1898.

NEW ZEALAND.

INSPECTION OF COAL-MINES REPORT.

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

No. 1.

Mr. GEORGE WILSON, Inspecting Engineer, to the UNDER-SECRETARY for MINES.

SIR,— Mines Department, Wellington, 25th May, 1898.

I have the honour to forward you covering report on the progress of the coal-mining industry for the year ended the 31st December, 1897.

The output of coal from the mines throughout the colony for the past year amounted to 840,713 tons, being an increase on the previous year of 47,862 tons. The output comprised 504,764 tons of bituminous coal, 34,969 tons of pitch-coal, 268,020 tons of brown coal, and 32,960 tons of lignite.

Mining operations were carried on in 153 mines, in connection with which 1,912 men were employed, the average output being 439 tons per man per annum. Four fatal accidents occurred during the year, but they were all due to misfortune and not to negligence. The Act and regulations are strictly adhered to in most of the mines.

I have, &c.,

GEO. WILSON,

The Under-Secretary, Mines Department, Wellington. Inspecting Engineer.

No. 2.

Mr. JAMES COUTTS, Inspector of Mines, to the UNDER-SECRETARY for MINES.

SIR,— Inspector of Mines' Office, Thames, 4th May, 1898.

I have the honour, in compliance with section 67 of "The Coal-mines Act, 1891," to report as follows on the coal-mines in Provincial District of Auckland for the year ending the 31st December, 1897:—

NGUNGURU.

Kiripaka Colliery.—This mine has been continuously worked during the year, employing forty-four men in and about the mine. The seam of coal has varied from 2 ft. 10 in. to 10 ft. in thickness, and, as a number of the men have been employed on the thin part of the seam, the output of coal has been considerably decreased. Air-shafts are sunk from the side of the hill as the workings proceed, and the ventilation is good. There is always plenty of timber on hand for the miners' use, and every attention is paid to their safety. The output of coal for the year was 16,248 tons, being a decrease of 3,985 tons as compared with the previous year. No accidents reported from the mine during the year.

WHANGAREI.

Kamo New Mine.—The work in this mine has been limited, the operations being confined to working out small blocks of coal that were near the surface, left by the previous company. The ventilation was good and the mine safe. The output of coal was 1,037 tons, an increase of 164 tons over the previous year. Five men were employed. No accidents.

HIKURANGI.

West Bryan's Mine.—There has been very little work done in this mine for the last eight months, operations being limited to prospecting and boring for coal. The output of coal for the year was 2,142 tons, a decrease of 7,397 tons as compared with the previous year.

Hikurangi Coal Company's Mine.—This mine has been very successfully worked during the year, having produced 30,663 tons, being an increase of 2,683 tons over the previous year. The mine is well opened up, and everything in connection with it is carried out in a systematic manner. The levels and bords are carried along narrow, and large pillars are left; consequently, very little timber is required to keep the workings secure. The ventilation was good and workings safe on my last inspection of the mine, and no accidents of any kind were reported to me during the year.

Hikurangi Collieries (Limited).—The operations in this company's mine have been chiefly confined to working the seam of coal on the outcrop. The surface covering on the coal varied from 1 ft. to 6 ft. in thickness; consequently, most of the coal up to the end of December has been quarried out. This is a new mine, and is well situated, being close to the railway; therefore the prospects of the company may be considered encouraging, as no doubt the quality of the coal will improve to the dip. No accidents.

Phœnix Coal Company.—This mine has been continuously worked, and a large number of men were employed for a short time, but, as the price of coal delivered into the trucks was so low that it did not pay the company, the number of men was reduced. The workings are carried on from an adit-level, which is securely timbered and safe. The ventilation is also good. No accidents reported from the mine. The output of coal for the year was 5,026 tons, an increase of 2,926 tons over the previous year.

Waikato.

Waikato Colliery Company's Mine.—This mine has been steadily worked during the year. The operations in the mine have been confined to taking out pillars, and the manager has exercised great care for the safety of the men in taking out the coal, and a very small percentage of the coal has been lost. Abundance of timber is kept at the mine ready for immediate use. The output of coal for the year was 13,317 tons, a decrease of 916 tons as compared with the previous year. Four slight accidents happened in the mine, but none of a serious character.

Taupiri Extended Company's Mine.—This mine has been worked continuously during the year. The works in the early part of the year were confined to what are termed the east and west districts at No. 1 level, but the manager is directing the operations now in opening the mine at the dip or No. 2 level, near No. 2 shaft. The levels are being vigorously pushed ahead, so that no time may be lost in opening up this portion of the mine, and, as the coal is of good quality at the dip, the prospects of the company look very encouraging. The output of coal for the year was 33,066 tons and 847 tons slack, an increase of 4,925 tons over the previous year. The ventilation is all that could be desired, and the mine is safe. Two accidents happened in the mine: one was of a slight character; but the other, due to a fall of coal, proved fatal to a miner named William Crowder, but no blame could be attached to any one.

The Taupiri Reserve.—This mine is being steadily worked, and a fair amount of coal is being produced. The workings in the mine are still confined to that part of the property under Lake Kimihia, but the principal works are directed from the new dip extension. Large pillars are left to keep the mine secure, and from 5 ft. to 8 ft. of tops are left on in the places to strengthen the roof. The output of coal for the year was 18,870 tons, an increase of 210 tons over the previous year. The ventilation is good, and the workings, to all appearance, safe; but, strange to say, no less than ten accidents were reported, most of them being of a slight nature.

Kawakawa.

New Bay of Islands Coal Company.—This company's operations have been mostly confined to working out pillars of coal near the outcrop, and sinking prospecting shafts for the purpose of discovering any patches of coal that might have been considered by the previous company not good enough to work. In this the company have not been successful, as in most cases the seam of coal cut through by these shafts was too thin to work. Great care has been exercised in working out the pillars, and it has required a large quantity of timber to keep the men safe, owing to the coal they have been working being near the surface. The prospects of the company do not look as encouraging as could be desired. Still, the mine was considered exhausted some years ago. Since then a considerable quantity of coal has been produced from it, and it has given employment to a number of men. If prospecting operations are continued in this locality a coal discovery may be met with which would be the means of giving an impetus to the whole of this district. The output of coal for the year was 11,134 tons, a decrease of 2,833 tons as compared with the previous year. An accident of a serious nature happened in this mine to a miner named Emerson Lee, from which he is not likely to recover. He was in the act of drawing out timber when it occurred, but no blame could be attached to any one.

Mokau.

Mokau Coal-mines Syndicate (Limited).—The opening-up of this mine is being more vigorously pushed ahead. An air-drive has been put in from the side of the hill and a connection made with the workings, which has given excellent ventilation. The seam of coal is 7 ft. in thickness, and the band of shale in the centre of the seam, which has been 2 ft. thick in places, is gradually getting thinner as the workings are proceeding into the hill, and the coal to all appearance is improving. There has been great difficulty in getting the coal taken away and shipped in the past, but a steam-launch has now been put on to tow the barges down the river, and the s.s. "Kiripaka," capable of carrying 120 tons, has been put on to take the coal from the Heads. The output of coal for the year was 3,148 tons, an increase of 1,205 tons over the previous year. No accidents are reported.

Bombay Mine.—The work in this mine has been very limited, and the mine has only been worked to supply the settlers in the neigbourhood. Twenty-five tons was taken out during the year, an increase of 7 tons over the previous year. No accidents.

Accidents.

A fatal accident happened to a miner named William Crowder, in the Taupiri Extended Company's mine, and one of a serious nature to Emerson Lee, in the Bay of Islands Coal-mine; also minor accidents occurred.

REMARKS.

The output of coal for the year shows a slight increase (1,473 tons) over that of the previous year. There is abundance of coal which can be worked in the Auckland District at a small cost, and a much greater output could be maintained if necessary.

I have, &c.,
JAMES COUTTS,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

No. 3.

Mr. ROBERT TENNENT, Inspector of Mines, Westport, to the UNDER-SECRETARY for MINES.

SIR,— Inspector of Mines' Office, Westport, 20th April, 1898.

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 the 31st December, 1897:—

Puponga Coal-mine, Collingwood.—The interest in this lease held by James Walker has been purchased by Joseph Taylor (co-partner), and necessary operations outside the mine are being pushed on, as he intends to put coal on the market for the coming winter.

Pakawau Coal-mine.—(2/11/97): This mine is situated seven miles from Collingwood, and is owned and worked by William Caldwell, who employs two men. During the year work has been chiefly confined to opening out a fresh section on the west side, and an easterly tunnel has been driven in the coal 150 ft., and is connected with an uprise to the surface which provides good air. This coal is much superior in quality to that obtained from the old mine, and is conveyed to the loading-hopper over a substantial tramway 17 chains in length. The west level, which extends to the surface, is retimbered, and in good repair. Air on both faces is good. Timber is plentiful, and freely used. Reports daily kept.

Enner Glynn Coal-mine, Nelson.—(14/10/97): The coal on face of south-west level is pinched out 260 ft. from winding-shaft, and a further extension of 40 ft. is driven, following the vein, but with unsuccessful results. The coal is chiefly worked by stoping, employing four men. Before commencing work an examination of the mine is made with a safety-lamp, and daily reports are kept. Timbering is well attended to, and is well set. At my request, the bottom section of upcast shaft has been furnished with ladders, and a 3 in. partition-wall newly completed. Good air is provided.

Mokihinui Coal-mine.—(2/7/97): Work has been suspended since December, 1896. The charge of the mine is intrusted to John Lenehan, whose duties are to attend to and keep the pumps in working-order, make daily inspections of the mine and report accordingly. The dip haulage-road and back incline form the two entrances, and provide every facility for natural ventilation. Notwithstanding the soft nature of the pavement and long suspension of work, the roads and air-ways are in fairly good condition, and on each of my visits the air was good. The timber stands well. I found gas in a hole of the roof at bottom bord. This was easily removed, and has since remained clear. Three visits were made.

Cardiff Colliery.—(15/9/97): This mine has been steadily worked, and the output over the preceding year has increased 13,849 tons. The chief seat of mining operations is extended from the termination of main haulage-road, and the coal won from this district is of superior quality. The roof requires careful timbering, but this work is strictly attended to, and a plentiful supply of timber is always at hand. Brattice on west level required to be carried forward on working-face, which was done at once. Twenty miners are employed on day-shift and ten after noon. The level section of solid workings which runs between the two main faults still continues in good coal, and it is safe and in good working-order. The pillars worked from the outcrop on No. 1 incline are very satisfactorily removed, and, as great care has to be exercised for the safety of the miner, every precaution is taken. A sandstone roof covers the coal, and is easily timbered. By the erection of a 7 ft. diameter fan of the Schiele type the ventilation is very much improved, and a current of air of 22,000 cubic feet per minute circulates the workings. The haulage plant has been completely renewed, and important extensions carried forward on the workings. I drew Mr. Broome's attention to the heavy timber in entrance tunnel to mine, and on a later visit this timber was thoroughly overhauled, and a number of new sets put in. This part of the road is now in good repair. No gas reported. Manager's and foreman's reports daily recorded. Rules posted. William Cain, a hooker-on at the termination of haulage-rope, was injured by a runaway truck which was let loose by the breakage of a chain-clip. His injuries were not serious.

Granity Creek Colliery.—The development works of this new and extensive colliery are completed, and mining operations during the year have been carried on very successfully. A steady current of air, measuring 16,000 cubic feet, travels the workings, and is well led up to the faces. The mine throughout is safe and in good order. Timber is freely used, and spragging is strictly observed. Return airways and working-places were tested by alcohol-flame lamp (Stokes' patent), but no trace of gas could be detected. The coal is principally worked on the rise or western side from main haulage-road, and this district is divided into twenty-four working-places, employing forty-seven miners. A prospecting heading, to prove the field towards Mine Creek, is being pushed ahead night and day. Four coal-cutting machines of the percussion type, actuated by compressed air, hole the coal in the eastern or Dip section on the afternoon shift, and it is afterwards blasted down by authorised officers during the night, when the coal is left ready for the fillers. The results from these coal-cutting machines, and the suitable application of compressed air for working underground machinery, have been so far satisfactory that the management has added a duplicate air-compressing engine to their plant, built by George Leyner, engineer, Denver, Colorado. The incline tramway, over which the coal is conveyed to the screening- and loading-banks, situated on the Government

railway, is a mile and a quarter in length, and falls from the mine-mouth a vertical height of 1,200 ft. The tramway is worked by two separate sections of endless haulage, and the travel of the ropes is regulated by powerful hydraulic machinery, built by A. and T. Burt, engineers, Dunedin. The ropes are made of plough-steel, 4½ in. and 3½ in. respectively, and the tubs are attached "by ones," with chain-clips either on front or back, as required. All the viaducts over the deep ravines on this tramway are being securely fenced. The leading features in carrying out the construction of these works are strength and durability, and they reflect great credit on the management. The provisions of the Act are strictly carried out.

Coalbrookdale Colliery.—(12/8/97): This group of mines has been steadily worked during the year. The Cascade west section is the principal centre of solid workings, which extend over a large and valuable area of clean coal. The thickness of the seam varies from 6 ft. to 30 ft. The average height of the workings is 9 ft. The remaining portion of the coal forms a good roof. It is well timbered, and consequently a very safe working is made. To provide a better ventilation system an extensive scheme is being carried out, with the object of splitting the main air-current and providing separate return airways to each district of the workings direct to the fan. A large quantity of stonework has had to be cut, the execution of this work incurring considerable expense. The work will be completed in a few weeks, and a general improvement in the ventilation is anticipated. The air volume at fan is 28,000 cubic feet. A deviation of the main haulage-road to a more central position of the workings is being driven, and to form a connection 3 chains of stonework yet remains to be cut. Solid work on the east side of Cascade Mine is finished, where one electric coal-cutting machine of the percussion type is employed at pillar-work. The bad nature of the roof requires careful timbering. Big Dip: Pillar-work at the bottom of haulage-road and Martin King's heading is exhausted. The miners are removed, and are employed on a higher level of pillars. The roof over this coal is a loose fireclay, and special care on the part of the miner is required. Pumping is still continued. New Mine: The coal-seam in this mine averages 7 ft. thick, with a strong sandstone roof, which provides natural advantages favourable for coal-cutting machinery. Two electric percussion machines are constantly employed, and satisfactory results are obtained. Close attention is paid to timbering as the coal is removed, and the whole pillar is extracted before a fall takes place. No timber is drawn. Air good; natural ventilation. Muncie's Mine: Work was suspended for a short time, but on my last visit preparations were being pushed on to open out a large district of pillars, and six men were employed putting up timber and railing new roads. This section connects with New Mine, and is ventilated by one continuous current: a dip-drive to form a connection and provide a permanent travelling road with Cascade Mine. Apart from haulage traffic, this work will be completed in about two months. No accidents are reported from this group of mines. The Act and all reports are strictly kept.

Ironbridge Colliery.—(13/8/97): The output from this mine depends chiefly on the Cedar seam, where thirty-four miners are employed. The workings are well regulated, and are extended by two parallel winning headings, which are driven by two shifts. Brattice is led well forward on the face, and the general ventilation is good. To provide a direct ventilating current, and cut off all return airways, a heading is being driven in advance of the workings towards Cedar Creek, where the fan will be built. This seam promises favourably for coal-cutting machinery, and preparations for this work are well forward. A new electric cable is laid, and four new machines of the percussion type are on the works. In the Gentle Annie three miners are employed single-handed, picking out a few stoops that remain. A shaly formation forms the roof, but timbers well. The shaft district is abandoned, and all movable plant is removed. The flat seam is 18 ft. thick, covered with a strong grit sandstone, and the removal of these pillars are taken the full thickness with little loss of coal. Air good, and timber plentiful. James Hamilton, miner, had his knee-cap and ankle broken by a fall of coal rolling on his leg.

Langford Coal-mine.—(18/8/97): This coal-seam varies in thickness from 1 ft. 9 in. to 2 ft. 3 in.; rises, 1 in 3. It is worked long-wall, and has a good roof. The opened ground is filled with *débris* from surface shafts on the outcrop, and from these shafts good air is kept on the working-face. Timber is regular, and carefully set. Buller dredge is supplied with this coal.

Whitecliffs Coal-mine.—(20/9/97): This mine is owned by Job Lines, and at time of visit work had ceased.

Flaxbush Coal-mine.—(21/8/97): Work at this mine has also ceased. Owner, Mr. De Philippi.

Coal Creek Coal-mine.—(20/9/97): This mine is worked from an outcrop on the south bank of the Buller River, near Whitecliffs. Mr. Hansen has recently taken up the lease for the supply of the Excelsior dredge, Three-channel Flat. The coal is of good quality, and well suited for steaming purposes. I requested that three sets of timber be placed at mine-mouth, which was done at once.

Golden Treasure Coal-mine.—(20/8/97): This lease has been formerly worked bord and pillar. John Davidson, the present owner, has two men employed sluicing off the surface and breaking out the coal opencast. A small percentage of gold is collected from the wash.

Bayfield Coal-mine.—(20/8/97): This adjoining lease of old workings, connecting the Golden Treasure, is held by James Sara. The coal is also worked opencast, the surface being stripped off by sluicing.

Phœnix Coal-mine.—(20/8/97): Owing to the loose way this mine had been worked, a creep was brought on the workings; consequently the tunnel was lost by a landslip from the hillside. Operations were resumed from a tunnel on the west side of the terrace, where the drays are now loaded. On a later visit the mine had settled down, and the workings were in good order. Upcast shaft supplies good air.

Breen's Coal-mine.—(10/2/98): This coal-seam stands nearly on edge. The workings are opencast along the line of outcrop. A small drive was cut into the terrace a few feet, following the coal. Globe Mine is supplied with this coal.

Beckford Coal-mine.—This is a thin seam 2 ft. thick, worked by tunnelling. The surface is very thin over the coal; chiefly sandstone.

Lankey's Gully Coal-mine.—(20/8/97): This mine is worked by Mr. Lamberton and one youth. The workings are chiefly from the Rise level, where the coal is harder and of better quality. The bords being driven narrow, with a coal roof, little timber is required, and the workings are safe.

Inkerman Coal-mine.—(10/2/98): The Inkerman Gold-mining Company employ two miners to supply coal for their rock-drill machinery at the low-level tunnel on Rainy Creek. The coal is worked from a dip-drive.

Waitakere Coal-mine.—(20/10/97): The thickness of this lignite seam is unknown, but 10 ft. is worked opencast, from which the residents of Charleston are supplied with a good house coal.

Blackball Colliery.—(30/7/97): Work was resumed after repairs were completed on aerial tramway, and operations have since continued. The principal workings are westerly from the main tunnel. They are divided by parallel levels into three sections, which form, in the aggregate, eighteen working-places, employing thirty-six miners. A layer of fireclay overlies the coal, which forms a bad roof, and more than ordinary care is necessary, as close-lathed timber is required in nearly every place. Timbering receives special attention, and good roads are kept. A circulating current of air, 15,000 cubic feet per minute, travels the workings. The cliff has been holed by a second heading, where a ventilating furnace is built. The upcast shaft, together with all exposed coal-surfaces, is lined with brick, and strong currents of air sweep the intervening passages, with the object of preventing spontaneous combustion. Work on the east side of the mine is confined to four working-places, employing eight miners. A wagon-driver named John Ryan, who was employed on the railway-siding, received a compound fracture of the skull by the tail-chain unhooking from its fastening.

Brunner Colliery.—(31/8/97): The output from this mine is chiefly confined to the extraction of pillars from the dip-workings. This mine is exclusively worked by lead rivet locked safety-lamps of the Marsaut type, and blasting operations are carried out by authorised officers at night after the ordinary day's work is over. In July, owing to continuous heavy rains percolating through the roof, pumping and baling were overpowered, and in consequence the bottom sections were abandoned, and allowed to fill up with water. The pillars being nearly finished at the time, little coal was lost. Pending this stoppage the middle sections were in readiness, and the miners were removed and employed without delay. The ventilation is carried on by splitting, and each district is supplied by separate currents of fresh air, the average volume measuring 16,000 cubic feet per minute. On each of my visits careful examinations were made, and the return airways tested with an alcohol-flame lamp, which showed no trace of gas. On the 20th December, 1897, I found gas on face of east level and over a large fall, but this gas was removed by ventilation at once. Stoppings, airways, and falls are daily examined and reported, and readings of the ventilation weekly recorded. Application was lodged by Robert Alison, general manager, for permission to remove a coal barrier left during the formation of the dip-workings by the late management, with the object to guard against water from the rise. After due consideration, the Hon. the Minister of Mines granted permission for its removal. David Dunbar, miner, had his hand crushed against the roof by his truck getting derailed, which resulted in the amputation of a finger.

Brunner Rise Mine.—(1/9/97): Working operations are continued by two shifts, employing 103 men underground, the total output being produced from the removal of pillars. From the bottom or west level back to No. 2 incline, extending along the line of thinning, the pillars are exhausted, and the men are removed to No. 1 incline. This thinning of the Brunner seam extends from the extreme dip of the field, and has been followed until it intersected the eastern boundary, which forms the cliff, thus cutting off all solid coal. A second outlet near the rise has been holed to the cliff, and a current of 10,000 cubic feet per minute travels the workings. (20/12/97): Work is chiefly confined from both sides of No. 1 incline. The coal is removed very successfully, and without loss. The only difficulty experienced is to get the roof to fall, although the timber is drawn regularly as the coal is taken out. The coal averages from 5 ft. to 6 ft., and, with steady work, a large area is soon exhausted. Workings and roads are kept in good repair. No gas reported. Manager and foreman report daily. Timber plentiful. No accidents reported.

Coal Creek, Point Elizabeth.—Work done on this lease has been chiefly of a prospecting character. Various outcrops have been opened out, and two bore-holes put down. The first bore-hole pierced a coal 15 ft. thick, at a depth of 144 ft. The second bore-hole passed through the same seam 9 ft. 6 in. thick, at a depth of 381 ft.

Accidents.

22nd July.—Blackball: A wagon-driver named John Ryan, employed on the railway-siding, received a compound fracture of the skull by the tail-chain unhooking from its fastening.

2nd October.—Brunner: A miner named David Dunbar had a finger amputated, his hand being crushed against the roof by his truck getting derailed.

3rd December.—Ironbridge: James Hamilton, a miner, had his knee-cap and ankle broken by a fall of coal rolling on his leg.

The provisions of the Act are carried out throughout this district.

General Remarks.

No fatal accidents occurred during the year, and the ratio of minor accidents shows a decrease.

Naked lights are in use throughout the district with the exception of the Brunner old mine, and for coal-blasting the common explosive used is compressed powder. Clay tamping is provided and placed at convenient stations in the mines, and shot-firing is strictly carried out by authorised officers after working-hours, the workings being of a damp nature.

Accident Fund.—The amounts credited at the Post-Office Savings-Bank on the 1st January, 1898, to the various companies are as follows: Westport Coal Company, £1,424 9s. 11d.; Westport-Cardiff, £44 9s. 2d.; Greymouth-Point Elizabeth, £136 9s.; Blackball Coal Company, £180 11s. 1d.: total, £1,785 19s. 2d.

Foreign Trade.—During the year 1897 the Westport Coal Company shipped 16,701 tons of coal to ports outside of New Zealand. This is an increase of 6,154 tons over the previous year's shipments.

The output for the year shows an increase of 25,960 tons over the preceding year, the total output being 430,960 tons.

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

The Under-Secretary, Mines Department, Wellington.

No. 4.

Mr. JOHN HAYES, Acting Inspector of Mines, Dunedin, to the UNDER-SECRETARY for MINES.

SIR,— Office of Inspector of Mines (Southern District), Dunedin, 30th March, 1898.

In accordance with the requirements of section 67 of "Coal-mines Act, 1891," I have the honour to report on the mines visited since taking duty in April last as follows:—

Springfield Colliery, Springfield (The Springfield Coal- and Pottery-works Company, owners).—(10/8/97): The top seam is not now being worked. All coal comes from a lower seam, raised at a small new shaft at the pottery-works. The section is as follows: Coaly clay roof; top coal, 2ft. 6in.; parting, 4in.; bottom coal, 9in.; fireclay, say, about 4ft. thick. The workings are in very good order, and timbering is carefully done. Ventilation is quite satisfactory. Report-books kept up to date. A copy of the mine plan has been sent in since my visit. The whole of the clay and most of the coals raised at this mine are used at the brick- and pottery-works belonging to the same proprietors.

Canterbury Colliery, Sheffield (Austin Brothers, owners).—(10/8/97): Nine men are employed here, seven of whom are engaged in getting coal, the present output being about 14 tons per day. The mineral is carted to Sheffield Railway-station, about a mile and a quarter. If the proprietors had a light branch line to their pit no doubt a larger trade could be done. The seam, which lies with a dip of 1 in 3, yields 4ft. of coal, and has a thick parting, which is utilised for stowing (packing) the spaces between the roadways. The method of working here adopted insures little or no waste. Natural ventilation is relied on, and appears ample. I suggested an improvement in the method of distributing the air, which is necessary in the summer months. No copies of rules posted. Report-books and plans behind. Drew attention to provisions of the Act relating to these matters.

Homebush Colliery, Glentunnel (J. Deans, owner; T. Brown, manager).—(11/8/97): The coal here is 7 ft. 6 in. thick, with a shaly sandy-clay roof overlaid by thin coal. At the adit-level the dip is 1 in 3, but towards the outcrop it gets much steeper—say, 1 in 1½. This pit has been laid out on a good plan, and it will be possible to take out the remaining pillars with practically no loss of coal. The roof is fairly strong, the roadways of ample area and in good order, and the ventilation excellent. There is a good road (forming a main return airway) to the second outlet, and I strongly recommended the manager to keep this secure by leaving plenty of pillar coal for its support when taking out the main body of the pillars. There are seven men engaged getting coal. Report-books up to date. Survey made a few days prior to my visit. Copy of Act at mine-entrance.

St. Helen's Mine, Whitecliffs (H. Levick, owner).—(13/8/97): The pit, until recently worked by Mr. Levick, is now stopped, and the owner has taken up ground at which the Whitecliffs Coal Company formerly worked. A new tunnel has been driven intersecting two seams. Mr. Levick intends continuing this tunnel until the other seams in the series are cut. Very little coal-getting has been done in this tunnel as yet. No copies of general and special rules posted up. Report-book properly kept. Mr. Levick has had his workings recently surveyed. The pit is in very satisfactory order.

Hartley Mine, Whitecliffs (W. Leeming and Sons, owners).—(13/8/97): Leeming's old drive is now stopped, the coal at which he was working being practically exhausted. Another tunnel has been started at a grade of 1 in 3. When driven about a chain the seam was struck, and found to have a dip of 1 in 6. It is at this date 48 yards from the mouth, and when extended to 60 yards a connection is to be made with the air-shaft formerly used in conjunction with the old tunnel. A Tangye steam-pump is to be shortly put in position.

Wairiri Mine, Glenroy (Wairiri Coal Company, Limited, Christchurch, owners; A. Thompson, mine-manager).—(12/8/97): The old Glenroy Mine is owned by this company, but has been standing for about a year. A new mine has recently been started by an adit-tunnel (from the banks of the Wairiri Creek) driven across the overlying measures for 3⅜ chains, at which distance the coal is struck. An air-shaft has been sunk near the outcrop, and a connection established. Good ventilation has been thereby secured. The main headings on each side of the tunnel are now being driven, but are not far in. Thickness of seam, 6 ft., with two dirt partings, which reduce the thickness of marketable coal to 5 ft. 6 in. This mine is about six miles from a railway. Sales will consequently be local for the most part.

Mount Somers (G. Park, owner).—(17/8/97): This pit is about eight miles and a half from Mount Somers Railway-station, and near the south branch of the Ashburton River. The seam is upwards of 30 ft. thick, with a dip of about 1 in 8, and crops out in a creek. It is ordinarily quarried, the surface being sluiced off, for which purpose water is brought from the creek by 11 in. diameter iron pipes under a head of 60 ft. Owing to the recent scarcity of water, underground mining has been resorted to temporarily. It is Mr. Park's intention to utilise water for sluicing

when it is available, and strip as large an area as possible, so as to be able to quarry the coal for some years. One acre of stripping will expose, say, 30,000 tons of saleable coal. A few days prior to my visit a young man named Harris sustained slight injury to his foot when working at the coal. My inquiry satisfied me that the cause was purely accidental.

Albury Coal-mine, Albury (W. Young, lessee).—(14/9/97): The seam here is 22 ft. thick, and lies at an angle of 45 degrees. The coal is raised up a shaft (68 ft. deep) by horse-power. The men enter and leave the mine by an incline. Ventilation and general condition of the place are fair. The old workings are not fenced off. No report-books kept. Drew attention to these matters, which the lessee promised would be attended to.

Brockley Tunnel.—(12/8/97): The Brockley Coal Company (Limited) is now in liquidation, and all work stopped, but it is possible the following information may be of interest: The coals in the district are ordinary brown coals, and the overlying measures appear to correspond. At Brockley they appear to have been violently disturbed, and are found nearly vertical, while on the adjoining property of the Wairiri Coal Company the inclination is about 1 in 3 or 1 in 4. At the former place there has been a flow of dolerite, which now overlies the coal-beds. This covering, when in a molten state, has had the effect of practically distilling the hydrous and volatile constituents of the coal-seams and their associated strata, and the upper seam (which was nearest to the flow of dolerite) has been altered into anthracite coal, or what is practically equivalent to it, and the laminated shale overlying the seam has been correspondingly altered into what may be termed a coarse graphite. In similar manner the clay underlying the coal has been baked like pottery-ware, and coals lower in the geological series, and consequently further away from the heat of the dolerite flow, have been altered to a lesser extent, but sufficient, at all events, to bring them up to the standard of Newcastle (New South Wales) coals. It is said that the outcrop of these Brockley seams can be traced for three or four miles at least. The tunnel (which has been driven through the dolerite) is 8 chains or 9 chains in length, and, although very wet and in bad order, I went in as far as possible and saw the coals. The anthracite seam is about 3 ft. 6 in. thick, and other seams are cut, including the well-known Brockley bed, which is about 4 ft. thick. A wooden tramway a mile and a half long connects the tunnel with the county road, but until the railway is extended from Whitecliffs there does not appear much hope of this mine being able to do a large trade. I was informed that a syndicate contemplate working for local consumption, and in so doing exploit the area of coal which can be won. There appears no question as to the excellence of quality for locomotive and marine use, but the quantity of coal available has not yet been reliably approximated.

Kurow (D. Scott, lessee).—(17/9/97): Entrance to this mine is by adit. The coal is almost vertical. Its general width or thickness is about 15 ft., of which 7 ft. are worked. The present level is some 30 ft. below that formerly worked, and as yet no proper return airway is provided, but Mr. Scott states he will shortly sink a little shaft for ventilation. The present state of the air is not at all bad. Very little timber is used or required. Drew attention to the requirements of the Act as regards keeping report-books, &c.

Kurow (W. B. Cairns, owner).—(17/9/97): This pit is on the bank of the Awakino River, and is entered by a dip-drive cut in the coal-seam from the outcrop. Inclination of seam, about 1 in 2½. The coal is bagged underground and raised by horse-power. Pumping is done by water-wheel power. Only one working-place. Coal is very strong. By cutting the roof (in the coal) arch-shape very little timber is required. No copies of rules posted, nor report-book kept. Wrote owner calling attention to requirements of Act.

Wharekuri, near Kurow.—(17/9/97): The coal here is practically vertical. None of the pits are now working, but Mr. D. Sutherland is driving a tunnel to open out a new pit. He has not yet struck the coal.

St. Andrews Coal-mine, Papakaio (Thomas Nimmo, owner).—(16/9/97): The seam here is about 8 ft. thick, with a dip of 1 in 4, and the coal fairly hard. The pillars are being extracted from the rise-workings. This pit was a pleasure to inspect. Everything was found executed in a good workmanlike fashion. Timbering is not much required, but where done it is a credit to the owner. Capital ventilation is maintained, and the second outlet is quite equal to the main entrance. Regulations are carefully attended to.

Prince Alfred Mine, Papakaio (John Willetts, owner).—(16/9/97): This pit is entered from two distinct places, by an adit-level in each case, both adits being connected with the workings, and forming escape outlets as well as haulage and airways. The main roadway is rather thickly timbered, and some ten or twelve sets need renewing: directed attention to this. The coal is of variable thickness (9 ft. to 13 ft.), and intersected with soft patches. Excellent ventilation is maintained, but I cannot say much for the system, or want of system, in which the pit has been laid out and worked. On returning to Dunedin I wrote the owner as to the posting of rules, keeping report-books and plans.

Ngapara (William Nimmo, owner).—(18/9/97): Found this pit in very nice order; air good, report-books and plan up to date, rules posted, &c. The seam is a strong thick lignite, and needs very little timber. Demand is limited to the requirements of the locality.

Shag Point Colliery, Shag Point (Thomas Shore, manager).—(3/6/97): Accompanied by Mr. T. Shore, I inspected all the workings. These are principally in No. 5 seam, which is from 2 ft. 6 in. to 3 ft. thick. The coal (which is worked on the long-wall system) is of very superior quality. Roadways and working-places all in good order, and ventilation satisfactory. No. 4 seam is much thicker, but the coal is rather stony, and only two or three places are working in it, the coal being used for steam purposes. A bore-hole is being put down on the beach, just above high-water mark, at a point 24 chains to the south of the shaft, with the object of proving the coal behind a downthrow fault which runs obliquely across the present rise-workings at an angle of about N. 70 W. (magnetic). A 2 ft. seam was passed through at 233 ft. At present in

gritty sandstone; depth, 400 ft. (7/7/97): Mr. Shore informed me the bore-hole was stopped at 416 ft. by running sand and water in very large quantities.

Allandale Colliery, near Shag Point (Allandale Coal Company, Limited, owners).—(3/6/97): The workings in this colliery are from an incline tunnel dipping in the opposite direction to the stratification of the measures. The seam is broken up to some extent by small faults. Good ventilation is maintained, and the places generally are in good order. The present return airway is rather small and very rough in places, but, as a new tunnel has recently been driven to win an area of coal to the dip of the present workings, and a heading is now being cut which will connect the workings of both tunnels in the course of a week or two, there is no need to incur expense in putting the return airway into better order, as it will answer all reasonable requirements for the length of time it is required. When the connection is made, all the coal will be jigged to the new drive, and hauled there to the surface. The present main working-drive will then become the upcast and second outlet, for which purpose it is admirably adapted. The new drive is 960 ft. long, with a grade of 1 in 5, and is afterwards driven level for 385 ft. Size, 10 ft. by 6 ft. The seam where struck is dipping about 1 in 2½. It is intersected by small faults, and has a varying thickness up to 6 ft.

Fernhill Mine, Abbotsford (James Gray, lessee).—(21/9/97): On inspecting this mine I found the ventilation very sluggish, and several places sealed off on account of fires; also one or two places heating. The Dunedin Corporation's Silverstream water-race crosses the workings, and the lessee alleges that water percolates from this race through the strata into the mine-workings. Certainly I found water dripping in several places, its effect being to damp the slack and coaly refuse in the mine. This has a decided tendency to induce spontaneous combustion in the coal-mines of this locality. Mr. Gray further fears that, unless the Corporation siphon the race for a few chains, it may ultimately break through and flood the mine. He is consequently afraid of opening out the coal to the dip until steps are taken to secure the stability of the water-race. (25/10/97): I again visited the mine, in company with Mr. S. H. Mirams, city engineer, and with Mr. Gray we went through the underground workings and along the water-race. Mr. Gray appears to make out a good case, although liability is disclaimed by Mr. Mirams.

Abbotsford Colliery (Freeman's Coal Company; E. R. Green, manager).—(21/7/97): Accompanied by Mr. Green, I inspected the whole of the workinge in progress, return airways, &c., and found everything in reasonably good order, and the ventilation very satisfactory. All the present workings are in solid ground. The pillar-workings (which took fire) are sealed off by good brick stoppings, with a length of substantial brick arching in the engine-plane. Fire-stink is thus effectively kept back from present workings. The main return air-course is rather small, but a new road is being cut to the roadway adjacent to the upcast shaft. This will be used as a pipe-road in connection with a new compound duplex pump about to be put down, and will serve as a main return airway also. On the completion of this new road it is intended to enlarge the present roadway near the upcast. At present the ventilating-power is obtained from the heat generated by steam-pipes in the shaft and the exhaust steam from the Tangye pump, but when this is displaced by the new pump, fan or furnace ventilation will be necessary. The coal is intersected by a few faults. These cause the dip to be somewhat variable. Plans, report-books, &c., well up to date, and Act generally well observed.

Walton Park Colliery, Fairfield.—(6/8/97): The Walton Park Coal and Pottery Company (Limited) having ceased operations, the mine now belongs to Mr. Patterson, and is worked by Messrs. Pollock and Gray as lessees. I found twenty persons employed below ground, coal-getting being principally by splitting pillars in the rise-workings. The dip-workings are full of water, and the middle workings sealed off on account of fire. The ventilation was good, and averaged 324 cubic feet of air per minute per person employed. Pumping is being effected by means of the old bucket-pumps attached to the winding-engine, and till quite recently was assisted by a Tangye duplex pump. This latter has not been satisfactory, and is temporarily replaced by a duplex pump (specially designed for a Southland mine), while the makers (Messrs. Johnston and Sons, engineers, Invercargill) are constructing a larger pump of similar design, capable of dealing with the entire water-flow of the mine. (29/9/97): I again visited the mine, the lessees having informed me that a creep was taking place near the shaft. I found the auxiliary pumping plant had been drawn to the surface, and that the water had risen a few feet up the shaft. I also learned that a couple of joints had sprung in the large steam-boiler from which the duplex pump took its steam, necessitating the insertion of a new plate. From an examination of the shaft down to the water, and from what I learned from the lessees as to the condition of things underground near the shaft-bottom, together with a careful perusal of the daily report-book, I very much question the wisdom of attempting to take the water out of the shaft, seeing that most of the available coal above the shaft-level can be taken out by means of an existing tunnel. (4/10/97): Mr. Pollock, one of the lessees, wrote me that the proprietor of the mine had resumed possession as from that date, and that the writer had ceased to act as mine-manager. The proprietor's representative called on me a day or two afterwards, and informed me of their intention to take the water out of the shaft by winding. Pending the appointment of a manager, Mr. James Lowden (a certificated manager) assumed temporary charge. Mr. John Kenyon was subsequently appointed manager, and took up his duties about the 14th October. On the 17th October a serious breakdown occurred to the winding plant, by which considerable damage was done, and the old bucket-pump was thereon set to work. On the following day the enginewright, on going down the back pit (pump compartment) to effect repairs to the pump pipes, fell into the water, and was drowned (see "Accidents"). In subsequent conversation with the manager and proprietor, I strongly deprecated any further attempts to take the water out of the shaft, but recommended them to work all available coal from the tunnel-entrance. This was decided on, and on my further inspecting the mine on the 24th November a site was chosen to re-erect the large steam-boiler and sink a small

shaft (for steam- and water-pipes) near the tunnel. This work was completed about the end of the year, and the new pump set to work. During November and December the ground close to and for a considerable distance from the shaft cracked to the surface, and proved the wisdom of the course adopted for the future working of the mine. The new pump, which is specially designed and built for mining work, is giving every satisfaction.

Saddle Hill Mine, Saddle Hill (Christie Brothers).—(3/12/97): The coal worked by Messrs. Christie is from 19 ft. to 25 ft. thick. A new dip-tunnel is being constructed, which, when completed, will cut off a long length of haulage both above and below ground. The workings are in very nice order, and no fault could be found with the ventilation.

Burnweil Pit, Saddle Hill (A. Harris).—(3/12/97): The seam here is from 9 ft. to 23 ft. thick, with a somewhat variable dip. Six persons are employed. The places are in good order, and the air ample and sweet. Mr. Harris proposes starting a new adit at a much lower level from an adjoining gully, in order to command a larger area of coal than his present entrance gives.

Glenochiel Pit, Saddle Hill (Bryce Brothers).—(3/12/97): The owners have recently completed a new drive into their seam. It is 100 ft. long till coal is reached at full working height, then continued in coal to the dip. At the face the seam looks well. Towards the south some patchy and inferior coal is met with. It is proposed to prove whether good coal comes in behind or not. An area of 58 acres is held; 10 acres considered to be coal-bearing. The seam is thick, roads, &c., in good order, and ventilation very satisfactory.

Lauriston Colliery, Brighton (J. Walker and Sons).—(24/11/97): The coal appears to lie in a basin. It has a thickness of 9 ft., with a maximum dip of 1 in 13. Haulage and pumping is done by horse-power. Places are in good order, and well ventilated.

McColl's Pit, Brighton (D. L. McColl).—(24/11/97): McColl is now working a seam 3 ft. thick which overlies the one previously worked by him, some 3 ft. to 4 ft. of strata separating the two. The workings are of very limited extent, and in fair order.

Mosgiel Coal-mine (Nicoll and Sneddon).—(3/11/97): The old drive is now discontinued. A new drive has been driven for some 6 chains down in the coal, which dips 1 in 8. This new dip is well constructed and supplied with man-holes. The workings appear in excellent order, and the ventilation good. A new portable engine is used for hauling and pumping.

Burnweil Colliery, Lovell's Flat (Gibson and Lees, proprietors).—(20/5/97): This colliery is now being opened out, and is connected by a branch line to the Government railways at Lovell's Flat. The shaft is 465 ft. deep, and the seam 16 ft. 4 in. thick. Below this there are clay and stone for 2 ft. 3 in., then 4 ft. 6 in. of coal. Dip, 1 in 5. A second shaft is sunk to the seam, but it will take some little time before the connection between the two shafts can be completed, owing to the distance which has yet to be driven. In the meantime the winding-shaft (which is divided) answers for both upcast and downcast. Ventilation is very fair. A bore-hole to prove the existence of lower seams is being undertaken. I found it necessary to draw the attention of the proprietors to certain provisions in "The Coal-mines Act, 1891," in connection with the working of the mine, and was afterwards personally assured by one of the firm that requirements would be complied with. A plan of the workings has been supplied.

Kaitangata Colliery, Kaitangata.—(25/6/97): Accompanied by Mr. W. M. Shore, I inspected the workings throughout, entering the mine by the dip engine-plane and leaving it by the winding-shaft. I also travelled the return air-course as far as the ventilating furnace at the bottom of the upcast shaft. On the south side of the engine-plane the pillars in Nos. 2 and 3 sections are being taken out. Very little coal is being lost, comparatively speaking. Across No. 3 fault the coal is much steeper, its dip being 26 degrees from the horizontal, and a fairly large district is being opened out. On the whole, the ventilation was satisfactory. I found a little firedamp in a heading which had been driven to prove No. 3 fault, but the place had been properly fenced off, and a fireboard erected at the entrance. A heading now being driven will shortly establish a connection with that in which gas was found, and clear it. The workings in connection with the vertical shaft are also in good condition, and well ventilated. The coal in this section is very much steeper than in any other part of the colliery. On the north side, in the direction of the Castle Hill property, the coal is not so good, being of a stony nature, and divided by several clay partings. The report-books are kept up to date, and the Act appears to be well observed. (23/11/97): I again visited the colliery, in consequence of an accident by which two men were injured, and examined the workings down the incline. The heading referred to as containing a little gas on my previous visit had been connected, and a very nice current of air was travelling. The various places were found in good order, and the ventilation generally good. Another downthrow fault (east) has been met, and the main coal-seam cut by a tunnel from the 18 ft. seam (Stone Drive section). It was giving off both gas and water pretty freely, and looked as though there may be a good area of solid coal ahead. This new portion of the mine was being lit by safety-lamps.

Taratu Mine, Kaitangata (Trustees of the late James Fraser, owners).—(21/5/97): This mine has been worked by the owners for several years, almost, if not exclusively, for their own use; it is in very good order. The coal is of excellent quality for its class.

Lakeside Mine, Kaitangata.—(21/5/97): This mine is on the property (Fraser's Taratu Estate) leased to the Tuakitoto Coal Company, and was sublet to P. Welsh, who worked a portion of it for a short time. It had ceased work at the time of my visit, but appeared to have been operated in a very slipshod fashion. The coal is upwards of 30 ft. thick, with a very gentle inclination. The Tuakitoto Company are not working any part of the estate at present.

Coal Creek, Roxburgh (John Jones).—(29/10/97): Coal is being worked opencast to a depth of from 40 ft. to 50 ft. It is not known how much deeper the coal extends. The stripping is in a decidedly rough state. Called attention to this, and the necessity for keeping the ground well sloped back above the coal. Proceedings were taken against Mr. Jones in November for neglecting to furnish correct returns of output, &c., and also for neglecting to pay contributions to the Coal-

miners' Relief Fund, in contravention of section 68 and 69 of "The Coal-mines Act, 1891." He was fined £5 for each offence; £10 in all, with costs.

Mrs. McPherson's Pit, Coal Creek, Roxburgh.—(29/10/97): An opencast pit, similar to Jones's. Working about 30 ft. thick, depth of coal not known. Face in fair order, but more stripping is wanted. Drew attention to this, and requested the men to remove a piece of stripping which looked unsafe. A small engine and boiler is now used for draining the working. It appears to me that a good pipe-drain would answer the purpose at far less cost, if properly constructed.

Perseverance Coal-mine, Coal Creek, Roxburgh (James Craig).—(29/10/97): The coal here is almost vertical, and about 100 ft. wide horizontally. It was formerly worked opencast, but is now entered by an adit-level which has been driven about 10 chains in the coal, which took fire some time ago. The pit was flooded to extinguish the fire, and, owing to this, the drive has collapsed for some 2 chains back from the face. Work is now in hand to reopen the inner end of the drive.

Alexandra Colliery, Alexandra (W. A. Thomson, owner).—(5/5/97): This pit is entered by a dip-tunnel, and also by a small shaft about 50 ft. deep, both of which are used (as may be most convenient) for raising the coal, all of which is filled into bags underground. The seam is probably 14 ft. thick. The lower portion only is being worked, on the pillar-and-stall system. The places all in good order, and ventilation adequate. Very satisfactory arrangements are made for fencing both shaft and tunnel. No pumping is necessary, the water being led away by an adit-level. (15/11/97): Workings in very nice order; ventilation good.

McQueenville Coal-mine, Alexandra (R. Lett).—(15/11/97): There are two shafts: one, used for winding and pumping, is 70 ft. deep; the other is an upcast and travelling shaft, fitted with good ladder-way, and 30 ft. deep. The seam is some 14 ft. thick, the lower half only being worked on the bord-and-pillar system. To get anything like the whole of the coal, the system adopted at Alexandra will have to be very materially altered. Workings in nice order, and ventilation good.

Dungey's Pit, Cambrian's (C. Dungey).—(16/11/97): An opencast pit, containing a thickness of 9 ft. of good lignite, overlaid by 11 ft. to 12 ft. of gravel. Stripping-work now in progress, to expose sufficient lignite to meet season's demands. The lignite is underlaid by a good oil-shale of varying thickness, averaging perhaps 2 ft. 6 in. Place in very fair order.

Hughes's Pit, Cambrian's (J. O. Hughes).—(16/11/97): This pit is also worked opencast, but it is in a disgraceful condition, and no systematic method is adopted. Considering the heavy stripping above the lignite, I am of opinion that underground mining would be preferable. Oil-shale underlies the lignite, similarly to Dungey's pit.

Blackstone Hill Pit (A. Dunsmuir).—(17/11/97): A face of good lignite is being worked to a depth of 16 ft., but the lessee thinks it may be 30 ft. thick. About 5 ft. of stripping has to be removed. None is taken off in advance, and in one place it looked dangerous. I cautioned Dunsmuir about this, and requested him to remove a reasonable area of stripping in advance of his working-face.

Beck's Pit, Idaburn (Charles Beck).—(18/11/97): This property adjoins White's. Seam, say, 35 ft. thick, overlaid by 7 ft. to 8 ft. of stripping. There is not nearly enough ground stripped off in advance. Drew attention to this. Shale underlies the lignite.

McLean's Pit, Idaburn (L. McLean).—(18/11/97): A small opencast pit adjoining White's. Nothing stripped in advance. McLean does very little trade himself, but is mostly employed by White.

White's Pit, Idaburn (John White).—(18/11/97): Lignite from 18 ft. to 20 ft. thick; is worked opencast. Underlying the lignite is a deposit of oil-shale similar to that at Cambrian's, but it appears considerably thicker. The ground is kept well stripped in advance of the working-face. Drainage is effected by a new pulsometer steam-pump.

When at Idaburn I learned that nothing had been done at Fennessy's pit for several months; also that Docherty's pit, at Gimmerburn, was about worked out, and that Docherty was engaged in prospecting for more coal or lignite.

Border Coal-pit, Idaburn (G. Turnbull).—(18/11/97): Lignite worked opencast. Nobody about. Very little work appears to have been done for some time.

Commercial Coal-pit, Kyeburn Diggings (C. Archer).—(19/11/97): The seam here is vertical, 10 ft. wide, and worked in the same way as a quartz reef. Shaft is 60 ft. deep, the winding- and pumping-power being by water-wheel and endless rope on to a small drum over the shaft. Second outlet is by an adit-tunnel. Pit is in good order, and ventilation satisfactory.

McCready and Coombe's Pit, Kyeburn Diggings.—(19/11/97): This pit is almost worked out, and trade practically nil.

Cromwell Colliery, Cromwell (Goodger and Stronach).—(14/5/97): This is practically a new pit. The shaft is 8 ft. 6 in. by 3 ft. 6 in. and 150 ft. deep. The engine is designed for both winding and pumping. Five days before my visit something had gone wrong with the pump, and during repairs an accident occurred to W. G. Stronach, who was acting as engineman. In consequence of this, work came to a standstill, and I could not get below ground, as water was well up the shaft. Report of accident under proper heading.

Cardrona Coal-mine, Cardrona (R. McDougall).—(15/10/97): An opencast pit. The coal is practically vertical, the thickness horizontally being about 30 ft. Owing to its situation near the snow-line, the mine is only worked about eight months in the year. Another length of stripping is about to be sluiced off to expose sufficient coal for the season's demand. Drew attention to the need of more batter on the sides of overlaying ground.

Macale's Coal-pit, Gibbston Saddle.—(14/10/97): The situation of this pit is 2,200 ft. above the Queenstown–Cromwell Road, and fully 3,000 ft. above sea-level. It is worked opencast, and is in a very rough and unworkmanlike condition; anything but satisfactory. The man at work stated that the water-race conveying the water used for sluicing off for stripping had broken down, but repairs were in hand. When completed, the ground I complained of would be sluiced away.

The seam appears about 30 ft. thick, dipping about 1 in 2 towards the hill. Comparatively little area appears available for future stripping, and underground mining will have to be resorted to when this limited area is worked out.

Gully Pit, Roxburgh (G. Cockburn).—(12/11/97): The pit is now stopped. It is said the quality of coal was not good, and did not pay to work. The workings are satisfactorily fenced off.

Cowan's Coal-pit, Gibbston.—(14/10/97): This pit is at present idle. A tunnel has been partially driven from a lower level in the gully than where the coal was previously got, but has not yet reached hard coal. I understand the place is under offer to a syndicate.

O'Hagan's Pit, Pukerau (C. O'Hagan).—(7/12/97): Lignite, 16 ft. thick, dipping 1 in 12. Bord-and-pillar system adopted. 12 ft. worked, leaving 4 ft. to support roof strata. Mr. O'Hagan keeps his pit in capital order, and maintains a good air-current.

Dudley's Pit, Pukerau (J. D. Dudley).—(7/12/97): Same seam as O'Hagan's, but worked opencast. It has been standing during the winter and spring months, and is now in anything but a nice state. Operations for stripping sufficient for season's demands are now being commenced. I pointed out the need of keeping the sides safe. It will be advisable to adopt underground mining soon, as the stripping is getting too thick to be economically worked.

Heffernan's Lignite-pit, Gore.—(6/10/97): Mr. Heffernan has leased this pit to G. Low and Co. It is worked opencast, the full thickness of lignite being about 30 ft. Did not find any one about except the lessor. Stripping is about 10 ft. thick, and not battered off at sides. I pegged out a reasonable line of batter, and left a note stating what was required for safety. The upper half of the seam is being worked at present, the remainder being left under foot for future work.

Gutschlag's Pit, Gore (J. Gutschlag).—(8/12/97): There is a thick seam of lignite here, which has been worked opencast at the outcrop. At this date the pit was half full of water, the face covered with *débris*, a few loads being got wherever possible, and altogether the pit was in a disgraceful condition.

Leitzy's Pit, Gore (Michael Leitzy).—(8/12/97): Opencast working. Lignite, 4 ft. to 7 ft. thick at face, which is well bared by removal of stripping. Very little has been done here for some time.

Sarginson's Pit, Waikaka Valley Road, Gore (J. H. Sarginson).—(8/12/97): This pit is closed at present.

Hoffman's Pit, Gore (J. Hoffman).—(8/12/97): An opencast pit. Full thickness of lignite, 9 ft., overlaid by sandy ground, say, 6 ft. thick. In fair order.

Green's Pit, West Gore (John Kenyon and Co., lessees).—(24/4/97): Messrs. Kenyon and Co. have recently taken this pit on a five years' lease. It was until lately worked by Stark and Sons. The seam is the same as worked by Smyth. The lessees propose to extend the workings to the dip. Working-places, roadways, and ventilation very satisfactory.

Smyth's Pit, West Gore (James Smyth, owner).—(24/4/97): The seam here is about 19 ft. thick, and the lignite of good quality. About 14 ft. is worked, leaving 5 ft. to 6 ft. to support the roof. The place is in very nice order, and ventilation all that could be desired.

Knapdale Lignite-mine, Knapdale (Irvine Brothers).—(24/9/97): The seam here is nearly vertical, and 26 ft. wide altogether. The entrance is by an adit-tunnel. About 15 ft. is worked. No timber needed. Ventilation excellent.

Johnston's Pit, Waikaka Valley.—(15/12/97): Lignite, 11 ft. thick; worked opencast. The seam is overlaid by drift-gravels, about 6 ft. of stripping being taken off. No appreciable area of surface is removed at date in advance of working-face. In other respects the pit is in very fair order.

Pemble's Lignite-pit, Chatton (James Harvey).—(24/9/97): The lignite here is practically vertical, and of considerable width. Very little is being done at present, but a good area of ground is stripped for the ensuing season's demands.

Pacey's Lignite-pit, Chatton.—(24/9/97): Mr. A. Perkins is at present working this pit. About 10 ft. of stripping overlies the lignite, and this ground is well stripped in advance of the coal-face. Mr. Perkins does not know the full thickness of the seam, but is working 14 ft. to the present drainage-level, with lignite underfoot.

McGill's Lignite-pit, Wendon.—(23/9/97): Opencast working. About 12 ft. of lignite overlaid by 6 ft. to 7 ft. of stripping, which is well back from the face, but at the sides needs battering off. Drew attention to this.

McDonald's Pit, Wendon.—(23/9/97):- Mr. D. Nicoll is now working this pit. It is very similar to McGill's, and on the adjoining property.

Edge's Pit, Wendon (G. H. Evans).—(23/9/97): This pit is worked opencast, but, from the nature and thickness of the ground to be stripped, I think underground mining would be better and more economical. The lignite appears about 16 ft. thick. Mr. Evans keeps his pit in very creditable order.

Black's Lignite-pit, Greenvale.—(23/9/97): This is an opencast pit, showing a face of lignite 12 ft. thick. It is worked for a few months each year, principally for the use of farmers and threshing-mill owners. At present full of water. A good deal of stripping will be required before much area of lignite is available for working. Pointed out the necessity of stripping well in advance, and giving ample batter to the sides when work is resumed.

Hill's Pit, Waikaia (Philip Hill, owner).—(23/4/97): Another opencast pit. About 5 ft. thick of lignite visible, overlaid by a band of greasy clay not more than 1 ft. thick. Above this is something like 40 ft. of auriferous gravel, which is usually sluiced off. At this date the seam was being worked in a most dangerous fashion. There was practically nothing stripped in advance of the face, and the gravel was in very nice order for the first rainfall to bring down about 150 tons. I cautioned the men as to the risk they were running, and wrote the owner requiring him to take steps to make the place safe. Hill's and Cosgrove's pits are the only places now working lignite in the locality.

Argyle Pit, Waikaia (J. B. Cosgrove, owner).—(23/4/97): This is an opencast pit, about eight miles above the township. The lignite is about 10 ft. thick, overlaid by 3 ft. of stiff blue clay below the surface clay and soil. A fatal accident occurred here on the 6th April. The place is very roughly kept, but the man employed promised to put it into better shape. Wrote owner about it.

Sleeman's Waimumu Mine, Mataura.—(12/5/97): The working-face having got below the level from which drainage could be economically effected, Mr. Sleeman has closed the pit he was recently working, and is at present drawing his supplies from a pit close by which he keeps as a reserve. He has recently bought another property, which will shortly be opened out. In the meantime he has preparations in progress for materially promoting efficiency and economy in working the new pit. To avoid the necessity for pumping, he is having a tunnel driven from the Mataura River. This will give free drainage to a considerable area of ground. The seam, which is identical with the others in the immediate locality, dips about 1 in 12. It will be worked opencast. A substantial loading-bank and depot are being constructed, also a tramway 45 chains in length to connect with the mine. Mr. Sleeman's works are very satisfactory; everything kept in first-class condition.

Bogside Mine, Mataura (H. Brown, lessee).—(12/5/97): This mine is just commencing work. Same lignite as Beattie and Coster's. A small steam-boiler and Tangye duplex pump have been put down to keep the place drained.

Beattie and Coster's Lignite-mine, Mataura.—(12/5/97): There is a thickness of 16 ft. of good solid lignite here, overlaid by 12 ft. of gravel and 2 ft. of soil, making a total stripping of 14 ft. These people work their pit very well, and keep a good area stripped. This enables them to keep their supply well up to meet demands. Drainage is by a centrifugal pump driven by a portable engine.

Graham's Pit, Fairfax (P. S. Graham).—(1/12/97): Lignite-mine; entered by adit-levels. Seam nearly flat; capital roof. Places in capital order, and ventilation excellent. There is no scarcity of timber—in fact, more timber is used than there is any need for. Thickness of seam, 5 ft. 6 in.

Salton's Pit, Fairfax.—(1/12/97): Mr. Salton is working a seam of lignite 5 ft. thick. The seam is very flat, and has a good roof. Workings are very limited, and in fair order.

Isla Bank Pit, Fairfax (M. Slattery).—(1/12/97): A face of lignite 6 ft. thick is worked here. It is overlaid by 4 ft. of hard blue clay and 8 ft. or 9 ft. of surface clay, which are kept well stripped, but, considering the depth of stripping in relation to the thickness of seam, I think underground mining would be preferable.

Nightcaps Coal Company's Colliery, Nightcaps.—(11/6/97): The operations here are in two sections—viz., the dip-workings adjoining Reed's mine and the level-tunnel workings. In the former the coal is about 10 ft. thick. It is very jointy, and needs careful working. The timbering and general arrangements for safety appear to have careful attention. The level-tunnel workings command three distinct seams, having an aggregate thickness of coal of some 36 ft. to 38 ft. The coal is very tough, requiring to be well holed before blasting. Timbering is well attended to, and good heavy timber used. To increase the ventilation (which I found very satisfactory) a new furnace has been built, and the flue arched in brickwork to the upcast shaft. The screens and loading-bank have recently been roofed over.

Reed's Morley Pit, Nightcaps.—(11/6/97): This is an opencast pit. The coal is identical with that worked to the dip by the Nightcaps Coal Company, and is here overlaid by about 4 ft. of stripping. The place is in very fair order. At present time coal is being taken from part of a county road, the ground to be made good afterwards. Traffic on this piece of road is nil.

Alley's Pit, Nightcaps.—(14/7/97): This is an opencast pit, but, owing to there being no proper road to it, work cannot be carried on during the winter. It is worked during part of the summer months, principally supplying the local farmers with coal for the threshing season. At present the pit is nearly full of water, and Alley is employed at Morley Pit.

Slaughter-yards, Mataura.—(12/5/97): The Southland Frozen Meat and Produce Export Company (Limited) have opened out some lignite at their slaughter-yards, principally for their own use as fuel for the digestors, &c., used in tallow-melting, &c. The pit is an open quarry.

Hyde Lignite-pit.—(21/8/97): A small mine was opened here by Mr. W. Lindsay, but the quality is so very poor that he gave it up. The tunnel-entrance was properly fenced off by a substantial gate, which was locked. I obtained the key, and looked inside. Very little work has been done. A few bags of coal are occasionally taken out for use at cottages close by. No returns have been made.

Orepuki.—(3/9/97): The coal- and shale-mine is completely at a standstill, the plant at the shaft dismantled, and the dip-drive full of water. The place is, I understand, under offer to a syndicate. It is thought the shale might be profitably used for the manufacture of oil and other products.

Accidents and Fatalities.

Argyle Pit, Waikaia.—William Bemrose, forty-three years of age, was working at the coal on the 6th April. A piece of stripping fell over the coal where he was working, knocking him down, and rupturing the bladder. He died on the way home. This was his first day at this mine, and he had only changed places with his mate a few minutes previous to the accident.

Cromwell Colliery, Cromwell.—William Grant Stronach, engineman, was in charge of repairs to pumps on Sunday, the 9th May. The column-pipes were being lowered after some repairs about the working-barrel, their weight being carried partly by the winding-rope and partly by another wire rope attached to beams at the surface, the surplus portion of this rope being coiled up near one of the main legs of the head-gear. Unfortunately, the winding-drum had been thrown out of gear with the engine. Stronach was standing with one foot inside the rope-coil referred to, directing operations, when the lashings gave way, and the pipes fell down the pit, taking a portion of both ropes with them. Stronach's foot was cut clean off by the violent shock of the rope against

the head-gear. He was conveyed to the hospital. Mortification subsequently set in, and he died on the 21st May.

Walton Park Colliery, Green Island.—David Gillies, fifty-nine years of age, engineer and engine-driver at this mine, was killed by falling down the shaft on Monday, the 18th October. On the previous day, when winding water, the spur wheel of the winding-drum broke. The pumps with which the winding-engine can be connected were set to work. One of the pipes was leaky, and the deceased volunteered to repair it. He went down about 80 ft. (where the leak was) on the shaft-buntons, saw what was wanted to effect repairs, and came up to make preparations. On again descending (immediately in front of another man) he is reported to have given a heavy sigh and then fell. He may have missed his footing, or it is possible failure of the heart's action may have taken place, brought about by excitement, and the exertion of climbing by the buntons. In the absence of a *post-mortem* examination it is difficult to say with certainty, but I think this was very probable.

Kaitangata Colliery, Kaitangata.—Thomas Dixon and John Brown were injured on the 16th November. The men were working at a pillar between two levels near the edge of the goaf. The coal was quite soft. Dixon was working coal out of a lower division of the seam, when a piece of the upper soft coal shook down, falling on Dixon, and injuring his leg. It is stated that Dixon, in falling down, knocked Brown down with him, and that Brown, in falling across a tram-rail, injured his ankle. No blame is attributable.

Shag Point Colliery.—A miner named James Foster had his right arm broken at the wrist by a fall of coal on the 25th February. This was prior to my taking duty. On the 1st July a young man named William Boddy, who works at this colliery with his father, had a narrow escape of being killed by a fall of stone. He was severely bruised, and off work for a few weeks. I investigated the case, and found no blame attached to any one.

Nightcaps Colliery, Nightcaps.—William O'Brien was permanently lamed by a fall of earth at some opencast work on his property on the 6th January. As this was some time previous to my taking up my present duties I am unable to report on the matter.

Some other accidents have occurred at the mines, but all of a trifling character, and incidental to the work of coal-mining.

GENERAL.

I am sorry to have to record the fact that considerable difficulty is experienced in obtaining the statutory returns of output, &c., from the owners of several small coal-mines. In one case proceedings were instituted, and a conviction obtained, for neglecting to make returns, and to pay the required contribution to the Coal-miners' Relief Fund. Several people who were in arrear with their contributions have paid up, and, as better means for collection have been adopted, I do not anticipate much further trouble in this direction in the future.

I have, &c.,

JOHN HAYES,

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

APPENDIX I.

Statistics of Workings in Coal-mines, 1897.

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 1897.			Approximate Total Output to 31st December, 1896.	Approximate Total Output to 31st December, 1897.	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	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	794,845	794,845									
New Bay of Islands Coal Co.	Ross, John	3 5/12	semi-bitum.	1	3′ to 10′	the whole	1 in 5	bord and pillar	1	5′ x 3′	40′	adit incline	11,134	..	11,134	27,041	38,175	2	10	12	horse	..	..	..	natural	11/10/97
Hikurangi District.																										
West Bryans	Smith, Charles ..	9	"	1	6′ to 7′	"	1 in 7	"	..	6′ x 5′	420′	adit rail	2,142	..	2,142	32,183	34,325	3	7	10	horse	..	..	..	"	28/5/97
Walton and Graham's ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,210	1,210	..	..	..	..	..	..	..	..	..
Hikurangi Coal Company ..	Moody, T. P. ..	4	semi-bitum.	1	7′ to 16′	the whole	1 in 6	bord and pillar	4	6′ x 9′	..	adit and engine incline	30,663	..	30,663	61,038	91,701	7	42	49	engine	..	..	..	natural	9/10/97
Phœnix	Gould, Charles L.	3	"	1	10′	6′ to 10′	1 in 8	"	1	4′ x 2′ 6″	240′	adit incl.	5,026	..	5,026	4,997	10,023	1	9	10	horse	..	..	..	"	9/10/97
Hikurangi Colliery	Kerr, George ..	1	"	1	12′	8′	irregular	opencast	..	..	..	incline	4,484	..	4,484	..	4,484	16	..	16	horse	..	..	..	"	9/10/97
Whangarei District.																										
Kamo	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	225,037	225,037	..	..	..	..	..	..	..	..	..
Kamo New	Griffin, J. ..	3 1/12	brown	1	3′	3′	irregular	bord and pillar	1	4′8″x2′8″	157′	adit	1,037	..	1,037	5,848	6,885	1	4	5	horse	..	..	..	natural	12/10/97
Whauwhau	...	..	"	..	..	..	..	..	..	..	..	..	..	..	..	70,853	70,853	..	..	..	..	..	..	..	..	..
Ngunguru District.																										
Kiripaka	Wright, Edward S.	5	semi-bitum.	1	2′ to 10′	the whole	1′ in 9′ 2″	bord and pillar	6	8′ x 5′	1,848′	adit incline	16,248	..	16,248	55,454	71,702	10	34	44	horse	..	..	..	natural	13/10/97
Waikato District.																										
Waikato	Wallace, William	9	brown	1	8′ to 16′	12′	1 in 7½	"	2	6′ x 5′ 5′ x 4′	522′	adit	13,317	..	13,317	180,938	194,255	10	20	30	"	..	..	..	"	18/12/97
Taupiri Extended	Tattley, William	11	"	1	21′ to 50′	7′ to 22′	irregular	"	2	10′diam.	170′ and 204′	shaft adit	33,066	847	33,913	518,465	552,378	12	52	64	engine	duplex 13″ 24″	5″ 7″	170′ 204′	fan	18/12/97
Taupiri Reserve	Harrison, Jonathan	11	"	1	18′ to 24′	10′ to 16′	1 in 4½	"	2	9′ x 6′	2,000′	engine-incline	18,870	..	18,870	141,592	160,462	14	45	59	"	2′	5″	210′	exhaust steam	17/12/97
Ralph's Taupiri	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	23,019	23,019	..	..	..	..	..	..	..	..	..
Miranda, Bridgewater ..	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	20,668	20,668	..	..	..	..	..	..	..	..	..
Bombay	Long, George ..	7	"	1	5′	the whole	irregular	driving	..	6′ x 5′	200′	adit	25	..	25	50	75	occasionally			..	..	..	..	natural	..
Mokau District.																										
Mokau	Lobb, Joseph ..	13	"	1	7′	7′	1 in 36	bord and pillar	..	8′ x 7′	1,155′	adit	3,148	..	3,148	9,565	12,713	5	7	12	horse	..	..	..	"	not inspected.
Co-operative	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	940	940	..	..	..	..	..	..	..	..	..
Totals	..	..	..	..	..	..	..	..	..	..	..	..	139,160	847	140,007	2,173,743	2,313,750	81	232	313						

COLLINGWOOD.																										
Pakawau		Caldwell, W. S. O.	3	bitum.	1	2′ to 3′	all	1 in 3	longwall	2	4′ x 5′	560′	adit	181	60	241	783	1,024	..	3	3	hand	..	..	..	natural	2/11/97
Wallsend		Walker, James	28	″	2	20″ each	″	N. 60° W.	″	..	..	..	″	..	..	..	47,413	47,413	..	..	..	″	..	..	..	″	..
Takaka; Takaka		..	4	brown	1	2′ 8″	″	1 in 10	driving	..	..	..	″	..	..	..	70	70	..	..	..	..	..	..	..	″	..
Motupipi, ″		..	5	″	2	2′ 2″ eac.	″	..	..	..	..	..	″	..	..	..	70	70	..	..	..	..	..	..	..	″	..
Enner Glynn, Nelson		Wise, George	2	semi-bitum.	1	5′	″	vertical	stoping	2	8′ x 4′ & 4′ x 3′	180′,326′	shaft	567	100	667	162	829	1	3	4	horse-whim	..	..	..	″	14/10/97
WESTPORT.																										
Mokihinui		Lenihan, John	16	bitum.	1	6′ to 15′	8′	1 in 7	bord and pillar	..	9′ x 7′	14ch.	adit	..	..	..	43,074	43,074	..	..	..	engine	12″	8″	60′	natural	6/12/97
Westport-Cardiff		Broome, G. H.	5	″	1	17′	all	varies	ditto	2	9′ x 7′	400′	adit & inc.	39,909	14,371	54,280	78,133	132,413	20	80	100	″	2′	8″	60′	fan	6/12/97
Mellerton, Granity Creek		Green, John	6	″	1	4′ to 40′	8′	″	″	2	9′ x 6′	37ch.	incline	47,830	11,410	59,240	20,543	79,783	38	66	104	gravity	9″′	4″	40′	″	16/9/97
Coalbrookdale		Dunn, William	17	″	2	4′ to 20′	all	″	″	4	8′, 8′, 8′, & 6′ sq.	48′, 148′, 90′, 148′	adit	149,794	34,582	184,376	2,087,121	2,271,497	85	233	318	engine	24″	12″	90′	2 fans	10/12/97
Iron Bridge		Milligan, N.	6	″	2	4′ to 20′	″	″	″	4	9′ x 5′	204ch.	″									..	12″	6′	140′		
																							12″	4½″	50′		8/12/97
																							9″	5″	30′		
Waitakere, Charleston		Humphries, Jesse	12	glance	1	..	10′	″	opencast	..	..	..	..	100	..	100	668	768	1	..	1	whim	..	..	..	..	20/10/97
Whitecliffs, Buller Road		Woods, Patrick	5	″	1	20′	12′	1 in 3	driving	..	..	..	adit	..	..	..	774	774	..	..	..	horse	..	..	..	natural	..
Coal Creek, Buller Road		Croawell, C.	1	″	1	8′	all	1 in 4	″	1	12′ x 8′	4ch.	″	55	..	55	..	55	..	1	1	″	..	..	..	″	20/9/97
Flax Bush, Lyell		..	3	brown	1	2′	″	..	longwall	..	5′ x 4′	700′	″	..	..	..	230	230	..	..	..	..	..	..	..	″	..
LONGFORD.																										
Longford		Goodger, Wm.	3	glance	1	2′	″	45°	″	2	6′ x 6′	400′	″	500	..	500	930	1,430	..	2	2	hand	..	..	..	″	18/8/97
Alexander		..	5	″	1	2′ 8″	″	45°	″	..	..	..	″	..	..	..	282	282	..	..	..	..	..	..	..	..	..
BOATMAN'S.																										
Coghlan's		Goodger, Wm.	8	″	1	12′	8′	W. 1 in 3	bord and pillar	..	..	..	″	..	..	..	370	370	..	..	..	..	..	..	..	..	..
Archer's		Archer, D.	5	″	1	10′	8′	W.N.W.	ditto	..	6′ x 5′	120′	″	..	..	..	1,280	1,280	..	..	..	hand	..	..	..	natural	..
Barr's		Barr, S.	2	″	1	12′	10′	N.W. 22°	″	..	7′ x 5′	40′	″	..	..	..	15	15	..	..	..	″	..	..	..	″	..
REEFTON.																										
Murray Creek		Sara, James	14	″	1	14′	all	1 in 3	opencast	1	5′ x 4′	100′	″	525	..	525	7,760	8,285	2	..	2	″	..	..	..	″	20/8/97
Golden Treasure		Davidson, J. G.	17	″	1	20′	″	1 in 4	″	..	..	..	″	400	..	400	5,340	5,740	2	..	2	″	..	..	..	″	20/8/97
Phœnix		Fox, John	8	″	1	30′	10′	1 in 3	driving	2	6′ x 5′	150′	″	1,200	..	1,200	10,349	11,549	1	2	3	..	..	..	..	″	20/8/97
Inkerman Gold-mining Co.		Jamieson, J.	1	″	1	4′ 6″	all	41°	″	1	6′ x 4′ 6″	53′	dip	240	..	240	..	240	..	..	..	windlass	syphon			″	27/9/97
Lankey's Gully		Lamberton, W.	16	″	1	5′ 6′	4′ 6′	1 in 100	bord and pillar	2	6′ x 5′	150′	adit	500	..	500	7,054	7,554	..	2	2	hand	..	..	..	″	20/8/97
Reefton		Lamberton, W.	6	″	1	2′	all	N.W. 1 in 5	driving	..	6′ x 4′	800′	″	..	..	..	40	40	..	..	..	..	..	..	..	..	..
Progress		..	16	″	1	5′	″	1 in 12	″	..	6′ x 4′	250′	″	..	..	..	7,257	7,257	..	..	..	..	..	..	..	natural	..
Cochrane's		..	4	″	1	9′	7′	1 in 4	″	..	..	..	″	..	..	..	370	370	..	..	..	..	..	..	..	..	..
Breen's		Breen, J. P.	4	″	1	4′ 6″	all	1 in 2	″	..	6′ x 4′ 6″	10ch.	″	..	..	..	1,137	1,137	..	..	..	horse	..	..	..	natural	..
Sir Francis Drake		Elliston, A. J.	9	″	1	6′	″	1 in 4	opencast	..	..	..	″	..	..	..	2,173	2,173	..	..	..	″	..	..	..	″	..
Cumberland		..	5	″	1	8′	″	E. 1 in 5	bord and pillar	..	..	..	″	..	..	..	1,070	1,070	..	..	..	..	..	..	..	..	..
GREYMOUTH.																										
Blackball		Scott, Joseph	7	bitum.	1	12′	4′ 6′	S.W. 1 in 5	ditto	2	9′ x 6′	1,232′	″	35,815	7,269	43,084	119,992	163,076	22	75	97	engine	..	..	..	furnace	30/7/97
Brunner		Dando, M.	4	″	1	6′	4′ 6′	S.W. 1 in 4	″	2	10′ x 7′	1000′	adit						(40	103	143	horse	..	..	..	natural	20/12/97
Brunner Rise		Coulthard, John	33	″	1	7′	all	″	″	2	10′ x 7′	2,400′	engine-plane	67,559	18,033	85,592	1,346,133	1,431,725									
Coal-pit Heath		Dando, M.	20	″	1	16′	..	″	″	..	..	..	..	..	..	..	577,190	577,190	(30	75	105	engine	16″	8″	220′	fan	20/12/97
Tyneside		..	1	″	1	16′	..	..	..	2	10′, 6′ x 6′	116′, 25′	..	..	..	..	18,398	18,398	..	..	..	..	..	..	..	..	..
Wallsend		..	..	″	1	16′	..	..	..	2	11′, 14′	670′	..	..	..	..	205,539	205,539	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1897—*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. Size of Shaft or Adit.	Dimensions of Shafts. Depth of Shaft or Length of Adit.	Output delivered by	Output for 1897. Coal.	Output for 1897. Slack.	Output for 1897. Total.	Approximate Total Output to 31st December, 1896.	Approximate Total Output to 31st December, 1897.	Number of Men ordinarily employed. Above.	Number of Men ordinarily employed. Below.	Number of Men ordinarily employed. Total.	Power used for drawing Mineral.	Pumps. Stroke.	Pumps. Size of Barrel.	Pumps. Height of Column.	Means of Ventilation.	Date of Inspector's Last Visit.
MIDDLE ISLAND—*continued.*																										
CANTERBURY.													Tons.	Tons.	Tons.	Tons.	Tons.									
Springfield, Springfield ..	Barker, H. ..	21	brown	1	3′ 3″	all	1 in 6	bord and pillar	2	6′ 6″ x 4′	70′	shaft	2,023	334	2,357	77,252	79,609	2	6	8	steam	direct acting steam			exhaust from pump	10/8/97
Sheffield, Sheffield	Austin, J. ..	35	"	1	4′	"	1 in 3	ditto	..	7′ x 5′	..	dip incl.	2,305	..	2,305	44,915	47,220	2	6	8	horse	..	..	..	natural	10/8/97
Homebush, Glentunnel ..	Brown, T. ..	25	"	1	7′	"	1 in 3	"	..	7′ x 6′	40ch.	adit	3,718	..	3,718	106,944	110,662	2	6	8	"	..	..	..	"	11/8/97
St. Helens, Whitecliffs ..	Levick, H. ..	8	"	2	3′	"	1 in 2	"	..	6′ x 4′ 6″	..	"	840	..	840	1,143	1,983	1	4	5	hand	..	..	..	"	13/8/97
Hartley, " ..	Leeming, W. ..	2	"	1	..	..	1 in 6	"	..	6′ x 6′	3ch.	dip tunl.	647	..	647	943	1,590	1	5	6	steam	..	..	..	"	13/8/97
Wairiri, South Malvern ..	Thompson, A. ..	0½	"	1	5′ 6″	all	..	"	..	6′ x 4′ 6″	3⅔ch.	adit	618	50	668	..	668	1	4	5	hand	..	..	..	"	12/8/97
Mount Somers, Ashburton ..	Park, G. ..	33	"	1	35′	"	1 in 9	open	..	..	..	..	1,954	864	2,818	23,738	26,556	4	..	4	"	..	..	..	"	17/8/97
Rutherford's, Albury ..	Young, W. ..	6	"	1	22′	10′	1 in 1	narrow	1	4′ x 3′ 6″	68′	shaft	152	..	152	1,221	1,373	1	1	2	horse	..	..	..	"	14/9/97
Pits worked for Private use only.																										
Dalethorp, Springfield ..	Nuttall, A. J. ..	3	brown	1	..	..	..	..	..	..	..	..	49	..	49	68	117	..	..	..	..	..	..	..	..	..
Snowdon, Rakaia Gorge ..	Gerard, W. (owner)	12	"	1	14′	8′	..	narrow	1	4′ x 4′	90′	shaft	79	..	79	983	1,062	..	..	..	..	..	..	..	..	19/6/93
Acheron, Lake Coleridge ..	Murchison, J. "	28	anthracite	1	4′	all	..	"	..	..	..	adit	21	..	21	457	478	..	..	..	..	..	..	..	..	15/1/95
Waiho Forks, Waimate ..	McPherson, D. ..	5	brown	1	..	..	..	open	..	..	..	..	20	..	20	117	137	..	..	..	..	..	..	..	..	16/11/95
Studholme (Stoney Creek), Waimate	Grant, W. (owner)	8	"	1	..	..	..	narrow	..	..	..	adit	6	..	6	84	90	..	..	..	..	..	..	..	..	28/6/93
Craigieburn, West Coast Road	Manson, D. ..	1	"	1	..	..	..	..	..	..	..	"	30	..	30	..	30	..	..	..	..	..	..	..	..	..
Pits not now at work.																										
Kowai Pass, Springfield ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	559	559	..	..	..	..	..	..	..	..	..
Glenroy, South Malvern ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	115	115	..	..	..	..	..	..	..	..	..
Whitecliffs, " ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33,051	33,051	..	..	..	..	..	..	..	..	..
Duke's (Park Gate), Kakahu	Worked a short time early in the year	..	..	..	..	..	..	..	..	..	..	..	..	..	..	916	916	..	..	..	..	..	..	..	..	..
Spring Vale, Fairlie Creek ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	200	200	..	..	..	..	..	..	..	..	..
Mount Hutt, Rakaia Gorge ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	155	155	..	..	..	..	..	..	..	..	..
Brockley, South Malvern ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12/8/97
Hartley, " ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	32	..	..	..	..	..	..	..	..	..
NORTH OTAGO.																										
Wade's, Kurow	Scott, D ..	18	brown	1	15′	7′	vertical	stoping	1	6′ x 2′ 6″	53′	adit	385	..	385	5,074	5,459	..	..	..	horse	..	..	..	natural	17/9/97
Cairn's, "	Cairns, W. B. ..	31	"	1	irregular	..	1 in 2½	narrow	1	4′ x 3′	80′	dip incl.	654	..	654	10,330	10,984	1	2	3	"	..	..	..	"	17/9/97
St. Andrew's, Papakaio ..	Nimmo, T. ..	19	"	1	8′	7′	1 in 3	bord and pillar	1	4′ x 2′ 6″	60′	adit	1,232	..	1,232	21,981	23,213	2	3	5	"	..	..	..	"	16/9/97

Prince Alfred, Papakaio ..	Willetts, John ..	28	brown	1	7′	6′	1 in 5	bord and pillar	1	4′ x 4′	50′	adit	1,276	..	1,276	39,258	40,534	2	4	6	horse	..	..	..	furnace	16/9/97
Ngapara, Ngapara	Nimmo, William	19	"	1	18′ to 25′	8′	1 in 4	"	..	6½′ x 4½′	15ch.	"	499	..	499	14,054	14,553	1	1	2	"	..	..	..	natural	18/9/97
Shag Point, Shag Point ..	Shore, Thomas ..	34	pitch	2	5′ and 2′ 9″	all	1 in 4	ditto and longwall	3	16½′ x 6′	450′	shaft	16,846	6,488	23,334	295,390	318,724	12	65	77	steam	2′	6″	450′	steam from pump	3/6/97
Allandale, Shag Point ..	Campbell, J. C. ..	10½	"	1	variable, 3′ 6″ to 7′	"	1 in 4	bord and pillar	..	10′ x 6′	20ch.	dip tunl.	7,913	3,722	11,635	91,500	103,135	10	35	45	"	2′	5″	..	ditto	3/6/97
Pits not now at work.																										
Phillips's, Kurow	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1 985	1,985	..	..	..	..	..	..	..	..	..
Wharekuri (Collins'), Kurow	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,424	1,424	..	..	..	..	..	..	..	..	..
Rosebery, Otepopo ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,424	1,424	..	..	..	..	..	..	..	..	..
Early Bank, Otepopo ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	281	281	..	..	..	..	..	..	..	..	..
SOUTH OTAGO.																										
Fernhill, Abbotsford ..	Grey, James ..	20	brown	1	19′	10′	1 in 10	bord and pillar	1	4¾′ x 4½′	..	adit	1,082	6,109	7,191	111,113	118,304	5	16	21	horse	..	..	..	furnace	25/10/97
Freeman's, Abbotsford ..	Green, E. R. ..	16½	"	1	6′ to 8′	all	1 in 9	ditto	1	..	..	"	5,005	2,799	7,804	211,680	219,484	4	16	20	steam	..	..	..	"	21/7/97
Walton Park, Abbotsford ..	Kenyon, J. ..	27	"	1	15′ to 17′	12′	1 in 9	"	3	6′ x 4′ to 12′ x 4′	25′ to 175′	"	7,066	4,488	11,554	498,559	510,113	8	23	31	"	..	..	..	"	24/11/97
Saddle Hill, Fairfield ..	Christie, James ..	23	"	1	19′	10′	1 in 10	"	3	5′ x 2′	50′	incline	1,025	1,980	3,005	86,224	89,229	2	4	6	horse	..	..	..	"	3/12/97
Burnwell, Fairfield	Harris, Adam ..	6	"	1	16′	10′	variable	"	1	5′ x 3′	..	"	872	735	1,607	4,555	6,162	2	5	7	"	..	..	..	"	3/12/97
Glenochiel, Fairfield ..	Bryce, D. ..	16½	"	1	16′	7′	"	"	1	8′ x 4′	43′	"	1,991	..	1,991	15,095	17,086	1	3	4	"	..	..	..	natural	3/12/97
Lauriston, Brighton ..	Walker, James ..	11	"	1	9′	8′	"	"	1	..	48′	"	257	126	383	3,783	4,166	1	2	3	"	..	..	..	"	24/11/97
McColl's, Brighton	McColl, D. L. ..	9	"	1	3′ to 4′	all	"	"	..	..	..	..	91	..	91	991	1,082	..	1	1	"	..	..	..	"	24/11/97
Mosgiel, Mosgiel	Sneddon, James ..	14	"	1	15′	9′	1 in 10	"	2	4′ x 4′ 6′ x 4′	27′ to 32′	incline	1,196	3,902	5,098	57,039	62,137	3	7	10	steam	..	..	..	"	3/11/97
Real McKay, Milton ..	Young, A. ..	29½	"	1	15′	all	1 in 8	open	..	..	..	open	619	..	619	20,350	20,969	1	1	2	"	..	..	..	"	25/6/96
Akatore, Milton	Hardwick, N. ..	3	"	1	14′	"	..	"	..	..	..	"	350	..	350	..	350	1	..	1	..	..	..	..	..	..
Early Rise, Milton	Hollows, S. ..	0½	"	..	..	..	..	..	..	..	..	..	15	..	15	..	15	..	..	..	..	..	..	..	..	..
Reid's, Akatore	Reid, James ..	3	"	1	14′	all	..	open	..	..	..	..	62	..	62	182	244	1	..	1	..	..	..	..	..	25/6/96
Fortification, Milton ..	Love, Alexander	0½	"	..	..	..	..	..	..	..	..	.	500	..	500	..	500	1	3	4	..	..	..	..	..	..
Adam's Flat, Adam's Flat ..	Reid, John ..	15	lignite	1	14′	10′	..	open	..	..	..	..	60	..	60	1,957	2,017	1	..	1	..	..	..	..	..	3/10/93
Paskell's, Adam's Flat ..	Paskell, James ..	33	"	1	8′	all	1 in 6	"	..	..	..	..	22	1	23	381	404	..	..	..	..	..	..	..	..	1/11/95
Wallsend, Lovell's Flat ..	Hewitson, Robert	27	"	1	20′	"	..	"	..	..	..	..	462	..	462	9,070	9,532	2	..	2	horse	..	..	..	..	1/11/95
Burnweil, Lovell's Flat ..	Gibson, James ..	3	brown	1	16′	8′	1 in 6	bord and pillar	2	11′ x 4′ 8′ x 4′	465′ 320′	shaft	5,200	2,013	7,213	497	7,710	5	12	17	steam	..	..	..	natural	20/5/97
Tuakitoto, Lovell's Flat ..	McDougall, M. ..	8	"	1	20′	8′	..	ditto	1	..	..	incline	130	48	178	2,587	2,765	..	1	1	horse	..	..	..	..	1/7/96
Benhar, Stirling	McSkimming, P.	34	"	1	30′	12′	..	"	2	4′ x 4′	..	"	2,567	325	2,892	84,938	87,830	1	5	6	"	..	..	..	furnace	30/6/96
Mount Wallace, Stirling ..	Hull, H. H. ..	3	"	1	14′	8′ to 10′	..	"	..	..	..	adit	472	16	488	710	1,198	..	1	1	hand	..	..	..	"	30/6/96
Kaitangata, Kaitangata ..	Shore, W. M. (W. P. Watson, business manager)	21	"	2	10′ to 40′	10′ to 35′	variable	"	2	13′ x 5′ 6″ & 6′ dia.	704′	incline & shaft	56,883	36,031	92,914	951,934	1,044,848	25	169	194	steam	..	..	..	"	23/11/97
Castle Hill, Kaitangata ..	(Standing) ..	4	"	1	5′ to 15′	..	"	"	1	10′ diam. 11′ x 6′ 6″	500′ 2,200′	incline tunnel	572	...	572	38,465	39,037	1	1	2	"	..	..	..	"	..
Record, Kaitangata ..	Penman, R. ..	0¼	"	..	..	..	..	..	..	..	..	..	50	..	50	..	50	1	1	2	hand	..	..	..	natural	..
Wangaroa, Kaitangata ..	Smith, Joseph ..	17	"	1	10′ 6″	8′	1 in 6	bord and pillar	..	..	..	adit	70	..	70	1,040	1,110	..	1	1	"	..	..	..	"	18/6/95
Conical Hills, Waipahi ..	Lischmuir, F. ..	11½	lignite	1	15′	all	..	open	..	..	..	..	2,206	..	2,206	15,104	17,310	4	..	4	horse	..	..	..	..	25/8/96
Valley Road, Pukerau ..	Orchard, E. C. ..	8	"	1	20′	"	..	"	..	..	..	..	322	..	322	2,004	2,326	2	..	2	..	..	..	..	..	26/10/96
Pits worked for private Use only.																										
Taratu, Kaitangata ..	Frazer Brothers ..	25	brown	1	..	..	..	..	..	..	..	adit	30	..	30	..	30	..	..	..	hand	..	..	..	..	21/5/97
Pits not now at work.																										
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	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1897—*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 1896.			Approximate Total Output to 31st December, 1896.	Approximate Total Output to 31st December, 1897.	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.									
South Otago—*continued.*																										
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 ..	Worked a short	..	..	..	..	..	..	..	..	..	..	..	207	..	207	486	693	..	..	..	..	..	..	..	..	..
Lakeside, Kaitangata ..	time only in 1897	..	..	..	..	..	..	..	..	..	..	..	102	..	102	598	700	..	..	..	..	..	..	..	..	21/5/97
Lesmahagow, Kaitangata ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,511	1,511	..	..	..	..	..	..	..	..	..
Cowpan's Owaka	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95	95	..	..	..	..	..	..	..	..	..
Shennan's, Waipahi ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	45	..	..	..	..	..	..	..	..	..
Central Otago.																										
Coal Creek, Roxburgh ..	Jones, John ..	27	lignite	1	unknown	50′	variable	open	..	..	..	open	2,737	..	2,737	12,271	15,008	4	..	4	..	..	..	..	..	29/10/97
McPherson's, Roxburgh ..	McPherson, M. ..	27	″	1	″	30′ to 40′	″	″	..	..	..	″	2,118	..	2,118	12,118	14,236	3	..	3	..	..	..	..	..	29/10/97
Perseverance, Roxburgh ..	Craig, James ..	10	″	1	99′	70′	vertical	..	..	6′ x 7′	..	adit	1,392	..	1,392	9,169	10,561	1	3	4	hand	..	..	..	natural	29/10/97
Alexandra, Alexandra ..	Thomson, W. A...	18	brown	1	14′	7′	..	bord and pillar	2	5′ x 2′ 6″ 6′ x 4′	60′	″	3,394	..	3,394	21,382	24,776	1	5	6	horse	..	..	..	″	15/11/97
McQueenville, Alexandra ..	Lett, R. ..	11	″	1	14′	7′	..	ditto	2	4′ 9″ x 3′	62′	shaft	3,959	..	3,959	11,939	15,898	2	6	8	″	..	..	..	″	15/11/97
Bruce's, Alexandra ..	Bruce, A. ..	0¼	″	1	..	..	..	..	..	..	..	..	79	..	79	..	79	1	..	1	..	..	..	..	″	..
Harrex and Owen's, Cambrian's	..	0¼	″	1	..	..	..	..	..	..	..	..	60	..	60	..	60	..	..	..	..	..	..	..	..	..
Cambrian's, Cambrian's ..	Dungey, C. ..	13	lignite	1	9′	all	..	open	..	..	..	open	790	..	790	11,279	12,069	3	..	3	..	..	..	..	..	16/11/97
Welshman's Gully, Cambrian's	Hughes, O. ..	36	″	1	30′	″	..	″	..	..	..	″	1,189	..	1,189	21,710	22,899	4	..	4	..	..	..	..	..	16/11/97
Blackstone Hill, Blackstone Hill	Dunsmuir, A. ..	31	″	1	unknown	16′	..	″	..	..	..	″	464	..	464	1,755	2,219	1	..	1	..	..	..	..	..	17/11/97
Rough Ridge, Idaburn ..	Beck, C. ..	11	″	1	35′	all	..	″	..	..	..	″	1,204	..	1,204	10,674	11,878	2	..	2	..	..	..	..	..	18/11/97
McLean's, Idaburn ..	McLean, L. ..	..	″	1	..	″	..	″	..	..	..	″	254	..	254	157	411	1	..	1	..	..	..	..	..	18/11/97
Idaburn, Idaburn	White, John ..	27	″	1	20′	″	..	″	..	..	..	″	683	..	683	28,621	29,304	2	..	2	..	..	..	..	..	18/11/97
Border, Idaburn	Turnbull, G. ..	27	″	1	12′	″	..	″	..	..	..	″	442	..	442	4,071	4,513	1	..	1	..	..	..	..	..	18/11/97
Gimmerburn, Gimmerburn ..	Docherty, C. ..	32	″	1	12′	″	..	″	..	..	..	″	211	..	211	1,982	2,193	1	..	1	..	..	..	..	..	..
Commercial, Kyeburn ..	Archer, C. ..	18	brown	1	10′	8′	vertical	stoping	..	..	..	shaft	542	..	542	10,867	11,409	1	2	3	water	..	..	..	natural	19/11/97
Kyeburn, Kyeburn ..	Coombes, W. ..	24	″	1	8′	6′	″	″	..	shaft	..	″	26	..	26	15,290	15,316	..	1	1	hand	..	..	..	″	19/11/97
Waikerikeri, Clyde ..	John Smart (secretary)	15	″	1	20′	..	1 in 1	″	..	..	900′	adit	933	..	933	19,389	20,322	..	3	3	″	..	..	..	″	..
Dairy Creek, Clyde ..	Marie, C. T. ..	25	″	1	unknown	..	..	..	..	..	..	incline	6	..	6	3,731	3,737	..	..	..	″	..	..	..	″	..
Blackman's Gully, Clyde ..	Field and Hale ..	2	″	1	..	..	..	..	..	..	..	..	55	89	144	..	144	..	1	1	..	..	..	..	″	..
Cromwell, Cromwell ..	Goodger, J. ..	2	″	1	..	..	..	..	1	..	..	shaft	1,098	..	1,098	..	1,098	2	2	4	..	..	..	..	″	14/5/97
Cooper's, Cromwell ..	Cooper, J. ..	..	″	1	..	..	..	..	..	..	..	adit	220	..	220	no return	220	..	2	2	..	..	..	..	″	..
Kawarau, Bannockburn ..	Pryde, J. ..	20	″	1	8′	all	1 in 4	bord and pillar	1	6′ x 6′	34′	incline	805	..	805	19,572	20,377	1	2	3	..	..	..	..	″	..
Excelsior (Parell and Gibson), Bannockburn	Gibson, J. ..	5	″	1	5′ 6″	″	1 in 4	ditto	1	..	..	″	931	..	931	69	1,000	1	2	3	..	..	..	..	″	..
Bannockburn, Bannockburn	Wilson, T. ..	8	″	1	5′	″	1 in 4	″	1	6′ x 4′	20′	adit	258	..	258	763	1,021	1	1	2	..	..	..	..	″	..
Nulli Secundus, Bannockburn	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	632	632	..	..	..	..	..	..	..	..	..
Nevis, Nevis	(late P. O'Brien)	4	brown	1	20′	all	..	..	..	..	..	open	50	..	50	200	250	1	..	1	..	..	..	..	..	..
Ryder's, Nevis	Scott, C. ..	..	..	..	..	..	..	..	..	..	..	..	40	..	40	..	40	..	..	..	..	..	..	..	..	..

—— Nevis	Clough and Allen	..	..	..	..	..	..	..	..	..	..	..	37	..	37	..	37	1	..	1	..	..	..	..	..	..
Upper Nevis, Nevis	Conmell, W. O.	..	..	..	..	..	..	..	..	..	..	..	20	10	30	..	30	..	..	..	..	..	..	..	..	..
Black Diamond, Shingle Creek (Roxburgh)	McLoughlin, T.	..	..	..	..	..	..	..	..	..	..	..	63	39	102	..	102	..	..	..	..	..	..	..	..	..
Cardrona, Cardrona	McDougall, R.	13	brown	1	30′	all	..	open	..	..	..	open	468	..	468	6,097	6,565	3	..	3	..	..	..	..	..	15/10/97
Gibbston Saddle, Gibbston	Macale, M.	11	„	1	30′	„	..	„	..	..	..	„	428	..	428	2,477	2,905	1	1	2	..	..	..	..	..	14/10/97
Williamson's, Nevis	Williamson, A.	..	..	..	..	..	..	..	..	..	..	..	40	..	40	..	40	..	..	..	..	..	..	..	..	..
Pits not now at work.																										
Gully Pit, Roxburgh (stopped early in 1897)	(Cockburn)	3	lignite	1	..	..	..	..	..	..	..	..	69	..	69	413	482	..	..	..	..	..	..	..	..	12/11/97
Enterprise, Alexandra	(Rivers)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	703	703	..	..	..	..	..	..	..	..	..
Perseverance, Alexandra	(Findlay)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	724	724	..	..	..	..	..	..	..	..	..
Gards & Cameron, Alexandra	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,128	3,128	..	..	..	..	..	..	..	..	..
Fennessy's, Idaburn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	70	..	..	..	..	..	..	..	..	..
Cairnmuir, Bannockburn	(Crow & Anderson)	..	..	..	..	..	..	..	..	..	..	..	6	..	6	1,445	1,451	..	..	..	..	..	..	..	..	..
Cooper & Gibson's, „	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,395	5,395	..	..	..	..	..	..	..	..	..
Gibbston, Gibbston	(Cowan's)	..	..	..	..	..	..	..	..	..	..	..	9	..	9	19,464	19,464	..	..	..	..	..	..	..	..	14/10/97
SOUTHLAND.																										
Pukerau, Pukerau	O'Hagan, C.	17	lignite	1	16′	10′	1 in 10	bord and pillar	..	6′ x 7′	530′	adit	1,012	..	1,012	23,691	24,703	1	3	4	horse	..	..	..	natural	7/12/97
Dudley's, Pukerau	Dudley, J. D.	8	„	1	16′	all	..	open	..	..	..	open	280	..	280	1,417	1,697	1	..	1	..	..	..	..	..	7/12/97
Burgess's (late Telford and Porter), Gore	Burgess, W.	15	„	1	12′	„	..	„	..	..	..	„	283	..	283	4,641	4,924	1	..	1	..	..	..	..	..	23/10/96
Heffernan's, Gore	Hope, John	19	„	1	30′	15′	..	„	..	..	..	„	837	..	837	1,950	2,787	2	..	2	..	..	..	..	..	6/10/97
Gutschlag's, Gore	Gutschlag, J.	14	„	1	10′	all	..	„	..	..	..	„	50	..	50	2,969	3,019	..	..	..	..	..	..	..	..	8/12/97
Leittzi's, Gore	Leittzi, M.	18	„	1	4′ to 7′	„	..	„	..	..	..	„	68	..	68	1,203	1,271	1	..	1	..	..	..	..	..	8/12/97
Sarginson's, Gore	Sarginson, J. H.	11	„	1	..	..	..	„	..	..	..	„	48	..	48	1,087	1,135	1	..	1	..	..	..	..	..	8/12/97
Zoffman's, Gore	Zoffman, John	3	„	1	9′	all	..	„	..	..	..	„	90	..	90	170	260	1	..	1	..	..	..	..	..	8/12/97
Green's, Gore	Westfield, C.	9	„	1	19′	16′	..	bord and pillar	..	..	..	incline	1,439	..	1,439	11,435	12,874	2	3	5	horse	..	..	..	natural	24/4/97
Smyth's, Gore	Smyth, Joseph	8	„	1	19′	15′	..	ditto	..	..	..	„	2,024	..	2,024	4,194	6,218	..	3	3	„	..	..	..	„	24/4/97
Knapdale, Knapdale	Irvine Brothers	12	„	1	26′	15′	almost vertical	wide headings	..	..	..	adit	692	..	692	3,275	3,967	..	2	2	..	..	..	..	„	24/9/97
Johnston's, Waikaka Valley	Johnston, W.	4	„	1	11′	all	..	open	..	..	..	open	459	..	459	254	713	..	..	..	..	..	..	..	..	15/12/97
Pemble's, Chatton	Harvey, James	20	„	1	16′ to 26′	16′ to 18′	..	„	..	..	..	„	298	..	298	11,954	12,252	1	..	1	..	..	..	..	..	24/9/97
Pacey's, Chatton	Perkins, A.	21	„	1	unknown	14′	1 in 6	„	..	..	..	„	320	..	320	8,606	8,926	1	..	1	..	..	..	..	..	24/9/97
McGill's, Wendon	McGill, John	4	„	1	14′	all	..	„	..	..	..	„	264	..	264	287	551	2	..	2	..	..	..	..	..	23/9/97
McDonald's, Wendon	Nicoll, D.	4	„	1	14′	„	..	„	..	..	..	„	228	..	228	250	478	1	..	1	..	..	..	..	..	23/9/97
Edge's, Wendon	Evans, G. H.	19	„	1	16′	„	..	„	..	..	..	„	244	..	244	2,947	3,191	1	..	1	..	..	..	..	..	23/9/97
Black's, Greenvale	Black, W.	3	„	1	12′	„	..	„	..	..	..	„	130	..	130	80	210	..	..	..	..	..	..	..	..	23/9/97
Hill's, Waikaia	Hill, J. P.	6	„	1	5′	„	..	„	..	..	..	„	351	..	351	699	1,050	2	..	2	..	..	..	..	..	23/4/97
Argyle, Waikaia	Cosgrove, J. B.	6	„	1	10′	„	..	„	..	..	..	„	283	..	283	566	849	2	..	2	..	..	..	..	..	23/4/97
Waimea, Riversdale	Smith, John	7	„	1	..	..	..	„	..	..	..	„	825	..	825	3,227	4,052	3	..	3	..	..	..	..	..	30/10/96
Pyramid, Mandeville (standing idle about four years)	Hunter, A.	5	brown	1	..	..	..	bord and pillar	..	..	..	adit	354	..	354	34	388	..	2	2	hand	..	..	..	natural	..
Waimumu, Mataura	Sleeman, C. P.	21	lignite	1	16′	all	..	open	..	..	..	open	3,303	..	3,303	19,073	22,376	5	..	5	..	..	..	..	..	12/5/97
Bogside, Mataura	Brown, H.	0½	„	1	16′	..	..	..	..	..	..	adit	134	..	134	..	134	1	..	1	..	..	..	..	..	12/5/97
Beattie & Lister, Mataura	Beattie, W.	21	„	1	16′	all	..	open	..	..	..	open	1,308	..	1,308	20,349	21,657	2	..	2	..	..	..	..	..	12/5/97
Town's, Mataura	Town, C.	9	..	..	..	..	..	..	..	..	..	..	..	..	..	8,002	8,002	..	..	..	..	..	..	..	..	..
Townshend's, Mataura	Townshend, E.	14	lignite	1	12′	all	..	oper	..	..	..	open	45	..	45	424	469	1	..	1	..	..	..	..	..	28/10/96
Munro's, Wyndham	Munro, E.	10	„	1	5′	„	..	„	..	..	..	„	938	..	938	7,877	8,815	2	..	2	..	..	..	..	..	7/10/95
Edendale, Wyndham	McDonald, A.	7	„	1	5′	„	..	„	..	..	..	„	77	..	77	1,883	1,960	1	..	1	..	..	..	..	..	8/10/95
Ota Creek, Wyndham	Shields, William	17	„	1	6′	„	..	„	..	..	..	„	408	..	408	7,270	7,678	1	..	1	..	..	..	..	..	8/10/95
Robin Hood, Pine Bush	Trotter, J. D.	16	„	1	15′	„	..	„	..	..	..	„	108	..	108	869	977	1	..	1	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1897—*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 1897.			Approximate Total Output to 31st December, 1896.	Approximate Total Output to 31st December, 1897.	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.*																										
SOUTHLAND—*continued.*													Tons.	Tons.	Tons.	Tons.	Tons.									
Graham's, Fairfax	Graham, P. S. ..	19	lignite	1	5′ 6″	all	..	bord and pillar	..	..	..	adit	534	..	534	10,808	11,342	..	2	2	hand	..	..	..	natural	1/12/97
Spey Bank, Fairfax ..	Salton, R. ..	4	″	1	5′	″	..	ditto	..	..	..	″	62	..	62	311	373	..	1	1	″	..	..	..	″	1/12/97
Isla Bank, Fairfax ..	Slattery, M. ..	17	″	1	6′	″	..	open	..	..	..	open	408	..	408	3,433	3,841	1	..	1	..	..	..	..	..	1/12/97
Nightcaps, Nightcaps ..	Lloyd, John (W. Handyside, business manager)	16	brown	3	38′ in the aggregate	..	..	bord and pillar	..	..	..	adit	22,762	..	22,762	168,656	191,418	13	41	54	horse	..	..	..	furnace	11/6/97
Morley Pit, Nightcaps ..	Reed, William ..	12	″	1	10′	all	..	open	..	..	..	open	2,478	..	2,478	11,136	13,614	3	..	3	..	..	..	..	..	11/6/97
Alley's, Nightcaps	Alley, Jesse ..	5	″	1	7′	″	..	″	..	..	..	″	100	..	100	364	464	1	..	1	..	..	..	..	..	14/7/97
Pits worked for Private use only.																										
Waikoikoi, Pukerau ..	Kirk, William ..	10	″	1	6′	all	..	open	..	..	..	open	12	..	12	218	230	..	..	..	..	..	..	..	..	26/10/96
Glover's, Pukerau	Glover, A. ..	3	″	1	..	″	..	″	..	..	..	″	15	..	15	30	45	..	..	..	..	..	..	..	..	..
Porter's, Pukerau	Porter, D. ..	3	″	..	..	″	..	″	..	..	..	″	..	..	..	22	22	..	..	..	..	..	..	..	..	..
Reid's, Waikaka Valley ..	Reid, R. ..	1	″	1	..	″	..	″	..	..	..	″	15	..	15	..	15	..	..	..	..	..	..	..	..	15/12/97
Southbrook, Waikaka ..	Ayson, W. ..	3	″	1	..	″	..	″	..	..	..	″	35	..	35	55	90	..	..	..	..	..	..	..	..	15/10/95
Otama, Otama	Graham, T. ..	4	″	1	..	″	..	″	..	..	..	″	35	..	35	80	115	..	..	..	..	..	..	..	..	21/10/95
Slaughter-yards, Mataura ..	(Freezing-works use)	1	″	..	..	..	..	″	..	..	..	″	83	..	83	..	83	..	..	..	..	..	..	..	..	12/5/97
Mutch's, Mataura	Mutch, James ..	7	″	1	4′	all	..	″	..	..	..	″	27	..	27	183	210	..	..	..	..	..	..	..	..	28/10/96
Smith's, Mataura	Smith, Hugh ..	4	″	1	4′	″	..	″	..	..	..	″	12	..	12	15	27	..	..	..	..	..	..	..	..	9/10/95
River View, Mataura ..	Nicoll, L. D. ..	6	″	1	..	″	..	″	..	..	..	″	30	..	30	515	545	..	..	..	..	..	..	..	..	9/10/95
Wyndham, Wyndham ..	Walker, W. ..	3	″	1	..	″	..	″	..	..	..	″	20	..	20	34	54	..	..	..	..	..	..	..	..	8/10/95
Marshall's, Edendale ..	Marshall, H. ..	6	″	1	3′	″	..	″	..	..	..	″	60	..	60	260	320	..	..	..	..	..	..	..	..	8/10/95
Jones's, Edendale	Jones, E. and A.	3	″	1	..	″	..	″	..	..	..	″	45	..	45	140	185	..	..	..	..	..	..	..	..	8/10/95
Neill's, Edendale	Neill, Thomas ..	2	″	1	..	″	..	″	..	..	..	″	11	..	11	50	61	..	..	..	..	..	..	..	..	8/10/95
Mount Linton, Mount Linton	Chalmers, N. G.	7	″	1	10′	8′	..	″	..	..	..	″	60	..	60	482	542	..	..	..	..	..	..	..	..	25/10/94
Pits not now at work.																										
Perseverance, Pukerau ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	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	..	..	..	..	..	..	..	..	..
Dryden's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	438	438	..	..	..	..	..	..	..	..	..
Kingdon's, Gore	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	27	27	..	..	..	..	..	..	..	..	..
Edge's (No. 14 Section) Waikaka	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	458	458	..	..	..	..	..	..	..	..	..
Westbrook, Greenvale ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	175	175	..	..	..	..	..	..	..	..	..
Middlemiss, Greenvale ..	..	..	..	..	..	..	..	″	..	..	..	″	..	..	..	15	15	..	..	..	..	..	..	..	..	..

Hunter's, Otama																			1,167	1,167									
Mrs. Cross's, Otama																			30	30									
Marshall's, Otama																			48	48									
Maslin's, Wendon																			854	854									
Vial's Perseverance, Waikaia																			631	631									
Cambrian (McIvor), Waikaia																			191	191									
Northcote's, Waikaia																			685	685									
Carmichael's, Waimea																			3,711	3,711									
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									
Wairio (Lloyd's), Wairio																			3,452	3,452									
Hokonui, Winton																			51,957	51,957									
Orepuki, Orepuki																			5,483	5,483									
Cluny, Orepuki																			156	156									
Blackman's, Alexandra			2																89	89									
Black Diamond, Roxburgh	McLoughlin, T.																		39	39									
Cromwell, Cromwell	Goodger, G.																		800	800									
Gibson's, Bannockburn	Gibson, J.																		229	220									
Ritchie's, Nevis	Ritchie, James																		75	75									
Stenton's, Nevis	Stenton, A.																		13	13									
Williamson's, Nevis	Williamson, A.																		40	40									
Holme's, Nevis	Holmes, W.																		40	40									
O'Connell's Nevis	O'Connell, W.																		10	10									
Watherston's, Nevis	Watherston, A.																		5	5									
																683,872	156,841	840,713	10,396,524	11,237,237	531	1,381	1912						
Add output of Barr's Mine, Boatman's, omitted from statement for 1895																			20	20									
																			10,396,544	11,237,257									
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, Adams'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																				132,723									
Output of mines included in former statements, but whose operations were suspended prior to 1889																				172,529									
																				11,576,613									

GEO. WILSON,
Inspecting Engineer.

Approximate Cost of Paper.—Preparation, not given; printing (3,750 copies), £26.

By Authority: JOHN MACKAY, Government Printer, Wellington.—1898.

Price 9d.]