SESS. II.—1897.

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 of MINES.

SIR,— Mines Department, Wellington, 25th June, 1897.

I have the honour to forward you covering report on the progress of the coal-mining industry for the year ended the 31st December, 1896.

The output of coal from the mines throughout the colony for the past year amounted to 792,851 tons, being an increase on the previous year of 66,197 tons. The output comprised 473,637 tons of bituminous coal, 110,547 tons of pitch-coal, 179,744 tons of brown-coal, and 28,923 tons of lignite.

Mining operations were carried on in 163 mines, in connection with which 1,937 men were employed. The year 1896 has been most disastrous, on account of the loss of life through accidents. An explosion in the Brunner Mine on the 26th March, 1896, caused the death of sixty-five men, whilst in the Fernhill Mine, on the 25th August, an accident occurred whereby one man lost his life. Other accidents resulted in serious injuries to the men, and several accidents not of a serious nature were reported.

I have, &c.,

GEORGE WILSON,
Inspecting Engineer.

No. 2.

Mr. GEORGE WILSON, Inspector of Mines, to the UNDER-SECRETARY of MINES, Wellington.

SIR,— Inspector of Mines' Office, Thames, 15th January, 1897.

I have the honour to transmit to the Hon. the Minister of Mines the following report on coal-mining in the Auckland District, made in compliance with section 67 of "The Coal-mines Act, 1891," for the year ended the 31st December, 1896:—

KAWAKAWA DISTRICT.

New Bay of Islands Coal Company's Mine.—The work carried on in this mine continues to be prospecting and working out old pillars, but so far no very great quantity of coal can be obtained in one place. The return for the year was 13,967 tons, being an increase of 2,971 tons compared with last year's output. The secretary, Mr. Kirkpatrick, gives the following account of the works: "The new workings at the outcrop have now been worked out. The dip at the screen, put in to catch a supposed rib of coal under Mr. Moody's last dip, has not been so successful as was anticipated, and will not, I fear, return the outlay. We are thus thrown back on our original workings in Matthews and party's old mine. We have had great trouble with the creek, which has filled our workings twice, and, in order to save the coal, we have found it necessary to carry the creek round, above the workings, over the ground already fallen in. It will be securely flumed all the way, and carried partly by an open cutting and partly by a tunnel. The necessity of doing this work has prevented us proceeding with the prospecting work at Moody's outcrop, but as soon as possible we intend to resume operations there. We are exceedingly anxious to proceed with this work, as, should no fresh coal be discovered, the present mine could not last at the present rate of output over twelve months." The prospects of this company are not of a very encouraging nature, although energy and perseverence are directed towards exploration works. It would appear, however, that unless a further extension of the seam is discovered the available coal will shortly be all worked out. The mine is carefully worked, the men employed being experienced miners.

HIKURANGI DISTRICT.

West Bryan's Mine.—The chief work carried on during the year has been drawing the pillars in the older portion of the mine above water-level. The dip to work the coal below water-level has also been driven to a considerable depth. The output—9,539 tons—has been about 109 tons more than last year.

Hikurangi Coal Company's Mine.—This mine has been again successfully worked during the year. The chief place from which coal has been produced was in the dip near the railway. The output for the year was 27,980 tons coal, being an increase of 6,723 tons compared with 1895. Mr. T. P. Moody, who is an able manager, gives the following description of the mine and the mode of working: "This mine has been in existence since 1894. The area of land held by my company is 800 acres, all freehold. Up to 1895 the coal wrought was from surface to adit workings, along the outcrop. The seam varied from 7 ft. to 14 ft., and under a roof or cover of from 10 ft. to 30 ft. in thickness. Since then, up to now, the coal extracted is obtained from dip-workings situate north-westerly at a point adjacent to the Government railway. This dip is on a grade of 1 in 12, through the greensand overlying the coal. The area worked from this is under a cover of about, on an average, 40 ft. The seam of coal is from 8 ft. to 16 ft. in thickness, patchy in character, from soft to hard, the hard requiring powder in blasting. The quality of the coal is splendid, being semi-bituminous, as per attached analysis. The roof throughout the workings is not good, being soft, and composed of fireclay and greensands, of a friable character, and, by reason of the undue amount of moisture there, of a treacherous nature, and liable to swelling. The system of working is 'pillar and stall.' Under my system of working I use but little timber. Knowing that my roof is bad, I work narrow bords or working-places. The bords are from 8 ft. to 9 ft. wide; and my pillars vary according to the thickness of the seam and its character, according to circumstances, from 18 ft. to 24 ft. in thickness or width. I am an advocate of narrow working-places and strong big pillars. Narrow working-places and large pillars mean safety to the miners employed; and when the pillars come to be extracted a better class of coal will be obtained and secured; and during the first working the roof is maintained firm, strong, and safe. I use but little timber in my workings. I do not require timber, because my large pillars act as a safeguard to protect the roof. Where the pillars are strong there is safety in the first working, and afterwards in taking out the pillars on the abandonment of the mine, giving safety to the men, and a good class of coal. In my system there can be no crush. Narrow working-places with thick pillars mean safety. The width of a working-place and the thickness of the pillars depend upon the thickness of seam, its hardness, its character, its depth from the surface, and its liability to the action of crushing pressure. These remarks are meant as advisory, for the benefit of those who may not have thought this matter out—perhaps may be outside of my instructions. As regards ventilation, my mine is ventilated artificially, by shafts sunk at points where required. The mine is well aired, securing to the workmen comfortable places in which they can work. The quantity of air circulating in the mine is beyond and above the requirements specified in the Coal-mines Act. I have forty men at work, with fully 10,000 cubic feet per minute circulating for them. There is no inflammable gas present, and no carbonic-acid gas anywhere. My company's mine is safe in all respects, and it is safe in every way, whether as to roof danger or explosion. During the past year the usual work—viz., opening up main roads and exploratory drifts—has been done, as also the sinking of two additional air-openings or shafts for ventilating purposes, and in two of the air-openings I have placed ladders as a means of exit for the men employed, in case of accident. I have also made a cabin or room in which the men, on entering the mine, can remain until they shall have got their eyesight. This I consider an important matter, and one which should be insisted on in all mines, as on entering the workings from the daylight men are always for a considerable time in a manner blind, owing to coming into the darkness underground. I make it a rule (strictly enforced) that the overman examines every working-place before the men are allowed to enter, and either he or his deputy must be the last to leave the mine after it has ceased work."

The following is the report made on the 4th March, 1896, by Sir James Hector of five samples of coal forwarded by Mr. T. P. Moody from the Hikurangi Company's mine:—

"Nos. 1 and 2, top and bottom of new dip seam (thickness, 9 ft. to 14 ft.); No. 3, from near dip fault; No. 4, from splint seam; No. 5, from the fault (iridescent coal). All these coals are almost precisely of the same character, and belong to the class of semi-bituminous coals, as they do not form a compact lustrous coke like a bituminous coal. In purity and usefulness as fuel they are equal to the average West Coast coal, and superior to the coal first mined at Hikurangi, and also to the Kawakawa coal. The following results of analysis have been supplied by Mr. Skey:—

	(1.)	(2.)	(3.)	(4.)	(5.)
Fixed carbon ...	53·29	53·28	54·03	54·26	57·16
Gas and oil ...	41·82	41·89	39·94	38·91	35·70
Water	3·62	3·60	3·82	3·01	4·01
Ash	1·27	1·23	2·21	3·82	3·13
	100·00	100·00	100·00	100·00	100·00

Evaporative-powers: (1) 6·90, or 11·68; (2) 6·90, or 11·68; (3) 7·00, or 11·91; (4) 7·05, or 11·93 (5) 7·43, or 12·62. The first entry of evaporative-power gives the pounds of boiling water which the coal will evaporate as computed on the old formula, and the second is the result computed by the formula now used in New South Wales. Nos. 1, 2, 3, and 5 are compact laminated coals, with bright lustre and black shining streak. The colour of the ash is light reddish-brown. The brilliant iridescence, or 'peacock-coal bloom,' on No. 5 is caused by thin films of silica on the joints of the coal. No. 4 is a splint coal, and is very compact and hard, so that it would stand handling well. It has a bright pitchy lustre, is without lamination, but is cut by joints coated with lime and films of pyrites. Its ash is light-grey, and the streak is dull-brown."

Christie's Mine.—No work has been carried on during the year.

Rosebery Mine.—The work of further driving into the hill led to no satisfactory results. The coal was irregular, the country being very much disturbed. The company, in consequence, abandoned the mine, and disposed of all plant.

Rolleston Coal Lease.—A party of men was engaged for some time in opening up at the surface the seam lying between Walton and Graham's mine and the railway. There is, however, no connection made with the railway, and no output has been recorded.

Phœnix Mine.—This mine was worked by Matthews and party up to the 13th November, when it was taken over by the Phœnix Coal Company. The workings are from the adit-level, and the roof being good, and the coal of a firm nature, the places are safe. The output was 2,100 tons, being a decrease of 797 tons compared with last year's return.

Whangarei District.

Kamo New Mine.—This mine has been worked in a small way. During the year 873 tons of coal was taken out from old pillars, being a decrease of 1,130 tons compared with last year.

Ngunguru District.

Kiripaka Mine.—This mine has been continuously worked during the year. The ventilation is good, and the working-places safe. Abundance of timber is kept ready for use. No serious accident occurred during the year. Mr. Wright, the manager, reports as follows: "During the year 1896 the mine has been steadily worked as the circumstances of trade demanded. The seam continues to rise in an easterly direction, at an inclination of about 1 in 8, the thickness varying from 3 ft. 6 in. to 9 ft. A large 20-ft.-rise fault was met with in the advance workings, but this has been penetrated, and the seam found to be 7 ft. thick, of a better quality, and harder. The management is now preparing to lay a short self-acting incline through this fault to deliver the coal at the head of the main incline, which runs the coal to the tunnel-mouth, a total distance of 20 chains. Air-shafts are sunk on the hillsides near the outcrop of the seam to insure efficient ventilation; the mine is very damp, and shot-firing is carried on where necessary. About 20 per cent. of the output has been wrought from pillars, in which work a large quantity of timber has to be used. A short incline has been laid and a tunnel put in in the hill across the gully to the westward of the original openings, the outcrop here showing the seam at 5 ft. 6 in. of clean hard coal. In wet weather a large quantity of water comes through from the surface where the pillars have been extracted and drains away out the tunnel-mouth without the aid of any machinery. It does not at any time affect the bord workings." The output for the year was 20,233 tons, being an increase of 1,364 tons compared with last year's return.

The Panapo and Maori Coal-mines are now owned by Mrs. Callaghan and party, but very little work has been done, and no coal has yet been mined.

Great Waitangi Mine.—This is a coal lease, of an area of 34 acres, lately granted to Messrs. G. S. Budge and George Boyd. A considerable amount of work has been done in prospecting, and a seam of coal from 5 ft. to 6 ft. in thickness exists on the land. The owners intend to transfer their rights to a company, which intends to place the property on the English market. A considerable time will elapse before any coal can be sent to the market, as a tramway at least seven miles in length will have to be constructed from the mine to Ngunguru Harbour.

Waikato District.

Waikato Mine.—This mine is being steadily worked. During the year the southerly workings were carried to the outcrop, and all pillars in that direction will soon be taken out. The chief portion of the coal has been derived from pillars, in the drawing of which great care is exercised, and very little coal is lost. The cost of timber and increased supervision adds materially to the cost of working out the pillars. No serious accident occurred during the year. The output for the year was 14,233 tons, being an increase of 1,789 tons compared with last year.

Taupiri Extended Mine.—The return of coal during the year was 28,988 tons, and shows an increase of 3,021 tons, compared with last year's yield, which amounted to 25,967 tons, instead of 40,160 tons as shown in report for 1895. The underground operations have been principally in the east and west districts. The coal maintains its good quality, and the output could be doubled if trade increased. The workings are all in good order, and safe. The quantity of air passing through the workings is 20,000 cubic feet per minute, and the ventilation is good throughout. Mr. Tattley, the manager, reports, "We are putting down a bore-hole about 10 chains in a north-westerly direction from No. 2 shaft for the purpose of proving the strata to a depth of about 1,000 ft. below our present seam, which was passed through at 172 ft., and proved to be 20 ft. thick. Before cutting the main seam we passed through two seams of coal, 8 ft. and 5 ft. thick respectively. The bore is now down 210 ft."

Taupiri Reserve Mine.—The chief workings in this mine are under Lake Kimihia. The cover over the coal is of sufficient thickness to insure the safety of the mine. Large pillars are left, and after the first working nothing further will be done in removing any portion of the pillars, so that the probability of any subsidence is very remote. The extension of the dip has been carried on, and new machinery placed in position to pump the water. Mr. Jonathan Harrison, the manager, gives the following description of the work: "During the year 1896 two new Tangye's steel boilers, of 20-horse power each, to work up to a pressure of 100 lb., have been erected, and a new brick chimney has been built. A new engine and pump, to lift 15,000 gallons of water an hour, have been placed in the mine, with 3 in. steel steam-pipes and 6 in. steel delivery-pipes. The new dip extension is now down 7 chains, and is still progressing in good coal. The dip of the coal continues at 8 ft. to 1 chain. This gives us 220 ft. of cover under the lake. The whole of the slits, returns, and old workings are regularly travelled and inspected. All the reports at the mine are kept up. The Mining Acts and special rules are posted at the colliery. The ventilation is taken weekly, and is very good. Hard clay is sent into the mine, and kept in each bord for shot-ramming. Bore-holes are regularly put up in the bords and levels. The output of coal for the year was 18,660 tons, being an increase of 1,525 tons on last year's return.

Bombay Mine.—The owner of this mine says that, on account of the coal being so broken and dirty, he has taken out just sufficient for the demand, the whole output for the year being only 18 tons. He intends to put another drive in the hill near the house, when he hopes to meet with better success.

Mokau Mine.—This mine is owned by the Mokau Coal-mines Syndicate (Limited), which has expended a considerable amount in further opening up the mine, and in the purchase of a steamer suitable for the navigation of the Mokau River. The output of coal is greatly increased; 1,943 tons was shipped for 1896, whilst the output for 1895 only amounted to 535 tons. Mr. R Paterson, engineer for the syndicate, says, "Since the present company took over the mine, towards the close of 1894, they have had virtually to open a new mine. The old workings had stood idle so long that the wooden roads, &c., were rotten. The principal work, therefore, has been opening new ground, to be worked on a better principle. Two main drives have been started from the end of the old drive running in an easterly direction. All the coal to the north of them will be taken out in 7-chain blocks, leaving everything between the drives and the river untouched. An air-drive has also been started out to the south, towards the river, at an elevation of 45 ft. above the mouth of the main drive. The roads have all been relaid and graded, the wooden roads done away with, and iron rails laid throughout the mine. Much has also been done outside. The bin for shipping coal has been roofed; new platforms laid with double road and double screens; blacksmith's and carpenter's shops, magazine, office, stable, store, and dwellings built; and a new road has also been formed to take the slack further up the gully, and clear of the stream, &c. The coal has greatly improved in quality under the solid ground of the main range. The band of shale between the seams, which in some places reached a thickness of 4 ft., and gave an immense amount of extra labour, has now in the most northerly workings gone down to 3 in., and promises in a short distance to run out altogether. The height of the coal remains about the same—7 ft.—and also the dip of the coal—about 1½ in. in the yard. The company has had the misfortune to lose two steamers within a few months, which has seriously retarded the development of the mine. We are in hopes of having another steamer shortly. No accident of any kind has happened during the year. When the new air-course is through, which I expect will be in about two months, we will have a good supply of air till we reach our eastern boundary."

ACCIDENTS.

No accidents of a serious nature were reported during the year, although minor accidents occurred whereby several persons were incapacitated from work, and availed themselves of the Coal-miners' Relief Fund, the contributions to which are regularly paid by the coal-mine owners.

The provisions of the Act are carried out in all the mines throughout the district.

REMARKS.

The output for the year shows an increase of 9,240 tons from mines north of Auckland, and 7,749 tons from mines south of Auckland; total increase, 16,989 tons.

The increased demand for steam-coal in the Hauraki goldfields has largely assisted in causing the additional output from the mines north of Auckland.

A much greater output could, if necessary, be maintained from the mines throughout the Auckland District.

I have, &c.,

The Under-Secretary of Mines, Wellington. GEORGE WILSON, Inspector of Mines.

No. 3.

Mr. N. D. COCHRANE, Inspector of Mines, to the UNDER-SECRETARY of MINES, Wellington.

SIR,— Inspector of Mines' Office, Westport, 12th May, 1897.

I have the honour, in compliance with section 67 of "The Coal-mines Act, 1891," to report as follows on the West Coast coal-mines for the year ending 31st December, 1896:—

Puponga Coal-mine, Collingwood.—(26/9/96): This is a new lease, taken up by Messrs. Taylor and Walker, and is situated near Cape Farewell, some sixteen miles from Collingwood. Only prospecting has been done so far, near an outcrop which at one place shows as much as 8 ft. of coal, of a very soft nature, and with a band in the centre. A drive was put in on this seam for 50 ft., but it has been allowed to cave in. Five shallow shafts have been sunk, but these were standing full of water, work at the time of my visit being confined to cutting a track from the coast-line near Puponga Inlet to the mine, at which two men were engaged. From the position of the outcrop, and the soft nature of the coal, it is probable that what is seen is only a slipped portion, and the solid has yet to be found. Should good hard coal of a fair thickness be proved, this may turn out an important mine. Recently driving has been gone on with, to cut the seam in the solid.

Pakawau Coal-mine.—(26/9/96): This coal-seam continues of the same banded nature as formerly, and is worked accordingly on the long-wall system. Only two men were at work, but usually four are employed. The west level has been extended and driven out to the surface, so a second outlet is provided, as well as very good air. The roof is a bad one, but plenty of timber is used. The report of the examinations of the mine is kept. Another coal-seam, which occupies a higher position in the sequence, has been found more to the west. Some 17 chains of surface tram-line has been made to this, and a short drive put in. Some more timber is required here, and Mr. Caldwell will have it attended to. This seam is divided by only one parting, about 8 in. in thickness, and the total working-height is expected to be about 3 ft.

Wallsend Mine, Collingwood.—All work has ceased at this mine.

Enner Glynn Coal-mine, Nelson.—(21/9/96): Work in the inclined shaft on the coal-seam has been suspended, and a new vertical shaft sunk in the rock for 160 ft., at which depth a stone

drift is being driven to cut the coal-seam and connect with the other shaft. The timbering of the shaft has been very well done, and there are good sloping ladders all the way down. As the face is only a short way in from the bottom the air is good. An examination is made with a safety-lamp each morning before commencing work, as there are several coal-seams, and a little gas has been seen. A copy of the plan has been sent me. Four men in all are employed.

Mokihinui Colliery.—(24/2/96): Four places are working in the solid in the area opened up by the new incline, and, as they are connected with the main incline, there is a good current of air. The coal, which at the outcrop shows a thickness of 30 ft., soon rises to west at an angle of 33°, and thins down to about 5 ft. 6 in. On the west side the dip is more to south-east instead of east, but the roof shows signs of movement. No improvement having since taken place in the coal-seam in this section, it has since been stopped by the company, after the Knights of Labour had previously given it a good trial and thrown it up. So long as any portion of a mine remains untried it is not wise to give up hope, still, it is unwise for people to judge a mine not by what it is, but by what they would like it to be, and events have fully borne out the opinions of those who have not formed exaggerated ideas of this coalfield. The Hut seam was then started to be reopened, a bridge having been put across Coal Creek in the line of the old drive, which has been retimbered as far as the water, where the seam commences to dip. (23/6/96): Hut seam.—Only the dip and back dip drives working, employing four miners, and a like number on the second shift. There are five other faces, but these are not working to-day, as the bins are full. There are indications of faulting, but the seam is not intersected with stone-veins nearly so much as in the old workings in the big seam, so the prospects are rather better than there. A little gas has been seen in a hole in the roof; care is being exercised. The places are examined twice daily with a safety-lamp, and the firemen's reports are duly kept. (11/9/96): Work has not been resumed in the big seam, and the Hut seam is not working on account of a considerable increase in the water, for which another pump is to be obtained. A copy of the plan has since been sent me, and notice that work has been stopped. The manager is unable to say when it will be resumed.

Cardiff Colliery.—(23/1/96): A shaft 58 ft. deep has been sunk near the old stone drift and connected with it for air. A lower road is being driven for haulage, partly through stone, and from the low side of it a drive in coal runs ahead of it, from which two shifts are driving back, and will shortly connect. The face of this also is being driven ahead, but does not get sufficient air. This will be seen to. The total amount circulating was over 5,000 cubic feet of air per minute for twelve men. Roof requiring to be secured where the haulage-road is being straightened, and at the junction of that road with the back drive the timber is not well set. These will be attended to at once. Head coal is being dropped in the dip section, and is hauled up by a horse-whim. Roof generally requiring careful attention. A second shift of nine men and a third of three men are worked. In No. 4 outcrop section only two men were working, as it is nearly finished. Manager's and deputy's reports duly kept. (24/2/96): This mine was revisited, as I had received a complaint that the air was bad. I found one place, the face of the south level, insufficiently ventilated. Work was stopped at once, and immediate steps taken to further brattice, and to put in a new furnace, which was going two days later, when I found an ample current circulating. The timbering spoken about at last visit had been attended to. (3/6/96): Seventeen places working in the solid, employing thirty-four miners, or forty-three men underground. Air fairly well led forward, and a volume of 5,000 ft. circulating. This leaves very little margin over the minimum quantity. Tamping used, fireclay. Timbering, as a rule, well done. Some pillars have been split in the north section of the mine, but no work has been done in these for a week. Two other shifts are worked, employing eleven and six men respectively. The coal-seam is about 18 ft. in thickness, and at some places of excellent quality; at others stone-veins are to be seen.

Granity Creek Colliery.—(31/1/96): The only work doing is lifting the floor near the mine-mouth for the grading of the road. Two tunnels have been driven in the upper part of the incline. These are 8 chains and 6½ chains in length respectively, with stone arches at the mouths, and well timbered throughout. (9/7/96): Sixty-three men are now at work in the mine, and some fifty more are employed outside. Air fresh and well led forward except in two places in which the brattice is a little behind, but is to be added to at once. 12,900 cubic feet of air circulating per minute. The mine is fairly damp, and all shots are fired by the shot-firers appointed for the purpose. Coal is left on as a roof, and, although of a drummy nature, it appears to be tough, and stands well. (16/12/96): Two coal-cutting machines are now at work. One is a Stanley heading-machine, which cuts two annular grooves in the coal, each 5 ft. 6 in. in diameter. This machine did not seem to clear itself very well of the coal made in cutting. As the space between the side of the place and the machine was very narrow, and the fast-running mitre-wheels were exposed, I requested that they should be covered, and this has since been done. The other coal-cutter is of the percussion type, and is used for holing. It appears to work very successfully, and relieves the miner of the most arduous and dangerous part of his work. Mr. Brown, who is the chief mining manager of the company, informs me that these machines will not displace any labour, but that a somewhat greater output may be expected from the same number of men, and this will be with a less liability to accidents from falls of coal when holing. A good main current of air circulating. No sign of gas to be seen, even when tried for with the alcohol-flame gas-testing lamps. The Act in general is well observed. Eighty-six men in all are employed, of whom twenty-three are outside.

Coalbrookdale Colliery.—(5/2/96): No work in the mine to-day for want of orders. In the bottom seam, Big Dip section, there are usually six places at work in the solid and eleven at pillar-work. The roof is bad, but a great deal of timber is used. In the Cascade section the dip heading is being extended to meet the water-drive from Cascade Creek, and there is a distance of 3½ chains yet to go. Air good. In this section, in the bottom seam, there are usually eighteen men

employed. (7/2/96): In Muncie's section fourteen places are working, all in the solid. Timbering well done. Air in the aggregate sufficient, but in one or two places dull. (12/8/96): In the Cascade section two shifts are at present at work grading the Main Dip haulage-road, and altering it to endless-rope in place of direct-rope haulage. Driving is also being done to connect the bottom seam at the foot of the dip with the upper seam. Good air. Big Dip section: All pillar-work in this section, both in top and bottom seams. Fifty-six men in all employed. At two places the roof was requiring attention, and these were ordered to be seen to ere I left the mine; otherwise the timbering was ample and well set. Air fair for pillar-work. Total volume, 28,800 cubic feet.

Muncie's section (13/8/96): Five places working in the solid in the bottom seam. In two of these the air is dull, but they are not intended to hole through, and will be stopped to-morrow. Roof bad at places, but plenty of timber. All shots are fired by deputies, except in the lowest place, which is going three shifts. Big Dip section (17/11/96): Ten places working pillars in top seam. Roof requiring careful attention. Plenty of timber. In the bottom seam seventeen places are working pillars. Air fresh. Several places to which I drew attention are to be taken down or secured, Mr. Green, the manager, giving orders to have them seen to at once. Reports duly kept, and the Act well observed.

Ironbridge Colliery.—(6/2/96): In the shaft section there are ten places working, all but two of which are in the top seam. Twelve places working in the bottom seam, which varies in thickness from 5 ft. to 9 ft. Many small faults are being met. Plenty of timber. In the Gentle Annie district five single-handed faces are working, all in thin coal. Twelve men are also employed at pillar-work. The air throughout these sections is very fair. (13/8/96): Pillar-work has been resumed at the fault-line opposite the shaft, at which twelve men are engaged. In two of these places the coal is very thick, which involves more than the ordinary amount of risk, but as far as can be seen every care is exercised, and plenty of timber is at hand for use as required. In the Gentle Annie heading district thirty-one men in all are at work, and the air-current for this number is only 3,500 cubic feet. This is too near the minimum, and is to be increased. Deputies' and firemen's reports duly kept.

Waitakere Coal-mine.—No opportunity of inspecting this mine occurred during the year.

Whitecliffs Coal-mine.—(24/12/96): Two men working. They have put in a short drive on an outcrop, and holed out to the creek at a point whence they intend to take the coal from the opposite side, where it is believed to be of better quality. 6 ft. in thickness is worked. The roof is rock, very irregular and lumpy. The dip of the seam is to north-east, at 1 in 6. Air good. Report duly kept.

Flaxbush Coal-mine.—Not inspected during the year. I understand the mine was abandoned by Mr. Rear, and I have recently been notified by Mr. De Filippi that he is going to reopen it.

Longford Coal-mine.—Work is being continued in this mine for the supply of the Buller dredge, but I had no opportunity of inspecting it.

Golden Treasure Coal-mine.—(28/8/96): Mr. Davidson is still working this mine. Air sufficient at present, but a rise is to be put up to the surface, which will keep the ventilation good, and provide a second outlet. Copy of Act at mine. No report, but one will be kept.

Phœnix Coal-mine.—(20/2/96): Work was stopped for the day, but I went through the mine with Mr. McMurtrie. In good order, but air hanging a little. (26/8/96): Three men at work, and the mine now in charge of Mr. Fox. Work is confined to dropping head coal. I cautioned Mr. Fox as to the roof in the place Mr. Sara was working, and it is to be attended to. Air good. Report kept, but not signed. The plan has not been made up, as they are not working in the solid.

Lankey's Gully Coal-mine.—(24/8/96): Mr. Lamberton, with two others, working in new drive. Air good. At one place roof bad; this will be secured at once; also some further timbering is to be done, at my request, at the mine-mouth. Plan not yet made. In these small mines the owners complain of the expense of surveys. A tracing of the workings has recently been sent me.

Devil's Creek Coal-mine.—(19/10/96): This mine is only worked occasionally, by Mr. McIlwham. There is a second outlet, which provides good air. At one or two places the roof requires attention, and will be seen to. Copy of Act at mine.

Progress Coal-mine.—(11/2/96): The timbering requested to be done at my last visit has been put in, and the mine is in better order, but near the face is adjacent to old workings. Roof still of a nature that requires careful timbering. Air fairly fresh. Report duly kept. (21/8/96): Owing to the cessation of stoping in the Progress Quartz-mine very little mining is now being done.

Breen's Coal-mine.—(12/2/96): The level has been driven right through the spur on coal about 4 ft. in thickness all the way. Two short drives to the rise are the only other underground work done as yet. Roof much better than in the workings to the south-west. A road is being made on the surface to work the coal to the north-east. Report behind. (20/10/96): The coal to the north-east has been opened up by two drives, but, the quality not turning out as good as expected, a short dip drive to west has been put in, and from this a level is being driven to north. I drew attention to some bad places in the roof, and these are to be taken down or secured. Air good. Report duly kept.

Sir Francis Drake Coal-mine.—(12/2/96): Not working to-day, but only opencast when work is being done. (22/10/96): The only work doing is a single narrow drive on a higher level than formerly. Air sufficient. Timbering right. Act and report at house.

Archer's Coal-mine.—(24/10/96): Mr. Archer has opened a new drive on the opposite side of the hill to the old one. It runs in south-west about 120 ft., and the coal-seam is about 12 ft. in thickness, of which 8 ft. is worked, the remainder being left as a roof. The timber at one or two places is not very well set, and these will be seen to. Air good.

Barr's Coal-mine.—(24/1/96): This is a new mine just started by Mr. Barr. A short drive cuts the coal-seam, which is about 12 ft. in thickness, and dips to north-west at 25°. No copy of the Act nor safety-lamp, but these are to be procured.

Blackball Colliery.—(20/6/96): Only one shift is being worked, employing, in all, fifty-eight men and youths. Fifteen places are working on the west side and four on the east side. Timbering and spragging well done, but the powder-smoke hanging too much. To obviate this, No. 3 incline is to be double-shifted to hole out to the cliff, and in the meantime the brattice will be kept well forward. The main intake showed a current of 6,800 cubic feet of air per minute. Rules and names posted up, and reports kept. When next inspected, in November, the incline had been holed out to the cliff and connected with a shaft 70 ft. deep, near which a furnace was in course of erection, which should provide an ample margin above the required quantity of air for some time to come. In January a greaser named George Abeley fell off a standard of the aërial tram and fractured a leg and arm. This was on the opposite side of the Grey River to the mine, and can hardly be deemed a mining accident. At date of writing work has just been resumed after a stoppage of several weeks, owing to the standards of the aërial tram and the line itself being damaged by a heavy flood in the river.

Brunner Colliery.—(16/1/96): Mr. Roberts, the under-viewer, was acting as manager during Mr. Bishop's absence, and his appointment was in writing. Pillar-work going on in Nos. 5, 6, 7, and 10 inclines at twelve places on the west side. On the east side only four fast places were working, the lowest bord being stopped for a fortnight on account of stone, but the bord above is further ahead without meeting any stone. No gas was seen, though tried for at each face; the brattice was well forward, and the air sufficient. On the 26th March the explosion occurred by which all the men in the Dip section—sixty-five in number—lost their lives. The nature of the explosion was the subject of lengthy investigation, and the report of the Royal Commission has been already published, in which the origin is found to have been a blown-out shot, and the explosion one of coal-dust, so a comparatively brief *résumé* should be sufficient here.

Brunner Explosion.—My first intimation that a disaster had occurred was by wire from the Hon. the Premier, on the evening of the 26th March, as the telegraph-wires were down with the previous stormy weather, and were only then got into working-order. I immediately left for Brunnerton, and found that the manager, Mr. James Bishop, had been overcome on entering the mine after a volume of black-and-yellow smoke had been seen to issue from the mouth of the main level, which was the intake airway, about 9.30 a.m. Mr. Joseph Scott, manager of the Blackball Colliery, who had been placed in charge of the rescue work until my arrival by the Premier, had regular shifts and relays of willing workers leading forward the air by erecting temporary brattice-stoppings. Many of the rescuers had to be carried out of the mine, but eagerly returned on recovery. I entered the mine about 2 a.m. on the 27th, and found the first indications of an explosion were to be seen near the head of the Main Dip incline. Large quantities of fine and dry coal-dust were lying on the rails where previously there had been none. The lights burned freely when I saw men falling, and their places being taken by others, but there was no indication of firedamp on the flame of the safety-lamp, though I tried for it right ahead of the rescuers and also at the stoppings in the rear. The pumps were destroyed for work, but several shifts would elapse before the water would rise to the position where the lowest body might be expected to be found. The crib-log stoppings, filled and backed by stones and dirt, had been blown out, but the main return remained intact from the dynamo out. Still, the resultant gases would leave little hope for any men to escape, and the safety of the rescuing parties claimed anxious consideration. In the morning, Mr. Lindop, manager of Coalbrookdale Colliery, arrived, and with Mr. Bishop, who had partially recovered, continued the work. All the men in the Dip section were found to have perished, either from the explosion or the resultant gases. The last body was recovered on the 31st March. A careful examination of the workings was gone on with, in conjunction with Messrs. Brown and Lindop, managers of the Westport Coal Company's collieries; Scott, manager of Blackball Colliery; Hayes, manager of Hokonui Colliery; Bishop, mine-manager; Dunn, mine-manager; Gordon, Inspecting Engineer; and four experienced miners—Messrs. Russell, Robinson, Ward, and Daw. Of the two sections, one on each side of the main incline, into which the dip-workings were divided, that on the west side was confined to pillar-work, and prior to examination of the mine I thought it not unlikely that the excessive rain of the previous days had found its way into the goaf and forced back gas on the miners' lights; but this, on examination, proved quite untenable, as the point of origin was undoubtedly on the east side. This latter section had no pillar-work proper, but "lifts" were started to be taken off some of the pillars, and four places were in the solid. These were separated completely from the old Coal-pit Heath workings by a fault, which at that point would have over 100 ft. displacement, and if 1 chain be allowed for lateral shift a further 2 chains of solid coal was left. This had been left for a barrier at my request, to guard against any possible influx of water, and it was found by the subsequent survey of Mr. H. Young, Assoc. M. Inst. C.E., not to have been encroached on. The roof of the mine is a strong grit, passing at places into hard sandstone, so that, though the stoppings were destroyed, the rails at one part of the Main Dip torn up, and some of the mine-tubs and timbering knocked about with great force, the mine was not in such a bad condition as might have been expected Still, after hearing falls between us and retreat, it was considered necessary to have the mine made safer, and to have the ventilation more efficiently restored. This was effected from the 1st to the 3rd April, and our examination resumed on the 4th. Gas was found in small quantities, at places where falls had occurred, but not in such amount or position as could serve to account for the explosion. Much coked dust was observed, sometimes on one side, at others on both sides of the props. The force appeared to have varied much in intensity, in some places there being little or no indications. In the course of our inspections Mr. Brown found the remaining portion (2 ft. 1 in. in depth) of a blown-out shot-hole in No. 4 bord, at a part of the pillar up to which the rails were laid. Severe coking was seen all round, coal was lying on the rails: and the force appeared to go from this both out to No. 2 incline and into No. 3. An unsatisfactory feature was that no tools except a scraper were found near at hand; but after careful consideration all the experts were of

opinion that this was the point of origin, and that the explosion was chiefly one of coal-dust. Then, if that were not the starting-point, there was nothing tangible left to go upon, and all else is conjecture. The Brunner was not a fiery mine, though firedamp was occasionally met. Neither was it a dry and dusty mine, but there was a good deal of stone, small coal, and dirt present, as usual in coal-mines. At most places it was damp, and more especially in parts of the Main Dip there were trickles of water running on the floor sufficient to keep it quite wet. After the explosion, and before the ventilation was properly restored, I had three samples of the mine atmosphere taken and forwarded to the Colonial Laboratory for analysis. All of these showed a trace of firedamp, but none showed any appreciable percentage, so they throw no light on the matter. It has to be borne in mind, however, that a small percentage of firedamp such as cannot be detected by the best ordinary safety-lamp will intensify an explosion of coal-dust. Work in the mine was resumed about three weeks afterwards, and, at my request, with safety-lamps only, and without blasting-powder. Subsequently I drew up a list of precautions desirable to observe in blasting with safety explosives, but, as I had no power to make such an order, it was left to the management to carry them out, as Mr. Bishop agreed with all except as to watering the dust in any dry and dusty place, which he wished to be general throughout every place, if done at all. Recently, I am informed, blasting with roburite has been commenced. It is fired, after the men leave the mine, by appointed shot-firers, with electric exploders, after examining the places.

Brunner Rise Workings.—(18/2/96): Twenty-seven places working, all in the solid. The coal in the level face has thinned down to 2 ft. 10 in. in thickness, being wedged out by irregular blocks of rock coming in on the roof, and which, as the main roof parting keeps regular throughout, indicate that the thinning is due to erosion. This thinning is noticeable as far as the fourth bord above the level. Air very good throughout the mine. Timbering sufficient, and spragging attended to. (18/6/96): Pillar-work has been started from the line of thinning back. A little gas is noted as having been seen about a month previously in No. 3 incline, but there was no trace of any in the mine to-day. Ventilation not so good as at last visit, so I requested Mr. Tennent to have the air better led into the faces. On the 27th July I examined the thinning: seven pillar-lengths to the rise of the level, where a short drive showed the coal almost completely pinched out. Pillar-work is accordingly being extended, though it is to be regretted that it was not seen fit to further prospect. However, if the area in advance of these and the dip-workings is found by boring or sinking to contain coal of workable thickness, it can best be opened up and worked from an extension of the engine plane of the Dip section, along which, from the dip drive inwards, a rib of coal 2 chains in width has been left for this purpose. This section was also inspected in November, when pillar-work was in full swing, and only eight places up No. 1 incline, working in the solid. A place was to be driven out to the cliff to increase the ventilation. Mr. Dands was subsequently appointed mine-manager.

Accidents.

14th February.—Brunner Rise: A miner named Aaron Dixon was struck by a piece of coal which his mate had been taking down, resulting in a fractured arm.

27th February.—Granity Creek: A workman named Isaac McGarry sustained a broken arm and rib on the surface incline when jumping off the race of trucks, which he had started after working-hours.

26th March.—Brunner Mine: By the explosion and resultant gases in the dip-workings all the men at work in that section—sixty-five in number—were killed.

15th June: Cardiff Mine: Robert Polkinghorne, a youth employed taking off the mine-tubs at the bins, was struck by a tub which ran away inside the stop close by. His leg was badly broken, and he received other injuries. Had he remained where he was he would have escaped, but it is said that in the excitement of the moment he jumped the wrong way.

12th November.—Brunner Rise Mine: A miner named James Harris had his leg broken by a piece of the roof falling, which he was in the act of propping up.

14th November.—Coalbrookdale Mine: An engineer named Joseph Smith, in shifting pipes, was struck on the head by one which he had unbolted, and had his jaw fractured.

General.

Foreign Trade.—During the year a start has been made with a regular export trade from Westport. Mr. Jamieson, the agent of the Westport Coal Company, informs me that some 10,000 tons of Coalbrookdale coal was despatched to San Francisco, Valparaiso, and other ports, chiefly in sailing-vessels, and that there is every prospect of that tonnage being largely increased this year.

At Granity Creek a start has been made with watering the dust, and this is a step in the right direction. Coal-cutting machines, actuated by compressed air, are successfully at work there, and Mr. Lindop informs me others are being installed at Coalbrookdale, which will be driven by electricity.

At Cardiff Mine, also, things are moving ahead. The haulage system is being extended, and a more powerful engine is to be fitted up. A ventilating-fan has been ordered, and will shortly be erected, with a separate engine to drive it; so that excellent ventilation should be constantly maintained.

I have, &c.,

N. D. Cochrane,

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

No. 4.

Mr. JOHN GOW, Inspector of Mines, to the UNDER-SECRETARY of MINES.

REPORT on coal-mines, in compliance with section 67 of "The Coal-mines Act, 1891," for the year ended 31st December, 1896, for the Canterbury, Otago, and Southland Districts :—

SOUTH OTAGO.

Fernhill Mine.—(26/8/96) : All the working-places were examined, including the place where Thomas Reid was killed on the 25th instant. Most of the coal-hewing lately done was to the eastward of the main road, in which direction the mine-plan showed no workings, but after driving a short distance old workings were broken into. The extent of these old workings is not yet known. A similar discovery of old workings was made a short time ago on the west side of the mine, where a large area of virgin ground was supposed to exist. In this direction the extent of old workings has not been explored.

Abbotsford Mine.—(19/10/96) : There are eight men employed at present splitting pillars in the old workings of twenty years ago. The floor in many of the old bords is now up to the roof, thus rendering it an easy matter to reduce the pillars with safety to the men. The removal of the coal is good hewing, but the roads are troublesome and somewhat cramped in height in places, in consequence of the constant rising of the floor. There is no lack of timbering where required to keep the mine safe. The coal is coming from the north side of the incline, and the men are working back towards the mouth of the pit. There is good air all through the working-places.

Walton Park Pit, Green Island.—(9/10/96) : Examined the dip-workings to the level of the pump, which had lately been shifted from a lower level, in consequence of a recent influx of water in the low levels gaining on it. The water continues to rise in the dip-workings, and will, I fear, eventually drive the men out of that part of the mine. The miners are splitting the pillars as they retire, in case they may never get back to the dip-workings. It is said the mine has been "sailing so near the wind" for a long time past that the shareholders cannot afford to spend more money on plant, and that the present price of coal does not warrant any considerable outlay. I believe the mine is being worked at a heavy weekly loss.

Saddle Hill Mine, Green Island.—(3/10/96) : All the mine-workings since my previous visit were examined, and found in splendid order. I also looked into some very old workings in an adjoining mine, on the south boundary, and found them in first-class order, and the air good. It is always a pleasure to pass through Mr. Christie's mine, where such care is taken to keep it in good order. Notwithstanding the large amount of dross necessarily piled up on either side of the bords and travelling-roads, the close supervision on the part of Mr. Christie has up to the present time prevented any fire taking place in the mine. At some future time an additional 6 ft. or 8 ft. of top coal will be taken down at a very small outlay of labour, leaving then a very strong coal roof. The mine is dry, and the air good.

Bryce's Glenochiel Pit, Green Island.—(2/10/96) : Since my previous visit a new dip-drive to the coal has been put in on the west side of the old one, and at an easier gradient. A considerable amount of work has been done in the new part of the mine, and the coal-seam continues westward fully 9 ft. thick, of which about 3 ft. is left overhead for a roof. The pillars are 12 ft. square, and the bords are narrow. The vertical backs running north and south throughout this mine are a great saving of labour to the coal-hewers. The mine is well ventilated, and is in good order.

Walker's Pit, Brighton.—(9/10/96) : All the mine was examined and found in good order. The seam is being worked to the east and to the south; it is getting thicker going east and thinner going to the south. The drainage is light, and the air is good. A coal roof is being left throughout the mine.

McColl's Pit, Brighton.—(9/10/96) : The dip-drive is now in good order, several sets of new timber having been put in since my previous visit. The seam of coal has been followed to the north and west for some distance, in the hope that it would improve in thickness, but it is still about 4 ft. thick, and there is no indication of improvement. A foot of coal has to be left overhead for a roof, which reduces the thickness hewn to 3 ft., a depth which with a very soft floor renders it almost unworkable. McColl is now seriously thinking of sinking or boring 30 ft. or 40 ft. below the present workings, in the hope of finding a larger seam of coal. The locality has not been prospected to any depth.

Sneddon's Pit, Mosgiel—(2/10/96). The new dip-drive, north-west of the old one, put in the hill to the westward a few months ago reached the coal in a short distance, and looked promising, but as the work proceeded the coal altered in quantity and quality. The seam eventually thinned out from 10 ft. to 3 ft. thick, of very bad quality generally. It is now discovered that the working-places from the old mine were driven nearly to the outside line of the good coal. The only good coal found in the new dip-drive was at the end of the old bords going west and north. The latest workings are to be surveyed to-morrow, immediately after which the mine at the two dip-drives will be abandoned, and a fresh start made about half a mile east of the old engine-site, and quite close to the old east workings, where a dip-drive is now in course of construction, being already on 9 ft. of clean coal. The extent of the coal on their lease on this side of the old field is not yet known. The long tram-line which conveys the coal from the old pit to the main highroad to Mosgiel is to be shifted next week at the top end to the latest dip-drive, the formation of much of which is now ready for the sleepers and rails. The winding-engine will be shifted next week to the new site, and by the end of the week the new place is expected to be in full swing on good clean coal.

N. Hardwick's New Pit, Bruce.—(25/6/96) : Hardwick has lately driven a tunnel into the hill on the east side of his old pit, and at a much higher level than the old workings, where he has discovered a 10 ft. or 12 ft. seam of good coal. The tunnel was driven from the surface to

the south, and after penetrating the coal a few yards a down-throw fault was met with, completely cutting off all trace of the seam in that direction. The coal was then followed to the eastward, where there is now a body of solid and good coal of its kind. It is similar in quality to the coal obtained some years ago from the old Bruce Pit. Hardwick has, at the present time, two or three men preparing a line for a tramway from his pit-mouth to near the top of the hill, which is between his workings and Milton. From this spot the teams can take away a full load, there being a hard metal road all the way to Milton.

A. Young's Bruce Pit, Milton.—(25/6/96): This is now a large opencast in the face of a hill which rises quickly to the eastward, while the coal-seam appears to be nearly horizontal, as far as yet worked. The coal must be fully 20 ft. thick, without a band in it. The stripping going eastward is getting deeper very quickly. There is still some shallow stripping by following a depression in the surface southward, and this was being followed at the time of my visit. Ultimately this also will be as deep stripping as at any other place. Eventually it will have to be mined. During the winter months the road to this pit is so bad that loaded teams cannot travel on it. I am told the teamsters refuse to go to the pit for coal even when they are offered it for nothing.

James Reid's Akatore Pit, Milton.—(25/6/96): Since my previous visit most of the coal removed appears to me to have been brushed down from the roof of the old workings quite handy to the mouth of the pit. The output is small, and I did not find any one there.

J. Reid's Pit, Adam's Flat.—(25/6/96): I have not visited this pit during the past two years, since which time the open face of the pit has not been altered very much. The stripping is somewhat deeper, and the coal a little thicker, perhaps now 20 ft. or more, from the present floor-level, which is not the real floor of the coal. The laminations of the coal dip steeply to the eastward, under the rising ground, in which direction the floor of the coal cannot at present be followed, in consequence of a considerable quantity of water in the ground. The present pit-floor is at the level of the open drain leading therefrom. It is now proposed to deepen the drain considerably, and lay down 6 in. pipes at the lowest possible depth to be conveniently attained. It is said the best coal is rapidly dipping underfoot, and that it can be followed only in the way proposed, or by the erection of a pumping plant. Only the best coal will retain the local trade.

McDougall's Pit, Lovell's Flat.—(1/7/96): At the time of my previous visit I was informed that an 8 ft. seam of coal had been bored through at a considerable depth from the surface. A shaft was then being sunk to the supposed new seam; but, after sinking 150 ft. and finding no coal, the sinking operations were stopped for the time being. The old workings near the surface are again being worked from the dip-drive, where about 5 ft. of coal is being taken out below the floor of the old workings. It is good, and very easily hewn out.

Gibson's Pit, Lovell's Flat.—(1/7/96): The No. 2 shaft, which was sunk 319 ft. about four years ago, has lately been put down another 145 ft., making a total depth of 464 ft., at which depth it passed through a 16 ft. seam of clean coal of what appears to be first-class quality of its kind. A chamber on either side of the shaft is now being hewn out and timbered, and other preparations are being made in order to successfully cope with a large output, for it is believed the coal will command a ready sale in the market. A branch railway-line is to be at once laid from the pit to the Lovell's Flat Station. The line is already laid out, and some of the excavations and fillings are going on. I was told the line would be in working-order in a month or two from date.

McSkimming's Pit, Benhar.—(30/6/96): All the working-places were examined, and found in good order. It is a coal roof throughout the mine, and as smooth in most places as a barn-floor. The bords are wide, but there is not the slightest indication of the roof or sides flaking. The air is good, and the working-places quite dry.

Mount Wallace Pit, Benhar.—(30/6/96): Since my first visit the mine has been worked on a small scale by one or two men. The bords have been continued in the direction started at the first, and they are in a good and safe condition. The workings are quite dry.

Kaitangata Mine.—(26/6/96): I went through much of the workings, where the old bords now underfoot are being crossed in some places and followed in others. The top of the old bords is now the floor of the present workings, through the floor of the old bords having risen 10 ft. during the last seven years, and having so completely closed the old bords as to make it difficult for a stranger to the work to realise that they had ever been there. A second 10 ft. of coal is now being taken out from the top of the old workings, while some of the pillars are being split on the same level. Behind all this work there are men removing the roof-coal and the pillars to the floor, thus allowing the mine to close behind them, which work is being done with safety to the men and with very little loss of coal. The removal of the coal in these old south workings will employ the present gang of thirty-seven men for about two years. From the level of the stone-drive section, or present bottom of the incline from the engine, a stone tunnel has been driven a distance of about 840 ft., where it cut the main seam of coal at No. 2 fault. The coal here is found to be 26 ft. thick, of excellent quality, and perfectly clean from floor to roof. The lay or angle of the seam is said to be a rise to the east of 1 in 2. From the end of the stone drive just referred to a prospecting tunnel has lately been put in a distance of 300 ft., at which distance the same seam was again cut beyond No. 3 fault. This coal has also proved to be of a like good quality and thickness. This new work has tapped what promises to be a considerable field of coal not previously known to exist. When the coal was first cut a considerable quantity of water was met with, but at the time of my visit it had lessened a good deal. It was, however, still very wet overhead in one of the coal-faces. The current of air is carried along the stone drive by a boarding partition and scrim. (27/6/96): All the workings except two in the north district were examined, and found in good condition and well ventilated. These levels (four) extend northward for a distance of 23 chains from the winch-dip, where in each level the seam is of less thickness than in any of the south workings. The coal, however, is of equal quality to that in the thick seams. It is intended to still further extend the lower one of these levels in order to test the value of that part of the lease, and set at rest

any doubts there may be as to whether the coal will continue to lessen in thickness in that direction.

Castle Hill Mine, Kaitangata.—(29/6/96): All the working-places were examined in the dip side of the mine. The two seams being worked there have a very steep dip—about 1½ to 1; more in places. I understand the quality of the coal does not improve going down below the present low-level workings; therefore, further progress to the dip is for a time stopped. The coal-hewing at the present time is in the main seam in the dip-levels going south. The great trouble in these workings is to keep the levels open. In some places there is a great quantity of timber used up by constant renewals. There is a bad roof in most places, and it requires a great deal of attention to prevent fire taking place overhead. A fire started overhead in one place not long since, and a considerable amount of labour was necessary to put it out. All the mine appliances are in first-class order. (11/9/96): In consequence of some questioning in Dunedin lately regarding the safety of this mine when being retimbered, I at once visited the mine and dip-workings and carefully examined all the timbering done since my previous visit. I found it in very good order, and quite safe. I find from the amount of crib-work lately done, and the number of intermediate sets of timber fixed in position, that every care has been taken in the matter of timbering where the roof was bad. I saw nothing to warrant the statement made to me that the mine when timbered was not safe. Such a statement could have emanated only from an inexperienced person. I examined the report-book, and found gas reported in one heading from the dip.

McAllister's Langridge Pit, Kaitangata.—(2/7/96): The top level is abandoned, and a new level has been put in to the coal below the first opening. The coal is now being stoped out between the two levels. The seam is on the thin side for this district—3½ ft. only—but the coal is of good quality. The coal-boxes are now lowered down the face of the hill to the road, where carts may be readily loaded on short notice.

Lishmer's Coal-pit, Conical Hills.—(25/8/96): This pit is in the same good order and condition as it was at the time of my previous visit. The stripping is kept well in advance of the working coal-face from end to end of the long open cutting. Since my former visit the pit has again been flooded, many acres of the surrounding surface having been several feet below the water. After the flood had subsided to the level of the surface it took sixteen days' steady pumping to get the water down to the floor of the pit, during which time the little engine driving the centrifugal pump broke down through having been driven too fast. It is now thought desirable to get a much larger pump, and also a larger boiler to generate the required quantity of steam to do big work should the pit be again flooded, which is more than likely every few years.

Orchard's Pit, Pukerau.—(26/10/96): The coal-floor is rising with the surface as the work advances to the south; but the coal is also thinning considerably in that direction, and it is feared it will in a short distance cut out altogether. There is, however, the full thickness (15 ft.) of coal on the east and west side of the open pit. The drainage in the pit is being pumped out by a windmill. The stripping is from 8 ft. to 10 ft., heavy clay, which was very much caved in at the time of my visit.

Central Otago.

Jones's Pit, Coal Creek, Roxburgh.—(2/5/96): The stripping is now very deep, nearly perpendicular, and much of it hard clay, under which there is a quantity of soft useless coal. The bulk of the stripping is run off by water carried in a race from a distance to the pit. Some of the stripping is kept in advance of the face of coal, which is of considerable thickness, and apparently lying nearly horizontal.

McLaughlan's Pit, near Roxburgh.—(19/6/96): This is a new pit lately opened, close to McLaughlan's accommodation-house, on the Alexandra Road. The outcrop was found on the west side of a gully, where an open face was first made, after which two tunnels were driven for some distance into the coal. It is not yet known how the seam stands, or of what thickness it is. It appears to me as if it dips to the west at a steep angle. Some of the coal is rather loose, but of good quality. It should command a ready sale at Bald Hill Flat.

Mrs. McPherson's Coal-pit, Coal Creek, Roxburgh.—(2/5/96): The drain tunnel to the pit is causing some trouble where it approaches the coal, in consequence of the soft and swelling character of the formation. I have suggested a short deviation-tunnel to where I think the coal-seam may be reached through better standing-ground. There is now a large body of coal beneath the old open floor to be quarried out up to the old stripping-faces. The quarrying will last for some years.

J. Craig's Pit, Coal Creek, Roxburgh.—(2/5/96): A dip-drive has been put down from the Coal Creek bed to the coal at a level of from 14 ft. to 17 ft. below the first workings, and a level drive has been made in the coal for some distance. From this level the thickness of seam is being tested to the right and left, but up to the time of my visit the side walls had not been reached. A long covered drain constructed to the coal some time ago is now doing good work.

Thomson's Coal-pit, Alexandra.—(13/6/96): The new dip-drive from the surface to the old south workings is completed, and is of great service as an upcast airway. It will also serve the purpose of a travelling-road to avoid the vertical ladder in the old shaft. There are at present three working-places going westward in solid coal, each having passed through a strip of loose soft coal varying in thickness from a few feet to a few yards. It is now thought that a considerable body of good coal may be found in this direction. The roof all along the main travelling-road is in first-class order, as also are the three working-places and the old workings. The air is now good, and the mine nearly dry.

Rivers's Pit, Alexandra.—(10/1/96): There are two men hewing from 5 ft. to 6 ft. of coal, in which there is a stone band 1 ft. thick. This stone is stacked along the side of the bord, and the slack put behind it. The roof is fairly good, but the air is bad. Preparations are being made to force air down the shaft 71 ft. by a water-jet. I fear this plan will not be up to requirements. A

second shaft will eventually be required if there are to be more coal-hewers employed in the pit. I have suggested to Mr. Rivers the advisability of sinking a second shaft at an early date, and that it be made to comply with General Rule 26 of "The Coal-mines Act, 1891."

L. Gards's Pit, Alexandra.—(11/1/96): Examined all the working-places, several of which are very wet overhead. About 6 ft. of coal is being hewn, and the pillars standing are from 15 ft. to 18 ft. thick. The longest headings are to the south-east, and nearly level, but to the north-east—into the flat—the floor dips 1 in 12, and, as a matter of course, cannot be conveniently followed any distance without cutting a drain in the floor, a deep drain in which is not safe in consequence of a layer of quicksand having been found under the coal when sinking the well in the shaft. A portable engine does the winding and pumping. The shaft is 65 ft. deep to the floor of the workings, partitioned into two compartments. The pump and ladder compartment is in one, 2 ft. 3 in. by 2 ft. 10 in. The hoisting compartment is 2 ft. 10 in. by 3 ft. 5 in. It is a tight fit for me to get up or down the ladder. The pump has a 6 in. column and a 3½ ft. stroke, requiring fifteen strokes per minute to keep the water down below the pit-floor, and working sixteen hours in the twenty-four. The air is not as good as it should be. When I suggested the advisability of at once sinking a second shaft to comply with General Rule 26, Gards said he "would rather abandon the pit; it would not pay him to sink another shaft."

Dunge's Pit, Cambrian's.—(20/1/96): The appearance of the working-face is much the same as it was last year. The stripping is all hard-packed gravel from 9 ft. to 10 ft. deep, and has to be carted away a few chains to keep the open paddock clear for the horse-teams to turn about. The coal is of the best quality of its kind in the district, and the seam is from 5 ft. to 10 ft. deep. The pit, being on the crown of a round hill, is always dry underfoot.

Jones's Coal-pit, Cambrian's.—(20/1/96): The present workings are at the south end of the long open cutting, where the coal is being taken out to a depth of about 16 ft., and not to the floor of the coal. The quality of the coal is said to be remarkably good. The stripping is from 15 ft. to 20 ft., and is partly removed by water when available in a sufficient quantity to sluice it off. This can be done only at times of heavy rain. The open drain to the pit is now being cleaned out and in places covered. The walls and covering are being done with stone. The lowest part of the old working-face is now filled with water to a depth of about 5 ft.

G. Field's Pit, Earnscleugh.—(13/6/96): It is now five or six years since I visited this pit, during which time little or no coal has been mined therefrom. Now that there is a ready sale for coal of good quality at the dredges between Alexandra and Clyde a fresh start has been made to open the pit in a new place, a few chains south of the old workings. A shaft has been sunk to a depth of about 70 ft., a portion of which depth is in the coal to where it is solid. The seam standing nearly vertical, very much of the top of it is soft and useless. However, at the level sunk to the coal is said to be hard, and a drive to the westward, which is supposed to be across the seam, has been made a distance of about 27 ft. without finding the outer edge of the coal. The shaft is not the size required by the Act, and is not big enough to admit of ladders. Field therefore purposes driving a tunnel at an early date to the coal at a level below the bottom of the shaft. I understood him to say that the timber for the tunnel was now on its way up from Heriot. The coal has a bright shiny appearance, and by those who have used it it is classed as the best in the district. There is a good road from the pit to the Clutha River at Clyde and Alexandra.

Beck's Pit, Idaburn.—(17/6/96): This pit has been worked for some years by Beck and McLean, but it is now being worked by Beck alone. The stripping is from 5 ft. to 8 ft., and the depth of coal quarried out is from 20 ft. to 25 ft. The laminations of the coal-seam at the east end of the open face now show very clearly a sharp dip to the north. The quality of the coal on the south side of a certain lamination in the centre of the coal-face is very much better and cleaner than the coal previously worked on the north side. The pit is in good order.

McLean's Pit, Idaburn.—(20/1/96): Mr. McLean, it is said, has parted company with Mr. Beck, with whom he has been a partner for some years past. McLean has a pit of his own on the east side of and adjoining Mrs. Andrews's pit. I did not see McLean, but was told he intends hewing coal in his own pit at an early date. There is a good sample of kerosene-shale in this pit, but I do not think the deposit is extensive.

Finnisey's Pit, Idaburn.—(21/1/96): This is a new pit situated in the face of a high terrace on the west side of the Idaburn Stream, within a mile of the foot of the main range at the head of the Idaburn, and on the range side of the Naseby Water-race. The coal is exposed on the face of the terrace by sluicing off the gravel, which is from 2 ft. to 10 ft. deep. There is not much work done yet, but enough to show that the seam stands at a very steep angle—nearly vertical it appeared to me. I think the distance to the pit from the main Naseby Road is probably three miles, over a tussock road, which is very soft in some places. I think the quality of the coal is very good, probably the best in that locality. I did not see any one at the pit.

Mrs. Andrews's Pit, Idaburn.—(20/1/96): The working-face in this large pit is being carried on to the eastward, in which direction the coal-seam is thinning considerably. The partings and old open watercourses in the coal make it easy to hew it down. I understand there is good coal being left underfoot, but I do not know how much.

Dougherty's Pit, Gimmerburn.—(21/1/96): I found Mr. Dougherty at the pit stripping at the south end of the long open face. His intention is to extend the open face in this direction in order to reach an old drain, which he thinks can be utilised to carry away the pit-water from the hand-pump, which will then have to lift the water a much less height than it does now at the north end of the pit. The pit is in a safe condition.

Archer's Pit, Kyeburn.—(22/1/96): Coal is being brought out of the same dip-drive used last year, but the coal-hewing is not now on the same level. The level from the dip last year, after working to the south fault, was abandoned, and a level tunnel, 5 ft. to 6 ft. high, immediately under the old workings, is now being driven towards the north fault, and is supposed to be within

150 ft. of it. When reached stoping back will be the plan of operations till the mouth of the drive is reached. The air at the northern end of the present workings was very bad on the day of my visit, and Mr. Archer promised to remedy this as early as possible by making a second connection with the air-shaft.

McCready and Combes's Pit, Kyeburn.—(22/1/96): I found Mr. Combes at the pit, and learned from him that during the winter the old workings had been stoped back to the mouth of the tunnel, and allowed to cave into that level. Quite lately a shallow shaft has been sunk to the coal-seam, which crosses the gully near the mouth of the old tunnel. The coal in the shaft has been driven on to the south for a distance of about 80 ft. The drainage is at present being hoisted in a bucket by a hand windlass.

Cooper's Creek Pit, Clyde.—(18/5/96): The stone tunnel has at last reached the coal and the hanging-wall, which stands at a very steep angle—almost vertical. The seam is said to be about 20 ft. thick, and of fairly good quality. The tunnel, after passing through the schist-rock, had to be driven through many yards of soft schist and clay, nearly all of which swells up from the bottom, and caves in from the sides and roof to such an extent as to require the renewal of timber at very short intervals of time. I pointed out to the man in charge that I did not consider the timber heavy enough for the work. Had the timber first put in been very heavy and close lathed, it would have prevented any material movement and saved much trouble. The only coal-hewing yet done is the driving across the seam to the hanging-wall.

J. Pryde's Pit, Bannockburn.—(20/6/96): All the working-places were inspected, also some of the old workings, all of which are in good order and safe condition. In the present workings south of the dip-drive there are 2 ft., or perhaps 3 ft., of shale overhead, between the seam being worked and the next 7 ft. seam of coal. This shale, after a time, gradually flakes down till it leaves a smooth coal roof of the best kind. The shale, as it indicates separation, is pulled down and stacked at the sides of the bords. This shale roof requires careful and close attention till it is all down immediately over the travelling-road. The workings are dry, and the air is very clear.

Goodger and Stronach's Pit, Cromwell.—(27/1/96): A shaft 8 ft. 6 in. by 3 ft. 6 in. in the clear, having timber 2 ft. by 8 ft. throughout, is being sunk about half-way up the terrace on the west side of the Kawarau River and on the west end of the Town of Cromwell. At the time of my visit the shaft was down 134 ft., and the work was proceeding rapidly to finish at an early date. I understand several small seams of coal have been passed through, including one of 8 ft., but sinking is being continued to reach a seam supposed to be 13 ft. thick, in which it is intended to commence mining operations. I am told the coal-seams have a steep dip to the westward. This dip will, at an early date, necessitate one of two things—viz., sinking the shaft some depth through the coal-seam, or additional winding and pumping plant to follow the dip of the seam. There is a considerable quantity of water making in the shaft in the bottom gravel lying on the coal-measures. This water is not likely to get any less in quantity. (18/6/96): The shaft was sunk to a total depth of 153 ft., at which level coal-hewing was commenced, and is being continued by the removal of 7 ft. of coal, leaving 1 ft. or more overhead to strengthen the roof, which appears, so far, to be in first-class order. The present floor is said to be coal, but I did not record the depth of it. The coal is generally hard, but there are old soft places which do not improve the quality. The walls of the bords are quite solid, and show no signs of cracking. There is quite a quantity of water flowing down the shaft from the floor of the open gravel on top of the coal-measures. I fear the quantity of the water will not get less. The pump used is a common lift, and is being driven at too high a speed. A small Tangye pump would do the work quite easily, and would be no trouble to keep in good working-order. It would be a decided advantage, and a saving to all concerned, to remove the present pump and to do the winding only with the engine. At the present time the coal is being hoisted in bags, several at a time. I found only one man working in the mine. The dip of the seam is 1 in 3 to the west. I have requested the mine-owners to provide proper cages at an early date.

Gibson's Excelsior Pit, Bannockburn.—(18/9/96): This is the Excelsior seam, which was reached here by a short adit from the west side of the Bannockburn Creek. The coal was followed only a short distance to the west, when it was found to be cut off by a fault. It is the intention to abandon this as soon as the pit on the west side of the creek is fairly opened.

Parcel and Gibson's New Pit, Bannockburn.—(18/9/96): This pit is situated on the east side of Bannockburn Creek, near its junction with the Kawarau River. A shaft was first sunk 30 ft. deep from the floor of an old sluicing claim, where a great depth of terrace was in the early days sluiced off. The shaft passed through two seams of coal, the lower one being 7 ft. thick. A dip-drive, 3 to 1, is now being put down to the lower seam, and is said to be within 30 ft. of the coal. The covering in the coal is thought to be good standing-ground.

Wilson's Pit, Kawarau, Bannockburn.—(27/1/96): A new adit has lately been put in to the coal, at a higher level than the old workings, and on the same side of the river. The adit is of considerable length, and is at present following the contour of the coal. The dip of the seam is to the west. At the mouth of the pit a wire rope is suspended across the Kawarau River to the Cromwell side, and on this wire rope a cage is made to run, carrying five bags of coal at a time. There is a dray-road on the delivery side down the face of the high terrace to the bag landing, from which the coal is carted away. The coal-seam is about 6 ft. thick, and the roof is not very good. I had to find fault with the air in the mine, and a promise was made to remedy this by sinking an air-shaft at an early date. (18/9/96): I did not find any one there, and from what I saw I do not think there has been any coal-hewing for some days past. Having found a pit lamp, I examined the south workings to the end of the main heading, where the coal is about 5 ft. thick, and not a good roof. Notwithstanding the working-places being very narrow, the roof flakes down in places, and some timber is used.

Anderson's Pit, Bannockburn.—(27/1/96): The old pit was abandoned a short time ago in

consequence of the drainage being very heavy in the dip-workings. It is now proposed to put in a tunnel to the old vertical seam, where there is known to be some solid coal. (20/6/96): A dip-drive is now down to the coal-seam, which is being followed to the south. The width of bord is from 5 ft. to 6 ft., and height about 7 ft. A deal of the coal is very much crushed and faulted.

Crow and Anderson's Pit, Bannockburn.—(18/9/96): I went down the dip-drive and examined a little of the workings, but did not find any one there. The indications were that no work had been done at the mine for some days, perhaps weeks.

Cooper's Slaughteryard Pit, Kawarau Bank, Cromwell.—This is an old pit, reopened lately by Cooper. The seam is about 4 ft. thick, and dips at a steep angle to the south-west. The contour of the seam is being followed northward. The openings in the Kawarau river-bank are a little above flood-level. I understand the coal-seam is very much faulted in the terrace going north.

Mrs. Cowan's Pit, Gibbston.—(28/1/96): At the spot where Cowan was killed the face of the hill is now being stripped to the coal by the use of water from time to time when a sufficient supply is available, which is not often the case. The depth of stripping is great, but, being fine, loose stuff is easily washed away. The opening that was being made at the time of my previous visit to reach the coal at a very low level down the hill below the old workings is still being proceeded with by sluicing the surface off instead of continuing the tunnel as at first started. I fear that sluicing the surface off the coal at this particular place will be a failure, in consequence of the broken nature of the country. All the face of the hill is a series of landslips, most places having a steep gradient. All the coal is very much crushed, and has to be bagged on the spot in order to reach the market in a saleable size.

SOUTHLAND.

William Kirk's Pit, Waikoikoi.—(26/10/96): This is merely an opening in the face of a terrace which is composed of bands of sand and layers of sticks, apparently the remains of an old manuka swamp. There is, however, a seam of lignite from 3 ft. to 4 ft. thick at the bottom, which is hewn out for home use only.

C. O'Hagan, Pukerau.—(26/10/96): All the working-places were examined and found in good order. The floor of the pit continues to dip slightly in the direction the bords are being advanced, and is now 2 ft. below the outlet drain, and, of course, some of the mine drainage flows inward, and has to be bailed out with buckets, which have now in places to be carried some little distance to the drain. The roof throughout the mine is in splendid order.

Dudley's Pit, Pukerau.—(26/10/96): The coal is still being got by stripping, which averages about 12 ft., all heavy clay. The coal-face, which is 16 ft. thick, was hidden from view with a fall of clay at the time of my visit. The late heavy rains have very much contributed to the discomfort of all the miners owning open pits in this district.

Heffernan's Mine, Gore.—(23/10/96): Since my visit last year stripping has been discontinued, and a tunnel in the coal has lately been started; its direction is to the northward. There appears to be 5 ft. of coal left overhead for a roof. The tunnel is not far in yet, and it is not too wide at the start.

Gutschlag's Mine, Gore.—(23/10/96): The place being opened at the time of my visit last year is not now being worked. Another place has been opened where the coal appears to be about 8 ft. thick, and the depth of stripping the same. I did not find any one there.

R. Smith's Pit, Bark Hill, Gore.—(27/10/96): This is a small pit on Mr. Smith's farm close to his house, where he hews out coal for his own use. The stripping is very shallow.

Sarginson's Pit, Gore.—(27/10/96): The old pit, from which the coal has lately been taken, is shallow, on very flat land, and at the time of my visit was filled with water to the surface. No work will be done in the pit for a month or more, at which time there will be a greater demand for coal.

Zoffman's New Pit, Gore.—(23/10/96): This new opening is quite close to, and on the north side of, some old workings—now a lagoon—on the west side of and close to Lettzi's pit. The seam is 7 ft. thick, and only from 3 ft. to 5 ft. from the surface; it is being followed to the westward. No great amount of work has yet been done. The seam dips rapidly to the north, but is not followed to the water-level.

Stark's Mine, Gore.—(23/10/96): The working-places are being extended southward, following the contour of the dip, and at no great distance from the outcrop. The bords are generally about 14 ft. wide, and probably 12 ft. high, leaving from 3 ft. to 5 ft. of coal overhead for a roof, no part of which has yet caved in or shown any indication of weakness. The working-places are dry, and the only drainage to be pumped from the mine comes into it from the surface at the opening or outcrop. The small engine works the pump four hours per day, and is no trouble. The air is good all through the mine.

Joseph Smyth, Gore.—(23/10/96): The working-places are going southward, where the height of coal taken out is about 14 ft., leaving from 6 ft. to 8 ft. overhead for a roof. The bords are about 12 ft. wide, leaving substantial pillars between. The workings are very dry, and the air is good throughout the mine.

R. Smyth's Pit, Gore.—(23/10/96): This opencast is partly filled by a landslip. On the south-west side of the pit there is a little clean coal exposed, but it is very thin. There appears to have been very little work done in the pit during the past year.

Burgess and Egan (McKinnon's Mine), Gore.—(23/10/96): After the new pit (opencast) was well opened a drive was put in northward 8 ft. or 9 ft. high in the coal, leaving from 5 ft. to 6 ft. of coal overhead for a roof. This main heading is being extended on the contour of the seam. The working-place is dry and comfortable to work in. I am pleased to find a Denniston Hill collier in charge of the mining.

Irvine Brothers' Mine, Knapdale.—(20/10/96): The new pit is now fairly opened by an adit in

good solid ground from the west face of the terrace to the seam, which, though nearly vertical, has a slight underlay to the eastward. The coal is being followed to the north, along the foot-wall, and was at first 12 ft. wide, but after a while it flaked off on the hanging-wall side a thickness of nearly 3 ft. to a clay parting, since when the bord has been carried on 15 ft. wide, with about the same height. I understand there is a limit to the distance that may be driven north to reach another man's land-boundary, and, in the meantime, it is the intention of the Irvines to drive a tunnel to the east about 1½ chains, in order to cut another seam of coal that is known to exist at that distance from the one they are now working, and running parallel with it.

Harvey's Pit, Chatton.—(21/10/96): I found the pit flooded, and no work of any kind being done. The coal-seam (vertical) is exposed in the face of the hill, and is being followed southward, in which direction the outcrop appears to rise with the hill. This, of course, keeps the stripping as shallow as could be desired. The height of seam in the open face is now about 15 ft., and will be much greater as the work proceeds.

Pacey's Pit, Chatton.—(21/10/96): I did not find any one about the pit, which was full of water, caused no doubt by the late heavy rains. It does not appear that any great amount of work has been done since my last visit. The stripping is getting deeper, but is kept in advance of the coal-face.

McGill's Pit, Waikaka.—(22/10/96): At this opencast the stripping is still very shallow (4 ft.), and the coal-seam is 16 ft. The late heavy rains flooded the pit, but at the time of my visit the little water-wheel had nearly all the water pumped out. The pump is of wood, 4 in. by 4 in., having about a 20 in. stroke.

McDonald's Pit, Waikaka.—(22/10/96): The opencast is now about 1 chain long, having about 10 ft. of coal and about the same height of stripping, which is rapidly getting heavier into the hill, in which direction the coal dips considerably. The present drain is not deep enough to take away the water beyond the present working-face.

Evans's Pit, Wendon.—(22/10/96): The stripping appears to be getting gradually deeper as the work advances into the hill, and is still very hard. I understand the bulk of it is broken up with powder to save pick-labour. Most of the stripping has to be barrowed or carted away to one side, which in either case means a considerable amount of labour, at, I fear, very poor pay.

Black's Pit, Greenville.—(22/10/96): This is the pit one Morgan worked for a short time two years ago. Very little has since been done at it, but it is again to be cleaned out at an early date.

Vial's Mine, Waikaia.—(31/10/96): I did not find any one at the pit. No stripping for coal has been done since my previous visit. At that time a drain was being cut up to the coal-face from the river, a distance of several chains, since the completion of which the coal has been mined out. I find a main heading to the eastward, and two short drives from same to the south. In each of the bords from 8 ft. to 9 ft. of coal has been hewn, leaving about 4 ft. of coal overhead for a roof. In consequence of the drain to the mine having been partly filled in at the time of my visit, and the water backed into the workings, I did not get in so far as the face of the main heading.

P. Hill's Pit, Waikaia.—(31/10/96): There is from 30 ft. to 40 ft. of gravel, resting on the coal, sluiced off for the gold it contains, and a few feet of coal is then hewn out to a convenient depth. There does not appear to be much doing in the coal trade at this pit, and I do not think it would be worked for the coal if there was not gold in the stripping.

Northcote's Pit, Waikaia.—(31/10/96): This pit appears to be merged into Hill's; they are worked as one. The mouth of the old mine is buried in landslips and *débris* from Hill's sluicing operations. I did not find any one at the pit.

McIvor's Pit, Waikaia.—This is closed as a coal-pit, and is now being mined for the gold found in the gravel resting on the coal.

Cosgrove's Pit, Waikaia.—(2/11/96): There is no work going on at the pit at present. Stripping is still being done by water, and the working-face is in a safe condition.

John Smith's Pit, Kingston Crossing.—(30/10/96): The open face of coal is now 3 chains long, with a floor nearly level. The stripping will probably average 14 ft., all of which is getting harder as the work advances into the terrace. The surface is ploughed to a certain depth and scooped off by three horses. The coal-seam is, on an average, from 8 ft. to 9 ft. thick, rising slightly into the terrace. In places the surface of the coal shows how very much it has been scoured away, and into deep trenches, by the action of the gravel and water at some remote period of time. There is a covered drain at a level below the level of the floor of the seam that keeps the pit in good order underfoot. The intention is to mine the coal out at an early date, as it is thought it will be less costly than stripping ahead of the present face.

Sleeman's Pit, Mataura.—(28/10/96): The stripping on the north side of the pit is 14 ft., which is much less than it was on the south side. The gravel is also much cleaner, and therefore easier shifted. The coal is from 17 ft. to 18 ft. thick, dipping to the north and the west. The drainage into the pit is gradually getting very heavy. The little water-wheel is working two 6 in. and two 8 in. pumps, which lift 9,000 gallons per hour, and the portable engine is driving a centrifugal pump which lifts 12,000 gallons per hour. This pumping is kept going night and day; the only stoppage is to allow of the renewal of the leather on the pump-buckets. Sleeman says he cannot continue working this pit much longer, and in order to keep his trade he has lately purchased 200 acres of land a little lower down the river where the same seam of coal is known to exist, and in order to avoid heavy pumping at the proposed new pit he has let a contract to drive a tunnel from the Mataura River, near its ordinary water-level, to the spot intended to be opened, a distance of 1,000 ft., where it will, with a rise of 1 in. to the chain, just touch the floor of the coal-seam. The tunnel, which will be in easy cutting, is expected to be completed within six months, soon after which the present pit will be abandoned.

Beattie and Coster's Pit, Mataura.—(27/10/96): The stripping is still fine gravel, and averages about 12 ft., and the working-face is advancing to the north-east. The coal is 16 ft. thick on the west side and 10 ft. on the east side, towards the Mataura River, in which direction it thins out. The coal-floor dips slightly to the north and from the river. It is an interesting fact to know

that this coalfield was at some remote period of time the bed of a very large river, carrying seaward enormous quantities of gravel containing gold. Very fine gold is found all through the gravel, and in the vertical coal-fissures, which are very numerous, specks of gold are visible in quantity to a depth of 8 ft. in the coal from the gravel. I collected some of the larger specks, and had a very small quantity of the mud scraped off the coal-face at the depth stated. The mud was panned off, and the result was several grains of gold. The collier in this mine carefully scrapes all these vertical fissures, and has obtained as much as three pounds' worth of gold from one of the cracks. The collier says he often gets what may be classed as coarse gold. Some of the bits have quartz adhering to them. It would be wise for those consuming coal from this pit to carefully save the ashes and wash them for the gold they contain, since all the top coal must contain more or less gold.

Glendhu Coal-pit, Mataura.—(28/10/96): This is a new pit at the Hokonuis, and is situated about eight miles west of the Town of Mataura. The outcrop was lately discovered at the head of a small gully, where a small patch of it was exposed by stripping off a few feet of surface. The little work done shows the seam to be very much tilted on edge, probably 40°. The dip is towards the hills. The little coal to be seen is very friable, and the formation very rotten. So far as I am able to judge at present, it will be a difficult seam to mine and keep open, notwithstanding there being plenty of timber handy. I do not think it will pay to mine it to any extent. By stripping, some coal may be easily procured from the outcrop, but it is questionable if it will pay for the land so destroyed. The quality of the coal is much in advance of any coal now being procured in the Mataura.

Townshend's Pit, Mataura.—(28/10/96): Very little work has been done in the pit since my previous visit. Sufficient coal for home use is being taken out as required.

Sutton's Pit, Fairfax.—(12/11/96): Mr. Sutton is now working back towards the adit-mouth, and his present workings are about 3 chains in from the open face. The thickness of seam (5 ft.) continues the same without any variation to a distance of 5 chains from the open face, and has a remarkably level floor all the way. A considerable amount of space in the old workings is being filled up with dross and other refuse.

Graham and Todd's Pit, Fairfax.—(12/11/96): All the workings, new and old, were visited and carefully examined. I found the roof down in two places in the old and extreme back workings (5 chains), where some of the timber is now showing more or less decay. In the present working-places the roof is in first-class order. The two men are working some distance apart and independent of each other. In Todd's present working-place the caps were resting on props at one end and at the other on a flimsy recess in the coal that could not possibly carry any weight that is likely to come on it at an early date and at any moment. The second prop under each cap was promised to be placed in position forthwith.

Slattery's Pit, Fairfax.—(12/11/96): This is still an opencast, and the stripping is now being done near the outcrop of the seam, where it is from 6 ft. to 7 ft., and the coal not more than 3 ft. thick. Toward the east the stripping rises to 10 ft., and the coal to 6 ft. thick. The stripping is being barrowed into the worked ground by the owner, but he generally employs one or two men in the busy time just before harvest.

Reid's Pit, Nightcaps.—(13/11/96): This opencast is situated on the low flat on the west side of the main creek, under which the coal-seam dips quickly to the eastward. The stripping at the outcrop is about 5 ft., and on the western boundary of the section about 15 ft., a distance less than 3 chains. The overlying gravel is very tightly packed, and not easily removed with the pick, and for safety it is being removed in two benches, and dumped into the worked-out ground by horse and trucks. The seam maintains an even thickness of 13 ft. of clean coal.

Nightcaps Coal Company.—(13/11/96): This company is mining coal from the adjoining section to W. Reid's, and on the east side of same. The section is very small, and is, I think, nearly worked out. The pillars are now being split in places, and much stoping has been done. All the working-places in the main pit were inspected and found in good condition. The air-current, however, was not what it should be, and I had to call attention to it. I understand preparatory work is in hand to improve the air-current by sinking a shaft at a shallow part, where there is not much labour required. The defect can, therefore, be remedied at an early date, and I have no doubt it will be done. A third place being worked by the company is situated some little distance higher up the valley, where the outcrop of the seam is found by stripping off 5 ft. of clay. The seam, however, stands at a considerable angle, but is not being followed beyond the depth that a California-pump will lift the drainage to the surface. The coal, which is of good quality and clean, is hauled to the incline by a horse along a tram-line.

Alley's Pit, Nightcaps.—(13/11/96): This is a continuation of the outcrop up the valley that is being worked by the Nightcaps Company. Alley uncovers the outcrop and follows it down only a few feet to where the drainage is too heavy for him to work.

Serious Accidents in Southern Coalfields.

I have to report as follows on the several accidents which have occurred during the year ending the 31st December, 1896:—

Shag Point Mine (19th February).—John Simpson got his leg badly crushed against a stone wall by a fall of coal and stone which rolled against him.

Mosgiel Mine (9th April).—William Mitchell got his face cut badly by a lump of clay from the roof of an adit bearing him down and his face and head coming in contact with a spade-blade.

Fernhill Mine (25th August).—Reid was killed by a fall of coal from his working-face. There was no one present at the time. It appeared he had holed the coal, and was probably in the act of cutting the right-hand side when it suddenly came away and caught him. There was no one to blame.

J. Gow,
Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

APPENDICES.

APPENDIX I.

Statistics of Workings in Coal-mines, 1896.

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, 1895.	Approximate Total Output to 31st December, 1896.	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.																										
Kawakawa District.													Tons.	Tons.	Tons.	Tons.	Tons.									
Kawakawa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	794,845	794,845									
New Bay of Islands Coal Co.	Ross, John	$2\frac{5}{12}$	semi-bitum.	1	3′ to 10′	the whole	1 in 5	bord and pillar	1	5′ x 3′	40′	adit incline	13,967	..	13,967	13,074	27,041	3	20	23	horse	..	..	..	..	22/9/96
Hikurangi District.																										
West Bryans	Smith, Charles ..	8	bitum.	1	6′	6′	1 in 7	stoop androom	..	6′ x 5′	420′	rail	9,539	..	9,539	22,644	32,183	2	7	9	steam	..	..	..	air shafts	24/9/96
Walton and Graham's ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,210	1,210	..	..	..	..	..	..	..	..	..
Hikurangi Coal Company ..	Moody, T. P. ..	3	semi-bitum.	1	7′ to 16′	7′ to 16′	1 in 6	pillar and stall	..	6′ x 9′	..	adit and engine incline	27,980	..	27,980	33,058	61,038	4	36	40	steam	..	..	..	natural	24/9/96
Phœnix	Matthews, W. E.	2	ditto	1	10′	10′	1 in 8	ditto	..	8′ x 10′	210′	horse	2,100	..	2,100	2,897	4,997	1	5	6	horse	..	..	..	shaft	24/9/96
Whangarei District.																										
Kamo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	225,037	225,037	..	..	..	..	..	..	..	..	..
Kamo New	Griffin, J. ..	$2\frac{10}{12}$	brown	1	6′	5′	varies	bord and pillar	1	4′8″x2′8″	157′	adit	873	..	873	4,975	5,848	1	4	5	horse	..	..	..	natural	6/8/95
Whauwhau	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70,853	70,853	..	..	..	..	..	..	..	..	..
Ngunguru District.																										
Kiripaka	Wright, Edward S.	4	semi-bitum.	1	3′ 6″ to 9′	the whole	1 in 8	bord and pillar	2	7′ x 5′ 4′ x 2′	1,518′	incline	20,233	..	20,233	35,221	55,454	11	26	37	horse	..	..	..	natural	28/9/96
Waikato District.																										
Waikato	Wallace, William	8	brown	1	10′	10′	varies	ditto	2	6′ x 5′ 5′ x 5′	528′	horse	14,060	173	14,233	166,705	180,938	10	22	32	"	..	..	..	"	7/12/95
Taupiri Extended	Tattley, William	10	"	1	21′ to 50′	7′ to 22′	irregular	"	2	10′diam.	170′ and 204′	rail	28,144	844	28,988	503,670	532,658	10	42	52	steam	duplex 13″, 12	7″, "	204′ 170′	fan	6/12/95
Taupiri Reserve	Harrison, Jonathan	10	"	1	20′ to 24′	10′ to 16′	1 in $4\frac{1}{2}$	"	2	9′ x 6′	1,188′	engine-incline	18,660	..	18,660	122,932	141,592	15	35	50	"	2′	2′	" 140′	exh'st	6/12/95
Ralph's Taupiri	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,019	23,019	..	..	..	..	..	..	..	..	..
Miranda, Bridgewater ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20,668	20,668	..	..	..	..	..	..	..	..	..
Bombay	..	6	brown	1	5′	..	..	..	..	..	200′	..	18	..	18	32	50	..	..	..	..	..	..	..	..	..
Mokau District.																										
Mokau	Lobb, Joseph ..	12	"	1	7′	7′	1 in 24	bord and pillar	..	8′ x 7′	1,056′	horse	1,943	..	1,943	7,622	9,565	3	7	10	..	..	..	..	..	..
Co-operative	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	940	940	..	..	..	..	..	..	..	..	..
Totals	..	..	..	..	..	..	..	..	..	..	..	..	137,517	1,017	138,534	2,049,402	2,187,936	60	204	264						

MIDDLE ISLAND.

COLLINGWOOD.																													
Pakawau, Collingwood	..	Caldwell, W. S. O.	2	bitum.	2	2′4″ 2′10″	all	1 in 4	longwall	2	4′ x 5′	560′	adit	300	100	400	383	783	1	2	3	hand	..	..	..	natural	26/9/96
Wallsend, "	..	Walker, James ..	27	"	2	20″ each	"	N. 60° W.	"	..	..	..	"	37	5	42	47,371	47,413	3	1	4	"	..	..	..	"	..
Takaka, Takaka	.. ..	..	3	brown	1	2′ 8″	"	1 in 10	driving	..	..	..	"	..	..	..	70	70	..	..	..	..	..	..	..	"	..
Motupipi, "	.. ..	..	4	"	2	2′ 2″ eac.	"	..	..	..	..	..	"	..	..	..	70	70	..	..	..	..	..	..	..	"	..
Enner Glynn, Nelson	..	Bennett, William	2	"	1	5′	"	S.E. 70°	sinking and driving	2	8′ x 4′	180′	shaft	18	44	62	100	162	2	2	4	horse-whim	..	..	..	fan	22/9/96
WESTPORT.																													
Mokihinui	.. ..	Alexander, T. ..	15	bitum.	1	6′ to 15′	8′	1 in 7	bord and pillar	..	9′ x 7′	14ch.	adit	9,222	315	9,537	33,537	43,074	4	40	44	engine	12″	8″	60′	natural	11/9/96
Westport-Cardiff	.. ..	Broome, G. H. ..	3	"	1	17′	all	varies	ditto	1	9′ x 7′	400′	"	29,550	10,881	40,431	37,702	78,133	18	60	78						
Granity Creek	.. ..	Brown, Thomas ..	4	"	1	4′ to 40′	8′	"	"	2	9′ x 6′	37ch.	incline	18,898	1,645	20,543	..	20,543	66	26	92	"	..	..	..	furnace	23/6/96
Coalbrookdale	.. ..	Green, John ..	14	"	2	4′ to 20′	all	"	"	..	9′ x 5′	155ch.	adit	155,309	35,666	190,975	1,896,146	2,087,121	85	230	315	engine	..	..	..	fan	16/12/96
Iron Bridge	.. ..	Milligan, N. ..	..	"	2	..	"	"	"	..				..	..	..	..	..	..	..	..	..					
																							12″	4½″	100′	natural	
																							12″	6″	140′		
																							12″	6″	100′		17/11/96
																							18″	12″	100′	and	
																							9″	6″	50′	fans	14/8/96
Waitakere, Charleston	..	Humphries, Jesse	11	brown	1	12′	"	"	opencast	..	..	..	..	100	..	100	568	668	1	..	1	horse	..	..	..	..	24/9/95
Whitecliffs, Buller Road	..	Woods, Patrick ..	4	glance	1	20′	12′	1 in 3	driving	..	..	..	adit	400	..	400	374	774	..	1	1	"	..	..	..	natural	24/12/96
Flax Bush, Lyell	.. ..	..	2	brown	1	2′	all	..	longwall	..	5′ x 4′	700′	"	..	..	..	230	230	..	..	..	..	..	..	..	"	18/12/95
LONGFORD.																													
Longford	.. .. ..	Goodger, Wm. ..	2	glance	1	2′ 3″	"	45°	"	..	7′ x 4′	250′	"	710	..	710	220	930	1	1	2	hand	..	..	..	"	6/12/95
Alexander	.. ..	..	4	"	1	2′ 8″	"	45°	"	..	..	..	"	..	..	..	282	282	..	..	..	..	..	..	..	..	..
BOATMAN'S.																													
Coghlan's	.. .. ..	..	7	"	1	12′	8′	W. 1 in 3	bord and pillar	..	..	..	"	..	..	..	370	370	..	..	..	..	..	..	..	..	..
Archer's	.. .. ..	Archer, D. ..	4	"	1	10′	8′	W.N.W.	ditto	..	6′ x 5′	120′	"	300	..	300	980	1,280	..	1	1	hand	..	..	..	natural	24/10/96
Barr's	.. .. ..	Barr, S. ..	1	"	1	12′	10′	N.W. 22°	"	..	7′ x 5′	40′	"	15	..	15	..	15	..	1	1	"	..	..	..	"	24/10/96
REEFTON.																													
Murray Creek	.. ..	..	12	"	1	12′	7′	W. 1 in 3	"	1	3′ x 5′	25′	"	..	..	..	7,760	7,760	..	..	..	..	..	..	..	..	..
Golden Treasure	.. ..	Davidson, J. G. ..	24	"	1	30′	all	1 in 5	"	..	..	..	"	300	..	300	5,040	5,340	..	1	1	hand	..	..	..	natural	26/8/96
Phœnix	.. ..	Fox, John ..	11	"	1	20′	13′ 6″	..	"	..	..	300′	"	1,699	..	1,699	8,650	10,349	1	2	3	"	..	..	..	"	26/8/96
Lankey's Gully	.. ..	Lamberton, W. ..	18	"	1	6′	5′	1 in 10	"	..	..	200′	"	607	..	607	6,447	7,054	2	2	4	"	..	..	..	"	24/8/96
Reefton	.. ..	..	5	"	1	2′	all	N.W. 1 in 5	"	..	6′ x 4′	800′	"	..	..	..	40	40	..	..	..	..	..	..	..	..	..
Progress	.. ..	..	15	"	1	5′	"	1 in 12	"	..	6′ x 4′	250′	"	300	..	300	6957	7,257	..	..	..	..	..	..	..	natural	21/8/96
Cochrane's	.. ..	..	3	"	1	9′	7′	1 in 4	"	..	..	..	"	..	..	..	370	370	..	..	..	..	..	..	..	..	..
Breen's	.. ..	Breen, P. ..	3	"	1	4′ 6″	all	1 in 2	"	..	6′ x 4′ 6″	10ch.	"	257	100	357	780	1,137	..	2	2	horse	..	..	..	natural	22/10/96
Sir Francis Drake	.. ..	Elliston, A. J. ..	8	"	1	6′	"	1 in 4	opencast	..	..	..	"	217	..	217	1,956	2,173	1	..	1	"	..	..	..	"	22/10/96
Cumberland	.. ..	..	4	"	1	8′	"	E. 1 in 5	bord and pillar	..	..	..	"	..	..	..	1,070	1,070	..	..	..	..	..	..	..	..	..
GREYMOUTH.																													
Blackball	.. .. ..	Scott, Joseph ..	6	bitum.	1	12′	9′	1 in 6	ditto	..	9′ x 6′	1,240′	"	40,239	5,533	45,772	74,220	119,992	20	70	90	horse	..	..	..	furnace	30/11/96
Brunner	.. .. ..	Dunn, William ..	31	"	1	7′	all	S.W. 1 in 4	"	..	10′ x 7′	3,000′	engine-plane	68,870	23,948	92,118	1,254,015	1,346,133	27	62	89	engine	16″	8″	220′	fan	2/12/96
Brunner Rise	.. ..	Dando, M. ..	..	"	1	"	"	"	"	..	10′ x 7′	150′	adit	..	..	..	..	..	24	100	124						
Coal-pit Heath	.. ..	..	19	"	1	16′	..	"	"	..	..	..	..	..	..	..	577,190	577,190	..	..	..	..	..	..	..	..	26/11/96
Tyneside	.. .. ..	..	..	"	1	16′	..	..	"	2	10′ and 6′ x 6′	116′ and 25′	..	..	..	..	18,398	18,398	..	..	..	..	..	..	..	..	..
Wallsend	.. .. ..	..	..	"	1	16′	..	..	..	2	11′ and 14′	670′	..	..	..	..	205,539	205,539	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1896—*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, 1895.	Approximate Total Output to 31st December, 1896.	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.*																										
MALVERN.													Tons.	Tons.	Tons.	Tons.	Tons.									
Springfield, Springfield ..	Baker, H. ..	20	brown	1	4′	all	S.E. 1 in 6	bord and pillar	1	6′ 6″ x 4′ 1″	70′	shaft	2,226	454	2,680	74,572	77,252	2	6	8	engine	..	..	..	natural	30/7/95
Kowai Pass, Springfield ..	Taylor and Smith	2	„	1	3′ 6″	„	..	ditto	..	dip-drive	..	dip-drive	..	..	..	559	559	..	..	..	..	..	..	..	..	23/6/93
Dalethorp, Springfield ..	Rutherford, G. ..	2	„	1	..	„	..	..	..	..	..	..	20	18	38	30	68	1	..	1	..	..	..	..	..	..
Sheffield, Sheffield ..	Austen Brothers..	34	„	2	2′ 3″	„	S.70° E.21°	narrow	1	5′ 7″	160′	dip-drive	1,007	..	1,007	43,908	44,915	..	8	8	horse	..	..	..	natural	30/7/95
Homebush, South Malvern ..	McIlraith, J. A...	24	„	1	7′	„	E. 10° S. 1°	bord and pillar	2	5′ x 6′	40ch.	adit	3,164	..	3,164	103,780	106,944	..	9	9	„	..	..	..	„	1/8/95
Whitecliffs, Whitecliffs ..	Leeming, W. ..	16	„	1	5′	„	E. 5° S. 30°	narrow	1	incline	..	incline	1,701	..	1,701	31,350	33,051	..	6	6	engine	..	..	..	„	2/8/95
Hartley, South Malvern ..	Hart, L. B. ..	2	„	1	..	..	..	..	..	..	..	..	..	..	..	32	32	..	2	2	..	..	..	..	„	..
Hartley, Malvern ..	Leeming, W. ..	1	„	1	..	..	..	..	..	..	..	..	943	..	943	..	943	1	6	7	..	..	..	..	..	..
Snowdon, Snowdon ..	Gerrard, W. ..	11	„	1	14′	8′	N. 80° E.	narrow	1	4′ x 4′	90′	shaft	123	..	123	860	983	..	2	2	horse	..	..	..	natural	19/6/93
Mount Hutt, Mount Hutt ..	Murray-Aynsley, C.	4	„	2	2′	all	..	open	..	..	..	open	..	..	..	155	155	1	..	1	„	..	..	..	„	21/6/93
Glenroy, South Malvern ..	Febbes, W. ..	1	„	1	..	..	..	..	..	..	..	..	..	..	..	115	115	..	..	..	..	..	..	..	..	..
Rockwood, Malvern ..	Levick, H. ..	7	„	1	7′ to 10′	8′	S. 12°	narrow	1	3′ diam.	12′	adit	..	..	..	1,143	1,143	..	..	..	..	..	..	..	..	..
Acheron, Lake Coleridge ..	Murchison, J. ..	27	anthra-cite	1	4′	all	S.W. 18°	„	..	..	..	„	40	..	40	417	457	1	..	1	..	..	..	..	..	15/1/95
Mount Somers, Ashburton ..	Park, G. ..	32	brown	1	35′	„	S.60° E.10°	open	..	..	..	..	1,140	878	2,018	21,720	23,738	4	..	4	..	..	..	..	..	20/11/95
TIMARU.																										
Waihao Forks, Waimate ..	Straw, M. ..	4	„	1	5′	..	..	open	..	..	..	open	..	..	..	117	117	1	..	1	..	..	..	..	..	16/11/95
Albury, Timaru	Carruthers, James	5	„	1	20′	10′	..	..	1	5′ x 6′	..	incline	37	..	37	1,184	1,221	..	1	1	horse	..	..	..	natural	16/11/95
Duke's, Kakahu	Duke, James ..	..	„	1	..	10′	..	bord and pillar	..	..	..	..	16	..	16	900	916	..	..	..	„	..	..	..	..	9/6/93
Spring Vale, Timaru ..	Flavell, H. H. ..	2	„	1	5′	5′	vertical	..	..	dip-drive	..	dip-drive	50	..	50	150	200	..	2	2	„	..	..	..	natural	18/11/95
Studholme, Waimate ..	Cameron, E. H. ..	7	„	1	..	..	..	narrow	..	..	..	adit	..	..	..	84	84	..	..	..	hand	..	..	..	„	28/6/93
NORTH OTAGO.																										
Kurow, Kurow	Scott, David ..	17	„	1	5′ to 8′	all	vertical	stoping	1	6′ x 2′ 6″	53′	„	413	..	413	4,661	5,074	..	2	2	„	..	..	..	natural	25/11/95
Phillips's, Kurow	McCaffrey, P. ..	8	„	1	indefinite	30′	„	„	1	8′ x 6′	50′	dip-drive	365	..	365	1,620	1,985	..	2	2	horse	..	..	..	„	23/11/95
Wharekuri and Kurow ..	Cairns, W. B. ..	30	„	1	18′ x 5′	15′ x 5′	S.60°W.60°	narrow	..	4′ x 3′	80′	„	383	..	383	9,947	10,330	..	3	3	„	..	..	..	„	23/11/95
Wharekuri and Kurow ..	Collins, J. D. ..	5	„	1	18′	8′	S.60°W.60°	„	1	6′ x 5′	75′	adit	22	..	22	1,402	1,424	..	1	1	hand	..	..	..	„	25/11/95
St. Andrew's, Papakaio ..	Nimmo, Thomas	18	„	1	8′	7′	E. 15°	bord and pillar	1	4′ x 2′ 6″	60′	„	1,180	..	1,180	20,801	21,981	..	5	5	horse	..	..	..	„	27/11/95
Prince Alfred No. 1, Papakaio	Willetts, John ..	27	„	1	7′	6′	E. 10° S. 1 in 5	ditto	1	4′ x 4′	50′	„	1,408	..	1,408	37,850	39,258	2	4	6	„	..	..	..	„	27/11/95
Ngapara, Ngapara	Nimmo, G. S. ..	18	„	1	18′ x 25′	7′ to 8′	N. 5° E. 1 in 4	„	1	6½′ x 4½′	15ch.	„	516	..	516	13,538	14,054	1	1	2	„	..	..	..	„	28/11/95
Rosebery, Otepopo	Mathews, P. ..	13	„	1	5′	all	..	..	1	..	..	„	..	..	..	1,424	1,424	..	2	2	hand	..	..	..	..	29/10/95

NORTH OTAGO—*continued.*																											
Early Bank, Otepopo ..	Frame, W. ..	5	brown	1	3′ 9″	all	E. 1 in 9	bord and pillar	1	4′ x 2′	50yd.	incline	..	..	..	281	281	..	..	..	..	..	..	..	..	29/10/95
Shag Point, Shag Point ..	Shore, Thomas ..	33	"	1	3′ to 4′	"	E. 1 in 4	ditto	3	16½′ x 6′ 6′ 8″ x 5′	200′ 450′	shaft	15,328	5,769	21,097	274,293	295,390	16	52	68	engine	2′	6″	450′	natural	24/2/96
Allandale, Shag Point ..	Campbell, J. ..	9½	"	1	7′	6′	..	"	1	5½′ x 5′	350′	engine-plane	8,495	2,960	11,455	80,045	91,500	8	29	37	"	2′	5″	..	"	5/7/95
SOUTH OTAGO.																											
Fernhill, Abbotsford ..	Grey, James ..	19	brown	1	19′	10′	N. 10° E. 1 in 10	bord and pillar	1	4¾′ x 4½′	..	adit	1,011	5,426	6,437	104,676	111,113	4	16	20	horse	..	..	..	furnace	26/8/96
Chain Hills, Abbotsford ..	Allen, E. G. ..	2	"	1	6′ to 8′	6′ to 8′	..	ditto	1	6′ x 5′	100′	incline	..	..	..	842	842	..	..	..	..	..	..	..	natural	..
Freeman's, Abbotsford ..	Freeman, James	15½	"	1	6′ to 8′	all	E. 10° N.	"	5	4′ x 4′ to 10′ x 4′	45′ to 140′	engine-plane	4,646	2,884	7,530	204,150	211,680	5	14	19	engine	12″	5″	161′	steam	19/10/96
Walton Park, Green Island ..	Pollock, James ..	26	"	1	15′ to 17′	8′	E. 1 in 9	"	3	6′ x 4′ to 12′ x 4′	25′ to 175′	shaft	12,099	4,513	16,612	481,947	498,559	9	38	47	"	4′	9¾″	170′	furnace	9/10/96
Saddle Hill, Green Island ..	Christie, James ..	22	"	1	19′ 6″	10′	E. 1 in 10	"	3	5′ x 2′	50′	incline	1,238	1,268	2,506	83,718	86,224	2	4	6	horse	..	..	..	natural	3/10/96
Burnwell, Green Island ..	Harris, Adam ..	5	"	1	16′	10′	..	"	1	..	..	"	557	959	1,516	3,039	4,555	2	4	6	"	..	..	..	"	2/10/96
Glenochiel, Green Island ..	Bryce, D. ..	15½	"	1	16′	7′	varies	"	1	8′ x 4′	43′	"	..	1,845	1,845	13,250	15,095	1	3	4	"	..	..	..	"	2/10/96
Brighton, Brighton ..	Walker, James ..	10	"	1	5′	4′	..	"	1	..	48′	dip-drive	164	26	190	3,593	3,783	1	2	3	"	..	..	..	"	9/10/96
McColl's, Brighton ..	McColl, D. ..	8	"	1	3′ to 4′	all	E. 12°	"	..	..	..	"	87	44	131	860	991	1	1	2	"	..	..	..	"	9/10/96
Mosgiel, Mosgiel ..	Sneddon, James ..	13	"	1	15′	7′ to 8′	S. 1 in 10	"	2	4′ x 4′ 6′ x 4′	27½′ and 32′	engine-plane	1,314	3,685	4,999	52,040	57,039	3	7	10	engine	..	..	..	"	2/10/96
Salisbury, Mosgiel ..	Reid, Donald ..	4	"	1	8′	5′	..	"	1	5′ x 6′	264′	adit	..	..	..	4,433	4,433	..	..	..	..	..	..	..	..	23/8/93
Bruce No. 2, Milton ..	Hardwick, N. ..	21	"	1	16′	6′ to 7′	N.30°E.10°	"	1	4½′ x 4½′	25′	}	..	296	..	296	23,026	23,322	..	2	2	..	..	..	..	..	25/6/96
" " ..	" " ..	20	"	1	12′ 6″	6′	varies	"	1	4′ x 3′	20′	}															
Real McKay, Milton ..	Young, A. ..	28½	"	1	15′	all	N. to E. 1 in 8	open	..	..	..	open	629	380	1,009	19,341	20,350	2	..	2	..	..	..	..	..	25/6/96
Akatore, Milton	Reid, James ..	2	"	1	14′	"	..	"	..	..	..	"	158	..	158	24	182	1	..	1	..	..	..	..	..	25/6/96
Adam's Flat, Adam's Flat ..	Reid, John ..	14	lignite	1	14′	10′	S. 45°	"	..	..	..	"	100	..	100	1,857	1,957	1	..	1	..	..	..	..	..	25/6/96
Paskell's, Adam's Flat ..	Paskell, John ..	32	"	1	8′	all	N.E. 1 in 6	"	..	..	..	..	27	3	30	351	381	1	..	1	..	..	..	..	..	3/10/93
Wallsend, Lovell's Flat ..	Hewitson, Robert	26	"	1	20′	"	..	"	..	..	..	..	482	..	482	8,588	9,070	2	..	2	..	..	..	..	..	1/11/95
Gibson's, Lovell's Flat ..	Gibson, James ..	2	pitch	1	..	6′	..	bord and pillar	2	11′ x 4′ 8′ x 4′	320′ 250′	shaft	332	76	408	89	497	13	8	21	engine	..	..	..	..	1/7/96
Tuakitoto, Lovell's Flat ..	McDougall, M. ..	7	brown	1	20′	8′	E. 15° to N. 5°	ditto	1	..	..	dip-drive	321	..	321	2,266	2,587	..	2	2	horse	..	..	..	natural	1/7/96
Benhar, Benhar	McSkimming, P.	33	"	1	30′	12′	S. 17°	"	2	4′ x 4′ 8′ x 6′	48′ 462′	engine-plane	2,946	523	3,469	81,469	84,938	1	6	7	engine	..	..	..		30/6/96
Rigfoot, Benhar	Aitkin, Thomas ..	10	"	1	18′	12′	S. 12°	"	1	6′ x 8′	240′	incline	..	..	..	5,163	5,163	1	1	2	horse	6″	2″	60′	"	17/6/95
Morrison's, Benhar ..	Morrison, J. ..	5	"	1	15′	7′	S. 12°	"	..	8′ x 8′	100′	adit	..	..	..	646	646	..	..	..	..	..	..	..	"	..
Mount Wallace, Benhar ..	Anderson, A. H. ..	2	"	1	14′	8′ to 10′	..	"	..	..	..	"	370	70	440	270	710	1	2	3	horse	..	..	..	"	30/6/96
Kaitangata, Kaitangata ..	Watson, W. P. ..	20	pitch	2	10′ to 40′	10′ to 35′	W. 45°	"	1	13′ x 5′ 6″	704′	engine-plane & shaft	45,224	27,312	72,536	879,398	951,934	17	125	142	engine	2′	"	704′	furnace	26/6/97
Castle Hill No. 1, Kaitangata	Carson, M. ..	8½	"	1	12′ to 14′	8′	N. 20°	"	1	3′ 9″ x 2′ 6″	54′	adit	..	..	..	9,314	9,314	..	..	..	..	..	..	..	natural	20/7/94
Castle Hill No. 2, Kaitangata	Gow, W. ..	3	"	1	5′ to 15′	5′ to 8′	..	"	1	10′ diam. 11′ x 6′ 6″	400′ and 2,200′	shaft & engine-plane	12,825	..	12,825	25,640	38,465	19	65	84	engine	20″	10″	490′	furnace	11/9/96
Lakeside, Kaitangata ..	Welsh, Patrick ..	2	brown	1	20′ to 25′	8′	W. dip	"	..	..	..	adit	347	30	377	221	598	2	1	3	"	..	..	..	natural	19/12/95
Langridge, Kaitangata ..	McAllister, R. ..	2	"	1	..	..	..	..	..	..	..	"	321	..	321	165	486	..	2	2	hand	..	..	..	"	2/7/96
Crofthead, Kaitangata ..	Mackie, E. ..	8	pitch	1	12′	8′	N. 20°	bord and pillar	1	6′ x 5′	396′	"	..	..	..	6,713	6,713	..	..	..	..	..	..	..	"	6/10/93
Wangaloa, Kaitangata ..	Smith, Joseph ..	16	brown	1	10′ 6″	8′	E. 1 in 6	ditto	..	8′ x 6′	..	"	36	9	45	995	1,040	..	1	1	hand	..	..	..	"	18/6/95
Owake, Catlin's ..	Copan, W. ..	2	pitch	1	..	..	..	..	..	..	..	..	..	..	..	95	95	..	..	..	..	..	..	..	..	..
Lismahagow, Wangaloa ..	Sewell, R. M. ..	15	brown	1	5′ to 6′	5′	N. slightly	bord and pillar	..	..	..	adit	3	..	3	1,508	1,511	..	1	1	hand	..	..	..	natural	18/6/95
Pomahaka, Pomahaka ..	Paterson, James	1	"	1	..	..	..	..	..	..	..	..	20	..	20	..	20	1	..	1	..	..	..	..	..	..
Conical Hills, Waipahi ..	Lischmuir, F. ..	10½	lignite	1	15′	all	..	open	..	..	..	open	2,260	..	2,260	12,844	15,104	3	..	3	horse	..	..	..	..	25/8/96
" " ..	Shennan, W. ..	3	"	1	..	..	..	..	..	..	..	adit	..	..	..	45	45	..	1	1	..	..	..	..	natural	30/10/95
Valley Road, Pukerau ..	Orchard, E. C. ..	7	"	1	20′	all	..	open	..	..	..	open	424	..	424	1,580	2,004	3	..	3	..	..	..	..	..	26/10/96

Statistics of Workings in Coal-mines, 1896—*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 1896. Coal.	Output for 1896. Slack.	Output for 1896. Total.	Approximate Total Output to 31st December, 1895.	Approximate Total Output to 31st December, 1896.	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.*					Tons.	Tons.	Tons.	Tons.	Tons.									
CENTRAL OTAGO.																										
Cole Creek, Roxburgh ..	Jones, John ..	26	lignite	1	unknown	30′	..	open	..	..	..	open	1,147	..	1,147	11,124	12,271	4	..	4	..	..	..	..	..	2/5/96
McPherson's, Roxburgh ..	McPherson, M. ..	26	"	1	"	40′	..	"	..	..	..	"	1,035	997	2,032	10,086	12,118	3	..	3	..	..	..	..	..	2/5/96
Perseverance, Roxburgh ..	Craig, James ..	9	"	1	"	70′	..	bord and pillar	..	6′ x 7′	..	adit	1,466	..	1,466	7,703	9,169	1	2	3	hand	..	..	..	natural	2/5/96
Gully Pit, Roxburgh ..	Cockburn, George	2	"	1	"	..	..	open	..	..	..	open	279	..	279	134	413	1	..	1	engine	..	..	..	..	..
Alexandra, Alexandra ..	Thomson, W. A...	17	brown	1	14′	5′ 6″	N. 20° E.	bord and pillar	2	5′ x 2′ 6″	60′	shaft	1,537	..	1,537	19,845	21,382	1	3	4	horse	..	..	..	natural	13/6/96
McQueenville, Alexandra ..	Lett, Robert ..	10	"	1	14′	5′	S. 75° W.	ditto	2	3′ x 4′ 9″	62′	"	1,465	..	1,465	10,474	11,939	2	3	5	"	..	..	..	"	30/4/96
Enterprise, Alexandra ..	Rivers, George ..	3	"	1	6′	5′	..	"	1	4′ x 3′	..	"	..	..	..	703	703	1	1	2	"	..	..	..	"	30/4/96
Perseverance, Alexandra ..	Finlay, R. M. ..	3	"	1	6′	5′	..	"	1	4′ x 3′	..	"	..	..	..	724	724	1	1	2	..	..	..	..	..	30/4/96
" " ..	Cameron, S. ..	2	brown	1	..	..	..	"	1	..	..	"	2,017	..	2,017	1,111	3,128	2	3	5	engine	..	..	..	natural	30/4/96
Cambrian, Cambrian's ..	Dunge, C. ..	12	"	1	9′	all	..	open	..	..	..	open	1,173	..	1,173	10,106	11,279	3	..	3	open	..	..	..	..	20/1/96
Welshman's, Cambrian's ..	Jones, J. R. ..	35	lignite	1	30′	28′	W. 10°	"	..	..	..	"	1,475	..	1,475	20,235	21,710	4	..	4	"	..	..	..	..	20/1/96
Blackstone Hill, Hill's Creek	Dunsmuir, A. ..	30	"	1	10′	all	N. 70°	"	..	..	..	"	250	..	250	1,505	1,755	1	..	1	"	..	..	..	..	20/1/96
Border Mine, Idaburn ..	Turnbull, G. ..	26	"	1	12′	"	N.W. 20°	"	..	..	..	"	544	..	544	3,527	4,071	1	..	1	"	..	..	..	..	20/1/96
Idaburn, Rough Ridge ..	Mrs. Andrews ..	Nil	(see below)	..	..	..	..	..	..	..	..	"	..	..	..	..	..	..	..	..	..	..	..	..	..	23/2/95
" "	Beck and McLean	10	lignite	1	30′	all	N. 5°	open	..	..	..	"	1,381	..	1,381	9,293	10,674	4	..	4	open	..	..	..	natural	..
L. McLean's, Idaburn ..	McLean, L. ..	..	"	1	..	"	..	"	..	..	..	"	157	..	157	..	157	..	..	..	..	..	..	..	..	17/6/96
" " ..	Fennessy, M. ..	2	"	1	..	"	..	"	..	..	..	"	18	..	18	52	70	1	..	1	"	..	..	..	..	17/6/96
Idaburn, Idaburn	Mrs. Andrews White, John	26	"	1	23′	"	N. 30°	"	..	..	..	"	560	..	560	28,061	28,621	3	..	3	"	..	..	..	..	21/1/96
McKnight's, Gimmerburn ..	Dougherty, Charles	31	brown	1	12′	"	..	"	..	..	..	"	359	..	359	1,623	1,982	3	..	3	"	..	..	..	..	17/6/96
Perseverance, Kyeburn ..	Archer, Christian	17	"	1	8′	6′	..	stope	..	..	..	dip-drive	561	..	561	10,306	10,867	2	2	4	horse	..	..	..	..	21/1/96
Kyeburn, Kyeburn.. ..	Coombes, William	23	"	1	8′	8′	S. 45° W. 50°	"	1	5′ x 3′	30′	hand-shaft	71	45	116	15,174	15,290	1	2	3	hand windlass and bucket				natural	22/1/96
Dairy Creek, Clyde.. ..	Marie, C. T. ..	24	"	1	unknown	..	S. 45°	bord and pillar	1	4′ x 3½′	..	incline	..	..	..	3,731	3,731	..	..	..	horse	..	..	..	..	19/2/95
Waikerikeri, Clyde.. ..	Griffiths, G. ..	14	"	1	20′	..	..	stope	2	6′ x 3′	160′	adit	..	..	..	19,389	19,389	..	..	..	hand	..	..	..	natural	19/2/95
Kawarau, Bannockburn ..	Pryde, J. ..	19	"	1	8′	8′	N. 1 in 4½	bord and pillar	1	6′ x 6′	34′	incline	1,478	..	1,478	18,094	19,572	..	3	3	horse	..	..	..	"	20/6/96
Cairnmuir, Bannockburn ..	Goodger, G. ..	4	"	1	..	..	..	stoping	..	..	..	"	172	70	242	1,203	1,445	2	..	2	"	..	..	..	"	27/1/96
Excelsior, Bannockburn ..	Gibson, James ..	15	"	1	17′ to 18′	12′	E. 6°	"	1	4′ x 6′	40′	"	..	196	196	5,199	5,395	1	2	3	"	..	..	..	"	27/1/96
" " ..	Parcell, W. ..	4	"	..	..	..	..	"	..	..	..	"	..	..	..	69	69	..	1	1	"	..	..	..	..	18/9/96
Nulli Secundus, Bannockburn	" ..	4½	"	..	..	..	..	"	..	..	..	"	..	..	..	632	632	..	..	..	..	..	..	..	..	18/9/96
Bannockburn, Bannockburn	Wilson, T. ..	7	"	1	6 to 7′	all	..	bord and pillar	1	6′ x 4′	20′	adit	356	..	356	407	763	..	3	3	hand	..	..	..	natural	18/9/96
Nevis, Nevis	O'Brian, P. ..	3	"	1	20′	"	..	open	..	..	..	open	80	..	80	120	200	1	..	1	..	..	..	..	..	..
Gibbston, Gibbston ..	Cowan, James ..	29	"	1	unknown	12′	W. 22½°	"	..	..	..	"	326	..	326	19,138	19,464	3	..	3	..	..	..	..	..	30/11/94
Gibbston Saddle, Gibbston ..	Macale, M. ..	10	"	1	18′	all	..	"	..	..	..	"	470	..	470	2,007	2,477	1	..	1	..	..	..	..	..	28/1/96
Cardrona, Cardrona ..	McDougal, R. ..	12	"	1	20′	"	..	"	..	..	..	"	..	..	..	6,097	6,097	3	..	3	..	..	..	..	..	15/7/95
																										18/4/92
SOUTHLAND.																										
Waikoikoi, Pukerau ..	Kirk, William ..	9	lignite	1	6′	"	..	"	..	..	..	"	20	..	20	198	218	1	..	1	..	..	..	..	..	26/10/96
Pukerau, Pukerau	O'Hagan, C. ..	16	"	1	16′	10′	W. 1 in 10	bord and pillar	..	6′ x 7′	530′	adit	1,121	..	1,121	22,570	23,691	..	3	3	horse	..	..	..	natural	26/10/96

Perseverance, Pukerau ..	McKenzie, J. ..	8	lignite	1	16′	..	N. 20°	bord and pillar	..	8′ x 4′	330′	adit	..	..	..	2,052	2,052	..	..	..	..	..	..	natural	..	
Dudley's, Pukerau	Dudley, J. D. ..	7	„	1	16′	all	..	open	..	..	..	open	244	..	244	1,173	1,417	1	..	1	..	..	..	..	..	26/10/96
Frank's, Pukerau	Mapp, R. ..	4	„	1	6′	4′	level	adit	..	..	..	„	..	..	..	45	45	..	..	..	..	..	..	..	..	..
Porter's, Pukerau	Porter, David ..	2	„	1	..	..	..	open	..	..	..	„	16	..	16	6	22	1	..	1	..	..	..	..	..	..
Glover's, Pukerau	Glover, A. ..	2	„	1	..	..	..	„	..	..	..	„	20	..	20	10	30	..	..	..	..	..	..	..	..	..
Waikaka Valley, Gore ..	Sarginson, J. H.	10½	„	1	8′	8′	..	„	..	..	..	„	211	..	211	876	1,087	1	..	1	..	..	..	..	..	27/10/96
Gutschlag's, Gore	Gutschlag, A. ..	13	„	1	10′	..	N. 12°	„	..	..	..	„	..	..	..	2,969	2,969	..	..	..	..	..	..	..	..	23/10/96
Kirk and Sheddon's, Gore ..	Kirk and Sheddon	3	„	1	6′	all	..	„	..	..	..	„	..	..	..	140	140	..	..	..	..	..	..	..	..	11/10/95
Excelsior, Gore	Fryer, H. ..	3	„	1	8′	„	..	„	..	..	..	„	..	..	..	807	807	..	..	..	..	..	..	..	..	11/10/95
Clukoski's, Gore	Clukoski, J. ..	4	„	1	3′	„	..	„	..	..	..	„	..	..	..	28	28	..	..	..	..	..	..	..	..	11/10/95
Rejefsky's, Gore	Rejefsky, A. ..	4	„	1	3′	„	..	„	..	..	..	„	..	..	..	57	57	..	..	..	..	..	..	..	..	11/10/95
Lettzi's, Gore	Lettzi, M. ..	17	„	1	6′ to 7′	„	..	„	..	..	..	„	71	4	75	1,128	1,203	1	..	1	..	..	..	..	..	23/10/95
Dryden's, Gore	Dryden, W. ..	2	„	1	10′	„	..	„	..	..	..	„	..	..	..	438	438	..	..	..	..	..	..	..	..	24/8/94
Telford and Porter's, Gore ..	Porter, R. ..	14	„	1	12′	„	..	„	..	..	..	adit	565	..	565	4,076	4,641	3	..	3	..	..	..	..	natural	23/10/96
Heffernan's, Gore ..	Heffernan, P. ..	18	„	1	12′	„	N. 15°	„	..	..	..	„	386	..	386	1,564	1,950	1	..	1	..	..	..	..	„	23/10/96
Green's West, Gore ..	Stark, J. ..	8	„	1	19′	12′	..	bord and pillar	..	7′ x 9′	100′	incline	2,040	..	2,040	9,395	11,435	2	5	7	engine	very	small	„	27/10/96	
Smyth's West, Gore ..	Smyth, Joseph ..	7½	„	1	12′	10′	..	ditto	..	..	..	adit	1,129	..	1,129	2,814	3,943	..	2	2	horse	hand	pump	..	27/10/96	
Smyth's West, Gore ..	Smyth, R. ..	5	„	1	6′	all	..	open	..	..	..	open	32	..	32	219	251	1	..	1	„	..	..	..	27/10/96	
Croydon, Gore	Kingdon, N. S. ..	2	„	1	6′	„	..	„	..	..	..	„	..	..	..	27	27	..	..	..	..	..	..	..	24/8/94	
Johnston's, Gore	Johnston, W. ..	3	„	1	2′ to 10′	„	..	„	..	..	..	„	..	..	..	254	254	1	..	1	..	..	..	..	..	11/10/95
Zoffman's, Gore	Zoffman, J. ..	2	„	1	3′ to 5′	„	..	..	..	..	..	„	120	..	120	50	170	1	..	1	..	..	..	..	..	27/10/96
Knapdale, Knapdale ..	Irvine Brothers ..	11	„	1	..	..	vertical	open	..	..	..	„	625	..	625	2,650	3,275	2	..	2	..	..	..	..	..	21/10/96
Pemble's, Chatton	Harvey, James ..	19	„	1	16′ to 26′	16′ to 18′	„	„	..	..	..	„	342	..	342	11,612	11,954	2	..	2	..	..	..	..	..	21/10/96
Hunter's, Otama	Hunter, Thomas	11½	brown	1	3′	all	..	„	..	..	..	„	..	..	..	1,167	1,167	1	..	1	..	..	..	..	..	22/10/96
Pacey's, Chatton	Milne, T. ..	20	lignite	1	30′	20′	S.E. 1 in 6	„	..	..	..	„	794	..	794	7,812	8,606	1	..	1	..	..	..	..	..	21/10/96
Southbrook, Waikaka ..	Ayson, William ..	2	„	1	..	..	..	„	..	..	..	„	..	..	..	55	55	..	..	..	..	..	..	..	..	15/10/95
McGill's, Wendon	McGill, John ..	3	„	1	14′	all	..	„	..	..	..	„	33	..	33	254	287	1	..	1	..	..	..	..	..	22/10/96
McDonald's, Wendon ..	McDonald, R. ..	3	„	1	..	„	..	„	..	..	..	„	200	..	200	50	250	1	..	1	..	..	..	..	..	22/10/96
Wendon, Waikaka	Evans, G. H. ..	18	„	1	8′ to 12′	„	N. 60° E.	„	..	..	..	„	222	13	235	2,712	2,947	1	..	1	..	..	..	..	..	22/10/96
No. 14, Waikaka	Edge, W. H. ..	7½	„	1	8′ to 7′	„	W. 35°	„	..	..	..	„	..	..	..	458	458	..	..	..	..	..	..	..	..	28/8/94
Middlemiss, Greenville ..	Middlemiss, T. ..	2	„	1	..	„	..	„	..	..	..	„	..	..	..	15	15	..	..	..	..	..	..	..	..	22/10/96
Westbrook, Greenville ..	McDonald, G. ..	2	„	1	..	„	..	„	..	..	..	„	..	..	..	175	175	1	..	1	..	..	..	..	..	22/10/96
Black's, Greenville	Williams, D. ..	2	„	1	..	„	..	„	..	..	..	„	..	..	..	80	80	..	..	..	..	..	..	..	..	22/10/96
Otama, Otama	Graham, Thomas	3	brown	1	..	„	..	„	..	..	..	„	20	..	20	60	80	1	..	1	..	..	..	..	..	21/10/95
Mrs. Cross's, Otama ..	Mrs. Cross ..	2	„	1	..	„	..	„	..	..	..	„	12	1	13	17	30	..	..	..	..	..	..	..	..	21/10/95
Marshall's, Otama	Marshall, H. J. ..	2	„	1	..	„	..	„	..	..	..	„	..	..	..	48	48	1	..	1	..	..	..	..	..	23/10/95
Maslin's, Wendon	Maslin, Thomas ..	5	„	1	20′	18′	..	„	..	..	..	„	..	..	..	854	854	1	..	1	..	..	..	..	..	23/10/95
Perseverance, Waikaia ..	Vial, Edward ..	5	„	1	8′	6′	E. 1 in 6	bord and pillar	..	..	..	adit	87	..	87	544	631	..	3	3	..	..	..	..	..	31/10/96
Cambrian, Waikaia ..	McIvor, W. ..	5	„	1	2′ to 4′	all	E. 1 in 6	open	..	..	..	open	..	..	..	191	191	..	..	..	..	..	..	..	..	31/10/96
Northcote's, Waikaia ..	Northcote, T. ..	5	„	1	10′ to 12′	„	E. 1 in 6	„	..	..	..	„	56	..	56	629	685	1	..	1	..	..	..	..	..	31/10/96
Hill's, Waikaia	Hill, J. P. ..	5	„	1	6′ to 8′	„	E. 1 in 6	„	..	..	..	„	257	..	257	442	699	1	..	1	..	..	..	..	..	31/10/96
Argyle, Waikaia	Cosgrove, J. B. ..	5	„	1	..	„	..	„	..	..	..	„	180	..	180	386	566	2	..	2	..	..	..	..	..	2/11/96
Waimea, Waimea	Smith, John ..	6	„	1	..	„	..	„	..	..	..	„	761	..	761	2,466	3,227	3	..	3	..	..	..	..	..	30/10/96
Riversdale, Waimea ..	Carmichael, J. ..	7½	„	1	12′	„	N. 10°	„	..	..	..	„	..	..	..	3,711	3,711	..	..	..	..	..	..	..	..	..
Mandeville, Waimea ..	McAllister, E. ..	4	„	1	3′ to 8′	„	..	„	..	..	..	„	..	..	..	34	34	..	..	..	..	..	..	..	..	31/10/92
Mataura, Mataura ..	Sleeman, C. P. ..	20	lignite	1	16′	„	N.W. 4°	„	..	..	..	„	3,452	..	3,452	15,621	19,073	4	..	4	..	..	..	..	..	27/10/96
Beattie's, Mataura ..	Beattie and Coster	20	„	1	..	„	..	„	..	..	..	„	1,309	..	1,309	19,040	20,349	1	..	1	..	..	..	..	..	27/10/96
Town's, Mataura	Town, C. ..	8	„	1	16′	„	..	„	..	..	..	„	..	..	..	8,002	8,002	..	..	..	..	..	..	..	..	28/10/96
Townshend's, Mataura ..	Townshend, E. ..	13	„	1	12′	„	..	„	..	..	..	„	56	..	56	368	424	1	..	1	..	..	..	..	..	28/10/96
Mutch's, Mataura	Mutch, J. C. ..	6	„	1	4′	„	level	„	..	..	..	„	27	..	27	156	183	1	..	1	..	..	..	..	..	28/10/96
Smith's, Mataura	Smith, Hugh ..	3	„	1	4′	„	..	„	..	..	..	„	6	..	6	9	15	..	..	..	..	..	..	..	..	9/10/95
River View, Mataura ..	Nicol, L. D. ..	5	„	1	..	„	..	„	..	..	..	„	95	..	95	420	515	1	..	1	..	..	..	..	..	9/10/95
McGowan's, Mataura ..	McGowan, F. ..	5	„	1	4′	„	..	„	..	..	..	„	..	..	..	125	125	..	..	..	..	..	..	..	..	19/10/94
Edendale, Edendale ..	Marshall, H. ..	5	„	1	3′	„	..	„	..	..	..	„	60	..	60	200	260	1	..	1	..	..	..	..	..	8/10/95

Statistics of Workings in Coal-mines, 1896—*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, 1895.	Approximate Total Output to 31st December, 1896.	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.									
Munro's, Wyndham ..	Munro, E. ..	9	lignite	1	5′	all	..	open	..	..	..	open	812	513	1,325	6,552	7,877	2	..	2	..	..	..	..	..	7/10/95
Genge's, Wyndham ..	Genge, Thomas ..	19	"	1	3′	"	..	"	..	..	..	"	..	..	..	2,819	2,819	3	..	3	..	..	..	..	..	7/10/95
McDonald's, Wyndham ..	McDonald, A. ..	6	"	1	5′	"	..	"	..	..	..	"	179	..	179	1,704	1,883	1	..	1	..	..	..	..	..	8/10/95
Shields's, Wyndham ..	Shields, William	16	"	1	6′	"	..	"	..	..	..	"	652	..	652	6,618	7,270	2	..	2	..	..	..	..	..	8/10/95
Wyndham, Wyndham ..	Walker, W. ..	2	"	1	..	"	..	"	..	..	..	"	12	..	12	22	34	..	..	..	..	..	..	..	..	7/10/95
Jones's, Wyndham	Jones, E. and A.	2	"	1	..	"	..	"	..	..	..	"	90	..	90	50	140	1	..	1	..	..	..	..	..	8/10/95
Neill's, Wyndham	Neill, Thomas ..	2	"	1	..	"	..	"	..	..	..	"	25	..	25	25	50	1	..	1	..	..	..	..	..	8/10/95
Robin Hood, Pine Bush ..	Trotter, A. ..	15	"	1	15′	"	..	"	..	..	..	"	137	..	137	732	869	1	..	1	..	..	..	..	..	11/11/93
Monagan's, Pine Bush ..	Monagan, A. ..	3	"	1	8′	6′	..	"	..	..	..	"	..	..	..	11	11	..	..	..	..	..	..	..	..	11/11/93
Winton, Hokonui	Hayes, John ..	9	pitch	1	..	all	W. 14°	bord and pillar	1	4′ x 4′	..	engine-plane	4,600	615	5,215	46,742	51,957	8	28	36	engine	..	..	..	furnace	20/8/95
Fairfax, Fairfax	Graham, P. S. ..	18	lignite	1	5′ 6″	"	N. 60° W. 4°	ditto	..	5′ 6″ x 7′	..	adit	478	..	478	10,330	10,808	..	2	2	hand	..	..	..	natural	12/11/96
Isla Bank, Fairfax	Slattery, M. ..	16	"	1	8′	"	N.W. 5°	open	..	..	..	open	128	..	128	3,305	3,433	1	..	1	..	..	..	..	..	12/11/96
Salton's, Fairfax	Salton, R. ..	3	"	1	5′	"	..	"	..	..	..	adit	79	..	79	232	311	1	..	1	hand	..	..	..	natural	12/11/96
No.1, Morley Village, Nightcaps	Brazer, J. ..	6½	pitch	1	10′	"	S. 80° E. 5°	"	..	..	..	open	..	..	..	2,096	2,096	..	..	..	..	..	..	..	..	24/8/95
No.2, Morley Village, Nightcaps	Brazer, J. ..	4	"	1	4′	"	N. 60° E. 5°																			
Nightcaps, Nightcaps ..	Handyside, W. ..	15	"	1	17′	"	N.E. 1 in 7	bord & pillar	1	6′ x 4′	130′	adit	16,905	..	16,905	151,751	168,656	12	16	28	horse	..	..	..	natural	13/11/96
							S. 80° E. 5°		1	5′ x 4′	..															
									1	5′ diam.	60′															
Wallace Pit, Nightcaps ..	Reid, William ..	11	"	1	13′	"	S. 80° E. 5°	open	..	..	..	open	2,367	..	2,367	8,769	11,136	3	..	3	..	..	..	..	..	13/11/96
Alley's, Nightcaps	Alley, Jesse ..	4	"	1	4′ to 9′	"	..	"	..	..	..	"	171	..	171	193	364	1	..	1	..	..	..	..	..	13/11/96
Wairio, Nightcaps	Lloyd, John ..	12	"	1	9′	9′	N.E. 50°	bord and pillar	..	6′ x 6′	3 chains	adit	..	..	..	3,452	3,452	..	..	..	..	..	..	..	..	24/8/95
Mount Linton, Mount Linton	Chalmers, N. G.	6	"	1	10′	8′	N.W.	ditto	..	..	..	open	120	..	120	362	482	1	..	1	..	..	..	..	..	25/10/94
Orepuki, Orepuki	Love, A. ..	9	"	1	22′	9′	S.E.		..	..	..	engine-plane	..	..	..	5,483	5,483	..	..	..	engine	..	..	..	..	17/11/96
Cluny, Orepuki	Popham, J. ..	5	"	1	10′	5′	S. 12° W. 80°	open	..	..	..	open	..	..	..	156	156	..	..	..	..	..	..	..	..	19/9/92
Blackman's, Alexandra ..	Field and Hall ..	1	brown	1	..	..	..	..	..	..	..	windlass	89	..	89	..	89	1	1	2	hand	..	..	..	..	13/6/96
Black Diamond, Roxburgh ..	McLoughlin, T...	1	"	1	..	..	..	..	..	..	..	adit	19	20	39	..	39	1	..	1	..	..	..	..	..	13/6/96
Cromwell, Cromwell ..	Goodger, G. ..	1	"	1	..	..	..	..	..	..	..	shaft	800	..	800	..	800	3	2	5	engine	..	..	..	..	27/1/96
Gibson's, Bannockburn ..	Gibson, J. ..	1	"	1	..	..	..	..	..	..	..	dip-drive	220	..	220	..	220	..	2	2	..	..	..	..	..	..
Ryder's, Nevis	Scott, Charles ..	..	..	..	..	..	..	..	..	..	..	open	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ritchie's, Nevis	Ritchie, James ..	1	..	..	..	..	..	..	..	..	..	"	75	..	75	..	75	1	..	1	..	..	..	..	..	..
Stenton's, Nevis	Stenton, A. ..	1	..	..	..	..	..	..	..	..	..	"	13	..	13	..	13	1	..	1	..	..	..	..	..	..
Williamson's, Nevis ..	Williamson, A. ..	1	..	..	..	..	..	..	..	..	..	"	40	..	40	..	40	1	..	1	..	..	..	..	..	..

Holme's, Nevis	..	..	Holmes, W.	..	1	..		..	..	..	..	..	..	..	..	open	40	..	40	..	40	1	..	1	..	..	..	..	..	..
O'Connell s Nevis	..	..	O'Connell, W.	..	1	..		..	..	..	..	..	..	..	..	"	10	..	10	..	10	..	..	..	..	..	..	..	..	..
Watherston's, Nevis		..	Watherston, A.	..	1	brown	1	..	..	..	..	..	..	..	..	"	5	..	5	..	5	..	..	..	..	..	..	..	..	..
																	652,691	140,160	792,851	9,617,866	10,410,717	590	1,347	1937					
Deduct output from Taupiri Extended Mine (error in statement for 1895)																	..	..	..	14,193	14,193								
																				9,603,673	10,396,524								
Add output of Barr's Mine, Boatman's, omitted from statement for 1895																	..	..	..	20	20								
																				9,603,693	10,396,544								
Add output of following twelve mines, included in previous statement but now abandoned: Motupipi, 360 tons; Westport–Wallsend, 3,441 tons; Waimangaroa, 17,307 tons; Wellington, 2,299 tons; Inkerman, 2,665 tons; Inglewood, 314 tons; Devil's Creek, 343 tons; Inangahua, 71 tons; Murray's Creek No. 2, 450 tons; Burke's Creek, 300 tons; Reefton, 36 tons: total																					27,586								
Add output of Waikaka, Adam's Flat, and Waimea Mines, inserted twice in statement for 1891																					6,518								
Output of mines included in statement for 1890, but whose operations were suspended prior to 1890, less three, which are again included in body of statement—namely, Hill's Creek, 779 tons; Lovell's Flat, 323 tons; and Wyndham, 1,988 tons: total, 3,090 tons																					132,723								
Output of mines included in former statements, but whose operations were suspended prior to 1889																					172,529								
																					10,735,900								

GEO. WILSON,
Inspecting Engineer.

APPENDIX II.

ACCIDENTS in COAL-MINES during the Year ending 31st December, 1896.

No. and Date.	Name of Mine.	Locality.	Cause of Accident.	Above Ground.	Below Ground.	Fatal.	Non-fatal.	Name of Sufferer.	Remarks.
			Middle Island.						
1. Feb. 14	Brunner Rise	Brunner ..	Struck by piece of coal	..	1	..	1	Aaron Dixon	Fractured arm.
2. „ 19	Shag Point ..	Shag Point	Fall of coal ..	..	1	..	1	John Simpson	Leg badly crushed.
3. „ 27	Granity Creek	Westport ..	Jumping off race of trucks	1	..	..	1	Isaac McGarry	Broken arm and rib.
4. Mar. 26	Brunner ..	Brunner ..	Explosion ..	..	65	65	..	..	Fatal.
5. April 9	Mosgiel ..	Mosgiel ..	Lump of clay falling	..	1	..	1	William Mitchell	Face cut.
6. June 15	Cardiff ..	Mokihinui	Struck by a tub ..	1	..	..	1	Robert Polkinghorne	Leg badly broken, and other injuries.
7. Aug. 25	Fernhill ..	Dunedin ..	Fall of coal ..	..	1	1	..	Thomas Reid	Fatal.
8. Nov. 12	Brunner Rise	Brunner ..	Piece of roof falling	..	1	..	1	James Harris	Leg broken.
9. „ 14	Coalbrookdale	Coalbrookdale	Struck on head by a pipe	1	..	..	1	Joseph Smith	Jaw fractured.

No accidents of a serious nature reported from North Island.

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