1905.
NEW ZEALAND.

INSPECTION OF COAL-MINES REPORT.

("THE COAL-MINES ACT, 1891.")

Presented to both Houses of the General Assembly by Command of His Excellency.

No. 1.

Mr. J. HAYES, F.S.Sc., Inspecting Engineer, to the UNDER-SECRETARY, Mines Department.

SIR,— Mines Department, Wellington, 3rd May, 1905.

I have the honour to submit reports on the coal-mines of the colony for the year ended 31st December, 1904.

OUTPUT.

The following summary shows the output of the various classes of coal and lignite mined in each inspection district :—

Class of Coal, &c.	Northern District.	West Coast District.	Southern District.	Total.
	Tons.	Tons.	Tons.	Tons.
Bituminous and semi-bituminous coal ...	106,219	832,299	...	938,518
Pitch-coal	...	2,397	22,109	24,506
Brown coal	136,298	2,254	345,306	483,858
Lignite	...	...	90,956	90,956
Totals	242,517	836,950	458,371	1,537,838

The total number of mines at work during the year was 168, of which number 24 provide employment for over twenty persons at each mine, whilst 45 mines employ over four but not more than twenty persons at each. The relatively large proportion of small mines is due to the fact that these properties are being worked for the supply of local requirements only, and include several at which fuel is obtained on private lands solely for the requirements of the owners, who are, for the most part, farmers who quarry a few tons of lignite from time to time.

In comparison with the output for the year 1903, the foregoing statement shows a net total increase of 117,609 tons.

The statement given below shows the relative increase and decrease in the output of the various classes of coal, &c., in each of the inspection districts :—

Class of Coal, &c.	Northern District.		West Coast District.		Southern District.		Total Increase.	Total Decrease.	Total Net Increase.
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.			
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bituminous and semi-bituminous coal	4,700	...	53,927	...	...	...	...	...	...
Pitch-coal	...	...	2,397	...	993	...	..	...	...
Brown coal ...	28,022	...	...	406	14,428	...	...	...	...
Lignite	...	...	...	...	13,584	...	...	...	...
Oil-shale	...	...	...	...	...	36	...	...	...
Totals ...	32,722	...	56,324	406	29,005	36	118,051	442	117,609

The approximate total quantity of coal, &c., raised from the several mines throughout the colony up to the 31st December, 1904, is returned at 20,115,663 tons.

The number of persons ordinarily employed at all the mines is returned at 763 above ground, and 2,525 below ground, making a total of 3,288. At a considerable number of lignite-pits in Otago and Southland (Southern District) the workings are open quarries, and the persons employed thereat are included in the number of persons employed above ground.

The output of coal, &c., for the year averaged 467·7 tons per person employed in connection with the coal-mining industry. As compared with coal-mining generally in other parts of the world, this average is decidedly high, but is accounted for by the fact of thick seams being the rule rather than the exception in this colony. This gives natural facilities for a higher ratio of production than is the case where thin seams are worked under infinitely less advantageous conditions.

Accidents.

Four fatalities in connection with coal-mining operations occurred during the year, all of which were duly inquired into by the Department. The proportion of fatal accidents in relation to the number of persons employed is at the rate of 1 to 822, and in relation to the tonnage of coal won as 1 to 384,459·5 tons.

Two other deaths occurred which can scarcely be classed as fatal mining accidents, and are therefore not taken into account in the foregoing comparisons. In one case now under notice a trucker slipped on a rail and hurt his knee. An operation was performed and death from blood-poisoning, subsequent to the operation, occurred some three weeks after the accident. In the other case a miner returning from his work had an epileptic fit, and died a few hours afterwards.

Taken all round, the proportion of fatalities at collieries compares most favourably with those in many other works which are looked upon as far less hazardous, and which are not carried on under such disadvantageous circumstances. This, in itself, is testimony to the careful supervision of working-conditions day by day and the provisions made for safety. Underground mining cannot be conducted with perfect immunity from accidents, but with the exercise of proper care on the part of officials and workpeople these can be, and are, very considerably minimised.

Prosecutions.

No prosecutions for breaches of "The Coal-mines Act, 1891," or special rules thereunder, have been instituted by the Department during the year.

Colliery managers have, in some instances, taken action against employees for violation of the law relating to the safety of persons employed, and in so doing have done their duty.

Ventilation of Mines.

On the whole, there is now comparatively little fault to be found in this respect. It is being recognised that good ventilation pays, and at nearly all the principal collieries mechanical ventilation by means of fans is adopted. The great advantages of fan-ventilation as compared with that by furnace are: (*a*) that the first cost is often less, (*b*) greater economy in work and maintenance, (*c*) increased safety, (*d*) better control, and (*e*) greater capacity for circulating the air-currents, and therefore more effective.

Furnace ventilation is only really effective and reasonably economical at mines working by the means of fairly deep shafts, and even under such conditions the fan is preferable. For the shallow mine-workings which are general in New Zealand, there is no question whatever as to the superiority of the fan (as compared with the furnace) in every way.

Many small mines are ventilated naturally, no power of any kind being installed. As these are non-gaseous, and only a very few persons are employed, requirements are fairly well met. At others, a small furnace, a steam-jet, or the heat from steam-pipes supplying an underground pump is found to be sufficient to induce a reasonably adequate supply of air. There are a few cases, however, where mines of the kind now referred to may be reasonably expected to extend operations, and even now are practically at the limit of real efficiency as regards their means of ventilation. To meet such requirements, a fan, with a capacity of some 20,000 cubic feet per minute (the actual volume attainable may be more or less according to the conditions existing in the mine), together with engine for driving, can be installed for a trifle over £100, foundations included. This places mechanical ventilation within the reach of owners of small mines at very little cost, assuming that steam is available. Where water under pressure can be easily obtained, a Pelton wheel may be used for driving, the wheel being keyed direct to the fan shaft if volume and pressure of water are such as will maintain a suitable speed, otherwise the connection must be made by means of belt and pulleys. In any case, the first cost would be less than for a steam-driven fan, provided that the initial cost of bringing the water to the work has not to be specially undertaken. An installation of this kind could be advantageously adopted at many metalliferous mines.

Drainage of Mines.

At the Westport Coal Company's collieries (which are at a high altitude) drainage is provided for by means of adits driven from valleys situate to the dip of the workings. This practice obviates the necessity for heavy pumping machinery, and, in the event of pumps being required in the future to drain coal-areas further to the dip than the level of the drainage tunnels, the height to which the water

will have to be lifted will only be that necessary for discharge into the aforesaid tunnels or adits. A similar provision is being made at Blackball Colliery, and when completed will enable the present electrically driven pumps to be dispensed with, or utilised for the drainage of areas at a lower level than that commanded by the new water adit.

In two instances—viz., at Castle Hill Colliery, Kaitangata, and the Alexandra Coal Company's mine, Alexandra South—mine pumps are worked by endless ropes, but the most general method adopted is that of the direct-acting pump, placed underground and driven by steam, compressed air being used in some cases. In a few instances single-cylinder installations are at work, but the favourite type appears to be the duplex pattern, generally with high-pressure cylinders and worked non-condensing, the exhaust steam-pipe being led into the sump, although in a few cases the simple condenser referred to in the report of last year has been advantageously adopted. At Abbotsford Colliery, Green Island (Freeman's Coal Company), the duplex pump there is fitted with compound steam cylinders.

Pumps worked by electricity have been installed at Allandale Colliery. The Cornish type of pump is not in use at any of the New Zealand collieries at the present time.

Compressed Air in Mines.

The use of compressed air as a secondary power in mines is being gradually extended. The direct use of steam is only practicable to a somewhat limited extent, and when motive power is required in the inner workings of mines, compressed air and electricity offer the greatest facilities for successful application. Of these two agencies, compressed air is so far the most favoured in this colony, and is very freely used at the Westport Coal Company's collieries for working coal-cutting machinery, rock-drills, underground subsidiary haulages, &c., and at the collieries of the New Zealand Coal and Oil Company (Limited), at Kaitangata, for the purposes of pumping and hauling, the steep inclination of the coal-seams there necessitating the employment of quite a number of small dip-haulage plants. A small air-compressor has also been erected at the Taupiri Extended Colliery, Huntly. One beneficial feature in connection with the use of compressed air at collieries is that the exhaust assists the ventilation to some extent. The air may also be used direct from the main pipes for the purpose of temporarily ventilating a heading.

Electricity in Mines.

So far, the principal use of electricity at New Zealand collieries is for the lighting of engine-houses, workshops, offices, sidings above and below ground, &c.; but for power purposes it has not yet been so generally adopted as might have been expected. For some time, electrically driven coal-cutting machinery was used by the Westport Coal Company, but was not found to answer requirements so well as compressed air. The use of electricity for this purpose was therefore abandoned. For haulage purposes it answered admirably, but as the generating plant was subsequently moved and utilised for lighting purposes the electric motor used for hauling was necessarily displaced, and an engine worked by compressed air substituted.

At Blackball Colliery a pumping plant, placed underground, is worked electrically with satisfactory results. At Allandale Colliery electric plant has been installed for haulage underground, pumping, and driving the ventilating-fan. Electricity has also been adopted at Kaitangata Colliery for driving the ventilating-fan, and, owing to the distance of the upcast shaft from the main surface-works, considerable economy is effected thereby as compared with the expense entailed in working the steam plant formerly in use. The latter, however, remains in position, and is used once a fortnight to insure its being always kept in good order. At the same time, this fortnightly use of steam-power enables the electrical plant to be periodically examined and overhauled without stoppage of mining operations.

There is no doubt that electricity is a very useful, efficient, and convenient medium for conveying power for working various classes of machinery underground. For coal-cutting machinery it does not appear—on the basis of experience in this colony and in other parts of the world—to have hitherto been so generally suitable as compressed air, local conditions no doubt accounting for this in a great measure, but year by year improvements are being made in the motors used for working coal-cutters, and it is therefore more than probable that in the near future the difficulties experienced in the past will be entirely overcome.

For the purposes of hauling, pumping, and working ventilating machinery, electricity is now a powerful rival to compressed air, and for such uses will more than hold its own. In comparison with compressed air, an electrical installation of equal power is less costly, the cable conveying the current takes less room than the pipes conveying compressed air; it is also much more easily laid and generally more handy than pipes. To these considerations must be added the fact that for a given horse-power exerted by the primary motor (steam or water), electricity as a secondary power is proved to give a much higher percentage of useful effect than can be obtained from the use of compressed air.

New Collieries.

Puponga.—In the early part of the year coal from the Puponga Colliery (near Collingwood) was put on the market on a commercial scale. The seam being worked is about 7 ft. 6 in. thick, and yields an excellent household coal, which is also well spoken of for steaming purposes. Harbour facilities are not yet so favourable as could be desired, and therefore the tonnage which can be shipped in one bottom is limited, but by dredging a channel from deep water to the wharf, and a basin large enough for vessels to swing round when coming to their berthage, there will be no difficulty in loading very much larger steamers than are now employed. The bottom to be dredged is of such a nature that the work can be done without great difficulty. The coal appears to find a ready market in Nelson, Wellington, and the coastal towns of the southern portion of the North Island.

Point Elizabeth.—The Point Elizabeth Colliery, Greymouth (New Zealand State Coal-mines), also became a producing property during the year, the seam operated upon being known as the Main (or Exhibition) seam. The primary use of this coal is for the supply of the New Zealand Government railways, but a portion of the output is also sold to the public.

Drury.—Towards the latter end of the year operations were put in hand for opening a new colliery about two miles and a half from the railway-station at Drury, near Auckland. To a limited extent some coal was worked in this locality several years ago. The seam to be operated upon is reported to be 15 ft. in thickness, but at the time of my visit the prospecting shaft was full of water, and therefore I had no opportunity of seeing the seam except at the outcrop where the thickness is not so great. The coal is a brown coal of very fair quality, suitable for local requirements, and is being opened by a level tunnel. Arrangements have been made to ventilate the mine from the first by means of a fan of approved type. Connection with the railway at Drury is being made by means of a substantial tramway to be worked by locomotive-power.

Proposed new Collieries.

Ngakawau.—A lease of coal-bearing land, 1,577 acres in extent, lying at the back of the Westport Coal Company's Granity Creek leasehold (Millerton Colliery), has been issued to Mr. G. L. Tacon, and it is intended to form a company to open up and work the property. As the land in question is at an altitude somewhat greater than that held by the Westport Coal Company, connection with the railway near where it crosses the Ngakawau River will have to be made by an incline tramway. The quality of the coal is similar to that worked at Millerton Colliery, and as a matter of fact the seam is a continuation (beyond the eastern boundary of the Granity Creek leasehold) of that now being worked from Millerton.

Paparoa.—Messrs. W. H. Cutten and H. Neilsen have been granted a lease to mine coal over an area of 1,000 acres of land near the southern end of the Paparoa Ranges, the property being some two or three miles from Blackball Township; and comprehensive prospecting and careful surveys have disclosed an extensive field of coal comprised within the leasehold. A large number of outcrops have been exposed, and the average thicknesses of the several seams are reported as under: No. 1, 10 ft. 6 in.; No. 2, 18 ft.; No. 3, 9 ft.; No. 4, 5 ft.; No. 5, 10 ft.; No. 6, 10 ft. 6 in.: making an average total of 63 ft. of coal. Having inspected the property, and examined the prospecting done and outcrops exposed, I see no reason to doubt the estimate of Mr. F. Cutten, C.E. (authorised surveyor), who was in charge of the work, as to the extent of coal contained in the six seams discovered. The quality of the coals is remarkable, the following analyses by the Government Analyst showing that Nos. 1 and 2 seams may be classed among the anthracite coals, whilst the remaining seams appear to be fully equal to the very best coals yet mined in any part of the West Coast coalfields, and superior to the average production:—

	1.	2.	3.	5.	6.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Fixed carbon	80·05	79·10	77·2	75·55	70·00
Hydrocarbon	15·10	15·05	19·0	22·75	24·35
Water	0·65	1·85	0·6	0·70	0·85
Ash	4·20	4·00	3·2	1·00	4·80
	100·00	100·00	100·00	100·00	100·00
Total sulphur	0·37	0·23	0·26	0·29	0·19
Evaporative power by standard usually adopted in New Zealand	10·40	10·28	10·04	9·82	9·10
Ditto in New South Wales	17·61	17·40	16·98	16·62	15·40

The coals of the lower seams (Nos. 1, 2, and 3) are practically smokeless, and should be eminently suitable for use in ocean-going steamers generally.

The area under notice being on the side of a mountain range a colliery can be opened level-free, and the coal conveyed by means of a self-acting cable haulage road, about two miles in length (at a fairly easy gradient) to the new branch of the Government railway about to be constructed from Ngahere to Blackball.

Examinations for Mine-managers' Certificates.

The papers set for the last examination of persons desirous of qualifying for positions as managers of coal-mines are appended.

Schedules.

The list of persons to whom managers' certificates of service and of competency have been issued is appended, as are also the statistical tables showing the output of coal, &c., from, and the numbers of persons employed at, the several mines throughout the colony.

I have, &c.

John Hayes,
Inspecting Engineer.

The Under-Secretary for Mines, Wellington.

No. 2.

Mr. JAMES COUTTS, Inspector of Mines, Thames, to the UNDER-SECRETARY, Mines Department, Wellington.

SIR,— Inspector of Mines Office, Thames, 8th February, 1905.

I have the honour to transmit the following report on the coal-mines in the Auckland district for the year ended 31st December, 1904, in compliance with section 67 of "The Coal-mines Act, 1891":—

Kawakawa Mine (John Cully, manager).—The work that has been carried on in this mine during the year has been confined to working out pillars near the outcrop, and searching for pillars of coal and coal that had been left in to strengthen the roof. The old workings being completely filled in with the covering of the coal makes it very difficult to know where or how to drive to find pillars which have been left from the old mining works of years past, more especially as there is no plan to work from. The prospects are not very encouraging as it is considered the coal in sight will only last a few months, when the lessee intends to surrender the present lease. The output of coal for the year was 3,512 tons, a slight increase on the previous year's return. A total of six men were employed.

Hikurangi Coal Company (Limited).—During the year ended 1904 no new machinery has been added to the company's plant; the operations of the company have been chiefly directed to opening up that portion of their mine situated on the western side of the railway, where a large area of excellent coal has been found, and proves to be much better than at first anticipated. It was fully expected there would be a large quantity of water to contend with here as the workings would be immediately under the top end of a swamp, but, fortunately, very little water has been met with. In the eastern section the work is confined to extracting pillars, which is being done with a great amount of success, fully 90 per cent. of the coal left in the pillars being obtained. The contemplated work to be carried out during the year 1905 is to further extend the prospecting operations in the western area, which extends a distance of fully a mile and a half in the direction of the Hikurangi Swamp, where the seam has been partly proved by boring and sinking for half a mile in length and quarter of a mile in width, leaving a mile still unexplored. An opening will be made at a point between the tipping-place at the railway sidings and where the wagons are now being filled. This tunnel will enable the company to open up a large area of coal on this part of the property, from which it can be cheaply worked. A new loading-place will be made north of the present adit incline with a view to further opening up another section of the mine. A splendid quality of fireclay has lately been discovered, 30 ft. in thickness and very suitable for brickmaking. This will be worked at no distant date and at a small outlay. It is said the clay can be made into bricks and leave a good margin of profit. For some time past there has been some difficulty in obtaining water suitable for boiler purposes, and the manager now proposes bringing in a supply from the Hikurangi Mountain, a distance of a mile and a half, the cost of which he estimates will not exceed £300. The work in the mine has been very satisfactorily carried on for the safety of the men, and the ventilation has been good; but eventually, after the mine is further opened up, it will be necessary to procure other means of ventilating the workings and not depend on natural ventilation. The output of coal for the year was 44,974 tons, an increase of 5,349 tons as compared with the previous year. An average of fifty-six men were employed.

Northern Coal Company (Limited), Hikurangi.—This company's mine is situated on rising ground, and is worked from adit levels, which are being extended in the seam and opening up a large area of coal of very good quality. Owing to the ground being favourably situated there is no water to contend with in the present workings. A locomotive is used to convey the coal from the mine to the top of a self-acting incline (a distance of a mile and a quarter) where the trucks are lowered to the loading-ground on the Government railway. The locomotive engine mentioned being too light for the amount of work required to be done, and subject to frequent breakdown, thus causing serious delays, it was found to be necessary to purchase another locomotive to do the work and enable the company to increase the output. Another level is now being opened out on the outcrop at a lower elevation. It is expected this will be completed in the month of June, and from here it is expected the coal on this part of the property will be worked to greater advantage than hitherto, and at less expense. The output of coal for the year was 25,719 tons, an increase of 3,337 tons as compared with the previous year. Forty-five men were employed.

Phœnix Mine, Hikurangi (D. Kirkwood, manager).—The operations in this mine have been very limited. The small steam-engine erected to pump the water was not large enough to do the work required, and has given a good deal of trouble on account of it frequently breaking or something going wrong; but the owners, I am informed, intend to erect a larger plant to overcome this difficulty. The seam of coal is 10 ft. thick where it is at present being worked, but the lowest level is only 40 ft. below the surface, and the coal very soft, consequently it does not find as ready a sale as the coal from the other mines in the neighbourhood. Whether it will improve as it is driven on or at a depth remains to be proven. The output of coal for the year was 5,043 tons, being a slight decrease on the previous year. An average of sixteen men were employed.

Kiripaka Mine (George Clemo, manager).—This mine is worked from an adit level a few feet above the Ngunguru River. From the entrance of this level the coal is conveyed in trucks along a ground tramway by a horse for a distance of half a mile to the loading-ground, where it is put into punts and taken down the river to deep water, and there transhipped into vessels. The seam of coal has varied from 2 ft. to 18 ft. in thickness, but owing to the faulty nature of the country it has only been found in a small area, and practically most of the coal above the level named has been worked out. The company are now directing their attention to opening up a strip of two chains of coal on their boundary below the adit level. The coal to the dip is of good quality, but there is a good deal of water to contend

with, and most likely a small engine will be required to do the pumping. The output of coal for the year was 12,604 tons, a slight increase compared with the previous year. Eighteen men were employed.

Ngunguru Mine (A. H. Taylor, manager).—This company has had considerable difficulties to contend with. The seam of coal worked during the year has averaged only some 3 ft. in thickness and is intersected by faults. The cost of mining the coal is therefore considerably greater than that of any other mine in the district; but, having some excellent fireclay on the top of the coal (which is obtained without great difficulty, and shipped to Auckland), the concern was made to pay until the month of November, when some dispute arose between the manager and the men. The directors thereupon decided to stop the mine. During the stoppage the company had a few men prospecting and boring, but they were not successful in finding coal on the property in sufficient quantities to pay for working. Work has again been resumed, but the manager's attention is directed to extracting pillars of coal which will only last for a few months. The output of coal for the year was 14,367 tons, a decrease of 3,857 tons. An average of forty-six men were employed.

Mungapapa (Mokau) Mine (Boyd Bennie, manager).—There is very little change in this mine since my last report. The working-faces are only extended a few feet to get out sufficient coal to supply the local demand, which is very limited, and the coal is not good enough to send to Wellington to compete against the West Coast coal. The bar at the mouth of the Mokau River prevents a fair-sized boat getting out with coal, hence cargoes are necessarily small. The output for the year was 4,280 tons, a decrease of 1,870 tons as compared with the previous year. Thirteen men were employed.

The Union Collieries, Maramarua (W. Tattley, manager).—The extensions of the various faces in this mine have been pushed on during the year; and, as the levels are extended under the rising ground (where there is more covering), the coal has greatly improved and is now in good demand. The greatest drawback the company has is the conveying of the coal down the river from the loading-ground at the mine to the Government railway near Mercer. It is taken down in barges, but instead of the trucks of coal (as they come out of the mine) being emptied into the barges they are lifted by a crane off the frame and wheels and placed as closely as possible on the deck. A similar method is adopted at the siding on the railway where the coal is loaded into the wagons. The barges are towed up and down the river by a small steam tug-boat. The ventilation in this mine in the early part of the year was not as good as could be desired, but on my last inspection there was nothing to complain of. The output of coal was 15,342 tons, an increase of 8,772 tons as compared with the previous year. Twenty-nine men were employed.

Taupiri Coal-mines, Huntly (E. S. Wight, manager).—This company's property may be said to be worked as three separate mines, as the workings below are not connected, although all are under the same management.

The Taupiri Reserve (Kimihia) section, two and a half miles from Ralph's, is worked from an incline adit, the most of the workings being under the lake, but for some time past nothing has been done in extending the workings or opening up the seam in this direction, the work being confined to working the bords opened up above the low level. On the east side of the incline a good deal of prospecting has been done with a view to ascertaining whether the stone in the centre of the coal would get thinner or the coal improve in quality. There is a large area of unworked coal in this direction, and, should it be found to be as good as in the other section of the mine, there would be employment for a number of men for many years.

The Taupiri Extended Mine is worked from a shaft. The operations in this section have been directed to working on that portion of the property adjacent to, and on the east side of, the Waikato River. As the workings are extended the coal is found to be of excellent quality, and the prospects are most encouraging.

The Ralph section is also worked from a shaft. The shaft is sunk on the east side of the Waikato River, near the railway-station; but the workings are now underlying land on the western side of the river, the main haulage road having been extended in this direction for a little over half a mile from the shaft. The endless-rope haulage system, which has been installed in this section for hauling the coal to the bottom of the shaft, is working very satisfactorily. The coal still continues to be of good quality as far as it has been opened up, and the supply obtained is sufficient to meet the demand.

The output of coal from the mines was 116,461 tons, an increase of 20,905 tons as compared with the previous year. There were 224 men employed.

Harrison's Mine, Huntly (Edward Davis, manager).—This mine is in what is termed the College Reserve. C. Starr and party, I am informed, have a lease and have been taking some coal out on the surface at the late Mr. Harrison's old workings. The output of coal was 215 tons, and six men were employed for a portion of the year.

Drury Colliery, Drury (R. McEwen, manager).—This mine has just recently been started. A considerable amount of boring for coal had been done by a syndicate, the success attending which had apparently encouraged them to form a company, with the object of opening up the mine and working it in a systematic manner. A small shaft was sunk, and the seam of coal, 15 ft. thick, is said to have been cut through. The company are now driving a low level from the surface to the bottom of the shaft; the drive at date is 240 ft. in length and another 40 ft. of driving will make the connection. When this is done good ventilation will be established. The mine will be drained to the depth of the level and the drive used for trucking the coal out. The strata passed through in the drive was mostly a good quality of fireclay, and required close timbering. As there are several bands of fireclay and shale running through the coal a modern screening plant is to be erected where the stone and shale will be taken out. For the purpose of utilising the fireclay the company contemplate erecting works for the manufacture of fireclay goods. The mine being situated about two miles and a quarter from Drury Railway-station a tram-line is being constructed from the station to the foot of the hill. This work is let on contract, and is drawing near completion, the rails being laid down for a mile and a half.

A locomotive has been purchased for running between the railway-station and the foot of the hill, to which the coal will be lowered down a self-acting incline from the mine. Sixteen men are employed about the mine in addition to the contractors.

A fair amount of prospecting for coal in various parts of this district was done in the early part of the year, but I have not heard of any important discoveries having been made.

The total output of coal from all the mines in the district was 242,517 tons, an increase of 32,722 tons as compared with the previous year.

NON-FATAL ACCIDENTS IN COAL-MINES.

The following are the names of persons injured in the mines in the Auckland district who sent in claims to be placed on "The Coal-miners' Accident Relief Fund," the number of days they were absent from work, and the amount of money received: 25th January, Henry Scotman, Ngunguru, arm injured, 7 days, 14s. 7d.; 6th February, Samuel Neil, Kawakawa, arm injured, 69 days, £7 3s. 9d.; 7th March, John Mulgrove, Northern Colliery, finger injured, 16 days, £1 13s. 4d.; 21st March, D. Fitzgibbon, Ngunguru, ankle injured, 27 days, £2 16s. 3d.; 24th May, B. Fabris, Phœnix, leg broken, 109 days, £11 7s. 1d.; 27th May, James Neil, Union Collieries, finger injured, 12 days, £1 5s.; 4th June, Richard Predo, Ngunguru, head injured, 13 days, £1 7s. 1d.; 13th June, James McCormick, Ngunguru, arm injured, 11 days, £1 2s. 11d.; 4th July, E. Preston, Kiripaka, finger injured, 17 days, £1 15s. 5d.; 20th July, James H. Arthur, Union Collieries, foot injured, 19 days, £1 19s. 7d.; 17th August, John Trotter, Hikurangi, shoulder dislocated, 25 days, £2 12s. 1d.; 15th October, Robert McEwen, Phœnix, face burned, 16 days, £1 13s. 4d.; 7th November, David Cockburn, Mokau, hand injured, 66 days, £6 17s. 6d.; 21st November, Samuel Moreland, Phœnix, body burned, 122 days, £12 14s. 2d.; 25th November, Robert Richards, Hikurangi, leg burned, 116 days, £12 1s. 8d.; 14th December, Hy. Crossey Drury, foot injured, 11 days, £1 2s. 11d. Totals, 656 days, £68 6s. 8d.

The total number of days men were off work who were injured in the Taupiri Coal-mines and received the usual weekly allowance through "The Waikato Medical and Accident Society, Huntly 964 days, £100 8s. 4d. William Wilson, in satisfaction of all claims for injuries received, £50. Total, £150 8s. 4d.

I have, &c.,

JAMES COUTTS,

The Under-Secretary, Mines Department, Wellington. Inspector of Mines.

No. 3.

Mr. ROBERT TENNENT, Inspector of Mines, Westport, to the UNDER-SECRETARY, Mines Department, Wellington.

SIR,— Inspector of Mines Office, Westport, 24th March, 1905.

I have the honour in compliance with section 67 of "The Coal-mines Act, 1891," to report as follows on the West Coast coal-mines for the year ending 31st December, 1904:—

Enner Glynn Coal-mine.—Prospecting has attained no further headway in the vicinity of the old mine.

Prospecting at Belgrove.—Mr. Morrison has wisely directed his attention to the better cultivation of his farm, and ceased prospecting for coal.

Motupipi Coal-mine.—Messrs. Gilmer and Nalder have recently commenced to extend an old drive formerly opened by Thomas Nalder on the west bank of the Motupipi River. The coal (brown)—so far driven on the level course—is parted in the centre by a stone band 15 in. in thickness, giving a total working-height of 5 ft. 6 in. The drive is securely timbered for a distance of 157 ft., and, should the quality and working-conditions of the seam meet anticipations, connection by road and sea are factors which will not entail extraordinary expenditure. Six men employed—two in each of the three shifts. The prospecting party are not over sanguine of success, but consider the prospect is worthy of a fair trial.

Shakespeare Bay.—Prospecting in this locality has not yet been productive of any discovery of commercial value, and operations are now stopped.

Puponga Colliery: (owners, Puponga Coal and Gold-mining Company (Limited)).—Mr. Sidney George Hayward, attorney for the company, has recently acquired all legal rights in connection with the leasehold formerly held by the Cape Coal-prospecting Company (Limited). The erection of the loading-jetty, storage-bins, and construction of the 24-in. gauge tram-line for locomotive traffic (referred to in my report of last year) are now satisfactorily completed and operative, as also the mechanical appliances for screening, sorting, and haulage, while the output has steadily increased during the current year to 12,430 tons. Working westward to the rise from the level near the top of the dip haulage road, considerable faulting was met and dealt with, and the increased thickness of the middle band stone has meanwhile necessitated temporary suspension of operations in that direction, pending prospecting developments now in active progress. In extending operations to the dip, quality and thickness of the coal-seam are fully maintained, affording favourable promise of an average coalfield, the coal commanding a ready market for household and steaming purposes at fairly remunerative prices. Sinking the dip incline is suspended at present in view of carrying out the work on more effective and economical lines. The old system will be abandoned and a steam-driven pump will shortly be installed. The attention of the manager having been directed to the ventilation, arrangements are now completed for the adoption of a fan. Improved facilities for shipment are also receiving expert attention. With respect to the provisions prescribed under the Coal-mines Act, including timbering, spragging, examinations and reports, the various working-conditions have been observed; and, as a further precaution to insure greater

safety against the probability of accident by runaway trucks on the dip heading during haulage operations on the day shift, driving in the dip face will be strictly confined to a six-hour shift, afternoon and night in each twenty-four hours.

Mokihinui Colliery.—The limited operations effected by this co-operative company during the year were confined to the rise section of the property adjoining the Seddonville State Colliery, but the quality and thickness of the coal-seam having shown no marked improvement the party ultimately abandoned further operations, withdrawing incline ropes and trucks from the mine, and finally cleared out, prior to absolute starvation. With the exception of two small falls of roof where the timber had broken down, the mine was left in fair condition. Recently the mine was opened by a new party, who are simply working the old faces. Timbering and ventilation are made special features, and reports kept to date. The old mine, which has been on fire for some time, presents no change of moment.

Seddonville Colliery (New Zealand State Coal-mines, James Bishop, manager).—Operations have been continuous during the year and the output raised shows a gross tonnage of 33,808 tons. Referring to the developments completed, the chief work effected has been the extension of the main haulage tunnel, now holed with Grant's face on the north bank of the Chasm Creek. This extension gives the haulage road a total length of 145·5 chains, of which 38·5 chains is rock-driven, while 16 chains is in coal. In this coal-bearing area, regular working has been recently opened from both sides of the tunnel, and, so far as the coal-seam has been exploited in the ordinary course of operations, quality and hardness are much superior to anything obtained in the district first opened, but if reliable data may be taken from the apparently limited and faulty character of the coalfield, it would be fair to anticipate that the probable quantity of hard coal obtainable from the present workings is likely to fall short of expectations. Therefore, should further development be considered advisable to prolong the life of the mine under the conditions existing, active prospecting must be vigorously pushed to meet future demands, and it is pleasing to note that on a recent visit to the colliery the management were taking active measures to ascertain the extent and quality of the coal-seam on the south side of Chasm Creek, where they propose to carry out an efficient system of exploring drives in the various ouctrops. Meanwhile the general development effected, and the extent of working opened, are sufficient to provide a daily output of 600 tons, providing the marketable value of the coal was suitable for general purposes, but under existing requirements, the trade demands do not exceed 250 tons per day The general equipment has been maintained in good working-condition, and in view of utilising a portion of the small coal for the manufacture of coke, experiments have been carried out, giving results which are considered to be quite satisfactory. The ventilation and other provisions of the Coal-mines Act are strictly enforced. There have been no serious accidents during the year, and seven inspections were made. Timbering is systematically effected throughout the workings as the roof is chiefly an overburden of friable coal.

Millerton Colliery (owners, Westport Coal Company (Limited); George Fletcher, mining-manager).—The mining operations continue to be worked double shift, but the restricted demands on the colliery (as affected by fluctuations of trade) have tended to decrease the output 29,201 tons, compared with the previous year. Efficiency in working-conditions and general equipment are well and consistently maintained.

East Dip section: Shortly after suspension of operations, indications of heating were threatened under large falls of coal in the upper levels, but the prompt measures adopted to remove the loose coal, and restore large circulating air-currents speedily averted the probability of future danger. Brick stoppings are exclusively used.

Mine Creek section: This section has supplied the gross tonnage raised from this colliery since operations were suspended in the east dip. The ordinary and progressive developments continue in active progress. In extending the main heading southward for a total distance of 38 chains in direct line of haulage road, a fault-line was met and dealt with without apparent difficulty, and a coal-seam of excellent quality and hardness exposed. On account of its heating properties and suitability for naval purposes, the coal was specially recommended by the officer supervising coal-shipments from Westport on behalf of the British Admiralty. Other conditions of the working-faces are practically unchanged. The east crosscut reached the Ngakawau boundary at 32 chains from the main terminal, and the bords branching southward are driven from this point. It may be here stated that, apart from any special conditions mentioned in the lease, provision is made to leave a chain barrier of solid coal along the boundary-line, care being taken to drive the face accordingly, thus averting likelihood of any encroachment. West section winning heading has been extended a total driven distance of 23 chains, the face showing an unbroken line of good coal. In concluding my remarks on the general aspect of this section of the property, it may be stated that the general contour of this extensive and unbroken face affords most satisfactory promise of a valuable and profitable coalfield. Faulting, practically speaking, is not extensive when the dimensions of the field are considered.

New works: In my report of last year, mention was made that permanent concrete foundations were under construction on the low level, in order to admit of the removal of the hydraulic-brake installation then situate at the Mine Creek terminal. This work, now substantially completed and operative, has met anticipations, and the power exerted to control the motion of the rope on the surging-drum is more evenly applied. New tunnel: In connection with the active operations to win and exhaust the western section of the leasehold, the coal-seam was tapped by the rock crosscut—securely timbered to 11 ft. by 7 ft. in the clear—at a distance of 18 chains, driven in continuation of the surface tramline which was set off to junction with the main haulage at the Big-brake terminal. The coal-seam so far proved affords promise of favourable quality and thickness, and a holing effected with the original working provides efficient ventilation under direct control of the fan. To meet the additional requirements of the new tunnel district, the power-station situate at the lower mine mouth has been spaciously

rehoused, with suitable accommodation, and the erection of a Babcock and Wilcox boiler and Leyner air-compressor is now in progress. Drainage adit: The importance of this rock crosscut for the purpose of draining the deep workings of the Mine Creek areas has received careful and prompt attention. Levels were determined, and in September last driving was commenced with hand-drills from the inbye end to junction with the outlet section, the latter being driven with rock-drills actuated by compressed air. Water is supplied under pressure to suppress the dust, the face being a hard, well-defined, grey granite.

There have been no additions to the plant at the Mine Creek power-station. The general ventilation is strictly maintained over the whole system, while the timbering of roads and faces, and the various examinations under the Coal-mines Act are made special features in the safety and economy of working operations. All reports strictly and duly kept. Seven inspections were made, and the old workings in both sections of the mine carefully examined with safety-lamp, no indications of gas or heating being found. The following observations of relative temperatures will be of interest: Surface (in the sun), 68 degrees; east intake (1 chain from day), 54 degrees; east intake (directly at face), 49 degrees; main return to fan, 54 degrees.

Denniston Collieries (owners, Westport Coal Company (Limited); J. Dixon, mining-manager).—The gross tonnage raised from these mines for the year 1904 show a decrease of 2,773 tons compared with the previous year, but it is noteworthy that notwithstanding the restricted demands on the colliery, as affecting single and double shifts, the efficient and economical development recently completed in haulage, &c., have enabled the collieries to produce the largest output yet recorded for any yearly period exclusively worked on single shift.

Coalbrookdale Mine (23/12/1904): This mine has steadily maintained its former efficiency, and active operations for the further development of the property have been consistently carried out. Respecting the geological features of the Cascade district westward, the lower section of the coal-seam is found to thin out to an almost unworkable thickness, but a corresponding increase of thickness is maintained in the upper section of the seam. Development is thus economically effected without apparent depreciation, even though the seam is divided by a considerable thickness of intervening strata. The extraction of pillars has been successfully effected in this district.

Cascade dip continues to show favourable promise in thickness and quality of seam as the workings extend dipward, whilst drainage and ventilation are effected through the coal adit driven from Cascade Creek. To meet the growing requirements mechanical haulage was recently installed on a new heading opened eastward, where a hauling-engine actuated by compressed air is permanently placed. Gas was reported in a heading-face over a large fall of top coal.

Cascade East: The solid workings having been extended riseward to the fault-boundaries, preparatory work is in hand for the extraction of pillars. Owing to the friable character of the roof overlying the coal-seam considerable cost in timbering is likely to be incurred, and great care will have to be exercised in the working-places.

Munsie's section: Solid working is about to be suspended in this section, as the trend is to the dip. Hence the remaining portion of the solid ground will be forewon at some subsequent period from future developments of Cascade east. Meanwhile the area now opened will be pillared, towards which preparatory work is well advanced.

Ironbridge Mine: The Dundee dip section of solid working is decidedly the most important district of this property. In the earlier stages of operations, faulting of a reverse character was a source of considerable trouble, but during the current year several extensive rock cross-cuttings for the purpose of winning and ventilation have been completed, and the earning-capacities of the mine considerably enhanced thereby. So much is this the case that the face now opened maintains a maximum standard in quality and thickness of seam. Free drainage and mechanical ventilation are amply provided.

Big Pillar district: The extraction of these pillars continues to give satisfactory results—*i.e.*, if the extra thickness of coal-seam operated upon and the immunity of serious accidents are factors worthy of note, whilst the low percentage of waste may be chiefly attributed to the superior structure of the coal-seam and the favourable character of the immediately overlying strata.

Kiwi district: Recent developments extending further northward have exposed a coal-seam of average quality, while the outcrop pillars in the adjoining section are being successfully extracted. Respecting the working there is little change to report.

New works: With a view to the improvement of present ventilation, and to provide an ample supply of air to meet extended requirements, preparatory work is in progress towards the erection of a 12 ft. diameter double inlet fan of the "Hayes'" type with a guaranteed capacity of 150,000 cubic feet per minute at a 3 in. water-gauge. The driving-power will be effected by a new steam-engine made in the colony, and when operative the fan will control the ventilation in the various districts of the Cascade and Munsie's areas, and lay aside two lesser fans now in use. The surface section of haulage-road recently constructed between the wooden bridge and the brake-head terminal (with a completed length of 120 chains) was opened for haulage traffic in June last with satisfactory results, while the junction of the two subsidiary haulages, which control the output from the separate mines, deliver the coal at the wooden bridge, and from thence it is conveyed over the new route to the brake-head terminal. It is officially stated that in accordance with the results attained, the new haulage is capable of dealing with an output of 1,500 tons per day of eight hours. The coal-storage bins, with a calculated capacity of 2,000 tons, now under construction at the brake-head, will, when completed, be equipped with wagon-loading conveyers, sorting and picking belts, capable of treating and discharging the output into the bins. When these bins are completed they promise to be the most complete and substantial structure of the kind that has yet been erected at any West Coast colliery.

Shots fired during the year: Mr. Dixon kindly furnishes the following: According to the official record kept at the collieries there were 38,166 shots fired, which, when calculated on the gross tonnage raised, gives an average yield per shot of 6·73 tons, while the ratio of mis-shots was 1 in 406. These records may be considered highly satisfactory, proving conclusively the quality of the explosive used and the judgment exercised by the operators.

Prosecutions: There were two prosecutions at Denniston J.P. Court for breaches of "The Coal-mines Act, 1891." (1.) Breach of special rule 36 by a miner holing without sprags; fine £1 with 9s. costs. (2.) A horse-driver travelling on rope-road whilst set in motion; fined 5s. and costs.

Throughout the whole system the working-conditions have been strictly observed in accordance with the requirements of the Coal-mines Act.

16/8/1904: Temperature in the sun, 57 degrees. The lowest reading in mine was 40 degrees and the highest 57 degrees, which latter was in a stone drive immediately after blasting. Average temperature of mine, 50 degrees.

Coal Creek Coal-mine, Buller Road (George Walker, lessee).—(8/10/1904): In the early part of the year the lessee had some little difficulty to find colliers capable of supplying the dredging demands, but this trouble was eventually righted by the services of a practical collier who soon put the face in working-order and provided coal in ample quantity. Unfortunately dredging on the Buller River has been somewhat on the down-grade of late, therefore steaming-coal is not in active demand. The mine is in good order, but the stone bands in the face are more strongly defined and overhead water is a source of discomfort in working.

White Cliffs Coal-mine, Buller Road (Job Lines, lessee).—(8/10/1904): Steaming-coal for the Old Diggings dredge is the chief supply from this mine, which gives employment to one man, who keeps the roof securely timbered. It may be stated that the Old Diggings dredge (owned by a private party) is the original Cocksparrow from Dunedin, it being famous in history, and now the most consistent gold-winner on the Buller. The pontoons, built of steel plate, give it the reputation of safety and buoyancy during floods.

Flaxbush Coal-mine, Three Channel Flat (De Phillippi, owner).—(14/10/1904): The Mokoia and Feddersen dredges get their supplies from this mine, and although the coal is small when mined, its heating properties for steaming purposes are preferred to that from Buller Road. When visited, the face (newly opened on longwall principle) was won by a rock crosscut driven off the main tunnel, whilst the section of the seam was the best for quality and thickness that I have yet seen worked on the property. Timbering is a special feature in the working, and ventilation is kept on the face from an opening at the outcrop. Three men employed.

Langford.—This mine is now a thing of the past.

Bourke's Creek Coal-mine (owners, Cairns and McLiver).—(6/12/1904): In the old mine, the coal in the face of the low level eastward having become very stony and wet overhead, the party decided to suspend further operations in that direction, and open a new section on the western terrace rising from the creek-bed. This work entailed the driving of a 6 ft. by 5 ft. tunnel through a mixture of old alluvial and crushed country, which necessitated careful timbering for a distance of 100 ft. The coal-seam won is of fair quality; but, the trade depending wholly on household requirements, the mine is shut down during the summer months.

Archer's Freehold, Capleston (F. W. Archer, owner).—(7/12/1904): The supply is maintained by the extraction of pillars on the rise level towards the outcrop. The small coal is chiefly used for steaming purposes at the dredges on the Boatman's Creek, while the round coal is carted and sold at Reefton and other centres as a first-class household fuel. A low level was opened with a view to effecting drainage to a greater depth, but after driving and rising were extended it was discovered the working was in an upper seam and not in line with the rise work, the change of level having been effected by an upthrow fault not formerly known in the field.

Coglan's Freehold, Capleston (J. Coglan, owner).—(6/12/1904): The demand is mainly for dredging purposes, one man being employed in the rise mine. Recently the owner opened a low level to intersect the coal-seam at the base of the terrace, but failed in his efforts to find coal.

Murray Creek Coal-mine (J. Billett, owner).—(8/12/1904): The supply of steam coal to the Consolidated Goldfields Murray Creek battery is still continued from this open-face property. At the time Mr. Billett acquired working-rights, speculation prevailed relative to the quantity and quality of the coal still existing in the leasehold, but his aptitude to develop a roadway to the face, suitable for horse and cart traffic, speedily changed conditions to a venture which has been a practical success in winning a valuable steaming-coal in large quantity.

Phœnix Coal-mine, Reefton (John Knight, owner).—(7/12/1904): During the heavy rainfall in March, 1904, the steep sideling overlying the coal-seam gave way in the form of a huge landslip, which crushed down the main level and destroyed a section of the road leading to the Inglewood quartz-mine. For a time this damage seriously affected the mine-owner, who lost no time to procure coal for the Inglewood battery from an old drive situated above the damaged road. To reopen the lost level was the next consideration, but the owner, having no practical means of ascertaining the extent of the damage done, decided to abandon all effort to reopen the level. Attention was then directed to drain a section of open-face coal located in the bed of the creek which is included in the leasehold. This drainage having been successfully carried out, provision was effected whereby the owner was enabled to supply his customers with household fuel of good quality, also to reopen the mine from the deeper level. With the object of ascertaining the true position of the mine-working, the party proposed to enter by the rise level, but so far they have failed in the attempt, the hill having not sufficiently settled. (19/10/1904): On visiting this mine on said date, a smouldering fire was discovered in a large heap of slack-coal, which was speedily shovelled into the creek, and the heated ground thoroughly cooled down by a water-supply from the creek. The fire originated under the fireplace of a hut built on the coal.

Lockington's Leasehold, Bourke's Creek, Reefton.—(6/12/1904): With the object of providing ventilation and a second outlet, the west level driven from the terminus of the adit has been holed on the outcrop, while coal for household and steaming purposes is mined from the east side. The stone is frequently bad in the face, and tends to break the coal very much.

Blackadder's Leasehold, Reefton Town Belt.—(9/12/1904): Operations continue to be extended on the low level. The quality and thickness of seam is well maintained, and timber is freely used to secure the roof. Ventilation has been assisted by a rise connecting with the upper level. Brown pyritical stone occurs in the coal to some extent.

Lankey's Creek Coal-mine, Reefton.—(9/12/1904): The owner finds employment single-handed. The working is about 5 ft. in height, and the trend of the seam has been somewhat erratic of late.

The New Inkerman Mines (Limited) work this coal exclusively for battery and quartz-mining requirements on the property. The seam is practically on the same underlay as the quartz-veins, and the system of timbering is much on the same lines. Ventilation is well maintained from the open outcrops. One man employed.

Devil's Creek Coal-mine, Reefton.—The adit was recently reopened and very securely timbered, but nothing further has been done in the face.

Progress New Coal-mine, Reefton.—(7/12/1904): This mine is exclusively worked for the supply of steaming-coal for A and B Progress quartz-mines, the coal being chiefly mined from the extension of the west level, and rising to the outcrop. The thickness of seam is about 4 ft., and the quality fair for steaming. Two miners were injured by a fall of stone in the face.

Loughnan's Coal-mine, Reefton.—(7/12/1904): This mine is scarcely worthy of the name, for, when visited, a man is scarcely to be found. A coal-tunnel has been driven through the hill, and it seems to stand there.

Waitahu Coal-mine, Reefton (J. Scarlett, owner).—(7/12/1904): The low level has been driven for a considerable distance, but the soft nature of the coal does not seem to improve. Otherwise the coal is clean and free of stone. One man employed.

Burning Coal-seam at Boatman's.—The extinguishing of the smouldering fire at this burning coal-seam on the north bank of the Waitahu River appears to have been a success. During the recent exceptional long spell of dry weather indications of heat or smoke have been completely nil.

Blackball Colliery (owners, Blackball Coal Company; James Leitch, mining-manager).—(29/11/1904): The demand for the coal from this colliery being somewhat less than during the previous year or two, it was deemed advisable in the best interests of all concerned to reduce hands and keep the mine more fully employed on single shift. The gross tonnage raised (85,528 tons), as compared with the previous year, shows a decrease of 3,421 tons. The chief supply continues to be won from the extraction of pillars in the original rise district, but if the difficulties which are effected by friable roof and spontaneous ignition are to be considered undesirable factors in the economy of mining, then it is fair to assume that the percentage of coal won from this limited area is considerably in excess of the quantity originally computed. With reference to the cost and anxiety incurred (incident to the troubles arising from spontaneous ignition), the ratio of fires in the mine, compared with previous years, has been the reverse of favourable. The cause may be chiefly attributed to the largely increased area of exhausted workings, this view being fully borne out by the more deadly character of fumes given off from the exhausted ground, as compared with the fires fought with in the open bords. Whenever fires have broken out immediate steps have been taken to suppress them. As reported in former papers, the stoppings exclusively used are built with stone or crib-logging and properly packed with loose clayey matter to a width of from 5 yards to 6 yards in heaving ground, yet it is not uncommon for outbreaks to occur over these stoppings, even though the utmost care has been taken to avoid the possibility of such fires. Since the original water-supply (used for the suppression of fires) cannot possibly be maintained through the exhausted ground, fresh air-currents are supplied wherever practicable, but in such cases care is necessary to prevent ignition of the smouldering mass, and, using the manager's words, "desperate cases require desperate measures." Probably the most destructive and least expected outbreak that has yet occurred originated in the open terrace directly in the vicinity of the ventilating-furnace, the origin or cause being somewhat shrouded in mystery, as the outer brickwork enclosing the furnace was considered in every way sufficient to protect the coal against the possibility of ignition. However, notwithstanding all the difficulties attached to the suppression of the outbreak, the locality is now securely sealed down under a deep cover of dry sand, and all indications of smoke and heating are entirely cut off. Pending the completion of the Capell fan, ventilation was maintained by the small furnace. At time of writing the fan is reported to have commenced work, and to circulate an air-volume of 42,000 cubic feet per minute at a comparatively slow speed.

No. 2 Dip Tunnel section: In running the haulage and drainage levels westward in line for a distance of 25 chains from the bottom of the dip crosscut the level course suddenly dipped, and having failed to discover any favourable change in the trend of the measures after a series of consistent drivings, the course of the main level was changed 40 degrees riseward to effect level course, which angle will seriously cut off the working-faces. Development is well advanced in the opened ground, and should any unforseen accident occur, necessitating the abandonment of the rise-working, provision is made for the employment of seventeen pairs of colliers in the new dip district. Driving eastward, the coal does not look so promising, owing to its being soft.

Drainage adit: This adit, driven from the bed of Ford's Creek for the purpose of draining the workings of the No. 2 tunnel district, was 818 ft. in length at the close of the year, leaving 485 ft. to effect a holing.

The general equipment and working-conditions of the mine are good, and notwithstanding the very friable nature of the roof to be contended against in the removal of pillars, and the exposure to

deadly fumes arising from spontaneous ignition, the absolute freedom from serious accident is a matter worthy of commendation. The provisions under the Coal-mines Act are strictly observed. Seven inspections were made.

Tyneside Proprietary Company.—(R. Alison, mining-manager).—(24/11/1904): This colliery, situated directly behind the railway-station at Brunner, is opened by a circular winding-shaft 97 ft. in depth, with a finished diameter of 10 ft., and operated on by two single-decked cages, whilst the adit on the south bank of the River Grey provides a suitable travelling-way for the workmen and an efficient intake for ventilation. During the year mining operations have been somewhat changeable from single to double shift to meet the requirements of trade, but on the whole work has maintained a fair average, the output showing a gross tonnage of 38,406 tons. Development has been chiefly confined to the extension of the dip haulage-road, which has been driven on an average gradient of 1 in 4 to a distance of 20 chains in a direct line from the shaft, the coal-seam won having maintained a fair quality during the whole distance driven. In connection with the driving of the dip, it was anticipated that the well-known Kimberley fault would intersect the coal-seam at about 15 to 16 chains from the shaft. It appears, however, that the produced line of fault, on crossing the dip heading, was simply traceable in the roof. On this assumption the management is confident that this extensive fault has pinched out and does not extend into the back areas as was originally considered. Meanwhile, further driving is suspended pending development from the Wallsend shaft. In view of proving the quality of the coal eastward, development has been more actively pushed, and, so far as the face has advanced, prospects are more favourable. Ventilation has received important attention, each district of working being ventilated with separate air-currents, the haulage-road acting as the main return. In addition to the influence effected on the return current by the heated column of steam-pipes, it is now further supplemented by the installation of a fan of the "Hayes" type, 6 ft. 6 in. in diameter, which is being driven to meet the present requirements of 25,000 cubic feet per minute, but has a capacity for a much larger volume. Since this mine was reopened, pumping has been a sore point in the economy of working, but happily this defect is now more systematically arranged by a much-needed system of water lodgements, the present system having placed the former anxieties within the range of comfort to all concerned. Respecting the west working there is little change of importance to note other than the routine of ordinary operations. Gas was reported in two of the heading-faces. Reports are kept to date. Six inspections made. A slight burning accident was reported.

Brunner Mines (R. Alison, mining-manager)—(24/11/1904): The quantity of coal won from the pillars extracted in working homeward from No. 1 fault towards the mine-mouth not only proves the consistency in which operations have been effected, but reflects credit alike on the part of the workmen and officers employed in the care exercised to prolong the life of the mine, also their little homesteads. To say the least, the greater part of the pillar-area extracted was so extensively worked in former years that further expenditure to reopen and work the ground was considered hopelessly worthless, and would incur an unnecessary waste of labour and capital. However, the labour and money expended have not only reaped a fair reward to all interested, but their efforts have provided a means whereby they have participated in an honest and contented living, notwithstanding the difficult and broken character of the ground dealt with in many instances, while immunity from serious accident has been a marked feature in the operations. Fireclay being a product of considerable value in the economy of this mine, special care has been equally taken to exhaust its resources thoroughly, for, like the coal, only patches remained for the last comer. Speaking on the general conditions afforded, it may be fairly assumed that the name of the Brunner Mine may yet be mentioned as a going concern in the Mines Annual Report of next year, providing precautionary steps are taken to work the remaining portion of the coal gradually, and allow the heavy overburden to settle down without throwing any undue subsidence on the elevated terrace land overlooking the Grey River, as it is important in the interests of the residents to take all the coal procurable without running any undue risk. The examinations of Brunner and Tyneside Mines are strictly made monthly by the workmen, and the reports recorded at the colliery office are highly satisfactory. Boring operations, now actively pushed on on the St. Kilda Flat, have attained a depth of 200 ft. Marls associated with quartzose bands have so far been found in the borehole. The ventilating-fan having been knocked out of working-order by the effects of the mine-working, ventilation is assisted by a steam-jet. Reports and other provisions of "The Coal-mines Act, 1891," are strictly observed. Seven inspections made. James Hunter, miner, sustained fracture of right leg.

Point Elizabeth Colliery (New Zealand State Coal-mines; James Bishop, manager).—(23/11/1904): In continuation of my report of last year, the various operative works and economic developments in connection with the handling of the mine-output have been practically completed in a substantial manner, and since export trade was opened with the colliery in June of 1904, 60,255 tons has been forwarded for railway, commercial, and household purposes. The active centres of mining operations have been confined to the coal-seam won on Nos. 1 and 2 rock-driven tunnels. At the two points stated, the seam where firstly intersected varied in thickness from 12 ft. to 16 ft., but as the winning-levels and rise headings were extended on the level course and to the rise of the field a decrease in thickness of the seam soon became an alarming factor in the economy of operations; so much so that the workable thickness in many places does not exceed 3 ft. Therefore, to cope with this extensive and disappointing thinning, immediate measures are required to prevent serious reduction in the output, and it is pleasing to note that the management, being fully alive to the position, have lost no time to test the field dipward in driving a dip heading off the main level in No. 2 section. The dip, now driven a distance of 20 chains, has proved an unbroken section of coal-seam of superior quality and thickness, which positively indicates that the major part of the field extends to the dip of the present working. Machinery of a temporary character is used to meet prospecting requirements, but, providing future developments

of the seam meet anticipations, the installation of more powerful and permanent plant will be necessary. The absence of water is a notable feature in the working-conditions. The endless-rope-haulage system, the best that could have been adopted, is in operation. The construction of storage-bins with a loading-capacity of 2,000 tons has been substantially completed, but in addition to the present appliances in use, conveyer-belts will be furnished for the more even distribution and efficient cleaning of the coal before loading. Amongst the essentialities at the colliery are the blacksmiths' and carpenters' workshops, which are spaciously built and equipped with useful labour-saving tools; also the office recently erected for colliery use compares favourably with similar buildings at more important centres. The sawmilling plant has been found a factor of considerable value in connection with the development of the property, and with the recent addition of the planing-machine, the requirements for building timber for workmen's dwellings will be much simplified. The general equipment of the colliery has been carried out on substantial and efficient lines. The ventilation and general working-conditions of the mines are satisfactory, and the provisions under the Coal-mines Act are strictly observed. Seven inspections were made. Thomas Smith, miner, was killed by a fall of roof.

ACCIDENTS AND FATALITIES.

Brunner Mine.—(18/1/1904): Wright Armstrong, roadman, killed by a fall of coal whilst drawing timber.

Coalbrookdale Mine.—(1/3/1904): Albert Jefferman, miner, killed by fall of coal in the face, spragging neglected.

Point Elizabeth Mine.—(14/12/1904): Thomas Smith, miner, killed by a fall of roof on flatsheet.

Mokihinui Mine.—(10/3/1904): John Tressman, miner, had legs bruised by fall of coal in the face.

Coalbrookdale Mine.—(3/5/1904): J. Price, shiftman, sustained injury to head and face and arms while setting timber—not serious.

Ironbridge Mine.—(28/7/1904): F. Hudson, miner, had collarbone and two short ribs broken by fall of bottom coal breaking away from underneath the sprag while he was holing.

Point Elizabeth Colliery, Greymouth.—(26/1/1904): Walter Watson, carpenter, had arm broken while erecting coal-bins. (27/9/1904): William Davis, deputy, had two ribs broken and injury to shoulder while drawing timber in the east level face off No. 1 tunnel.

Tyneside Mine.—(28/9/1904): W. Moses, miner, was slightly burned by explosion of gas in the face.

Puponga Mine.—(8/4/1904): Thomas Collier, miner, sustained cuts on face and scalp-wound by fall of coal in the face.

Progress New Coal-mine, Reefton.—(4/8/1904): Thomas McGee and William Cochrane (mates) were injured by fall of stone in face.

Brunner Mine.—(14/10/1904): James Hunter, miner, sustained fracture of leg by fall of stone in face.

GENERAL REMARKS.

The output of coal during the year ending 31st December, 1904, was 836,950 tons, which is an increase of 55,918 tons as compared with the previous year.

The year 1904 has been marked by the active progress made in the erection of mechanical appliances to effect increased efficiency in the ventilation of the West Coast collieries. At Blackball and Tyneside Mines fans have been erected and are now in operation, whilst, as already reported, the Westport Coal Company have carried out extensive works preparatory to the erection of a 12 ft. diameter double-inlet fan, with a guaranteed exhausting-capacity of 150,000 cubic feet per minute, at a 3 in. water-gauge. At time of writing, this fan has arrived at Westport. The Puponga Coal Company have also completed arrangements to install a single-inlet fan, 7 ft. in diameter. These fans when erected and operative will place the whole ventilating system of the principal West Coast collieries under fan-control.

Drainage.—The rock-driven adits now well advanced towards completion at Millerton and Blackball will effect free drainage over the whole system now operative at each colliery.

FOREIGN TRADE.

Westport Coal Company.—The total tonnage shipped directly from the port of Westport to outside the colony during the year 1904 was 44,319 tons, this statement being a decrease of 9,497 tons as compared with the previous year.

I have, &c.,
R. TENNENT,
Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

No. 4.

Mr. E. R. GREEN, Inspector of Mines, Dunedin, to the UNDER-SECRETARY, Mines Department, Wellington.

SIR,— Office of Inspector of Mines (Southern District), Dunedin, 1st April, 1905.

I have the honour to submit the following report on the coal-mines in the Southern District for the year ending the 31st December, 1904, in accordance with the requirements of section 67 of "The Coal-mines Act, 1891":—

CANTERBURY.

Springfield Colliery, Springfield (J. Taylor, permit).—(19/8/04): The mine is in good working-order. Timber is well used throughout the mine. Ventilation fair. The return airway to the shaft required attention, but a new heading is being driven in coal to connect with the shaft. Six men are employed. 413 tons 10 cwt. of fireclay raised from this pit during the year.

Victoria Mine, Springfield (W. J. Cloudesley).—(19/8/1904): A new mine driven outside the boundary of the company's fence found the coal-seam disturbed and troubled by an upthrow fault to such an extent that work has been discontinued until the return of the proprietor, who is on a visit to England.

Homebush Colliery, Glentunnel (J. C. Campbell, manager).—(20/8/1904): New cross-measures drive east from main level at 136 yards struck 6 ft. seam of coal in which levels are being turned away north and south. Dip section: Dip extension suspended meanwhile, north and south low levels being driven narrow (6 ft.), and false roof being taken down to provide permanent air and travelling ways. Drum heading section: Work to rise still confined to splitting and extracting pillars. Henry Nicol sustained bruises to loins on the 6th August; a flake of false roof had fallen and borne Nicol to the floor. The mine-manager had instructed Nicol to take the flake down. Nicol and his mate had, however, decided to first fill a box of coal. 209 tons of fireclay had been taken from this mine during the year.

St. Helen's Colliery, Whitecliffs (H. Levick, permit).—(20/8/1904): Mine-workings in good order, and ventilation fair. The levels are driven to the faults, and the pillars are being brought back. Timber is well used. Development of the mine has been considerably hampered by faults struck in the north and south sections. The main cross-measures drive has been extended to search for a new seam, but without success.

Mount Somers Coal Company, Mount Somers (M. Neilson, mine-manager).—(11/11/1904): A new mine-entrance has been made to rise of old workings, and south levels are driven practically on the western boundary, leaving the bulk of the seam unworked to the dip. When the proposed tramway is laid up the Woolshed Creek Valley there will be little difficulty in driving a water-free level to the dip of the seam, which will command a large block of coal to the rise. Thickness of seam, 24 ft. Work during the year has been seriously hampered by twelve successive falls of snow, a serious consideration, seeing that there are eleven miles of tramway above ground from the mine-mouth to the Mount Somers Railway-station.

Woolshed Creek Colliery, Mount Somers (J. Healey, permit; W. T. Doak, secretary).—(11/11/1904): Coal to rise becoming rapidly exhausted. Pillars are robbed almost to their last extremity. A new drive at a lower level will soon be a necessity, or, as an alternative, a drive to the dip, when hauling and pumping plant will be required. In further working it would not be advisable to work above the main stone band in the centre of the seam, there being a full 12 ft. of good coal below the band, and, if substantial pillars be left, a large percentage of coal might be won. Several props were required in the level roadway for better security.

Albury Coal-mine, Albury (J. M. Willetts).—(24/8/1904): Air-shaft at front of workings, and good air now circulating though the mine. Coal is won by means of crosscuts instead of headings and bords. The tongues of pillars at breakaways are left too small for permanent roof-support, and I instructed Mr. Willetts to that effect. The mine is situate upon Opawa Station, now known as Chamberlain Settlement.

Waihao Coal-mine, Waihao Forks (A. A. Adamson).—(26/8/1904): This mine had been worked in sections, each section being pillared as a new one was opened out. In the early part of the year the mine was found to be on fire, and was at once closed off. The mine was still closed on the date of my visit. Adamson has since surrendered his lease to Mr. Grant, the landowner.

Waihao Forks Coal-mine, Waihao Forks (D. McPherson, owner; George Lomas, permit).—(26/8/1904): This property had hitherto been worked in a small way, opencast. A dip drive has been driven 120 ft., and levels broken off. Three men have been employed. The owner has now granted a lease over 80 acres to a Christchurch syndicate for twenty-five years on a royalty basis. The property is to be worked on a more extensive scale, for which purpose a steam winding and pumping plant is to be erected.

Elephant Hill, Waihao Downs (Lewis Mathias, runholder).—(26/8/1904): This mine was worked in the early part of the year by A. A. Adamson, who subsequently surrendered his lease to the landowner, Mr. L. Mathias. The mine has recently been retimbered in accordance with instructions received from this office, and is now in safe working-order. Coal is obtained for station requirements. One man employed.

NORTH OTAGO.

St. Andrew's Colliery, Papakaio (Thomas Nimmo).—(22/10/1904): Still coming homeward on the pillars; ash stoppings regularly inserted to imprison black damp in waste ground, thus minimising risk of spontaneous fire. Rules posted; plan to date.

Prince Alfred Colliery, Papakaio (G. N. Willetts, permit).—(22/10/1904): New shaft sunk in front of advancing workings, giving good ventilation. Underground workings are now bordering on the Coal Reserve, and the plan requires to be brought up to date.

Ngapara Colliery, Ngapara (William Nimmo).—(20/10/1904): Coal-seam 25 ft. in thickness, of which 6 ft. to 8 ft. in the centre of the seam is being worked. A dry crevice or cavity, 15 ft. by 12 ft., met with in the level was found full of black damp. A new shaft is being sunk to the rise to increase the efficiency of this well-ventilated mine. All dross is drawn. Roadways and working-places in good order.

Allandale Colliery, Shag Point (C. H. Westfield, mine-manager).—(23/12/1904): Roadways, working-places, and return airways continue to be maintained in good order and condition. Timber

being systematically used, and, notwithstanding the band of stone in the roof, accidents from falls of roof are comparatively rare. The dip section is opening out in a satisfactory manner. The seam of coal more than maintains an average thickness of 6 ft., the coal being of good quality. Electric haulage and pumping plant are being installed for use in the dip workings and haulage on main level underground, the power being generated at the surface steam-boilers, and transmitted to winches underground by cables suspended from insulators inserted in posts on roadside. On this date the ventilation was rather dull in dip working-faces owing to the back airway being behind, otherwise ventilating current fresh and good throughout the mine. Districts being worked are the North Level section, Stone Jig section, and Dip section, all in No. 1 seam, and Long Jig section, No. 2 seam. Thomas Foster, junior, trucker, seventeen years of age, working with his father on the 10th October, 1904, slipped and fell, striking his knee against a rail on the roadway. The accident was looked upon as being of a trifling nature at first, but some days later symptoms of inflammation were detected. The lad was brought to Dunedin Hospital, and the knee operated upon without avail, as Foster gradually sank and died from blood-poisoning on the 1st November, 1904. Three visits of inspection have been made during the year.

Shag Point Colliery, Shag Point (E. W. Brooke, permit).—(12/8/1904): Shaft workings abandoned, and water in shaft has risen to sea-level. Workings on sea-beach continue to afford a small output for local requirements. A start will soon be made to open up a thin seam known to outcrop on the hillside. (23/12/1904): Coal-mining operations are confined to the 2 ft. 8 in. seam; but, 12 ft. below, a seam 4 ft. 6 in. in thickness, broken by a 3 in. band of stone, is being prospected. An air-shaft has been provided. Six men are employed.

South Otago.

Fernhill Coal Company, Abbotsford (James Gray, manager).—(26/7/1904): Mine in good order, and ventilation good. Prospecting drives continue to be driven in an endeavour to get behind the area lost by fire and water.

Freeman's Coal Company, Abbotsford (R. Hill, mine-manager).—(26/7/1904): Mine in very fair working-order. Ventilation good, and air well conducted around the working-faces. Preparations are being made to re-erect the hauling plant at Fernhill, the object being to utilise the Fernhill branch line of railway, and dispense with the tram-line hitherto used for conveyance of coal-output to the railway siding on main south line of railway.

Jubilee Colliery, Saddle Hill (Peter Campbell, mine-manager).—(27/7/1904): Work now being carried on in southern section of the mine. Ventilation adequate. Coal roof and sides strong and self-supporting, and, being water free, the conditions of mining at this colliery are very favourable.

Saddle Hill No. 1 Colliery, Saddle Hill (Christie Bros., owners; W. W. Ogilvie, manager).—(27/7/1904): New upcast air-shaft to the rise affords better ventilation of the workings than had previously been the case. The levels, headings, and bords are carefully laid off and driven to lines, ensuring regularity of the workings and sizes of pillars.

Saddle Hill No. 2 Colliery, Saddle Hill (W. H. L. Christie, manager).—(27/7/1904): Air somewhat dull at working-faces. Will be improved by the brick furnace which is being built in at bottom of upcast air-shaft. Working-places safe, coal strong, little or no timber being required.

Burnweil Colliery, Saddle Hill (Adam Harris).—(28/7/1904): A decided settlement is taking place, extending over the area of worked ground, floor rising and pillars sinking quietly, resulting in very little damage to the pillar and head coal by way of crush. The water is being allowed to rise in the dip workings.

Glenochiel Colliery, Saddle Hill (D. Bryce, permit).—A new mine driven from surface, but, unfortunately, the fringe of solid coal between outcrop and worked ground is less than had been expected.

Lauriston Colliery, Brighton Road (J. R. Walker, owner).—(3/7/1904): Mine in safe working-order. Ventilation good. Three men employed.

McColl's Coal-pit, Brighton (D. L. McColl, owner).—(22/2/1904): Drawing pillars in old mine. (3/7/1904): New low-level tunnel being driven. Should strike coal-seam at 100 ft.

Walker's and McColl's coal-pits are situated on the property now known as "Duncan Settlement."

Drummuir Coal-pit, Brighton (James Sneddon).—(3/7/1904): A small amount of coal mined for private use only.

Bruce Coal-mine, Milton (A. Young, owner).—(23/6/1904): No one about on this date. The fire is evidently overcome, and there was no smoke visible. (3/11/1904): The mine-mouth and the opencast coal-face now completely smothered with gravel from overlying measures. There were no signs of smoke. One man getting coal from another section of the property.

Strip-and-at-it Coal-pit, Milton (N. Hardwick).—Mine closed. Hardwick deceased.

Fortification Railway and Coal Company, Akatore, Milton (John Brown, permit).—(23/6/1904): Workings confined to splitting and robbing pillars between new and old dips. The mine-workings open are clean and in very good order. Ventilation satisfactory. (3/11/1904): This property has now passed into the hands of the mortgagee, Mr. John Begg, farmer, Hillend, Otago. Six men are employed in and about the colliery. The work is confined to the extraction of pillars. Timber is provided and well used. Ventilation good.

Bruce Colliery, Akatore, Milton (Messrs. Begg Bros., Hillend, proprietors; James Macallister, manager).—(3/11/1904): Gate on mine-mouth locked. No one about on this date.

Glenledi Coal-pit, Milton (N. McGilp, owner).—(3/11/1904): Pit being worked opencast. No one about on this date.

Adam's Flat Coal-mine, Adam's Flat (J. Reid, owner).—Opencast pit with limited output to supply a local trade.

Paskell's Mine, Adam's Flat (J. Paskell, owner).—Nothing doing in this pit.

Lovell's Flat Colliery, Lovell's Flat (J. Carruthers, mine-manager; R. Glendinning, owner).—(8/5/1904): The general work in the mine is the extraction of pillars from the upper four bords of the dip and the barrier between Gibson's old workings and the new workings. There are only two places in solid coal in the two lowest bords, and these have not far to go. Timber is well and plentifully used. Ventilation fair throughout the dip workings. The back airway was closed temporarily on account of a small fire in a narrow heading, and a new return is to be pushed on. In the meantime air-return is effected by one compartment of the main haulage-shaft. (22/6/1904): Pit idle to-day, but shiftmen engaged driving new return airway through pillar at near bottom of second outlet and upcast air-shaft. The new airway is necessitated by fire and falls in the old return. The whole of this district being warm fire-stoppings are in bord ends to the headings. The manager had conferred with the men *re* sanitary arrangements underground, and a certain course had been agreed upon. Two men, however, had resented being spoken to a second time as to their dirty habits. The bevel-geared wheels of elevator in screening-shed require fencing. Judging by indications underground, the coal-basin may not be expected to exceed 16 acres, thickness of seam being from 14 ft., tapering to 4 ft., at which latter unpayably workable, blackstone in roof displacing coal. Depth of seam, 470 ft. from surface. (2/11/1904): Work in the mine now confined to the extraction of pillars. Timber is well used, and there is also an ample supply provided. The ventilation is fair throughout the mine. On the 13th October a defect in the surface boiler necessitated a stoppage of the pump. The water rose and caused a partial collapse of the dip, which has since been retimbered. The south heading has been reconnected with the upcast shaft, thus restoring air-circulation. The property has been thoroughly prospected by boring, unfortunately without satisfactory results.

Tuakitoto Colliery, Lovell's Flat (A. Dunlop, owner).—A large surface slip having filled the mine-mouth this mine has been closed during the year.

Benhar Coal-mine, Stirling (James McLeod, permit).—(13/3/1904): The mine is in good order, and ventilation good. Some timber requires to be renewed in the main dip. Six men are employed. (2/11/1904): Mine in good order. Ventilation good. Timber renewed in main dip. 2,100 tons of fireclay taken from this mine during the year.

Mount Wallace Coal-mine, Stirling (James Walls, lessee, permit).—(13/3/1904): The trade from this pit is limited. There is no pumping plant, and the dip-face was flooded on this date. Coal was being taken from some of the larger pillars. Two men at work.

Taratu Colliery, Kaitangata (J. H. Young, mine-manager).—(31/1/1904): New mine-entrance and new second outlet and return airway at opposite Welsh's face. Work mainly consists of dropping 4 ft. of head coal in the bords already won, care being taken to trim any loose coal off the roof. The seam in one place where roof fallen is 20 ft. in thickness. The new prospecting-shaft is sunk to a depth of 143 ft., mainly through sandstone grits and quartz conglomerates. (28/10/1904): The headings to west are cutting out on a fault having a downthrow eastward; hade, 45 degrees, and line of fault north-west and south-east. The south main level has been driven through to Welsh's face. Several falls have occurred to the surface in places where pillars and roof coal had been robbed. Air good.

Kaitangata Colliery, Kaitangata (R. S. Jordan, mine-manager).—(14/12/1904): Development-work in the stone drive extension east practically suspended throughout the year. South going level, main seam, is in to No. 6 fault. The rise workings Nos. 1, 2, and 3; headings in new seam have been pillared and robbed to the fullest extent, consistent with safety. Dip sections being worked: Dips Nos. 8, 9, 10, 11, and 14 have been practically exhausted of coal to the level ribs in which ash fire stoppings had been placed, such being necessary in each instance. Dips presently working are Nos. 7, 12, and 15. No. 12 dip is driven 650 ft. to the fault. Bords northward driven narrow and now coming home with pillars. No. 15 dip southward of main-haulage road in Scott's level. Substantial brick stoppings have been erected in the front of the main seam coal pillars at the foot of the main incline, effectually sealing off this portion of the old workings and confining several spontaneous fires which had given considerable trouble from time to time. A brick arch has also been built in the main roadway in the 18 ft. seam in-bye No. 3 dip, which it is hoped will have the effect of subduing the fires in coal pillars at that point. Ventilation is maintained at from 36,000 to 37,000 cubic feet per minute at the intake. The several splits of air (five in all, to as many districts) are regulated so that each district has its separate split of fresh air passing direct into main return airway to upcast shaft. The return airways had been carefully maintained, frequent attention being rendered necessary on account of not only roof-pressure but side-pressure, a proportion of which may be attributed to settlement of the strata in the pillared sections of work. The fullest attention has been paid to the appointment of an efficient staff of officers in the mine. Proper examinations duly made, and the results entered in the several report-books in accordance with the Act. Safety-lamps only are allowed in the mine in-bye the cabin, the lamp-station notice being posted at the cabin, which is situated at the foot of the main haulage-incline. The increased number of minor accidents at this mine during the year have been attributed to the exclusive use of safety-lamps in the mine, their illuminating-power being less than that of the ordinary open oil-lamps formerly in use in such parts of the mine as were considered safe. The colliery-manager, Mr. Jordan, is averse to the use of "mixed lights" in the mine. Plans to date, and rules posted. Small quantities of gas have been reported on several occasions in the solid-going places—Scott's level to No. 15 dip, and in the south levels, main-seam workings—but not in sufficient quantity to interfere with the work. A complaint had been made to the manager and to myself that the atmosphere in No. 14 dip on the 19th October contained an undue proportion of carbonic-oxide, which was injuriously affecting the miners working there. Investigation revealed an incipient fire in the pillared ground at the bottom of the dip from which the gases being distilled were adulterating the air. An ash fire-stopping was then put in the dip and the ventilation short-circuited, when the air

became restored. An analysis of a sample of the vitiated air by Dr. Black, Otago University, resulted as follows: Carbonic-acid gas, 0·83 vol. in 100 vol. of air; carbonic oxide, about 0·06 vol. in 100 vol. of air; firedamp, about 1 vol. in 100 vol. of air. Ten visits of inspection had been paid during the year.

Castle Hill Colliery, Kaitangata (R. S. Jordan, mine-manager).—(21/7/1904): Air at intake, 28,000 cubic feet per minute. The lower levels in Nos. 3 and 4 winch dip workings are being pillared and robbed outward. Main seam and south level sections in good working-order. The new seam to the rise is troubled and not opening out quite so well as had been expected. A small quantity of gas was found at face of No. 2 heading. There was no one working in this place. Main level to furnace and back return airway in excellent order, having been recently repaired. The working-conditions of this mine are favourable, and the colliery is worked as an auxiliary to the Kaitangata Mine, the latter being kept going as steadily as possible throughout the year, while Castle Hill Mine is reserved for supply of surplus winter-trade requirements.

Mainholm Colliery, Conical Hills, Waipahi (Fred. Lischner, proprietor).—Opencast pit. This pit is well worked and produces over 3,000 tons of coal annually.

CENTRAL OTAGO.

Coal Creek Collieries, Coal Creek, Roxburgh (J. Barber, mine-manager).—(11/4/1904): Leasehold Mine.—No coal has been raised from the leasehold for some time, operations having been suspended until the overburden was stripped off. A fire broke out in the waste-heap in close proximity to the coal-measures. Risk of ignition of the coal-seam was removed by trenching. Freehold Mine.—As the coal trade is slack in the district, there were only two men employed in the Freehold section. The mine is in good order. Ventilation good. Rules posted, and report-books up to date. (21/4/1904): Freehold Mine.—Two men at work on the freehold. Leasehold Mine.—Still nothing being done on the leasehold. (7/7/1904): The company was notified under date the 5th July, 1904, to resume winning coal from the Leasehold section. Operations have been resumed on the Leasehold section of the property.

McPherson's Pit, Coal Creek, Roxburgh (Mrs. M. McPherson, lessee; A. McPherson, manager).—(11/4/1904): Work is proceeding satisfactorily in this opencast pit. There is a large area of bottom coal to take up. (15/9/1904): A pit is being sunk in the "resin" seam and preparations being made to raise a 20 ft. lift of "bottom" coal.

Craig's Perseverance Coal-mine, Coal Creek Flat (James Craig, lessee; John Craig, manager).—(11/4/1904): Mine-workings in good order. Ventilation good. Care must be exercised with regard to the upper abandoned workings on account of the risk of spontaneous ignition in this mine. (16/9/1904): Mine free of dross and in good order. Dip down 220 ft. in upper seam; angle of inclination 1 in 4. Seam of coal 50 ft. in thickness,r12 ft. of clay band, then lower seam, which had been sunk into 6 yards, but is not now being worked.

Progress Colliery (Gully Pit), Roxburgh (James Bailey, agent for licensee).—(10/11/1904): Very little has been done in this pit, pending arrangements being made to provide a suitable winding and pumping p'ant.

Perseverance Colliery, Alexandra (R. M. Finlay, lessee; A. Hunter, manager).—(23/1/1904): Working-places in safe condition, and ventilation fair. As had been expected and indicated in last year's report, firedamp has been detected in the dip drive working-face, and particularly at the faults which occur. Daily examination is made with locked safety-lamp as provided by the Act. Falls from roof in return airway require attention. (14/4/1904): Messrs. Hunter, Mathias Bros., and Bowler have secured from the lessee the right to work this mine, with a view to purchase. Although not included in the agreement the haulage and pumping plant is to be at the disposal of the party for some time. Unfortunately the prospects of this mine are not good. Going to the dip the seam is much flatter than near the rise, and there is a marked change in the quality of the coal, which is soft and unsaleable. This section of the mine is broken and faulty, but the extent has not been proved. (31/5/1904): The presence of firedamp was again detected in the dip-level workings on this date. The ventilation was fair. Seven men employed in the mine. (12/7/1904): No firedamp has been detected since the 8th June, 1904. Mine-workings in safe order. (1/10/1904): Operations suspended on this lease. The plant is to be removed and application made for cancellation of existing lease.

McQueenville Colliery, Alexandra (S. T. Lett, lessee; John Hodson, manager).—(23/1/1904): Mine-workings in good order. Lodgment being enlarged to hold twenty-four hours' water to obviate necessity for Sunday pumping. Ventilation good. (14/4/1904): Considerable difficulty is being experienced in coping with the growth of water in the lower mine-workings. The origin of this water is at present unknown, though partly due to natural drainage from the overlying strata, which is of a porous, open nature. The pumping-appliances not proving wholly effective increases the difficulty of keeping the mine unwatered. The manager complained of the unaccountable increase in the flow of water. The mine is in safe working-order, with good ventilation travelling round. The lower mine-workings are being worked narrow, 6 ft. in width by 6 ft. in height, with pillars 30 ft. square. (31/5/1904): The water has now risen to within 60 ft. from the mine-mouth, the pumps being unable to cope with the increased quantity Coal is being obtained from a small block of solid in the rise workings near the outcrop. (1/10/1904): Lett intends to apply for cancellation of existing lease, and make application for a new lease of 50 acres adjoining the Undaunted lease. Work in the McQueenville Mine is now confined to splitting a few rise pillars to keep the trade going. (15/11/1904): Revisited the mine on this date on account of a reported collapse of the lower dip workings. An examination of the mine revealed the fact that a disturbance had taken place over a considerable portion of the lower workings, resulting in the crushing of pillars and heavy falls from the roof. There was a heavy inrush of water into the mine from breaks in the roof of the seam, and also a settlement over a considerable area of surface. The steam-pump being recovered an attempt was made to cope with the water, without avail

Alexandra Coal-mine, Alexandra (Hunter, Mathias Bros., and Bowler, lessees; Andrew Hunter, manager).—(14/4/1904): The lessees have secured this property from Mr. W. A. Thomson at a reasonable figure. The dip drive is now being cleared out preparatory to extending mining operations further into the dip section of the field of coal. Ventilation in the mine is fair. Safety-lamp inspection made as a precaution does not reveal any trace of firedamp in the mine. (31/5/1904): Pit idle at present; trade slack. (1/10/1904): Operations have now been resumed on this property. A new dip is to be driven, as it was found that the lower present dip workings are practically lost. Ventilation good.

Alexandra Coal Company, Alexandra (James Pollock, mine-manager).—(22/1/1904): Mine in good order. The ventilation has been considerably improved by the adoption of wooden air-stoppings in the mine to replace brattice cloth hitherto in use. (13/4/1904): Mine and appliances in good working-order and all safe. A total of ten men are employed in the mine on day-shift and four men on afternoon-shift. Ventilation good. Safety-lamp inspection duly made and results of examinations entered in report-book. Report-books kept up to date. General and special rules posted. Boreholes kept as prescribed in all advancing places. As instructed from this office a barrier of half a chain of solid coal is being left between the dip workings and the riverward area. In this latter area the places are all broken away narrow to admit of speedy closing off. An efficient barrier is being left on the river frontage. Although moist backs are met with, there is very little water given off from the advancing places in the rise workings. A soft band of coal has been struck in the main dip, which is giving off water freely. A "Snow" Duplex steam-pump has been installed in the dip as an adjunct to the main pump at bottom of shaft. (31/5/1904): Mine in good order; ventilation fair. The soft or faulted coal in the dip cut out into solid coal, and the water has pined off. Eighteen men are employed underground in three shifts. Average pumping-time, fifty-nine hours per week. Water-growth steady, averaging 96,000 gallons per twenty-four hours. (30/9/1904): Mine-workings in good order. In order to further improve the ventilation the wooden air-stoppings are to be continued down the main dip. This will carry the fresh air direct to the working-faces. Complaint having arisen as to the necessity for latrine accommodation, a suitable closet has been erected on the surface, and is used by the workmen, evacuation underground being prohibited.

Undaunted Coal-mine, Alexandra (D. H. Mathias, permit, lessee).—(14/4/1904): No coal has been taken from this lease for the last three months. The lessee intends to bring the plan up to date, draw the plant from the mine, and apply for cancellation of the present lease with a view towards amalgamation with two neighbouring leases. The present style of working this mine is costly and out of date, while the lessee considers trade-prospects in the district do not warrant the expenditure of capital in haulage and pumping plant. (31/5/1904): Pit still unwatered.

Cambrian's Coal-pit, Cambrian's (Catherine Dungey, lessee).—(18/3/1904): Very little coal is taken from this lease, which is now practically exhausted. One man at work.

Welshman's Gully Coal-pit, Cambrian's (J. McGuckin, lessee).—(18/3/1904): Trade has materially decreased at this pit during the past twelve months. Coal is brought into the district by wagoners (as back loading) from the Alexandra coal-pits, while competition in the coal trade is also strong in the district. The seam, which is worked opencast, is a difficult one to work owing to the dip of the seam and the heavy overburden. Two men generally at work. (14/7/1904): Lignite-seam, 15 ft. to 30 ft. in thickness. Dip of seam 1 in 3 westerly. Stripping, 15 ft. to 30 ft. in depth. An attempt has been made to win the coal by driving, but had proved the cost to be greater than the usual sale price when stripping was again resorted to.

Blackstone Hill Coal-pit, Blackstone Hill (James Armitage, lessee).—(20/3/1904): Opencast pit. Stripping light, but water inflow heavy. Two men at work.

Price's Coal-pit, Blackstone Hill (G. Price, lessee).—Coal taken out for private use only.

St. Bathan's Coal-pit, St. Bathan's (James Enwright, lessee; James Doyle, manager).—(20/3/1904): I drew the manager's attention to the necessity for keeping the overburden well stripped back from the working coal-face, and subsequently wrote the lessee to the same effect. Two men at work. (24/5/1904): Pit now in better order. Stripping being attended to.

Rough Ridge Coal-pit, Idaburn (Mrs. M. Beck, lessee; William Beck, manager).—(22/3/1904): I instructed the manager to proceed at once to strip the overburden ahead of the working coal-face, and subsequently wrote the lessee to the same effect. The coal-face is 25 ft. in height, and is overlaid by 8 ft. of gravel. Three men generally employed. (24/5/1904): Pit in very fair order, attention being now paid to stripping in advance of coal-working.

McLean's Pit, Idaburn (Mrs. M. Beck, lessee).—(21/3/1904): Nothing doing on this date.

Idaburn Coal-pit, Idaburn (J. White, lessee).—(21/3/1904): Opencast pit. Stripping in advance and shooting down lignite-face. Two men employed. (24/5/1904): Pit in very fair order. Bottom of seam now rising and outcropping to the south-eastern boundary.

Border Coal-pit, Rough Ridge (George Turnbull, lessee).—(21/3/1904): The lessee experiences great difficulty in the working of this pit, which is subjected to flooding during rises in the Idaburn Creek. The pumping plant is quite inadequate. One man at work.

Gimmerburn Coal-pit, Gimmerburn (C. Dougherty, lessee).—Coal mined for private use only.

Commercial Colliery, Upper Kyeburn (Christian Archer, permit, lessee).—25/3/1904): Seam vertical; worked by levels driven off the shaft to the boundary in solid coal. The head coal is then brought back and the roof allowed to fall behind. Three men employed. Owing to scarcity of demand for coal in this district, and competition from better coals brought in by railway, the lessee has decided to abandon the lease. Coal has been mined from this lease for the past twenty-four years. (25/5/1904): The walls or casing of the seam had become soft at depth, and recently a run of drift-sand had filled the inclined shaft 150 ft. in one night **Abandoned.**

McCready and Coomb's Coal-pit, Kyeburn Diggings (W. Coombs, lessee).—(25/5/1904): A vertical seam which was 25 ft. in width at surface, drawing in to 12 ft. at lower levels. Coal had been worked out from each side of the spur to water-level, below which the coal is said to be soft and inferior; in fact, all the seam was much the same, and made a lot of waste. A few tons taken out per annum for private use only.

Stephen Beer's Coal-pit, Kyeburn.—(25/3/1904): This pit, which lies on the western bank of the Kyeburn River, was opened out, and a face of coal proved, but operations were suspended on account of floods. This pit was opened out in anticipation of a demand for coal to meet the requirements of dredges.

Donaldson's Coal-pit, Horse Flat, Macrae's (W. and G. Donaldson, lessees; H. N. Mills, permit).—(16/6/1904): This is a seam of inferior coal. The roof is tender and broken, and requires to be well timbered. Drainage-water troublesome. Three men are employed getting fuel to supply Donaldson's quartz battery at Golden Point.

Clyde Collieries Company, Clyde (G. F. Turner, mine-manager; L. G. Reeves, secretary, Dunedin).—(6/10/1904): Owing to the decline of the dredging industry in the district (Clyde–Alexandra Gorge) there has not been a large demand for coal from this mine. Through connection has been made from the Vincent section to the Dairy Creek section. This simplifies the question of pumping, and a suitable pump is to be installed. With increasing depths of workings the pillars are being left larger. Coal is now being won from four seams, a new seam having been tapped overlying all, making a total thickness of 85 ft. of coal in all. Eleven men employed in and about the mine. Report-books kept; rules posted. Ventilation good throughout the mine.

Holt's Pit, Shepherd's Flat, Clyde (W. J. Holt, licensee).—(6/10/1904): The dip proving expensive to work a new level drive was put in, but did not succeed in striking the coal to the dip. The mine is unwatered by a siphon. Several sets of timber were required in the main drive. The places are driven 5 ft. in width, and the pillars are left 20 ft. square. Two men are employed. On the expiry of Holt's license it was renewed in favour of the Loch Lomond Gold-dredging Company, whose dredge is supplied from this mine.

Doolan's Creek Coal Company, Gibbston.—The company is in liquidation, and the area abandoned.

Gibbston Coal Company, Gibbston (J. Duncan, mine-manager; G. R. Cheeseman, general manager). (30/11/1904): Owing to the decline of the dredging industry in this district, combined with competition from Bannockburn, Cardrona, and other coals brought in, the output of the mine is limited. The mine-workings were in fair order on this date. Ventilation fair. Owing to a settlement having taken place over a large area of ground to the rise standing on pillars some trouble has been experienced in coping with underground fires resulting from spontaneous ignition. The surface plant and tramway are in good order. Four men employed.

Cardrona Colliery, Cardrona (R. McDougall, lessee; D. Scurr, manager).—As in the past, the overburden is sluiced off with water, and the coal mined opencast. A depot has been made at the foot of the mountain, and a large supply of coal stacked up there to keep trade supplied while the road to the pit is impassable during winter months. Seven men have been employed.

Cromwell and Bannockburn Collieries Company, Bannockburn (A. S. Gillanders, mine-manager; T. K. Harty, managing director).—Excelsior Mine (11/10/1904): Operations have been steadily carried on northwards in this mine, and there is now a considerable area of pillars standing. The levels are being pushed on with a view to connecting this mine with Wilson's, which work may be completed within a year. No work has been done to south of main dip as the coal thins somewhat, and the roof is not as good as going northwards. The mine-workings are in good order, with good ventilation throughout.

Wilson's Mine (11/10/1904): Operations at this mine are confined to winning coal for one dredge supply. Mine in good order. Ventilation good.

Kawarau Mine (11/10/1904): Shepherd's Creek, new dip drive: At this mine the main dip has been extended, and is now down 620 ft. in good strong coal. The seam is 15 ft. in thickness in the dip, but thinning to the north and south. There have been two breaks in the roof, followed by a rush of water carrying fine sand from the roof measures. Trouble and expense were incurred in coping with this inflow. The frontage of the seam was found to have been broken by old workings, and considerable difficulty is experienced in unwatering the mine. The company employed an average of thirty-eight men on the several properties throughout the year.

Cairnmuir Coal-pit, Bannockburn (Gibson and Anderson, lessees).—(10/10/1904): A small winding plant has been erected, and an effort is being made to develop the property. Expense has been incurred in shaft-sinking, but the area of workable coal is small. Later information from the manager (James McLelland) is that the steam plant proved incapable of dealing with the haulage and pumping. A dip drive was then tried in another part of the lease, but the drainage met with was in excess of the pumping-capacity. The mine is now idle while an effort is being made to raise capital to provide an efficient plant.

Charles Angel's Coal-pit, Bannockburn.—Opencast pit. A small quantity of coal for private use is taken out.

Nevis Coal-pit, Nevis (Charles Scott, lessee, permit).—(2/12/1904): The seam is vertical. The mine-workings are in good order. A connection is to be made between the upper and lower levels for ventilation. Two men are employed getting coal.

Ryder's Coal-pit, Nevis (Charles Scott, lessee).—(2/12/1904): The lessee is now preparing to open up the property on a more extensive scale. A deep drainage-channel is to be brought up. Two men employed.

Clough and Allen's Coal-pit, Nevis (Mrs. A. Holmes, lessee).—(2/12/1904): The lessee has disposed of this property to C. Scott, lessee of the adjoining pit.

Gunion's Coal-pit, Nevis (R. Gunion).—(2/12/1904): There was nothing doing at this pit at this date.

Ritchie's Coal-pit, Nevis (Robert Ritchie).—(3/12/1904): The lessee has secured contracts for dredge supplies, and has now two men engaged on the lease. The seam is vertical, and, pending water being brought in for sluicing off the overburden, a drive is being put in.

Graham's Coal-pit, Upper Nevis (A. and S. Graham, lessees).—(2/12/1904): This pit was opened for coal-supply to the Upper Nevis dredge, but this dredge having ceased operations the pit has consequently been closed.

SOUTHLAND.

Pukerau Coal-pit, Pukerau (C. O'Hagan, permit).—(2/5/1904): Mine in good order. Report-book to date. Three men employed.

Nelson's Coal-pit, Pukerau (J. H. Nelson).—(2/5/1904): The pit is unwatered by means of a covered box-drain. Through a collapse in the drain the mine was flooded on the date of my visit. The pit requires a pumping plant.

Mason's Coal-pit, Pukerau (A. Mason).—Coal taken out for private use only.

Milne's Coal-pit, Pukerau (A. Milne).—Coal taken out for private use only.

River View Coal-pit, Gore (L. D. Nicol, owner).—Coal mined for private use only; on freehold land.

Whiterigg Colliery, East Gore (W. H. Paterson, owner; John Hartley, permit).—(29/6/1904): A lignite-seam 18 ft. in thickness; 12 ft. is mined, and 6 ft. left for support of roof. Mine-workings in good order. Good ventilation maintained by means of air-shaft. Compressed powder used, and stored in a suitable locked magazine on the surface. Five men employed.

Heffernan's Coal-pit, East Gore (W. Jones, permit).—(20/5/1904): This pit has been taken over from the late lessee, Thomas Hoffman. A water-level has been driven, and the coal is mined from the Rise section. I draw attention to the necessity for an air-shaft being provided. The coal is strong, and the mine is in good order. Four men employed. (6/9/1904): Mine in good order. Air-shaft now provided.

Rosedale Coal-pit, East Gore (A. Reinke).—(20/5/1904): Pit idle on this date. Lignite mined opencast.

Michael Leitze's Coal-pit, East Gore (20/5/1904).—Lignite mined for private use only.

A. McDonald's Coal-pit, East Gore (W. Gilmour, lessee).—(29/6/1904): This seam is worked opencast, but the output is limited owing to the difficulties experienced by the steepness of the dip of the seam and the lack of water drainage. (6/9/1904): An effort to drive out this coal was not successful, as the seam was too thin and the walls could not be kept up. One man now engaged stripping off the overburden.

Robert Smith's Coal-pit, East Gore.—Coal taken out for private use only on freehold land.

H. Smith's Coal-pit, East Gore.—Coal taken out for private use only on freehold land.

Green's Coal-pit, Gore (J. and J. Smyth, lessees; J. Mason, manager).—(21/6/1904): The mine is in good order and ventilation fair. An air-shaft has been provided. As instructed, the powder-magazine has been removed outside the mine. Suitable powder-canisters are now provided. The new surface tramway from the mine to the depot is now in use. Five men are employed.

Hamilton's Coal-mine, Croydon (John Hamilton, lessee).—(8/3/1904): This mine was opened for dredge supply, but the coal proved inferior and unsaleable. The mine is now closed.

Knapdale Coal-mine, Knapdale (W. Irvine).—Pit closed throughout the year.

Boornwell Coal-pit, Chatton (G. P. Johnston, owner; Thomas Hoffman, lessee).—(7/9/1904): The seam is very strong and the places are driven wide. A water-level has been driven and the coal mined from the Rise section. To win further supplies of coal from the dip would involve heavy outlay in haulage and pumping plant. An air-shaft will be required in the near future. Five men are employed.

Perkins's Coal-pit, East Chatton (A. Perkins, lessee).—(7/9/1904): Several unsuccessful attempts were made to drive out the coal, and the lessee will again resort to the opencast system. Two men employed. (20/12/1904): Two men are engaged stripping and taking out coal. The lessee has now bought an adjoining section from R. Pacey, and the trouble which hitherto existed regarding drainage and disposal of refuse would appear to have now dissappeared.

Pacey's Leasehold Coal-pit, East Chatton (R. Pacey, lessee).—(7/9/1904): Lease sublet to James Shepherd and A. Rennie, who are taking out a small block of coal from the boundary. The main pit is flooded. (20/12/1904): The sublease has been cancelled. Very little work has been done on this lease since my previous visit.

Pacey's Freehold Coal-pit, East Chatton (R. Pacey, owner; T. Caldow, manager).—(7/9/1904): This pit has been opened out on private land. Stripping, 8 ft.; coal-seam, 30 ft. A winding plant has been placed on the roadside, and the coal is hauled a distance of 12 chains from the pit to the top of the rise. A suitable locked powder-magazine required. Five men employed. (20/12/1904): This pit is in good working-order. An attempt was made to drive out the coal, but was abandoned through inexperience. Four men employed.

Harvey's Coal-pit, Chatton (20/12/1904): Nothing doing.

Chatton Coal-pit, Chatton.—(20/12/1904): Application has been made by William Dickson and Martin Gerkin for a lignite license over 40 acres, Crown lands, Chatton district.

Otama Coal-pit, Otama (Cross Bros.).—Pit idle throughout the year.

Cross's Coal-pit, Otama (Cross Bros.).—Opencast pit. Coal mined for private use only; on freehold land.

Hunter's Coal-pit, Otama.—Pit idle throughout the year. Face smothered by slips.

Thorndale Colliery, Waikaka Valley (E. C. Orchard, owner).—(25/2/1904): An attempt is being made in this opencast pit to keep the heavy overburden ahead of the working coal-face, but further improvement is necessary. Three men are employed. This pit has since been sold to Thomas Ritchie and others.

Johnston's Springfield Coal-pit, Waikaka Valley.—(25/2/1904): Opencast pit. Stripping, 10 ft.; lignite, 7 ft. to 10 ft. This pit continues to be worked on good lines. Two men at work. (7/9/1904): This property has been acquired by J. P. McIntyre, farmer, Waikaka Valley. R. Ledlie, the manager, has two men stripping off the overburden and three men on the coal. The pit is in good working-order.

Reed's Coal-pit, Waikaka Valley (Robert Reed, owner; W. Mitchell, manager).—(25/2/1904): Opencast pit. Stripping, 10 ft.; lignite, 15 ft. Acting under instructions, the owner now keeps the stripping well ahead of the working coal-face, thus reducing liability to accident from falls of clay. Five men employed. (3/5/1904): Pit in good working-order. Stripping well attended to. (6/9/1904): Pit in good order. Explosives used with care. Five men employed.

McGill's Glenlee Coal-pit, Wendon Valley (D. T. McGill, permit).—The mine is safe, and in good working-order. Compressed powder used with care. Two men employed.

McDonald's Coal-pit, Wendon Valley (A. A. Edge, lessee; S. Coulter, permit).—(6/9/1904): This mine was idle during the greater part of the year. Since resuming operations a small winding plant has been erected on the dip head. The dip is now driven a distance of 120 ft. The seam is 16 ft. in thickness, of which 5 ft. is left to form the roof. The mine is in good working-order. Four men are employed.

Edge's No. 14 Coal-pit, Wendon Valley (A. A. Edge, lessee; S. Coulter, permit).—(26/2/1904): This property of 5 acres is leased from the School Commissioners. Since last inspection the pillars have been robbed from the rise section with a view to closing the upper portion of the mine. In order to win further supplies of coal from the dip section a pumping and haulage plant would be required. The trade of the district does not warrant the necessary expenditure at present. A suitable powder-magazine has been provided. Four men employed.

P. Bushbridge's Coal-pit, Wendon Valley.—(26/2/1904): An opencast pit. Supplies mined during summer months for winter use.

Perkins's Coal-pit, Wendon Valley (George Perkins).—Coal mined for private use only.

Henderson's Coal-pit, Wendon Valley.—A private pit.

Stevenson's Coal-pit, Coal Creek, Wendon.—This venture has been abandoned. No coal mined during the year.

Radford's Coal-pit, Wendon (E. and P. Radford, lessees).—This coal-pit was idle for a considerable time, but was reopened during the year. The opencast pit has been abandoned and a dip drive put in.

Waikaia Collieries Company, Waikaia (James Holland, lessee; W. G. McKay, permit).—(23/2/1904): A new dip drive has been driven a distance of 50 ft. into the seam, which is 10 ft. in thickness. The coal is being mined to a height of 6 ft., the remaining 4 ft. being left overhead. The existing pumping plant has been supplemented by a smaller pump placed in the dip bottom. A good class of timber is in use and the drive is secure. I instructed the manager to provide a suitable locked powder-magazine, and also to procure copies of the general and special rules for posting at the mine-mouth. Five men employed in and about the mine, from which supplies of coal are obtained for two gold-dredges. (14/5/1904) (Robert Ross, permit): The mine is in good order and development-work is going ahead. Preparations are being made for an air-shaft in the eastern section of the mine. The coal is strong, and timber is well used in the working-places. (27/6/1904): The main pump had been placed in the dip bottom, a stoppage was caused through the boiler-tubes bursting, and before repairs could be effected the water had risen and covered the pump. It is probable the mine will not be unwatered, the venture having been a losing one to the proprietors.

Nelson's Coal-pit, Landslip, Waikaia (John Nelson, owner; James Muirhead, manager).—(24/2/1904): The area is being prospected by driving and shaft sinking. (14/5/1904): A drive is being put in which will strike the coal-seam in the floor. (26/8/1904): The seam has been proved at 10 ft. in thickness, with a dip of 1 in 8. Unfortunately, the seam is much broken and the joints are filled with clay and gravel. A shaft is being sunk to serve for ventilation and second outlet. The mine was in good order. I instructed the manager to procure copies of the general and special rules, and to provide a suitable locked magazine. (26/10/1904) (James Duncan, mine-manager): On the 12th September, 1904, the main drive collapsed. Previous to this there had been a spell of extremely wet weather. As there is very little cover on this seam, the wet evidently gained access to the mine through the workings. As a result the bottom became softened, and a crush took place in the main drive, which had been driven through the underlying measures to strike the seam. This section of the property has been abandoned, and a sublease given to Robert Rear and C. Archer, who are at present putting in a new drive.

McIvor's Coal-pit, Landslip, Waikaia (R. McIvor, lessee).—(28/6/1904): A dip drive has been driven to reach the coal, but nothing further has been done. This seam was previously worked opencast.

McIvor's Coal-pit, Landslip, Waikaia (R. McIvor, permit, lessee).—(28/6/1904): A dip drive has been put down in the seam, which here averages 12 ft. in thickness; 3 ft. of coal left to form roof. A suitable locked powder-magazine not provided. General and special rules posted. Three men employed. Sluicing operations are still being carried on in the opencast section of the mine. (26/10/1904) (James Duncan, mine-manager): The mine is in good order. The coal being strong not much timber is required. Bords are driven 9 ft. wide, and pillars are left 15 ft. by 20 ft. I advised that the pillars be made larger. Four men are employed underground. Ventilation is maintained by a

heading driven to the surface. Three men employed in the opencast. McIvor's lease of 10 acres has since been purchased by the Landslip Coal-mining Company, which is composed principally of investors holding dredging interests in the Waikaia district. A new winding and pumping plant is to be installed.

Muddy Terrace (Shale-pit), Waikaia (T. F. Goldie).—(26/10/1904): Opencast pit. Overlying burden well stripped back. Pit in good order. Three men employed.

No. 1 Coal-pit, Landslip, Waikaia (A. McKinnon).—(26/10/1904): Mine in good order. Ventilation good. Several men are employed bringing up a deep tail-race, about 8 chains in length, in order to get an entrance at a lower point to the dip of the seam.

Argyle Coal-pit, Upper Waikaia (J. and T. Baxter).—(25/10/1904): This pit is still worked opencast. The trouble experienced in the past with slips from the high country is not now so great. Two men at work.

Ed. Vial's Pit, Happy Valley, Waikaia.—(25/10/1904): Pit idle throughout the year.

G. S. Vial and D. Gillespie, Robson's Run, Waikaia.—(25/10/1904): The seam dips sharply, and in the absence of a good road and suitable machinery to develop the pit the venture was abandoned.

Waimea Coal-pit, Longridge Village, Waimea.—This pit has been idle throughout the year.

Roderick McKenzie's Coal-pit, Blackmount Station, Takitimo District.—A pit opened to supply private requirements.

Pyramids Coal-pit, Mandeville (E. Macallister, owner; W. and J. Hollows, lessees).—During the early part of the year 305 tons of coal was mined by Junker and party. In May the mine was leased to W. and J. Hollows, who have since worked the property continuously. The property was tested by boring, with a view to determining the coal-bearing area, which, however, did not prove to be of great extent.

Waimumu Coal-pit, Mataura (C. P. Sleeman, owner).—(25/6/1904): This pit continues to be worked in good order. Stripping kept well advanced from working coal-face. Nine men employed in and about the pit.

Bogside Colliery, Mataura (Mutch and Hurst, lessees; A. D. McIlraith, owner).—(25/6/1904): Pit idle. Nothing done for some time. The pit has since been reopened by A. Cameron.

Mataura Lignite-pit, Mataura (Beattie, Coster, and Co., owners; W. Coster, manager).—(25/6/1904): Opencast pit in good order. Three men employed getting coal, and three stripping in advance. Suitable powder-magazine and canisters provided.

McGilvray's Coal-pit (late Mutch's), Mataura.—Lignite taken out for private use only, but 110 tons of hæmatite supplied to Mataura Paper Mills during the year.

Waimumu Colliery Company (late Duthie's), Waimumu (W. J. Williams, manager; H. W. Royds, secretary, Invercargill).—(26/6/1904): This property is worked opencast and has been opened out on an extensive scale. The pit is in good order. 3,504 tons of lignite was raised during the year and supplied principally to dredges in the Waimumu Valley.

Nightcaps Colliery, Nightcaps (J. Lloyd, mine-manager; William Handyside, managing director).—(16/6/1904): No. 2 section being extensively robbed, roof falls to surface, consequently remaining pillars relieved from undue pressure. Timber plentifully used as required. The dip section of work, also rise section recently on fire, are being reopened and cleaned up with a view to coal-production, the damage done by the fire having proved of a less permanent nature than might have been expected. (19/10/1904): Mine in good working-order throughout. Timber well used and plentiful supply on hand. The pillars in the lower dip workings have been enlarged to 24 ft. square. Ventilation good throughout the mine. I found the upcast air-shaft and fan in good order.

Hit or Miss Mine, Nightcaps (D. Tinker).—(20/10/1904): When the present workings have reached the boundary the pillars will be drawn. Mine in good order. Timber well used. Ventilation good. Two men employed.

Lamont's Coal-mine (H.B.), Nightcaps.—(20/10/1904): A small area of coal has been stripped. One man at work.

Morley Coal-pit, Nightcaps (George R. Spence).—(20/10/1904): One man at work stripping an area of coal.

Mount Linton Station Pit, Nightcaps (Mrs. Chalmers).—Nothing has been done during the year.

Remarks.

The output of coal and lignite (Southern District) for the year 1904, amounted to 458,371 tons, an increase of 28,969 tons over the previous year.

Returns of output from the provinces are as follows:—

	Tons.
Canterbury	25,120
Otago	320,681
Southland	112,570
Total	458,371
Output for previous year	429,402
Increase	28,969

The contributions by coal-owners to the Coal-miners' Relief Fund amounted to £458 19s. 9d., while payments from the fund to the amount of £537 19s. 10d., have been recommended on account of accidents which have occurred in and about coal-mines in this district during the year.

ACCIDENTS.

A total of 138 accidents were reported to me during the year, of which two resulted in death, one being instantaneous death, and the second, death by blood-poisoning subsequent to an operation twenty days after the accident, which was not at first considered serious. Of the remaining accidents it is to be observed that a large proportion did not come within the meaning of section 55 of "The Coal-mines Act, 1891," whereby the manager of every mine is bound to notify the Inspector of every accident attended with serious injury to any person employed in the mine, but were so reported to me for the purposes of the administration of the Coal-miners' Relief Fund, there being no Sick and Accident Fund in connection with any miners' association in the district.

Fatal Accidents.

10th October, 1904.—Thomas Foster, trucker, Allandale Colliery: Slipped on a rail while trucking, causing inflammation of sheath of tendon of left knee. Blood-poisoning supervened and proved fatal on the 1st November, 1904.

24th October, 1904.—Adam Thomson, miner, Kaitangata Mine: Instantaneously killed by fall of coal from roof at lip of waste, five yards back from his working-face.

Non-fatal (Serious).

11th January, 1904.—William Dixon, miner, Nightcaps Colliery: Wound of cornea and traumatic cataract resulting in loss of sight, caused by piece of coal flying from pick-point while holing.

10th February, 1904.—Chas. P. Penman, miner, Kaitangata Mine: Injury to eye, necessitating removal of same, caused by dirt flying from face of hammer while drifting a prop.

11th March, 1904.—John Burns, horse-driver, Kaitangata Mine: Fracture of leg, caused by fall of roof and side through boxes getting off the road and bringing down three sets of timber in haulage-road.

4th May, 1904.—William Cairns, miner, Kaitangata Mine: Fracture of left leg below knee, caused by fall of coal while robbing a pillar.

22nd July, 1904.—Henry A. Jones, miner, Kaitangata: Sprained ankle and bruised back—struck by piece of stone which fell from the roof at the coal-face.

6th August, 1904.—Henry Nicol, miner, Homebush Colliery: Strained and bruised back, caused by piece of stone which fell from roof at coal-face.

I have, &c.,
E. R. GREEN,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

APPENDIX I.

MINE-MANAGERS' EXAMINATION-PAPERS.

QUESTIONS USED IN EXAMINATION OF MINING MANAGERS FOR FIRST- AND SECOND-CLASS CERTIFICATES.

SUBJECT NO. 1.—*On Prospecting, Sinking, Tunnelling, and opening out a Colliery.*

1. Describe briefly the indications by which you would be guided in searching for coal in a new field, and what steps you would take to prove the existence of coal in the absence of outcrops.

2. If placed in charge of the development of a new colliery, what are the most important points to be decided before starting to sink shafts, and what are the conditions upon which you would decide the position of and size of shafts?

3. Describe fully the character of the preparations required and kind of plant you would employ in sinking a shaft to a depth of 1,000 feet, assuming feeders of water to be 500 gallons per minute down to 400 feet from surface, the balance of the sinking being free from water.

4. Assuming the shaft has reached the coal, which is found to be 6 feet thick with good roof and soft floor, show by sketches how you would open out workings, giving the arrangement at shaft-bottom, dimensions of pillars surrounding the shaft, and direction of air-currents through the workings to the up-cast shaft.

5. How would you ventilate a shaft during sinking? Show by sketch the method and arrangement for ventilating below the scaffold when lining a shaft with brickwork.

6. Describe, and show by sketch, how cast-iron tubbing is applied to lining shafts, and state the conditions under which you would adopt same and the pressure that would be produced on tubbing with a head of water 250 feet.

SUBJECT NO. 2.—*On working Coal and timbering underground.*

1. Describe the method of working any seam of coal with which you are practically acquainted, and illustrate by sketches the position of main haulage-roads with branch headings and return air-course.

2. Assume a seam of coal containing a stone band 9 inches thick, top coal 12 inches, and bottom coal 4 feet: how would you open out and work such a seam?

3. Show by sketches the different systems in vogue for timbering in coal-mines, both in flat and highly inclined seams.

4. Give reasons for requiring to draw timber, precautions to be observed, and tools used.

5. Give description of mode of working in a long-wall face, the seam being 5 feet thick, with heavy roof; and make sketch showing how you would place timbers for supporting roof.

6. What precautions would you adopt to avoid danger arising from blown-out shots in coal-mines? and state what is, in your opinion, the principal cause of such.

7. Give a description of the system or systems upon which you have known thick coal to be worked.

SUBJECT NO. 3.—*On the Gases of Mines, Spontaneous Combustion, and Ventilation.*

1. Name the two gases most commonly met with in coal-mines, and describe their composition and properties.

2. Given the opening-up of a colliery in a coalfield well known to be liable to spontaneous combustion, how would you arrange the workings so as to minimise the risk from fire?

3. Say what is meant by natural ventilation, and show by sketch how produced. Also describe the use of the barometer, thermometer, and water-gauge in connection with mines.

4. Sketch what is, in your opinion, a good form of air-crossing.

5. What benefits are to be gained by increasing the size of airways, and what effect has splitting the air on the ventilation of mines?

6. Find the total quantity of air per minute passing in an air-course 12 feet by 7 feet, at a pressure of 7.5 lb. per square foot.

7. If the total quantity of air passing in a mine is 120,000 cubic feet per minute, with a 2 in. water-gauge, the fan-engine cylinder being 19 inches diameter by 3 feet 6 inches stroke, making 45 revolutions a minute, steam-pressure (effective) 50 lb. per square inch, what would be the fan's efficiency?

SUBJECT NO. 4.—*On dealing with Old Workings and other Sources of Danger.*

1. What danger is to be apprehended when a colliery giving off firedamp, and having workings to the rise, and which has been drowned out, is being reopened by pumping the water out?

2. In approaching old workings what precautions would you adopt?

3. Sketch the various kinds of dams used for holding back water in mines, and state precautions necessary in selecting site for a dam and to insure safety in its construction.

4. If accumulations of explosive or other poisonous gases should be met with in a mine, what steps would you take in dealing with same?

5. State your experience with regard to blasting in gassy and dusty mines; and (*a*) name the explosive you have been accustomed to, and (*b*) state arrangements you had for blasting under various circumstances.

6. What are slips or backs, and what precautions should be taken to protect workmen where these exist?

SUBJECT No. 5.—*On Steam Boilers and Engines used about Collieries.*

1. What are the requirements of the Coal-mines Act with regard to steam-boilers?
2. If in consequence of a deficient supply of water the flue of a Lancashire boiler had become overheated, what precautions would you take?
3. Show by calculation how you ascertain the bursting-pressure and safe-working load for a steam-boiler.
4. Requiring an engine of 50 effective horse-power, show by calculation size of cylinder, length of stroke, and pressure of steam you would use.
5. State horse-power of engine required to drive a ventilating-fan producing 100,000 cubic feet of air per minute, water-gauge to be 2·5 inches.
6. Describe some of the principal methods of transmitting power from the surface to workings underground, and state what your experience has been (if any) in the use of electrical power.

SUBJECT No. 6.—*On Mine Drainage and Haulage, and Appliances for same.*

1. It is required to raise 300 gallons of water per minute from a mine 300 yards deep: give a general outline of the plant you would adopt for the work.
2. If required to pump 200 gallons per minute from a dip working the inclination of which is 1 in 6 and length 50 chains, what plant would you use and what horse-power would be required?
3. What will be the horse-power of a hauling-engine necessary to haul 500 tons of coal in 8 hours along a road rising 1 in 10, direct-haulage single rope being used?
4. State what is, in your opinion, the most economical system of haulage for large outputs, and give sketches illustrating same.
5. Give sketch showing side and end view of mine-tub capable of carrying 15 cwt. (give figured dimensions).
6. Having to wind 500 tons per day of 8 hours from a shaft 1,000 feet deep, what size and style of engine would you apply? Give dimensions of cylinders, diameter of drum, and size of rope; also show by sketch where you would place engine in relation to shaft and pit head, frame and pullies in position (give figured dimensions).

SUBJECT No. 7.—*On Geology, Surveying, and making of Plans.*

1. Give a sketch of a fault in a coal-seam. Illustrate the method usually adopted in measuring the amount of throw and in showing the fault on a colliery plan.
2. Describe how you would ascertain and record the levelling of the surface between two points which are not visible to you from each other.
3. Find the acreage of a field which has two sides parallel and its other two sides equal to one another, the parallel sides being respectively 360 and 240 links and the other sides 100 links long.
4. Candidates to produce a plan showing the workings of a colliery with the surface taken up for at least 20 acres in the vicinity of the shaft or adit, the workings to be shown in colours. The connection between the surface and underground must be shown and described in the event of there being only one shaft. The levels and main headings must have assumed traverse calculated in detail, and showing latitude and departure for each bearing. The plan to be candidate's own work, and to be accompanied by field-book.
5. Plot the following bearings with protractor and scale, and calculate the latitude and departure, and give the course and length of the 5th set to tie with the start of 1st set:—

1. N. 30° W., 500 links.	3. S. 65° E., 450 links.
2. N. 15° E., 750 "	4. S. 20° E., 500 "

6. What means would you adopt to prove accuracy of an underground survey?

SUBJECT No. 8.—*Arithmetic, and a Knowledge of the Coal-mines Act.*

1. A pillar of coal contains 5 tons 13 cwt. 2 qr. 19 lb.: what is the weight in pounds?
2. If a drive is 45 yards long by 6½ feet high and 8 feet wide, how many cubic feet of air would it contain?
3. If the average cost of sinking a shaft 450 yards deep be £23 per yard, and 25 per cent. of the strata being hard rock costing 40 per cent. more than the average of £23, what will be the cost per yard of the remaining 75 per cent.?
4. Surface of a solid cube has an area of 11·904 square inches: how many cubic feet does the solid contain?
5. How many gallons will a pump throw in 12 hours, dimensions being 24 inches diameter, 8 feet stroke; speed, 9 strokes per minute?
6. Briefly state requirements of Coal-mines Act as to—
   (*a.*) Manager's duties and responsibilities;
   (*b.*) Under-manager's duties;
   (*c.*) Storage of explosives;
   (*d.*) Safety lamps and signals.

SUBJECT No. 1.—*On Prospecting, Shaft-sinking, Tunnelling, and opening out a Colliery.*

1. State what experience you have had in prospecting for coal, and the indications upon which you would rely to prove the existence of coal in a new field.
2. How would you proceed to sink a shaft 14 feet diameter with the knowledge that a bed of quicksand existed 20 feet from the surface?
3. How would you ventilate a shaft to be sunk to a depth of 500 feet?
4. Give sketch of the plans you would adopt in opening out a new mine, and give figures showing size of pillars you would leave for supporting shaft, depth of which is assumed to be 500 feet.
5. Show by sketches how you would open up a road through fallen ground rising one in six, giving dimensions and plan of timbering.

SUBJECT No. 2.—*On working Coal and Timbering underground.*

1. Describe the different systems of working coal with which you are acquainted, and under what conditions as to thickness and nature of coal, roof, and floor you would adopt one system in preference to the others, keeping in view the getting of the coal in the most marketable condition.

2. Sketch and describe by side and end views how you would retimber a main road having a soft roof, the road being 10 feet wide by 6 feet in the clear. State kind and size of timber to be used.

3. Many accidents are caused by falls of roof and sides in working coal: state what steps you would take to prevent such.

4. What seams with which you are acquainted work better by long-wall than by bord and pillar, and why?

5. Explain what explosive you would use, and how you would conduct the operation of shot-firing in a dry and dusty mine where gas is sometimes found.

SUBJECT No. 3.—*On Gases of Mines, Spontaneous Combustion, and Ventilation.*

1. Name the gases most commonly met with in coal-mines, and give your experience in dealing with same.

2. Describe by sketch a method of bratticing the bords and headings in seam of coal 8 feet thick; pitch of seam, 1 in 4; bords, 18 feet wide; and pillars, 15 yards thick and 50 yards from heading to heading.

3. What practical experience have you had in the ventilation of collieries, and how do you prefer that ventilation should be produced, by furnace or fan? Give reasons for preference.

4. What are the provisions of the Coal-mines Act in reference to ventilation?

5. Give your experience in dealing with underground fires, and say what, in your opinion, is the cause of outbreaks of fire underground.

SUBJECT No. 4.—*On dealing with Old Workings and other Sources of Danger.*

1. What are the precautions to be observed in approaching old workings likely to contain accumulations of water? Describe fully.

2. If confronted with a sudden inrush of firedamp, what steps would you take for safety of miners and to effectually clear the mine?

3. What are the provisions of Coal-mines Act in relation to spragging, and why is this precaution necessary?

4. How would you ventilate a dip heading where black damp is given of freely?

5. Why is it dangerous to use the Davy or Clanny lamp unprotected? Describe some form of lamp of which you have experience? What is the most explosive mixture of gas and air?

SUBJECT No. 5.—*On Mine Drainage and Haulage, and Appliances for same.*

1. Describe your experience in the drainage of mines, and what is, in your opinion, the most efficient pump for this purpose.

2. Describe the natural law which governs the working of pumps and siphons.

3. Describe what, in your opinion, is the best system of haulage for application underground, stating your reasons for preference.

4. What is meant by the term "self-acting inclines"? and state conditions under which such are applicable and precautions to be adopted for safety of persons employed in connection with them.

5. What are the requirements of the Coal-mines Act with regard to manholes on underground inclines and engine planes?

SUBJECT No. 6.—*Arithmetic, and Knowledge of Coal-mines Act.*

1. There are 200 fathoms of roadway to be timbered every 2 feet with props 5 feet long on each side of the road: how many lineal feet of prop timber will be required; also what length of timber will be needed for cap pieces, each cap being 10 feet long?

2. In an airway 6 feet by 10 feet the velocity of the current is 5 feet per second, how many cubic feet of air passes per minute?

3. A tub for drawing water from a shaft is 4 feet long by 3 feet 6 inches diamenter; the rate of winding is 40 tubs per hour: how many gallons will be drawn per minute, allowing 1-10th for leakage?

4. If an adit or heading rises 84 feet in a total length of 1,500 yards, what is the rise per yard?

5. State the requirements of the Coal-mines Act as to—

(*a.*) Hours of boys;

(*b.*) Fencing of disused places;

(*c.*) Duties of underground manager and fireman respectively.

APPENDIX II.

List of Persons who have obtained Certificates as Mine-managers under the Coal-mines Acts of 1886 and 1891.

THE COAL-MINES ACT.

First-class Mine-managers' Certificates.

Issued under the Coal-mines Acts, 1886 and 1891.

Aitken, T., Wendon.
Alexander, T., Brunnerton.
Austin, J., Sheffield.
Binns, G. J., Dunedin.
Bishop, J., Brunnerton.
*Brown, T., Westport.
Brown, T., Glentunnel.
Cameron, J., Denniston.
Campbell, J. C., Fairfield.
Cochrane, N. D, Dunedin.
Collins, W., Taupiri.
Dando, M., Brunnerton.
*Elliott, R., Wallsend.
Ferguson, A., White Cliffs.
Freeman, J., Green Island.
*Geary, J., Kamo.
Gray, J., Abbotsford.
*Harrison, J., Brunnerton.
Irving, J., Kaitangata.
Jemison, W., Waimangaroa.
Kenyon, J., Shag Point.
Kerr, G., Kamo.
Lindsay, W., Otago.
Lloyd, J., Invercargill.
*Louden, J., Green Island.
Love, A., Whangarei.
Mason, J., Nightcaps.
May, J., Greymouth.
Moody, T. P., Kawakawa.
Moore, W. J., Springfield.
Nelson, J., Green Island.
Ord, J., Huntly.
*Redshaw, W., Whangarei.
Reed, F., Westport.
*Richardson, D., Abbotsford.
Shore, J., Kaitangata.
Shore, T., Orepuki.
*Shore, W. M., Kaitangata.
*Smart, W., Christchurch.
Smith, A. E., Nelson.
Smith, T. F., Nelson.
Sneddon, J., Mosgiel.
Swinbanks, J., Kawakawa.
Taylor, E. B., Huntly.
Thompson, A., White Cliffs.
Walker, J., Collingwood.
Williams, W. H., Shag Point.

First-class Certificates issued after Examination under the Coal-mines Acts, 1886 and 1891.

Armitage, F. W., Auckland.
Armstrong, J., Brunnerton.
Barclay, T., Kaitangata.
Barclay, W., Kaitangata.
Bennie, Boyd, Waihi.
Campbell, Peter, Fairfield.
Carruthers, J., Shag Point.
Carson, W., Kaitangata.
Coombe, J., Waihi.
Coulthard, J., Taylorville.
Dixon, C. W., Granity.
Dixon, W., jun., Kaitangata.
Duggan, George, Burnett's Face.
Dunn, Andrew, Denniston.
Dunn, W., Brunnerton.
Dunn, W. R., Thames.
Elliott, R., jun., Denniston.
Fleming, J., Kaitangata.
Fletcher, James, Granity.
Frv, Sydney, Waimangaroa.
Gibson, John, Westport.
Gillanders, A., Shag Point.
Gowans, W., Millerton.
Green, E. R., Abbotsford.
Green, J., Brunnerton.
Herd, J., Brunnerton.
Hill, Robert, Abbotsford.
Hosking, G. F., Auckland.
*Hughes, D., Preservation Inlet.
Jebson, D., Canterbury.
Johnson, W. P., Thames.
Leitch, J., Blackball.
Leitch, W., Blackball.
Marshall, A. G., Denniston.
McCaffrey, Patrick, Ferntown.
McCormack, W., Denniston.
McEwan, Robert, Coromandel.
McGeachie, J., Mokau.
Milligan, N., Westport.
Morgan, Wm., Waihi.
Murray, T., Westport.
*Newsome, F., Denniston.
Newton, James, Brunnerton.
Shore, Joseph, Kaitangata.
Smith, George, Fairfield.
Sowerby, H., Denniston.
Tattley, E. W., Huntly.
Tattley, F. J., Mercer.
Taylor, A. H., Waikato.
Turner, G. F., Shag Point.
Westfield, C. H., Fairfield.
Young, James H., Waimangaroa.

Mine-managers' Certificates, issued on Production of English Certificate, under "The Coal-mines Act, 1886."

Binns, G. J., Dunedin.
Black, T. H., Waipori.
Broome, G. H., Ngakawau.
Cater, T., Auckland.
Cochrane, N. D., Dunedin.
*Garrett, J. H., Auckland.
Hayes, J., Kaitangata.
Hodgson, J. W., Ross.
*Lindop, A. B., Springfield.
Macalister, J., Invercargill.
*Nimmo, J., Oamaru.
*Straw, M., Westport.
Tattley, W., Auckland.

First-class Mine-managers' Certificates, issued to Inspectors of Mines by virtue of Office, under the Coal-mines Acts of 1886 and 1891.

Coutts, J., Thames.
Gordon, H. A., Wellington.
*Gow, J., Dunedin.
McLaren, J. M., Thames.
Wilson, G., Thames.

Mine-managers' Certificates, issued on Production of Certificate from a recognised Authority outside the Colony, under "The Coal-mines Act, 1891."

Alison, R., Greymouth.
Dixon, J., Westport.
Fletcher, George, Westport.
Frame, Joseph, Kaitangata.
Goold, A. L., Auckland.
Irvine, James, Dunedin.
*Jordan, R. S., Kaitangata.
Kirkwood, D., Coromandel.
Lewis, W., Blackball.
Pollock, James, Green Island, Otago.
*Proud, Joseph, Wanganui.
Scott, Joseph, Ngahere.
Tennent, R., Brunnerton.
Twining, C. E., Dunedin.
Wight, E. S., Auckland.
Wood, William, Mokihinui.

Second-class Mine-managers' Service Certificates.

Issued under "The Coal-mines Act, 1891."

Carson, M., Kaitangata.
Collier, Levi, Kamo.
Clarke, Edward, Shag Point.
Elliot, Joseph, Coal Creek.
Harris, John, Denniston.
Herd, Joseph, Brunnerton.
Howie, James, Kaitangata.
Leeming, William, White Cliffs.
Lennox, W., Springfield.
Lobb, Joseph, Mokau.
Longstaff, H. C., Kaitangata.
Love, Alexander, Orepuki.
McGeachie, J., jun., Mokau.
McIntosh, Allan, Shag Point.
McLaren, J. M., Thames.
Marshall, J., Ngakawau.
Murray, Thomas, Denniston.
*Nimmo, George Stewart, Ngapara.
Radcliffe, William, Reefton.
*Roberts, John, Brunnerton.
*Ross, John, Kawakawa.
Sara, James, Reefton.
Smith, Charles, Whangarei.
Thomas, James, Springfield.
Wallace, William, Huntly.
Willetts, John, Papakaio.
*Willetts, John Morris, Papakaio.
Young, William, Waimangaroa.

Second-class Certificates issued after Examination under the Coal-mines Acts, 1886 and 1891.

Austin, W. B., Sheffield.
Barber, John, Shag Point.
Barclay, T., Kaitangata.
Barclay, T., jun., Kaitangata.
Barclay, Wm., Kaitangata.
Barnes, A. E., Shag Point.
Brown, Robert, Kaitangata.
Cadman, J., Hikurangi.
Campbell, Peter, Fairfield.
Cherrie, R. C., Mokau.
Christie, James, Saddle Hill.
Clemo, G., Whangarei.
Craig, John, Coal Creek Flat.
Dixon, W., jun., Kaitangata.
Doel, G., Lovell's Flat.
Duncan, James, Kaitangata.
Duncan, J. E., Kaitangata.
Duncan, John, Lovell's Flat.
Fox, R. A., Blackball.
Harris, A., Saddle Hill.
Hill, R., Abbotsford.
Hodson, John, Kaitangata.
Hunter, A., Southland.
Lindsay, J. B., Orepuki.
McAllister, Neil, Kaitangata.
McLelland, J., Kaitangata.
McLelland, A. C., Kaitangata.
McNeill, D., Fairfield.
Neilson, Moffat, Abbotsford.
Oxlevie, W. W., Saddle Hill.
Orr, Hugh, Fairfield.
Parcell, W., jun., Bannockburn.
Penman, C. P., Kaitangata.
Snow, T., Mercer.
Tattley, F. J., Mercer.
Taylor, Joseph, Collingwood.
Waldie, A. B., Mokau.
Westfield, C., Fairfield, Otago.
Whittleston, A. W., Shag Point.

*Deceased since issue of certificates.

APPENDIX III.

Statistics of Workings in Coal-mines, 1904.

Name of Mine and Locality.	Name of Manager.	Number of Years worked.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Number of Shafts.	Dimensions of Shafts.		Output delivered by	Output for 1904.			Approximate Total Output to 31st December, 1903.	Approximate Total Output to 31st December, 1904.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
NORTH ISLAND.																										
													Tons.	Tons.	Tons.	Tons.	Tons.									
Kawakawa District.																										
Kawakawa (*stopped*) ..	..	..	semi-bitum.	..	..	..	..	bord and pillar	..	..	..	..	..	..	..	794,865	794,865	..	..	..	..	..	..	..	..	..
Kawakawa Mine	Culley, John (permit)	6	"	1	5′	5′	1 in 7	"	1	6′ x 4′	200′	adit	3,512	..	3,512	66,412	69,924	2	4	6	horse	..	..	..	natural	20/10/04
Hikurangi District.																										
Hikurangi Coal Company ..	Moody, T. P. ..	12	"	1	7′ to 12′	7′ to 10′	1 in 6	"	2	6′ x 5′	264′	"	44,974	..	44,974	315,620	360,594	6	50	56	steam	10″	8″	50′	"	19/10/04
Northern Coal Company ..	Dunn, W. R. ..	7	"	1	6′ to 8′	6′ to 8′	1 in 9	"	2	6′ x 6′	1,320′	"	25,719	..	25,719	75,310	101,029	15	30	45	manual & loco.	..	..	..	"	19/10/04
Phœnix and West Bryan's ..	Kirkwood, D. ..	16	"	1	10′	8′	1 in 7	"	1	6′ x 4′	260′	"	5,043	..	5,043	69,287	74,330	4	12	16	steam	7½″	6″	40′	"	19/10/04
Walton and Graham's ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,210	1,210	..	..	..	..	..	..	..	..	..
Whangarei District.																										
Kamo (*stopped*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	225,037	225,037	..	..	..	..	..	..	..	..	..
New Kamo (*stopped*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9,373	9,373	..	..	..	..	..	..	..	..	..
Whauwhau (*stopped*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70,853	70,853	..	..	..	..	..	..	..	..	..
Ngunguru District.																										
Ngunguru Mine	Taylor, A. H. ..	12	semi-bitum.	1	2′ to 4′	2′ to 4′	1 in 9	bord and pillar	3	3′ x 3′ 3′ x 4′ 6′ x 6′	20′ 35′ 920′	adit	14,367	..	14,367	168,768	183,135	10	36	46	steam	..	..	..	natural	15/11/04
Panipo (Kiripaka)	Clemo, George ..	5½	"	1	3′ to 18′	2′ to 12′	1 in 4	"	1	7′ x 5′	396′	"	12,604	..	12,604	55,002	67,606	3	15	18	horse	..	..	..	"	15/11/04
Waikato District.																										
Waikato Mine (*stopped*) ..	..	..	brown	..	..	..	..	..	..	..	..	..	..	..	..	209,089	209,089	..	..	..	..	..	..	..	..	..
Taupiri Extended	Wight, E. S. ..	16½	"	1	10′ to 30′	20′	1 in 10	bord and pillar	2 2	10′ dia.	166′ 209′	shaft	28,299	6,702	35,001	659,200	694,201	13	46	59	steam	24″ 12″	10″ 5″	166′ 210′	fan	24/10/04
Taupiri Reserve	"	17½	"	1	10′ to 24′	18′	1 in 8	"	2	7′ dia. 8′ x 6′	50′	adit	14,182	1,046	15,228	280,100	295,328	7	28	35	"	12″	5″	220′	steam-exha'st	26/10/04
Ralph's Taupiri	"	11½	"	1	10′ to 50′	20′	1 in 10	"	2	9′ 6″ x 5′ 8′ 6″ dia.	190′ 145′	shaft	56,248	9,984	66,232	235,578	301,810	21	109	130	"	12″ 24″	7″ 6″	190′ 260′	fan	25/10/04
Ralph's (*stopped*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,019	23,019	..	..	..	..	..	..	..	..	..
Harrison's	Davis, Edward (permit)	3	brown	1	24′	24′	1 in 7	opencast	..	..	..	..	215	..	215	10,622	10,837	6	..	6	steam	..	..	..	..	25/10/04
Mokau District.																										
Mangapapa Mine	Bennie, Boyd ..	20	"	1	6′ to 8′	6′ to 8′	1 in 10	bord and pillar	1	9′ x 6′	1,200′	adit	4,280	..	4,280	35,722	40,002	3	10	13	horse	..	..	..	furnace	26/9/04
Fernside (*stopped*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,265½	3,265½	..	..	..	..	..	..	..	..	..
Co-operative (*stopped*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	940	940	..	..	..	..	..	..	..	..	..

Miranda District.																												
Miranda (*stopped*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20,668	20,668	..	..	..	..	..	..	..	..	..
Union Collieries	Tattley, William	4	brown	1	55′	20′ to 24′	variable	bord and pillar	2	4′ x 4′ 6′ x 6′	90′ 200′	adit	15,342	..	15,342	10,493	25,835	11	18	29	steam	12″ 6″	6″ 5″	90′	steam-exhaust	26/8/04
Bombay District.																												
Bombay (*stopped*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	81½	81½	..	..	..	..	..	..	..	..	..
Totals North Island	..	..	..	..	..	..	..	..	..	..	..	..	224,785	17,732	242,517	3,340,515	3,583,032	101	358	459								

MIDDLE ISLAND.

Nelson.																												
Enner Glynn (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,337	1,337	..	..	..	..	..	..	..	..	..	..	..
Collingwood.																												
Pakawau (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4,873	4,873	..	..	..	..	..	..	..	..	..	..	..
Puponga	McCaffrey, P. ..	3	bitum.	1	7′ to 6′	7′ to 6′	1 in 4	bord and pillar	..	9′ x 6′ 6″	900′	engine plane	12,263	167	12,430	2,102	14,532	18	48	66	steam-engine	..	..	..	natural	31/11/04
Wallsend (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47,413	47,413	..	..	..	..	..	..	..	..	..	..	..
Takaka.																												
Mines not at work.																												
Motupipi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	130	130	..	..	..	..	..	..	..	..	..	..	..
Takaka	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	70	..	..	..	..	..	..	..	..	..	..	..
Westport.																												
Mokihinui Co-operative Coal-mine	Ratcliffe, W. ..	2	fair steam	1	5½′	5½′	..	..	..	11′ x 7′	20 ch.	adit	2,457	..	2,457	80,710	83,167	1	3	4	..	..	..	..		..
Seddonville State Colliery, Seddonville	Murray, Thomas (mine manager); Bishop, James (gen'l manager)	..	bitum.	1	5′ to 20′	8′	1 in 6	bord and pillar	..	10′ x 8′	39 ch.	″	33,808	..	33,808	2,137	35,945	16	74	90	steam-engine, endless rope	..	..	..	fan	14/11/04
Millerton Colliery, Granity ..	Dunn, William ..	13	″	1	4′ to 40′	12′	variable	ditto	3	4′ x 4′ 4′ x 4′ 6′ x 5′	18′ 18′ 40′	endless rope	253,748	31,427	285,175	1,248,311	1,533,486	97	347	444	gravita'n	12″ 12″ 12″	4′ 4″ 4″	40′ 60′ 40′	1 Hayes exhaust-fan and 1 Schiele exhaust-fan	
Coalbrookdale	Green, John ..	24	″	2	4′ to 18′	4′ to 18′	″	″	2	8′ x 8′	8,146′	adit & endless rope	215,129	33,704	248,833	3,599,355	3,848,188	21	175	196	steam	6″	3″	25′	fan	..
Ironbridge	Sowerby, H. ..	13	″	2	6′ to 20′	6′ to 20′	″	″	..	9′ x 5′ 8′ x 6′	2,640′ 9,048′							18	146	164	steam	10″ 12″	6″ 5″	18′ 20′	fan	..
Westport Cardiff (*not at work*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	227,441	227,441	..	..	..	..	..	..	..	..	..	..	..
Buller Road.																												
White Cliffs	Stone, W. C. ..	9	brown	1	9′	9′	1 in 4	bord and pillar	..	10′ x 7′	250′	adit	634	..	634	1,407	2,041	..	1	1	natural	..	..	..	natural	..
Rocklands	Walker, George ..	4	″	1	15′	8′	1 in 6	ditto	..	8′ x 8′	8 ch. 91 lk.	″	1,456	..	1,456	3,996	5,452	..	2	2	manual	..	..	..	″	..
Waitakere (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	868	868	..	..	..	..	..	..	..	..	..	..	..
Three-Channel Flat.																												
Flaxbush	Smith, Edward ..	4	..	2	2′ to 4′	2′ to 4′	70 in 85	tunnel	..	5′ x 6′	335′	adit	1,139	..	1,139	1,690	2,829	..	3	3	manual	..	..	..	uprise	7/9/04
Longford (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,830	1,830	..	..	..	..	..	..	..	..	..	..	..
Alexander (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	282	282	..	..	..	..	..	..	..	..	..	..	..
Cocksparrow (*not at work*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	959	959	..	..	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1904—*continued.*

Name of Mine and Locality.	Name of Manager.	Number of Years worked.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Number of Shafts.	Dimensions of Shafts.		Output delivered by	Output for 1904.			Approximate Total Output to 31st December, 1903.	Approximate Total Output to 31st December, 1904.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
MIDDLE ISLAND—*continued.*																										
Boatman's.													Tons.	Tons.	Tons.	Tons.	Tons.									
Archer's Mine	Archer, F. W. ..	..	bitum.	2	10′ to 12′	10′ to 12′	1 in 25	bord and pillar	..	7′ x 5′	..	adit	2,008	..	2,008	5,080	7,088	..	3	3	manual	..	..	..	upcast (natural current)	...
Coghlan's Mine	Coghlan, J. ..	..	"	1	12′	8′ 6″	1 in 3	tunneling	..	6′ x 6′	300′	"	110	90	200	1,190	1,390	..	1	1	..	..	..	..	surface	—/9/04
Reefton.																										
Burke's Creek	Cairns, R. ..	3	brown	1	12′	10′	west	main drives & bords	..	7′ x 8′	top level 500′, low level 260′	horse-tr'mway	164	..	164	5,497	5,661	1	2	3	horse	..	..	..	ord'nary return aircourse	6/12/04
Murray Creek	Morris, J. H. ..	25	semi-bitum.	1	..	..	..	open face	..	..	..	..	113	2,225	2,338	14,069	16,407	..	..	..	..	..	..	..	..	..
Phœnix and Venus, Murray Creek	Knight, John ..	25	best household	2	15′	8′	1 in 1	main headings & bords	..	10′ x 8′	250′	adit	1,156	200	1,356	19,004	20,360	4	3	7	..	..	..	..	tunnel	6/12/04
New Inkerman	Sutherland, B. ..	7	semi-bitum.	1	avg. 5′	5′	1 in 1	stoping	1	6′ x 4′	420′	"	1,159	1,241	2,400	3,705	6,105	..	2	2	hand	..	..	..	natural	28/9/04
Progress	Cochrane, Thomas	7	pitch	1	5′	5′	28°	stall and pillars	..	8′ x 5′	700′	level adit	2,397	..	2,397	15,926	18,323	3	4	7	manual	..	..	..	"	7/12/04
Lankey's Creek	Pascoe, Simon ..	1½	fair household	1	7′	6′	west	tunnel	..	..	500′	adit	277	..	277	8,378	8,655	..	2	2	"	..	..	..	"	8/12/04
Reefton	Blackadder, D. ..	2	..	1	12′	9′ to 10′	1 in 3½	..	..	6′ x 4′	800′	"	630	120	750	268	1,018	1	3	4	..	..	..	..	by connection of two different levels	8/12/04
Mines not at work.																										
Barr's Mine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35	35	..	..	..	..	..	..	..	..	..
Loughnan's	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,713	1,713	..	..	..	..	..	..	..	..	..
Devil's Creek	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	40	..	..	..	..	..	..	..	..	..
Golden Treasure	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6,625	6,625	..	..	..	..	..	..	..	..	..
Cochrane's	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	370	370	..	..	..	..	..	..	..	..	..
New Scotia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	62	62	..	..	..	..	..	..	..	..	..
Sir Francis Drake	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,173	2,173	..	..	..	..	..	..	..	..	..
Cumberland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,070	1,070	..	..	..	..	..	..	..	..	..
Coal Creek	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	67	67	..	..	..	..	..	..	..	..	..

GREYMOUTH.																								
Blackball	Leitch, Walter ..	14	bitum.	2	17′	15′	1 in 5, 1 in 6	bo·d and p llar	2	9′ x 6′ 10′ x 7′	1,232′ 600′	adits	69,489	16,039	85,528	624,261	709,789	38	140	178	steam	steam el ectric tr	5¾″ 6″	90′ eble ram	furnace	26/11/04
Brunner, Brunnerton ..	Coulthard, J. ..	40	„	1	10′ to 12′	10′ to 12′	1 in 4	ditto	..	10′ x 7′	600′	adit horse	35,968	18,971	54,939	2,055,440	2,110,379	49	36	85	horse	..	6″ 4″	90′	natural	..
Tyneside, Brunnerton ..	Armstrong, James	22	„	1	12′	12′	1 in 4	„	1	10′ diameter	103′	shaft engine	29,329	9,077	38,406	35,893	74,299	21	63	84	steam	10″ 12″ 4″	5¼″ 7″ 6″	180′ 116′ 100′	natural (fan build'g)	..
Point Elizabeth State Colliery	Herd, Joseph (mine manager); Bishop, James (general manager)	7½ m'ths	„	1	3′ to 12′	3′ to 12′	1 in 5	„	..	10′ x 7′	11 chains	endless rope (steam-power)	60,255	..	60,255	..	60,255	47	196	243	„	..	..	..	fans	14/12/04
Mines not at work.																								
Coal-pit Heath	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	577,190	577,190	..	..	..	..	..	..	..	..	..
Wallsend	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	205,539	205,539	..	..	..	..	..	..	..	..	..
CANTERBURY.																								
Springfield, Springfield ..	Taylor, Jas. ..	28	brown	1	3′ 3″	all	1 in 6	bord and pillar	2	6′ 6″ x 4′	70′	shaft	1,334	..	1,334	88,301	89,635	1	5	6	steam	direct st	acti	ng	exhaust steam from pump	19/8/04
Victoria, Springfield ..	Cloudesley, W. J.	4	„	1	4′	„	1 in 6	longwall	1	4′ 6″ x 3′	50′	adit	22	..	22	433	455	..	1	1	horse	..	..	..	natural	19/8/04
Homebush, Glentunnel ..	Campbell, J. C. ..	32	„	2	6′ and 7′	„	1 in 3	bord and pillar	..	6′ x 6′	40 ch.	tunnel	12,188	1,259	13,447	153,914	167,361	4	32	36	horse & steam	..	..	..	„	20/8/04
St. Helen's, White Cliffs ..	Levick, H. ..	23	„	4	8′ 4′ 6″ 3′	„	1 in 3	pillar, s ope, and wall	1	4′ 6′ x 3′ 7″	90′ 5 ch.	.. adit	1,398	..	1,398	11,689	13,087	..	3	3	hand	..	..	.	„	20/8/04
Woolshed Creek, Mount Somers	Doak, W. T., Secretary	40	„	1	40′	15′	1 in 9	bord and pillar	..	..	..	„	3,681	..	3,681	41,631	45,312	..	4	4	horse	..	..	..	„	11/11/04
Mount Somers, Mount Somers	Neilson, M. ..	3	„	1	24′	10′	south 1 in 4½	ditto	1	5′ x 4′	25′	„	2,978	673	3,651	9,237	12,888	3	5	8	„	..	..	..	„	11/11/04
Albury, Albury	Willetts, J. M. ..	13	„	1	22′	..	1 in 1	„	1	4′ x 3′ 6″	68′	„	891	..	891	5,386	6,277	2	2	4	„	..	..	..	„	24/8/04
Waihao Forks, Waihao Forks	Preece, J., Owner, Christchurch; Lomas, G., M'ger	12	lignite	1	6′	5′	..	„	..	5′ x 4′	100′	„	355	..	355	266	621	1	2	3	„	..	..	..	„	26/8/04
Waihao, Waihao Forks ..	Grant, W., Owner Harris, A. S., Mgr.	15	„	1	14′	all	..	bord and pillar	..	5′ x 4′	260′	„	141	..	141	1,891	2,032	1	1	2	hand	..	..	..	„	26/8/04
Elephant Hill, Waihao Downs	Mathias, L. ..	36	brown	1	10′	8′	..	ditto	..	6′ x 5′	..	„	112	..	112	295	407	..	1	1	„	..	..	..	„	26/8/04
Private Pits.																								
Dalethorpe, Springfield ..	Campbell, P. ..	10	„	1	6′	all	..	..	..	..	..	..	12	..	12	293	305	..	..	..	..	..	..	..	..	..
Snowdon, Rakaia Gorge ..	Gerard, George ..	19	„	1	14′	8′	1 in 3	narrow open	1	4′ x 4′	90′	shaft	50	..	50	1,718	1,768	..	..	..	..	..	..	..	natural	..
Craigieburn, West Coast Road	Manson, D. ..	8	„	1	..	..	..	open	..	..	..	open	26	..	26	213	239	..	..	..	..	..	..	..	..	..
Springburn Lime Company, Staveley	Scott, R. L., Secretary, Ch'stch'ch	4	„	1	5′	all	vertical	levels	..	5′ x 4′	150 yd.	adit	..	..	..	705	705	..	..	..	..	..	..	..	natural	..
Pits not at work.																								
Brockley, Glenroy ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	304	304	..	..	..	..	..	..	..	..	..
McKenzie's, Castle Hill ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..
Wairiri, South Malvern ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,213	1,213	..	..	..	..	..	..	..	..	..
Acheron, Lake Coleridge ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	503	503	..	..	..	..	..	..	..	..	..
Kowai Pass, Springfield ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	559	559	..	..	..	..	..	..	..	..	..
Glenroy, South Malvern ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	115	115	..	..	..	..	..	..	..	..	..
White Cliffs, South Malvern	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33,051	33,051	..	..	..	..	..	..	..	..	..
Duke's (Park Gate) Kakahu	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	916	916	..	..	..	..	..	..	..	..	..
Spring Vale, Fairlie Creek ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	200	200	..	..	..	..	..	..	..	..	..
Mount Hutt, Rakaia Gorge ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	155	155	..	..	..	..	..	..	..	..	..
Sheffield, Sheffield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52,284	52,284	..	..	..	..	..	..	..	..	..
Hartley, White Cliffs ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,991	1,991	..	..	..	..	..	..	..	..	..
Campbell's, Springfield ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	110	110	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1904—*continued.*

Name of Mine and Locality.	Name of Manager.	Number of Years worked.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Number of Shafts.	Dimensions of Shafts.		Output delivered by	Output for 1904.			Approximate Total Output to 31st December, 1903.	Approximate Total Output to 31st December, 1904.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
MIDDLE ISLAND—*continued.*													Tons.	Tons.	Tons.	Tons.	Tons.									
North Otago.																										
Dalgety, Hakataramea ..	Drysdale, J. ..	23	brown	1	12′	all	..	bord and pillar	..	..	..	adit	60	..	60	2,267	2,327	..	1	1	..	..	..	..	natural	..
Wharekuri, Wharekuri ..	Shanks, A. ..	..	"	1	40′	13′	vertical	levels	..	..	..	"	193	..	193	1,624	1,817	..	2	2	..	..	..	..	"	..
Awakino, Kurow	Orr, George ..	25	"	1	15′	7′	"	stoping	1	6′ x 2′ 6″	53′	"	62	..	62	5,664	5,726	1	2	3	..	..	..	..	"	..
Kurow, Kurow	Cairns, W. B. ..	34	"	1	irregular	..	1 in 2½	narrow	1	4′ x 3′	80′	dip incl.	..	..	..	11,395	11,395	..	..	..	horse	..	..	..	"	..
Otiake, Otiake	Atkinson, P.; D. Reddin, owner	4	"	1	18′	12′	vertical	..	..	6′ x 5′	200′	adit	..	..	..	254	254	..	..	..	..	..	..	..	"	..
St. Andrew's, Papakaio ..	Nimmo, T. ..	26	"	1	6′ 6″	6′	1 in 4	bord and pillar	1	4′ x 2′ 6″	60′	"	1,660	..	1,660	33,370	35,030	1	4	5	horse	..	..	..	furnace	22/10/04
Prince Alfred, Papakaio ..	Willetts, G. H. ..	35	"	1	1′ to 9′	all	1 in 9	ditto	1	5½′ x 6′	51′	"	1,407	..	1,407	47,790	49,197	2	3	5	"	..	..	..	natural	22/10/04
Ngapara, Ngapara	Nimmo, W. ..	26	"	1	18′ to 25′	8′	1 in 17	"	1	4′ x 4′	50′	"	1,028	..	1,028	19,966	20,994	1	2	3	"	..	..	..	"	20/10/04
Kartigi, Kartigi	Twining, C. E. ..	1	pitch	..	..	..	.. "	..	..	..	..	..	52	..	52	..	52	..	1	1	..	..	..	..	"	..
Shag Point, Shag Point ..	Brooke, E. W. ..	34	"	..	2′ 6″	all	..	bord and pillar	..	..	..	adit	384	69	453	402,773	403,226	2	4	6	hand	..	..	..	"	23/12/04
Allandale, Shag Point ..	Westfield, C. H...	17	"	3	4′ to 6′	"	1 in 4	ditto and longwall	2	10′ x 6′ 8′ x 4′	1,000′ 280′	incline tunnel	14,227	7,377	21,604	210,470	232,074	10	60	70	steam & electricity	duplex Tangye	6″	200′	fan	23/12/04
Pits not at work.																										
Phillips, Kurow	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,985	1,985	..	..	..	..	..	..	..	..	..
Wharekuri (Collins), Kurow..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,424	1,424	..	..	..	..	..	..	..	..	..
Rosebery, Otepopo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,424	1,424	..	..	..	..	..	..	..	..	..
Earlybank	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	281	281	..	..	..	..	..	..	..	..	..
South Otago.																										
Fernhill, Abbotsford ..	Gray, J. ..	27	brown	1	19′	10′	1 in 10	bord and pillar	1	4½′ x 4½′	50′	adit	304	1,583	1,887	139,080	140,967	5	6	11	horse	..	..	..	natural	26/7/04
Freeman's, Abbotsford ..	Hill, R. ..	24	"	2	7′ to 14′	6′ to 7′	1 in 7	ditto	3	6′ x 5′ 7′ x 7′	1,400′ 264′	inclined drive & engine plant	14,869	2,341	17,210	278,848	296,058	8	25	33	steam & horse	12″	5″	130′	furnace	26/7/04
Jubilee, Walton Park ..	Campbell, P. ..	7	"	1	12′ to 18′	8′	1 in 10	"	2	6′ x 5′	4 ch.	adit	14,807	2,380	17,187	51,988	69,175	3	25	28	ditto	..	..	..	natural	27/7/04
Saddle Hill (No. 1), Saddle Hill	Ogilvie, W. W.	32	"	1	20′	8′ to 16′	1 in 10	"	4	5′ 10″ x 4′ 6″	264′	inclined drive	3,630	5,327	8,957	133,155	142,112	3	13	16	"	..	..	..	"	27/7/04
Saddle Hill (No. 2), Saddle Hill	Christie, W. H. L.	3	"	..	..	..	1 in 14	"	..	..	..	adit	2,358	9,969	12,327	10,119	22,446	3	17	20	"	..	..	..	furnace	27/7/04
Burnweil, Saddle Hill ..	Harris, A. ..	13	"	1	20′	10′	variable	"	1	5′ x 3′	30′	incline	952	1,833	2,785	24,055	26,840	2	4	6	horse	..	..	..	natural	28/7/04
Glenochiel, Saddle Hill ..	Bryce, D. ..	23	"	1	16′	7′ to 9′	1 in 9	"	3	6′ x 4′	4 ch.	tunnel	..	1,052	1,052	28,114	29,166	2	2	4	"	..	..	..	"	28/7/04
Brighton, Brighton ..	McColl, D. L. ..	16	"	1	6′	5′ 6″	variable	"	..	..	..	"	225	..	225	1,559	1,784	1	1	2	"	..	..	..	"	3/7/04
Lauriston, Brighton ..	Walker, J. ..	18	"	1	6′	5′ 6″	"	"	1	..	48′	"	261	63	364	5,914	6,238	1	1	2	"	..	..	..	"	3/7/04
Drummuir, Brighton ..	Sneddon, James	1	"	1	..	..	..	"	..	..	..	adit	26	..	26	..	26	..	1	1	"	..	..	..	"	3/7/04

Mosgiel, Mosgiel	Orr, H. ..	20	brown	1	8′	7′	1 in 10	bord and pillar	2	4′ x 4′	14 ch.	tunnel	742	674	1,416	94,597	96,013	2	3	5	steam	Dean	..	70′	natural	..	
Ferndale, Taieri Beach ..	Fairbairn, R. ..	21	"	1	10′	8′	..	"	..	10′ x 8′	100′	"	47	..	47	515	562	..	..	..	hand	..	..	..	"	..	
Bruce, Milton	Young, A. ..	37	"	1	15′	9′	1 in 8	"	..	..	..	adit	..	..	..	24,314	24,314	..	..	..	"	..	..	..	"	3/11/04	
Akatore, Milton	Reid, James ..	10	"	1	14′	all	..	"	..	..	..	"	142	..	142	306	448	..	1	1	"	..	..	..	"	3/11/04	
Fortification, Milton ..	Brown, J. ..	7	"	1	7′ to 14′	5′ to 7′ 6″	1 in 12		2	7′ x 6′ 6′ x 6′	4½ ch. 11½ ch.	incline tunnel	4,109	1,085	5,194	33,756	38,950	2	6	8	steam	6″	4″	30′	exhaust steam from pump	3/11/04	
Glenledi, Milton	McGilp, N. ..	4	"	1	22′	all	1 in 8	open and bord and pillar	..	..	..	open and adit	333	..	333	2,420	2,753	..	1	1	hand	..	..	..	natural	3/11/04	
Adam's Flat, Adam's Flat ..	Reid, J. ..	22	lignite	1	14′	10′	..	open	..	..	..	open	12	..	12	2,241	2,253	..	..	..	hand	..	..	..	..	..	
Wallsend, Lovell's Flat ..	Hewitson, R. ..	34	"	1	20′	all	..	"	..	..	..	"	145	..	145	11,136	11,281	2	..	2	"	..	..	..	..	..	
Lovell's Flat, Lovell's Flat ..	Carruthers, James	10	brown	1	5′ to 10′	5′ to 7′	1 in 4	bord and pillar	1 1	1′ x 5′ 5 x 4	470′ 360′	shaft	15,172	4,242	19,414	73,571	92,985	10	32	42	steam	16″	6″	480′	furnace	2/11/04	
Benhar, Stirling	McSkimming, P.	41	lignite	3	30′ in aggregate	12′	..	ditto	..	4′ x 4′	..	incline	2,759	863	3,622	104,775	108,397	1	5	6	steam	steam-driven	..	..	natural	2/11/04	
Mount Wallace, Stirling ..	Walls, James ..	10	"	1	14′	8′ to 10′	..	"	..	..	..	adit	456	47	503	4,556	5,059	..	2	2	horse	..	..	..	"	13/3/04	
Taratu, Taratu	Shore, T. ..	3	brown	1	20′	8′ to 14′	1 in 10	"	..	6′ x 6′	5 ch.	"	14,078	6,215	20,293	17,891	38,184	7	33	40	"	..	..	..	"	28/10/04	
Longridge, Kaitangata ..	Mackie, N. ..	3	"	1	4′	all	..	"	..	..	..	..	..	..	..	133	133	..	..	..	..	..	..	..	"	..	
Kaitangata and Castle Hill, Kaitangata	Jordan, R. S. (O.G. Lockhart, sec.)	28	"	3	50′ in aggregate	"	1 in 1½ to 1 in 4	"	..	9′ x 7′ 6′ diam.	51 ch. 360′	inclined	86345	32,749	119,094	1,763,889	1,882,983	69	373	442	steam & compressed air	2′ 6″ three-throw	6″	280′	fan	14/12/04	
		11	"	4	50′ in aggregate	"	1 in 1½ to 1 in 4	"	..	11′ x 6′ 6″ 9′ diam.	45 ch. 526′	"									ditto	pump	6″	500′	furnace	21/7/04	
Wangawa, Kaitangata ..	Smith, J. ..	24	brown	1	10′ 6′	8′	1 in 6	bord and pillar	..	..	..	adit	70	26	96	1,526	1,622	..	1	1	hand	..	..	..	natural	..	
Mainholm, Waipahi ..	Lischner, F. ..	19	lignite	1	15′	all	..	open	..	..	..	open	3,140	..	3,140	36,132	39,272	3	..	3	horse	cent steam-	rifu driv	gal en	..	..	
Private Pits.																											
Paskell's, Adam's Flat ..	Paskell, James ..	40	"	1	8′		1 in 6	"	..	..	..	"	6	..	6	470	476	..	..	..	"	..	..	..	..	..	
Tuakitoto, Lovell's Flat ..	Dunlop, A. ..	14	brown	1	20′	8′	..	bord and pillar	..	..	..	incline	14	..	14	3,124	3,138	..	..	..	"	..	..	..	natural	..	
Lakeside, Kaitangata ..	McGilvray, W. ..	4	"	1	..	..	..	..	..	..	..	..	4	..	4	827	831	..	..	..	"	..	..	..	..	..	
Pits not at work.																											
Walton Park, Walton Park ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	572,593	572,593	..	..	..	..	..	..	..	..	..	
Riccarton, Riccarton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,006	3,006	..	..	..	..	..	..	..	..	..	
Strip-and-at-it, Milton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	700	700	..	..	..	..	..	..	..	..	..	
Paratu, Kaitangata ..	H. H. Fraser ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	220	220	..	..	..	..	..	..	..	..	..	
Record, Kaitangata ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	414	414	..	..	..	..	..	..	..	..	..	
Early Rise, Milton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	15	..	..	..	..	..	..	..	..	..	
Chain Hills, Abbotsford ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	842	842	..	..	..	..	..	..	..	..	..	
Salisbury, Mosgiel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4,433	4,433	..	..	..	..	..	..	..	..	..	
Bruce No. 2, Milton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,322	23,322	..	..	..	..	..	..	..	..	..	
Rigfoot, Stirling	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,163	5,163	..	..	..	..	..	..	..	..	..	
Morrison's, Stirling ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	646	646	..	..	..	..	..	..	..	..	..	
Pomahaka, Pomahaka ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	20	..	..	..	..	..	..	..	..	..	
Castle Hill No. 1, Kaitangata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9,314	9,314	..	..	..	..	..	..	..	..	..	
Crofthead, Kaitangata ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6,713	6,713	..	..	..	..	..	..	..	..	..	
Langridge, Kaitangata ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	693	693	..	..	..	..	..	..	..	..	..	
Lesmahagow, Kaitangata ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,511	1,511	..	..	..	..	..	..	..	..	..	
Cowpan's, Owaka	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95	95	..	..	..	..	..	..	..	..	..	
Shennan's, Waipahi ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	45	..	..	..	..	..	..	..	..	..	
Early Bank, Milton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	320	320	..	..	..	..	..	..	..	..	..	

STATISTICS of WORKINGS in COAL-MINES, 1904—*continued.*

Name of Mine and Locality.	Name of Manager.	Number of Years worked.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Number of Shafts.	Dimensions of Shafts.		Output delivered by	Output for 1904.			Approximate Total Output to 31st December, 1903.	Approximate Total Output to 31st December, 1904.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
MIDDLE ISLAND—*continued.*													Tons.	Tons.	Tons.	Tons.	Tons.									
CENTRAL OTAGO.																										
Progress, Roxburgh ..	Bailey, J. ..	7	lignite	1	..	all	..	open	..	..	..	open	..	..	..	516	516	..	..	..	horse	..	..	..	..	10/11/04
Coal Creek (leasehold)		34	"	1	80′	"	..	"	..	..	..	"									"	..	..	..	..	7/7/04
Coal Creek (freehold), Coal Creek Flat	Barber, J.	3	"	1	..	..	1 in 6	bord and pillar	1	6′ x 7′	150′	adit	3,049	..	3,049	31,441	34,490	2	4	6	hand	..	..	..	natural	7/7/04
McPherson's, Coal Creek Flat	McPherson, A. ..	34	"	1	80′	30′ to 40′	1 in 6	open	..	..	..	open	3,556	..	3,556	31,653	35,209	6	..	6	horse	..	..	..	..	15/9/04
Perseverance, Coal Creek Flat	Craig, J. ..	17	"	1	99′	70′	1 in 4	bord and pillar	..	6′ x 7′	..	adit	5,536	..	5,536	23,766	29,302	2	7	9	Pelton wheel & winch	hydraulic jet pump			natural	16/9/04
Alexandra, Alexandra	Mathias Bros., Hunter, and Bowler, owners; Hunter, A., m'gr.	24	brown	1	14′	7′	1 in 7	ditto	2	5′ x 2′ 6″ 6′ x 4′	60′	"	2,213	..	2,213	38,664	40,877	1	11	12	steam	snow-pump	..	..	furnace and natural	1/10/04
Perseverance, Alexandra		6	"	1	14′	7′	1 in 7	"	..	..	..	"	2,198	..	2,198	15,759	17,957	1	6	7	"	tangye	pump		Ditto	1/10/04
Undaunted, Alexandra		6	"	1	7′	6′	1 in 7	"	1	5′ x 2′ 6″	70′	shaft	152	..	152	3,007	3,159	1	2	3	horse	water-b	ucket		natural	31/5/04
McQueenville (old mine), Alexandra	Hodson, J. ..	17	"	1	14′	7′	1 in 7	"	2	4′ 9″ x 3′	62′	adit	3,274	..	3,274	43,333	46,607	1	9	10	steam	Dean	pump		"	15/11/04
McQueenville (new mine), Alexandra	Hodson, J. ..	1	"	1	undetermined	..	1 in 7	..	..	6′ x 5′	300′	incline drive	..	..	..	..	..	3	6	9	"	water-box	..	..	fan	30/9/04
Alexandra Coal Company, Alexandra	Pollock, James ..	6	"	1	28′	8′	..	bord and pillar	1	6′ x 4′	60′	shaft	11,069	..	11,069	39,246	50,315	5	14	19	"	three-th	row	ram	steam jet	30/9/04
Cambrian's, Cambrian's ..	Dungey, C. ..	20	lignite	1	9′	all	..	open	..	..	..	open	28	..	28	14,351	14,379	1	..	1	horse	pump & s	now pump		..	18/3/04
Jones', Cambrian's ..	Jones, Robert ..	1	"	1	..	..	..	..	..	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Welshman's Gully, Cambrian's	McGuckin, J. & R.	43	"	1	30′	all	..	open	..	..	..	"	906	..	906	30,906	31,812	2	..	2	horse	..	..	..	..	14/7/04
Blackstone Hill, Blackstone Hill	Armitage, J. ..	38	"	1	unknown	16′	..	"	..	..	..	"	353	..	353	3,772	4,125	1	..	1	"	..	..	..	..	20/3/04
St. Bathan's, St. Bathan's ..	Enwright, J. ..	7	"	1	17′	all	..	"	..	..	..	"	360	..	360	2,700	3,060	2	..	2	"	..	..	..	..	24/5/04
Beck's Idaburn, Idaburn	Beck, Wm., Mrs. M. Beck (o)	18	"	1	35′	"	..	"	..	..	..	"	2,608	..	2,608	16,318	18,926	3	..	3	"	..	..	..	..	24/5/04
McLean's, Idaburn		..	"	1	15′	"	..	"	..	..	..	"	..	..	..	1,127	1,127	..	..	..	..	..	..	..	..	21/3/04
Idaburn, Idaburn ..	White, J. ..	34	"	1	20′	"	..	"	..	..	..	"	995	..	995	34,591	35,586	2	..	2	"	..	..	..	..	24/5/04
Border, Rough Ridge ..	Turnbull, G. ..	34	"	1	12′	"	..	"	..	..	..	"	89	..	89	7,134	7,223	1	..	1	horse	two D	ougl	as pu	mps	21/3/04
Gimmerburn, Gimmerburn ..	Docherty, C. ..	39	"	1	12′	"	..	"	..	..	..	"	48	..	48	2,701	2,749	..	..	..	hand	wat	er-d	riven	..	..
Commercial, Kyeburn Diggings	Archer, C. ..	25	brown	1	10′	8′	vertical	stoping	..	..	..	incline	260	..	260	14,991	15,251	1	2	3	water-w	heel	..	..	natural	25/5/04
Donaldson's Horse Flat, Macrae's	Donaldson, W. G.	1	"	1	6′	5′	..	bord and pillar	..	5′ x 6′	60′	dip	160	..	160	..	160	1	2	3	horse	water-	box		"	16/6/04
Vincent, Clyde	Turner, G. F., Clyde Collieries Company (owners), C. S. Reeves, sec., Dunedin	..	"	2	40′	14′	1 in 2	levels	..	..	..	dip	1,088	..	1,088	18,839	19,927	1	3	4	steam	..	..	..	"	6/10/04
Dairy Creek, Clyde		32	"	2	40′	14′	1 in 2	"	..	..	..	incline ditto	3,391	..	3,391	12,631	16,022	2	6	8	"	steam-driven	..	..	"	6/10/04

CENTRAL OTAGO—*continued.*																									
Shepherd's Flat, Clyde ..	Loch Lomond G.D. Co., owners; J. Goodger, Sec.	2	brown	1	6½	all	..	bord and pillar	..	5′ x 4′	..	incline tunnel	486	..	486	6	492	1	2	3	horse	..	..	..	natural	6/10/04
Cardrona, Cardrona ..	McDougall, R. ..	20	"	1	30′	"	vertical	open	..	..	..	open	2,085	..	2,085	14,953	17,038	7	..	7	"	..	..	..	..	..
Gibbston, Gibbston ..	Duncan, J. ..	18	"	1	30′	all	1 in 2	bord and pillar	..	..	..	adit	1,647	105	1,752	10,118	11,870	1	6	7	hand & steam	..	..	..	natural	30/11/04
Cairnmuir, Bannockburn ..	Gibson, J. ..	..	"	1	12′	8′	semi-vertical	level & heading	2	..	..	shaft	555	..	555	1,475	2,030	2	4	6	steam	..	..	..	"	10/10/04
Kawarau, Bannockburn	Cromwell and Bannockburn Collieries Co., A. S. Gillanders, Mine Man. T. K. Harty, Managing Director	27	"	1	10′	6′	1 in 4	bord and pillar	1	6′ x 6′	34′	incline	3,433	..	3,433	37,055	40,488	2	11	13	"	steam driven	..	..	"	11/10/04
Excelsior, Bannockburn		12	"	1	6′	5′	1 in 4	ditto	1	6′ x 5½′	..	"	6,841	..	6,841	16,526	23,367	4	16	20	"	ditto	..	..	"	11/10/04
Bannockburn, Bannockburn		15	"	1	6′	5′	1 in 4	"	1	6′ x 4′	20′	adit	789	..	789	13,637	14,426	2	3	5	"	..	..	..	"	11/10/04
Nevis, Nevis	Scott, C. ..	11	"	1	20′	all	vertical	open	..	..	..	open	440	..	440	4,267	4,707	2	..	2	hand	..	..	..	..	2/12/04
Ryders, Nevis	Scott, C. ..	4	"	1	45	"	"	"	..	..	..	"	271	..	271	2,766	3,037	1	..	1	"	..	..	..	..	2/12/04
Ritchie's, Nevis	Ritchie, Jas. ..	2	"	1	..	..	..	"	..	..	..	"	..	..	..	20	20	..	..	..	..	..	..	..	..	3/12/04
Ritchie's, Nevis	Ritchie, R. ..	2	"	1	..	..	semi-vertical	"	..	..	..	"	512	..	512	138	650	2	..	2	..	..	..	..	..	3/12/04
Graham's Nevis	Graham, S. J. ..	1	"	1	..	all	..	"	..	..	..	..	140	..	140	..	140	1	..	1	hand	..	..	..	..	3/12/04
Private Pits.																									
Kyeburn, Kyeburn Diggings	McCready and Coombs	21	"	1	..	..	vertical	levels	..	..	..	adit	13	18	31	15,399	15,430	..	..	..	"	..	..	..	natural	..
Price's, Blackstone Hill ..	Price, G. ..	7	lignite	1	12′	all	..	open	..	..	..	open	35	..	35	112	147	..	..	..	"	..	..	..	..	..
Angel's, Bannockburn ..	Angel, C. F. ..	2	brown	1	..	"	..	"	..	..	..	"	4	..	4	4	8	..	..	..	..	..	..	..	..	..
Pits not at work.																									
Black Diamond, Roxburgh ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	232	232	..	..	..	..	..	..	..		..
Simpson Theyers, Alexandra	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,636	1,636	..	..	..	..	..	..	..	..	..
Cromwell, Cromwell ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,019	3,019	..	..	..	..	..	..	..	..	..
Cooper's, Cromwell ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	385	385	..	..	..	..	..	..	..	..	..
Upper Nevis, Nevis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65	65	..	..	..	..	..	..	..	..	..
Williamson's, Nevis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95	95	..	..	..	..	..	..	..	..	..
Padgett's, Blackstone Hill ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46	46	..	..	..	..	..	..	..	..	..
Waikerikeri, Clyde ..	Dunstan Coal Co. (Smart, J., sec.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20,322	20,322	..	..	..	..	..	..	..	..	..
Drummey's, Alexandra ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	179	179	..	..	..	..	..	..	..	..	..
Enterprise, Alexandra ..	(Rivers) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	703	703	..	..	..	..	..	..	..	..	..
Fennessy's, Idaburn ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	70	..	..	..	..	..	..	..	..	..
Cooper & Gibson's, Bannock'rn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,395	5,395	..	..	..	..	..	..	..	..	..
Gibbston, Gibbston ..	(Cowan's) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19,464	19,464	..	..	..	..	..	..	..	..	..
Doolan's Creek, Gibston ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	31	..	..	..	..	..	..	..	..	..
Harrex and Owen's, Cambrian's	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	60	..	..	..	..	..	..	..	..	..
Blackman's Gully, Clyde ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	144	144	..	..	..	..	..	..	..	..	..
Nulli Secundus, Bannockburn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	632	632	..	..	..	..	..	..	..	..	..
Blackman's, Alexandra ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89	89	..	..	..	..	..	..	..	..	..
Gibson's, Bannockburn ..	Gibson, J. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	220	220	..	..	..	..	..	..	..	..	..
Watherston's, Nevis ..	Watherston, A. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	..	..	..	..	..	..	..	..
SOUTHLAND.																									
Pukerau, Pukerau	O'Hagan, C. ..	24	lignite	1	16′	8′ to 10′	1 in 10	bord and pillar	1	8′ x 8′	11 ch.	adit	934	..	934	30,601	31,535	1	2	3	horse	..	..	..	natural	2/5/04
Nelson's, Pukerau	Nelson, J. H. ..	15	"	1	16′	10′	..	ditto	..	..	..	"	250	..	250	2,965	3,215	..	1	1	hand	..	..	..	"	2/5/04

Statistics of Workings in Coal-mines, 1904—*continued.*

Name of Mine and Locality.	Name of Manager.	Number of Years worked.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Number of Shafts.	Dimensions of Shafts.		Output delivered by	Output for 1904.			Approximate Total Output to 31st December, 1903.	Approximate Total Output to 31st December, 1904.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
													Tons.	Tons.	Tons.	Tons.	Tons.									
MIDDLE ISLAND—*continued.*																										
SOUTHLAND—*continued.*																										
Whiterigg, Gore	Paterson, S. B. ..	22	lignite	1	18′	12′	1 in 20	bord and pillar	1	6 x 5′	2 ch.	incline tunnel	4,730	..	4,730	15,437	20,167	2		6	horse	Tangye	..	..	natural	29/6/04
Heffernan's, Gore	Jones, E. ..	26	„	1	11′	8′	..	levels & headings	1	6′ x 5′	..	ditto	1,972	..	1,972	7,547	9,519	1	4	5	horse	hand-pump	..	..	„	3882 20/5/04 & 6/9/04
Rosedale, Gore	Reinke, A. ..	18	„	1	7′	all	..	open	..	..	..	open	486	..	486	2,593	3,079	2	..	2	„	..	..	..	„	20/5/04
Green's, Gore	Smyth, J. and J.	16	„	1	22′	17′	1 in 20	bord and pillar	1	10′ x 8′	5 ch.	incline tunnel	10,268	..	10,268	37,277	47,545	2	7	9	„	Tangye	..	..	„	21/6/04
River View, Gore	Nicol, L. D. ..	13	„	1	..	..	..	open	..	..	..	open	357	..	357	1,001	1,358	1	..	1	hand	..	..	..	..	..
Waikaka (McDonald's), East Gore	McDonald, G. H.	3	„	1	17′	all	..	„	..	..	..	„	102	..	102	323	425	1	..	1	„	hand-pump	..	..	..	6/9/04
Boornwell, Chatton ..	Hoffman, J. ..	5	„	1	16′	12′	1 in 10	levels & headings	..	20′ x 12′	100′	adit	3,100	..	3,100	..	3,100	2	4	6	horse	ditto	..	..	natural	7/9/04
Perkins's, East Chatton ..	Perkins, A. ..	2	„	1	30′	20′	1 in 5	open	..	..	..	open	1,194	..	1,194	1,333	2,527	2	2	4	hand	..	..	..	..	20/12/04
Pacey's (leasehold), East Chatton	Pacey, W. R.	28	„	1	30′	14′	1 in 6	„	..	..	..	„	1,590	..	1,590	13,805	15,395	2	..	2	horse	centri-fugal	..	..	..	20/1/04
Pacey's (freehold), East Chatton		1	„	1	17′	all	..	„	..	..	..	„						4	..	4	steam	hand-pump	..	..	..	20/12/04
Thorndale, Waikaka Valley..	Ritchie & Co., T.	5	„	1	10′	„	..	„	..	..	..	„	861	..	861	3,168	4,029	5	..	5	horse	..	..	..	..	25/2/04
Johnstone's, Springfield, Waikaka Valley	McIntyre, J. P. ..	11	„	1	17′	„	..	„	..	..	..	„	2,396	..	2,396	6,343	8,739	4	4	8	„	..	..	..	..	7/9/04
Willow Bank, Waikaka Valley	Reid, Robert ..	8	„	1	15′	„	..	„	..	..	..	„	4,422	..	4,422	9,003	13,425	6	..	6	„	two Do pumps	ugla s		..	6/9/04
Glenlee, Wendon Valley ..	McGill, D. T. ..	11	„	1	14′	8′	..	levels & headings	..	10′ x 8′	2 ch.	adit	1,819	..	1,819	4,450	6,269	1	2	3	„	..	..	..	natural	6/9/04
McDonald's, Wendon Valley	Edge, A. A. ..	5	„	1	16′	12′	..	ditto	..	12′ x 12′	..	„	2,042	..	2,042	4,929	6,971	1	3	4	„	..	..	..	„	6/9/04
Wendon, Wendon Valley ..	Edge, A. A. ..	26	„	1	16′	all	1 in 4	„	..	10′ x 12′	200′	incline tunnel	600	..	600	6,236	6,836	1	3	4	steam	water-box	..	..	„	26/2/04
Bushbridge's, Wendon Valley	Bushbridge, P. ..	4	„	1	..	..	..	open	..	..	..	open	118	..	118	107	225	1	..	1	horse	..	..	..	..	26/2/04
Radford's, Wendon ..	Radford, E. & P.	14	„	1	20′	all	vertical	stoping	..	..	..	incline tunnel	261	..	261	4,268	4,529	..	2	2	„	..	..	..	natural	..
Waikaia Colleries Company, Waikaia	Ross, Robert ..	5	„	1	20′	10′	„	levels & headings	..	6′ x 8′	60′	ditto	307	..	307	1,242	1,549	1	2	3	steam	steam-driven	..	..	„	27/6/04
Nelson's, Landslip, Waikaia	Nelson, Jno. (owner): Duncan, Jas. (mgr.)	1	„	1	10′	all	1 in 8	ditto	..	6′ x 4′	..	adit	257	..	257	..	257	1	4	5	hand	..	..	..	„	26/10/04
McIver's, Landslip, Waikaia	McIver, R. ..	15	„	1	15′	12′	..	„	..	..	..	incline tunnel	2,401	..	2,401	2,890	5,291	1	4	5	horse	..	..	..	„	26/10/04
Muddy Terrace, Landslip, Waikaia	Goldie, T. F. ..	2	lignite & shale	1	10′	all	..	open	..	..	..	open	1,710	..	1,710	356	2,066	3	..	3	„	..	..	..	„	26/10/04

Number One, Landslip, Waikaia	McKinnon, A.	5	lignite	1	12′	7′	..	bord and pillar	..	6′ x 5′	..	adit	1,268	..	1,268	1,293	2,561	1	3	4	hand	..	..	..	natural	26/10/04
Ross's, Landslip, Waikaia	Ross, Robert	1	"	1	10′	7′	..	ditto	..	6′ x 5′	..	"	78	..	78	..	78	1	1	2	"	..	..	..	"	26/10/04
Argyle, Landslip, Waikaia	Baxter, J. and T.	13	"	1	10′	10′	..	open	..	..	..	open	201	..	201	2,324	2,525	1	..	1	"	..	..	..	..	25/10/04
Beer's, Mossburn	Beer, Mrs. T.	..	..	1	..	..	..	..	..	..	..	..	14	..	14	17	31	..	..	..	"	..	..	..	..	..
Pyramids, Mandeville	Hollows, W. & J.	12	brown	1	18′	9½	1 in 2	bord and pillar	..	6′ x 5′	..	adit	747	..	747	1,656	2,403	..	3	3	"	..	..	..	natural	..
Waimumu, Mataura	Sleeman, C. P.	8	lignite	1	17′	all	..	open	..	..	..	open	9,680	..	9,680	67,142	76,822	7	..	7	horse	..	..	..	..	25/6/04
Bogside, Mataura	Mutch and Hurst	8	"	1	16′	"	..	"	..	..	..	"	107	..	107	3,091	3,198	2	..	2	"	Douglas water	pump - driven	..	..	25/6/04
Mataura Lignite, Mataura	Coster, W.	28	"	1	16′	"	..	"	..	..	..	"	6,170	..	6,170	39,438	45,608	6	..	6	"	centrifugal steam	..	..	..	25/6/04
Waimumu, Waimumu	Williams, W. J.	5	"	3	6′ 10′ 6″ 5′	"	..	"	..	..	..	"	3,504	..	3,504	7,466	10,970	7	..	7	"	..	- driven	..	..	26/6/04
Ota Creek, Wyndham	Shields, Wm.	24	"	1	6′	"	..	"	..	..	..	"	660	..	660	11,744	12,404	2	..	2	"	..	..	..	..	..
Robin Hood, Pine Bush	Couser, Wm.	23	"	1	15′	"	..	"	..	..	..	"	274	..	274	1,858	2,132	1	..	1	"	..	..	..	..	..
Graham's, Fairfax	Graham, P. S.	26	"	1	5′ 6″	"	1 in 20	bord and pillar	..	..	6 ch.	adit	470	..	470	14,326	14,796	..	2	2	hand	..	..	..	natural	..
Isla Bank, Fairfax	Slattery, M.	24	"	1	5′	"	..	open	..	..	..	open	384	..	384	6,273	6,657	..	..	..	"	..	..	..	..	..
Ardlowie, Fairfax	George, James	2	"	1	..	..	..	"	..	..	..	"	180	..	180	..	180	1	..	1	"	..	..	..	..	..
Nightcaps, Nightcaps	Lloyd, J.	23	brown	3	36′ in aggregate	24′ in aggregate	variable to 1 in 7	bord and pillar	3	4′ x 4′ 4′ x 4′ 6″ 5′ x 5′	32 ch.	adit	43,118	..	43,118	380,845	423,963	26	53	79	steam and horse	..	..	..	fan	19/10/04
Hit or Miss, Nightcaps	Tinker, W.	4	"	1	..	..	..	ditto	..	..	..	..	524	..	524	841	1,365	..	2	2	horse	..	..	..	natural	20/10/04
H.B., Nightcaps	Lamont, A.	6	"	1	6′ 6″	all	..	open	..	..	..	open	84	..	84	3,972	4,056	1	..	1	hand	..	..	..	..	20/10/04
The Willow, Nightcaps	Brighton, G.	5	"	1	14′	"	..	"	..	..	..	"	466	..	466	605	1,071	2	..	2	"	..	..	..	..	..
Kent, Nightcaps	Quested, J. R.	6	"	1	4′	"	..	"	..	..	..	"	42	..	42	649	691	1	..	1	"	..	..	..	..	..
Morley, Nightcaps	Spence, G. R	1	"	1	..	"	..	"	..	..	..	"	1,302	..	1,302	..	1,302	2	..	2	..	..	..	..	..	20/10/04
McBride's, Nightcaps	Reed, W.	4	"	1	10′	"	..	"	..	..	..	"	40	..	40	4,058	4,098	1	..	1	hand	..	..	..	..	..
Bush Siding, Seaward Bush	Robson, R. W.	2	..	1	..	..	..	"	..	..	..	"	778	..	778	60	838	2	..	2	"	..	..	..	..	..
Gillies and Raymond, Clifton	Gillies, T.	3	..	..	..	..	..	"	..	..	..	"	86	..	86	82	168	1	..	1	..	..	..	..	..	..
Pits worked for Private Use.																										
Waverley Park, Pukerau	Milne, Jas.	3	lignite	1	7′	all	..	open	..	..	..	open	..	..	..	24	24	..	..	..	..	..	..	..	..	..
Mason's, Pukerau	Mason, A. M. W.	3	"	1	7′	"	..	"	..	..	..	"	24	..	24	34	58	..	..	..	..	..	..	..	..	..
R. Smith's, East Gore	Smith, R.	3	"	1	14′	"	..	"	..	..	..	"	12	..	12	32	44	..	..	..	..	..	..	..	..	..
Smith's, East Gore	Smith, H.	3	"	1	7′	"	..	"	..	..	..	"	12	..	12	35	47	..	..	..	..	..	..	..	..	..
Leitze's, Gore	Leitze, M.	25	"	1	4′ to 7′	"	..	"	..	..	..	"	34	..	34	1,472	1,506	..	..	..	..	..	..	..	..	..
Cross's, Otama	Cross Bros.	6	"	1	4′	"	..	"	..	..	..	"	10	..	10	136	146	..	..	..	..	..	..	..	..	..
Ford's, Chatton	Ford, P.	24	"	1	..	"	..	"	..	..	..	"	52	..	52	470	522	..	..	..	..	..	..	..	..	..
Perkins's, Wendon Valley	Perkins, G. A.	3	"	1	7′	"	..	"	..	..	..	"	6	..	6	27	33	..	..	..	..	..	..	..	..	..
McGilvray's, Mataura	McGilvray, J.	14	"	1	4′	"	..	"	..	..	..	"	..	..	..	353	353	..	..	..	..	..	..	..	..	..
McKenzie's, Blackmount	McKenzie, R.	..	..	..	..	..	..	..	..	..	..	..	236	..	236	2,665	2,901	1	..	1	..	..	..	..	..	..
Wyndham, Wyndham	Irvine, D.	9	lignite	1	..	all	..	open	..	..	..	open	16	..	16	299	315	..	..	..	..	..	..	..	..	..
Marshall's, Edendale	Marshall, H.	13	"	1	5′	"	..	"	..	..	..	"	50	..	50	625	675	..	..	..	..	..	..	..	..	..
Pits not at work.																										
Knapdale, Chatton	..	18	"	1	26	15′	semi-vertical	wide headings	..	..	..	adit	..	..	..	6,480	6,480	..	..	..	..	..	..	..	..	..
Waimea, Longridge Village, Waimea	..	13	"	1	3′	all	..	open	..	..	..		..	..	..	8,245	8,245	..	..	..	..	..	..	..	..	..
Lambert's, Edendale	..	1	"	1	12′	"	..	"	..	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Naylons, Fairlax	..	1	..	1	..	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1904—*continued.*

MIDDLE ISLAND—*continued.*

Name of Mine and Locality.	Name of Manager.	Number of Years worked.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Dimensions of Shafts. Number of Shafts.	Size of Shaft or Adit.	Depth of Shaft or Length of Adit.	Output delivered by	Output for 1904. Coal.	Slack.	Total.	Approximate Total Output to 31st December, 1903.	Approximate Total Output to 31st December, 1904.	Number of Men ordinarily employed. Above.	Below.	Total.	Power used for drawing Mineral.	Pumps. Stroke.	Size of Barrel.	Height of Column.	Means of Ventilation.	Date of Inspector's Last Visit.
SOUTHLAND—*continued.*																										
Pits not at work—continued.													Tons.	Tons.	Tons.	Tons.	Tons.									
Orepuki, Orepuki ..	..	20	brown	..	12′ to 22′	6′	..	sectional	..	10′ x 6′ 6″	..	adit	..	..	..	24,471	24,471	..	..	..	..	..	..	..	..	..
	..	2	oil-shale	..	4′	4′	..	..	..	..	..	..	..	..	66	14,422	14,422	..	..	..	..	..	..	..	..	..
Waikoikoi, Pukerau ..	..	16	lignite	1	6′	all	..	open	..	..	..	open	..	..	..	330	330	..	..	..	..	..	..	..	..	..
Vial and Gillespie's ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	817	817	..	..	..	..	..	..	..	..	..
Goldie's, Landslip	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	474	474	..	..	..	..	..	..	..	..	..
Glover's, Pukerau	Glover, A. ..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	84	84	..	..	..	..	..	..	..	..	..
Waikoikoi, Pukerau ..	Scott & Ferguson	2	..	..	..	..	..	..	..	..	..	..	..	..	..	110	110	..	..	..	..	..	..	..	..	..
McBride's, No. 11, Nightcaps	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	72	72	..	..	..	..	..	..	..	..	..
Nichol's, Gore	Nichol, W. ..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	10	10	..	..	..	..	..	..	..	..	..
Smyth's, Gore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7,107	7,107	..	..	..	..	..	..	..	..	..
Boyd & McNee (late Black's), Greenvale	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	478	478	..	..	..	..	..	..	..	..	..
Glendhu, Mataura.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	347	347	..	..	..	..	..	..	..	..	..
Southbrook, Waikaka ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	117	117	..	..	..	..	..	..	..	..	..
Smith's, Mataura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55	55	..	..	..	..	..	..	..	..	..
Edendale, Wyndham ..	McDonald, A. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,997	1,997	..	..	..	..	..	..	..	..	..
Neill's, Edendale	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79	79	..	..	..	..	..	..	..	..	..
Valley Road, Pukerau ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,062	3,062	..	..	..	..	..	..	..	..	..
Moffet & Longshaw's, Waikaia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	72	72	..	..	..	..	..	..	..	..	..
Town's, Mataura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8,002	8,002	..	..	..	..	..	..	..	..	..
Carr's, Mataura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	518	518	..	..	..	..	..	..	..	..	..
Porter's, Pukerau	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	22	..	..	..	..	..	..	..	..	..
Dickson and Walker, Croydon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	37	..	..	..	..	..	..	..	..	..
Hokonui, Hokonui ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52,084	52,084	..	..	..	..	..	..	..	..	..
Slaughter-yards, Mataura ..	(Freezing-works use)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	83	83	..	..	..	..	..	..	..	..	..
Perseverance, Pukerau ..	..	..	..	..	..	..	..	open	..	..	..	open	..	..	..	2,052	2,052	..	..	..	..	..	..	..	..	..
Frank's, Pukerau	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	45	45	..	..	..	..	..	..	..	..	..
Rejefsky's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	57	57	..	..	..	..	..	..	..	..	..
Clukoski's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	28	28	..	..	..	..	..	..	..	..	..
Kirk and Sheddon, Gore ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	140	140	..	..	..	..	..	..	..	..	..
Fryer's Excelsior, Gore ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	807	807	..	..	..	..	..	..	..	..	..
Gutzchlag's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	3,294	3,294	..	..	..	..	..	..	..	..	..
Coal Creek, Wendonside ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	40	40	..	..	..	..	..	..	..	..	..
Dryden's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	438	438	..	..	..	..	..	..	..	..	..
Kingdon's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	27	27	..	..	..	..	..	..	..	..	..
Westbrook, Greenvale ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	175	175	..	..	..	..	..	..	..	..	..
Middlemiss, Greenvale ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	15	15	..	..	..	..	..	..	..	..	..

Marshall's, Otama																		48	48										
Maslin's, Wendon																		854	854										
Cambrian (McIvor), Waikaia																		191	191										
Northcote's, Waikaia																		685	685										
McGowan's, Mataura																		125	125										
Genge's, Wyndham																		2,819	2,819										
Monaghan's, Pine Bush																		11	11										
Morley Village (Brazer's)																		2,096	2,096										
Cluny, Orepuki																		156	156										
Waikaka, Gore																		604	604										
Croydon, Gore																		25	25										
Hunter's, Otama																		1,944	1,944										
North Chatton, Waikaka																		672	672										
Edge's No. 14, Wendon Valley																		1,286	1,286										
Munro's, Wyndham																		11,151	11,151										
Wallace, Nightcaps																		20,147	20,147										
Alley's Reliable, Nightcaps																		704	704										
Black Diamond, Nightcaps																		220	220										
Morley Village, Nightcaps																		301	301										
Jones, Edendale																		280	280										
Monaghan's Landslip, Waikaia																		630	630										
Spey Bank, Fairfax																		540	540										
Blythe, Nightcaps																		1,009	1,009										
Healy's, East Gore																		12	12										
Otama, Otama																		295	295										
Mount Linton, Nightcaps																		634	634										
Marlow, Nightcaps																		10	10										
Harvey's, Chatton																		13,586	13,586										
Townsend's, Mataura																		739	739										
Totals, Southern District, Middle Island									1				378,421	79,950	458371	6089439	6547810	327	913	1240									
Totals, West Coast District, Middle Island									1				723,689	113261	836950	8808506	9645456	335	1254	1589									
Totals, North Island													224,785	17,732	242517	3340515	3583032	101	358	459									
Grand Totals													1326895	210,943	1537838	18238460	19776298	763	2525	3288									

Add output of following twelve mines, included in previous statement but now abandoned: Motupipi, 360 tons; Westport-Wallsend, 3,441 tons; Waimangaroa, 17,307 tons; Wellington, 2,299 tons; Inkerman, 2,665 tons; Inglewood, 314 tons; Devil's Creek, 343 tons; Inangahua, 71 tons; Murray's Creek No. 2, 450 tons; Burke's Creek, 300 tons; Reefton, 36 tons: total	27,586
Add output of Waikaka, Adam's Flat, and Waimea Mines, inserted twice in statement for 1891	6,518
Output of mines included in statement for 1890, but whose operations were suspended prior to 1890, less three, which are again included in body of statement—namely, Hill's Creek, 779 tons; Lovell's Flat, 323 tons; and Wyndham, 1,988 tons: total, 3,090 tons	132,732
Output of mines included in former statements, but whose operations were suspended prior to 1889	172,529
	20,115,663

Approximate Cost of Paper.—Preparation, not given; printing (2,350 copies), £35 3s. 9d., exclusive of illustrations.

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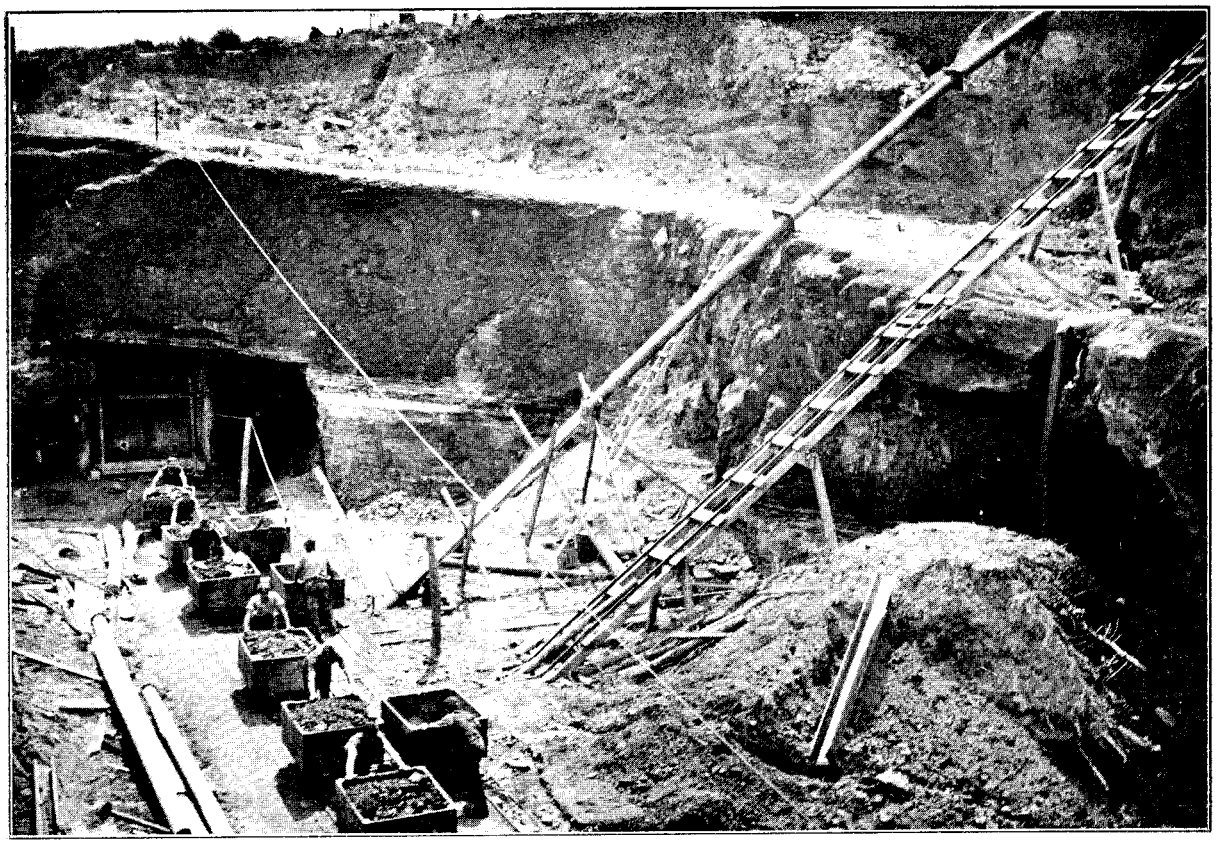
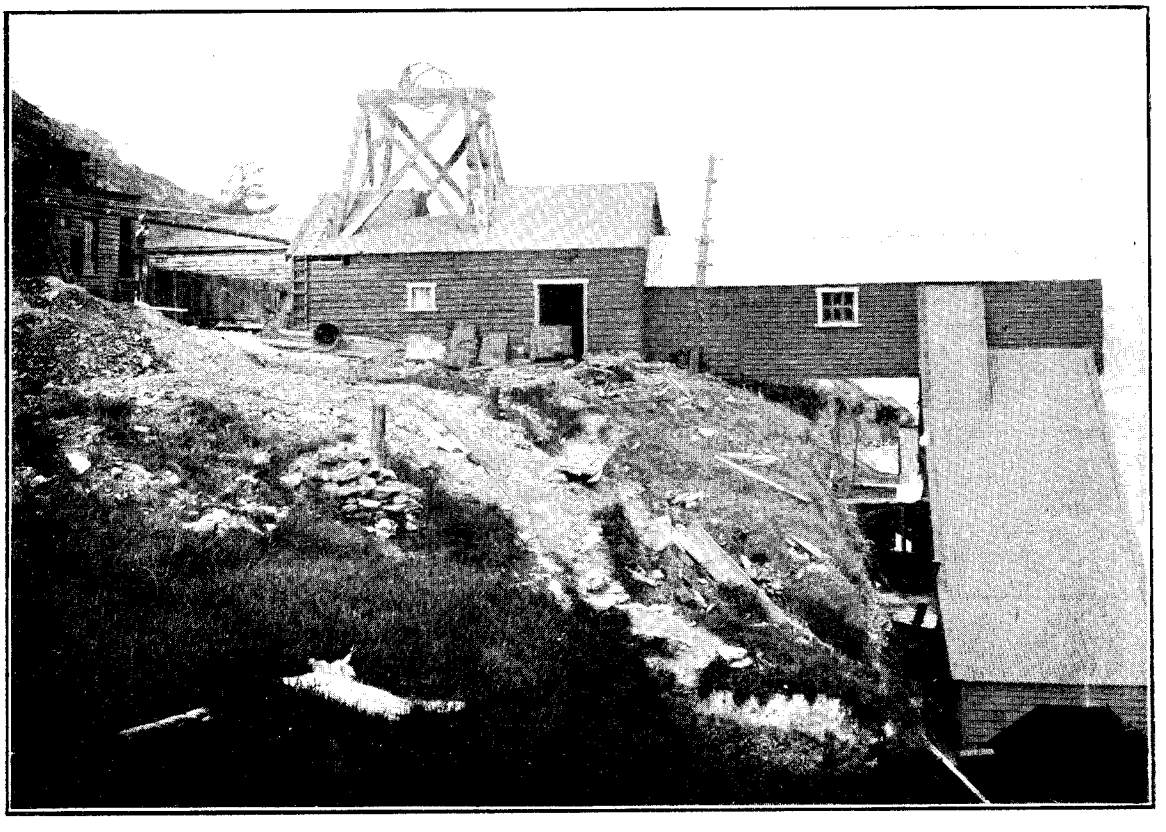
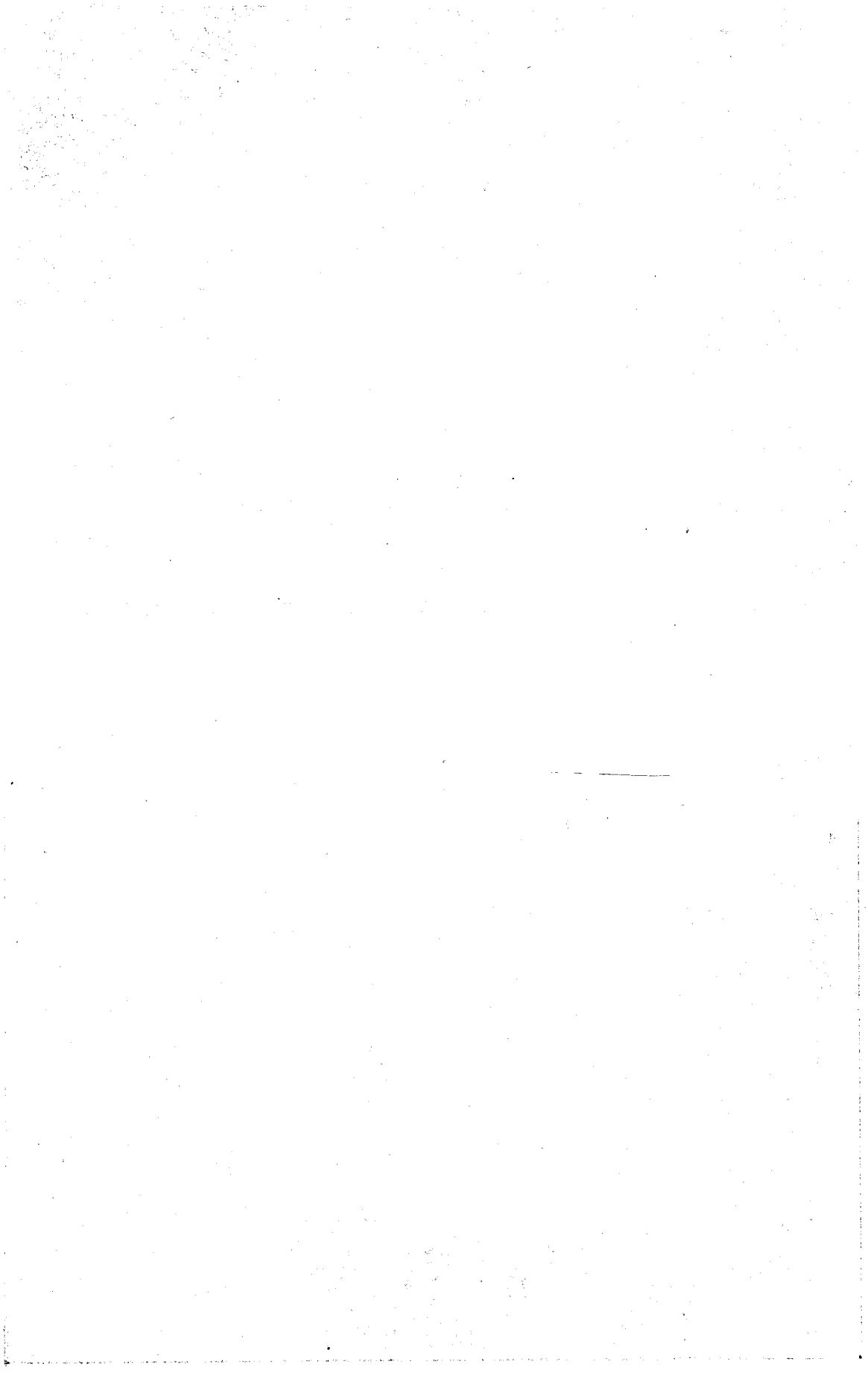
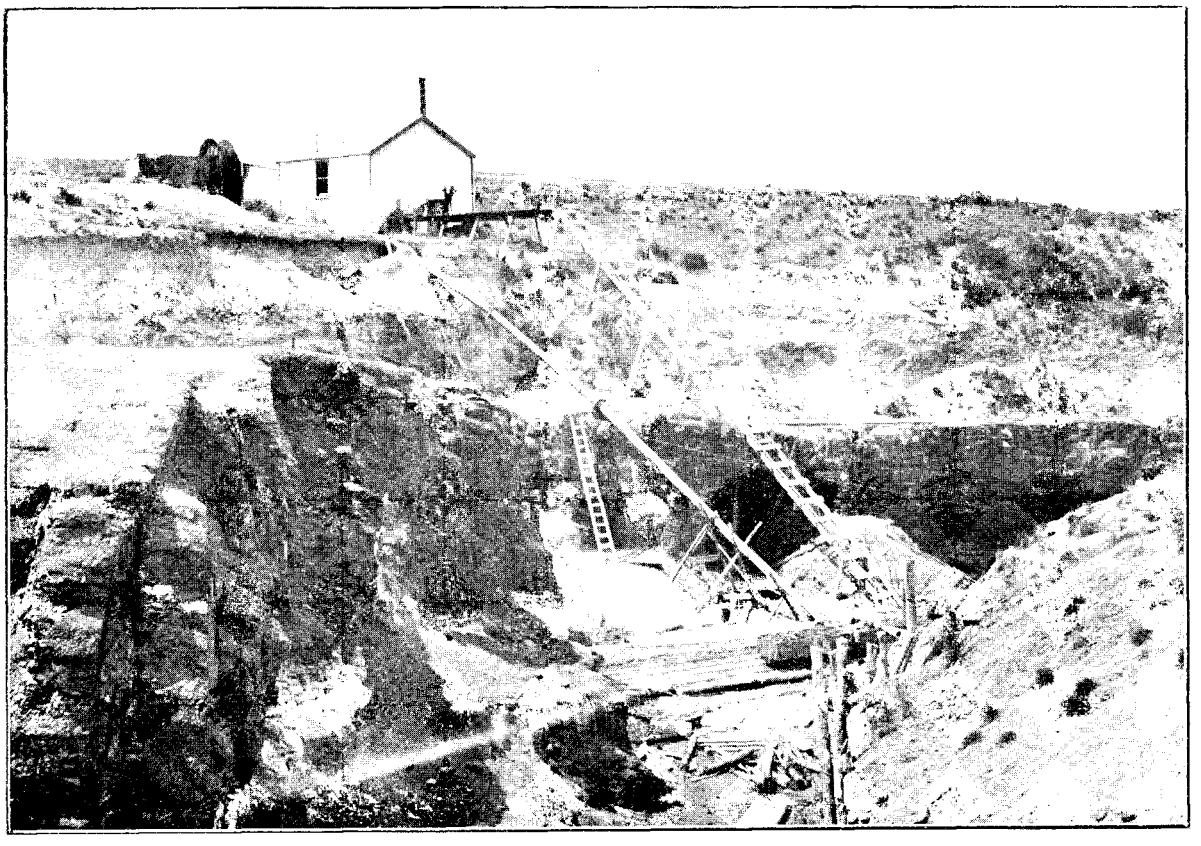


NIGHTCAPS COLLIERY, NIGHTCAPS, SOUTHLAND: TOP OF DREAM JIG, RISE SECTION.

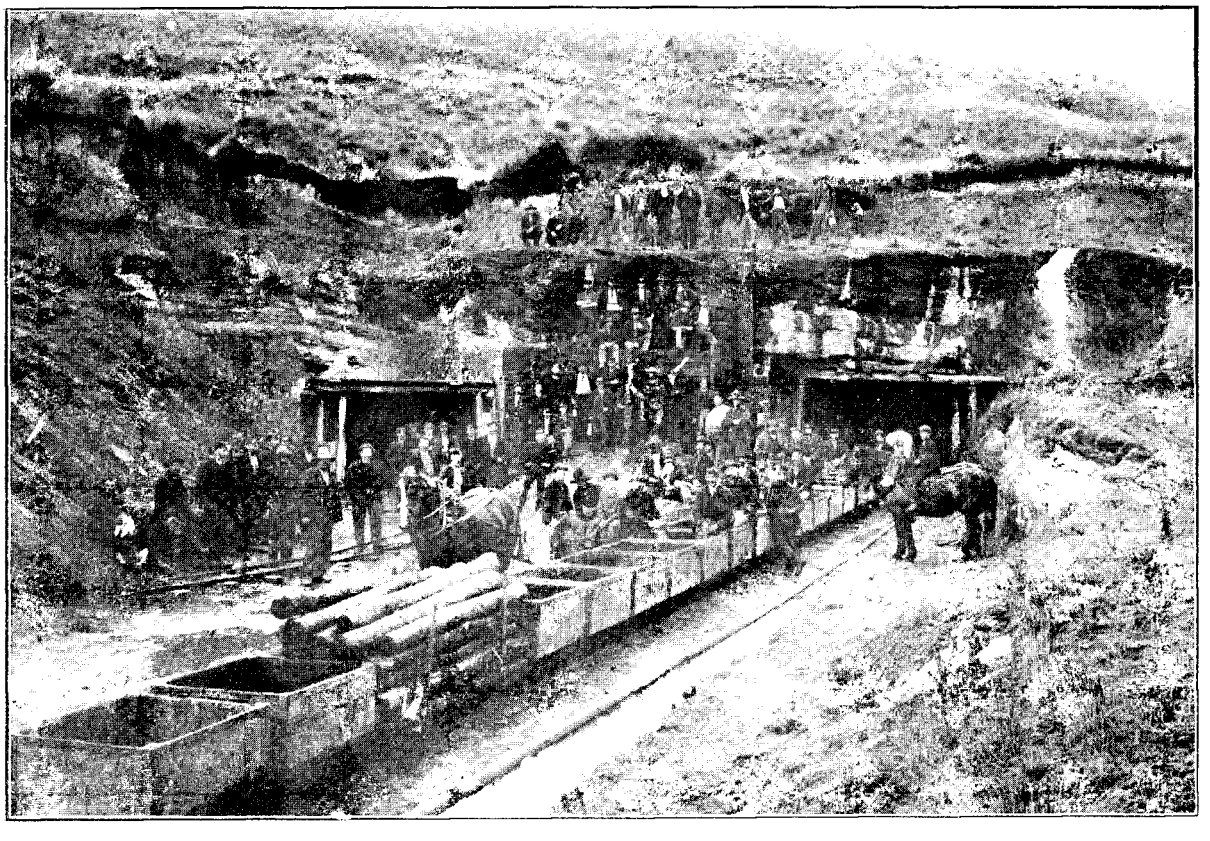


TYNESIDE COLLIERY, BRUNNER, NEAR GREYMOUTH.

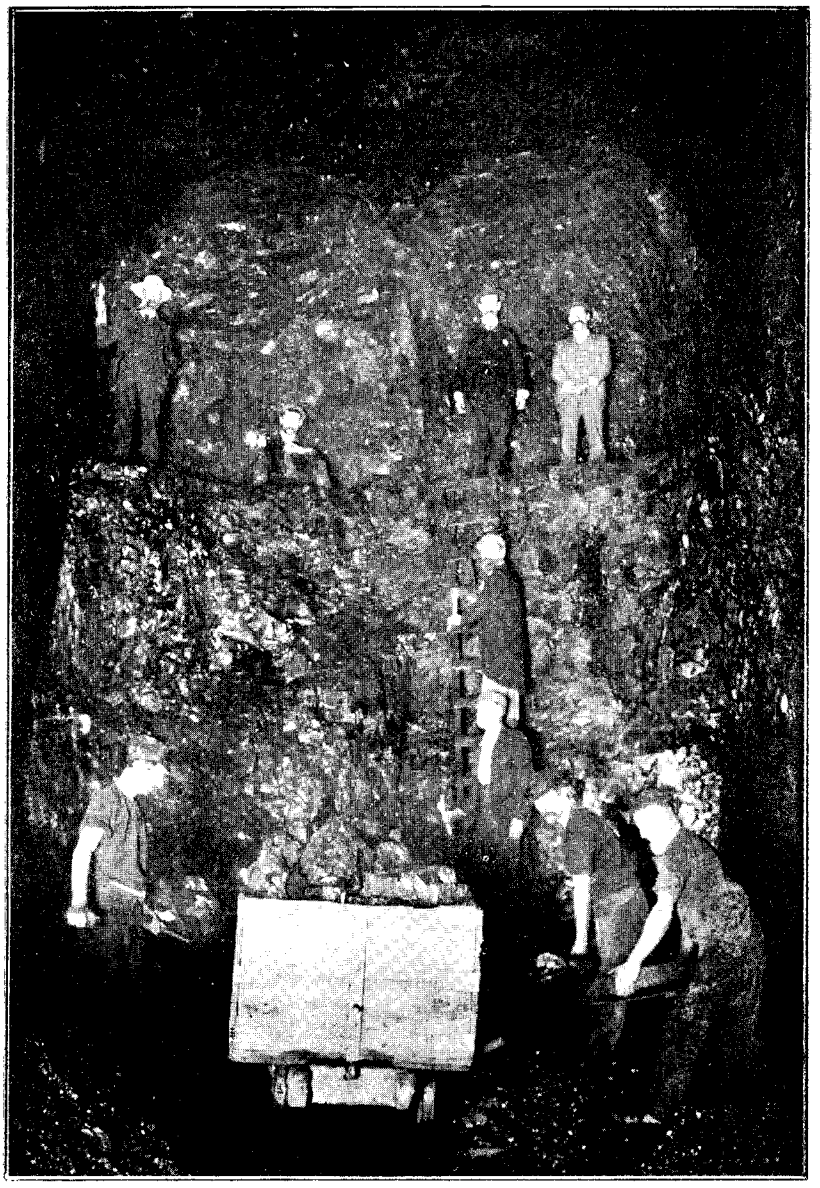




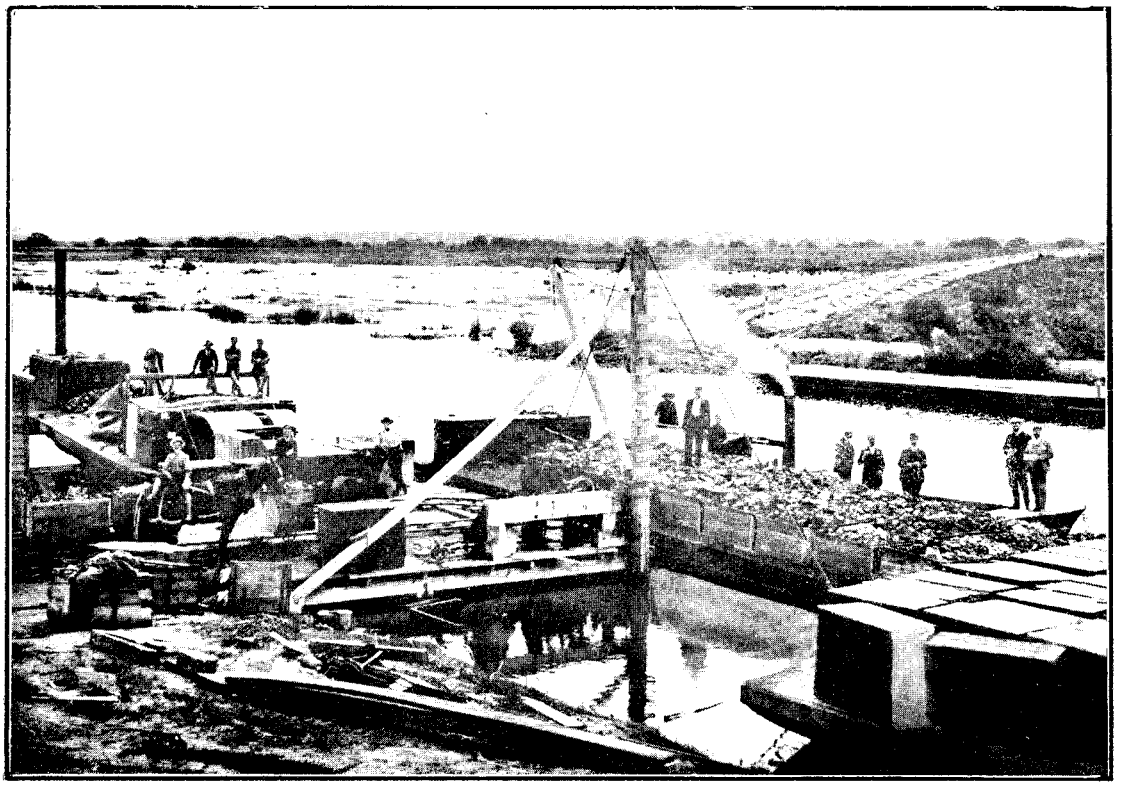
NIGHTCAPS COLLIERY, NIGHTCAPS, SOUTHLAND.—VIEW AT OUTCROP, WITH VENTILATING FAN ON TERRACE.



NIGHTCAPS COLLIERY, SOUTHLAND.—GROUP OF EMPLOYEES AT ENTRANCE TO UNDERGROUND WORKINGS.



UNION COLLIERIES (LIMITED), MARAVAL, No. 2.—VIEW OF ONE OF THE BORD FACES.



UNION COLLIERIES (LIMITED), MARAVAL, No. 2.—LOADING BARGES AT THE MINE.