hills, Ltd., Thames.*—This company was formed in the early part of the year to treat the surface of Kuranui Hill as a low-grade gold-bearing proposition. A plant consisting of tube-mills, amalgamating tables, Frue vanners, and canvas tables, was erected, and put in commission in April. A large cut was then opened on the western face of the hill, and the broken material was sluiced down to the plant. Up to the end of November, when, owing to financial difficulties, the plant had to be shut down, it is estimated that 30,000 tons of the surface material were put through it. The total recovery only amounted, however, to 236 oz. 18 dwt. gold, valued at £974 15s. 1d. A party of tributers working on a small vein from the Moanataiari tunnel recovered 7 oz. 1 dwt. gold, making the total recoveries for the year, and from commencement of operations, 243 oz. 19 dwt. gold, valued at £998 8s. 1d.

*Anniversary Claim, Thames* (Phillips and McLean, Owners).—Two men were employed under the Unemployment Board prospecting scheme, but no payable quartz was located.

*Hopeful Claim, Thames* (Rabe and Party, Owners).—Two men have been employed, with Unemployment Board assistance. During the year 20 tons of quartz was won from shallow workings, yielding 39 oz. 19 dwt. gold, valued at £193 0s. 6d.

*Blue Jumbo Claim, Thames* (E. W. Cole, Owner).—Two men employed, under Unemployment Board scheme, won 6 tons of quartz from small veins near the surface, which yielded 24 oz. 5 dwt. gold, valued at £119 8s. 11d.

*Hit-or-Miss Claim, Thames* (C. H. Timmins, Owner).—Two men were employed, and won from small leaders 7 tons of quartz, which yielded 5 oz. 9 dwt. gold, and realized £25 14s. 7d.

*Christmas Eve Claim, Thames.*—Three men were employed under Unemployment Board scheme, and won during the year, from small surface leaders, 14 oz. 15 dwt. gold, valued at £71 5s. 6d.

*Occidental and Occidental No. 2 Claims, Thames.*—These properties were under protection for the year. From old tips 20 tons of material was treated for a yield of 4 oz. 5 dwt. gold, valued at £13 14s. 5d.

*Gold Seal Claim, Thames* (E. Keven, Owner).—A little surface prospecting only was done. From 10 cwt. of quartz 6 oz. 5 dwt. gold was recovered, valued at £20 5s. 2d. Total production from commencement of operations 12 oz. 2 dwt. gold; value, £43 3s. 10d.

*North Star Claim, Thames.*—A little work was done in this mine driving from a winze in the lowest adit level. The only gold reported won for the year was 2 oz. 2 dwt., worth £8 16s. 10d., recovered from 2½ tons of ore. This makes the total yield of bullion since commencing operations 28 oz. 4 dwt., valued at £101 12s. 1 .

*Golden Hills Claim, Thames* (M. Matich, Owner).—The owner was employed throughout the year driving on various small leaders from an adit level, but treated no quartz. One party of tributers, however, crushed 2½ tons from a small leader for a yield of 1 oz. 11 dwt. gold, valued at £7 16s. 6d., which represents the total production since commencement of operations.

*Siam Claim, Thames* (Wind and Phillips, Owners).—Two men, under the Unemployment Board scheme, mined 7½ tons of quartz from shallow workings, which yielded 42 oz. 7 dwt. gold, valued at £206 7s. 11d.

*Hauraki Mines Consolidated, Ltd., Coromandel.*—The only work done was by several parties of tributers, who from various surface portions of the property mined 38 tons of ore and 8 lb. of picked stone, which on treatment yielded 56 oz. 11 dwt. gold, valued at £305 12s. 4d. Total yield of bullion since commencing operations, 605 oz. 17 dwt., valued at £2,023 1s. 9d.

*Long Trail Gold-mining Company, Colville.*—Apart from a good deal of general surface prospecting, underground work was carried out on Nos. 2 and 3 leaders and on the Long Trail reef. No. 3 leader was driven on for a distance of 150 ft. from the road level. On the Long Trail reef, the No. 2 intermediate level was driven for 130 ft., and connected to No. 3 level by a rise of 40 ft. No. 1 intermediate level was driven on the reef for 140 ft., and some stoping was done over it. A drive was put in from Magazine Creek for 31 ft., from which a winze was sunk for 20 ft., where it intersected the reef. For the year 131 tons of quartz was crushed for a yield of 73 oz. 11 dwt. gold, valued at £324 0s. 10d., which represents the total output since commencing operations.

*Four-in-Hand Mine, Waikoromiko* (Boswell Gold-mining Co., Owners).—During the year some 25 ft. of rising, 118 ft. of driving, and 44 ft. of crosscutting, together with a good deal of surface prospecting, was carried out. The only quartz crushed amounted to 336 lb. of selected stone, which yielded 19 oz. 11 dwt. gold, valued at £94 9s. Total production since start of operations, 211 oz. 8 dwt. gold, valued at £879 19s. 4d.

*Golden Lily Claim, Colville* (S. C. James, Owner).—The low level that was started to cut the McKenzie reef was extended a further 188 ft. without intersecting it.

*Mount Tokatea Mineral Fertilizer Co., Tokatea.*—In the main drive in Courthouse Creek, 100 ft. of driving was done southward along the footwall of the Big Reef from the end of No. 1 crosscut, and from the end of this driving a second crosscut was put through the reef to the hanging-wall side, the reef proving to be about 60 ft. wide there. A good deal of prospecting work was done in Sykes Creek, area, about 1,500 ft. south of the main drive and at an elevation about 200 ft. lower, two drives being put in for 40 ft. each in the altered slates. These were being continued. Below Pillar Rock, north of Courthouse Creek workings, and about 200 ft. higher, a crosscut was also put across the reef to test it in this zone. To the end of the year the hanging-wall had not been reached. An average of four men was employed.

*Lone Hand Claim, Waikoromiko* (W. J. Pearce, Owner).—About 120 ft. of driving was done in Nos. 2 and 3 levels on the two small reefs referred to in last year's report. Only 1 ton of ore was crushed, which yielded 26 oz. 1 dwt. gold, valued at £122 12s. 3d. Total yield since beginning of operations 45 oz. 11 dwt. gold; value, £213 8s. 4d.

*Coromandel Gold-mines, Ltd., Coromandel* (J. Caisley, Manager).—During the latter portion of the year this company took over the area previously held by the Nil Desperandum Gold-mining Syndicate, and the sinking of a large main shaft was begun with the object of testing the area at greater depth. To the end of the year this shaft had been sunk to about 20 ft.

*Waitekuri Claim, Waitekuri* (H. G. Wilson, Owner).—One cwt. of stone taken from small leaders was crushed for 3 oz. 9 dwt. gold, valued at £21 0s. 3d., which represents the total output since commencement of operations.

*Solomon's Reefs Claim, Coromandel* (A. P. Anderson, Owner).—A level was driven for 200 ft. at 160 ft. below the surface, with a view to cutting two reefs located higher up. One of these was intersected and is said to have shown fair prospects. An intermediate level between the surface and the one referred to was also driven for 100 ft., connecting with a winze from surface.

*Mahakirau Mines, Ltd., Mahakirau.*—This company was formed towards the end of the year to take over the Day Dawn Mine and other adjoining privileges. It has taken over from the Mines Department on lease the old Mahakirau Government battery and has done a good deal by way of putting this into working-condition again.

*Opitonui Developments, Ltd., Opitonui.*—This company was formed during the year to take over the mining areas held in former years by Kauri Gold Estates, Ltd., and to test the reefs with a view to reopening the old mines. A good deal of sampling was carried out.

*Pursefiller Mine, Kuaotunu.*—The Pursefiller Gold-mining Co., Ltd., started work on this property about the middle of the year. A drive known as the Courtney level on the western side of the claim was reopened and repaired, and rails were laid into the face. A drive was then started on the eastern side below the Courtney level, and to the end of the year had been carried in for 160 ft. without intersecting any reef.

*Handsworth Claim, Kuaotunu* (W. G. Wilson, Owner).—One and a half tons from this claim, crushed at the Hauraki battery, Coromandel, yielded 13 oz. gold, valued at £54 3s. 8d.

*Kapowai Amalgamated Gold-mines, Ltd., Kapowai.*—This company holds claims known as the Tasman, Tasmanian, Tasman Extended, and Kapowai Extended (the latter formerly known as Golden Reefs or Lindsay's), situated at Coroglen. A small battery of two head of stamps was erected, and started crushing in October on material taken from O'Connor's level. To the end of the year 331 tons was crushed for a yield of 44 oz. 4 dwt. gold, valued at £173 1s. 10d., which represents the actual output since commencement of operations.

### Quicksilver and Sulphur Mines.

No work was done on any of the former in the district during the year, and the only work in any of the sulphur-mines was a little prospecting and testing in what is known as the Arcadian Sulphur Mine in Tauhara North No. 1 Block, Taupo.

### Oil-wells.

*Moturoa Oilfields, Ltd.*—This was the only company to carry on any active operations during the year. The No. 3 well was carried down to 2,260 ft., but no oil was got in it, and the well was subsequently plugged and filled. No. 4 well was started in November, and to the end of the year had been drilled to 1,930 ft. On an average nine men were employed. No. 1 well produced 300 gallons of oil, valued at £5 12s. 6d., while No. 2 well produced 169,375 gallons, valued at £2,999 5s. 11d., making the total production from the well 471,734 gallons, valued at £7,999 3s. 3d. The crude oil from the wells is sold to New Zealand Refineries, Ltd., and is converted into benzine, kerosene, distillate, and fuel oil, the yield of benzine being about 22 per cent.

### Accidents.

No fatal or serious accidents were reported from any of the quarries during the year. One mining fatality occurred, an employee named A. J. G. Connolly meeting his death at the Kuranui Golden Hills Mine, Thames, on the 19th October, The deceased was twenty-seven years of age and married. At the time of the fatality he was shift boss in charge of the face in the big open-cut, and was engaged with another man in easing away a quantity of material, estimated to have amounted to about 2 cubic yards. The material was being sluiced down the rill to the treatment plant. Just as it started to move, deceased fell back on it, and was carried down to the hopper at the plant, where he was buried under the material and suffocated. An inquest was held and an open verdict returned.

On the 26th July a serious accident happened at the Waihi Mine No. 2 shaft, through a cage escaping while the afternoon shift was being lowered. The cage fell from about No. 2 level to just above No. 13 level. There were twelve men in it at the time. Fortunately none were killed, but a number were seriously injured, W. J. Taylor (age forty-seven) receiving compound fracture of the right leg and fracture of the left leg; J. H. Gordon (fifty-one), fracture of leg and fracture of ribs; H. W. Butler (twenty-six), compound fracture of leg; F. E. Cornes (thirty-two), fracture of leg; W. R. Kemp (twenty-three), fracture of leg and injury to right knee; R. W. Johnson (thirty-five), fracture of wrist, L. J. Coward (forty-four), fracture of leg, and S. Hamilton, fracture of foot, while the other four men received minor injuries. Another man, E. Shergold, who was in the other cage at the time, also received minor injuries through being struck by falling timber. A full inquiry into the cause of the accident was later made by the Inspecting Engineer of Mines, the Inspector of Machinery, the Workmen's Inspector, an engineer representing the Miners' Union, and myself, and the opinion arrived at was that the escape of the cage, which was attached to the loose drum of the engine, was owing to the clutch not having been fully engaged by the engine-driver when changing gear prior to the accident.

On the 23rd September a miner named H. Hearn received injuries in the same mine. He was working a machine drill at the time in a shrinkage stope, when the sinking of the broken material on which the machine bar was rigged caused the latter to fall away, evidently striking him on the head and reopening an old skull fracture.

On the 24th November a man named Thomas Bilclough received a fractured leg in the Golconda Mine at Thames. He was engaged with a mate in a stope over the 80 ft. level from the inclined shaft, when a slab of rock fell from the hanging-wall by his side causing the injury.

PROSPECTING.

Apart from the activity shown under the Unemployment Board's prospecting schemes at Thames and Coromandel, there was little prospecting effort. At Thames, under the Board's scheme, an average of about 155 men was employed throughout the year, while in the Coromandel district about 135 men were similarly employed. A number of the men, working around Thames as tributers in different mines, recovered gold worth approximately £1,800, while other tributers who had been originally helped under the scheme to open up their workings recovered gold to about the same value. At Coromandel, tributers recovered gold to the value of about £800. In neither district can it be said, however, that any discovery has been made of distinct promise.

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

QUARTZ-MINING.

*Marlborough County.*

*Dominion Consolidated Mine.*—A small amount of prospecting has been carried out on this company's property during the year with practically nil results. "Cleaning up" operations, in and about the battery, have also taken place, and this work resulted in the obtaining of a small but payable quantity of gold. Two men were employed throughout the period.

*Buller County.*

*Britannia Mine.*—W. McLellan, manager, and six men employed. No. 1 level was continued for 55 ft. beyond the fault, where reef line was again picked up, but further driving proved that it had been operated on previously. No. 2 level was advanced into worked ground also. The balance of the stone, amounting to 211 tons, has been extracted from both levels mentioned, and gave a yield of 148 oz. of gold. An outcrop was found about 10 chains to the north of the above workings, but this was too low in value to give profitable returns. A prospecting drive, put in at a higher level, has been advanced for a distance of 130 ft., with nothing to report. Work is still in progress. The battery crushed 345 tons of ore for a yield of 195 oz. 11 dwt. 12 gr. of gold, valued at £1,349 2s. 9d., of which 186 oz. 10 dwt. was obtained by amalgamation, and 9 oz. 1 dwt. 12 gr. by cyanidation. The total yield of gold since the commencement of operations amounts to £2,098 4s. 9d.

*Inangahua County.*

*Blackwater Mine.*—R. A. Stewart, manager, and 230 men employed. The following is a brief résumé of work done during the period: Driving—No. 9 level, Prohibition block, was advanced 82 ft., all being on reef averaging 18·58 dwt. of gold per ton, over a width of 1 ft. 7 in. The total length of reef exposed in the block amounts to 134 ft. 6 in. with values averaging 16 dwt. of gold per ton, over a width of 1 ft. 8 in. A winze (No. 2820) has been sunk to a depth of 76 ft. 6 in. on the north end of the block. The winze was started on stone having a width of 1 ft. 7 in., but faulting of the reef to the footwall occurred at a depth of 20 ft., whence it continued to a distance of 62 ft. from the level, when stone was again encountered and carried down to the bottom. The winze is yet to be connected with No. 10. The whole of the Prohibition block from No. 7 level to No. 10 level has good values, but little stoping was done on it owing to the narrowness of the reef, and the consequent inability of mining same without an admixture of mullock. This ore will be more cheaply handled when facilities at the Prohibition shaft are completed. No. 10 level north progressed 261 ft., of which the first 80 ft. 6 in. was in country rock, the next 93 ft. 6 in. on reef (Prohibition block) averaging 12·8 dwt. of gold per ton, over a width of 11 in., and the remaining 87 ft. in country rock. No. 10 level south—A crosscut to the west was commenced at a point 545 ft. south of the shaft crosscut, and at a distance of approximately 185 ft. from the last of the known ore body. The crosscut was advanced for 85 ft. 6 in., when work was suspended. Good reef track was intersected at 42 ft. 6 in. No. 11 level north—Driving progressed 592 ft. 6 in., of which distance 503 ft. has exposed reef averaging 12·17 dwt. of gold per ton, over a width of 1 ft. 10 in. The reef should continue for approximately 450 ft. before the fault leading to the Prohibition block is reached. No. 12 level north—The total driving on this level amounts to 1,091 ft., 979 ft. being on reef averaging 13·12 dwt. of gold per ton over a width of 2 ft. 4·8 in., and the remainder in blank. The total driving amounts to 2,384 ft., of which 1,669 ft. 6 in. was on reef giving average values of 13·12 dwt. of gold per ton over a width of 2 ft. 1 in. Crosscutting in all amounts to 517 ft. A total distance of 449 ft. 9 in. was risen, and of this 375 ft. 6 in. was on reef averaging 14·59 dwt. of gold per ton over a width of 1 ft. 10 in., the balance being in country rock. Crosscuts to the Prohibition shaft (also chamber cutting) were completed at Nos. 8, 9, and 10 levels for distances of 64 ft. 6 in., 166 ft. 6 in., and 104 ft. respectively. The Prohibition shaft was sunk for a distance of 565 ft. 6 in., making its total depth 1,925 ft. 6 in. Prospecting: Battery crosscut at 2,800 ft. south—This was extended 54 ft., making its total length 452 ft. The reef track met with at 360 ft. in (mentioned in last report) was driven on to the north for 276 ft., when alluvial ground came in and work was suspended. No. 2 Snowy adit was repaired and then extended for 12 ft. This was done so as to allow an ore-body, varying from 2 ft. to 4 ft. in width, showing on the surface and which carries downwards, to be further tested, but the results were unsatisfactory. Treatment plant: The battery crushed 45,366 tons of ore for a yield of 22,621 oz. 12 dwt. of gold, of which 17,894 oz. 8 dwt. was obtained by amalgamation, 2,878 oz. 15 dwt. by cyanidation, and 1,848 oz. 9 dwt. by the treatment of concentrates; the value of the whole being £163,935 6s. 5d. The total yield of gold since the commencement of operations amounts to 482,448 oz. 11 dwt., valued at £2,069,354 11s. 2d.

*Alexander Mine.*—J. Bolitho, manager, and fifty-one men employed. Operations at this mine were confined to developing and exploiting the McVicar line of reef, and consists of the following: No. 3 main crosscut—A crosscut was put out to the east from the end of the main level north for a distance of 78 ft., the results being nil. Another crosscut was started from a point 382 ft. north of the main crosscut and driven east for 18 ft., when stone 3 ft. wide was encountered. This stone was driven on south for 62 ft., the northern end being displaced by faulting. Stoping proved the block to live to a height of 20 ft. only above the level. Values £8 12s. 10d. per ton, and width of stone 3 ft. 9 in. Crosscutting to the east of the above-mentioned drive for a distance of 8 ft. revealed stone having a width of 6 ft., but this, when driven on to the north for 95 ft., gradually tapered off and ended in faulted boulders. Values £3 6s. 8d. per ton, and average width of stone 2 ft. 3 in. No. 3 intermediate north—An intermediate level was opened out on stone 25 ft. down No. 1 winze. Stone was followed for a few feet, but it then disappeared, and nothing further was met with until a point 166 ft. north of the winze was reached. The stone was 1 ft. wide when first met, after which it gradually opened out, and when 5 ft. had been driven was a width of 2 ft. 6 in. Values £3 8s. per ton, and driving in progress. No. 4 north level—This was driven in country rock to a distance of 350 ft. from the main crosscut, where stone 3 ft. wide was passed through. The stone was intersected on a fault-line, reef showing on the north side of the crosscut only. This reef has been driven on to the north for 69 ft. the values being £5 11s. 7d. per ton, and average width of stone 3 ft. 4 in. A drive put out south-east on the fault-plane which displaces the southern end of the block, for 8 ft., cut stone having a width of 1 ft. 3 in., but this, when followed for 11 ft., proved disappointing. A rise put up at this point for a distance of 40 ft. (connecting with the intermediate level) passed through stone having a thickness of 3 ft. for its last 10 ft. of height. Stoping has been carried on above Nos. 3 and 4 levels north, and on No. 3 intermediate level also. All the ore above No. 3 level has been extracted, together with a large portion of that showing on the intermediate level. Stone is still being developed on the intermediate level. A fair-sized body of ore has been proved on No. 4 level, and its continuation north will give a reasonable tonnage of ore. Surface works:

It has been decided, in view of the hardness of ore in the mine, to install rock-drilling machines. The plant is on order, and consists of a 110 h.p. Impulse turbine running at 500 r.p.m. direct-coupled to a three-phase A.C. generator, also a "Brotherhood" compressor coupled to a 70 h.p. motor. The scheme is to bring in water under a head of 150 ft., generate electricity at the intake of the present water-race, and transmit it by cable to the mine, distant one mile and a quarter, where the motor and compressor will be situated. The new race is nearing completion. All concentrates have hitherto been shipped for treatment, but this was found to be a costly process owing to inadequate access to the mine. It was deemed advisable, for this reason, to erect equipment and treat the concentrates at the mine, and steps have therefore been taken to obtain and install a roaster, of the four-panel Edwards type, which should soon be in commission. Further improvements have been made in the matter of the saving of fine concentrates by the erection of additional canvas-covered tables. Diminished ore-supplies (owing to its hard nature) led to slackened time being worked at the mill, there being 4,426 tons treated for a yield of 4,030 oz. 19 dwt. of gold, valued at £28,103 9s. 3d., of which 2,485 oz. 5 dwt. was obtained by amalgamation, 967 oz. 4 dwt. by cyanidation, and 575 oz. 9 dwt. by the treatment of concentrates. The total yield of gold since the commencement of operations amounts to 22,383 oz. 1 dwt., valued at £113,723 10s. 7d.

*Wealth of Nations Battery.*—A. P. Watson, superintendent, and three men employed. The cyaniding of residues and the cleaning of amalgamating-plates only has been resorted to at this plant, the resultant gain being 91 oz. 5 dwt. of gold, valued at £797 8s. 4d. The total quantity of gold produced by the company amounts to 370,795 oz. 2 dwt. 2 gr. valued at £1,484,691 4s. 6d.

*Murray Creek Mine.*—R. A. Rutherford, manager, and eleven men employed. Operations at this mine (idle for a lengthy period), were resumed early in the year, and consist generally of repair work to the head gear, shaft, and levels. The battery has been reconditioned also, and there are possibilities of the property becoming a gold-producer during the coming year.

*Big River Mine.*—T. Thomson, manager, and twenty-five men employed. Work, chiefly development, has been confined to Nos. 2 and 3 levels, and several small blocks of payable stone (in faulted country), have been successfully extracted. It is proposed to repair the shaft down to No. 4 and recondition that level with the object of looking for, and perhaps locating, downward extensions of the ore exploited on No. 3 level. The battery crushed 1,520 tons of ore for a yield of 828 oz. 7 dwt. of gold, of which 772 oz. 3 dwt. was obtained by amalgamation, and 56 oz. 4 dwt. by cyanidation, the value of the whole recovery being £6,030 4s. 1d. These figures represent the total yield and value of the gold produced since the recommencement of work.

*Homer Mine.*—D. Absalom, manager, and two men employed. Development work in this mine was confined to No. 2 level, and consists of driving for a distance of 60 ft., all on stone having an average width of 3 ft. 6 in. A considerable amount of surface prospecting has been carried out, and it is stated that this resulted in the locating of a promising-looking lode 5 ft. wide, which is situate at a distance of 45 chains south of the mine-workings. The battery crushed 48 tons of ore for a yield of 21 oz. 6 dwt. 9 gr. of gold, valued at £123 12s. 10d. The gold was obtained by amalgamation alone. The 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. Development work at this mine has been carried out to the east, No. 2 level, on a payable reef (said to be 15 ft. wide), for a considerable distance. Driving work is in progress. The battery crushed 488 tons of ore for a yield of 377 oz. 11 dwt. of gold, worth £1,887 15s. The total yield of gold since the commencement of operations amounts to 3,186 oz. 17 dwt. 5 gr., valued at £13,197 2s. 3d.

### Dredging.

*Mataki Dredge, Murchison County.*—T. B. Gillooly, dredgemaster, and fifteen men employed. This is a steam-operated dredge that started work on 18th August, and has continued to work over three eight-hour shifts daily for the remaining portion of the period. The effective dredging-time was 2,196 hours, and the quantity of gravels treated amounted to 183,927 cubic yards, the yield being 530 oz. 9 dwt. 8 gr. of gold, valued at £3,421 9s.

*Brian Boru Dredge, Grey County.*—N. Curnow, dredgemaster, and twenty men employed. This is an electrically-operated dredge that was commissioned during the early part of the year, and has treated since that date some 350,860 cubic yards of gravels, which gave a yield of 1,000 oz. of gold, worth £7,211 10s. 10d.

*Rimu Dredge, Westland County.*—F. B. Lewis, dredgemaster, and forty-five men employed. This dredge operated for a total of 6,570 hours 41 minutes, or 88·9 per cent. of the possible digging period, and during this time a superficial area containing 2,948,789 cubic yards of gravels, and having an average depth of 44 ft., was turned over. The material was treated at an average rate of 449 cubic yards per digging-hour. The yardage handled during the year was treated at an average cost of 4·92d. per cubic yard, which figure includes depreciation, overhead, and all operating-expenses. The average rate of digging was increased during the year by 39 cubic yards per digging-hour. This was accomplished by speeding up the bucket-line travel from 63 ft. to 72 ft. per minute, also by changes in both bucket and lip design so as to increase capacity, the new assembly now holding 12 cubic feet by wet-sand measurement. The result of the above-described changes has been reflected in an increased quantity of 168,772 cubic yards of gravels being treated for the year, and this amount would have been added to were it not for a ten-day shut-down, due to the destruction of a section of the power-plant flume by abnormally high flood-waters in the latter part of January. The end of the year finds the dredge in first-class running-condition, which, together with an ample supply of replacement and repair part requirements on hand, presages a smooth and continuous operation for the coming period. The yield of gold for the year amounted to 14,673 oz., having a New Zealand value of £110,671 3s. 11d., and representing a gravel value of 9·01d. per cubic yard, based on the ruling price of gold at the time of sale. The total yield of gold since the commencement of operations amounts to 141,395 oz., valued at £677,614 9s.

*Okarito Five Mile Beach Dredge, Westland County.*—D. Mitchell, dredgemaster, and eleven men employed. The dredge worked almost continuously throughout the year, and was unfortunate in meeting with some ground that had been exploited by the early miners. Operations revealed that they had stacked numerous heaps of heavy stones on the floor of their excavations, and the dredging of these (there was no other course open), somewhat handicapped work, there being no screening apparatus on the dredge. The turning over of this previously-treated ground affected recoveries also. The matter of installing screening equipment on the dredge has been tentatively discussed, and arrangements, in addition, have been made to straighten the water-supply pipe-line, which should result in giving increased working-pressures. 3,941 oz. 15 dwt. of gold, worth £25,637, was recovered from the treatment of 371,605 cubic yards of material during the year. The total recovery to date amounts to 8,403 oz. 18 dwt., valued at £50,453 6s. 3d.

### Alluvial Mining.

*Mahakipawa Mine.*—Mr. K. M. Barrance, manager, and twenty-six men employed. Development work at this mine has been carried out both to the north and to the south of the shaft crosscut, and consists, in all, of 615 ft. of driving and of 883 ft. of crosscutting. From No. 11 east crosscut (to the south), a drive was put out a distance of 40 ft. when it was turned to the north so as to connect with No. 9 east crosscut. A blocking

strip, width 50 ft. and values good, was taken out at this point. Driving was continued south from No. 11 east crosscut for 60 ft., when a crosscut was advanced a distance of 70 ft. with the object of determining the west sidling. Values began to lessen at 30 ft. and eventually became nil. A deep crevice, met with 15 ft. south from the crosscut, was followed in a south-westerly direction for a distance of 100 ft. This work gave a satisfactory return, but values were obtained from the crevice only. An arch drive, known as No. 12 east crosscut, 20 ft. north of this face, was put out for a distance of 90 ft., where sidling country was located. A second arch drive, situate 30 ft. west of this drive, was driven for 50 ft. to the south, when the bottom rock rose abruptly, and work was suspended. A drive was advanced 20 ft. north from this face for a distance of 70 ft. on the main lead, or gutter, which was followed for 70 ft., when the east sidling came in. The south drive, off the south-east crosscut, carried good values for a distance of 50 ft., all being in wash of a brown colour. The north drive, off the south-east crosscut, had satisfactory values for 20 ft. when blue, or poor-grade, wash was encountered. Operations north of the shaft have been limited owing to the difficulty of keeping the workings free from water, this section being below the level of the shaft-bottom. A distance, altogether, of 130 ft. was driven on wash varying in values from fair to good. "Blocking out" on a small patch of ground just north of the shaft was also undertaken. A fair amount of blocking out also has been done south of the shaft. 5,719 cubic yards of gravels was treated for the year, and gave a recovery of 1,166 oz. of gold, which realized £7,884 19s. 2d. The total yield of gold since the commencement of operations amounts to 5,017 oz. 9 dwt., valued at £28,133 1s.

*Addison's Flat (Elevating) Claim.*—J. M. Powell, jun., manager, and ten men employed. This is a new concern that came into production towards the end of the year. 26,000 cubic yards of material was treated during this period for a yield of 217 oz. 7 dwt. of gold, worth £1,452 17s.

*Addison's Exploration Mine.*—T. Moynihan, manager, and ten men employed. This company's operations were short-lived, for their commencement and ending both occurred within the space of six months. 2,276 cubic yards of material (blacksand and small gravels from buried sea-beach formation) was treated during this period, and gave a yield of 15 oz. 8 dwt. 13 gr., worth £103 2s. 3d.

*Charleston Sluicing Claim.*—S. Powell, manager, and ten men employed. The claim, an old one reconditioned, started sluicing towards the end of the year, and treated 40,000 cubic yards of gravels for a yield of 88 oz. 17 dwt. of gold, valued at £558 11s. 9d.

*Waitahu Sluicing Claim.*—P. P. Thomas, manager, and fifteen men employed. The greater part of the year has been spent in water-race construction and in getting the claim in order. A small amount of sluicing was done at the end of the year, and this work was responsible for the production of 34 oz. 0 dwt. 15 gr. of gold, valued at £250 18s. 7d.

*Snowy River Sluicing Claim.*—J. Aynsley, manager, and five men employed. Work on the race was completed about the middle of the year, when sluicing commenced, and was continued to the end of December, the yield being 60 oz. 6 dwt. 18 gr. of gold, valued at £398 2s. 10d.

*Mount David Sluicing Claim.*—J. White, manager, and thirteen men employed. 255 oz. 14 dwt. of gold, worth £1,611 19s. 7d., was produced for the period from this property.

*Bell Hill Sluicing Claim.*—R. C. Bell, manager, and eight men employed. 96,300 cubic yards of gravels was put through the sluice-boxes at this claim, the resultant yield being 263 oz. 13 dwt. 18 gr. of gold, valued at £1,927 11s. 4d.

*The Deep Lead Claim.*—T. Donnellan, manager, and five men employed. The yield from this claim amounted to 23 oz. 12 dwt. 14 gr., valued at £148 8s. 6d.

*Golden Sands (Elevating) Claim.*—J. M. Dennehy, manager, and ten men employed. 73,356 cubic yards of material (ancient sea-beach formation), was treated for the year, the yield being 776 oz. 15 dwt. 3 gr. of gold, valued at £5,048 19s. 2d.

*Hohonu Sluicing Claim.*—J. A. Peever, manager, and five men employed. Work at this claim was continuous with the exception of one month's hold-up due to breakdowns in the dam and in the race. 270,600 cubic yards of gravels was treated in a working period of 1,230 hours, or sluiced at the rate of 220 cubic yards per hour. The decreased output is attributable to the gradual reduction of fall in the working-paddock. The gold won equals 183 oz., worth £1,193, which represents a value of 1·05d. per cubic yard.

*Callaghan's Mine.*—S. Havill, manager, and nine men employed. The yield from this mine amounted to 121 oz. 16 dwt. 15 gr. of gold, valued at £774. Work is now suspended.

*Lawson's Flat Sluicing Claim.*—G. Linklater, manager, and thirteen men employed. 86,000 cubic yards of gravels (ran through the sluice-boxes), gave a yield of 543 oz. 4 dwt. 13 gr. of gold, valued at £3,595 8s. 2d.

*Collingwood (Rocky, Aorere, and Anatoki Rivers, Takaka County, &c.).*—One hundred and thirty-three men were employed, winning 467 oz. 2 dwt. 5 gr. of gold, valued at £2,667 11s. 8d.

*Marlborough (Wakamarina, Onamalutu, Cullensville, &c.).*—Ninety-four men were employed, winning 1,457 oz. 9 dwt. 7 gr. of gold, valued at £9,595 16s. 6d. These figures include the yield from the Mahakipawa Co.'s work.

*Waimea (Wangapeka, Baton, &c.).*—Eighty-eight men were employed, winning 378 oz. 7 dwt. of gold, valued at £2,227 11s. 8d.

*Murchison (Howard, Matakitaki, and Maruia).*—Four hundred and seven men were employed, winning 2,709 oz. 5 dwt. 16 gr. of gold, valued at £15,662 6s. 7d.

*Buller (Charleston, Birchfield, Lyell, &c.).*—Two hundred and fifty-nine men were employed, winning 1,644 oz. 6 dwt. 3 gr. of gold, valued at £9,928 12s. These figures are inclusive of those dealing with operations conducted by the Addison's Flat Gold-mining Co., Addisons Exploration, Ltd., and the Charleston Sluicing Co.

*Inangahua (Merrijigs, Blackwater, Ikamatua, &c.).*—Two hundred and one men were employed, winning 1,186 oz. 1 dwt. 12 gr. of gold, valued at £7,221 19s. 1d. These figures are inclusive of those pertaining to operations carried out by the Waitahu Sluicing Co., the Snowy River Sluicing Co., and the Mount David Sluicing Co.

*Grey (Ahaura, Moonlight, and Barrytown).*—Three hundred and sixteen men were employed, winning 3,339 oz. 10 dwt. 11 gr. of gold, valued at £20,649 19s. 9d. These figures are inclusive of those dealing with work done on the Bell Hill, Deep Lead, and Golden Sands Co.'s claims.

*Westland (Kumara, Callaghan's, Blue Spur, Rimu, and Kanieri, South Westland, &c.).*—Four hundred and nine men were employed, winning 4,183 oz. 3 dwt. 7 gr. of gold, valued at £25,502 3s. 5d. These figures are inclusive of those pertaining to operations carried out by the Hohonu, Callaghan's, and Lawson's Flat Co.'s.

### Minerals other than Gold.

*Onakaka Iron and Steel Co., Ltd. (In Liquidation).*—No work has taken place at this company's plant since the shutting-down of the furnace in May, 1933. 3,286 tons of pig iron was produced as the result of the treatment of 6,572 tons of iron-ore, and this was more than sufficient to meet requirements to the end of the year. There is a balance in stock, and it is proposed to commence a further run of the blast furnace when the stock is more depleted.

*Petroleum.*—The Kotuku Oil and Goldfields, Ltd. (E. W. Bender, manager) has assembled its plant, chosen a site, erected a derrick, and is about to commence drilling-operations. Six men were employed for the period.

### Prospecting.

Great activity was shown in this class of work, but it was practically confined to the searching for, and examination of, alluvial-bearing ground. There are probably two thousand men working under the Unemployment Board's Prospecting Scheme, and these range from Collingwood and Marlborough in the north to the remote fastnesses of South Westland. A large number have made good with the assistance granted, others are likely to do so, and altogether there is ample proof that the scheme has justified itself. Drilling has taken place on the upper and lower Matakitaki, Murchison County; Blackwater, Snowy and Mossy Creeks, Inangahua County; Camerons and the Barrytown Flats, Grey County; and at Stafford, and the Haast and Arawata Beaches, Westland County. Satisfactory values were got at Blackwater and Mossy Creeks; also at Camerons and Barrytown. Inspection work (made during mid-winter), of the terrain situate between Weheka and Okuru failed to show any country that contained possibilities, apart from that which is adjacent to Bruce Bay and Hunt's Beach, and the areas named have value from a likely dredging point of view only. The area south of Okuru was not visited, but it seems, from information gleaned, that blacksand is almost everywhere present on its beaches, and that same is almost devoid of gold. The non-auriferous nature of the blacksand is no doubt due to the short lengths of the rivers within this territory, none of which appears to reach favourable gold-bearing areas. The blacksand is undoubtedly derived from a belt of chlorite-schist country that these streams traverse, in the mountainous regions of that part. It would seem as if this territory is unsuitable for prospecting.

### Accidents.

There were four major accidents during the year, three of them being fatal and one non-fatal. The first fatal accident occurred at German Gully, where a shaft was being sunk in connection with the future operating of the Brian Boru Dredge. The shaft collapsed, and the man employed therein, Richard John O'Connell, was buried. The second fatality occurred at Callaghan's Mine, Hokitika, and was brought about through a steel truck trammed by the victim (Frederick Charles Stoop), coming in contact with an electrically charged wire. The cable was a cab-tire-sheathed one, but it had become punctured, thus allowing contact to take place. Richard Vincent Cyril Sewell was the third victim. He was employed at the Blackwater Mine, and was returning from the Battery (after having delivered a supply of quartz), with some horse-drawn trucks to the surface level, when a slip came away from nearby sidling country and overwhelmed him. Joseph Baines was the victim of the non-fatal accident. He was engaged at the Blackwater Mine in carrying out rising work, and was in the ladder way, when, through some unknown cause, his foot slipped from a rung of the ladder, causing him to fall five or six feet, which resulted in his lower left leg being fractured.

### Prosecutions.

Twelve informations were laid during the year. One was withdrawn and two were dismissed. The manager of a mine was convicted and fined for the following offences: (1) Not providing proper means of signalling on an underground engine-plane; (2) when electrical machinery was in use did not have a competent person on duty; (3) for failing to notify the Inspector of Mines previous to the introduction of electricity into a mine; (4) for failing to provide adequate ventilation. A company was convicted and fined for carrying on mining operations at a mine where more than six men were employed underground without such mine and operations being under the charge of a duly certificated mine-manager. A miner was convicted and ordered to pay costs for adjusting or replacing fuses on an electrical circuit when he was not an authorized person. The manager of a dredging company's mine was convicted and fined for (1) not seeing that a shaft was securely timbered and made safe for the persons employed therein; (2) failing to provide a proper ladder or footway in a shaft where persons were engaged; and (3) not recording in a book kept for that purpose his opinion of the machinery, shafts, &c., after having examined same. A dredging company's mine-manager was convicted and fined for making no provision against the securing of a shaft for the protection of the persons employed therein.

## 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. (E. Williams, Manager) has been actively engaged, and during the year the following work has been carried out: The Mosquito race has been widened and put into repair, its total length being 22 miles, including steel fluming, 3 ft. wide and 2 ft. 6 in. high of a length of approximately 500 ft. The Cook race has been widened for a total distance of seventeen miles. During the year work was started on the construction of two dams in Bushey Creek. In the lower one the core of masonry was built to a height of 25 ft. and a width of from 5 ft. at the bottom to 4 ft. at the present height. The earth filling has been sluiced in to within 1 ft. 6 in. of the top at the front of the dam and 2 ft. 6 in. at the back. In the upper dam the core has been built to a height of 25 ft. and the thickness of the core is 5 ft. at the bottom decreasing to 4 ft. 6 in. at its present height. The tail-race tunnel was driven 550 ft. A compressor had to be installed owing to the hardness of the rock. The pipe-line, consisting of 1,000 ft. of 24 in. pipes, 600 ft. of 22 in. pipes, and 300 ft. of 18 in. pipes, has been laid in Duffer's Gully for the operations to be carried out there. Approximately 300 ft. of 24 in. pipes have been laid in Golden Gully. Tests were carried out with the giant monitors in Duffer's Gully and they proved satisfactory. Sluice-boxes have been placed in Duffer's and Golden Gullies. The water was turned into the Mosquito Race on the 3rd November, 1933, and quantities varying from seven heads to thirty-five heads have been delivered. A large quantity of tailings has been sluiced out of Duffer's Gully and a start has been made to construct a tail-race. A crusher was installed at Bushey for concreting purposes. An average of fifty men has been employed during the year. Fifty-nine men were employed fossicking, prospecting, cradling, sluicing, and driving in the Livingstone, Maerewhenua, Dansey's Pass, Kurow, Hampden, and Oamaru areas. The gold won amounted to 376 oz. 7 dwt. 6 gr. valued at £2,159 17s. 3d. The chief producers were C. E. Adams and V. I. Fenning, who are ground sluicing on the Maerewhenua field. A water-race is under construction to bring an efficient water-supply to work the Diggers Gully area, near Kurow.

#### *Waihemo County.*

*Golden Point Gold and Scheelite Mining Co., Ltd., Deep Dell, Macraes* (A. W. Turner, Manager).—No work was done during the year until December, when preparations were made to reopen the mine and the plant was cleaned up and put into order. 368 tons of quartz was treated for a return of 105 oz. 18 dwt. 16 gr., valued at £510 16s. 6d. Underground operations were resumed in January, 1934.

*Callery and Bradbrook, Round Hill* (between Macrae's Township and the Golden Point Mine).—During the past year, operations have been continued and the level alongside the Deep Dell Road has been opened up. The old workings are being explored and virgin, auriferous reef areas are being opened up. Four men were employed and 745 tons of quartz was mined and lorried to the battery in Deep Dell to be crushed and treated for a return of 183 oz. 9 dwt. 13 gr., valued at £1,162 0s. 7d.

*The Macrae's Flat Gold-mining Co.* (R. T. McKenzie, Manager).—Work has been continued during the year on the partially hand-worked ground on the Macrae's Flat, opposite the township, by electrically driven gravel pump methods. A new nozzle pump has been installed and operations have not been hindered from shortage of water since the early part of the year. As the work proceeds, the water-storage increases. The rainfall has been larger than usual in the locality for the greater part of the year. Five men were employed and 33,500 cubic yards of alluvial material was treated for a return of 327 oz. 12 dwt. 13 gr., valued at £1,866 11s. 9d. The men worked three eight-hour shifts.

*Tate's Reef* (A. K. Smeal, Manager).—During the year a small reef has been opened up on Section 1, Block X, Waihemo Survey District, and Section 12, Block IX, Highlay Survey District. Where surface trenching exposed a shoot of ore for a distance of 270 ft., underhand stopes were taken and the quartz was crushed and treated at Callery and Bradbrook's battery in Deep Dell. The results of the crushing being satisfactory, it was decided to sink a shaft in the solid schist to the south of the reef, and to erect a five-stamp battery on the east side of the Dunback–Macrae's Main Road. The shaft was sunk to a depth of 32 ft. and a crosscut driven to intersect the reef. Pending the erection of the battery, mining opreations were suspended until November. Operations were resumed on the reef which is now being driven on east and west. This reef is narrow and almost vertical, dipping slightly to the north. 125 tons of quartz was crushed for a return of 89 oz. 9 dwt. 6 gr., valued at £552 13s. 9d.

*Ross, Forrest, and Party.*—This party of six prospectors drove a rock tunnel in the left-hand branch of Highlay Creek to intersect the Deep Lead. This lead was intersected at 324 ft. Prospects being poor, work was discontinued for some time. Two of the members of the old party are now driving on the lead.

*O'Connell and Party* sank a shaft on the Macrae's deep lead in Section A 1, Block I, Town of Macrae's. The lead was intersected at 73 ft. and the shaft was sunk to a depth of 93 ft. The lead was driven on for a distance, but operations were suspended on account of the difficulty in dealing with the wet alluvial material.

*Elsom and Party.*—This party of six men drove a crosscut, to intersect the Bonanza reef, in part of Section 121D and F, Budle and Hummockside Survey Districts. The reef was intersected at 191 ft., but was broken and did not carry values at the point of intersection. Further work will be done by driving on the reef.

Eighty-four men were engaged prospecting, cradling, sluicing, driving, and sinking in the Highlay, Macrae's, Dunback, Shag River, and Hillgrove areas. The gold won amounted to 152 oz. 3 dwt. 9 gr., valued at £865 4s. 6d.

*Maniototo County.*

*Golden Progress Quartz-mining Co., Oturehua* (J. Evans, Manager).—Mining and prospecting operations were continued during the year on the 150 ft. level. Driving and rising were continued on the reef formation, intersected in the south crosscut. Values proved to be low, so work was discontinued in this section and a crosscut was driven to the north in an attempt to pick up the eastern extension of the Progress reef. Nothing of importance was located, and this work has now been discontinued. Further prospecting work was also carried out in the western section where the country rock is more disturbed and the ground heavier. Stoping has been continued above the 80 ft. and 150 ft. levels and the winze in the west section, below the 150 ft. level was sunk to a depth of 80 ft. A heavier winding-engine was installed, also a larger additional boiler preparatory to sinking the main shaft which has not yet been commenced. Eighteen men were employed in the mine and battery. 247 tons of quartz yielded 348 oz. 19 dwt., valued at £2,233 11s. 1d.

*Kildare Consolidated Gold-mining Co., St. Bathans* (W. Johnsen, Manager).—Mining operations were continued at the upper end, or "coal-pit" section of the claim. Heavy overburden, consisting of clay and coal, to a depth of 100 ft., had to be removed before the Kildare Lead could be worked. Preparations are being made to commence operations on the Surface Hill holdings of this company. Ten men were employed, and the gold won amounted to 423 oz. 3 dwt., valued at £2,651 0s. 10d.

*Manuherikia Development Syndicate.*—During the months of September, October, November, and December, 1933, and the first week of January, 1934, the above syndicate drilled two holes on the east or township side of the Kildare Co.'s St. Bathans opencut. Hole No. 1 was drilled to a depth of 236 ft. and reached schist bed-rock. Hole No. 2 was drilled to a depth of 412 ft., but did not reach bed-rock.

There were 408 men employed prospecting, sluicing, elevating, driving, and sinking in the St. Bathans, Vinegar Hill, Cambrian's, Blackstone Hill, Wedderburn, Naseby, Kyeburn, Patearoa, and Serpentine areas, winning 2,126 oz. 15 dwt. 16 gr. of gold, valued at £13,290 8s. 3d., the chief producers being N. Nicholson, St. Bathans; Roche and George, Naseby; M. Brown, Kyeburn; Carr Brothers, Patearoa; and T. C. Hore, Naseby.

*Tuapeka County.*

*Gabriel's Gully Sluicing Co., Lawrence* (J. Hore, Manager).—Operations were continued on the right-hand side of the gully until the partially worked and virgin ground was exhausted. The plant was then shifted to the neighbourhood of the old smithy on the left-hand side of the gully where the tailings were again elevated and treated. Seven men have been employed. The gold won amounted to 236 oz. 4 dwt., valued at £1,524 3s. 8d. The total gold won since commencing operations amounted to 21,725 oz. 12 dwt. 10 gr., valued at £87,385 5s. 5d. The new Gabriel's Gully Co. was formed to work this claim, and commenced operations in September. The gold won amounted to 67 oz. 10 dwt., valued at £446 8s. 2d.

*Wetherstones Gold-mining Co., Ltd., Wetherstones* (H. T. Gordon, Manager).—Preparations were made in the early part of the year for sinking an incline shaft to intersect the borehole at 412 ft. vertically below the surface of Wetherstones Flat. At the site of this shaft the necessary buildings were erected—mine office, change-house, engineer's office and store, engine-room, blacksmith's and carpenter's shop, and storeroom. Two compressors were provided, No. 1 being an Ingersoll Rand machine, single cylinder, 80 lb. pressure, driven by a 100 h.p. Crompton motor. No. 2 is also an Ingersoll Rand machine, twin cylinders, driven by a 160 h.p. "No Lag" B.T.H. motor. All the machinery is electrically driven, and provision has also been made on the switch-board for the 50 h.p. winding-motors at the inclined and vertical shafts, ventilator motor, conveyer motors, and general-purposes motor. The incline shaft is dipping at an angle of 25 degrees and is a three-compartment shaft, 15 ft. by 7 ft. outside timbers and 13 ft. by 5½ ft. inside the timber, divided into a hauling or skipway compartment, a travelling-way compartment, and a conveyer compartment. The shaft has been driven through the surface clay and the brown cement by means of pneumatic spades and picks and is timbered in the orthodox three-compartment main shaft method. This shaft was completed to 923 ft. at the end of the year. The head gear treatment tower and sluice-boxes were erected, and the permanent winding-gear installed, also two sections of the rubber-belt conveyer, together with the driving mechanism. Two levels were driven off the shaft, the first at 510 ft. and the second at 835 ft. The 510 ft. level was crosscut 289 ft. west until the schist contact was exposed and a level was driven north 63 ft. on the contact. The 835 ft. level was crosscut to 133 ft. at the end of the year. This crosscut was extended during January and February, 1934, to 313 ft. before the schist contact was exposed. The levels and crosscuts are timbered with sets lathed on top and sides. The vertical shaft-site was prepared, and, on account of the necessity to prevent seepage water entering from the tailings with which the Wetherstones Flat is covered, false timbering and spiling had to be employed in order to reach the cement and place in position the concrete-shaft collar. This collar is now in position, and the shaft has been sunk to a depth of 35 ft. The head gear and sluice-boxes have been erected. The permanent-winding gear has been installed and housed. The power and water lines have also been extended from the site of the inclined shaft. Forty men were employed.

*The Golden Rise Claim, Wetherstones.*—Sluicing operations were suspended during the year and surface work has now ceased. The water in use by this party is now being used by Mr. R. S. Thompson, of Wetherstones, who is sluicing and elevating on the site of the old Wetherstones School and grounds.

*Paddy's Point Gold-mining Co., Forsyth* (R. Webb, Manager).—Work has been carried on continuously during the year in the freehold land alongside the Waitahuna–Lawrence Main Road. Six men have been employed. The yield of gold amounted to 587 oz., valued at £4,148. Total yield of gold since commencing work amounted to 2,015 oz., valued at £11,526.

*The Sailors Gully Sluicing Co., Waitahuna* (A. W. Eaton, Manager).—Sluicing operations have been carried on in the western section of the cement deposits in the Waitahuna Gully. Seven men were employed. The yield of gold amounted to 560 oz. 12 dwt., valued at £3,626 16s. 10d. Total yield of gold since commencing work amounted to 14,185 oz. 7 dwt. 23 gr., valued at £58,823 18s. 6d.

*Tallaburn Sluicing Co., Horse-shoe Bend* (between Beaumont and Miller's Flat).—Sluicing and elevating operations have been continued during the year for a yield of 81 oz. 19 dwt. 16 gr., valued at £505 10s.

In the Tuapeka County (including Lawrence, Wetherstones, Waitahuna, Waipori, Tuapeka Mouth, Beaumont, Roxburgh, Miller's Flat, Shingle Creek, Table Hill, Tokomairiro, Pomahaka, and Kaka Point) four hundred and twenty-four men were engaged fossicking, prospecting, cradling, sluicing, elevating, driving, and sinking. The gold won amounted to 1,219 oz. 0 dwt. 22 gr., valued at £6,454 10s. 6d. The largest producers were A. and R. Brown, Tuapeka Mouth.

*Lake County.*

*Paulin Bros., Rees River, Glenorchy.*—This party worked continuously during the year opening up a high-level alluvial lead. A water-race and a pipe-line are completed, and sluicing will be commenced early in the year.

*Thornton and Peterson, Oxburn, Rees River.*—This party has driven and sluiced for the greater part of the year, with the object of locating the former channel of the Oxburn. A drive, put in at the lower end of the claim, located what appears to be the outlet of the channel. Operations will be continued on a larger scale if development is satisfactory. There are approximately thirty men in the district, and twenty-four of them are subsidized.

A considerable amount of prospecting has been carried out in the Glenorchy district for alluvial gold, the Buckleburn, Oxburn, and Precipice Creek beds receiving the most attention by both subsidized men and prospectors working without assistance. In the Rees Valley, two parties were enagaged in lode prospecting. The area in the vicinity of the Invincible Mine has had a fair amount of driving and trenching done on it. Small patches of high-grade quartz were located, but no body of any extent has yet been found.

Scheelite mining in this district has been dormant during the year, prices offering for the product being too low to enable mining to be carried on at a profit. The trend, at the end of the year, was in an upward direction, and nearing paying-point.

The Twelve Mile, Six Mile, and Seven Mile Creeks, situated between Glenorchy and Queenstown, have been worked by subsidized men. While the general average return per man is low, some fine samples of coarse gold have been won.

*Upper Shotover Gold-mining Co.*—This company is driving a tunnel from the Shielburn to a branch of the Upper Shotover River, with the object of diverting the water from the latter stream. The tunnel is nearing completion and approximately five miles of the river will be left dry when the diversion scheme is completed. Seven men are employed.

*Sandhills Gold-mining Co.* (P. Y. Lynch, Manager).—A reconstruction of the company has taken place, and a new scheme of attempting to divert the Shotover introduced. Drives are being put in for the purpose of blasting out and lifting enough rock into the river to obstruct the stream and raise its level above that of a cut which has been sluiced through alluvial material on the side of the river. Should the project succeed, 60 chains of the Shotover can be worked with comparative ease. Three men are employed.

*Shotover Reefs Syndicate.*—This syndicate drove a short distance only in the Ballarat Creek claim for the year. Their objective, a lode in an upper level, was not reached. Five men were employed for six weeks.

*White Crystal Mine, Skippers* (J. Tripp, Manager).—Two men have been engaged during the year chiefly driving in the ore-body on the top adit level. Faulting displaced the reef in this level. After driving 50 ft., it was cut and proved to be of payable value. On driving west, widths up to 50 ft. were exposed, and values improving. A small plant, consisting of two light stamps, is driven by an overshot wheel, and is crushing when water is available. Eighty tons was crushed for a return of 72 oz. 4 dwt. 12 gr. by amalgamation only, which was valued at £484 13s. 11d.

*Skippers Mining Co., Ltd.*—The claims formerly held by Messrs. A. E. Smith, Murray, and Roberts, are now held by the above company, who propose to install fluming to divert the river and enable the bed to be worked by dredging and hydraulic elevating. Preliminary operations on a large scale are to be put in hand at the beginning of 1934.

*Central Shotover Gold-mining Co.*—An area at the junction of Deep Creek and the Shotover has been acquired by the above company. Pipe-lines and dam are to be constructed to convey and store water for mining operations on the claim. Four men were employed.

*Atley Bros.*—This claim on the Shotover River was worked when river conditions permitted. In common with other Shotover claims, flood conditions prevailed, and opportunities for working in the stream-bed were fewer than in a normal year. Two men were employed.

*Oxenbridge Gold-mining Co.*—This claim, previously worked by Hope, Oxenbridge, and party, is now held by a company under the above title. Preparations are being made to work on a larger scale by providing for a greater water-supply for elevating and drainage purposes. A dam, 60 ft. high, is to be erected in the Moonlight Creek. This will augment the power available from the existing water rights. The gold return from this mine amounted to 13 oz. 19 dwt. 12 gr., value £66 14s. 8d. for the year. Four men were employed.

*Mr. B. de Bakker Gates.*—This claim is situated just above the Oxenbridge Co.'s proposed dam-site, and is operated by the owner employing six men, who are putting in light steel fluming to carry the creek, thus enabling some deep holes to be worked. Rich pockets have been found in the vicinity and more may be discovered if the river conditions allow operations to be carried out as planned.

*No. 1 Moonlight Syndicate.*—Sluicing operations have been carried on continuously during the year, with the exception of a short period when the plant was buried, owing to the collapse of the east side of the claim. The gold produced from this mine amounted to 254 oz. 1 dwt., valued at £1,939 2s. 3d. Average number of men employed, three. F. Soper, manager.

*Moonlight Extended Gold-sluicing Co., Ltd.*—This company employed an average of thirty men, and has reconditioned all the ditching in the old race. Benching and trestle work for the steel fluming is almost completed. Both the Lake County and company are widening and regrading the track from Arthur's Point to the claim. Horses and trollies have been purchased to transport fluming material to the camp workshop, where the plates are punched in readiness for packhorse transport up the race.

In addition to the companies and privately owned claims, a considerable number of subsidized men have been employed on the beaches and terraces ot the Shotover, Moonlight, and Moke Creeks and their tributaries. Their returns, during the early part of the year, were disappointing, owing to the flooded state of the river. A small, but steady return, was recorded for the rest of the year.

*McNeil and Party, Shotover River, Arthur's Point.*—This party of three men has spent considerable time and money in an endeavour to locate a former channel of the Shotover which is believed to exist under the slip which came down from the mountain on the east side of the river. After removing a large mass of boulders and gravel by sluicing, driving was started and a channel located. Further driving and crosscutting is necessary to prove the value of this channel, also its width and direction.

*Central Shotover Gold-mining Co., Ltd., Lower Shotover.*—This company was formed and took over the plant and claim formerly worked by the Big Beach Gold-mining Co., a small unworked area that was formerly held as a residence-site being acquired and worked by this new company with profitable results. The company contemplates removing the plant to their Shotover claim when the remainder of the area is worked out. The gold won for the year amounted to 301 oz. 8 dwt. 19 gr., valued at £2,048 17s. 4d. Average number of men employed, seven.

*Arrow River and Billy Creek.*—Several parties of prospectors are working in the upper reaches of these rivers, their objective being to prove the existence and value of buried river channels. Three parties at the junction of the Billy and Arrow Rivers have sunk in the creek-beds to different depths and are driving under the hill. Their previous drives from creek level disclosed that wash was underfoot and bottom could not be reached.

*Hamilton and Smith, Arrow River.*—This party is operating two claims, one above and one below Scale's tunnel. The ground is, on an average, 30 ft. deep, 14 ft. being recent tailings. Hydraulic elevators are used, water being taken from the Public Works irrigation pipe-line, the charge for this being 10 per cent. of the gold won. An average of six men was employed.

*Golden Arrow Sluicing Co.* (J. McKenzie, Manager).—This company's claim is situated at the foot of the Arrow River and close to the town, the deposit they are working being similar in composition and depth to the other Arrow claims. Six men are employed on three shifts. The gold won for the year amounted to 106 oz. 1 dwt. 12 gr., valued at £693 14s. 2d.

*Criterion Mine, Arrowtown.*—A syndicate pumped out the 120 ft. vertical, two-compartment shaft. At 112 ft. a short distance was driven in a small reef. The ground was formerly stoped from the 60 ft. level to the surface and a winze was sunk from 60 ft. to the 112 ft. level. No record of operations between the levels is available. Three men were employed for short periods.

*McPhee's Freehold, Crown Terrace.*—A strong quartz outcrop on this property was stripped for 130 ft., and a winze sunk to a depth of 85 ft. in ore, a steep dipping body varying from 1 ft. to 4 ft. 6 in. in width. A Dunedin syndicate has carried the prospecting operations to this stage. Their future intentions are to drive on the lode from the bottom of the winze, and, if values are satisfactory, a battery will be erected. On the Kawarau River, practically every mile of river-bank or terrace has its complement of miners, sinking and driving in the search for gold, from Frankton to the gorge at Cromwell. The yield from this locality was much smaller than the previous year, owing to the dam gates not being closed.

Two hundred and forty-four men were engaged fossicking, prospecting, cradling, sluicing, elevating, driving, and sinking in the Macetown, Arrowtown, Shotover, Glenorchy, Rees River, Lakeside Creek, Skippers, Arrowtown, and Upper Kawarau Gorge areas. The gold won amounted to 802 oz. 15 dwt. 21 gr., valued at £6,515 5s. 4d.

### *Vincent County.*

*Jones and Party, Upper Nevis* (F. Jones, Manager).—Work in the claim was carried on during the open season. Slips caused the management much anxiety and, to some extent, hindered operations in the lowest part of the paddock. The gold won for the year amounted to 402 oz. 13 dwt., valued at £2,706. Seven men were employed during the season.

*Johnson and Williams, Lower Nevis.*—This party worked continuously during the open seasons. Their ground sluicing with two nozzles on a big face yielded 70 oz., valued at £455.

*McLean Bros., Lower Nevis.*—This party of three men is working an area at Lower Nevis which was formerly the hotel-site. The ground is 12 ft. deep and shows good dish prospects. Hydraulic elevating with a 250 ft. head is the mining method employed. Gold won amounted to 22 oz. 10 dwt. 23 gr., valued at £145 12s. 11d.

*Bannockburn.*—A considerable number of subsidized miners were driving and sluicing, chiefly in the winter months, when they had to leave their claims on high altitudes such as the Nevis. The Vincent County Council supplied the miners with water from their irrigation races during the non-irrigation season.

*Four X Mine* (William Bell, sen., Manager).—This claim is situated on the north bank of the Kawarau, a short distance down-stream from the mouth of the gorge. Two men were engaged driving north and cross-cutting east for a lengthy period, through loose wet ground, the objective being to locate the Bell–Kilgour lead. Nothing of importance had been discovered when operations ceased at the end of the year. The gold won for the year amounted to 2 oz. 15 dwt. 15 gr., valued at £12 7s. Two men were employed during the season.

*Ounce Limited* (W. Rhodes, Manager).—This company acquired, by cash payment, the area adjoining the above claim. A large expenditure was incurred, both on the surface and underground, without locating payable wash. An average of six men was employed.

*Bell-Kilgour Gold-mining Co.* (H. A. de Latour, Manager).—This company acquired the claim from the prospectors who discovered the lead on the north bank of the river. Electrically-driven sluice pump and winch, bin, and boxes, were installed, extensive repairs and alterations to the existing workings were put in hand, and, when completed, systematic driving and crosscutting was undertaken, and all the workings strongly timbered, to prove the area held. When development was sufficiently advanced, blocking out was started on a limited scale. On an average twenty men were employed, and the gold won for the year amounted to 344 oz. 9 dwt., valued at £2,420 2s. 9d.

*Bell-Hooper Gold-mining Co.* (L. Autridge, Manager).—This company was formed to work the ground held by R. Bell and the Hooper Bros., who discovered the tunnel which was situated about 100 ft. further down-stream than that of Bell and Kilgour. At a later date, the company bought a block of freehold land extending from their north boundary across the Cromwell Flat to the terrace. A plant was installed to treat the wash and a large amount of development work was done. The main north drive and north-east crosscuts definitely established the width and direction of the gutter; also, the values of the 100 ft. square panels were closely determined by treatment of the wash won from development. After several months of development, blocking out was commenced on the Bell-Kilgour boundary, with an average crew of twenty-four men, working two shifts, but at certain periods three shifts were employed. A considerable amount of wash was sent to the bins. Blocking-out operations entail the use of a large amount of timber which will be irrecoverable, owing to the heavy weight that is resting upon it when a panel is extracted. The gold won for the year amounted to 1,492 oz. 0 dwt. 9 gr., valued at £8,417 4s. 11d.

*Bell-Smith Mining Claim.*—This claim joins the Bell-Hooper on the down-stream side. A drive was started and driven north 200 ft.; at this point, a heavy flow of water was tapped. A diversion of the drive was made to avoid the loose ground and water. At approximately 400 ft. the drive reached the boundary without reaching the gutter which is situated between Sargood's east shaft, and the north side of the Bell-Smith claim. Two men were employed.

From the Bell-Hooper claim to Cromwell, on the north bank, several tunnels have been started, but the continuation of the Bell-Hooper gutter across the flat has not been proved by any of them. On the south bank of the river, below the Bannockburn Bridge, several parties of subsidized men have driven extensively under the south bank. In three instances, their returns were sufficient to interest capitalists, who are preparing to carry out further prospecting with a view to turning them into large-scale sluicing companies, the water to be pumped from the Kawarau, and Diesel engines to be the motive power.

*Frye and Giddens.*—This party purchased a small block of freehold land, and pegged some of the Cromwell Development Co.'s area. A 4 ft. by 2 ft. 6 in. vertical shaft was sunk 90 ft. to the clay-sandstone bottom. Driving was started south from the shaft, 90 ft. on a gently rising floor. Magnetite was abundant on the floor and mixed with the wash. Values were unpayable. Attention was turned to the north side and 200 ft. was driven, with improved values showing, on an inclined floor, making it necessary to bring in electric power and install a pump underground. Five men were employed.

*Sarita Co.*—This company sank a shaft 70 ft. deep and bottomed on unpayable wash north of the Bell-Kilgour Mine, and a short distance south-west from the Frye-Giddens shaft. They sank another shaft on what was proved later to be a road. This road and shaft were applied for and granted by the Warden to another party. The shaft was situated north of the Bell-Smith claim, and bottomed at 142 ft. Values were reported to be unpayable. Four men were employed.

*Ao-tea-roa Mining Co.*—This company purchased some of the Sarita freehold and later sold it to the Bell-Hooper Co. While it was in their possession a shaft was started and sunk to a depth of 50 ft. through loose dry gravel, and then abandoned on account of the difficulty experienced in keeping the shaft plumb. Three men were employed.

*Horn's Freehold.*—R. J. Bell did a considerable amount of shaft sinking on the south end of this area, but only one was bottomed, at 136 ft. From the Bell-Hooper workings the course of the lead is known and Bell's shaft bottomed on the south sideling of the gutter. Three men were employed.

*Horn's Shaft.*—A. Horn sank a shaft 112 ft. deep on the north end of Horn's freehold. The inflow of water at this depth was beyond the capacity of the pump in use, and sinking could not be continued until a pump was installed which would be capable of dealing with the water. Two men were employed.

*Cornish Point Gold-mining Co.* (M. Moye, Manager).—This company was refloated and an extensive geophysical survey has been made of the area held by them at Cromwell. Plans were made to put down a new incline shaft a short distance up-stream from the collars of the old incline and vertical shafts. After reconsideration, it was decided to sink an incline shaft farther up-stream. The two previous shafts were sunk at the outlet of the gutter. The bearing of the proposed shaft will be approximately at a right angle with the course of the gutter. Four men were employed.

*Dead Man's Point.*—The only work carried on on this claim was a small amount of driving and stripping over the drives. The drive work ceased on the discovery of a small area of good value. Three men were employed.

*Quartz Reef Point.*—A camp of unemployed men was engaged in mining on this area and along the banks of the Clutha River. A race from Devil's Creek was reconditioned by the Unemployment Board, enabling water to be brought on to some high unworked ground east of the Clutha River.

*Pheloung and Party.*—This party took over a shaft in the Bendigo Creek which had previously been sunk to a depth of 70 ft. A depth of 176 ft. was reached and no bed-rock in sight. As the pumping-gear was unequal to the strain of forcing water from such a depth further sinking was impossible until more suitable plant could be procured. Three men were employed.

*New Bendigo Gold-mining Co.*—A company was formed to take over these claims, which were extensively worked years ago and abandoned when the sulphide ore was met in the lower levels and the free-milling ore had been stoped out of the upper levels. The objective of this new company is to extend the low level, which was driven 607 ft. by the old company. A 24 h.p. Diesel engine belt-driving an Ingersoll-Rand air-compressor, delivering 200 cubic feet per minute, provided the power to drive a rock-drill used in the face. The country rock is extremely hard and the progress made was slow, notwithstanding that a pressure of 100 lb. per square inch was available. Explosives were an expensive item of the work; one case (50 lb.) was frequently used to blast a 3 ft. 6 in. round. After driving 267 ft. work was suspended owing to the company's available capital being expended. Over 900 ft. under the contract remains to be driven. Six miners and a tool-sharpener carried out the work.

*N. Harliwich.*—The afore named is making preparations to extend a drive situated in the Bendigo Creek, about a mile east of the Bendigo Mine. The drive, when extended far enough into the hill, is well situated to cut the Bendigo reef system. The erection of buildings and making of a graded road into the claim, preparatory to erecting an air-compressor and Diesel engine, are now being carried out. Three men were employed.

*Rise and Shine* (Logan, Campbell, and Party).—This party, subsidized by the Unemployment Board, started prospecting around the old workings of this claim. They cleaned out an old shaft that had been sunk to a depth of 23 ft., over thirty years ago. At this depth a band of sulphide ore was met, and the shaft was abandoned. The prospectors sank the shaft 6 ft. deeper, part of it in the sulphide-ore body, and drove east for 20 ft. in the footwall of the lode. A syndicate took an option of the claims and reconditioned a shaft situated 75 ft. north of the prospecting shaft. At a depth of 50 ft. a drive was put out and intercepted a lode 3 ft. wide, after driving 30 ft. High values were reported. Three men were employed.

*Fourteen Mile Beach Gold-mining Co.*—This company has the claim formerly worked by Murchison Bros. They installed an electric crane for handling the large boulders, beside making general improvements to the pipe-lines and mining plant. Four men are employed and the gold won for the year amounted to 156 oz. 10 dwt. 11 gr., valued at £1,076 2s. 6d.

*Molyneux River.*—From Cromwell to Alexandra a large number of men are searching for gold, sinking and driving in the terraces, cradling on the beaches, and sluicing where water is available. The majority of the men are subsidized by the Unemployment Board.

*Matakanui, Devonshire, and Drybread.*—In the two first-named mining fields the Unemployment Board's subsidized men have done a large amount of work around the old claims, in addition to prospecting unworked blocks by sinking and driving. Only two parties at Matakanui have water under pressure. Only one claim is now being operated at Drybread, and that by the owner of the water-rights, who sluices during the winter months.

*Symes' Reef, Old Man Range, Alexandra.*—The Otago Mining Development Co., after doing a considerable amount of driving, with negative results, decided to give up their interest in the claim. Mr. Symes, the former owner, has carried out further prospecting operations, and is engaged on crosscutting north from the low-level tunnel which the company drove, and will eventually cut the downward continuation of the lode channel 60 ft. below the stoped out ground. Two men were employed.

The mining industry in these two counties during the year has not been characterized by any discovery of importance. The chief feature worthy of record was the large number of prospecting licenses applied for, Vincent and Lake Counties receiving the most attention from the claim applicants.

There were 714 men engaged fossicking, prospecting, cradling, sluicing, elevating, driving, and sinking in the Kawarau Gorge, Cromwell, Bannockburn, Bendigo, Luggate, Clutha, Clyde, Waikerikeri, Blackman's, Conroy's, Matakanui, Drybread, Devonshire, Cardrona, Matatapu, and Lindis and Branch Creek areas. The gold won amounted to 1,451 oz. 7 dwt. 10 gr., valued at £8,550 10s. 11d.

*Southland County.*

*Nokomai Sluicing Co.*—This company is now known as the Nokomai Gold-mining Co. During January, February, and part of March, the cleaning and reconditioning of the water-races was continued and the erection of the plant was completed. The drag-line conveyer-belts and treatment plant were put into commission in March. This being a new method of alluvial mining, naturally many problems arose and had to be overcome. The size of the bucket was reduced to 4½ cubic yards capacity, and the shape of the bucket was also altered in order to reduce the strain on the main rope. The ground proved to be tight. 72,221 cubic yards of material were dug up to the 31st December. Thirty-four men were employed. The gold won amounted to 698 oz. 14 dwt., valued at £4,234 18s. 10d.

*King Solomon Deep Lead, Ltd., Waikaia* (R. C. Ruffin, Manager).—Successful and active operations have been continued during the year. In the early part of the year much development work was carried out in the east section going toward the old Winding Creek workings. The accumulated water was pumped out of Winding Creek Co.'s elevating paddock. This is now kept free from water by means of an electrically driven pump. Development work was also actively pushed ahead in the north section. Blocking-out was carried out in the south-west section and later in the mid-east and east sections. The northern section has also been actively developed during the year, and on account of the undulating floor, many ventilation and trucking drives have been driven in order to facilitate the mining of the lower-lying alluvial material. Blocking-out has taken place in the various sections in auriferous wash varying from a few inches up to 6 ft. in thickness, sometimes lying on a soft-rock bottom, but often on a false bottom

of quartz sand. Auxiliary electric pumps are used for pumping when the development drives commence to dip. The drives are all timbered with sets lathed on top and sides and the blocking strips are taken out on blocking sets close lathed on top. Where it is necessary to hold the blocked-out ground, timber bulkheads or pigsties are used. A large amount of timber is used and the major portion is obtained from the bush five miles up the Winding Creek. Some timber is now being obtained from the Waikaia Bush. An average of 56 men has been employed in the mine during the year. The gold won amounted to 4,386 oz. 10 dwt. 4 gr., valued at £28,303 11s. 8d. The total yield of gold since commencing operations is 8,797 oz. 17 dwt. 1 gr., valued at £53,563 16s.

*A. Mutch, Happy Valley, Waikaia.*—Four men have been actively employed sluicing a shallow mixed deposit in Happy Valley in the neighbourhood of the first Waikaia Township.

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

*The Terrace Gold-mining Co., Waimumu, Gore* (Mr. R. J. Kubala, Manager).—Intermittent mining operations were carried on by pumping and sluicing methods on the left-hand terrace of the Waimumu Stream below the Gore–Hedgehope Road bridge. During the year the 75 h.p. electric motor has been disconnected and the 7 in. centrifugal nozzle pump is now belt-driven by a steam-engine. Local Waimumu lignite is used for steaming purposes. The gold won amounted to 293 oz. 2 dwt. 5 gr., valued at £1,965 1s. 7d.

*The Rand Gold-mining Co.* (now known as the Stewart Gold-mining Co., Ltd.), *Little Waikaka Valley* (R. T. Stewart, Superintendent).—Seven men have been employed. A 114 b.h.p. Ruston-Hornsby Diesel engine and a Ruston 7 in. single-stage centrifugal pump, lifting four heads of water into the service reservoir, at an elevation of 170 ft. above the pump have been installed and have given every satisfaction. The second pumping out, designed to boost the pressure on the main line, failed to come up to the maker's specification and has been replaced by an electrically operated pump which has lately been installed and is giving very satisfactory service. The last-mentioned pump was made by Messrs. Thomson and Co. of Castlemaine. It is a 9 in. single-stage centrifugal type designed for a head of 120 ft. This pump is directly connected to a 50 h.p. auto-synchronous electric motor made by Messrs. Crompton and Parkinson, England. The main pipe-line has now been extended to the special claim and the work of opening out a face is now in progress. The ground is over 80 ft. in depth in places. The bottom wash will be lifted by means of a gravel-pump when the overburden, which nearly all contains gold, has been removed by ground-sluicing. In opening out, a hydraulic elevator is being used to lift the material into the gold-saving boxes, the tailings being stacked on dredged ground alongside the workings. A 2¼ in. jet is used in the elevator and a 2 in. tip on the sluicing nozzle, the pressure on the main line being 80 lb. per square inch. Three shifts are being worked with the water delivered into the reservoir by the Diesel pumping plant.

During the year there has been considerable activity on the Southland beaches from Waikawa to the Bluff, and some experimental plants will probably be tried out during 1934. At Waikaia, Waikaka, Gore, Waimumu, Mataura River, Athol, Nokomai, Riversdale, Wyndham, Bush Siding, Haldane, Wallace Beach, Otare, Waituna, and Awarua Plains there were 194 men engaged fossicking, prospecting, cradling, sluicing, elevating, driving, sinking, and treating beach sands for a return of 1,612 oz. 11 dwt. 4 gr., amounting to £11,153 6s. 8d. The chief producers were Alexander Mutch and party, Happy Valley, Waikaia; Stewart Gold-mining Co., Little Waikaka; A. Copeland, Victoria Gully, Nokomai; and A. J. Cummings and party, Haldane.

*Wallace County.*

*Round Hill Gold-mining Syndicate.*—The seven tributers worked island blocks and barrier pillars in the old workings by sluicing and elevating methods until the water was required by the Round Hill Mining Co.

*Round Hill Gold-mining Co., Ltd.*—During the year this company has been actively engaged in reconditioning and repairing water-races and pipes; also cutting and grading new pipe-tracks and laying pipe-lines down to the claim lying between the Riverton–Orepuki Road and railroad. Forty miles of water-race has been scrubbed and repaired; 24 chains of 27 in. pipes reconditioned, tarred, and laid; 44 chains of new 27 in. pipes, 18 chains of 21 in. pipes, and 74 chains of 18 in. pipes laid. The total length of line laid is two miles. Gold-saving tables have been built; ripple run, 90 ft., hopper-plates, 18 ft.; side tables, twenty-four mats on each side, with a total of forty-eight mats; tail ripples, 36 ft. The pipe-line was filled on the 29th July, 1933, and sluicing was started on the 31st July. The elevator is now in position, elevating 71 ft. Ground worked to date about 1 acre, average depth 50 ft. A workshop has been built, size 38 ft. by 44 ft. An electric-light line has been erected to the claim, with one search-light of 1,100 watt; one lamp 300 watt; two 60 watt on the tables. An electric welder was installed in the workshop. An average of seventeen men was employed. The gold won since sluicing and elevating operations were commenced amounted to 175 oz. 19 dwt. 4 gr., valued at £986 1s. 8d.

*Orepuki Mining Syndicate.*—This syndicate has been actively employed sluicing away an area in the old township which was driven out in the early days.

*Orepuki, Round Hill, Longwood, Riverton, Tuatapere, Waiau, Te Oneroa, West Coast Sounds, and Stewart Island.*—There have been 130 men employed fossicking, prospecting, cradling, sluicing, elevating, driving, and sinking on the alluvial and sea-beach areas. The gold won amounted to 1,208 oz. 2 dwt. 1 gr., valued at £7,696 13s. 10d. The chief producers were the Round Hill Mining Syndicate and the Orepuki Mining Syndicate.

*Preservation Inlet and West Coast Sounds.*—Several parties have been prospecting during the past year, but no discoveries of importance have been made.

*Canterbury and Various.*

*Canterbury.*—Very little gold has been won in the Ashburton, Raikaia, or Taumutu beaches during the year. No find of any importance has been recorded. Five men won 3 oz. 3 dwt. 12 gr., valued at £19 7s. 11d.

*Taieri County.*—Twenty-six men were employed fossicking, prospecting, sluicing, driving, and sinking, winning 14 oz. 4 dwt. 2 gr., valued at £86 11s.

*Bruce County.*—Sixteen men were employed fossicking, prospecting, sluicing, driving, and sinking, winning 12 oz. 8 dwt., valued at £74 9s.

*Clutha County.*—Ten men were employed fossicking, prospecting, sluicing, driving, and sinking, winning 7 oz. 14 dwt., valued at £42 2s. 5d.

*Waikouaiti County.*—Twenty-two men were employed fossicking, prospecting, sluicing, driving, and sinking, winning 14 oz. 4 dwt. 2 gr., valued at £86 11s.

DREDGING.

*Goldfields Dredging Co.* (S. Chapman, Dredgemaster).—This claim and dredge were formerly the property of the Golden Terrace Gold-dredging Co. Messrs. Sparrow and Sons took over the plant and claims, and from the 1st January to the 7th August 1,076,320 cubic yards was dredged and 874 oz. 5 dwt. 18 gr. of gold recovered, which realized £6,566 13s. 11d., an average of 1·1d. per cubic yard. In August the Goldfields Dredging Co. took possession, and up to the end of the year had dredged 600,000 cubic yards for 390 oz. 3 dwt. 21 gr. of gold, which realized £2,550 10s., an average of 1·02d. per cubic yard.

*Nevis Diesel Electric Dredge* (D. Caithness, Dredgemaster).—The Upper Nevis Dredging Co. produced 164 oz. 8 dwt. of gold, which realized £1,018 8s. 8d. Another company was formed and took over the dredge and claims on 7th August, 1933. The original bucket-line was replaced by one of fifty new buckets each of 7 cubic feet capacity.

These are carried on a ladder, 105 ft. long between the centres of the tumblers, and the line is driven by a 100 h.p. A.S.E.A. slip-ring motor through a rope drive to a counter-shaft, thence by a belt drive to the top tumbler gearing which gives a speed of 10½ buckets per minute. The special features of the dredge's reconstruction are: A water-sealed bottom tumbler, a double crown-wheel and a standby plant of two sets of Ruston-Hornsby crude oil-engines totalling 300 h.p. and running at 375 r.p.m. Each engine is directly coupled to a 100 kv.a. 400-volt A.S.E.A. generator with a power-factor of 0·8. The current from the generators is stepped-up to 6,000 volts for transmission to the dredge. All power is controlled from a well-equipped switch-board. Oil-storage tanks of 90 tons capacity are installed both at Cromwell and Nevis. If no unexpected delays occur dredging will commence early in 1934.

*Nevis Crossing Dredge* (S. Fache, Dredgmaster).—This dredge, which has been idle for several years, was formerly owned by a small syndicate. It has been bought by Mr. S. Fache, who is making preparations to overhaul the pontoons and machinery with the intention of carrying on dredging operations on some unworked ground left by former miners.

*Freshford Gold-dredging Co., Ltd.* (Part of Block I, Wendon Survey District, Waikaia, Southland; R. M. Smail, Dredgemaster).—Eight men employed. This steam-driven dredge commenced operations in March, 1933, on ground which proved to be shallow and tight. Deeper ground was reached, but a considerable amount of heavy clay had to be dredged. The returns have been poor, and further boreholes are to be drilled to test the area ahead. The result of the operations shows the necessity for accurate check boring of all dredging areas before a dredge is built. The total quantity of gold won amounted to 471 oz. 13 dwt. 20 gr., valued at £2,956.

### Minerals other than Gold.

*Tungsten.*—No scheelite was produced during the year. Values are now rising, and if the demand increases, some of the mines will probably be producing in 1934.

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

*Platinum.*—3 oz. 10 dwt. of platinum was obtained in the Orepuki district, Wallace County, the estimated value being £6 1s. 8d. per ounce. Total estimated value, £21 5s. 10d.

### Fatal Accidents.

There were three lives lost during the year, one by drowning and two by a fall of rock.

On the 14th July Mark Holmes was drowned in the Kawarau River, which was in high flood at the time, while attempting to get another mooring-line on to a pontoon in the Lady Ranfurly claim. The body was not recovered.

At some period between the 17th and 19th of July, J. L. Cochrane and T. Livingstone were killed by a fall of rock when working on their claim on the west bank of the Kawarau River, near Waitiri. They had been dead for some time when their bodies were found. They were engaged in cradling alluvial wash which was removed from among the large rocks on a bank above the river. Heavy rain had fallen previously, and the fatalities were attributed to a slip which was caused by the disturbance of a key-rock in their claim.

### Non-fatal Accidents.

Bart Black, miner, was injured at the King Solomon Deep Leads Mine, Waikaia, at 3.30 a.m. on the 18th July. He suffered a fractured tibia and fibula. He and his mate were timbering on the midnight to 8 a.m. shift. A false set swung forward and knocked out the face set. The cap piece fell and caught Black by the ankle. Jim Law, on jumping clear, fell over the truck, injuring two of his ribs.

William Crockett, trucker, was injured at the Makaeroa Quarry, near Dunback, at 7.45 a.m. on the 30th September. A rectangular stone fell from the steam-shovel bucket and hit Crockett's left heel, fracturing the heel bone.

Roman John Kubala, claim-manager, was injured at the Terrace Gold-mining Co.'s claim, Waimumu, at 10 a.m. on the 24th November. He was blasting lignite clay boulders. One shot exploded before he was clear, and he sustained injuries to his right hand necessitating amputation at the wrist joint.

### Boring.

*Cromwell* (W. Campbell, Superintendent).—The following boring operations were carried out during the past year: The Bendigo Deep Lead Syndicate bored 1,598 ft., and then the area tested was taken over by a company which is placing a dredge on the property. At Quartz Reef Point 603 ft. was bored by the same syndicate. The depths varied from 50 ft. to 136 ft., and the values were discouraging. The Mines Department's steam keystone drill and 6 in. casing were used.

*Nevis* (J. Stevenson's Area; A. E. Bamgarton, Superintendent).—The Alluvial Gold (Australia) sent their superintendent, crew, and their machine to bore this area. Ten holes, totalling 395 ft., were bored, 5 in. casing being used.

*Matakanui.*—The Sinclair Syndicate bored eight holes, totalling 231 ft., at Matakanui. No. 3 alluvial drill was used with 6 in. casing. W. Gibson, superintendent.

*Arrowtown.*—The same syndicate used the No. 3 alluvial drill to bore fifteen holes, totalling 532 ft., at Arrowtown. No values recorded. W. Gibson, superintendent.

*Big Beach, Shotover* (P. O. Shiel, Superintendent).—The Goldfields Dredging Co. bored three holes, totalling 86 ft., with the No. 3 alluvial drill and 6 in. casing. Four holes, totalling 89 ft., were bored with a smaller machine, using 3 in. casing.

#### *Maniototo County.*

*St. Bathan's.*—Two holes were drilled on the township side of the Kildare Consolidated Gold-mining Co.'s workings by the Manuherikia Development Syndicate. No. 1 hole reached bedrock at 232 ft.; No. 2 hole was drilled to a depth of 412 ft., but did not reach bedrock. The casing could not be driven farther. J. Stewart's 6 in. Keystone type drill, using 6 in. casing, was employed for the work. George Nelson, supervisor.

*Canadian Flat, Upper Taieri.*—Three holes were drilled by Investigations Ltd. to a total depth of 125 ft. Depths varied from 33 ft. to 51 ft.

*Poolburn District, Ida Valley.*—One hole was drilled to a depth of 105 ft. for Mining House, Ltd. N. Page, superintendent.

#### *Tuapeka County.*

*Teviot Survey District.*—Part of Block II, on the west bank of the Clutha River, between the Roxburgh–Alexandra Main Road and the river: Five holes were drilled with a total depth of 314 ft., the depths varying from 36 ft. to 75 ft.; 6 in. casing was used. M. McDougall, drill superintendent.

*Teviot Survey District.*—Four holes were drilled by Industries Ltd. on the Hammond-Broad-Crossan claim in part of Section 2, between the Roxburgh–Alexandra Main Road and the river, one mile west of Roxburgh Post-office; 3 in. casing was used. H. T. Gordon, supervisor.

*Island Block.*—The Mining Trust, Auckland, and Australian Gold Development drilled an area alongside the Beaumont–Roxburgh Main Road. Two machines were used—Keystone type, using 6 in. casing; W. Bowden, drill superintendent; J. Stewart's steam-driven machine; M. McDougall, drill superintendent; E. T. Anderson, supervisor.

*Southland County.*

*Waimumu.*—Five holes were drilled by Mining House on the left-hand terrace on the western side of the Gore–Hedgehope Main Road. N. Page, superintendent.

*Goldfields Reserve, Otara Survey District.*—The Fraser Syndicate bored eleven holes with a total depth of 371 ft., depths varying from 17½ ft. to 37 ft., on the Goldfields Reserve, Waipapa Beach, Otara Survey District. Drill superintendent, M. McDougall. Four-inch casing used.

*New Zealand Mining Investments, Ltd.*—Two holes were drilled in the Wendon Survey District in areas adjoining the King Solomon Deep Leads mining areas. Total depth drilled, 114 ft. A Keystone type machine was used, with 5½ in. casing. G. Mellor, drill superintendent.

Eight holes were also drilled by New Zealand Investments, Ltd., on Hamer's prospecting area at Gows Burn, Waikaia. Total depth, 237 ft. Depths varying from 10 ft. to 47 ft. G. Mellor, drill superintendent.

*Wallace County.*

Investigations Ltd. are now engaged drilling in the Pahia area of Block V, Longwood Survey District.

GENERAL REMARKS.

There was great activity during the year and all the old mining fields are being searched.

Island blocks, barrier pillars, and areas which were previously driven out are being sluiced; other island blocks, where water cannot readily be obtained, are being driven out.

The sea-beaches from Taieri Mouth to the Waiau are still receiving attention, but very little work has been done on the Canterbury beaches. The various reefing areas are being prospected, but very little of importance has been located.

Areas in various parts of Otago and Southland have been drilled, shallow areas by hand plant and deeper areas by steam- and oil-driven Keystone type drilling-plants. The Department's No. 2 steam-driven Keystone drill, and the No. 3 oil-driven alluvial-drill, have been drilling areas during the year; also several private drilling plants have been in operation for varying periods.

The increase in the quantity of gold won by alluvial mining amounted to 3,048 oz. 5 dwt. 9 gr., with an increase in value of £27,429 3s. 5d. The number of men increased by 1,114. The present high price of gold and the continued state of depression stimulates the regular producers and induces persons out of employment to take on fossicking and prospecting for gold.

This season has not been satisfactory for the regular or subsidized miners working in the bed and on the banks of the Shotover, Arrow, Kawarau, Clutha, or Molyneux Rivers, on account of floods and abnormally high rivers for long periods. Similar conditions have prevailed on the Manuka Creek, and the Waikouaiti, Shag, and Maerewhenua Rivers. Many of the new sluicing claims have not yet reached the production stage, the whole year being spent in preparatory work. The King Solomon Deep Leads Mine has been a steady producer during the year.

The decrease in the quantity of gold won by quartz-mining amounted to 1,300 oz. 19 dwt. 20 gr., with a decrease in value of £7,422 13s. 7d. This decrease is accounted for owing to the closing-down of the Golden Point at Macrae's for practically the whole year, and to the small tonnage of quartz crushed by the Golden Progress Mine at Oturehua, where prospecting work has been carried on for the greater part of the year. The number of men employed decreased by twenty-two.

The quantity of gold won by dredging increased by 1,200 oz., with an increase in value of £9,271. This increase is due to the operation of the Freshford Dredge at Waikaia and to the increased production of the Golden Terrace Dredge, which operated for part of the year under the ownership of John Sparrow and Sons, and during the latter part of the year as the Goldfields Dredging Co. The number of men employed increased by fourteen.

During the year the subsidized county mining schemes in the Vincent, Lake, Maniototo, and Tuapeka Counties, together with the 8A Subsidy Scheme in the remainder of Otago and Southland, have been in operation. While no discoveries of importance have been recorded, returns are being won in many cases and records are being obtained from the many areas now being tested and prospected. The work is healthy and interesting and the men are generally enthusiastic.

During the year large areas were pegged and applied for, especially in the Vincent, Lake, Maniototo, and Tuapeka Counties. On account of the great increase in the inspection work of this district, it was found necessary to appoint some one to assist in the work. Mr. George W. Lowes, mining engineer, who has been advising the Unemployment Board and the County Mining Executives, was appointed in October to act as Inspector of Mines for the Lake and Vincent Counties.

# ANNEXURE B.

## STONE QUARRIES.

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

(JAMES NEWTON.)

I have the honour to present my annual report for the year ending 31st December, 1933, having reference to the working of quarries within the scope of the Stone Quarries Act, 1910.

As a general rule, I have found during inspection that the responsible persons upon whom the duties of carrying out the requirements of the Act with regard to the safe winning of the stone have shown a reasonable appreciation of their duties, and very rarely have I found it necessary to voice a complaint regarding their methods of working or any unsatisfactory conditions of the quarry-face.

In most of the quarries operated where, owing to the shattered, erratically jointed rocks (which are frequently traversed by treacherous "backs" or slicken-sides), it is impossible to lay down a hard-and-fast rule or method of working. I generally counsel a method of keeping the quarry faces on a reasonable backward gradient, thereby assuring support to the upper portions of the quarry-face. In very few quarries throughout my inspectorate is the strata so disposed that a strict method of benching could reasonably be enforced.

The output of all classes of stone during 1933 amounted to 570,426 tons, which, when compared with the previous year, discloses a decrease of 62,926 tons. The value at the quarry-face decreased by £22,966. The decreased output of quarries may be attributed mainly to the fact that the Public Works Department is obtaining an increasing proportion of stone from its own quarries. These quarries are not subject to the provisions of the Stone Quarries Act, and returns therefrom are not available.

The year under review has not been free from serious accidents when measured by the standard laid down by the Act, but, fortunately, there was no loss of life.

On the 6th June, R. W. Thompson was injured in the Wainui Tunnel, Lower Hutt. He was engaged in jacking up the steel concreting casing at the time of the accident. The jack slipping caused the timber, supporting the casing, to tilt, the timber falling and crushing his chest and ribs. No bones, however, were fractured.

On the 19th June, in the Wainui Tunnel, J. G. Stevens was injured by being struck on the back of the head, the result being slight concussion, but no fracture. None of the employees appeared to know just what caused the injury, but expressed the opinion that most likely the injury was caused by Stevens rising from a stooping position and coming in contact with a bar that was lying crosswise on the metal truck, by the side of which he was working.

On the 26th June, Frank Bullock, employed in Gallagher's Quarry, Kaukapakapa, received a fractured skull, the result of being struck by a shingle stone which fell from the upper reaches of the quarry-face. The material quarried is a shingle conglomerate, and, apparently one of the stones (approximately about the size of a hen's egg) became detached and struck Bullock whilst he was shovelling in a stooping position.

On the 11th August, in the Te Kuiti Agricultural Limestone Quarry, D. O'Connell received a rather badly crushed toe the result of a stone falling whilst he was loading it into a truck.

On the 28th November, W. Martin, employed in the Waro Quarry, had his big toe fractured, the result of a large stone rolling on to his foot whilst spalling.

# 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, 1933.

| 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. .. | 593 | 175,812 0 0 0 | .. | 418,981 0 0 | 400,071 0 0 |
| Waihi Grand Junction Gold Co. | 47 | 24,804 0 0 0 | .. | 64,187 0 0 | 66,649 0 0 |
| | 640 | 200,616 0 0 0 | .. | 483,168 0 0 | 466,720 0 0 |
| **OHINEMURI COUNTY.** | | | | | |
| Karangahake— | | | | | |
| Talisman-Dubbo .. .. | 4 | 405 9 0 0 | .. | 2,210 8 0 | 2,326 10 10 |
| New Talisman .. .. | 2 | 35 13 0 0 | .. | 27 11 8 | 75 12 3 |
| Crown .. .. .. | 3 | 99 16 0 0 | .. | 555 15 8 | 564 17 1 |
| Imperial .. .. .. | 3 | 10 11 0 0 | .. | 14 15 5 | 30 13 8 |
| Waiawa .. .. .. | 3 | 18 13 0 0 | .. | 30 2 8 | 92 8 11 |
| Owharoa— | | | | | |
| Golden Dawn .. .. | 98 | 8,047 0 0 0 | .. | 16,716 0 0 | 35,681 9 6 |
| Waitekauri— | | | | | |
| Old Maoriland .. .. | 1 | 9 4 0 0 | .. | 23 18 12 | 55 13 7 |
| Scotia .. .. .. | 2 | 51 7 0 0 | .. | 93 11 1 | 203 17 9 |
| Prospectors .. .. .. | 7 | 172 0 0 0 | .. | 482 6 0 | 1,069 7 1 |
| | 123 | 8,849 13 0 0 | .. | 20,154 7 18 | 40,100 10 8 |

Table 1—*continued.*

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE NORTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1933—*continued.*

| Locality and Name of Mine. | Average Number of Men employed. | Quartz crushed. | Bullion obtained. | | Value. |
|---|---|---|---|---|---|
| | | | Amalgamation. | Cyanidation. | |
| **THAMES BOROUGH.** | | | | | |
| Thames— | | Tons cwt. qr. lb. | Oz. dwt. gr. | Oz. dwt. gr. | £ s. d. |
| Golconda | 8 | 174 0 0 0 | 67 8 0 | .. | 327 5 1 |
| Evening Star / Lucky Shot | 23 | 146 0 0 0 | 427 14 0 | .. | 1,995 2 7 |
| Cambria | 2 | 7 10 0 0 | 9 14 0 | .. | 44 4 9 |
| Waiotahi | 3 | 40 0 0 0 | 62 12 0 | .. | 281 11 8 |
| Kuranui Golden Hills | 25 | 30,000 0 0 0 | 243 19 0 | .. | 998 8 1 |
| Hopeful | 2 | 20 0 0 0 | 39 19 0 | .. | 193 0 6 |
| Gold Seal | 1 | 0 10 0 0 | 6 5 0 | .. | 20 5 2 |
| Hit-or-Miss | 2 | 7 0 0 0 | 5 9 0 | .. | 25 14 7 |
| Blue Jumbo | 2 | 6 0 0 0 | 24 5 0 | .. | 119 8 11 |
| Christmas Eve | 3 | 8 5 0 0 | 14 15 0 | .. | 71 5 6 |
| Occidental | 1 | 20 0 0 0 | 4 5 0 | .. | 13 14 5 |
| North Star | 2 | 2 10 0 0 | 2 2 0 | .. | 8 16 10 |
| Golden Hills | 3 | 2 10 0 0 | 1 11 0 | .. | 7 16 6 |
| Siam | 2 | 7 10 0 0 | 42 7 0 | .. | 206 7 11 |
| Prospectors | 32 | 47 10 0 0 | 84 17 0 | .. | 351 13 5 |
| School of Mines | .. | .. | 2 7 0 | .. | 10 9 5 |
| Collections | .. | .. | 48 8 0 | .. | 182 12 3 |
| | 111 | 30,489 5 0 0 | 1,087 17 0 | .. | 4,857 17 7 |
| **THAMES COUNTY.** | | | | | |
| Waiomio— | | | | | |
| Zechan and Monowai | 10 | 286 0 0 0 | .. | 1,039 8 0 | 791 0 0 |
| Prospectors | 21 | 69 10 0 0 | 87 0 0 | .. | 448 12 0 |
| | 31 | 355 10 0 0 | 87 0 0 | 1,039 8 0 | 1,239 12 0 |
| **COROMANDEL COUNTY.** | | | | | |
| Coromandel— | | | | | |
| Hauraki | 9 | 38 0 0 8 | 56 11 0 | .. | 305 12 4 |
| Waikoromiko— | | | | | |
| Four-in-Hand | 3 | 0 3 0 0 | 19 11 0 | .. | 94 9 0 |
| Lone Hand | 3 | 1 0 0 0 | 26 1 0 | .. | 122 12 3 |
| Colville— | | | | | |
| Long Trail | 6 | 131 0 0 0 | 73 11 0 | .. | 324 0 10 |
| Bot | 2 | .. | 2 12 0 | .. | 10 14 7 |
| Kapowai— | | | | | |
| Kapowai Amalgamated | 5 | 331 0 0 0 | 44 4 0 | .. | 173 1 10 |
| Waitekauri— | | | | | |
| Waitekauri | 2 | 0 1 0 0 | 3 9 0 | .. | 21 0 3 |
| Tokatea— | | | | | |
| Solomon's Reefs | 2 | 1 10 0 0 | 0 10 0 | .. | 2 5 0 |
| Kuaotuna— | | | | | |
| Handsworth | 2 | 1 10 0 0 | 13 0 0 | .. | 54 3 8 |
| Prospectors | 28 | 30 14 3 13 | 61 18 0 | .. | 404 15 4 |
| | 62 | 534 18 3 21 | 301 7 0 | .. | 1,512 15 1 |
| **PIAKO COUNTY.** | | | | | |
| Te Aroha— | | | | | |
| Huia | 3 | 6 3 0 0 | .. | 8 2 0 | 21 17 7 |
| **SUMMARY.** | | | | | |
| Waihi Borough | 640 | 200,616 0 0 0 | .. | 483,168 0 0 | 466,720 0 0 |
| Ohinemuri County | 123 | 8,849 13 0 0 | .. | 20,154 7 18 | 40,100 10 8 |
| Thames Borough | 111 | 30,489 5 0 0 | 1,087 17 0 | .. | 4,857 17 7 |
| Thames County | 31 | 355 10 0 0 | 87 0 0 | 1,039 8 0 | 1,239 12 0 |
| Coromandel County | 62 | 534 18 3 21 | 301 7 0 | .. | 1,512 15 1 |
| Piako County | 3 | 6 3 0 0 | .. | 8 2 0 | 21 17 7 |
| Totals, 1933 | 970 | 240,851 9 3 21 | 1,476 4 0 | 504,369 17 18 | 514,452 12 11 |
| Totals, 1932 | 838 | 216,562 18 2 26 | 1,311 1 4 | 648,428 4 10 | 555,994 7 6 |

**Table 1**—*continued.*

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE WEST COAST INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1933.

| Locality and Name of Mine. | Average Number of Men employed. | Quartz crushed. | Bullion obtained by | | Value. |
|---|---|---|---|---|---|
| | | | Amalgamation. | Cyanidation and Concentration. | |
| **INANGAHUA COUNTY.** | | | | | |
| Snowy River— | | Tons cwt. qr. | Oz. dwt. gr. | Oz. dwt. gr. | £ s. d. |
| Homer .. .. .. | 2 | 48 0 0 | 21 6 9 | .. | 123 12 10 |
| Waiuta— | | | | | |
| Blackwater Mine .. .. | 230 | 45,366 0 0 | 17,894 8 0 | 4,727 4 0 | 163,935 6 5 |
| Crushington— | | | | | |
| Wealth of Nations .. .. | 3 | .. | .. | 91 5 0 | 797 8 4 |
| Alexander River— | | | | | |
| Alexander .. .. .. | 51 | 4,426 0 0 | 2,485 5 0 | 1,542 13 0 | 28,103 9 3 |
| Big River— | | | | | |
| Big River .. .. .. | 25 | 1,520 0 0 | 772 3 0 | 56 4 0 | 6,030 4 1 |
| **BULLER COUNTY.** | | | | | |
| Stoney Creek— | | | | | |
| Britannia .. .. .. | 6 | 345 0 0 | 186 10 0 | 9 1 12 | 1,349 2 9 |
| **ROSS BOROUGH.** | | | | | |
| Ross— | | | | | |
| Mt. Greenland .. .. | 6 | 488 0 0 | 377 11 0 | .. | 1,887 15 0 |
| Totals, 1933 .. | 323 | 52,193 0 0 | 21,737 3 9 | 6,426 7 12 | 202,226 18 8 |
| Totals, 1932 .. | 311 | 47,887 0 0 | 25,334 1 0 | 7,086 14 0 | 189,801 10 1 |

STATEMENT SHOWING THE QUANTITY OF QUARTZ CRUSHED AND BULLION OBTAINED IN THE SOUTHERN INSPECTION DISTRICT FOR THE YEAR ENDED 31ST DECEMBER, 1933.

| 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 .. .. | 2 | 80 0 0 | 72 4 12 | .. | 484 13 11 |
| **VINCENT COUNTY.** | | | | | |
| Fruitlands— | | | | | |
| R. T. Symes .. .. .. | 2 | 4 0 0 | 6 5 8 | 3 10 0 | 59 13 8 |
| **WAIHEMO COUNTY.** | | | | | |
| Macrae's Flat— | | | | | |
| Golden Point .. .. .. | 1 | 368 0 0 | 45 17 22 | 60 0 18 | 510 16 6 |
| Ounce Ltd. .. .. .. | 2 | 6 0 0 | 1 9 9 | .. | 9 0 2 |
| Callery and Bradbrook .. .. | 4 | 745 0 0 | 183 9 13 | .. | 1,162 0 7 |
| Highlay— | | | | | |
| T. and W. Tate .. .. | 3 | 125 0 0 | 89 9 6 | .. | 552 13 9 |
| **MANIOTOTO COUNTY.** | | | | | |
| Oturehua— | | | | | |
| Golden Progress .. .. | 18 | 247 0 0 | 318 19 0 | 30 0 0 | 2,233 11 1 |
| Totals, 1933 .. | 32 | 1,575 0 0 | 717 14 22 | 93 10 18 | 5,012 9 8 |
| Totals, 1932 .. | 50 | 5,247 0 0 | 2,112 5 12 | .. | 12,435 3 3 |

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) .. .. | 970 | 240,851 | 505,846 1 18 | 514,452 12 11 |
| West Coast (South Island) .. .. | 323 | 52,193 | 28,163 10 21 | 202,226 18 8 |
| Southern (Otago and Southland) .. .. | 32 | 1,575 | 811 5 16 | 5,012 9 8 |
| Totals, 1933 .. .. | 1,325 | 294,619 | 534,820 18 7 | 721,692 1 3 |
| Totals, 1932 .. .. | 1,199 | 269,697 | 684,272 6 2 | 758,231 0 10 |

In addition, 236 persons were employed at unproductive quartz-mining.

## Table 2.

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

| Name of Company. | Date of Registration. | Subscribed Capital. | Amount of Capital actually paid up in Cash. | Value of Script 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. | £ | £ | £ | £ |
| Opitonui Developments, Ltd. | 11/6/33 | 5,000 | 2,134 | 2,000 | 5,000 | Various | 150 | 46 | Nil | Nil | Nil | 878 | Nil | 90 |
| Hauraki Mines Consolidated, Ltd. | 28/11/25 | 87,354 | 55,808 | 28,750 | 349,419 | Various | Nil | 1,101 | 1 | 353 | 1,547 | 44,761 | Nil | 405 |
| Golconda Mines, Ltd. | 12/5/32 | 7,992 | 5,223 | 3,197 | 223,791 | Various | 116 | 215 | 10 | 67 | 279 | 5,369 | Nil | 527 |
| Gold Exploration, Ltd. | 18/11/32 | 2,750 | 717 | 2,500 | 5,250 | 5/3 and 5/- | 4 | 24 | Nil | Nil | Nil | 703 | Nil* | Nil |
| Dawn of Hope Gold-mines, N.L. | 17/11/32 | 11,915 | 1,458 | 2,000 | 47,663 | 6d., 1/-, 1/3 | 231 | 119 | 3 | 400 | 1,628 | 1,598 | Nil | 28 |
| Golden Dawn Gold-mines, Ltd. | 20/11/29 | 20,000 | 16,010 | 1,798 | 80,000 | Various | Nil | 243 | 109 | .. | 70,643 | 88,557 | Nil | 2,241 |
| Talisman-Dubbo Gold-mines, Ltd. | 31/10/29 | 8,714 | 3,234 | 125 | 34,857 | Various | 16 | 71 | 11 | .. | 2,524 | 9,190 | 435 | 117 |
| Mount Campbell Gold-mining Co., Ltd. | 5/5/31 | 7,000 | 2,500 | .. | 7,000 | 20/- | Nil | 25 | 4 | Nil | Nil | 2,624 | Nil | 141 |
| Kuranui Golden Hills, Ltd. | 10/11/32 | 7,474 | 7,345 | Nil | 29,898 | 5/- | 129 | 65 | 1 | .. | 926 | 4,419 | Nil | 608 |
| Golden Crown Gold-mining Co., N.L. | 12/10/32 | 10,500 | 2,375 | Nil | 105,000 | 6d. and 2/- | Nil | 67 | 5 | Nil | Nil | 1,654 | Nil | Nil |
| Wairongomai Gold-mining Co., Ltd. | 8/11/33 | 1,538 | 615 | Nil | 12,307 | 1/- | 55 | 13 | 7 | Nil | Nil | 241 | Nil | Nil |
| Pursefiller Gold-mining Co., Ltd. | 15/2/33 | 7,751 | 2,343 | 2,250 | 155,020 | 6d. | 150 | 243 | 6 | Nil | Nil | 2,294 | Nil | Nil |
| **NELSON DISTRICT (INCLUDING WEST COAST).** | | | | | | | | | | | | | | |
| Western Mines, Ltd. | 19/6/33 | 1,115 | 515 | 600 | 4,463 | 5/- | Nil | 70 | 3 | Nil | Nil | 1,155 | Nil | 64 |
| Mataki Gold-dredging, Ltd. | 15/1/32 | 30,000 | 21,277 | 8,500 | 300,000 | 2/- | 25 | 561 | 15 | 530 | 3,421 | 27,109 | Nil | 3,666 |
| Glenroy Gold, Ltd. | 19/10/33 | 12,000 | 5,937 | Nil | 320,000 | 6d. | 62 | 226 | 2 | Nil | Nil | 4,321 | Nil | Nil |
| Bell Hill Gold-sluicing Co., Ltd. | 16/9/30 | 11,999 | 11,979 | 3,000 | 47,996 | 5/- | 20 | 182 | 8 | 309 | 2,668 | 15,297 | Nil | 710 |
| Charleston Sluicing Co., Ltd. | 8/2/33 | 6,775 | 6,775 | 1,725 | 170,000 | 1/- | Nil | 212 | 11 | 88 | 569 | 8,164 | Nil | 1,501 |
| Snowy River Sluicing Co., Ltd. | 10/12/31 | 26,116 | 15,996 | 9,000 | 522,325 | Various | 1,120 | 302 | 5 | 60 | 398 | 1,055 | Nil | 143 |
| Golden Sands, Ltd. | 1/2/32 | 4,000 | 4,000 | 2,000 | 120,000 | 1/- | Nil | 154 | 12 | 776 | 5,048 | 9,268 | 1,800 | 433 |
| Lawsons Flat Gold-sluicing Co., Ltd. | 4/2/33 | 17,143 | 13,436 | 3,000 | 342,875 | 1/- | 137 | 278 | 13 | 543 | .. | 19,498 | Nil | 1,425 |
| Moutapu Gold-mining Co., Ltd. | 25/11/30 | 3,584 | 1,595 | 1,989 | 71,680 | 1/- | 13 | 57 | Nil | Nil | Nil | 1,501 | Nil | Nil |
| Gold Investigations, Ltd. | 5/10/33 | 1,616 | 371 | 1,200 | 1,616 | Various | 23 | 57 | 2 | Nil | Nil | 497 | Nil | 156 |
| Worksop Extended Gold-dredging Co., Ltd. | 9/9/33 | 16,000 | 4,248 | 7,000 | 320,000 | Various | 553 | 110 | Nil | Nil | Nil | .. | Nil | 685 |
| Waikakaho Victory Gold-mining Co., Ltd. | 1/12/31 | 2,050 | 1,505 | 500 | 8,200 | Various | 45 | 117 | Nil | Nil | Nil | 1,638 | Nil | 241 |
| Pipers Flat Gold-mining Co., Ltd. | 25/7/33 | 7 | 4 | Nil | 140 | 6d. | Nil | 7 | 4 | Nil | Nil | 605 | Nil | 5,369 |
| New River Alluvials, Ltd. | 8/9/32 | 3,000 | 2,300 | 700 | 300 | £10 | Nil | 41 | Nil | Nil | Nil | 2,062 | Nil | 25 |
| Alexander Mines, Ltd. | 9/3/26 | 75,000 | 31,050 | 29,000 | 75,000 | 13/6 | Nil | 349 | 51 | 21,856 | 115,441 | 110,736 | 33,750 | 581 |
| Orion Gold Reefs Syndicate, Ltd. | 9/11/31 | 2,700 | 1,646 | 700 | 270 | Various | 33 | 28 | 1 | Nil | Nil | 1,542 | Nil | 10 |
| Moonlight Nelson Creek Sluicing Co., Ltd. | 1/8/33 | 14,500 | 13,534 | 1,500 | 320,000 | 1/- | 965 | 396 | 9 | Nil | Nil | 12,170 | Nil | 1,637 |
| Hatters Flat Mining Co., Ltd. | 1/9/33 | 4,900 | 3,551 | 1,100 | 120,000 | 1/- | 1,348 | 171 | 10 | Nil | Nil | 3,412 | Nil | 367 |
| Mahakipawa Goldfields, Ltd. | 12/10/23 | 38,889 | 33,362 | 15,603 | 856,089 | 1/- | Nil | 992 | 28 | 5,009 | 28,038 | 75,603 | Nil | 1,272 |
| Murray Creek Gold-mining Co., Ltd. | 12/7/32 | 29,355 | 10,467 | 17,500 | 29,355 | 20/- | 1,387 | 130 | 10 | Nil | Nil | 5,830 | Nil | 226 |
| New Big River Gold-mining Co., Ltd. | 19/8/07 | 2,400 | 2,400 | Nil | 24,000 | 2/- | Nil | 75 | Nil | .. | 396,173 | 298,784 | 112,800 | Nil |
| Big River Gold-mines, Ltd. | 29/9/31 | 25,000 | 22,145 | 2,855 | 500,000 | 1/- | Nil | 607 | 26 | 828 | .. | 18,456 | Nil | Nil |
| Gillespie's Beach Gold-dredging Co., Ltd. | 10/2/32 | 34,977 | 29,227 | 5,750 | 698,650 | 1/- | Nil | 603 | 15 | Nil | Nil | 26,309 | Nil | 4,174 |
| Mount David Sluicing Co., Ltd. | 2/9/30 | 30,000 | 30,000 | 20,000 | 200,000 | 5/- | Nil | 256 | 14 | 496 | 3,111 | 46,050 | Nil | 13,975 |
| Addison's Flat Gold-mining Co., Ltd. | 7/2/33 | 6,500 | 4,950 | 1,550 | 130,000 | 1/- | Nil | 102 | 11 | 217 | 1,452 | 5,384 | 812 | 90 |
| Eureka Gold Development, Ltd. | 16/11/32 | 2,000 | 1,216 | 750 | 2,000 | Various | 34 | 81 | Nil | Nil | Nil | 1,369 | Nil | 48 |
| Brian Boru Gold-dredging Co., Ltd. | 29/9/31 | 18,000 | 18,000 | 9,000 | 27,000 | 20/- | Nil | 228 | 20 | 1,000 | 7,211 | 26,181 | Nil | 2,159 |
| Okarito Five-mile Beach Gold-dredging Co., Ltd. | 29/10/28 | 35,000 | 30,500 | 4,500 | 140,000 | 5/- | Nil | 468 | 11 | 8,734 | 52,312 | 57,583 | 21,000 | 830 |
| Waitahu Gold-mining Co., Ltd. | 17/3/32 | 40,000 | 34,000 | 6,000 | 160,000 | 5/- | Nil | 371 | 12 | Nil | Nil | 34,756 | Nil | 1,798 |
| Buller Diversion Gold-mining Co., Ltd. | 13/3/28 | 10,634 | 6,343 | 3,125 | 49,910 | Various | 1,005 | 155 | 1 | Nil | Nil | 7,952 | Nil | 234 |
| Rimu Gold-dredging Co., Ltd. | 20/7/20 | 213,572 | 142,863 | 70,709 | 213,572 | 20/- | Nil | 35 | 46 | 148,063 | 678,034 | 450,219 | 36,441 | Nil |
| New Taitapu Gold Prospecting Co., Ltd. | 23/12/31 | 8,529 | 4,138 | 3,000 | 8,529 | 20/- | 13 | 91 | Nil | Nil | Nil | 4,329 | Nil | 861 |

## OTAGO DISTRICT.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Deep Lead, Ltd. .. .. .. .. | 9/3/32 | 5,000 | 4,600 | 400 | 50,000 | 2/- | 97 | 46 | 8 | 23 | 148 | 6,661 | Nil | 1,633 |
| Kildare Consolidated Gold-mining Co., Ltd. .. | 19/6/28 | 8,000 | 4,000 | 4,000 | 80,000 | 2/- | Nil | 169 | 10 | 2,310 | 11,462 | 13,706 | 1,000 | Nil |
| Golden Progress Quartz-mining Co., Ltd. .. .. | 26/10/28 | 14,755 | 10,805 | 3,950 | 147,550 | 2/- | Nil | 176 | 18 | 3,342 | 18,628 | 31,693 | 1,844 | 2,479 |
| Round Hill Gold-mining Co., Ltd. .. .. | 3/10/32 | 37,292 | 9,792 | 8,550 | 37,292 | 20/- | Nil | 30 | 15 | 175 | 1,209 | 16,033 | Nil | 391 |
| Moonlight Extended Gold-sluicing Co., Ltd. .. | 20/8/30 | 16,575 | 11,194 | 3,000 | 165,750 | Various | 333 | 140 | 23 | Nil | Nil | 10,828 | Nil | 406 |
| Oxenbridge Shotover Gold, Ltd. .. .. .. | 14/7/33 | 12,500 | 6,225 | .. | 250,000 | 9d. | Nil | 138 | 6 | Nil | Nil | 1,494 | Nil | 140 |
| Skipper's Sluicing Co., Ltd. .. .. .. | 20/11/11 | 3,450 | 345 | 3,105 | 3,450 | 20/- | Nil | 31 | * | 2,424 | 10,121 | 10,303 | Nil | 2,189 |
| Skipper's Ltd. .. .. .. .. | 10/7/33 | 56,850 | 28,090 | 18,000 | 1,497,000 | 6d. | Nil | 815 | 6 | Nil | Nil | 27,947 | Nil | 965 |
| New Gabriel's Gully Gold-mining Co., Ltd. .. | 16/9/33 | 16,800 | 1,345 | .. | 67,200 | 1/- and 6d. | Nil | 57 | 7 | 67 | 448 | 742 | Nil | 2,496 |
| Cromwell Mines, Ltd. .. .. .. .. | 18/7/33 | 500 | 400 | .. | 1,000 | 10/- | Nil | 18 | 2 | Nil | Nil | 314 | Nil | 2 |
| Otago Gold-prospecting Co., Ltd. .. .. .. | 4/7/33 | 3,050 | 1,466 | .. | 3,050 | 11/6 | Nil | 5 | 6 | Nil | Nil | 1,371 | Nil | 27 |
| Bell Hooper Cromwell Gold, Ltd. .. .. .. | 7/3/33 | 30,000 | 15,375 | 9,500 | 600,000 | 1/- and 9d. | Nil | 551 | 26 | 602 | 3,974 | 4,633 | Nil | 9,688 |
| Aotearoa Gold-prospecting Co., Ltd. .. .. | 16/8/32 | 4,000 | 2,500 | 1,500 | 80,000 | 1/- | Nil | 124 | 5 | Nil | Nil | 1,779 | 2,000 | 165 |
| King Solomon Deep Lead, Ltd. .. .. .. | 14/11/29 | 13,000 | 10,237 | 2,762 | 260,000 | 1/- | Nil | 465 | 60 | 8,797 | 53,563 | 45,963 | 9,750 | 591 |
| New Bendigo Gold-mining Co., Ltd. .. .. .. | 27/2/33 | 4,343 | 3,694 | Nil | 17,375 | 4/6 | 399 | 74 | 1 | Nil | Nil | 3,729 | Nil | 612 |
| Goldfields Dredging Co., Ltd. .. .. .. | 17/5/33 | 30,000 | 29,200 | Nil | 600,000 | Various | 800 | 550 | 11 | 390 | 2,550 | 30,392 | Nil | 595 |
| Maerewhenua Goldfields Development Co., Ltd. .. | 10/12/32 | 33,000 | 31,911 | .. | 920,000 | 1/- | 1,089 | 545 | 50 | Nil | Nil | 29,761 | Nil | 246 |
| Branches Flat Prospecting Co., Ltd. .. .. | 28/11/32 | 900 | 700 | 200 | 900 | 20/- | Nil | 17 | Nil | Nil | Nil | 424 | Nil | 5 |
| Mining House Concessions, Ltd. .. .. .. | 24/3/33 | 25,000 | 10,817 | Nil | 500,000 | 1/- | 1,735 | 379 | Nil | Nil | Nil | 8,617 | Nil | Nil |
| Coastal Mining Co., Ltd. .. .. .. | 2/10/33 | 2,405 | 2,014 | Nil | 2,405 | 15/- | 21 | 42 | 1 | Nil | Nil | 902 | Nil | 183 |
| Golden Point Gold and Scheelite Co., Ltd. .. .. | 6/8/30 | 16,973 | 6,778 | 10,000 | 659,475 | Various | 41 | 495 | 3 | 1,394 | 7,509 | 22,196 | Nil | 9,063 |
| Macrae's Flat Gold-prospecting Co., Ltd. .. .. | 28/9/31 | 1,100 | 511 | Nil | 1,100 | Various | 38 | 37 | Nil | Nil | Nil | 456 | Nil | 52 |
| Tallaburn Hydraulic Sluicing Co., Ltd. .. .. | 3/12/04 | 1,200 | 1,200 | Nil | 12 | £100 | Nil | 9 | 2 | 3,665 | 13,488 | 15,591 | 1,380 | Nil |
| Upper Shotover Gold-mining and Hydro Electric Co., Ltd. | 2/12/32 | 10,000 | 6,010 | 2,000 | 200,000 | 9d. and 1/- | Nil | 189 | .. | Nil | Nil | .. | Nil | 742 |
| New Cornish Point Mines, Ltd. .. .. .. | 1/8/33 | 12,000 | 3,512 | 4,975 | 240,000 | 1/- and 6d. | Nil | 274 | 5 | Nil | Nil | 492 | Nil | 94 |
| Fourteen-mile Beach Gold-mining Co., Ltd. .. | 14/10/32 | 6,250 | 5,650 | 600 | 12,500 | 10/- | Nil | 66 | 4 | 156 | 1,076 | 6,232 | Nil | 69 |
| Nokomai Gold-mining Co., Ltd. .. .. .. | 17/3/32 | 62,053 | 42,053 | 20,000 | 248,215 | 5/- | Nil | 550 | 33 | 1,272 | 7,421 | 48,847 | Nil | 9,006 |
| Shotover Reefs Development Co., Ltd. .. .. | 20/5/32 | 3,083 | 2,902 | .. | 12,332 | 5/- | 56 | 64 | .. | Nil | Nil | 2,990 | Nil | 115 |
| Sandhills Gold-mining Co., Ltd. .. .. .. | 21/9/33 | 24,000 | 15,000 | 9,000 | 480,000 | 1/- and 9d. | Nil | 167 | 10 | 1,192 | 4,562 | 20,974 | Nil | 7 |
| Sailor's Gully (Waitahuna) Gold-mining Co., Ltd. .. | 3/6/96 | 8,400 | 4,400 | 4,000 | 8,400 | 20/- | Nil | 26 | 7 | 14,185 | 58,823 | 46,877 | 12,875 | 119 |
| St. Bathan's Channel Co., Ltd. .. .. .. | 4/1/82 | 4,590 | 4,590 | Nil | 81 | £100, £40, £30 | Nil | 2 | .. | 1,507 | 5,817 | 11,171 | Nil | 17 |
| Bell-Kilgour Gold-mining Co., Ltd. .. .. | 23/6/33 | 28,500 | 28,500 | 6,500 | 700,000 | 1/- | Nil | 650 | 24 | 101 | 733 | 26,778 | Nil | 194 |
| Nevis Diesel Electric Dredging Co., Ltd. .. .. | 2/6/33 | 39,000 | 38,018 | Nil | 780,000 | 1/- | 981 | 806 | 13 | Nil | Nil | 36,572 | Nil | 4,384 |
| Vinegar Hill Hydraulic Sluicing Co., Ltd. .. .. | 23/9/00 | 6,000 | 6,000 | Nil | 6,000 | 20/- | Nil | 16 | 2 | 5,493 | 21,099 | 22,547 | 1,050 | 671 |
| Paddy's Point Gold-mining Co., Ltd. .. .. | 4/8/28 | 14,010 | 11,500 | 2,500 | 56,040 | 5/- | Nil | 194 | 7 | 2,013 | 11,524 | 21,636 | 1,396 | 630 |
| Bendigo Goldlight Dredging Co., Ltd. .. .. | 22/8/33 | 25,000 | 9,566 | .. | 500,000 | 3d. and 6d. | 133 | 356 | 8 | Nil | Nil | 7,630 | Nil | 1,376 |
| Lady Ranfurly Gold-mining Co. (Kawarau), Ltd. .. | 12/6/28 | 6,748 | Nil | 6,748 | 134,976 | 1/- | Nil | 47 | 1 | Nil | Nil | 511 | Nil | 104 |
| Central Shotover Gold-mining Co., Ltd. .. .. | 13/3/33 | 11,000 | 6,750 | .. | 220,000 | 9d. and 1/- | Nil | 204 | 14 | 308 | .. | 5,279 | Nil | 831 |
| Wetherstones Gold-mining Co., Ltd. .. .. | 5/10/32 | 65,000 | 42,000 | .. | 168,000 | 5/- | Nil | 520 | 28 | Nil | Nil | 40,222 | Nil | 2,390 |
| Golden Arrow Mining Co., Ltd. .. .. .. | 21/1/33 | 1,000 | 1,000 | 100 | 11,000 | 2/- | Nil | 32 | 7 | 106 | 693 | 1,446 | Nil | 67 |
| Gabriel's Gully Sluicing Co., Ltd. .. .. | 2/5/07 | 600 | 600 | Nil | 600 | 20/- | Nil | 9 | .. | 21,725 | 87,385 | 76,835 | 22,375 | 30 |
| Amalgamated Kawarau Gold-mining Co., Ltd. .. | 30/6/31 | 14,865 | Nil | 14,865 | 297,300 | 1/- | Nil | 175 | Nil | Nil | Nil | 3,514 | Nil | 1,102 |

* Let on tribute.

## 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. | £ | £ | £ | £ |
| Clutha Development, Ltd. .. .. .. | 27/8/24 | 15,000 | Nil | 5,000 | Nil | Nil | Nil | Nil | Nil | Nil | Nil | 6,844 | Nil | Nil |
| Consolidated Goldfields of New Zealand, Ltd. .. | 22/1/96 | 50,000 | Nil | 17,378 | 19,720 | 4/- | Nil | 141 | 6 | 178,315 | 765,479 | 973,536 | 17,362 | 1,590 |
| Blackwater Mines, Ltd. .. .. .. | 25/3/07 | 250,000 | Nil | 200,000 | 52,204 | 20/- | Nil | 189 | 230 | 465,308 | 2,069,354 | 1,643,891 | 39,365 | 7,045 |
| Waihi Gold-mining Co., Ltd. .. .. .. | 7/12/87 | 247,953 | 4,803 | 53,333 | 369,908 | 5/- | Nil | 1,658 | 640 | 25,419,478 | 18,165,721 | 10,974,404 | 1,378,130 | 39,768 |

# 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.

Wellington, 2nd July, 1934.

SIR,—

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, 1933, 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 1933. | | | | Total Output to the End of 1933. |
|---|---|---|---|---|---|
| | Northern District (North Island). | West Coast District (South Island). | Southern District (South Island). | Totals. | |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Bituminous and sub-bituminous | 96,499 | 747,346 | .. | 843,845 | 47,320,800 |
| Brown .. .. .. | 530,427 | 34,775 | 295,036 | 860,238 | 27,567,615 |
| Lignite .. .. .. | .. | 1,264 | 115,911 | 117,175 | 4,773,412 |
| Totals for 1933 .. | 626,926 | 783,385 | 410,947 | 1,821,258 | 79,661,827 |
| Totals for 1932 .. | 607,469 | 844,010 | 390,543 | 1,842,022 | 77,840,569 |

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 | | | | |

* Includes 21 tons shale.

The gross output of coal for 1933 was 1,821,258 tons, a decrease of 20,764 tons compared with that of the previous year. 4,386 men were employed at New Zealand coal-mines in 1933 and 4,636 men in 1932.

From the Northern District the output increased by 19,457 tons, due chiefly to the increased orders from the Railways for Waikato coal.

Through want of orders over 30,000 tons of small coal, from some of the Waikato Mines, had to be dumped. After being dumped the slack soon fires, and becomes a complete loss.

The large carbonization works at Rotowaro, specially put up to treat small coal, are closed temporarily, so the problem of finding full use of the Waikato slack coal still remains unsolved.

From the West Coast coal-mines the output was 60,625 tons less than during 1932, and from those in the Southern District the output increased by 20,404 tons. Many men had to be dismissed in West Coast and Southland mines, and the work concentrated in sections where the best and cheapest coal could be won.

In all districts the steadily decreasing demand for coal could be supplied from a much smaller number of mines than are being operated. Competition is very keen and many of the small West Coast mines had to be closed. Most of the others were worked for about half-time only.

The coal trade of New Zealand is, of course, not unique in finding itself with an excessive productive capacity. Sir Ernest A. Gowers, Chairman of the British Coal-mines Reorganization Commission in a recent speech said,—

> "There was no room for doubt that the long era of easy expansion of the coal industry was over. There was no prospect that even in the best of times markets could be found for anything like the total possible production.
>
> "On every side attempts were made to supersede *laissez-faire* with what was, at first, called rationalization, and then planning. The common feature of these schemes was that they moved away from unrestricted competition to co-operation.
>
> "They were of two main types. One was the amalgamating type and the other the federating type.
>
> "In respect to the coal-mining industry what was the proper form of organization?"

During the past year a compressed-air-driven coal-cutter, weighing only 16 cwt., was introduced into one of the larger of the Southern mines, and the use of coal-cutters is extending in the Waikato field.

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 1933. | Total Output to 31st December, 1933. | Total Number of Persons ordinarily employed. |
|---|---|---|---|---|---|
| | | | Tons. | Tons. | |
| *Northern District.* | | | | | |
| Hikurangi | Hikurangi | Sub-bituminous | 43,166 | 544,966 | 143 |
| Rotowaro | Huntly | Brown | 94,858 | 1,819,129 | 179 |
| Pukemiro | ,, | ,, | 69,370 | 2,132,051 | 138 |
| Wilton | Glen Massey | ,, | 97,100 | 221,226 | 246 |
| Glen Afton | Glen Afton | ,, | 44,315 | 1,474,992 | 93 |
| MacDonald | Waikokowai | ,, | 77,936 | 269,563 | 119 |
| Renown | ,, | ,, | 109,129 | 432,520 | 169 |
| Egmont | Tangarakau | ,, | 15,056 | 79,319 | 31 |
| *West Coast District.* | | | | | |
| Westport-Stockton | Ngakawau | Bituminous | 104,909 | 3,112,227 | 283 |
| Millerton | Millerton | ,, | 31,140 | 8,238,400 | 74 |
| Denniston | Denniston | ,, | 116,739 | 10,330,055 | 386 |
| Cardiff Bridge | Seddonville | ,, | 17,665 | 249,964 | 15 |
| Paparoa | Roa | Semi-bituminous | 27,319 | 737,492 | 37 |
| Blackball | Blackball | Bituminous | 35,980 | 3,987,500 | 81 |
| Blackball Creek | ,, | ,, | 19,154 | 44,257 | 42 |
| Liverpool (State) | Rewanui | ,, | 94,780 | 2,478,413 | 328 |
| James (State) | Rapahoe | Sub-bituminous | 32,910 | 371,907 | 74 |
| Dobson | Dobson | Bituminous | 57,999 | 633,706 | 170 |
| Wallsend | Brunnerton | ,, | 50,905 | 474,652 | 131 |
| *Southern District.* | | | | | |
| Kaitangata (2 collieries) | Kaitangata | Brown | 111,186 | 5,103,584 | 287 |
| Linton (2 collieries) | Ohai | ,, | 54,187 | 928,555 | 109 |
| Black Lion | ,, | ,, | 20,918 | 104,938 | 30 |
| Mossbank (2 collieries) | ,, | ,, | 29,208 | 417,998 | 65 |
| Birchwood No. 2 | ,, | ,, | 24,200 | 132,366 | 55 |
| 192 other collieries | All coalfields | Various | 441,129 | 10,228,013 | 1,101 |
| Collieries abandoned or suspended, &c. | Various | ,, | .. | 25,114,034 | .. |
| Totals | .. | .. | 1,821,258 | 79,661,827 | 4,386 |

## SECTION II.—PERSONS EMPLOYED.

| Inspection District. | Average Number of Persons employed during 1933. | | |
|---|---|---|---|
| | Above Ground. | Below Ground. | Total. |
| Southern | 282 | 667 | 949 |
| West Coast | 571 | 1,493 | 2,064 |
| Northern | 339 | 1,034 | 1,373 |
| Totals, 1933 | 1,192 | 3,194 | 4,386 |
| Totals, 1932 | 1,257 | 3,379 | 4,636 |

The following statement shows the tons of coal raised, persons employed, lives lost by accidents in or about collieries, &c., to 1933 :—

| 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 |
| Totals .. | 79,661,827 | .. | .. | .. | .. | .. | .. | 470 |

* 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 1933, 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 .. | 1 | 1 | .. | .. |
| Falls of ground .. .. .. | 2 | 2 | 7 | 7 |
| Explosives .. .. .. .. | .. | .. | .. | .. |
| Haulage .. .. .. .. | 1 | 1 | 3 | 3 |
| Miscellaneous—Underground .. .. | 1 | 3 | 1 | 1 |
| On surface .. .. | .. | .. | 1 | 1 |
| Totals .. .. .. | 5 | 7 | 12 | 12 |

The fatal accidents for the year under review were at the rate of 1·59 per thousand persons employed, and at the rate of 3·84 per million tons of coal produced.

Accounts of the different accidents are given in the reports of the District Inspectors (Annexure A).

Of the seven fatalities three men were asphyxiated in an old shallow shaft; two were killed by falls of coal in pillar workings; one by an explosion of firedamp and one by falling between loaded tubs which were being hauled up a dip drive.

Had a simple test been made of the air in the old shaft, before the first man descended it, no lives would have been lost there, and had the safety provisions of the Coal-mines Act been strictly complied with at the Paparoa Mine the gas explosion would not have occurred. Both of the men killed by falls of coal were engaged at pillar-extraction in the Stockton Mine. With a view to reducing the number of such accidents the timbering rules for that mine have been amended.

Short accounts of the fatal accidents are given in the District Inspector's reports for the Northern and West Coast districts. It is very pleasing to record that there was no fatal accident in the Southern District during the year. This was the first year since 1917 that the district has been free from a fatal coal-mining accident.

Of the twelve serious non-fatal accidents, seven were caused by falls of coal or stone and at least one of them might have been prevented had the timbering rules been more strictly complied with. Three of the accidents occurred on hauling roads, the miner in the Dobson Mine sustaining a fractured spine and three ribs by being jammed against the roof.

A night-watchman fractured his right arm by falling on to the rails and a horse-attendant lost a finger when his hand was caught between a skip-guard on a cage and the full skip.

---

## 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 1933 :—

| Inspection District. | Quantity of Permitted Explosives used (lb.). | | | Number of Shots fired. | Number of Misfired Shots. | | | | Approximate Quantity of Coal produced. |
|---|---|---|---|---|---|---|---|---|---|
| | A2 Monobel. | Ligdynite. | Samsonite. | | By Defective Explosive. | By Defective Detonators. | By Defective Leads. | Total. | |
| | | | | | | | | | Tons. |
| Northern (*i.e.*, North Island) .. | 88,606 | .. | .. | 101,816 | 3 | 28 | 18 | 49 | 453,963 |
| West Coast (of South Island) .. | 94,164 | .. | 119,634 | 262,462 | 13 | 192 | 107 | 312 | 781,319 |
| Southern (*i.e.*, Canterbury, Otago, and Southland) | 2,749 | .. | 52,186 | 82,793 | .. | 9 | 16 | 25 | 234,596 |
| Totals .. .. | 185,519 | .. | 171,820 | 447,071 | 16 | 229 | 141 | 386 | 1,469,878 |

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

The following is a list of mines as at the 31st December, 1933, 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.

*West Coast Inspection District.*

Puponga, Puponga.
O'Rourke's, Murchison
Cardiff Bridge, Seddonville.
Charming Creek, Ngakawau.
Cascade, Burnett's Face.
Glasgow, Seddonville.
Westportmain, Granity.
Westport Coal Co.'s Denniston mines.
Westport Coal Co.'s Millerton mines.
Westport-Stockton, Ngakawau.
Rocklands, Berlin's.
Whitecliffs, Berlin's.
Archer's, Capleston.
Clele, Merrijigs.
Coghlan's, Capleston.
Collins, Murray Creek.
Morrisvale. Reefton (Perfection and Surprise).
Defiance, Reefton.
Burke's Creek, Reefton.
Waitahu Colliery, Reefton.
Honey's, Reefton.
White Rose, Merrijigs.
Armstrong's, Ten Mile Creek.
Baddeley's, Coal Creek.
Bellvue, Rapahoe.
Blackball, Blackball.
Braehead, Dunollie.
Cain's, Rapahoe.
Castlepoint, Runanga.
Cox's Creek, Rapahoe.
Dobson, Dobson.
Duggan's, Rewanui.
Hunter's, Rewanui.
Briandale, Ten-mile.
Moody Creek, Dunollie.
Old Runanga, Rewanui.
Schultz Creek, Twelve-mile.
Smith's, Runanga.
Spark's, Rewanui.
State Coal-mines (Liverpool Collieries and James Colliery).
Paparoa, Roa.
Wallsend, Brunnerton.
Dennehy's, Ten Mile Creek.
New Point Elizabeth, Dunollie.
Goldlight, Rewanui.
Fiery Cross, Dunollie.
Jubilee, Rapahoe.
Bellbird, Ten-mile.

*Southern Inspection District.*

| | |
|---|---|
| Kaitangata No. 1, Kaitangata. | Linton, Ohai. |
| Kaitangata No. 2, Kaitangata. | Black Diamond, Ohai. |
| Wairaki, Ohai. | Black Lion, Ohai. |
| Birchwood, 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, 1933, 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.
Avoca, Avoca—Old mine dip workings.

*West Coast Inspection District.*

| | |
|---|---|
| Dobson, Dobson. | Paparoa, Roa. |
| Spark's, Rewanui. | Wallsend, Brunnerton. |
| State Mine (Liverpool No. 2), Rewanui. | |

*Southern Inspection District.*

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

(*d*) Dangerous Occurrences reported.

(Regulation 82.)

A full account of these is given in the reports of the District Inspectors (Annexure A).

Heating was reported in various mines on fourteen occasions during 1933. These included three fires in the Waro Mine and two in the Black Diamond Mine.

Besides the explosion at the Paparoa Mine, which has already been referred to in the list of fatal accidents, a miner was injured by an ignition of firedamp in the Millerton Mine, and miners had to be withdrawn from their working-places in the Wallsend Mine, on four occasions, through accumulations of firedamp, and once in the Dobson Mine.

Three times during the year the Waro Mine suffered from inrushes of water.

(*e*) Electricity at Collieries.

(Regulation 243.)

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

| | |
|---|---|
| Number of collieries at which electrical apparatus is installed | 55 |
| Number of continuous-current installations | 8 |
| Number of alternating-current installations | 51 |
| Number of collieries electrically lighted | 41 |
| Number of collieries using electrical ventilating-machines | 41 |
| Number of collieries using electrical pumping plants | 31 |
| Number of collieries using electrical haulage plants | 38 |
| Number of collieries using electrical screening plants | 24 |
| Number of collieries using electrical coal-cutting machines | 4 |
| Number of collieries using electrical miscellaneous plants | 24 |
| Number of collieries using electrical locomotives | 1 |
| Total horse-power employed from motors on surface | 7,300 |
| Total horse-power employed from motors below ground | 4,317 |

(*f*) Prosecutions.

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

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

An amending Coal-mines Act of one clause (beside the title) was passed during the year. It corrected an anomaly under which it was possible for a coal lease to be obtained from the State for from forty to sixty years, whereas the right of access could be obtained for twenty-one years only.

I desire again to acknowledge the efficient help and co-operation which I have received throughout the year from the District Inspectors.

Despite the lean times through which the industry is passing, every endeavour is being made to maintain and better the methods of mining and a consequent reduction in the number of accidents.

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 Mines).

#### Output of Coal.

The output from the Northern Coal-mines for the year 1933 was 626,926 tons, compared with 607,469 tons in 1932. During the first half of the year the miners suffered much idle time as a result of a decreased demand for coal, but, during the second half, increasing railway requirements led to better time being worked, and to the re-engagement of approximately a hundred discharged workmen. Although production increased by 19,457 tons the whole of the output was not marketed, and at least 30,000 tons of small coal was dumped at three Waikato mines as a result of the advent of hydro-electric power, and to the cessation of the demand for supplies for the generation of electricity by steam. The dumps are on fire, and the stored coal is being slowly reduced to ash, and unless other means are found for disposing of this product, the national loss of small coal will attain huge proportions following a revival of trade for domestic and steam coal. The increase in the Waikato district was 44,129 tons, and in the Hikurangi district the decline was 21,628 tons. Coal-cutting machines are in use in four of the principal Waikato mines and 70 per cent. of the coal produced in these mines is mechanically cut. The productive capacity of the working Waikato mines is equal to double the existing demand, and no new developments are required for many years. The decline in the Hikurangi district is due to the abandonment of the worked shallow workings, and to the fact that the porosity of the broken limestone cover over the deeper workings presents a problem and a menace to the exploitation of the seam to the dip.

#### Waikato Carbonization Plant.

Operations at the Waikato Carbonization Plant at Rotowaro were temporarily suspended at the end of the year, due to a reduced demand for carbonettes, and to the accumulated stores of manufactured fuel and oil.

#### Summary of Operations of each Colliery for the Year 1933.

*North Auckland District.*

*Hikurangi Coal Co., Ltd. (Shaft Colliery).*—During the past year the mine has been worked by the Hikurangi Coal-miners' Co-operative party, which body entered into an agreement with the Hikurangi Coal Co., Ltd., to work the mine on a contract basis. Mining operations were confined to the extraction of a few remaining pillars in the east side, and to the continuation of solid work in No. 4 east section. When the miners assumed control of the mine it was in a bad state of repair, due to the effects of a devastating fire which had closed the main airway and the return to No. 4 east section, and it cost the party fully £3,000 in wages and stores to combat the fire and restore the arterial roadways before output could be resumed in the section. As the rise coal was confined to narrow limits, the party was also compelled to follow the seam to the dip by the provision of 300 ft. of hard stone work. Normal mining operations were established in the month of June, and the manager and party should be commended for their efforts in saving the mine under the conditions occasioned by the fire. No inundations of surface water occurred during the year, and the installed pumps were run continuously for the discharge of the mine flow of 80,000 gallons of water per hour.

*Wilsons' Collieries, Limited (Waro Colliery),* (Sublessees, McGlashan and Party).—During the year four separate floodings of surface water forced the removal of the pumps to higher levels, and when the coal was exhausted in No. 6 section the co-operative party ceased all operations in the mine, and withdrew a portion of the plant to the surface. The question of the safe and economic working of this mine under the heavily watered roof-cover, and the natural seepage from faults and underground springs, is becoming serious, as three separate undertakings—namely, Wilson's Collieries, Ltd., Waro Co-operative Co., and McGlashan and party—have failed to hold the water at No. 7 section, where an area of dip coal is available for working. Subsequent to the cessation of control by McGlashan and party, the water steadily rose in the dip, and endangered the neighbouring Hikurangi Colliery, as evidenced by three floodings of the Hikurangi Mine occurring during the years 1926, 1929, and 1930, when the water rose to a height of 150 ft. in the Hikurangi Shaft Colliery and flowed into the Waro Mine at a point where a fracture occurs in the limestone roof-cover lying immediately above the protective barrier of 200 ft. of solid coal left between the respective mines. As a result of the abandonment of the Waro Mine and the unfortunate consequences which compelled the working party to leave derelict the whole of the dip workings and heavy plant, and as the accumulation of water was increasing the head against the protective barrier, the Hikurangi Co. was forced to take over the Waro Mine and plant in order that the installed facilities should be readily available for holding the water at a level where it would not endanger the future working of the Shaft Colliery. It will cost the company approximately £120 per week to hold the water at the fixed safety level, but that cost will probably be reduced by the winning of an output from "Perritt's" area, 50 acres lying contiguous to the Waro main dip and return shaft. The unification of these coal-mines under one management has long been desired, and, if an output can be maintained to cover the high pumping charges, the amalgamation of interests and machinery should provide the means for developing Perritt's area and the area of proved coal lying between McKenzie's dip and the Waro dip under the Hikurangi Swamp. During the year the Unemployment Board assisted the co-operative party by subsidizing the labour employed for filling in numerous sink-holes on the surface occasioned by the continuous pumping of surface water, and by the movement of the overlying broken limestone roof-cover. Wilson's Portland Cement Co., Ltd., also assisted the party by taking a maximum output, repairing machinery, and loaning moneys to cover difficult periods.

*Crown Leases.*—The following small coal-mines, operating near the Marua Road, Hikurangi, were actively worked for the production of steam coal from areas averaging 3 ft. in thickness: Silverdale Colliery (Foot's), Glen Nell Colliery (sublease from McIntyre and party to S. Foot), Phœnix Colliery (McKinlay and party), McInness's Colliery (sublease to Reyburn and party), Northern Co-operative Colliery (E. A. Cunningham), and Hick's Colliery (Hicks and Cook). The working-places were safely worked under good roofs, and a high percentage of the available coal was extracted. The outputs were carted to the Hikurangi Station, a distance of three miles. A road tax of 3d. per ton on the conveyed outputs is collected by the local bodies controlling the roads.

*Ruatangata Colliery.*—Operations were confined to the extraction of roadside pillars, and the available coal in the present dip is almost exhausted. Boring operations have been conducted during the year in an endeavour to prove another area of workable coal left by the Kamo Coal Co. when in possession of the mine forty years ago. An average daily output of 30 tons was raised and disposed of to railways and the brick-making plant at the mine.

*New Kamo Coal-mine* (Port Whangarei Colliery Co., Ltd., Owners).—An area of coal-bearing land, situated in close proximity to the Kamo Railway-station, and owned by Messrs. Felix and Wakelin Bros., has been bored and prospected, with the result that two separate seams of coal, 8 ft. and 10 ft., at depths of 90 ft. and

120 ft. respectively, have been located over 50 acres. A stone drive, dipping 1 in 4, has been set away to the east at a point 10 chains from the Kamo Railway siding, and presumably the seams should be intersected at a distance of 400 ft. from the entrance to the drive. The re-establishment of a large mine in the Kamo District should result in the re-employment of many idle coal-miners, and this sub-bituminous coal should satisfy the demand for steam and bunkering fuel in the district.

*The Rocks Area* (Owners: Hikurangi Coal Co., Ltd.; Sublessees: Ackers and Rarity, Fearnley and Party—sublease to W. Reed, Wilson and Party).—Operations were confined to the bottom seam which averages 4 ft. in thickness throughout the "Rocks" area. The roof is difficult to support by reason of the fact that it is composed of a soft stratum of fireclay between the top and bottom seams, and as the top seam has been pillared, close attention is required to the timbering of the roof of the bottom seam.

*Coutt's Coal-mine.*—Continuous output was obtained from several drives in an area formerly worked by the Hikurangi Coal Co., Ltd. The output is conveyed by road to the Hikurangi Railway-station.

*Glenbervie Coal-mine.*—This mine is situated near Glenbervie, midway between Kiripaka and Whangarei. Operations were suspended following the extraction of all the pillars. A total output of 9,432 tons was produced from the area.

*Stewart's Coal-mine, Glenbervie.*—A thin seam was located on Plaisted's freehold land, and a stone dip was driven for the development of the proved coal. The seam is only 4 ft. in thickness, is much faulted, and the venture does not look promising.

*Reservoir Coal-mine, Hikurangi.*—Hamilton and party extracted 500 tons from isolated pillars remaining on Christie's area. Water trouble and broken roofs eventually forced the party to abandon the mine.

*New Kiripaka Coal-mine.*—Brown and Webber are still working on small blocks of coal left by the Northern Coal Co., Ltd., on Ngungaru Hill. The output is carted to Whangarei, a distance of nine miles.

*Whareora Coal-mine* (Foot and Fox, Owners).—Drives in the coal-seam have been extended into the hill, and the seam, so far proved, still contains several bands of stone which have to be mined with the coal, with the result that much labour is expended on the surface in separating the stone from the coal. The output is conveyed to Whangarei, a distance of seven miles, by motor-lorries.

*Avoca Coal-mine.*—This mine is situated seven miles east of Tangowahine. It was first worked during the year 1913, but was abandoned before reaching the production stage. It was reopened during 1929 by the dewatering of the dip. The drive was recovered in good order, and the roof and timbers were in good condition. The total length is 80 ft. and the dip 1 in 3. Two separate seams 7 ft. and 6 ft. with an intervening parting of 7 in. of shale, occur under a roof-cover of 50 ft. Subsequent to the workings being recovered the manager reported the presence of inflammable gas in a roof-hole at the bottom of the dip. Naked lights were withdrawn from the mine, and safety-lamps introduced throughout. A small ventilating-fan was also installed on the return-airway drive. The seam is difficult to work, and is of soft structure, containing thick bands of compressed slack. The rise coal, which was being worked opencast, was abandoned during the year owing to a fire caused by spontaneous combustion.

### *Waikato District.*

*Rotowaro Collieries* (Waipiri Coal-mines, Ltd., Owners).—Production is derived from two separate mine sections fully equipped to raise and screen 1,000 tons of coal per eight hours' shift. In No. 1 Mine the main headings have been advanced approximately 120 chains from the commencement of mining operations. Haulage is conducted by endless rope installed to the innermost working layby. The pillars are being extracted in No. 4 east section, and in this section, and in other completed sections, preparations were made ahead so that stoppings could be erected as soon as indications of heating were observed, in order that the danger arising from gob fires could be localized to each working district. All sections are sealed off when finished, so there are no old workings open in the mine.

First workings are being advanced in the main east and rope-end sections. Strong coal roofs prevail in the sections, and the seam averages 18 ft. in thickness. The seam is highly inclined to the east, and endless-rope jigs with special braking facilities are employed to deal with the outputs from the bord sections. No. 3 mine section, proceeding in the bottom seam, is being extended to the east under favourable mining conditions as regards the thickness and quality of the coal. Small quantities of inflammable gas have been detected in the main headings, and the ventilation was maintained in sufficient volume to prevent any accumulation of the gas.

Preparations are being made to further prospect the southern fault, and to explore the field beyond the break in the top seam. Oldham's electric safety-lamps of the cap type are in use in both mines. Three coal-cutting machines are employed and, generally, the working-conditions throughout are satisfactory.

*Pukemiro Collieries* (Pukemiro Collieries, Ltd., Owners).—Operations during the year, in the company's collieries, were confined to the North Mine section. Solid work was followed in the south-west to the proved fault, and in No. 2 and the drain-level sections the pillars were effectively extracted from the limits of the boundaries. Brick fire-resisting stoppings are erected in all disused pillar roadways in prevention of gob fires. In the first workings the roofs are strong requiring few props in support, but in the pillar roadways three rows of substantial props are maintained from the faces to a distance back of 1 chain. All the existing roadways and airways are utilized for pillar-extraction, and, as "creep" and "crush" have not yet been experienced under the shallow roof-cover, a high percentage of the available coal is being won. The brickyard section and the South Mine section have not been resumed during the year, but are available for output should the trade warrant additional supplies. A total output of 2,132,051 tons has been won from the field, and there are sufficient reserves of coal on pillars to meet the trade requirements for many years. One hundred and fifty men are employed in and about the mine, and the majority of them own their own homes in Pukemiro Township.

*Glen Afton No. 1 Colliery* (Glen Afton Collieries, Ltd., Owners).—This extensive colliery produced 44,315 tons only during the year due to a decreased demand, and to the fact that the more recently developed No. 2 Colliery (MacDonald) is more favourably positioned and developed to yield output at lower working-costs than the older colliery. Only two sections—namely, K3 and K4—were worked with concentration upon the pillars in K3 section. The roof-cover averages 400 ft. of impervious fireclay and limestone, and as the formed pillars measure 70 ft. square, and a straight line of retreating face is maintained, the superincumbent roof weight has exerted pressure, so far, only along the fringe of the goaf, and the movement is resulting in the goaf being comparatively well filled and packed with roof stone. In this connection if the roof movement can be controlled and limited in effect to the goaf, no dangerous conditions in respect to gas accumulations or goaf fires should result. During the first working of the coalfield the mine has been comparatively free from serious face accidents, and this freedom is due to the strong nature of the coal roof. If the roofs of the roadways within close proximity to the pillar faces can be kept free from crushing we can reasonably expect a continuation of the low accident rate. Both working districts are dry, and little water or moisture occurs from the working of the seam. The main roadways are heavily ballasted with incombustible stone, that, under traffic conditions, becomes fine dust which mixes with the coaldust. The roadways throughout the mine workings are also treated from time to time with quantities of fine incombustible dust. No development work was done during the year other than connecting No. 1 Colliery to No. 2 Colliery by headings set away from each mine. The connection resulted in a third escape for the workmen at the farthest point of the workings in No. 1 Mine, and also affording cooler working-conditions by the shortening of the intake airway by 100 chains.

*Glen Afton No. 2 Colliery* (MacDonald State Coal-mine Reserve, under lease to the Glen Afton Collieries, Ltd.).—An output of 77,936 tons was produced from headings and bords of the first working. Two working districts are being formed to the west and north respectively from No. 3 Mine entrance. The headings in each section have been advanced 27 chains on moderate grades to the dip of the seam. The seam averages 16 ft. in thickness, and the bords are taken to a height of 9 ft., and strong coal roofs prevail throughout the sections. The haulage is done by endless rope to the faces, and the greatest possible use is made of subsidiary haulage winches installed near the faces. The headings are to be driven out to the boundaries before the pillars are attacked on account of the liability of the seam to spontaneous combustion, and possible crushing should the pillars not be large enough to carry the roof weight. A 70 in. Sirocco fan has been installed at a northern exit alongside a recently completed fully equipped bath-house. Two coal-cutting machines have been constantly in use during the year, and the average daily output of coal per miner over the whole of the mine is 13 tons. Each working-section is capable of producing 300 tons per shift from the concentrated machine-cut places, and the cost of producing coal from this colliery, operated by 3½ miles of surface endless rope tramway, compares favourably with other local mines more conveniently connected to the railway.

*Graham Colliery* (Party of Miners, Owners).—Pillar-extraction has been continued from the southern boundary, and little coal has been lost. The seam is 3 ft. to 4 ft. thick and splits 4 ft. to 5 ft. wide have been driven through the remaining pillars. The party is now retreating on the roadside pillars, and all suspected areas of heating are sealed off following the removal of the pillars. Brick and stone stoppings have been adequately maintained in crosscuts between intake and return airways. The output is loaded into railway wagons at the terminus of the Huntly–Glen Afton Railway.

*Waikato Extended Colliery* (Roose Shipping Co., Ltd., Owners).—Operations are confined to the extraction of the pillars in the Old Waikato South Mine section. The seam is 17 ft. thick, and a strong claystone roof occurs above the seam. The output is lowered down a hill to the west bank of the Waikato River, then loaded from a wharf into river steamers for distribution to settlers residing along the Waikato River.

*Huntly Brickworks.*—The quarry has been safely worked for the production of sufficient fireclay for the brick-kilns established near the deposit of clay. Twelve men are ordinarily employed in and about the quarry and brickworks.

*Taupiri East Colliery* (Auckland University Council Endowment Lease).—The water has been lowered in the old Kimihia Mine dip to a level which allowed the splitting of the upper pillars remaining in the dip area. The seam is 18 ft. thick, and only narrow places are taken through the pillars. The output is conveyed three miles to Huntly by means of motor-lorries, and settlers also obtain their requirements at the mine.

*Campbell Colliery* (Crown Lease, Whatawhata).—In common with other small coal-mines, this mine worked intermittently during the year, due to the price-cutting competition in vogue among the large companies, and to the fact that the small-mine owners cannot reduce their prices to the level set by companies operating by rail.

Faults and water in the new dip are proving troublesome, and the dip was only extended 1 chain during the year. The seam is also disturbed, and the dip coal does not compare in quality to the coal worked to the rise. A screening-plant has been erected, and an electrically driven pump and haulage winch were installed for the purpose of cheapening the output. The output is conveyed to Hamilton and Raglan—a distance of 11 and 20 miles respectively by road from the mine.

*Renown Colliery* (Renown Collieries, Ltd., Owners).—An output of 109,129 tons was obtained during the year from pillars in No. 3 and No. 4 south sections, and from first workings in No. 3 north and No. 1 south sections. No new development has been carried out, with the exception of the advancement of No. 4 south headings, which are proceeding ahead of No. 3 south panel. Ninety per cent. of the output is produced by the aid of coal-cutting machines, and during the year they were also used in pillar places with satisfactory results as regards the maintenance of the roofs under rapid extraction of the pillars. The formed pillars within the panel are 70 ft. square. They are first split up the centre, leaving wings of 20 ft. and 25 ft. respectively in width, which are worked off in retreat to the front of the pillars. In some instances the whole of the pillar was extracted before the roof weight settled on the timber supports. At the breaking-edge of the falls four to five heavy props were needled into the floor and roof in order to arrest the falls, and prevent rilling of the debris into the roadways, and so provide clear roadways for the successive splits. A rib of solid coal, 2 ft. wide, was left as a barrier along the fringe of the goaf, and this provision also afforded safe conditions for the removal of the coal and timber supports. As anticipated, the weight of the unsupported roofs crushed out the barriers and confined the roof settlement to the excavated spaces, and under the adopted method of pillar-extraction by mechanized coal-cutting, a larger output than could be got from hand-mining, was obtained under conditions of comparative safety. Although the coal is liable to spontaneous combustion, no fires occurred in the waste ground, and this security was due to the rapid advancement of the line of pillar retreat. A stone-crushing mill was installed on the surface for the purpose of crushing suitable clays and stone to the requisite fineness for use underground in treatment of the stone dust.

*Wilton Colliery* (Wilton Collieries, Ltd., Owners).—A recorded output of 97,000 tons was achieved during the year from pillars in Nos. 2 and 3 sections, and from first workings in No. 2 extension section. The average daily output for the first half of the year was 750 tons, but it was reduced to 550 tons by an agreement with Renown Collieries, Ltd., to share the railway coal contract. The seam averages 8 ft. in thickness. The roof is of soft structure, and it is supported by timber systematically set throughout the workings. The workings are almost naturally wet due to the shallowness of the worked seam. In Holme's No. 3 section the seam is thinning and a converging outcrop narrows the section to a working width of 3 chains. A high percentage of the pillar coal has been won, and the roof falls, of jointy fireclay, fill up the goaf and leave no cavities for gas accumulations. In No. 2 section the headings have been advanced in good-quality coal to within 2 chains of Katovich's boundary, and negotiations are now proceeding to extend the workings through the boundary towards an extensive area of coal proved by bores. A feature of the seam, profitable to the miners, is its friable nature when compared with other Waikato seams. In some districts no explosives are used for breaking the coal, and the average tonnage per shot fired throughout the mine is 12 compared with 3 in other mines. In this connection this physical condition was unfavourable to machine mining, and two coal-cutting machines were withdrawn from the mine.

*Hunua Colliery* (Cowan's Freehold).—A small output was obtained from a prospecting drive put in under a rising hill. The seam is 4 ft. thick. The coal is stony, and a limited output satisfied the requirements of the settlers.

*Glendale Colliery, Opaheke.*—A party of seven miners are in occupation of a mine situated on Brown's freehold, seven miles east of Opaheke. A dip has been driven in a seam 5 ft. thick, divided by bands of stone, and only the top portion of 3 ft. is worth marketing. A steam-boiler, pump, and haulage winch have been installed, and four places are available for coal-production. The output is marketed in Papakura and the surrounding district.

*Black Diamond Colliery, Opaheke.*—Messrs. Bougher and Crump have been engaged during the year in prospecting an outcrop. The seam was followed 60 ft. to the dip, and it averages 2 ft. 6 in. in thickness. The prospect, so far, shows little promise of improvement.

*King Colliery* (Native Lease, Conditional).—Four places in coal, opened out from an outcrop, have been roaded and timbered awaiting a market. The mine is situated eight miles from Te Kuiti and the road is lightly metalled.

*Rangitoto Coal-mine* (Native Lease, Tahia).—A total output of 2,567 tons has been won from the Native lease. A return airway was effected through the hill and the mine system of haulage and ventilation was reversed to the more advantageous road of entry to the seam. The output is carted to Te Kuiti, a distance of eight miles, and a road royalty of 3s. 6d. per ton is paid to the local body controlling the road.

*Relief Coal-mine* (Auckland University Council Endowment Lease).—An abandoned area, formerly worked by the Huntly Coal Co. and locally known as Lamont's Area, was recently opened out by unemployed miners under assistance from the Unemployment Board. Two to three thousand tons of inferior coal are remaining on pillars, which are being attacked for the benefit of the relief workers in the Huntly district. The coal is loaded into bags and lowered down the hill-side by means of an aerial.

*Taranaki District.*

*Old Stockman Colliery, Mokau.*—The mine is situated twenty miles up the Mokau River. Three miners are engaged in winning an output from a 4 ft. seam, under good roof conditions, for transport down the river by means of oil-driven launches.

*Mokau Colliery* (Mokau Collieries, Ltd., Owners).—The coal-mine is connected to the Mokau River by three miles and a half of 2-ft.-gauge tramway. A steam locomotive is in use for hauling the output. A 5 ft. seam has been followed 6 chains from the surface by two parallel headings. The seam is moderately inclined to the west, and the coal is of good quality. The roof-cover is hard sandstone and little timber is required for supports. The mine was worked intermittently during the year due to the company's river steamer being laid up for repairs, at frequent intervals, as a result of contact with a reef lying at the entrance to the Mokau Harbour.

*Paparata Coal-mine* (Crown Lease; Taranaki Coal-mining Co., Ltd., Owners).—A small output was obtained from a seam 3 ft. thick. Operations were suspended during the winter months owing to the condition of the unmetalled road to Tahora.

*Egmont Colliery* (Crown Lease; Egmont Collieries, Ltd., Owners).—The mine is situated three miles and a half up the Tangarakau Stream from the Tangarakau Railway-station. The average daily output is 70 tons, and the average number of workmen employed is thirty-five. Operations are confined to pillar-extraction in the south, east, and north sections. First workings are proceeding to the north at a lower level to cut the 20 ft. downthrow fault which was encountered in the rise workings. All places in the mine are machine-mined. The numerous bands of stone and shale, contained in the 5 ft. seam, are not decreasing in thickness, and no improvement in the quality of the coal-seam is apparent in any of the sections. The company is at present prospecting an area of Crown land near Tatu, where a 7 ft. seam of clean coal is exposed on a forest reserve, at a height of approximately 400 ft. above the Tatu Valley. The prospect is situated five miles and a half from Haeo Railway-station and the country between the outcrop and railway consists of high serrated hills and deep ravines, necessitating connection by means of an aerial ropeway.

*Gilberd's Colliery* (Crown Lease, Tatu).—The seam has been followed 6 chains in a narrowing field cut off by a creek on the south side and by a fault on the north. The seam is 5 ft. 6 in. in thickness with a soft roof which requires close timber supports. The main heading is standing on a downthrow fault, and pumping machinery will be required for the future development of the workings. A limited output is conveyed to Ohura, a distance of seven miles.

FATAL ACCIDENTS.

A distressing accident, whereby three miners were asphyxiated in a shallow prospecting shaft, occurred at Acker's Coal-mine on the 15th February, 1933. The shaft was sunk through broken ground to the bottom by William Ackers, the father of the deceased men one year previous to the accident, and a small connecting drive was driven during the same period to within 20 ft. of the bottom of the shaft. On the 12th February, three days previous to the accident, two directors of the Hikurangi Coal Co., Ltd., owners of the land, inspected the area and agreed to lease the prospected area to William Ackers subject to conditions to be subsequently arranged between the parties. On the morning of the 13th February William Ackers descended the shaft, after testing the atmosphere with a locked safety-lamp lowered down the shaft, which was only 32 ft. deep. He found the atmosphere clear, but as some damage had been done to the timber in the shaft by persons dropping stones and timber down the shaft, to prevent further damage he covered the top of the shaft with six sheets of corrugated iron. William Ackers resumed mining in the connecting drive on the 13th February, and on the 15th, after 6 ft. had been driven in the coal-seam, he asked his son Albert, who was a contractor for carting coal to the railway, to proceed to the top of the shaft, a distance of 120 ft. on the surface from the mine entrance, and listen for a "knock" which he was to give from the face below. The father desired to determine, by sound, the distance remaining between the bottom of the shaft and the connecting drive. Albert was accompanied by George Wilson and James Ackers, miners and visitors to the mine on the day of the accident, and from evidence tendered at the inquest, the signals could not be heard distinctly, the brothers removed the covering from the shaft, and Albert descended by means of a hemp rope which was hanging in the shaft. There was also a ladder down one side of the shaft. Albert collapsed, when he was 10 ft. from the surface, and fell to the bottom. James Ackers followed his brother down the shaft and succumbed to the effects of the foul air there. Jack Ackers rushed to the scene and descended the shaft in an attempt to rescue his two brothers, but his heroic action was of no avail, as he was overcome also and met a similar fate. The accident happened in an isolated place, and fully an hour leapsed before adequate measures could be taken to clear the foul air from the shaft. Unfortunately, the victims were not covered under the Workers' Compensation Act. The accident would not have happened if Albert had followed his father's instructions to listen on the surface for the "knocks." Another distressing feature of the accident was the inability of Mr. Wilson to prevent the brothers from descending the shaft. Samples of the shaft air were analysed at the Dominion Laboratory and the analyses confirmed the conclusion that the small amount of oxygen present in the air could be traced to the sealing of the top of the shaft and rapid oxidation resulting from the moistened timber and coal. Analyses: Carbon dioxide ($CO_2$), 2·45 per cent; oxygen ($O_2$), 10·57 per cent.; carbon monoxide (CO), nil; sulphuretted hydrogen ($H_2S$), nil; nitrogen and inert gases (by difference), 86·98 per cent.: total, 100.00 per cent. Calculating the percentage of atmospheric nitrogen corresponding to the oxygen present, the atmosphere contained 49·49 per cent. of black-damp.

On the 24th May, 1933, William Crackett was fatally injured in the Waro Colliery whilst engaged as a horse-driver and trucker. No one actually witnessed the accident but presumably he fell between loaded skips travelling up No. 6 dip.

SERIOUS NON-FATAL ACCIDENTS.

On the 6th June Edward Coulson, horse-keeper of the Hikurangi Colliery, sustained the loss of his third finger due to his hand being caught between the skip-guard on a cage and the top of a full skip.

On the 29th June Edward Singer, miner at the Wilton Colliery, was caught by a fall of coal. His injuries consisted of a fractured tibia, back injuries, and the fracture of an ankle-bone.

On the 20th July an employee of the Wilton Colliery, A. Learmonth, sustained an injury to his back due to a roof fall.

On the 5th October J. McIntyre, of the Wilton Colliery, sustained a fracture of his seventh left rib as a result of a skip moving suddenly backwards.

On the 23rd October John Desmond, winding-engine man at the Hikurangi Colliery, received a fracture of two small bones in his left hand, caused by the slamming of the fan drift door.

On the 29th December R. Reay, night-watchman of the Pukemiro Colliery, received a fracture near the wrist of his right arm caused by his falling on rails.

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

On the 23rd May and 7th July, 1933, the mine workings of the Waro Colliery were flooded, due to an inrush of surface water as a result of heavy rains.

On the 17th August, 1933, a heating was discovered in the drain-level section of the North Mine of the Pukemiro Colliery. Remedial measures were taken for suppression.

On the 24th September, 1933, a fire was discovered in the east side section of the Hikurangi Shaft Colliery. Stoppings were erected to seal off the affected area.

On the 21st November, 1933, indications of heating were discovered on the high side of Fox's level in the Waro Colliery. Stoppings were erected close up to the goaf.

Owing to labour trouble and excessive water in the Waro Mine, the dip workings were abandoned on the 29th November, 1933.

PROSECUTIONS.

Proceedings were taken against an engineer for behaving in a violent manner towards the mine-manager. The information was dismissed upon payment of costs.

## WEST COAST INSPECTION DISTRICT (C. J. STRONGMAN, Inspector of Mines).

The output from the West Coast Inspection District for 1933 was 783,385 tons, as compared with 844,010 tons for 1932. The Grey and Buller districts show decreases of 31,273 tons and 32,993 tons respectively. There were small increases in the Reefton and Nelson districts, that in the Nelson District being due to the opening-up of two small mines near Murchison.

Marketing conditions were extremely difficult during the year. The coal-mining industry on the West Coast suffered severely in consequence. Several of the smaller mines supplying soft coal for the steam trade were closed down. In some of the larger mines, men were dismissed and working sections temporarily abandoned. Production was concentrated on those sections in which the coal was of better quality and could be cheaply mined.

### GREY DISTRICT.

*Liverpool State Colliery, Rewanui.*—Development work at this colliery was confined to the rise workings and portions of the Morgan and Kimbell seams, also the extension of the Anderson level and dip sections. In the Morgan seam a barrier, 2 chains in width, has been left between the workings of Nos. 1 and 2 Mines, and pillar extraction is now being carried out below the barrier and also in a small section at the end of the east level. With the exception of the west level, and a small section known as the No. 4 Bank east, development to the rise was completed. In the Kimbell seam, development work is confined to No. 8 Bank, east section. The area to be exploited is somewhat limited owing to a fault on the west side and a belt of dirty coal on the east. The Anderson main east level was stopped during the year at the Davey creek fault and places are now being driven to the rise off this level. The No. 2 dip, Anderson section, is now down a distance of 7 chains from the Main east level and the coal produced from this section is of good quality. Pillar-extraction was carried out in portions of the Kimbell east and west sections, also one small section in the Anderson seam. In the Morgan and Kimbell east sections, pillar-extraction is being conducted under favourable conditions, and a high percentage of coal is being recovered. In the Kimbell west section the gradient is steep, and the roof being bad, the results of pillar-extraction are not so satisfactory. Towards the end of the year a heating occurred in the goaf of the Kimbell west section and an area of approximately 8 chains by 2½ chains was sealed off by stoppings.

*James State Colliery, Rapahoe.*—Development work at this colliery was confined to the crosscut section. At a distance of 18 chains from the head of the crosscut jig the south level was stopped owing to the seam pinching and becoming very dirty. Development work in this section is now completed and the work of extracting pillars has commenced. In the dip section the area to be exploited is somewhat limited owing to it being bounded by an upthrow fault with a displacement of 190 ft. Solid work will shortly be completed in this section, and pillar-extraction commenced. No. 2 dip: At a distance of 4 chains north of the crosscut dip a prospecting dip heading was driven a distance of 4 chains. The coal produced therefrom was of poor quality. The object of the prospecting dip was to prove the area to the north of the crosscut dip. Pillar-extraction in the west section is now nearing completion, and preparations are being made to seal off this section by a line of concrete stoppings. The total output from the commencement of operations is 371,907 tons. Prospecting: During the year, prospecting work was continued on that portion of the reserve between the Nine and Ten Mile Creeks. Ten holes were drilled of a total depth of 4,050 ft. The results obtained were of a very satisfactory nature. Two workable seams, varying in thickness up to 25 ft., have been proved to exist over an area of 200 acres. Drilling operations are still being carried on. The work is nearing completion.

*Blackball Coal-mines Proprietary, Ltd., Blackball.*—Work during the year was concentrated on the recovery of the old main level. The work was completed and the fault reached during August. After a geological examination had been made by Mr. S. W. S. Strong, it was decided to call tenders for the driving of a dip to reach the coal known to exist beyond the fault. A stone drive, 10 ft. by 6 ft. (inside timber), was advanced a distance of 100 ft. The drive when completed will be 10 chains in length. Coal-winning: The bulk of the output for the year was obtained from the old No. 3 dip pillars. On the surface extensive alterations and repairs to the bins and screening plant were carried out. A new horizontal double-decked balanced jigging screen was built and installed.

*Blackball Creek Coal Co., Ltd., Blackball.*—No new development work was undertaken. All coal produced was won from the rise pillars and top seam of the old Blackball Mine. Surface plant: A new shaking screen was installed at the bins. The work of screening and grading coal is largely done by water-power.

*Briandale Collieries, Ltd., Ten Mile.*—During the year development work in Walker's section ceased. To the north the coal became thin and stony. Places going westerly encountered a fault. Aerial section: In the aerial section a fault running north-east prevented the extension of the workings from the present drives. Pillar-extraction was commenced in a line between the outcrop and the fault. The coal is friable. To the west of the aerial section a tramline, some 3 chains in length, had been constructed to open up a block of coal lying between two fault lines, the distance between the faults being 3½ chains. Owing to the broken nature of the country, it is proposed to prospect the area by boring.

*Wallsend Colliery (Brunner Collieries, Ltd.), Brunnerton.*—Development has been mainly in the Taylorville area beyond the Taylorville fault, where the seam (proved by boring) was opened up by a stone tunnel 8 chains in length, dipping at a grade of 1 in 3·3. The tunnel was completed towards the end of 1932. The ventilation of the development headings was achieved by using tongued and grooved timber midwalling. Later, a return airway, 6 chains in length, in stone, was put through the fault, the grade being 1 in 2. Ten concrete stoppings and a concrete overcast have been completed to form a new main air-course. Development in the Taylorville area has been proceeded with by driving main headings east and west on the same bearing as the main stone tunnel. A total of 14 chains of driving was completed. From the bottom of the stone drive a pair of headings rise, at a grade of 1 in 7, towards the fault. From the main heading a pair of headings have been driven northerly opening out the first rise panel. The total distance driven was 8 chains. From the main headings adjacent to the lay-by at the foot of the stone tunnel, a pair of slant headings have been driven 10 chains south-westerly. Four chains of driving is necessary to enable levels to be set away and panels formed. To the low side of the main haulage-road (main heading) a third heading is being driven easterly for a future return airway. Four panels are to be formed to the dip. Development work has proved the coal to be of good quality, the average thickness being 15 ft. Several small step-faults, parallel with the main fault, have been encountered. Water and gas in quantities have been encountered adjacent to the small fault lines. Solid work in the No. 2 section was completed towards the end of the year, the blocks of coal to the south and limited

by the Dobson fault, having been worked out. The area is to be allowed to fill with water giving three month's storage as a reserve in case of emergency or failure of the main pump. During the year the old head frame on the auxiliary shaft was replaced by a 12 in. by 12 in. birch structure, well braced, and set on concrete foundations.

*Dobson Colliery, Dobson (Grey Valley Collieries, Ltd.).*—The mine worked 110¼ days for an output of 57,999 tons. The main dip was extended a further 2¼ chains preparatory to the installation of an endless-rope haulage to replace the direct hauler at present in use. No. 3 east level: The level has been advanced 2¼ chains, the total distance driven being 15 chains. No. 3 west level: The main level has been advanced 2¾ chains, the total distance driven being 16¾ chains. The companion level has been driven a further 4 chains, making a total of 17½ chains. A developing dip from this level has been driven for a distance of 3¾ chains, this being for the purpose of opening out a panel of workings on the low side of No. 3 level west, a total distance of 7¼ chains. No. 2 west section: The main level in this section has been advanced to within 5½ chains of the lease boundary, making a total distance driven of 23 chains. A developing dip from this level is in course of being driven for panel formation. No. 1 west level: This level has been advanced for a distance of 4 chains, making a total driving of 21½ chains. Pillar-extraction has been carried out during the year in the main east side section and Ruane's section.

*Tynside Collieries, Ltd.*—The mine remained closed throughout the year.

*Paparoa Colliery, Roa.*—Coal-winning operations were carried out in both the aerial and west sections until the end of July, when the aerial section was closed due to slackness of trade. The section is being kept in repair so that it may be restarted should occasion demand. West level section, No. 2 seam: A pair of parallel levels have been continued westerly for a distance of 19 chains. Parallel inclines have been driven north-easterly towards the outcrop to where the seam increases to 30 ft. The coal is of good quality and much harder than is usually met with in the Paparoa series. A Keith-Blackman fan, capable of producing 40,000 cubic feet of air per minute, has been installed in the west section. Explosion: On the 27th November an explosion of gas occurred in the back level of the west section, Paparoa Mine. A body of gas had evidently been given off in the main level and was actually passing in the main return, when a miner struck a match to light a cigarette, resulting in the death of the miner and injuries to two others. The explosion was almost entirely a firedamp one; although a great deal of coaldust was heated to incandescence, it did not materially assist in propagation of the explosive force. One branch of the explosion wave died out shortly after passing the spot on the main level where the gas was given off. The other branch of the wave which was of lessor force, died out a couple of chains up the No. 2 jig, within 2 chains of that jig and along the back level.

*United Brunner Mine, Brunner.*—Work throughout the year was a continuation of the cleaning-up and recovering of small pillars left behind in the old Transvaal section of the Brunner Mine. No development work was carried on. The work of coal-winning has been done under difficult conditions. The roof, as was to be expected in pillared ground, was much broken.

*Co-operative Mines.*

*Spark's Mine, Rewanui.*—During the year the coal in the main level going easterly became thin and intersected by dirt bands. Pillar-extraction was commenced. From the main dip the parallel headings on the strike of the seam were continued. The extraction of pillars has caused a break in the overlying strata from which small quantities of oil have been given off.

*Duggan'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. Only a small number of pillars remain to be extracted. The natural conditions in this mine are extremely favourable for coal-winning and complete extraction was obtained.

*Old Runanga Mine, Rewanui* (O'Brien and Party).—Coal in the main level going north-west gradually thinned as it approached the fault known to exist in this direction. In the rise jig going north-east the coal gradually increased in thickness so that a second level parallel with the main level has again been developed. On the eastern boundary the pillars are irregular in shape, due to the presence of a synclinal fold. Below the present workings a new section known as the "Bluff section" is being developed in coal 4 ft. in thickness. From the main levels a pair of parallel levels have been broken off and are being driven north-westerly.

*Goldlight Colliery, Rewanui* (Williams and Party).—The bulk of the coal produced was won from pillar-extraction on the eastern boundary of the lease. Work to the dip was suspended due to an influx of water. Prospecting operations to the south of the present workings have been commenced.

*Moody Creek Mine, Dunollie* (Simpson and Party).—In the old mine, pillar-extraction was continued in coal 5 ft. in thickness. Suitable barriers were left behind to support the railway. In the offset headings proceeding south-easterly a fault was encountered completely cutting off work in that direction. Only a limited amount of coal remains to be won in the old mine. Two new seams have been opened up in faulted ground east of the present workings. The seams pitch steeply at a grade of approximately 1 in 1½. A prospecting level, running parallel with the fault in a southerly direction, has been commenced.

*New Point Elizabeth Mine, Dunollie* (Guy and Party).—The whole of the solid work in this mine has been completed and pillar-extraction commenced in a narrow strip of coal 4 chains wide lying between two faults.

*Fiery Cross Mine, Dunollie* (Currie and Party).—The main level going north, after being driven a total distance of 14 chains, encountered a fault, and pillar-extraction was commenced. The main inclines, which are being driven north-westerly, are approaching the boundary, where the coal has thinned.

*Baddeley and Party, Dunollie.*—Two mines have been opened up on the new lease. The seam is steeply inclined, lying apparently on a fault running north and south. In the north level the coal is 9 ft. in thickness between the hanging and the foot walls. A pair of parallel levels 90 ft. apart connected by rises are being driven. In the south mine a similar method of development has been carried forward.

*Castlepoint Mine, Dunollie.*—The bulk of coal won from this mine was from pillar-extraction in the northerly portion of the lease. Very little development work was undertaken throughout the year.

*Hilltop Mine, Ten Mile* (Armstrong and Party).—The main dip going north-east has been stopped on a fault-line. Development work was carried out in Nos. 1 and 2 panels to the east of the main dip. From the bottom of the main dip a level has been driven easterly in 5 ft. of coal. The coal is split by a stone band 4 in. in thickness. Plant: Screening-plant has been erected at the foot of the main incline.

*Brady's Mine, Ten Mile.*—The main dip has been extended a total distance of 3 chains easterly in coal 6 ft. in thickness. Development on the strike of the seam to the north and south was then undertaken. The coal in the south level averages 7 ft. in thickness and is of good quality.

*Hunter's Mine, Dunollie.*—The main level was stopped on a fault 14 chains due north of the main mine-entrance, the coal gradually decreasing in thickness to 2 ft. 3 in. The main inclines are being driven easterly. Pillar-extraction has commenced on a line parallel with the outcrop and beneath the "Bridal Falls."

*Cox Creek Mine* (Coates' Lease worked by Kaye and Party).—The work of pillar-extraction was continued. Only a small amount of coal remains to be won. Coal is of good quality, averaging 3 ft. 6 in. in thickness.

*Schulz Creek Mine, Ten Mile* (Marshall and Party).—The main incline, after having been driven 6 chains north-easterly, was stopped in coal 1 ft. 3 in. in thickness. Development work was also continued in No. 2 incline on a bearing north 17° east, the seam being 2 ft. 4 in. in height. All levels being driven easterly have been stopped on the fault-line. Prospecting operations have been carried out without any material result being obtained.

*Dennehy's Mine, Twelve Mile* (Chamley and Party).—All development work was completed and coal-winning is now confined to the extraction of pillars between the goaf and the old workings of the Schulz Creek Mine, the coal being 3 ft. 6 in. in thickness.

*Cain's Mine, Rapahoe.*—All inclines have now reached the northern boundary, and pillar-extraction has commenced.

*Bellbird Mine, Rapahoe* (Fauth and Party).—The main dip has been driven northerly to the boundary of the lease. Development to the east and west was stopped on fault-lines. The area being developed comprised a strip of coal 4 to 5 chains in width between parallel faults. In the main dip the coal has thinned and is now approximately 6 ft. in height with stony bands near the roof and floor.

*Bellvue Mine, Rapahoe* (Hadcroft and Party).—All development work in this mine having been completed, pillar-extraction was commenced principally on the south-western boundary adjacent to Cain's Mine. The coal averages 7 ft. 6 in. in thickness.

*Jubilee Mine, Rapahoe* (Pinn and Party).—The seam in the new mine adjacent to the main highway (Greymouth to Westport) having thinned to 1 ft. 10 in., coal-winning operations ceased. A tramway was then constructed from the bin to the old mine and pillar-extraction commenced. Prospecting operations: A considerable amount of surface prospecting was carried on.

*Musselpoint Mine, Nine Mile* (Curtis and Party).—To the east the workings were cut off by an upthrow fault of unknown dimensions. Going south, the coal thinned to 3 ft. in thickness. A short-wall method of mining was commenced.

*Smith and Party, Dunollie.*—The main dip going west was stopped in friable coal. Pillar-extraction was commenced on the south side of the bottom level. Three main levels were extended in a northerly direction in coal approximately 4 ft. in thickness. The stone band in the coal continues to increase in thickness. The cost of pumping is now an important factor in the workings of this mine.

*Brachead Mine, Dunollie* (Boote and Party).—Pillar-extraction was carried on in the north-easterly portion of the lease throughout the year, the line of extraction being 3 chains in length.

*Stillwater Mine, Stillwater* (Boustridge's).—Prospecting on the adjacent hillside uncovered a vertical seam running north and south. The coal is 8 ft. in thickness between the hanging and the foot wall. A drive 4½ chains in length was put in on the bottom of the seam. Another drive immediately above this was commenced to provide a return airway.

*Remarks on Co-operatives Mines, Grey District.*—These small mines have been seriously affected by slackness in the coal trade. The overhead costs, more particularly in the dip mines, are becoming an important factor, due to the cost of power, &c., and the small output obtained from each mine.

### Reefton District.

*Archer's Mines, Capleston.*—Mining was continued in the same primitive manner. The bulk of the coal won was from pillar-extraction to the rise in the No. 1 seam. To the dip a drive was commenced and projected for a distance of 1½ chains in a south-westerly direction. Haulage was done by means of a hand-winch, the water being removed by means of a hand-pump and syphon.

*Hopeful Mine* (Archer's Lease).—Pillar-extraction was continued in the No. 2 seam. The coal was friable and roof conditions adverse, and in places it was necessary to use face boards and close lathing to keep up the hanging-wall.

*Smith and McCormack's Mine* (Archer's Freehold).—This small mine was opened up in the No. 1 seam adjacent to the fault. A stone drive was commenced to cut the No. 2 seam at a lower level.

*Coghlan's Mines, Capleston.*—Eone Mine (Leasehold): Pillar-extraction was carried out to the rise adjacent to the outcrop. The main stone drive was extended in order to cut the No. 3 seam at a lower level. Total output up to the 31st December, 1933, from this mine is 6,233 tons. Coghlan's Freehold: No development work was done during the year. Work was confined to the splitting and the extraction of pillars on the boundary adjacent to the Eone Mine.

*Waitahu Mine.*—The work of developing the No. 3 seam by driving a pair of parallel headings with inclines 2 chains apart was continued.

*Golden Point Mine* (T. S. Patterson's Lease).—Prospecting operations were carried on at this mine during the year. The coal produced was of a friable nature. Towards the end of the year the mine was closed.

*Venture Mine (Beechwood Mine)*, (J. and I. Patterson's Lease).—Steam plant was installed and the old mine unwatered. Going south the main level was extended a distance of 3 chains and parallel inclines driven to the rise an approximate distance of 2 chains. The coal is of a friable nature and difficult to market.

*Morrisvale Collieries.*—Perfection Mine: The coal won from the mine during the year was from pillar-extraction to the rise. A dip heading off the main level for development purposes was driven to the east a distance of 2 chains. The fire in the rise workings broke through from the goaf. Two dams were erected in the stone drive to seal it off. A large quantity of clay and rubble was sluiced in behind the dams to prevent the encroachment of the fire to the present workings. An electrically driven fan of the Blackman stream-line type, was installed during the year. Surprise Mine: Work in this mine was confined to the developing of two panels east and west of the main dip. In June last an electrically operated three-throw pump was installed to replace the steam-driven pump formerly used. An electrically driven fan of the Blackman stream-line type was also erected. Welcome Mine (No. 4 Mine): This mine was reopened and a small amount of top coal removed. Hygrade Mine: Pillar-extraction along the outcrop adjacent to the fire area was commenced. The mine worked intermittently during the year.

*Burke's Creek Collieries, Ltd.*—Early in the year the work of coal-winning from this mine was undertaken by a co-operative party. The development work in the east panel was continued. A small amount of coal was also won from the barrier section adjacent to the Middle Flat. Towards the end of the year the fallen ground on the south-west side of the dip was driven through and retimbered, and the work of developing the new panel commenced. The indications are that 30 acres of new workings will be opened out from this level. Extensive repair work was carried out underground. The last three months of the year showed an improvement in the number of days worked at the mine. Peerless Mine (Burke's Creek Lease): This mine is worked by Messrs. Turner and party. The main level going west had been stopped in stony coal near the boundary and the work of pillar-extraction commenced.

*Sparkless Mine* (Lockington's, leased to Hamill and Watson).—Prospecting operations failed to reveal coal of a marketable quality, and the mine was closed towards the end of the year.

*Times Street Mine* (H. A. Honey).—This mine worked intermittently during the year. Development work consisted of driving a pair of parallel headings approximately 90 ft. apart.

*Collins' Mines* (Phœnix and Venus).—During the year 711 tons of coal was produced from these mines during prospecting operations, the object of which was to locate and extract small blocks of coal that have been left between the fire and the fault-line.

*Defiance Mine* (McLaughlin's).—In addition to extending the main level on the strike of the seam, a small prospecting drive was extended towards the outcrop in an endeavour to locate coal of a harder nature suitable for market conditions.

*Wealth of Nations Mine, Lankey's Creek.*—The old workings to the east of the abandoned area were reopened and three places opened out. The old roadways were secured by packs and chocks and several small pillars have been extracted.

*Clele Mine* (Alborn's).—No. 1 section: The main level was extended in a line parallel with and 70 ft. distance from the outcrop. The seam is thin and stone intrusions are troublesome. No. 2 section: Two dip sections are now being developed from the outcrop. The main dip was extended a distance of 70 ft. and levels broken off to the right and left.

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

*Remarks on Reefton Mines.*—With the exception of the two larger mines, the work of winning coal continues to be carried on in a very primitive manner, without the aid of machinery for pumping, haulage, or screening.

BULLER DISTRICT.

*Mitchell's Mine, Charleston.*—20 tons of coal was won from opencast workings during the year.

*Price's Freehold, Brighton* (leased to A. Hunter).—The work of coal-winning was abandoned during the year.

*Rocklands Mine, Buller Gorge* (J. P. Burley).—A small amount of coal was obtained from the splitting of pillars in the rise section.

*Whitecliffs Mine, Buller Gorge* (J. H. Burley).—Only a small amount of work was done at this mine during the year. Coal-winning operations consisted in the removing of side and top coal from the old drives.

*Coal Creek Mine, Seddonville.*—This mine remained idle throughout the year.

*Quinn's Mine, Seddonville.*—This mine has been closed.

*Glasgow Mine, Seddonville.*—No development work was undertaken during the year. A small amount of coal was obtained from pillar-extraction.

*Cardiff Bridge Mine, Seddonville.*—Only a few pillars now remain to be extracted at this mine. Prospecting operations have been carried out in the vicinity, but no tangible results have yet been obtained.

*Chester's Mine, Seddonville.*—This mine remained closed throughout the year.

*Westport-Stateville Mine, Seddonville.*—No work was done at this mine during the year.

*St. Helens Mine, Seddonville.*—A small amount of coal was won from pillar-extraction. The mine remained idle for a considerable portion of the year.

*Charming Creek Mine, Ngakawau.*—During the driving of the dip heading, to open up the field in the vicinity of the No. 5 Government borehole, the output was maintained by the continued extraction of pillars in the No. 1 south-east panel. Mining conditions in this section were favourable, and a complete extraction of the pillars was obtained. Following the installation of a small vertical 7 h.p. steam boiler and winch at the top of the return airshaft, a 3 in. steam pump was installed to allow the development of the dip area. Several small "rolls" were cut during the driving of the dip. During March, the No. 5 Government prospect shaft was reached. This formed a return airway with a consequent improvement in the ventilation of the mine. Two levels were driven from the bottom of the dip in a north and south direction. The coal throughout the dip workings is of good quality and varies from 10 ft. to 20 ft. in thickness. Main east level: A small amount of development was done in this section. A start was made to construct a return airway through a fault. The total length of driving to be done is 412 links.

*Westportmain Mine, Granity* (Westport-Granity Coal-mines, Ltd.).—A small amount of coal was won from prospecting operations at the head of the main jig. The mine has remained closed for the major portion of the year.

*Westport-Cascade Mine, Burnett's Face.*—The work of extracting pillars in the section lying to the east of Cascade Creek is nearing completion. Proceeding east, the coal thins and becomes stony. Monyhan's section: An area 14 chains by 8 chains has been developed with pillars approximately 1 chain centres. The coal in this section is extremely thick and rises by means of a series of step-faults at a grade of 37 degrees. Very little cover overlies the seam at this point. Only the hardest of the coal is being removed, the remaining portions of the seam being unsaleable. Durkin's section (west of Cascade Creek): The main level was driven on a bearing of 41 degrees for a distance of 5 chains and left standing in coal estimated to be 20 ft. in thickness. To the left of Durkin's Creek, a second level driven on a bearing of 308 degrees was stopped in gravel formation.

*Westport Coal Company, Limited, Denniston Mines.*—Wareatea Mine, Denniston: A small amount of prospecting was carried on beyond the present workings of the Wareatea extended section and a number of outcrops of coal exposed. The country is badly broken up, but improves towards Mount Rochfort. Boring will be necessary to prove the extent of the coal. Wareatea-Coalbrookdale Mine—Openshaw's section: Eight pairs of men were engaged on pillar-extraction at the beginning of the year, but owing to trade conditions and the nature of the coal, this number was reduced. Waterloo section: The main headings in this section were driven a distance of approximately 5 chains in a south-westerly direction when the coal thinned going to the rise. About sixteen pairs of colliers were engaged in solid workings in this section. Wareatea Extended Mine: Development work in this section was confined to a dip heading being driven in a north-westerly direction. Owing to the short time worked, difficulties in pumping, &c., progress has been very slow. Three pairs of colliers were engaged in solid workings, and twelve pairs of colliers were engaged on pillar-extraction. Cascade Mine: Pillar-extraction was continued in Wallace's section and old No. 9 section at the end of the Cascade haulage-rope. Seven pairs of miners were employed. Two places were worked double shift in an endeavour to straighten the line of pillar-extraction. Ironbridge Mine (Garing's dip): Development is still being carried out in this section. Several small faults have been encountered and the seam split by a band of stone. The workings proceeding in a south-easterly direction were delayed by fallen ground and development carried out in a north-easterly direction. Nine pairs of miners were employed and electric safety-lamps are in use as a temporary measure. Deep Creek section: Twelve to sixteen pairs of miners were engaged in this section on solid work in the bottom seam. The coal is of good quality with soft bands intervening. The thickness of the seam is 14 ft. Pillar workings: Only a small percentage of pillar coal was won during the year. Bluff section: This section was sealed off owing to fumes percolating from the Kruger's fire area. A large number of stoppings were erected on both sides of the Ironbridge rope-road in an endeavour to prevent the fumes entering the mine workings. At a point on the rope-road known as the "Gentle Annie Steep" a concrete arch, 70 ft. long, was erected to support the roof and keep back the fire fumes. A small subsidiary haulage was installed in Garing's dip during the year.

*Westport Coal Company's Millerton Mine.*—A further falling-off in sales resulted in the closing of additional sections of the Millerton Mine, the number of men employed being reduced to seventy-four. Towards the end of the year, the old dip section was closed. Coal-winning operations are now confined to the extraction of pillars in the middle section and the daily output of the mine reduced to approximately 250 tons. The work of erecting concrete stoppings in the formation of artificial panels within the mine has been continued throughout the year, Owing to the fire risk in the middle section, pillars are robbed instead of extracted. The work of recovering the top coal is proving difficult. Props up to 25 ft. in length are now used in the Millerton Mine to support the roof in the working-places. Ventilation: The return airways have been reconditioned and an additional return airway provided from the middle section for use in case of emergency. Only one heating occurred in the Millerton Mine during the year. This was successfully dealt with.

*Westport-Stockton Coal Co., Ltd., Ngakawau.*—Mining operations during the year were chiefly confined to pillar-extraction in the old east, old west, and west dip areas. Pillar-extraction was maintained in a straight line, results having proved satisfactory in the past. Solid working was confined solely to the new east area, the south-westerly headings having been advanced a further distance of 10 chains in coal of good quality. The haulage unit in this area has also been extended to deal with larger output if required. The power plant has been maintained in reasonable order. Several of the sub-stations have been overhauled and renewals, repairs, &c., were effected to the transmission-lines, locomotives, and loco.-track.

NELSON DISTRICT.

*Puponga Colliery, Puponga.*—On the western outcrop the dip drive was advanced a distance of 6½ chains to the fault. A small block of coal from 4 to 6 chains in width and 10 to 12 chains in length lying between two faults, has been developed, the coal averaging from 4 ft. to 5 ft. 3 in. in thickness. From the eastern outcrop four levels were driven in a westerly direction. To the south of the present workings, a small section known as "Murphy's section"

has been opened out. The coal in this section is of an inferior nature. Prospecting operations: In the main level hand-boring had been commenced to prove the No. 3 seam, estimated to lie 100 ft. vertically below the present workings. A comprehensive scheme of prospecting has been decided upon for future working.

*Mount Burnett Co-operative Party, Collingwood.*—In the No. 1 seam the crosscut dip drive was advanced a total distance of 7 chains north-westerly. The seam at this point was estimated to be 18 ft. in thickness. The steam pumping-plant being unable to cope with the water, the dip drive became flooded to a point 30 ft. below the No. 2 level. Three levels were driven 5 chains in a northerly direction and two levels a similar distance south. In the No. 2 seam overlying the No. 1 seam, a modified system of longwall has been carried out. The main level was extended a distance of 10 chains northerly when a fault was encountered preventing further development in this direction. Surface prospecting proved the seam beyond the fault to be dirty and unworkable.

*Broxbourne Mine, Takaka.*—No mining operations were carried out during the year.

*Motupipi Mine, Motupipi* (J. and D. Winter).—Stripping operations were continued throughout the year.

*Abbotsford Mine, Takaka* (H. V. Irvine).—The mine remained closed during the year.

*Seymour Mine, Owen River.*—During the year the main level was extended 40 yards when the seam thinned, the coal being 1 ft. 6 in. in thickness overlain by 2 ft. 6 in. of dirt. Nos. 1 and 2 stalls were worked continuously throughout the year. A slight modification in the system of extracting coal from the No. 2 stall was found necessary on account of roof conditions. Pillar-extraction was commenced each side of No. 1 rise heading. A dip drive, on an angle of 45 degrees with the strike of the seam, was commenced, and a pumping-plant and haulage-winch installed.

*O'Rourke's Mine, Murchison.*—Coal-winning operations were confined to the bottom level, the coal-seam being 1 ft. 11 in. in thickness.

*Wynndale Colliery, Murchison.*—Prospecting operations carried out on coal-prospecting license No. 1799 having proved a vertical seam varying from 2 ft. to 9 ft. in thickness, mining operations were commenced and levels driven north and south for a distance of 4 chains. The coal varied abruptly in thickness, the method of working adopted being the ordinary bord and pillar, levels being driven 24 ft. apart, vertical measurement.

*Clarke Mine, Baton* (Hartshorne's).—Prospecting operations were continued at this mine throughout the year. A pair of levels was driven a total distance of 300 ft. on the strike of the seam. The seam is 8 ft. in thickness separated by stone bands varying from 2 ft. to 3 ft. in thickness.

*Burnwell Mine, Baton.*—Operations at this mine were commenced by a syndicate known as the Burnwell Co-operative Syndicate on the freehold property previously worked by Messrs. Hartshorne, Curtis, and others. Only a small amount of coal was produced as same was of poor quality and could not be marketed.

### Fatal Accidents.

Three fatal accidents occurred during 1933:—

On the 28th February, 1933, Alfred Blenkiron, miner, Stockton Mine, was killed instantaneously by a fall of roof coal in No. 2 dip section.

On the 25th September, 1933, James Reid, miner, Stockton Mine, was killed by a fall of roof coal in the South-west pillar section (Fly Creek).

On the 27th November, 1933, Francis McQuaid, miner, Paparoa Mine, met his death by severe burns, shock, and suffocation caused by an explosion of gas in his working-place. Evidence at the inquest revealed that the explosion was caused by deceased striking a match in his working-place to light a cigarette.

### Serious Non-fatal Accidents.

The following four serious accidents were notified during the year:—

On the 11th January, 1933, George Closs, miner, Liverpool Colliery, received cuts and abrasions to his head, back, and left arm, and dislocation of his left hip while engaged in cleaning up an old bord in the Anderson seam. He suffered severely from shock and it was later found that his spine was fractured. The accident was caused by a fall of coal from the roof and side.

On the 3rd March, 1933, Alexander Williams, miner, Liverpool Colliery, whilst working in the Kimbell west section, received severe injuries to his left shoulder and arm by a fall of roof coal. Later at the hospital his arm was amputated about 4 in. below the shoulder.

On the 6th October, 1933, John Carter, miner, employed in the Dobson Mine, fractured his spine and three ribs in the No. 3 dip, No. 2 east level section. He was riding on a truck containing three jig wheels each weighing 1 cwt. The wheels slipped back causing the front end of the truck to lift. In endeavouring to balance the truck, he was jammed against the roof.

On the 8th November, 1933, George Olsen, miner, Liverpool Colliery, whilst engaged in filling a truck of coal in the Anderson seam, pillar section, was struck by a fall of side coal and sustained a simple fracture of the right leg above the ankle.

### Dangerous Occurrences Notified under Regulation 82 of the Coal-mines Act, 1925.

On the 15th February, 1933, boisterous weather caused the failure of the electric-power supply used to drive the fan in the Wallsend Colliery and the men were withdrawn from the mine.

On the 22nd March, 1933, a heavy feeder of gas was encountered coming from a roof fissure in the No. 3 main drive, Wallsend Mine. The main trucking road became fouled. The feeder was drilled and piped to the return aircourse, work being resumed in the afternoon shift.

On the 30th March, 1933, gas accumulated in a working-place in No. 3 west level section of the Dobson Mine and one pair of miners was withdrawn.

During May, 1933, a heating occurred in panel A, middle section, Mine Creek, Millerton Mine. A considerable amount of coal was filled away and, although heating was still evident, it was well under control. Everything was kept in readiness for closing the doors in the panel should sealing-off of the section become necessary.

On the 6th June, 1933, an old fire in the Perfection Colliery broke through the waste and reached the bottom level. All mining gear was removed from the mine and temporary stoppings were built. Later, permanent stoppings were erected sealing off the whole of the rise section, which has since been abandoned.

On the 4th November, 1933, a miner, John McKinlay, employed in the settlement section of the Old Dip Mine, Millerton Colliery, received burns about the head and arms by an ignition of gas in his working-place. A small fall of coal had broken down the brattice at the entrance to the rise, allowing a quantity of gas to collect.

On the 4th November, 1933, a quantity of slack coal, stowed in the side of the heading at the Musselpoint Mine became heated. Air was conducted over the debris which was cooled down sufficiently with water to enable the heated material to be removed.

On the 8th November, 1933, due to the floor heaving in the vicinity of a small coal-seam, a heavy gas feeder fouled the return stone drive in the Wallsend Colliery and the workmen were withdrawn from the place.

On the 27th November, 1933, an explosion of fire-damp occurred in the west level section, Paparoa Mine, causing the death of one workman and injuring two others. An escape of gas had taken place in the main level. This gas was ignited by a workman striking a match to light a cigarette. Safety-lamps are used throughout the mine.

On the 4th December, 1933, an accumulation of gas, 2 per cent. to 2½ per cent. mixture, was found in the working in the No. 3 section, Wallsend Mine. A ventilation door had been left open, allowing a short circuit of the air through to the No. 2 dip. The night-shift workmen were unable to proceed to work.

On the 4th December, 1933, owing to a gas feeder fouling the slant dip and adjacent place in the Wallsend Mine, the workmen were withdrawn.

### Prosecutions under the Coal-mines Act, 1925.

During 1933 sixteen informations were laid. Two charges were dismissed, one withdrawn, and thirteen convictions recorded.

For failing to systematically timber his working-face, an information was laid under section 117 (1) against a miner, who was convicted and fined £2 and costs.

Three informations were laid against mine-managers under Regulation 238 (3) (*g*) for failure to take representative samples of road dust every three months. In two cases convictions and fines of £2 and costs were inflicted, and in the third case the manager was convicted and fined £1 and costs.

Two informations were laid against a mine-owner for failure to comply with the requisition to install fans at his mines as required by Regulation 180. He was convicted and fined £2 and costs on one charge while the other charge was dismissed, as the Magistrate decided that the defendant was not the legal owner of the mine.

For failing to provide a sufficient supply of proper materials and appliances in accordance with Regulation 78, an information was laid against a mine-owner. This charge was dismissed, as it was held by the Magistrate that the defendant was not the legal owner of the mine. An alternative charge for failing to provide a sufficient supply of proper materials, &c., was laid against the mine-manager under Regulation 78. A conviction was recorded and a fine of £1 10s. imposed.

The underviewer of the same mine was charged under Regulation 89 with failing to see that the necessary materials and appliances were sent into the districts. He was convicted and fined £1 and costs.

A mine-owner was charged that, being the owner of a mine during which time the manager failed to appoint in writing a sufficient number of duly qualified officials, as provided for by section 61, he was guilty of a breach of section 198 (2). He was convicted and fined £2 and costs. An alternative charge laid against the mine-manager was thereupon withdrawn.

The acting-deputy of a mine was charged under section 126 (*e*) with failing to record in a book kept for the purpose a report stating what steps had been taken to mitigate the dangers arising from coaldust. A conviction was recorded and a fine of £1 and costs inflicted.

Two miners were each convicted and ordered to pay costs for failing to systematically and adequately support the roof of their working-faces at such regular intervals and in such manner as specified by notice at the mine. (Section 117 (1).)

An information was laid against a winch-driver under section 98 (1) for having in his possession cigarette-tobacco in a mine where safety-lamps are used. He was convicted and ordered to pay Court costs.

A shot-firer was charged under Regulation 234 (1) (*f*) with failing to keep a record of the number of shots fired by him and the number of miss-shots. He was convicted and fined £1 and Court costs.

## SOUTHERN INSPECTION DISTRICT (Job Hughes, Inspector of Mines).

### Coal Output.

It is pleasing to report a slightly better position in the industry for the year under review. The total output for this district shows an increase of 20,404 tons compared with 1932; however, the output is still much below the normal figures of previous years. It is worthy of note that the increased output was obtained with a decreased number of persons employed. This is partly accounted for as a result of the concentration on pillar-extraction at some of the larger mines, probably in an effort to reduce working-costs and thereby reduce the selling-price of the product; unfortunately, this process has its limits. The Canterbury output increased 2,703 tons; North Otago decreased 1,617 tons; Central Otago decreased 133 tons; South Otago increased 5,513 tons; and Southland increased 13,938 tons. It is noteworthy that the resumption of work in any district following an industrial dispute has been accompanied by a decrease in the number of employees engaged. The current year has seen the introduction of coal-cutting plant in one of the larger mines, and there appears to be no doubt that the innovation has proved successful from the company's viewpoint and that this will be the forerunner to the further installation of machine-mining plant. Mining operations generally have been carried out in a reasonably safe manner as is indicated by a decrease from 178 in 1932 to 160 in 1933 in the total number of accidents which occurred in and about the mines in the district.

### *Canterbury District.*

*Springfield Mine.*—This mine has been worked only intermittently. There was a little development carried out to the north-east, also a few pillars robbed on the west side of the dip. The general mining conditions are only fair and very primitive.

*Konomy Mine.*—A limited amount of development work was carried out during the year, comprising the extending of the dip heading and the driving of two levels east for a distance of 2 chains; thickness of coal, 2 ft. 6 in.

*Bonanza Mine.*—The development levels at this mine having been driven through the hill and connected to the surface, a commencement was made, about the middle of the year, to extract the pillars, and was continued satisfactorily throughout the year.

*Clearview Mine.*—Pillar-extraction has continued during the year in a satisfactory manner.

*Lucknow Clay-pit.*—Pillar-extraction has been continued and the pillars are now extracted to within 3 chains of the mine-entrance. The intermittent manner in which these clay-pits operate tends to make roof conditions unsatisfactory.

*Klondyke Mine.*—The main level, proceeding north-east, was stopped in outcrop coal after being driven approximately 30 chains. Pillar-extraction was commenced about the middle of the year. The seam lies at a gradient of approximately 50° and is about 30 ft. thick. A series of small dimensioned levels is driven along the strike of the seam and at various heights from the floor. The whole of the coal is shot down, in comparative safety, from these levels and it runs into V-shaped openings made in the seam on the higher side of the lower level, from whence it is run into the mine trucks. This method of work has, so far, proved safe and economical.

*Bush Gully Mine.*—In the No. 2 level pillar-extraction was completed during the year and the development of the seam from the lower level has been extended a distance of approximately 8 chains south-west. An additional air-shaft was constructed during the year.

*Homebush Fireclay Mine.*—Work has been carried out intermittently on a small scale to the west of the main level.

*Homebush Mine.*—Several attempts have been made during the year to locate a profitable area of coal, but all efforts have proved more or less disappointing. A remnant of the "engine" seam is at present being worked, at the high end of the old workings, under difficult conditions.

*McClimont's Mine.*—Work was suspended during the year, following a small amount of prospecting.

*Sunnydale Mine.*—Work has been of a prospecting nature and the results have so far proved disappointing.

*Blackburn Coal Co.'s Mine.*—No new development has taken place towards the dip, and levels were driven east with a view to proving a new area. However, this was not persevered with, and work is now being concentrated on a small area of coal which can probably be worked opencast.

*Mount Somers Coal Co.'s Mine.*—Development work has been continued easterly. A level stone drive was connected up in this area during the year and the development of the mine continued from this point. The coal-seam appears inclined to thin under the creek, going east. Pillar-extraction has been continued during the year in the old section.

*Meadowbank Mine, Waihao Forks.*—This is a new mine commenced adjacent to the old Meadowbank Mine. A dip heading has been driven 200 ft. to the north-west and a companion heading started for a return airway. The seam of lignite is 20 ft. thick and of fair quality.

*Albury Mine.*—The mine has continued to be developed to the north by means of an additional level. All places are driven 8 ft. wide. An additional airshaft was constructed during the year.

*North Otago.*

*Ard Ross, Waihao Forks.*—A small amount of opencast mining adjacent to the creek-bed was carried out the pit being ultimately flooded and work suspended about the middle of the year.

*Wilson and Butler's Mine, Kurow.*—Work was suspended at this mine towards the end of the year. The area proved to be faulted and no reasonable area of coal was located.

*Airedale Mine.*—The mine has been steadily developed during the year by means of levels driven east and west from the main dip. The coal is inclined to be friable proceeding west. A "Blackman" propeller ventilating-fan was installed during the year, same being electrically driven.

*St. Andrew's Mine.*—Further development has taken place along the main levels and to the rise of the same. An additional dip heading has been driven from the inby end of the main level. Pillar-extraction has taken place from the outby dip heading. Roof conditions are unfavourable and require the liberal erection of heavy timber.

*Ngapara Mine.*—Pillar-extraction has been commenced at this mine in the west section. Four feet of top coal is left to prevent the surface clay and sand running, and preparatory fire stoppings are erected as a safeguard against spontaneous combustion.

*Shag Point Mine (Old Mine).*—The main dip heading was developed during the year to a total distance of approximately 8 chains and levels broken away north and south. Nothing further has been done to prove the faults on either side of the main dip.

*Shag Point Coal-mining Co.'s Mine.*—Mining operations have been considerably interrupted during the year as a result of a stoppage of work following an industrial dispute and the burning-down of the workshops and substation. A commencement was made to work the mine by means of a co-operative party early in September and work has continued smoothly under this arrangement up to the end of the year. The lower level proceeding north in the lower seam has been driven to its limit and a commencement made on pillar-extraction in this section. Spontaneous combustion took place in the pillars on the west side of the winch heading and the heated area was sealed off. This is the first case of heating at this mine and it was probably the result of the stoppage of work referred to.

*Oakdene Mine, Maheno.*—Following upon exploratory work (the results of which were disappointing) operations were suspended early in the year.

*Diamond Hill Mine, Herbert.*—Very little development work has taken place during the year, and what little coal was won was obtained from robbing the rise workings. The mine is too difficult of access to be of much value.

*Willetts Mine, Oamaru.*—This is a new mine situated approximately one mile beyond Airedale and towards Papakaio. A level cross-cut was driven west for 150 ft. The seam was developed in a northerly direction and coal 6 ft. thick and of very fair quality, has been proven.

*Otago Central.*

*Shepherd's Creek Mine, Bannockburn.*—No new development work has taken place at this mine. Pillar-extraction has been continued in the northern area of the mine.

*Nevis Crossing Mine.*—A small amount of work, of no interest, was done at this mine during the year.

*Gibbston Mine.*—Active mining operations were suspended early in the year and a small amount of prospecting carried out later, the results being unsatisfactory.

*Oturehua Mine.*—The underground workings remain flooded, no attempt having been made to dewater them. Opencast mining was continued in the south end of the pit.

*Armitage's Coalpit.*—A small amount of opencast mining was carried out early in the year at the head of the pit.

*Idaburn Mine.*—Underground operations ceased early in the year and since then work has been confined to opencast mining.

*Rough Ridge Coalpit.*—Opencast operations have been continued on a small scale during the year.

*Parfit's Coalpit.*—Opencast mining has continued, with the assistance of water for sluicing away the overburden. The measures are very disturbed at this pit.

*Cambrian Coalpit.*—Opencast mining has been continued at the north and south ends of the pit, the overburden being sluiced away.

*Coal Creek Flat Pit.*—This is probably the most thorough example of opencast mining. The sluicing-away of the overburden is kept going almost continuously, with the result that a considerable quantity of lignite is always available for mining.

*South Otago.*

*Freeman's Mine.*—Pillar-extraction has continued along the main level and to the rise. During the year a few pillars have also been recovered from the old workings to the dip. A limited amount of coal now remains to be worked at this mine.

*Jubilee Mine.*—Work in the old mine has been confined to pillar-extraction and this work has been continued throughout the year. The workings have now retreated to a point above free drainage, and the pumping-plant, which was an expensive item, has been withdrawn. Owing to the limited amount of coal available work at this mine is now drawing to a close. The development of the new mine is being steadily pushed ahead, but no large area of coal is yet available for working. The main level has been driven a total distance of approximately 1,200 ft. and the haulage system is being extended. The thickness and quality of the coal in this mine has steadily improved and a much larger area should soon be available for development.

*Green Island Mine.*—Early in the year a commencement was made to dewater this old mine. After proceeding a few chains along the main dip it was found that the heading had collapsed. A new dip was driven easterly for a total distance of 500 ft. from the surface and the old workings unexpectedly intercepted on two occasions. Considerable trouble and expense have been met with, and altogether the outcome of this project is very doubtful.

*Hodson's Mine, Fairfield.*—This mine has been steadily developed during the year to the dip, and levels driven east and west. All development work has proved satisfactory, the thickness of lignite being approximately 9 ft. and of good quality. A reasonable area of good lignite seems assured at this mine.

*McColl's Mine, Brighton.*—Development of this mine has been carried out, on a small scale, in a westerly direction. All places are still driven narrow and very little explosives used for coal-winning.

*Fry's Mine.*—The development of this mine was carried out in the lower seam for a distance of 200 ft., an airshaft was constructed and main roadways retimbered. The thickness of coal worked was approximately 4 ft. Operations were suspended towards the end of the year.

*Brighton Collieries.*—A new mine was commenced on the Duncan Settlement, Brighton. A dip heading was driven west, 1 in 4, and for 100 ft. The seam was 8 ft. thick and split by a band of stone 1 ft. 6 in. thick. Operations were suspended in October.

*Bush's Mine.*—Work was suspended about the middle of the year.

*Saddle Hill Mine.*—Work here consists of recovering small blocks of coal which were left ten years ago. Operations are necessarily limited.

*Fairfield Collieries.*—This concern went into liquidation about September. No coal was won, although approximately £4,000 was expended in the driving of a dip cross-measures drive a distance of approximately 400 ft. At the end of the year drainage work only was taking place.

*Allbright Mine.*—This mine commenced to win coal presumably left to the south of Christie's old workings. A perusal of the old plans would have disclosed the improbability of coal existing here. Work is now confined to the recovery of a few pillars adjacent to Harris' old workings.

*Willowbank Mine.*—Pillar-extraction has continued during the year, and a little trouble was experienced with spontaneous combustion. A new drive commenced about 10 chains north of the old mine, intercepted the coal-seam at 200 ft.; the area of coal lying to the north of the old workings will be developed from this point and a barrier of 2 chains left between it and the old workings.

*East Taieri Mine.*—The coal intercepted by the original drive proved almost useless. An additional dip drive of 200 ft., 1 in 4, was driven from a point about 600 yards south of the No. 1 mine. No coal has yet been won from this drive.

*Burnweil Mine.*—Work at this mine consists of exploring a portion of Harris' old workings, and only a limited amount of coal has been won.

*New Fernhill Mine.*—This is a new mine, commenced approximately midway between the old Fernhill Mine and Freeman's present mine. The development has proceeded in an easterly direction for a distance of approximately 6 chains. The old workings at Freeman's Mine are lying to the north and probably other old workings are also lying in this direction as an old roadway has already been intercepted and sealed off. A small amount of coal lies to the rise of the main east heading, but it is doubtful if any larger area of coal will be located here.

*Essbank Mine, Milton.*—Operations here are confined to pillar-extraction, and are nearing completion.

*Elliotvale Mine.*—A new level drive intercepted the seam a few chains to the north of the old mine, and development is proceeding from this point. The top portion of the seam is being worked and an airshaft has been constructed.

*Orrvale Mine.*—No material work was carried out here.

*Riverside Mine.*—This mine was closed, as a result of spontaneous combustion, in August.

*Kai Point, Kaitangata.*—Pillar-extraction has been taking place in the old workings and a new drive, commenced about 5 chains west of the original mine, intercepted the seam after approximately 100 ft. of driving.

*Summerhill Mine.*—Continual robbing of pillars resulted in the stopping off of the old workings in November, and very little coal now remains to be won from the present mine.

*Burnweal Mine, Lovells Flat.*—A commencement was made to reopen this old mine, but the work was abandoned after producing 11 tons of coal.

*Burnwell, Lovells Flat.*—A limited amount of development work was carried out south and west. The deposit here is an inferior lignite.

*Wangaloa Mine.*—Development work has been continued in a workmanlike manner easterly, and a lower cross-measures stone drive has been driven approximately 3 chains, from which the lower lying coal will be won.

*Kaituna Mine.*—Work was carried out intermittently, and was confined to the measures between old workings and the outcrop.

*Black Nugget Mine, Kaituna.*—This is a small mine which was commenced adjacent to the old Kaituna Mine. After the extraction of 17 tons operations were suspended.

*Benhar Mine.*—The main dip heading has been advanced to a total distance of 900 ft. and the seam is being developed to the south, and to the dip of the old workings. All higher levels have been stopped on the barrier.

*Taratu Mine.*—All development work to the dip was stopped about the middle of the year and the water allowed to accumulate. Development to the south—*i.e.*, to the rise—resulted in an inferior coal being encountered and a start was made to extract these pillars; owing to a portion of these pillars underlying Barclay's old mine a quantity of coal was left to prevent subsidence. Development along the main level was extended to a total distance of 900 ft. A fault or dyke was encountered in the main level, and will probably prove a thorn in the way of future development. The coal is of a very brittle nature and makes roof conditions unfavourable, to a certain extent, owing to the guttering of the roof coal, and requires a liberal use of timber.

*Kaitangata No. 1 Mine.*—Almost the whole of the mining operations at this mine consisted of pillar-extraction in the No. 1 seam. The work of extraction was assisted by the stoppage of work in the Southland mines, thus allowing a maximum number of men to be employed and an almost 100 per cent. extraction was effected, practically free from spontaneous combustion, and the roof conditions were rendered much safer as a result of the steady rate of retreat. In the 8 ft. seam, work was abandoned early in the year owing to difficulty in keeping the coal clean, this seam being split by a stone parting, which also rendered mining more costly. The main haulage-drive has been extended a distance of 2,000 ft. and has been connected with the prospect levels which were driven from the old dip on the No. 1 seam. Two dip headings are now being driven in the No. 1 seam to the east and coal of good quality is being mined and the seam is gradually increasing in thickness towards the dip. An efficient return airway is now provided from the new area and every opportunity provided for the expeditious and efficient development of this mine on probably more economical lines on account of the more direct haulage system now available.

*Kaitangata No. 2 Mine.*—Development work only has been continued during the year and, as a result of trade conditions necessitating a reduction in hands, the rate of progress was somewhat retarded during the latter part of the year. The whole of the development has continued to prove highly satisfactory; the coal proven has maintained its thickness and is of unusual hardness and very good quality. On the south side of the main stone drive, headings have been driven a distance of 1,200 ft. to the rise and other headings, on the north side, have been driven a distance of 700 ft., the coal there being particularly hard. The main south heading, after being driven 400 ft. on a level course, has been extended to the dip for a distance of 660 ft. The mine generally is being developed on sound lines and would appear to have bright prospects and the ventilation arrangements have so far proved quite adequate. During the year a "Korfmann" coal-cutter was installed and, up to the present, has proved satisfactory. There does not appear to be any doubt that the installation of this machine was a step in the right direction. The coal-cutter is driven by compressed air and has been successfully applied in places going to the rise at a gradient of approximately 1 in 4.

*Lakeside Mine.*—Pillar-extraction has constituted the bulk of the work during the year. The seam is very thick, being up to 40 ft. A new haulage drive has intercepted the main level about 4 chains from the bottom of the old drive. The new drive was 300 ft. long, dipping approximately 1 in 4.

*Southland.*

*Conical Hill.*—Development of this mine was very limited owing to the slight demand.

*Milne's Pit, Hakatea.*—Opencast mining was continued throughout the year.

*Hamilton and McKean's Mine.*—Opencast mining was carried on throughout the year and a pump installed to allow of the lower portion of deposit being worked.

*Kingdon's Pit.*—Opencast mining of the usual nature was continued.

*Croydon Coalpit.*—Work was abandoned in the old pit, and a new pit opened up, about a quarter of a mile to the west of the old pit.

*Whiterig Pit.*—Opencast mining was continued in a workmanlike manner.

*Riverview Pit.*—This pit was opened temporarily during the year and 10 tons of lignite won.

*Otikerama Mine.*—The dip heading was extended a short distance and a limited amount of development carried out along the strike to the north-east and south.

*Rosedale Mine.*—Underground mining was commenced here early in the year, a dip heading driven north for 100 ft. and a level to the west for a similar distance; operations very limited.

*Mataura Mine* (Beattie Coster).—Underground mining operations were suspended during the year, all plant was withdrawn, and the water allowed to accumulate. Work has since been continued on the surface by means of opencast mining, but the amount of lignite available for opencast mining is very limited unless some cheaper and more efficient means of removing the surface cover is applied.

*Green's Mine.*—The main dip heading was advanced to its full distance—*i.e.*, 1 chain from the surface roadway. The development of the north-east area was continued during the year and is now nearing completion.

*Bogheud Mine.*—The main dip heading was advanced a limited distance only during the year. The levels proceeding north and south have been developed continuously. An electric haulage plant was installed during the year.

*Tyrui, Gore.*—This is a new mine at which a level drive has been driven north a distance of 100 ft. The lignite is 20 ft. thick but it is divided by several bands of stone.

*Glenlee Mine, Waikaka.*—Development of this mine has been confined to the north-east level and a rise slant heading from the same, preparatory to the construction of a new air-shaft.

*Greenvale, Waikaka.*—This is an old mine and was dewatered towards the end of the year. The mine is being developed to the west. The lignite is only fair quality and the mine difficult of access.

*Springfield Mine, Waikaka Valley.*—This old pit was reopened and 143 tons of coal won. The pit was again closed in April.

*Hokonui Mine.*—Opencast mining has been continued on a small scale to the north-west of the old mine. No further effort was made to dewater the old mine.

*Pinchester Creek Pit.*—A limited amount of opencast mining has been continued. The measures here are very patchy, and considerable work is necessary for a small return.

*Lynwood, Te Anau.*—No work was done at this pit during the year.

*Ota Creek Mine.*—Opencast mining was continued during the year and along the usual lines.

*Terrace Mine.*—Underground mining was commenced towards the end of the year, a level having been driven on the coal for a distance of 1 chain north-west.

*North Chatton Mine.*—Underground mining has commenced here, a level drive was put in a distance of 100 ft. on the coal and going north.

*Otama Mine.*—A new mine commenced in the Otama Valley. A dip heading was driven 100 ft. and levels were broken away to the north. The quality of lignite here is fairly good.

*Argyle Pit.*—Opencast mining was continued, the surface covering becoming very thick; however, this is removed by sluicing.

*Lawrence's Pit.*—Opencast operations were continued throughout the year, and the overburden removed by sluicing.

*Northcoat and Lahey's Pit.*—This opencast pit is worked in conjunction with Lawrence's Pit and sluicing is also done there to remove the overburden.

*Wendon Mine.*—The extraction of pillars was completed during the year and the lease surrendered.

*Sparke's Pit, Moto-Rimu.*—This is an opencast pit operating in the usual manner. The thickness of lignite is approximately 6 ft. and a similar thickness of surface cover.

*Firelight Pit.*—A small opencast pit operated for private use.

*Glendhu Pit.*—An opencast pit operated chiefly for private use.

*Diamond Pit.*—Opencast mining was continued in the west end of the pit.

*Star Mine.*—The main dip heading has been developed to a total distance of 11 chains; the coal-seam is 9 ft. thick at the face of the dip and appears to increase in thickness and improve in quality towards the dip of the measures. The seam has also been proved a distance of 6 chains east and west of the main dip. Premature pillar-extraction on the east side of the dip resulted in heating taking place; however, this was effectively sealed off. Screening-plant was erected and a railway siding constructed during the year.

*Nightcaps Syndicate's Mine.*—Mining operations here proved that only a small block of coal adjacent to the Nightcaps–Ohai roadway was available. During the year the development work was completed, the bulk of the pillars extracted, and only a small amount of coal remains to be won.

*Lobbs Hill Mine.*—During the early part of the year pillar-extraction was completed at the old mine and mining operations were removed to the south-west corner of the lease and to the rise of Smith's old opencast workings. The seam was prospected to the north for a short distance but the results were not very favourable, the coal being only from 4 ft. to 5 ft. in thickness.

*Morley Vale Mine.*—Operations were continued in opencast; however, as the measures dip towards the hill it will probably be found necessary to adopt underground mining.

*New Brighton Mine.*—A prospecting stone drive was driven 200 ft. on this area with no results. Opencast mining was then carried on for a short time about 5 chains to the south of the old mine-mouth. During the latter part of the year a start was made to develop a small area of coal adjacent to McBride's old mine, a dip heading was driven 100 ft. and levels a similar distance to the east. At present the prospects are problematical.

*Waihopai Downs Pit.*—These opencast operations were suspended in September.

*Orepuki Mine.*—No further development work was done during the year, opencast mining being continued adjacent to the bed of the creek.

*Birchwood Mine.*—The bulk of the output was obtained from pillar-extraction in the east rise section; as pillar-extraction proceeded in this area it was discovered that a higher seam existed, at a horizon varying from 3 ft. to 6 ft. above the main seam. The result was that a considerable quantity of the higher coal-seam was left in the goaf mixed with other fallen strata, thus providing ideal conditions for spontaneous combustion, which, it should be stated, did threaten at various times. The above conditions, coupled with the fact that large quantities of $CH_4$ were known to exist in the goaf, ultimately resulted in part of the section being permanently sealed off in October. The development in the new dip section was interrupted by faulting across the dip heading. A series of levels was extended east and west for a distance of approximately 7 chains from the new dip, but with somewhat disappointing results. Methane was emitted from the lower workings very freely, the ventilation arrangements at the mine proving inadequate to deal with the position satisfactorily, and resulted in the retarding of the development work in this area. The work of installing a new fan and the enlarging of return airways was put in hand in the latter part of the year.

*Black Diamond Mine.*—The whole of the output was obtained from pillar-extraction in the north-east workings, and during the period of industrial trouble in the early part of the year mining operations were continued by the staff and owners. During pillar-extraction at this mine it has been proved that this coal is extremely liable to spontaneous combustion, and several cases of heating were notified. A line of permanent stoppings has been constructed around the working-area and preparatory stoppings at other points. The danger which can be introduced

underground by an inrush of water was forcibly illustrated in July. Following upon pillar-extraction a large cavity 100 ft. in diameter and 60 ft. deep was formed on the surface. This cavity collected water which accumulated until the pressure was sufficient to wash away the silt, when the whole of the accumulation swept through the underground roadways. Fortunately no person was working underground at the time or loss of life would probably have resulted. It was later found necessary to install a pump on the surface to control the collection of water.

*Wairaki Mine.*—The resumption of work following the industrial dispute saw the introduction of a co-operative party at this mine, and only a small proportion of the original employees were re-engaged. Operations have been conducted on a very limited scale during the year, the whole of the work being confined to pillar-extraction. In the first half-year pillars were extracted in No. 1 and No. 2 west and later in the lower east section. It was found necessary to erect additional fire stoppings outby of the original stoppings which showed signs of leakage due to roof-movement. Trade requirements did not warrant the putting in hand of any further development work.

*Black Lion Mine.*—Almost the whole of the output was obtained from pillar-extraction. This was commenced in the area lying to the dip and has continued steadily. The sump section will soon be completed. Mining conditions are satisfactory for pillar-extraction, and practically 100 per cent. recovery is being obtained. A dip drive was commenced adjacent to the bottom of the main stone drive. It has proceeded approximately 4 chains and is still in coal and would seem to indicate the existence of a small additional area of coal in this direction.

*Linton No. 1 Mine.*—Since the resumption of work early in the year very little development has taken place, the bulk of the output having been procured from pillar-extraction in the various panels. Indications of heating have been observed at various times and temporary stoppings erected as a precautionary measure. A small amount of preparatory work was done in No. 5 section with a view to the early development of this area. The new No. 6 level was driven almost to its limit with a view to making this the main haulage-road for the total output from the south-west section above this point. In the No. 4 panel the coal-seam is very thick, from 40 ft. to 60 ft., and is lying on the hade of a steeply inclined fault-line, and the operation of extracting this coal presents somewhat unusual difficulties. The process at present is one of working the coal in two series, or what is now termed "gallery working." Owing to the steep gradient, the coal won from the initial operations in the higher workings is run into chutes and the mine trucks loaded in the lower workings. The process of pillar-extraction under the above circumstances is accompanied by more than the usual element of danger, and requires extreme care on the part of all concerned.

*Linton No. 2 Mine.*—The whole of the operations at this mine are now confined to pillar-extraction; a proportion of the coal at the lower end of the dip heading had to be left owing to its being inferior and somewhat stony. Work in Nos. 6 and 7 panels has retreated to close proximity to the haulage road and it was found necessary to seal off No. 8 panel as a result of heating observed towards the end of the year. A cross-measures stone drive, below the haulage heading, is in course of construction to enable the pumping-plant to be removed outby and to facilitate the extraction of the dip pillars. One of the fire stoppings in No. 1 south, which seals off fire in the old workings, showed signs of heating. Any extension of this trouble would become a serious matter so far as the life of this mine is concerned.

*Mossbank No. 1 Mine.*—All operations have been confined to pillar-extraction, there being no further development work in view at this mine. The pillars from the east have now been withdrawn to a point 2 chains from the site of the No. 3 Mine haulage plant.

*Mossbank No. 3 Mine.*—Development work has proceeded to the south and west; the majority of the development headings going west have reached the vicinity of the Wairaki Mine workings and have been stopped on the barrier. It is not intended to proceed much further with development work from the present site, there being an area to the south-west yet to be developed. Pillar-extraction is being carried out in the western corner adjacent to the old No. 1 workings and also in close proximity to the roadway and railway. A considerable number of stone intrusions, small rolls, and dykes, have been encountered as in the past.

### Fatal Accidents.

It is gratifying to report that no fatal accidents have occurred during the year. The safety factor in mining operations depends entirely upon a complete co-ordination of effort on the part of—(*a*) the management; (*b*) the underground staff—*i.e.*, mine-manager, underviewer, deputy, and shotfirer; (*c*) the employees themselves. No matter what amount of zeal and care may be displayed by any one or two of the above-mentioned classes, every effort in the interests of safety will be rendered useless unless the whole of the parties strive to attain the same desirable end. For the period under review all are to be commended for the satisfactory result obtained.

### Serious Accidents.

On the 26th September, William Adcock, miner, Linton No. 2 Mine, sustained a fractured femur of the right leg. The working-place was one of pillar-extraction and the accident was caused by a fall of coal roof; a more strict compliance with the timbering rules would probably have prevented this accident.

On the 5th October, Thomas Hunt, trucker, Taratu Mine, sustained a compound fracture of the left leg below the knee. Hunt was trimming the side coal, preparatory to erecting a bar in a jig haulage-road, when a piece of coal fell and inflicted the injury.

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

*Black Diamond Mine.*—On the 31st January heating was discovered in the goaf in the north-west section, and was effectively sealed off. On the 28th June heating was discovered in the goaf in the top level of the north-east section, and was effectively sealed off. On the 4th July an inrush of water took place as a result of water accumulating in a large subsidence hole on the surface following pillar-extraction.

*Riverside Mine.*—On the 5th July an outbreak of fire occurred underground; this was sealed off, but broke through again on the 12th August and resulted in the mine being abandoned.

*Star Mine.*—On the 10th July smoke was discovered issuing from the return airway. The airway and adjacent places were effectively sealed off.

*Shag Point Coal-mining Co.'s Mine.*—On the 11th September heating was discovered in the pillar area on the west side of winch heading in the lower seam; same was effectively sealed off.

*Birchwood Mine.*—On the 12th October it was found necessary to seal off the rise pillar section owing to definite signs of heating.

*Linton Mine.*—On the 30th October heating was discovered in the No. 3 section No. 1 Mine; same was effectively sealed off.

*Willowbank Mine.*—On the 9th November spontaneous combustion was discovered in a blind bord in the dip workings; same was sealed off.

### Prosecutions.

During the year the following prosecutions took place:—

(*a*) In April a mine-manager was fined £2 and costs for a breach of Regulation 224 (5) (*a*) of the Coal-mines Act, 1925.

(*b*) In April an acting shotfirer was fined £1 and costs for a breach of Regulation 224 (5) (*b*) of the Coal-mines Act, 1925.

(*c*) In May a person was fined £1 and costs for acting as mine-manager without the necessary qualifications.

(*d*) In May a mine-owner was fined £3 and costs for a breach of section 59 (1) of the Coal-mines Act, 1925.

(*e*) In May a workman was convicted with costs for a breach of section 127 of the Coal-mines Act, 1925.

(*f*) In May a mine-manager was fined £2 and costs for breach of Regulation 223 (1) of the Coal-mines Act, 1925.

(*g*) In October a mine-manager was fined £5 and costs and £1 and costs for breaches of section 117 and section 115 of the Coal-mines Act respectively.

(*h*) In October a mine-manager was fined £5 and costs and £1 and costs for breaches of Regulation 92 and section 115 of the Coal-mines Act respectively.

(*i*) In October a miner was fined £1 and costs for a breach of section 117 of the Coal-mines Act, 1925.

# ANNEXURE B.

## COLLIERY STATISTICS, 1933.

| 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). | Total Output for 1933. | Total Output to 31st December, 1932. | Total Output to 31st December, 1933. | 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 | 11 | Sub-bituminous | 1 | 7′ to 10′ | 7′ to 9′ .. | Bord and pillar | 2 | S. 350′, S. 340′ | 43,166 | 501,800 | 544,966 | 44 | 99 | 143 | Fan. |
| Silverdale, Hikurangi .. .. | Crown lease .. | E. A. Foot (U.) .. | S. G. Foot, Hikurangi .. .. | 15½ | Ditto .. | 1 | 3′ to 5′ | 3′ .. | Ditto .. .. | .. | T. 120′ .. | 2,750 | 41,179 | 43,929 | 1 | 4 | 5 | Natural. |
| Northern Co-operative, Hikurangi | ,, .. | E. A. Cunningham (2nd C.) | Cunningham and party, Hikurangi | 15 | ,, .. | 1 | 3′ .. | All .. | ,, .. | .. | T. 60′ .. | 792 | 34,473 | 35,265 | 1 | 2 | 3 | ,, |
| Waro, Hikurangi .. .. | Crown lease and freehold | J. B. Ross (1st C.).. | McGlashan and party, Hikurangi | 16 | ,, .. | 1 | 6′ to 10′ | 8′ .. | ,, .. | .. | T. 3,900′ .. | 27,568 | 631,580 | 659,148 | 28 | 70 | 98 | Fan. |
| Ruatangata, Hikurangi .. | Freehold .. | G. Cross (2nd C.) .. | Kamo Potteries, Ltd., Whangarei | 13 | ,, .. | 2 | 6′ .. | 5′ 6″ .. | ,, .. | .. | T. 400′ .. | 4,736 | 29,290 | 34,026 | 2 | 7 | 9 | ,, |
| Phœnix, Hikurangi .. .. | Crown lease .. | W. McKinlay (D.).. | McKinlay and party, Hikurangi.. | 6½ | ,, .. | 1 | 3′ to 10′ | All .. | ,, .. | .. | T. 66′ .. | 2,334 | 13,740 | 16,074 | 1 | 5 | 6 | Natural. |
| Coutts, Hikurangi .. .. | Freehold (sub-lease, Hikurangi Coal Co., Ltd.) | G. Coutts (P.) .. | G. Coutts, Hikurangi .. .. | 4½ | ,, .. | 1 | 2′ to 7′ | ,, .. | ,, .. | .. | T. 50′ .. | 728 | 7,271 | 7,999 | .. | 3 | 3 | ,, |
| Fearnley's, Waro .. .. | Ditto .. | W. Reed (D.) .. | Reed and party, Hikurangi .. | 5 | ,, .. | 1 | 1′ to 4′ | ,, .. | ,, .. | .. | T. 200′ .. | 3,664 | 6,612 | 10,276 | .. | 9 | 9 | ,, |
| Glen Nell, Hikurangi .. .. | Crown lease .. | F. Kells (2nd C.) .. | S. G. Foot, Hikurangi .. .. | 9 | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | T. 70′ .. | 1,010 | 7,949 | 8,959 | 2 | 3 | 5 | ,, |
| Whareora, Hikurangi .. .. | Freehold .. | R. Fox (1st C.) .. | Foot and Fox, Hikurangi .. | 3 | ,, .. | 1 | 5′ .. | ,, .. | ,, .. | .. | T. 200′ .. | 1,129 | 2,138 | 3,267 | .. | 4 | 4 | ,, |
| McInness's, Hikurangi .. | Crown lease .. | H. Tipton (2nd C.) | J. R. McInness, Hikurangi .. | 3½ | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | T. 198′ .. | 320 | 2,445 | 2,765 | 1 | 4 | 5 | ,, |
| New Northern, Hikurangi .. | Freehold .. | J. Wilson (P.) .. | Wilson and party, Hikurangi .. | 2 | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | T. 20′ .. | 584 | 842 | 1,426 | 1 | 3 | 4 | ,, |
| Hicks, Hikurangi .. .. | Crown lease .. | J. E. Cook (P.) .. | Hicks and party, Hikurangi .. | 2 | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | T. 400′ .. | 875 | 459 | 1,334 | .. | 3 | 3 | ,, |
| Ackers, Hikurangi .. .. | Freehold (sub-lease, Hikurangi Coal Co., Ltd.) | A Rarity (D.) .. | W. Ackers, Hikurangi .. .. | 1 | ,, .. | 1 | 3½′ .. | ,, .. | ,, .. | .. | T. 198′ .. | 3,221 | .. | 3,221 | .. | 8 | 8 | ,, |
| Reservoir, Hikurangi .. .. | Freehold .. | R. Hamilton (D.) .. | J. Christie, Hikurangi .. .. | ¾ | ,, .. | 1 | 4½′ .. | 4′ .. | ,, .. | .. | T. 66′ .. | 497 | .. | 497 | 1 | 2 | 3 | ,, |
| New Kiripaka, Kiripaka .. | ,, .. | A. Brown (P.) .. | A. Brown, Hikurangi .. .. | 4½ | ,, .. | 1 | 3½′ .. | All .. | ,, .. | .. | T. 120′ .. | 224 | 1,236 | 1,460 | 1 | 3 | 4 | ,, |
| Glenbervie, Kiripaka .. .. | ,, .. | F. Kells (2nd C.) .. | J. Doel, Whangarei .. .. | 5 | ,, .. | 1 | 4′ .. | ,, .. | ,, .. | .. | T. 200′ .. | 1,567 | 7,865 | 9,432 | 1 | 3 | 4 | ,, |
| Stewart's Glenbervie, Kiripaka .. | ,, .. | R. Stewart (D.) .. | Stewart and party, Hikurangi .. | 1 | ,, .. | 1 | 3′ .. | ,, .. | ,, .. | .. | T. 60′ .. | 86 | .. | 86 | .. | 2 | 2 | ,, |
| Avoca, Tangowahine .. .. | ,, .. | P. R. Sheehan (D.) | Avoca Coal Co., Dargaville .. | 4½ | ,, .. | 1 | 8′ .. | ,, .. | ,, .. | .. | T. 130′ .. | 1,248 | 4,532 | 5,780 | 1 | 3 | 4 | ,, |
| *Waikato District.* | | | | | | | | | | | | | | | | | | |
| Rotowaro, Rotowaro .. .. | Crown lease and freehold | J. Watson (1st C.).. | Taupiri Coal-mines, Ltd., Auckland | 16 | Brown .. | 2 | 7′ to 15′ | All .. | Bord and pillar | .. | T. 4,000′, T. 400′, T. 1,600′ | 94,858 | 1,724,271 | 1,819,129 | 44 | 135 | 179 | Fans. |
| Pukemiro, Pukemiro .. .. | Freehold .. | A. Burt (1st C.) .. | Pukemiro Collieries, Ltd., Auckland | 18 | ,, .. | 1 | 4′ to 18′ | 4′ to 14′ .. | Ditto .. | .. | T. 5,000′, T. 2,200′ | 69,370 | 2,062,681 | 2,132,051 | 39 | 99 | 138 | ,, |
| Wilton, Glen Massey .. .. | ,, .. | T. Geddes (1st C.) | Wilton Collieries, Ltd., Auckland | 3 | ,, .. | 1 | 7′ to 12′ | 5′ to 9′ .. | ,, .. | .. | T. 460′ .. | 97,100 | 124,126 | 221,226 | 47 | 199 | 246 | Fan. |
| Waikato Extended, Huntly West | ,, .. | J. Honey (U.) .. | Roose Shipping Co., Ltd., Mercer | 17 | ,, .. | 1 | 16′ .. | 14′ .. | ,, .. | .. | T. 4,800′ .. | 2,818 | 91,842 | 94,660 | 6 | 2 | 8 | ,, |
| Glen Afton No. 1, Glen Afton .. | Crown lease and freehold | P. Hunter (1st C.).. | Glen Afton Collieries, Ltd., Auckland | 13 | ,, .. | 1 | 4′ to 16′ | 9′ .. | ,, .. | .. | T. 4,800′ .. | 44,315 | 1,430,677 | 1,474,992 | 31 | 62 | 93 | ,, |
| MacDonald, Waikokowai .. | Crown lease .. | J. W. Glendenning (1st C.) | Ditto .. .. .. | 3 | ,, .. | 1 | 6′ to 20′ | 10′ .. | ,, .. | .. | T. 500′, T. 300′ | 77,936 | 191,627 | 269,563 | 21 | 98 | 119 | Fans. |
| Taupiri East, Kimihia .. | Auckland University lease | J. Holland (P.) .. | Holland and party, Huntly .. | 12 | ,, .. | 1 | 10′ to 15′ | 12′ .. | ,, .. | .. | T. 300′ .. | 2,349 | 17,194 | 19,543 | 1 | 3 | 4 | Natural. |
| Campbell, Whatawhata .. | Crown lease .. | A. Penman (1st C.) | Whatawhata Campbell Coal Co., Ltd., Hamilton | 12 | ,, .. | 1 | 12′ .. | 8′ .. | ,, .. | .. | T. 300′ .. | 5,611 | 39,780 | 45,391 | 3 | 6 | 9 | ,, |
| Renown, Renown .. .. | Freehold .. | T. L. Andrews (1st C.) | Renown Collieries, Ltd., Auckland | 6 | ,, .. | 2 | 15′ .. | 7′ to 9′ .. | ,, .. | .. | T. 3,400′ .. | 109,129 | 323,391 | 432,520 | 40 | 129 | 169 | Fan. |
| Graham, Glen Afton .. .. | ,, .. | J. Tweedie (2nd C.) | Graham Coal Co., Glen Afton .. | 10 | ,, .. | 1 | 3′ to 6′ | 4′ .. | ,, .. | .. | T. 1,900′ .. | 4,878 | 97,219 | 102,097 | 1 | 8 | 9 | ,, |
| Rangitoto, Te Kuiti .. .. | Native lease .. | J. Chevins (P.) .. | A. Morgan, Te Kuiti .. .. | 7 | ,, .. | 1 | 7′ .. | 6′ .. | ,, .. | .. | T. 600′ .. | 737 | 1,830 | 2,567 | .. | 2 | 2 | Natural. |
| King, Te Kuiti .. .. | ,, .. | E. Johnson (U.) .. | Rich-Greenson Coal Co., Te Kuiti | 1½ | ,, .. | 1 | 6′ 6″ .. | 5′ 6″ .. | ,, .. | .. | T. 198′ .. | 124 | 456 | 580 | .. | 2 | 2 | ,, |
| Cowan's, Hunua .. .. | Freehold .. | A. Greenhorn (D.).. | Stirling and party, Papakura .. | 1½ | ,, .. | 1 | 3′ 6″ .. | All .. | ,, .. | .. | T. 50′ .. | 318 | 20 | 338 | 2 | 5 | 7 | ,, |
| Black Diamond, Papakura .. | ,, .. | L. Bougher (D.) .. | Bougher and Crump, Papakura .. | ½ | ,, .. | 1 | 2′ 6″ .. | ,, .. | ,, .. | .. | T. 66′ .. | 24 | .. | 24 | .. | 2 | 2 | ,, |
| Opaheke, Hunua .. .. | ,, .. | G. Logan (P.) .. | Glendale Coal Co., Takanini .. | 1½ | ,, .. | 1 | 4′ .. | ,, .. | ,, .. | .. | T. 66′ .. | 330 | 106 | 436 | 1 | 2 | 3 | ,, |
| Relief, Huntly South .. .. | Auckland University lease | R. Wilson (D ) .. | Relief Committee, Huntly .. | ½ | ,, .. | 1 | 4′ 6″ .. | ,, .. | ,, .. | .. | T. 198′ .. | 59 | .. | 59 | 3 | 6 | 9 | ,, |
| *Taranaki District.* | | | | | | | | | | | | | | | | | | |
| Paparata, Tatu .. .. | Crown lease .. | G. Moyes (P.) .. | Taranaki Coal-mining Co., Ltd., Stratford | 6 | Brown .. | 1 | 3′ 6″ .. | 3′ .. | Bord and pillar | .. | T. 70′ .. | 175 | 2,877 | 3,052 | 1 | 2 | 3 | Natural. |
| Egmont, Tangarakau .. .. | ,, .. | A. W. Whittleston (1st C.) | Egmont Collieries, Ltd., Stratford | 7 | ,, .. | 1 | 5′ .. | All .. | Ditto .. .. | .. | T. 1,320′ .. | 15,056 | 64,263 | 79,319 | 10 | 21 | 31 | Fan. |
| Tatu, Tatu .. .. .. | ,, .. | E. Kerry (2nd C.) | J. Cairns and party, Huntly .. | 3 | ,, .. | 1 | 6′ 6″ .. | 5′ 6″ .. | ,, .. | .. | T. 100′ .. | 823 | 410 | 1,233 | 1 | 5 | 6 | Natural. |
| Old Stockman, Mokau .. | Freehold .. | C. Wright (P.) .. | Chambers Bros., Havelock .. | 13 | ,, .. | 1 | 4′ 6″ .. | All .. | ,, .. | .. | T. 400′ .. | 894 | 4,715 | 5,609 | 1 | 2 | 3 | ,, |
| Mokau, Mokau .. .. | ,, .. | D. Kerr (U.) .. | Mokau Collieries, Ltd., New Plymouth | 2 | ,, .. | 1 | 5′ .. | ,, .. | ,, .. | .. | T. 100′ .. | 3,523 | 765 | 4,288 | 2 | 7 | 9 | ,, |
| Output of collieries included in previous statements at which operations are abandoned or suspended .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10,757,376 | 10,757,376 | .. | .. | .. | .. |

## COLLIERY STATISTICS, 1933—*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). | Total Output for 1933. | Total Output to 31st December, 1932. | Total Output to 31st December, 1933. | Number of Persons ordinarily employed. | | | Means of Ventilation. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Above. | Below. | Total. | |
| **WEST COAST INSPECTION DISTRICT.** | | | | | | | | | | | | | | | | | | |
| *Nelson District.* | | | | | | | | | | | | Tons. | Tons. | Tons. | | | | |
| Motupipi, Motupipi | Crown lease | D. Winter (P.) | J. and D. Winter, Motupipi | 6 | Lignite | 2 | 2′ and 3′ | All | Opencast | | | 109 | 919 | 1,028 | 1 | .. | 1 | Natural. |
| Burnwell, Baton | Freehold | W. Jones (D.) | J. H. Taylor, Wakefield, Nelson | 3 | Bituminous | 1 | 4′ | ,, | Bord and pillar | | T. 4 ch. | 79 | 380 | 459 | 1 | 3 | 4 | ,, |
| Clarke, Baton | Coal-prospecting license | S. Hartshorne (P.) | S. Hartshorne, Tapawera | 2½ | ,, | 2 | 2′ and 4′ | ,, | Ditto | | T. 4 ch. | 103 | 112 | 215 | .. | 2 | 2 | ,, |
| O'Rourke's, Murchison | Freehold | A. O'Rourke (P.) | A. O'Rourke, Murchison | 14 | Lignite | 1 | 2′ 6″ | ,, | ,, | | T. 4 ch. | 466 | 1,606 | 2,072 | .. | 3 | 3 | ,, |
| Wynndale, Murchison | Coal-prospecting license | W. Burchfield (U.) | G. and A. H. Wynn, Murchison | 1 | Sub-bituminous | 1 | 6′ | ,, | ,, | | T. 3 ch. | 1,241 | .. | 1,241 | 2 | 4 | 6 | ,, |
| Mount Burnett, Collingwood | Crown lease | R. J. Wearn (1st C.) | Onakaka Iron and Steel Co., Ltd., Onakaka | 4 | Ditto | 2 | 12′ and 3′ | ,, | Bord and pillar and long wall | | T. 6 ch. | 6,907 | 5,926 | 12,833 | 2 | 5 | 7 | ,, |
| Puponga, Puponga | ,, | A. Thomson (1st C.) | Puponga Coal-mines, Ltd., Puponga | 30 | ,, | 1 | 3′ to 5′ 6″ | ,, | Bord and pillar | | T. 27 ch. | 12,351 | 330,352 | 342,703 | 14 | 24 | 38 | ,, |
| Seymour, Owen River | ,, | C. Blackburn (1st C.) | Owen Collieries, Ltd., Nelson | 4 | ,, | 1 | 2′ to 4′ | ,, | Double stall | | T. 4 ch. | 3,504 | 7,256 | 10,760 | 2 | 8 | 10 | Fan. |
| *Buller District.* | | | | | | | | | | | | | | | | | | |
| Allan's, Charleston | Crown lease | T. D. Allan (P.) | T. D. Allan, Charleston | 4 | Lignite | 1 | 40′ | 8′ | Opencast | | | 5 | 34 | 39 | 1 | .. | 1 | Natural. |
| Bowater and Bryan, Charleston | ,, | L. S. Husband (P.) | Bowater and Bryan, Westport | 3½ | ,, | 1 | 30′ | 10′ | ,, | | | 315 | 546 | 861 | 2 | .. | 2 | ,, |
| Hunter's, Charleston | Coal-prospecting license | Andrew Hunter (P.) | Alex. Hunter, Westport | 1 | ,, | 1 | 14′ | 7′ | Bord and pillar | | | 319 | .. | 319 | .. | 2 | 2 | ,, |
| Cardiff Bridge, Seddonville | Crown lease | J. Dymond (2nd C.) | Cardiff Bridge Co-operative party, Westport | 13 | Bituminous | 1 | 5′ to 30′ | All | Ditto | | | 17,665 | 232,299 | 249,964 | 6 | 9 | 15 | ,, |
| Cascade, Burnett's Face | ,, | H. McAvoy (1st C.) | Cascade-Westport Coal Co., Ltd., Westport | 7 | ,, | 1 | 8′ to 20′ | 8′ | ,, | | T. 9 ch. | 14,662 | 75,362 | 90,024 | 9 | 13 | 22 | ,, |
| Charming Creek, Ngakawau | ,, | A. G. Marshall (1st C.) | Charming Creek - Westport Coal Co., Ltd., Westport | 6 | ,, | 1 | 1′ to 20′ | 8′ | ,, | | T. 11½ ch. | 9,207 | 28,679 | 37,886 | 11 | 21 | 32 | Fan. |
| Glasgow, Seddonville | ,, | D. Q. O'Brien (U.) | Glasgow Co-operative party, Seddonville | 9 | ,, | 1 | 6′ to 12′ | All | ,, | | T. 9 ch. | 663 | 35,495 | 36,158 | 2 | 2 | 4 | Natural. |
| Mitchell's, Charleston | ,, | F. T. Mitchell (P.) | F. T. Mitchell, Charleston | 10 | Lignite | 1 | 1′ to 3′ | ,, | Opencast | | | 20 | 433 | 453 | 1 | .. | 1 | ,, |
| Powell's, Charleston | ,, | J. H. Powell | J. H. Powell, Charleston | 5 | ,, | 1 | 8′ | ,, | ,, | | | 16 | 58 | 74 | 1 | .. | 1 | ,, |
| Warnes, Charleston | ,, | G. N. Warne (P.) | G. N. Warne, Charleston | 8 | ,, | 1 | 6′ to 8′ | 6′ | ,, | | | 14 | 81 | 95 | 1 | .. | 1 | ,, |
| Rocklands, Buller Gorge | ,, | J. P. Burley (P.) | J. P. Burley, Berlins, Buller Gorge | 31 | Brown | 1 | 27′ | 8′ | Bord and pillar | | | 159 | 10,607 | 10,766 | .. | 2 | 2 | ,, |
| St. Helen's, Seddonville | ,, | R. Mulholland (D.) | Roger Bros., Seddonville | 4 | Bituminous | 1 | 4′ 6″ | All | Ditto | | | 1,843 | 5,203 | 7,046 | 1 | 3 | 4 | ,, |
| Denniston, Denniston | ,, | J. McArthur (1st C.) and A. Smith (1st C.) | Westport Coal Co., Ltd., Dunedin | 53 | ,, | 9 | 3′ to 30′ | ,, | ,, | | T. 421 ch. | 116,739 | 10,213,316 | 10,330,055 | 116 | 270 | 386 | Fan. |
| Millerton, Granity | ,, | O. J. Davis (1st C.) | Ditto | 42 | ,, | 1 | 4′ to 40′ | 12′ | ,, | | T. 298 ch. | 31,140 | 8,207,260 | 8,238,400 | 24 | 50 | 74 | ,, |
| Westportmain, Granity | ,, | A. Roskvist (P.) | Westport-Granity Coal-mines, Ltd., Westport | 9 | ,, | 1 | 12′ | All | ,, | | T. 18 ch. | 911 | 176,690 | 177,601 | .. | 4 | 4 | Natural. |
| Westport-Stockton, Ngakawau | ,, | T. McGhie (1st C.) | Westport-Stockton Coal Co., Ltd., Christchurch | 25 | ,, | 3 | 4′ to 20′ | 10′ | ,, | | | 104,909 | 3,007,318 | 3,112,227 | 110 | 173 | 283 | Fans. |
| Whitecliffs, Buller Gorge | ,, | J. H. Burley (P.) | J. H. Burley, Berlins | 11 | Brown | 1 | 18′ | 12′ | ,, | | T. 14 ch. | 82 | 3,436 | 3,518 | .. | 2 | 2 | Natural. |
| *Reefton District.* | | | | | | | | | | | | | | | | | | |
| Archer's, Capleston | Crown lease and freehold | F. W. Archer (2nd C.) | F. W. Archer, Reefton | 38 | Brown | 3 | 10′ to 16′ | 9′ to 14′ | Bord and pillar | | | 6,244 | 52,289 | 58,533 | 2 | 12 | 14 | Natural. |
| Burke's Creek, Burke's Creek | Crown lease | C. D. Buist (1st C.) | Burke's Creek Collieries, Ltd., Wellington | 32 | ,, | 1 | 15′ | 8′ | Ditto | | | 9,535 | 209,590 | 219,125 | 8 | 23 | 31 | Fan. |
| Clele, Merrijigs | ,, | R. Alborn (D.) | V. W. Alborn and party, Reefton | 47 | ,, | 3 | 5′ to 6′ | All | ,, | | | 2,899 | 50,689 | 53,588 | 2 | 3 | 5 | Natural. |
| Coghlan's, Capleston | Freehold | E. Cohen (D.) | John Coghlan, Reefton | 36 | ,, | 1 | 12′ | 8′ 6″ | ,, | | | 2,705 | 23,590 | 26,295 | 1 | 3 | 4 | ,, |
| Eone, Capleston | Crown lease | A. Harris (D.) | ,, ,, | 7 | ,, | 1 | 12′ | 8′ 6″ | ,, | | | 756 | 5,477 | 6,233 | 1 | 2 | 3 | ,, |
| Collins', Reefton | ,, | N. Collins (P.) | N. Collins, Reefton | 41 | ,, | 1 | 10′ | 7′ 6″ | ,, | | | 711 | 59,825 | 60,536 | 1 | 2 | 3 | ,, |
| Defiance, Murray Creek | ,, | D. McLaughlin (P.) | D. McLaughlin, Murray Creek | 5 | ,, | 1 | 8′ | All | ,, | | | 149 | 2,405 | 2,554 | 1 | 2 | 3 | ,, |
| Golden Point, Reefton | ,, | T. Allan (D.) | T. S. Patterson, Reefton | 18 | ,, | 1 | 9′ | ,, | ,, | | | 108 | 16,812 | 16,920 | 1 | 2 | 3 | ,, |
| Morrisvale, Reefton | ,, | W. Parsonage (1st C.) | W. J. Morris, Reefton | 21 | ,, | 2 | 12′ and 14′ | 6′ and 8′ | ,, | | T. 12 and 14 ch. | 8,411 | 110,300 | 118,711 | 3 | 11 | 14 | Fan. |
| Sparkless, Reefton | ,, | J. Watson (2nd C.) | H. A. Lockington, Reefton | 27 | ,, | 1 | 12′ | 9′ | ,, | | T. 3½ ch. | 215 | 23,035 | 23,250 | 1 | 1 | 2 | Natural. |
| Times Street, Reefton | ,, | H. A. Honey (P.) | H. A. Honey, Reefton | 5 | ,, | 1 | 25′ | 8′ | ,, | | | 552 | 2,374 | 2,926 | .. | 2 | 2 | ,, |
| Venture, Reefton | ,, | H. Clark (P.) | J. and I. Patterson, Reefton | 1 | ,, | 1 | 7′ | All | ,, | | T. 4 ch. | 191 | .. | 191 | 1 | 2 | 3 | ,, |
| Waitahu, Reefton | ,, | A. D. Williams (1st C.) | A. D. Williams, Reefton | 24 | ,, | 1 | 6′ | ,, | ,, | | | 323 | 7,753 | 8,076 | 1 | 1 | 2 | ,, |
| Wealth of Nations, Lankey's Creek | ,, | C. McMaster (D.) | Wealth of Nations, Ltd., Reefton | 22 | ,, | 1 | 3′ to 9′ | ,, | ,, | | T. 4 ch. | 1,627 | 31,392 | 33,019 | 1 | 3 | 4 | ,, |
| White Rose, Merrijigs | ,, | W. Osborn (P.) | W. Osborn, Merrijigs | 10 | ,, | 1 | 4′ | ,, | ,, | | | 108 | 365 | 473 | .. | 1 | 1 | ,, |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Greymouth District.* | | | | | | | | | | | | | | | | | |
| Baddeley's, Bend Creek | State Reserve | J. Rowse (D.) | Baddeley and party, Runanga | 13 | Sub-bituminous | 1 | 6′ to 9′ | 7′ | Bord and pillar | | 4,114 | 44,966 | 49,080 | 2 | 6 | 8 | Natural. |
| Bellbird, Ten Mile | ,, | F. Fauth (P.) | Fauth and party, Greymouth | 6 | Ditto | 1 | 6′ | All | Ditto | T. 12 ch. | 2,016 | 15,243 | 17,259 | 1 | 3 | 4 | Fan. |
| Bellvue, Rapahoe | ,, | J. Hadcroft (U.) | Bellvue Co-operative party, Greymouth | 7 | ,, | 1 | 6½′ | ,, | ,, | | 5,649 | 45,008 | 50,657 | 1 | 9 | 10 | ,, |
| Blackball, Blackball | Freehold | J. Quinn (1st C.) | Blackball Coal-mines Pty., Ltd., Christchurch | 42 | Bituminous | 2 | 17′ | 15′ | ,, | | 35,980 | 3,951,520 | 3,987,500 | 26 | 55 | 81 | ,, |
| Blackball Creek, Blackball | ,, | ,, | Blackball Creek Coal Co., Ltd., Blackball | 2½ | ,, | 2 | 17′ | 15′ | ,, | | 19,154 | 25,103 | 44,257 | 6 | 36 | 42 | ,, |
| Brady's, Ten Mile | State Reserve | G. Brady (U.) | Brady and party, Greymouth | 1 | Sub-bituminous | 1 | 7′ | All | ,, | T. 3½ ch. | 2,568 | 13 | 2,581 | 2 | 5 | 7 | Natural. |
| Braehead, Dunollie | ,, | W. Brown (1st C.) | Boote and party, Dunollie | 13 | Ditto | 1 | 7′ | ,, | ,, | T. 14 ch. | 6,793 | 65,262 | 72,055 | 3 | 10 | 13 | ,, |
| Briandale, Ten Mile | Crown lease | T. Howard (1st C.) | Briandale Collieries, Ltd., Christchurch | 7 | ,, | 1 | 6′ | ,, | ,, | | 6,371 | 63,731 | 70,102 | 5 | 6 | 11 | ,, |
| Brunner, Wallsend | Crown lease and freehold | G. Smith (1st C.) | Brunner Collieries, Ltd., Wellington | 10 | Bituminous | 1 | 18′ | 8′ to 10′ | ,, | 2 | 50,905 | 423,747 | 474,652 | 33 | 98 | 131 | Fan. |
| Cain's, Rapahoe | State Reserve | E. Cain (P.) | J. and E. Cain, Rapahoe | 9 | Sub-bituminous | 1 | 4′ to 7′ | All | ,, | T. 8 ch. | 924 | 5,442 | 6,366 | 1 | 2 | 3 | Natural. |
| Castlepoint, Dunollie | ,, | S. Hewison (2nd C.) | Castlepoint Co-operative party, Runanga | 7 | Ditto | 1 | 5′ 6″ | ,, | ,, | T. 26 ch. | 4,956 | 47,427 | 52,383 | 1 | 9 | 10 | Fan. |
| Cox Creek, Twelve Mile | Crown lease | C. Kaye (D.) | T. E. Coates, Greymouth | 7 | ,, | 1 | 3½′ to 4′ | ,, | ,, | | 3,236 | 7,176 | 10,412 | 1 | 3 | 4 | Natural. |
| Dennehy's, Twelve Mile | ,, | C. Chamley (P.) | J. M. Dennehy, Barrytown | 5 | ,, | 1 | 3″ | ,, | ,, | | 790 | 527 | 1,317 | .. | 3 | 3 | ,, |
| Dobson, Dobson | Crown lease and freehold | C. Hunter (1st C.) | Grey Valley Collieries, Ltd., Christchurch | 11 | Bituminous | 1 | 9′ to 16′ | 9′ | Bord and pillar and panel | T. 18 ch. | 57,999 | 575,707 | 633,706 | 28 | 142 | 170 | Fan. |
| Duggan's, Rewanui | State Reserve | W. Richmond (D.) | Duggan and party, Runanga | 12 | ,, | 1 | 4′ 6″ | All | Bord and pillar | T. 10 ch. | 4,645 | 47,295 | 51,940 | 1 | 7 | 8 | Natural. |
| Fiery Cross, Dunollie | ,, | J. Sharp (U.) | Currie and party, Dunollie | 5 | Sub-bituminous | 1 | 4′ 6″ | ,, | Ditto | T. 14 ch. | 5,498 | 17,071 | 22,569 | 1 | 9 | 10 | Fan. |
| Goldlight, Rewanui | ,, | J. Kelly (2nd C.) | Williams and party, Runanga | 6 | Ditto | 1 | 7′ | 6′ to 7′ | ,, | | 7,739 | 35,581 | 43,320 | 1 | 10 | 11 | ,, |
| Hilltop, Ten Mile | ,, | V. Armstrong (1st C.) | Armstrong and party, Runanga | 3 | ,, | 1 | 4′ to 14′ | 10′ | ,, | | 9,263 | 19,140 | 28,403 | 2 | 9 | 11 | ,, |
| Hunter's, Rewanui | ,, | J. Neilson (1st C.) | Hunter and party, Greymouth | 13 | ,, | 1 | 5′ 6″ | All | ,, | | 7,380 | 56,326 | 63,706 | 1 | 8 | 9 | ,, |
| Jubilee, Rapahoe | ,, | W. Hector (U.) | Pinn Bros. Co-operative party, Runanga | 6 | ,, | 1 | 6′ | ,, | ,, | | 943 | 15,708 | 16,651 | 2 | 4 | 6 | Natural. |
| Moody Creek, Dunollie | ,, | M. Fowler (U.) | Moody Creek Co-operative party, Runanga | 11 | ,, | 2 | 5½′ to 7½′ | ,, | ,, | T. 13 yds. | 4,317 | 49,029 | 53,346 | 2 | 8 | 10 | Fan. |
| Musselpoint, Nine Mile | Crown lease | N. Forsyth (D.) | Curtis and party, Greymouth | 2½ | ,, | 1 | 4′ | ,, | ,, | T. 4 ch. | 2,092 | 2,384 | 4,476 | 1 | 4 | 5 | Natural. |
| New Point Elizabeth, Dunollie | State Reserve | P. Manderson (U.) | New Point Elizabeth Co-operative party, Greymouth | 7 | ,, | 1 | 10′ | ,, | ,, | T. 10 ch. | 10,501 | 44,018 | 54,519 | 2 | 8 | 10 | Fan. |
| Old Runanga, Rewanui | ,, | J. W. Smith (2nd C.) | Old Runanga Co-operative party, Runanga | 7 | Bituminous | 1 | 5′ to 8′ | ,, | ,, | T. 16 ch. | 6,310 | 33,120 | 39,430 | 3 | 13 | 16 | ,, |
| Paparoa, Roa | Crown lease | A. O'Donnell (1st C.) | Paparoa Coal Co., Ltd., Wellington | 25 | Semi-bituminous | 2 | 8′ to 25′ | ,, | ,, | T. 48½ ch. | 27,319 | 710,173 | 737,492 | 11 | 26 | 37 | ,, |
| Schulze Creek, Rapahoe | ,, | W. Page (D.) | Marshall and party, Rapahoe | 9 | Sub-bituminous | 1 | 3′ | ,, | ,, | | 2,450 | 23,586 | 26,036 | .. | 8 | 8 | ,, |
| Smith's, Dunollie | State Reserve | A. Ferguson (2nd C.) | Smith and party, Dunollie | 13 | Ditto | 1 | 7′ | ,, | ,, | T. 8 ch. | 4,658 | 62,500 | 67,158 | 2 | 8 | 10 | ,, |
| Spark's, Rewanui | ,, | J. Unwin (D.) | Spark and party, Rewanui | 12 | Bituminous | 1 | 9′ | 7′ | ,, | T. 1 ch. | 2,609 | 37,970 | 40,579 | 2 | 5 | 7 | ,, |
| James, Rapahoe | ,, | J. Armstrong (1st C.) | New Zealand Government, Wellington | 11 | Sub-bituminous | 1 | 4′ to 8′ | All | ,, | T. 15 ch. | 32,910 | 338,997 | 371,907 | 15 | 59 | 74 | ,, |
| Liverpool, Rewanui | ,, | T. King (1st C.) | Ditto | 21 | Bituminous | 3 | 8′ to 34′ | 8′ | ,, | T. 36 ch. | 94,780 | 2,383,633 | 2,478,413 | 84 | 244 | 328 | ,, |
| United Brunner, Wallsend | Crown lease | W. Richardson (U.) | United Brunner Coal-mines, Ltd., Christchurch | 2½ | ,, | 1 | 6′ to 20′ | 9′ | ,, | T. 4 ch. | 391 | 886 | 1,277 | .. | 3 | 3 | Natural. |
| Stillwater, Stillwater | ,, | W. Whitfield (P.) | T. H. Boustridge, Greymouth | 6 | ,, | 1 | 4′ | All | ,, | T. 8 ch. | 162 | 1,850 | 2,012 | .. | 3 | 3 | ,, |
| Output of collieries included in previous statements at which operations are abandoned or suspended | | | | .. | .. | .. | .. | .. | .. | .. | .. | 7,569,139 | 7,569,139 | .. | .. | .. | .. |
| SOUTHERN INSPECTION DISTRICT. | | | | | | | | | | | | | | | | | |
| *Canterbury District.* | | | | | | | | | | | | | | | | | |
| Homebush, Glentunnel | Freehold | W. Leeming (P.) | Homebush Brick and Tile Co., Glentunnel | 60 | Brown | 1 | 6′ | All | Bord and pillar | T. 198′ | 1,722 | 360,145 | 361,867 | 1 | 2 | 3 | Natural. |
| Bush Gully, Coalgate | ,, | E. Charles (P.) | J. Dean's Estate, Coalgate | 16 | ,, | 1 | 4′ | ,, | Ditto | T. 350′ | 1,344 | 44,577 | 45,921 | 1 | 3 | 4 | ,, |
| Clearview, Glenroy | ,, | Geo. Aitken (D.) | Clearview Coal Co., Glenroy | 14 | ,, | 1 | 10½′ | 9½′ | ,, | T. 150′ | 1,426 | 24,713 | 26,139 | 1 | 2 | 3 | ,, |
| Klondyke, Bush Gully | ,, | J. Campbell (D.) | Klondyke Collieries, Ltd., Whitecliffs | 5 | ,, | 1 | 20′ to 30′ | All | ,, | T. 250′ | 5,308 | 6,013 | 11,321 | 1 | 3 | 4 | ,, |
| Springfield | ,, | J. Taylor (P.) | J. Taylor, Springfield | 50 | ,, | 3 | 1′ to 4′ | ,, | ,, | T. 210′ | 75 | 93,209 | 93,284 | 1 | 1 | 2 | ,, |
| Konomy, Springfield | ,, | P. Mitchell (P.) | P. Mitchell, Springfield | 1½ | ,, | 1 | 2½′ | ,, | ,, | T. 130′ | 143 | 20 | 163 | 1 | 1 | 2 | ,, |
| Bonanza, Sheffield | ,, | Jas. McQueen (P.) | McQueen Bros., Sheffield | 2½ | ,, | 1 | 7′ | ,, | ,, | T. 100′ | 1,571 | 1,778 | 3,349 | 1 | 3 | 4 | ,, |
| Tripps, Mount Somers | ,, | M. Menaglio (D.) | Mount Somers Coal Co., Mount Somers | 67 | ,, | 3 | 37′ | 10′ | ,, | T. 300′ | 1,791 | 90,417 | 92,208 | 2 | 5 | 7 | ,, |
| Blackburn, Mount Somers | Crown lease | H. Tinker (P.) | Blackburn Coal Co., Mount Somers | 4 | ,, | 1 | 25′ | 8′ | ,, | T. 363′ | 1,841 | 4,863 | 6,704 | 1 | 3 | 4 | ,, |
| Sunnydale, Mount Somers | Freehold | Geo. Harris (D.) | Harris Bros. and Bland, Mount Somers | 1½ | ,, | 1 | 5′ 6″ | All | ,, | T. 100′ | 98 | 62 | 160 | 1 | 1 | 2 | ,, |
| McClimont's, Mount Somers | ,, | J. McClimont (D.) | J. McClimont, Mount Somers | 1 | ,, | 1 | 7′ | 6′ 6″ | ,, | T. 25′ | 6 | .. | 6 | .. | 1 | 1 | ,, |
| Woodbank, Albury | Crown lease under Lands Act | S. Benson (P.) | J. H. Smillie, Albury | 9 | Lignite | 1 | 27′ | 8′ | ,, | T. 100′ | 932 | 5,602 | 6,534 | 1 | 2 | 3 | ,, |
| Ard Ross, Waihao Forks | Freehold | J. Cock (P.) | R. Eddy, Waimate | 1 | ,, | 1 | 8′ | All | Open | | 96 | .. | 96 | 1 | .. | 1 | Open. |
| Meadowbank, Waihao Forks | Crown lease | J. C. Campbell (D.) | B. J. Moyle, Waihao Forks | 7 | Brown | 1 | 20′ | 8′ | Bord and pillar | T. 100′ | 100 | 3,077 | 3,177 | .. | 1 | 1 | Natural. |

## COLLIERY STATISTICS, 1933—*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). | Total Output for 1933. | Total Output to 31st December, 1932. | Total Output to 31st December, 1933. | Number of Persons ordinarily employed. | | | Means of Ventilation. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Above. | Below. | Total. | |
| | | | SOUTHERN INSPECTION DISTRICT—*continued.* | | | | | | | | | Tons. | Tons. | Tons. | | | | |
| *North Otago District.* | | | | | | | | | | | | | | | | | | |
| St. Andrews, Papakaio | Freehold | T. Nimmo, jun. (U.) | Duncan Cameron, Papakaio | 54 | Lignite | 1 | 6′ 9″ | 6′ | Bord and pillar | | T. 198′ | 2,588 | 71,729 | 74,317 | 1 | 4 | 5 | Fan. |
| Airedale, Papakaio | Crown lease | A. Beardsmore, jun. (D.) | A. Beardsmore, Papakaio | 7 | ,, | 1 | 10′ | 6′ | Ditto | | T. 330′ | 3,505 | 6,595 | 10,100 | 1 | 6 | 7 | Natural. |
| Ngapara, Ngapara | Freehold | Wm. Nimmo (U.) | Wm. Nimmo, Ngapara | 55 | ,, | 1 | 25′ | 8′ to 10′ | ,, | | T. 50′ | 884 | 47,262 | 48,146 | 1 | 3 | 4 | Fan. |
| Shag Point (Old Mine), Shag Point | Crown lease | W. McLaren (P.) | Bruce Railway and Coal Co., Dunedin | 19 | Brown | 1 | 6′ | All | ,, | | T. 150′ | 2,122 | 422,691 | 424,813 | 1 | 2 | 3 | Natural. |
| Shag Point, Shag Point | Freehold | A. S. Gillanders (1st C.) | Shag Point Coal-mining Co., Dunedin | 25 | ,, | 1 | 3′ to 3½′ | ,, | ,, | | T. 500′ | 8,351 | 314,502 | 322,853 | 10 | 32 | 42 | Fan. |
| Diamond Hill, Herbert | ,, | T. Green (D.) | T. Green, Herbert | 6 | ,, | 1 | 3′ 6″ | ,, | ,, | | | 255 | 651 | 906 | 1 | 1 | 2 | Natural. |
| Willetts, Airedale | ,, | D. R. Gaudion (D.) | G. H. Willetts, Airedale R.D. | 1 | Lignite | 1 | 11′ | 6′ 6″ | ,, | | T. 300′ | 959 | | 959 | 1 | 3 | 4 | ,, |
| *Central Otago District.* | | | | | | | | | | | | | | | | | | |
| Rough Ridge, Oturehua | Crown lease | E. Beck (P.) | Margaret Beck, Oturehua | 46 | Lignite | 1 | 20′ | All | Opencast | | | 27 | 35,722 | 35,749 | 2 | | 2 | Open. |
| Idaburn, Oturehua | Freehold | J. C. Trainer (P.) | C. L. Fisher, Oturehua | 63 | ,, | 1 | 20′ | ,, | ,, | | | 1,227 | 56,671 | 57,898 | 3 | | 3 | ,, |
| Oturehua, Oturehua | Crown lease | A. Brown (P.) | Becker Bros., Oturehua | 39 | ,, | 1 | 18′ | ,, | ,, | | | 354 | 7,849 | 8,203 | 2 | | 2 | ,, |
| Cambrian, Cambrian | ,, | D. Jones (P.) | R. C. Craig, Ophir | 72 | ,, | 1 | 20′ | ,, | ,, | | | 530 | 53,381 | 53,911 | 1 | | 1 | ,, |
| McPherson's, Coal Creek Flat | ,, | N. Harliwich (P.) | N. Harliwich, Coal Creek Flat | 63 | ,, | 1 | 50′ | 10′ | ,, | | | 2,532 | 102,929 | 105,461 | 2 | | 2 | ,, |
| Bannockburn, Bannockburn | ,, | J. Hodson (2nd C.) | J. Hodson, Bannockburn | 56 | ,, | 1 | 6′ to 20′ | 10′ | Bord and pillar | | T. 200′ | 2,272 | 128,311 | 130,583 | 1 | 3 | 4 | Natural. |
| Nevis Crossing, Nevis | ,, | R. Ritchie (P.) | R. Ritchie, Nevis | 30 | Brown | 1 | 60′ | All | Opencast | | | 33 | 18,325 | 18,358 | 2 | | 2 | Open. |
| Parfit's, Upper Idaburn | ,, | I. Parfit (P.) | I. Parfit, Naseby | 8 | Lignite | 1 | 20′ | 15′ | ,, | | | 120 | 1,058 | 1,178 | 1 | | 1 | ,, |
| Armitage's, Blackstone Hill | ,, | G. Armitage (P.) | Geo. Armitage, Blackstone Hill | 45½ | ,, | 1 | 12′ | All | ,, | | | 60 | 4,777 | 4,837 | 1 | | 1 | ,, |
| *South Otago District.* | | | | | | | | | | | | | | | | | | |
| Freeman's, Abbotsford | Freehold | W. Evans (U.) | Freeman's Coal Co., Green Island | 53 | Lignite | 1 | 8′ to 10′ | All | Bord and pillar | | | 2,241 | 626,947 | 629,188 | 1 | 3 | 4 | Natural. |
| Jubilee, Fairfield | ,, | J. Hadcroft (1st C.) | Jubilee Coal Co., Dunedin | 36 | ,, | 1 | 5′ to 8′ | 5′ to 6′ | Ditto | | T. 1,400′ | 9,644 | 593,799 | 603,443 | 6 | 18 | 24 | Fan. |
| Jubilee, Fairfield (under Roads) | Crown lease | ,, | ,, | ,, | ,, | ,, | ,, | ,, | ,, | | ,, | ,, | ,, | ,, | ,, | ,, | ,, | ,, |
| Allbright, Fairfield | Freehold | A. Morris (1st C.) | Fairfield Collieries, Dunedin | 2 | ,, | 1 | 3′ to 9′ | 6′ | ,, | | T. 300′ | 3,610 | 326 | 3,936 | 1 | 5 | 6 | Fan. |
| Hodson and Co., Fairfield | ,, | J. L. Baird (D.) | Hodson and Co., Fairfield | 2 | ,, | 1 | 6′ | 5′ | ,, | | T. 132′ | 2,836 | 67 | 2,903 | 2 | 5 | 7 | Natural. |
| New Fernhill, Abbotsford | ,, | J. Robertson (2nd C.) | New Fernhill Coal Co., Dunedin | 1 | ,, | ,, | 22′ | 6′ | ,, | | T. 220′ | 2,523 | | 2,523 | 3 | 5 | 8 | ,, |
| Burnweil, Saddle Hill | ,, | G. F. Whittleston (2nd C.) | N. Laverty, Saddle Hill | 38 | ,, | 1 | 20′ | 5′ | ,, | | T. 66′ | 120 | 81,910 | 82,030 | | 1 | 1 | ,, |
| Saddle Hill, Saddle Hill | ,, | A. Hill (D.) | G. McMaster, Saddle Hill | 3 | ,, | 1 | 14′ | 6′ | ,, | | T. 84′ | 957 | 1,997 | 2,954 | | 1 | 1 | ,, |
| East Taieri, East Taieri | ,, | J. Burleigh (2nd C.) | James Dunery, East Taieri | 14 | ,, | 1 | 8′ | 5½′ | ,, | | T. 264′ | 778 | 41,578 | 42,356 | 2 | 3 | 5 | ,, |
| Willowbank, East Taieri | ,, | J. G. Barclay (U.) | George Scurr and Co., Mosgiel | 13 | ,, | 1 | 20′ | 6′ | ,, | | T. 200′ | 6,693 | 46,962 | 53,655 | 2 | 7 | 9 | Fan. |
| Green Island, Green Island | ,, | R. McDonald (2nd C.) | C. and W. Shiel, Dunedin | 34 | ,, | 1 | 10′ | 6′ | ,, | | T. 150′ | 1,180 | 139,656 | 140,836 | 1 | 4 | 5 | ,, |
| Brighton, Brighton | ,, | N. McColl (P.) | N. McColl, Brighton | 18 | ,, | 1 | 5′ | All | ,, | | T. 200′ | 521 | 10,585 | 11,106 | 1 | 1 | 2 | Natural. |
| Brighton (under roads) | Crown lease | ,, | ,, | ,, | ,, | ,, | ,, | ,, | ,, | | ,, | ,, | ,, | ,, | ,, | ,, | ,, | ,, |
| Brighton Collieries, Brighton | Freehold | S. Rogers | H. E. Shiel, Dunedin | 1 | ,, | 1 | 6½′ | 6′ | ,, | | T. 110′ | 240 | | 240 | 1 | 2 | 3 | Fan |
| Fry's, Brighton | ,, | Wm. Hay (D.) | H. Gore, Dunedin | 2 | ,, | 1 | 6′ | 5′ | ,, | | T. 40′ | 111 | 15 | 126 | 1 | 1 | 2 | Natural. |
| Bush's, Brighton | ,, | M. Tikey (P.) | G. A. Bush, Mosgiel | 2 | ,, | 1 | 1½′ | All | ,, | | | 24 | 24 | 48 | | 1 | 1 | ,, |
| Taratu, Lovell's Flat | ,, | Thos. Heyes (1st C.) | Sargood and Cheeseman, Dunedin | 32 | ,, | 1 | 14′ | 7½′ | ,, | | T. 420′ | 11,925 | 742,987 | 754,912 | 8 | 24 | 32 | Fan. |
| Elliotvale, Moneymore | ,, | P. Campbell (1st C.) | A. Ferguson, Dunedin | 4 | ,, | 1 | 12′ | 7′ | ,, | | T. 180′ | 1,002 | 4,324 | 5,326 | 1 | 2 | 3 | Natural. |
| Riverside (late Tres Bon), Milton | Crown lease | M. P. Fahey (P.) | E. H. G. Thorpe, Dunedin | 12 | ,, | 1 | 6′ | All | ,, | | T. 300′ | 551 | 34,494 | 35,045 | 1 | 2 | 3 | ,, |
| Essbank, Milton | Freehold | E. Beardsmore (P.) | Beardsmore Bros. and Adams, Milton | 3 | ,, | 1 | 5′ to 8′ | 5′ | ,, | | T. 100′ | 2,554 | 6,587 | 9,141 | 1 | 3 | 4 | ,, |
| Burnwell, Lovell's Flat | ,, | A. Hill (D.) | J. McCorkindale, Lovell's Flat | 1 | ,, | 1 | 15′ | 7′ | ,, | | T. 60′ | 62 | | 62 | 1 | 1 | 2 | ,, |
| Burnweal, Lovell's Flat | ,, | R. McLean (P.) | Alex Smith, Lovell's Flat | 1 | ,, | 1 | 4′ | All | ,, | | | 11 | | 11 | | | | ,, |
| Benhar, Benhar | ,, | J. Walls (2nd C.) | McSkimming and Son, Ltd., Benhar | 70 | ,, | 3 | 14′ | 10′ | ,, | | T. 100′ | 5,321 | 299,621 | 304,942 | 1 | 5 | 6 | Fan. |
| Lakeside (Lake Tuakitoto), Kaitangata | ,, | J. Throp (P.) | J. Throp, Kaitangata | 23 | ,, | 1 | 20′ | 7′ | ,, | | T. 250′ | 1,163 | 12,122 | 13,285 | 1 | 2 | 3 | ,, |
| Black Nugget, Kaitangata | ,, | Geo. Ramsay (D.) | J. W. Smaill, Kaitangata | 1 | ,, | 1 | 6′ | 5′ | ,, | | T. 70′ | 17 | | 17 | | 1 | 1 | Natural. |
| Wangaloa, Kaibrook, Kaitangata | Crown lease | W. Barclay (D.) | W. Barclay, Kaitangata | 11 | ,, | 1 | 12′ | 6′ | ,, | | T. 50′ | 922 | 5,208<br>2,844 | 6,130<br>2,844 | 1 | 2 | 3 | ,, |
| Kaituna, Kaitangata | Freehold | T. Purvis (D.) | J. Smaill, Kaitangata | 24 | ,, | 1 | 3′ to 7′ | All | ,, | | T. 100′ | 280 | 26,594 | 26,874 | 1 | 2 | 3 | ,, |
| Kai Point, Kaitangata | ,, | S. Newburn (2nd C.) | S. Newburn, Kaitangata | 6 | ,, | 1 | 20′ | 15′ | ,, | | T. 330′ | 1,370 | 4,594 | 5,964 | 1 | 2 | 3 | ,, |
| Summerhill, Kaitangata | ,, | T. Gage (D.) | Kaibrite Coal Co., Dunedin | 8 | ,, | 1 | 12′ | 10′ | ,, | | T. 200′ | 302 | 1,214 | 1,516 | 1 | 2 | 3 | ,, |
| Kaitangata Nos. 1 and 2, Kaitangata | ,, | F. Carson (1st C.) | Kaitangata Coal Co., Kaitangata | 57 | Brown | 2 | 6′ to 25′ | All | ,, | | T. 4,950′, 1,188′, 1,386′ | 111,186 | 4,992,398 | 5,103,584 | 62 | 225 | 287 | Fans. |
| | | | | 21 | ,, | 1 | 20′ | ,, | ,, | | T. 825′, 528′ | | | | | | | |
| Kaitangata (under roads) | Crown lease | ,, | ,, | ,, | ,, | ,, | ,, | ,, | ,, | | ,, | ,, | ,, | ,, | ,, | ,, | ,, | ,, |
| Conical Hill, Conical Hill | ,, | A. S. Lowrey (P.) | A. S. Lowrey, Conical Hill | 2 | Lignite | 1 | 18′ | 9′ | Bord and pillar | | T. 9′ | 350 | 77 | 427 | | 1 | 1 | Natural. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Southland District.* | | | | | | | | | | | | | | | | | | | |
| Green's, Gore | Freehold | F. Barclay (2nd C.) | Executors, estate late T. Green, Gore | 45 | Lignite | 1 | 19′ | 11′ | Bord and pillar | T. 200′ | 6,301 | 377,286 | 383,587 | 3 | 6 | 9 | Fan. |
| Whiterig Opencast, Gore | ,, | J. S. Wilks (P.) | G. B. Paterson, Gore | 3 | ,, | 1 | 6′ to 15′ | All | Opencast | | 2,133 | 2,097 | 4,230 | 2 | .. | 2 | Open. |
| Riverview, Gore | ,, | D. McAskill (P.) | C. Herbert, Gore | 2 | ,, | 1 | 11′ | 7′ | Bord and pillar | | 10 | 436 | 446 | 1 | .. | 1 | Natural. |
| Croydon, Gore | ,, | M. J. Hamilton (P.) | M. J. Hamilton, Gore | 18 | ,, | 1 | 18′ | All | Opencast | | 1,627 | 24,756 | 26,383 | 1 | .. | 1 | Open. |
| North Chatton, Chatton | ,, | Geo. Daly (P.) | Geo. Daly, Waikaka | 29 | ,, | 1 | 20′ | ,, | Opencast and Bord and pillar | | 1,219 | 108,805 | 110,024 | 1 | 1 | 2 | ,, |
| Boghead, Mataura | ,, | Thos. Gaudion (P.) | C. E. Rowe, Mataura | 28 | ,, | 1 | 20′ to 23′ | 10′ to 13′ | Bord and pillar | | 11,860 | 75,619 | 87,479 | 1 | 7 | 8 | Fan. |
| Mataura Lignite, Mataura | ,, | Jas. Pearson (D.) | Beattie, Coster, and Co., Mataura | 57 | ,, | 1 | 16′ | 14′ | Bord and pillar and opencast | | 6,111 | 382,844 | 388,955 | 3 | .. | 3 | ,, |
| Terrace, Mataura | ,, | J. Buckols (D.) | R. Haywood, Mataura | 3 | ,, | 1 | 14′ | 10′ | Opencast | | 604 | 354 | 958 | 2 | .. | 2 | Open. |
| Glendhu, Waimumu (late Heatherlea) | ,, | F. A. Barber (P.) | F. A. Barber, Gore—Te Tipua R.D. | 5 | ,, | 1 | 12′ | All | ,, | | 136 | 956 | 1,092 | 1 | .. | 1 | ,, |
| Kingdon's, Waimumu | ,, | P. Larking (P.) | P. Larking, Mataura | 3 | ,, | 1 | 12′ | 10′ | ,, | | 1,642 | 1,898 | 3,540 | 2 | .. | 2 | ,, |
| Firelight, Waimumu | ,, | H. G. Peart (P.) | H. G. Peart, Waimumu R.D. | 1 | ,, | 1 | 10′ | All | ,, | | 9 | .. | 9 | 1 | .. | 1 | ,, |
| Hamilton and McKean's, Waimumu | ,, | A. Maxwell (P.) | Hamilton and McKean, Gore | 5 | ,, | 1 | 20′ | 18′ | ,, | | 2,409 | 4,687 | 7,096 | 2 | .. | 2 | ,, |
| Hakatea, Waimumu | ,, | Jas. Milne (P.) | Jas. Milne, Gore | 5 | ,, | 1 | 16′ | All | ,, | | 1,053 | 3,659 | 4,712 | 2 | .. | 2 | ,, |
| Otama Valley, Otama | Crown lease | N. Moffitt (P.) | R. S. White, Gore R.D. | 1 | ,, | 1 | 13′ | 8′ | Bord and pillar | | 302 | .. | 302 | .. | 1 | 1 | Natural. |
| Rosedale, McNab | Freehold | T. Wells (P.) | T. Wells, McNab | 8 | ,, | 1 | 6′ | All | Opencast | | 400 | 2,579 | 2,979 | 1 | .. | 1 | Open. |
| Springfield, Waikaka Valley | ,, | Jas. McCord (P.) | R. L. Reid, Gore–Waikaka R.D. | 30 | ,, | 1 | 9′ | ,, 6″ | ,, | | 143 | 60,133 | 60,276 | 1 | .. | 1 | ,, |
| Glenlee, Waikaka | ,, | F. W. Edge (P.) | A. A. Edge, Waikaka | 40 | ,, | 1 | 14′ | 7″ 6″ | Bord and pillar | | 926 | 35,547 | 36,473 | 1 | 1 | 2 | Natural. |
| Landslip, Waikaia | Crown lease | B. Laurence (P.) | C. L. Laurence, Waikaia | 34 | ,, | 2 | 10′ | All | Opencast | | 143 | 37,980 | 38,123 | 1 | .. | 1 | Open. |
| Laurence's, Waikaia | ,, | ,, | B. Laurence, Freshford | 10 | ,, | 1 | 5′ | ,, | ,, | | 139 | 1,669 | 1,808 | 1 | .. | 1 | ,, |
| Argyle, Waikaia | ,, | T. Woodward (P.) | Thos. Woodward, Waikaia | 42 | ,, | 1 | 12′ | ,, | ,, | | 337 | 12,400 | 12,737 | 1 | .. | 1 | ,, |
| Hokonui, Hokonui | Freehold | C. M. Orr (D.) | R. Frisby, Brown's | 12 | ,, | 1 | 7′ | ,, | ,, | | 120 | 52,096 | 52,216 | 1 | .. | 1 | ,, |
| Princhester Creek, The Key | Crown lease | J. A. Denton (P.) | J. A. Denton, private bag, Lumsden | 31 | Brown | 1 | 5′ | ,, | ,, | | 75 | 4,084 | 4,159 | 1 | .. | 1 | ,, |
| Ota Creek, Wyndham | ,, | E. Genge (P.) | E. Genge, Wyndham | 53 | Lignite | 1 | 8′ | ,, | ,, | | 534 | 31,474 | 32,008 | 1 | .. | 1 | ,, |
| Diamond Lignite, Ashers | ,, | A. McMillan (P.) | S. McMillan, Invercargill | 31 | ,, | 1 | 38′ | ,, | ,, | | 1,318 | 37,934 | 39,252 | 2 | .. | 2 | ,, |
| Greenvale, Greenvale | Freehold | A. H. Edge (D.) | A. H. Edge, Greenvale | 4 | ,, | 1 | 15′ | 10′ | Bord and pillar | T. 66′ | 18 | 1,122 | 1,140 | 1 | .. | 1 | Natural. |
| Wendon, Wendon | Crown lease | E. Radford (P.) | J. E. Radford, Wendon | 9 | ,, | 1 | 16′ to 18′ | 12′ to 14′ | Ditto | T. 60′ | 218 | 2,223 | 2,441 | .. | 1 | 1 | ,, |
| Tynui, Mandeville | Freehold | Jas. Henderson (P.) | Jas. Henderson, Mandeville | 1 | ,, | 1 | 21′ | 8′ | ,, | | 8 | .. | 8 | 1 | 1 | 2 | ,, |
| Otikerama, Otikerama | ,, | Jos. Hoffman (P.) | A. McDonald, Otikerama | 44 | ,, | 1 | 18′ | 10′ | ,, | | 1,645 | 50,987 | 52,632 | .. | 2 | 2 | ,, |
| Waihopai, Woodlands | ,, | A. C. Dixon (D.) | A. C. Dixon, Woodlands | 2 | ,, | 1 | 12′ | All | Opencast | | 490 | 273 | 763 | 3 | .. | 3 | Open. |
| Sparke's, Moto Rimu | ,, | R. J. Sparke (P.) | Mrs. L. F. Sparke, Awarua Plains | 1 | ,, | 1 | 6′ | ,, | ,, | | 272 | .. | 272 | 1 | .. | 1 | ,, |
| Orepuki, Orepuki | Crown lease | R. W. Rotch (D.) | J. L. Hennessey, Orepuki | 28 | ,, | 3 | 15′ | ,, | ,, | | 390 | 36,613 | 37,003 | 2 | .. | 2 | ,, |
| Mossbank Nos. 1 and 3, Ohai | ,, | J. McLelland (1st C.) | Mossbank Coal Co., Invercargill | 19 | Brown | 2 | 6′ to 24′ | 7′ | Bord and pillar | T. 462′ | 29,208 | 388,790 | 417,998 | 14 | 51 | 65 | Fan. |
| Wairaki No. 1, Ohai | ,, | J. T. Mosley (1st C.) | Wairaki Coal Co., Gore | 20 | ,, | 1 | 15′ | 7′ | Ditto | T. 1,980′ | } 9,834 | 411,896 | 421,730 | 9 | 15 | 24 | Fan. |
| Wairaki No. 2, Ohai | Freehold | ,, | ,, | 15 | ,, | 1 | 16′ | 8′ | ,, | T. 1,980′ | | | | | | | |
| Linton, Ohai | Crown lease | Geo. Gilbert (1st C.) | Linton Coal Co., Invercargill | 18 | ,, | 1 | 30′ to 40′ | All | ,, | T. 1,980′ | | | | | | | |
| ,, ,, | Freehold | ,, | ,, | .. | ,, | 1 | 30′ to 40′ | ,, | ,, | T. 1,980′ | } 54,187 | 874,368 | 928,555 | 34 | 75 | 109 | Fan. |
| Black Lion, Ohai | Crown lease | Thos. Young (1st C.) | Black Lion Coal Co., Benhar | 12 | ,, | 1 | 18′ | ,, | ,, | T. 264′ | 20,918 | 84,020 | 104,938 | 7 | 23 | 30 | Fan. |
| Birchwood, Ohai | ,, | Jas. Lewis (1st C.) | Birchwood Coal Co., Dunedin | 10 | ,, | 1 | 9′ to 25′ | 6″ to 8′ | ,, | T. 1,980′ | 24,200 | 108,166 | 132,366 | 13 | 42 | 55 | ,, |
| Lobb's Hill, Ohai | ,, | P. Magee | Spowart, Magee, and Marelich, Nightcaps | 4 | ,, | 1 | 5′ | All | ,, | T. 150′ | 536 | 1,696 | 2,232 | 1 | 3 | 4 | Natural. |
| Star, Ohai | Freehold | Thos. Todd (2nd C.) | Thomas Todd, Ohai | 2 | ,, | 1 | 9′ | 6′ | ,, | T. 150′ | 8,402 | 3,339 | 11,741 | 6 | 12 | 18 | Fan. |
| Black Diamond, Nightcaps | Crown lease | A. Colligan (2nd C.) | Black Diamond Coal Co., Invercargill | 18 | ,, | 1 | 25′ | 8′ | ,, | T. 250′ | 5,869 | 231,576 | 237,445 | 5 | 7 | 12 | ,, |
| New Brighton, Nightcaps | ,, | A. M. Dixon (D.) | Southland Coal Co., Invercargill | 20 | ,, | 1 | 7′ | 6′ | ,, | T. 132′ | 257 | 123,634 | 123,891 | 2 | 3 | 5 | Natural. |
| Nightcaps Syndicate, Nightcaps | Freehold | J. E. Dockerty (D.) | Nightcaps Syndicate, Nightcaps | 2 | ,, | 1 | 7′ to 8′ | 6′ | ,, | | 1,440 | 112 | 1,552 | .. | 3 | 3 | ,, |
| Morley Vale, Ohai (old Mount Linton) | ,, | A. McKenzie (D.) | Morley Vale Coal Co., Ohai | 25 | ,, | 1 | 30′ | All | Opencast | | 2,738 | 3,504 | 6,242 | 5 | .. | 5 | Open. |
| Output of collieries included in previous statements at which operations are abandoned or suspended | | | | .. | .. | .. | .. | .. | .. | .. | .. | 6,490,845 | 6,490,845 | .. | .. | .. | .. |
| Totals, Southern District, South Island | | | | | | | | | | | 410,947 | 19,656,316 | 20,067,263 | 282 | 667 | 949 | |
| Totals, West Coast District, South Island | | | | | | | | | | | 783,385 | 39,658,542 | 40,441,927 | 571 | 1,493 | 2,064 | |
| Totals, Northern District, North Island | | | | | | | | | | | 626,926 | 18,229,037 | 18,855,963 | 339 | 1,034 | 1,373 | |
| Grand totals | | | | | | | | | | | 1,821,258 | 77,543,895 | 79,365,153 | 1,192 | 3,194 | 4,386 | |
| Outputs of collieries prior to 1890 not included in the above statement | | | | | | | | | | | .. | .. | 296,653 | | | | |
| Shale exported, 1914 | | | | | | | | | | | .. | .. | 21 | | | | |
| | | | | | | | | | | | | | 79,661,827 | | | | |

# APPENDIX C.

## REPORT OF BOARDS OF EXAMINERS.

Geological Survey Office,
Wellington, 15th August, 1934.

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 1933 :—

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 24th October and two following days. In addition, candidates were examined at Huntly and Dunedin for mine-surveyors' certificates under the Coal-mines Act. Four examinations were again 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 22nd November, one at Westport on the 25th November, and one at Huntly on the 28th November. The total number of candidates sitting the examinations were seventeen less than the previous year. During the last two years the number of candidates for certificates shows a considerable falling-off and is coincident with the falling-off in the coal-mining industry during that period. The decrease was mainly in connection with examinations for underviewers' and firemen-deputies' certificates. In 1931 the number of candidates sitting these examinations was seventy-one as against forty in 1933.

The increased activity in the metal-mining side of the industry noted last year is still evident, with the resultant demand for mine-managers, and it is pleasing to note that more candidates have come forward for examination.

Examinations of candidates for mine-managers' certificates under the Mining Act, 1926, were held at Waihi, Reefton, and Dunedin on the 24th, 25th, and 26th October, while on the same dates candidates were examined at Reefton for battery superintendents' certificates. An examination of candidates for dredgemasters' was also held at Greymouth on the 14th November.

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 .. .. .. | 14 | 4 | 2 | 4 | .. |
| Oral examination .. .. .. | 7 | | | | |
| (*b*) Second class— | | | | | |
| Written examination .. .. | 9 | 5 | 3 | 5 | .. |
| Oral examination .. .. .. | 7 | | | | |
| Underviewer's certificate .. .. .. | 13 | 7 | 2 | 7 | .. |
| Fireman-deputy's certificate .. .. .. | 27 | 21 | 3 | 21 | .. |
| Mine-surveyor's certificate— | | | | | |
| Written examination .. .. .. | 3 | 2 | .. | 1 | 1 |
| Oral examination .. .. .. .. | 2 | | | | |
| 2. *Mining Act, 1926*— | | | | | |
| Battery Superintendent's certificate— | | | | | |
| Written examination .. .. .. | 2 | 1 | .. | 1 | .. |
| Oral examination .. .. .. .. | 1 | | | | |
| Mine-manager's certificate— | | | | | |
| (*a*) First class— | | | | | |
| Written examination .. .. | 5 | 2 | .. | 2 | .. |
| Oral examination .. .. .. | 2 | | | | |
| (*b*) Second class— | | | | | |
| Written examination .. .. | 1 | .. | .. | .. | .. |
| Dredgemaster's certificate— | | | | | |
| Class A .. .. .. .. .. | 1 | 1 | .. | 1 | .. |
| Class B .. .. .. .. .. | 1 | 1 | .. | 1 | 1 |

Under the Coal-mines Act forty-five gas-testing certificates were also issued, as against fifty-six the previous year. In addition, one duplicate fireman-deputy's certificate was issued.

A duplicate first-class mine-manager's certificate and a duplicate Class A dredgemaster's certificate were also issued under the Mining Act.

The work of the candidates who sat for the various certificates was on a par with that of last year.

A number of minor matters were dealt with by both Boards, but nothing which calls for particular mention.

A list of the certificates issued since my last report and which have been confirmed by the Boards is appended :—

### COAL-MINES ACT, 1925.

FIRST-CLASS MINE-MANAGERS' CERTIFICATES.

*Issued after Examination.*—Colligan, Andrew, Nightcaps; Openshaw, Arnold, Burnett's Face; Penseler, Wolfram Hermann Albert, Huntly; Smith, Joseph, Denniston.

SECOND-CLASS MINE-MANAGERS' CERTIFICATES.

*Issued after Examination.*—Cunningham, Joseph, Hikurangi; Farnworth, William, Dunollie; Fowler, Murray, Rapahoe; Lockington, Francis Edward, Burnett's Face; Penman, John, Hikurangi.

MINE SURVEYORS' CERTIFICATES.

*Issued without Examination.*—Bryce, Richard, Dunedin.
*Issued after Examination.*—Hill, William Edward, Kaitangata.

UNDERVIEWERS' CERTIFICATES.

*Issued after Examination.*—Baird, John, Cobden; Barclay, James Greig, jun., Fairfield; Corden, Ernest, Burnett's Face; Etheredge, James Eckley, Reefton; Ewen, Richard James, Runanga; Honey, John Ralph, Huntly; Jones, Harold Wright, Mangatoi, Mokau; Lockington, Francis Edward, Denniston; Marshall, Robert, Dobson; Martin, Charles Richard, Hector, Ngakawau; McCaig, William, Glen Afton; McNeish, John Alexander, Brunnerton; Morrow, John, Denniston; O'Callaghan, William John, Huntly; Peattie, Peter Thompson, Renown; Penman, John, Hikurangi; Wilcox, William, Pukemiro.

FIREMEN-DEPUTIES' CERTIFICATES.

*Issued after Examination.*—Anderson, Robert, Abbotsford; Alborn, Bernard Mollison, Reefton; Alborn, Roderick Victor, Reefton; Cohen, Ernest, Capleston; Duggan, William, Runanga; Edwards, Frederick James, Ohai; Ehlers, Freidrich, Burnett's Face; Erskine, George, Dobson; Etheredge, James Eckley, Roa; Good, Andrew Falconer, Kaitangata; Haig, James Scott, Kaitangata; Hay, William, Dunedin; Kitto, Henry, Abbotsford; Lee, William, Taylorville; Marshall, John, Glen Afton; McClure, Arthur, Ngahere; McLaren, William, Shag Point; Messer, William, Dobson; Muir, Thomas, Dobson; Neill, William, Kaitangata; Quinn, Harry, Blackball; Roberts, Eric Methuen, Oamaru; Rogers, Harry Walter, Glen Afton; Ross, Robert, Ohai; Saunders, William Henry, Hikurangi; Shaw, John, Roa; Sheehan, Patrick Raymond, Onetea; Smith, Basil, Dunollie; Snedden, William Hector, Kaitangata; Tinning, Joshua, Brunnerton; Wilde, William, Dobson.

## MINING ACT, 1926.

FIRST-CLASS MINE-MANAGERS' CERTIFICATES.

*Issued after Examination.*—Calvert, Fred Clifford, Waihi; Turner, Arthur Wilfred, Lawrence.

BATTERY SUPERINTENDENT'S CERTIFICATE.

*Issued after Examination.*—Saunders, Alfred John, Waiuta.

## MINING AMENDMENT ACT, 1927.

DREDGEMASTER'S CLASS A CERTIFICATE.

*Issued after Examination.*—Foley, Edward, Westbrook, Kumara.

DREDGEMASTERS' CLASS B CERTIFICATES.

*Issued after Examination.*—McRae, Duncan, Ngahere.
*Issued on Production of Certificate from a Recognized Authority outside the Dominion.*—Smail, Robert Law, Freshford.

I have, &c.,
J. HENDERSON, Chairman of Boards.

The Under-Secretary, Mines Department, Wellington.

*Approximate Cost of Paper.*—Preparation, not given; printing (630 copies), £110.

By Authority: G. H. LONEY, Government Printer, Wellington.—1934.

*Price 1s. 6d.*]