1896.

NEW ZEALAND.

INSPECTION OF COAL-MINES REPORT.

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

No. 1.

Mr. H. A. GORDON, F.G.S., Inspecting Engineer, to the UNDER-SECRETARY of MINES.

SIR,— Mines Department, Wellington, 26th June, 1896.

I have the honour to forward you covering report on the progress of the coal-mining industry for the year ending 31st December, 1895.

The output from the mines in the colony for the past year amounted to 740,827 tons, which shows an increase on the previous year of 21,281 tons. This output comprised 429,981 tons of bituminous coal, 104,566 tons of pitch-coal, 180,870 tons of brown-coal, and 25,410 tons of lignite. Mining operations were carried on in 164 mines, in connection with which there were 1,799 men employed. During the year there were twenty-five accidents, five of which terminated fatally. Of these, one occurred in each of the following mines : Kiripaka, Coalbrookdale, Cardiff, Gibbston, and Early Bank. Five of the other accidents resulted in serious injuries to the men, but in the case of the other fifteen the injuries were not of a serious nature.

I have, &c.,

HENRY A. GORDON, M.A.Inst.M.E.,

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

No. 2.

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

SIR,— Inspector of Mines Office, Thames, 9th May, 1896.

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 Mining Act, 1891," for the year ending 31st December, 1895.

KAWAKAWA DISTRICT.

New Bay of Islands Mine.—This mine has been continuously worked during the year. The supply of coal has been obtained from old pillars. It is intended to drive an incline to reach a block of coal that exists towards the outcrop. A dip has been driven in the vicinity of the old incline. The works are carefully managed, and made secure for the men engaged on them. The output for the year was 10,996 tons.

HIKURANGI DISTRICT.

West Bryan's Mine.—The coal has been chiefly obtained from drawing pillars. It is intended to drive a new dip to work the coal to the westward of the road. The output was 9,430 tons.

Hikurangi Coal Company's Mine.—The works on the hill-side gave a supply of coal during the first half of the year, but latterly a new dip has been driven near the railway and a seam of good coal, from 11ft. to 14ft., has been opened up. From this place a large supply has been obtained. The mine is drained through a culvert under the railway-line, and so far pumping has not been required. The coal is raised by machinery. The output for the year is 21,257 tons.

Phœnix Mine.—The mine has been worked during the year, driving bords from the adit-level. The output was 2,897 tons.

Christie's Mine.—No work was done here.

Rosebery Mine (McKenzie's Coal Lease).—A company has been formed to work this mine. The first work was to make a cutting into the hill to reach the seam, which is 6ft. in thickness, but the coal was in a disturbed state. The mine is connected with the railway— where a loading-stage has been made—by a tramway, about 1,200ft. in length; 500ft. being on trestles and stringers, 500ft. embankment, and 200ft. in the cutting. Mr. John Ord, who has been appointed manager, states that he will soon be able to send coals to the market.

Rolleston Coal Leases.—A company is being formed to open up this mine and make a connection with the railway.

Throughout the Hikurangi District there is not very much cover over the coal, and no difficulty is found in securing ventilation by sinking small shafts when required.

Whangarei District.

Kamo New Mine.—Work in this mine consisted in the removal of old pillars. A tunnel was driven for purposes of further exploration at a lower level, but no coal of any importance was found, and the place has been abandoned. It was in contemplation to sink on the other side of the main road, but no work was commenced. The output was 2,003 tons.

Ngunguru District.

Kiripaka Mine.—This mine has been steadily worked during the year. The main adit has been further advanced, and coal has been obtained both from this and the new adit. It is to be regretted that a fatal accident occurred here to a miner while engaged in drawing pillars. The roof over the coal is often found to be of a soft character. There is, however, no stint in the supply of timber for securing the roof throughout the workings. The output for the year was 18,869 tons.

Panapo Mine.—Mr. Armitage has been carrying on further prospecting-works here, but as no extent of coal has been discovered there has been no output from this mine.

Maori Coal-mine.—This mine, which is owned by Mrs. Callaghan and others, adjoins the Panapo, on the left bank of the Ngunguru River. Prospecting was carried on, and a main adit driven 78ft. towards the seam, which is about 10ft. in thickness. The formation of an incline tramway, 700ft. in length, from the adit to the river has also been begun. There are other outcrops to the right and left of the adit, their appearance denoting a seam of valuable coal.

Waikato District.

Waikato Mine.—This mine has again been steadily worked. The distance of the further bords from the main adit necessitated the formation of a new jig to shorten the length of the road. Ventilation is still satisfactory, though when the wind blows from a certain direction it becomes rather sluggish in the extreme workings to the rise. This will be improved by making a fresh upcast shaft in the locality. The output for the year was 12,444 tons.

Taupiri Extended Mine.—This mine is being worked steadily. The places towards the Waikato River are stopped, and the chief workings are towards and under the lake, in land lately leased from the Government. The year's output amounted to 40,160 tons.

Taupiri Reserve Mine.—Mining operations are here carefully carried on. It has been found necessary to continue the dip a further distance of 15 chains, it having been found cheaper to make one level of that length than to pursue the method formerly adopted, of making levels of 5 chains when desiring to extend the dip into the seam. A new Tangye duplex pump, with a lifting capacity of 15,000 gallons per hour, has been purchased for the extension of the dip. The output for the year amounted to 17,135 tons.

Bombay Mine.—This mine is worked in a desultory manner, only 12 tons having been taken out during the year. Mr. Long's son was there when I visited it on the 8th December, 1895, to whom I pointed out the necessity for further securing the entrance to the drive.

Mokau District.

Mokau Mine.—No returns from this mine have been forwarded during the year, and, having received no reply to communications on the matter, I presume that work has been suspended.

Accidents.

Only one fatal accident occurred in this district during the year ending 31st December, 1895—viz., Arthur Darnley, killed by fall of stone in Kiripaka Coal-mine, on 28th October, 1895.

Fourteen accidents not of a serious nature also happened during this period:—

Samuel Stockbridge and Thomas Hay were injured in the hands and arms by an accidental explosion in Taupiri Extended Mine, 24th January, 1895.

John Dunn had his back injured by steel splinter in Taupiri Reserve Mine, 5th March, 1895.

William Crowder was shaken and bruised by fall of earth while at work in Taupiri Reserve Mine, 10th April, 1895.

Walter Waugh struck his foot with a pick in the Taupiri Extended Mine, 20th May, 1895.

Robert Woolam was cut in the hand by piece of coal while at work in Taupiri Extended Mine, 10th June, 1895.

Hamilton McCaig cut his finger while cutting ti-tree on the surface at Waikato Mine, 6th July, 1895.

G. E. Skellern injured his neck by falling on a barge while at work on the surface at Waikato Mine, 16th July, 1895.

Daniel Wilson injured his back and private parts by slipping on a log at the pump in Taupiri Reserve Mine, 18th July, 1895.

William Kerr injured his eye while at work in Taupiri Extended Mine, 23rd July, 1895.

William Gurnich injured his hand when at work in Taupiri Extended Mine, 15th August, 1895.

William Paterson injured his leg while working in Taupiri Reserve Mine, 23rd August, 1895.

Patrick Whorsky injured his eye whilst at work in the Kiripaka Mine, 26th October, 1895.

James W. Wilson wounded his back while at work on the surface at Taupiri Reserve Mine, 19th December, 1895.

The accidents in this list were not of a serious character, the men being able to resume work shortly afterwards; and, from the information supplied to me, it would appear that the fault lay in want of attention on the part of the sufferers themselves.

The provisions of the Coal-mines Act are, on the whole, well observed in all the mines at work within the district.

The contributions to the accident fund are regularly paid on all coal sold by the different companies.

REMARKS.

The output for the year shows a marked increase compared with that of last year, as shown by the following comparative statement:—

	Output for 1895. Tons.	Output for 1894. Tons.	Increase. Tons.
North of Auckland	65,392	40,131	25,621
South of Auckland	69,651	56,123	13,528

In the northern district the increase was due to the demand for coal for sea-going vessels, and for mining purposes on the goldfields.

In the southern, it was owing to the increased city trade, and to the new markets opened up by extensions of the railway.

All the mines are in a position to largely increase their output provided that there is an equal increase in the demand for coal, and present appearances seem to warrant the expectation of continued prosperity in the trade.

I have, &c.,

GEO. WILSON, Inspector of Mines.

The Under-Secretary for Mines, Wellington.

No 3.

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

SIR,— Inspector of Mines Office, Westport, 20th April, 1896.

I have the honour, in compliance with section 67 of "The Coal-mines Act, 1891," to report as follows for the information of the Hon. the Minister of Mines, and to enclose statistics of the West Coast coal-mines for the year ending 31st December, 1895:—

Wallsend Colliery, Collingwood.—(11/2/95): The level from the top of the incline has been carried on through a fault with the object of cutting the upper part of No. 2 seam. This has not been found, but further prospecting is to be done. Five men were working in the upper and seven in the lower seam. The former at one place shows three bands of stone in a total thickness of 2ft. 4in., leaving only 14in. of coal. The lower seam is about 20in. in thickness, but at places bands of stone come in. Air very good. Some sets of timber in second jig requiring renewal; these will be attended to. This mine was also inspected in June, as the company had applied for assistance in prospecting owing to the thinness of the seams. The place where it was desired to drive was in the upper seam, the upper part of which was 6in. thick, and getting thinner; the lower division of the seam was 12in., and tending to increase in thickness. The mudstone parting between the two divisions of the seam varies from a few inches to 5ft. in thickness. On the 5th June, 1895, three men were working to the west of the jig in the upper seam, which showed the following section: 4in. coal underlaid by 6in. stone, then 12in coal. Three men were working to north-east of the main tunnel in the lower part of the upper seam, which was 18in. in thickness, but the upper part had pinched out. Three men were also working in No. 2 seam, which was 2ft. 6in. thick. On my drawing attention to the amount of ground standing on props in the latter workings, so near the cliff, Mr. Walker ordered another crib to be put in. All the thicknesses given in these three sections were now considered payable, but the areas to work were limited, as they were only patches which had been left as too poor in former days. Some driving has since been done, but, a fault having been met with, prospecting has been discontinued, and Mr. Walker informs me it is intended to lift the rails and stop the mine.

Pakawau Coal-mine.—(12/2/95): The timbering which I had requested Mr. Caldwell to have done at the mine-mouth has been put in. A fault has been cut in the level, and a set or two of timber was required at it: Mr. Caldwell agreed to have this done. Bands of stone in the coal seam are still showing strongly. Air good. Copy of Act at mine. Report kept, but unsigned.

Motupipi Coal-mine.—(15/2/95): No work has been done in this mine since my last visit.

Enner Glynn Coal-mine.—(7/2/95): This is a small mine on the outskirts of Nelson, and consists of a drive to south-west, which is in a distance of 150ft., and which has cut four coal seams, running from 1ft. to 5ft. in thickness. The first seam was cut at 40ft., but it pinched out, and the seam at the face of the drive is only coaly shale. The roof is greenish conglomerate, with calcite veins, and the floor is fireclay. The dip is to south-east at 70°. The drive is well timbered and the air good. (15/6/95): A shaft has been sunk on the dip of the seam, at a point 120ft. in from the mine-mouth, and is down 80ft. From this point a second shaft, 3ft. clear of the first, has been sunk 25ft. further. The thickness of the first seam at 80ft. down the shaft is 3ft. 6in., then 2ft. of fireclay, followed by the second seam 3ft. thick, underlaid by fireclay floor. Ladders run down to the 80ft. landing, but a hand-grip required at top. Timbering all right. Indications of firedamp at bottom of shaft; and although no cap on lamp I cautioned the acting-manager, and nothing but safety-lamps are used. (13/12/95): The shaft has been sunk, from the first landing at 80ft., 50ft. further to a second landing, 80ft. to the third landing, and thence 26ft. more to the bottom, or a total of 236ft. in all: on coal all the way. Short levels have been driven at each of the landings; at the third one the coal is 6ft. in thickness, but when followed to north 20ft. it pinched. A fair

current of air is provided by hand-fan. A winding-shaft is intended to be sunk shortly. The coal is rather soft and, although of a fine black colour, must be classed as a brown-coal. It does not cake.

Brook Street Prospecting-mine.—(7/2/95): This is a prospecting-drive, 108ft. in; not the Enner Glynn Mine. A coal seam 18in. thick was cut at 40ft. from the mine-mouth, but when driven on some 25ft. it pinched. Timbering requiring attention, and not good standing-ground; so I requested that it be seen to at once. No workable seam having been found, operations were suspended, and I am told the drive caved-in a few days later.

Westport Cardiff Colliery.—(11/1/95): Only three places working, with two men in each. Requested Mr. Broome not to stow any small coal in mine, as had been done to a small extent on side of main heading. Directed attention to one or two bad places in roof; these are to be seen to. Timbering elsewhere sufficient. Air fresh. My attention had been drawn to the engine-man working longer than the specified time, and I found that although not really working he was employed over the eight hours: but this will not be allowed to occur again. Reports and register duly kept. (14/5/95): No. 4 outcrop district has been reopened, and three places are working. Air all right. Rather a bad roof, but not treacherous. Some of the timber not too well set. In the main workings, three places and a stone drift are at work. The latter was said to be cutting through a "roll," but when I examined it it proved to be a downthrow fault. The air in the face of the stone drift was poor and rather dull where the head-coal was being dropped, but on my drawing attention to this it is to be attended to at once. Thirty-four men in all employed in the mine. (11/7/95): In the main workings only one place was going, dropping head-coal. The stone drift had cut through the fault, but others had been met; and at the above date it was stopped till better air should be provided. For this purpose a shaft is to be sunk; and this has since been done, providing a good current. In No. 4 district head-coal is still being dropped, and twenty men are employed in two shifts. Air rather dull, but a place will be holed through by to-morrow, which will improve it.

Mokihinui Colliery.—(15/5/95): Eight men were engaged splitting pillars in the old mine, and the water was being allowed to rise in the dip-workings. For the purpose of opening up the outcrops known to exist ahead of the old workings, three shifts of three men each were driving a new road in the line of extension of surface tramway, and were in about 3 chains. The size was 9ft. by 6ft. 6in., and heavy sets of black-birch were being put in. Four men had started to drive back to meet this from a point on the opposite side of the spur, about 10 chains from the mine-mouth. They were in about half a chain, and had just touched brown marl, so I pointed out they would probably have coal underneath, and this was shortly afterwards cut. Four men were also making a road on the surface in the line of the extension of the new drive. The total number of men employed was thirty-six. This mine was also inspected in July. (30/9/95): The new incline and surface tramway, the latter some 9 chains in length, have been completed, and a top drive has cut the coal about a chain and a half in. After running about a chain in coal, some driving in stone had to be done, as a trough in the measures was met with. Two places are now working, employing four men per shift. The coal does not look very good, clay-backs showing and a little stone coming in. Air right. Timbering good. Drew attention to some slack stowed in back heading, and it will be moved. A new drive has also been put in, running south from the west side of the surface-incline, cutting the coal at a chain-length in. The coal is only of moderate quality, and about 5ft. in thickness. Two places are working, employing eight miners in two shifts. Air good, an air-shaft having been sunk to the level. At date of writing, steps are being taken to open up the Hut seam near the old workings, as the coal near the outcrops opened up by the new incline has not, so far, turned out very well.

Granity Creek Colliery.—(17/5/95): No work doing in the coal-mine, the only underground work being the driving of tunnels for the upper incline. The upper of these has been driven for nearly 2 chains in coal, but has met a downthrow fault, cutting the line of tunnel at an acute angle. Detonators on roadside: these are to be moved. Tunnels otherwise safe. This upper incline has since been completed, and is 52 chains in length, including the two tunnels, 5 chains and 8 chains long respectively. There is also some 6 chains of bridges and trestle-work, all of which have been constructed in a very substantial manner. The method of haulage is to be by endless rope. Bins are in course of construction at the foot of the lower incline, which are intended to have a capacity of 3,000 tons, and to be fitted with shaking-screens. One mile and a quarter of sidings have been made, the rails laid and ballasting completed. A considerable amount of work has been done in the construction of dams at Millerton to supply water for the hydraulic brakes and cranes which are to be erected. Mr. Ashley Hunter, the company's engineer, informs me that contracts have been let for the construction in the colony of powerful hydraulic brakes for the inclines, for a 3½ hydraulic crane, and for all the rope-pulleys, tension-wheels, surging-drums, water-pipes, &c. These are all in course of construction, and more or less completed. Some two hundred steel tubs have been made at the Granity Creek Workshops. At date of writing work had been resumed in the mine, the main roads being opened out with a view of having a considerable output from the first. When the lowering of coal will begin will depend on when the inclines are in working order, but this is expected to be about June next. Forty men are employed, nearly all on the surface.

Coalbrookdale Colliery.—(15/1/95): In the Big Dip section I inspected all the working-faces. A good current of air circulating in the aggregate; at one or two places it was a little dull, but not bad. Spragging fairly well observed. One man tamping with mixture of damp slack; Mr. Lindop ordered clay to be provided at mine-mouth. (7/5/95): In the Big Dip section all the workings are now in the lower seam. No case of non-spragging seen. Ventilation, main currents all strong. New Mine section not working. Ten places working in the Cascade section. Thirteen faces in

Muncie's section, including the dip-heading, which works three shifts. Three shifts also working in the drainage-tunnel from Cascade Creek. Air right, except at two or three places on the east side of Muncie's section. On my drawing Mr. Green's attention to these, he agreed to do further bratticing. (4/11/95): In the Big Dip section six places were working in the fast and fourteen removing pillars. Air fair for pillar-work. Timbering plentiful, and, as a rule, well set. In Cascade section twenty-six men were working, including four men in the stone drift to the dip. (5/11/95): In Muncie's section twenty-six men were working. In Logan's Road the air was poor, but steps are to be taken to provide a better current. Mr. Lindop offered to withdraw the men, but I did not think this necessary. The drainage-tunnel from Cascade Creek is now in about 23 chains, the last 3 or 4 of which is stone drift. The air, which is good, is provided by a 12in. fan, worked from an 18in. Pelton wheel.

Ironbridge Colliery.—(16/1/95): As there was a suspicion of firedamp in the lower seam, we tested the air carefully, but there was no indication on the safety-lamp. A small proportion of gas is often more insidiously dangerous than a large amount, which would compel precautions. The management are fully alive to the care that it is necessary to exercise with so inflammable a coal. (17/7/95): Measured the current of air circulating in the workings; this was 34,000 cubic feet per minute. One shift is worked throughout the mine, which is in three sections, exclusive of the pillar work; in all sixty-eight miners are employed. Spragging well observed. Ventilation good in all places except McGrane's, but an air-crossing is to be put in at once, when this will be rectified. Plenty of timber. (4/10/95): In the pillar-workings in the upper seam, the first place inspected, McGrane's, had broken out to the cliff side. I drew Mr. Milligan's (the mine-manager) attention to the extra danger in such a place, so it was stopped that day. In the shaft section the air was not quite so good as others. One or two places to which I drew Mr. Milligan's notice will have timbering seen to. Ninety-one miners in all employed.

Waitakere Coal-mine.—(22/1/95): No one about, and evidently very little work being done. The coal is now being won at the northern side of the opencast workings. The face is not overhanging, but a narrow rib of poor coal that should not have been left, is standing alongside the tail-race which runs through the centre of the old workings. (24/9/95): Mr. Humphries was not at the mine, but the face at the north end, to which I had directed his attention, was now quite safe. A scrub fire, kindled by some children near the Waitakere No. 2 Mine, had ignited the coal seam at the outcrop, which is some 12ft. thick, and I was told it had been burning for about three weeks. The coal is a good household fuel, and many thousands of tons would have been destroyed, so I applied for your authority, which was promptly given, to expend a small sum in bringing in a small water-race. This was done, and the fire extinguished. Had it been allowed to gain a stronghold, the expense to put it out would have been much greater. I have to thank Constable Bird for informing me of it.

Whitecliffs Coal-mine.—No work has been done in this mine during the year.

Flax-bush Coal-mine.—(22/2/95): This is a new mine being opened up by Mr. Rear for the supply of the Cock Sparrow Dredge and the Town of Lyell, from the latter of which it is distant some seven miles. No workable seam was known to exist so near the town on the south side of the Buller, and the result of Mr. Rear's prospecting ought to be an advantage to the place if the coal proves of fair quality. A tram-line connects with the road, and the coal is lowered to the former by a shoot some 40ft. long. Not much work has yet been done in the coal-seam, which is highly inclined and still rather soft, but when followed further it may become more solid. Air all right. Timbering well done. The thickness of the seam is 6ft., and there are two others 24in. and 20in. thick respectively. The dip is westerly, at 60°. (5/12/95): Mr. Rear and two men working in the second seam, which runs from 18in. to 2ft. in thickness, as the 6ft. seam was not good enough. The distance in from the mine's mouth is about 400ft. Air poor. Too much ground on timber, and roof heavy at places, but it is expected that connection with the surface will be made in a few days, when the air will be improved and filling-in obtained. I inspected this mine a fortnight later and found the air improved, but the filling would not run at the point where connection with the surface was made, so another drive will be put through. I have since received a plan, made by Mr. E. Butler, showing that the workings have been filled in.

Alexander Coal-mine.—(19/2/95): Now worked by the Buller Dredging Company. Four men in all employed, two of whom are starting to sink from the surface to connect with the works for filling-in. Air right. One bad place in level, but will be seen to at once. I was informed that the company were not going to continue working the mine, but I afterwards found out that work had been continued for a considerable time without "permit" or certificated manager. This unbusinesslike way of doing things was no gain to any one, and, had an accident happened, might have cost the company dear. This mine is now abandoned, and the coal for the dredge is supplied from the adjoining Longford Mine.

Longford Coal-mine.—(6/12/95): This mine is worked from an adit, which runs north-west on the strike of the seam, which is a rather dull brown-coal, from 18in. to 2ft. in thickness. The dip is to north-east, at about 1 in 1. Filling-in has been done to about 20ft. from the face. Plenty of good strong props. No safety-lamp, but one will be obtained.

Murray Creek Coal-mine.—This mine has been abandoned. No further attempt should be made to mine the small corners of the pillars left at the outcrops, as the ground is dangerous, and any coal left is of inferior quality as well as being of no extent or amount.

Golden Treasure Coal-mine.—(26/7/95): Mr. Davidson was working by himself 150ft. in from the mine-mouth. He has found that there is good coal above the coaly shale which formed the roof of his previous workings, and this new find he intends to work. Air good. Sprags used. (23/11/95): The head coal has been dropped, and the poor coal left on the road to heighten it. Roof bad, and mine dangerous. Notified Mr. Davidson that I would stop him if the mine was not at once made safe. He agreed to attend to it, and, at a subsequent visit, the mine was in good order.

Phœnix Coal-mine.—(26/7/95): Four men in all working, taking out 8ft. or 9ft. of the seam. Some open joints in the roof of Shane's working-place, to which I drew Mr. Murtrie's attention; but the roof is not bad. Air good. The workings for the supply of the Ajax Mine, at the upper part of this lease, are very limited, but in good condition. (23/11/95): About 12ft. in thickness of the seam is now being taken out. Roof sound, and mine in good order.

Lankey's Gulley Coal-mine.—(19/8/95: Mr. Lamberton and two youths working. As the air was poor, I requested him to stop the inner place until the ventilation was better, and to this he agreed. He is at present driving to have a second outlet. Sprags used. Report behind.

Reefton Coal-mine.—No work has been done in this mine during the year.

Progress Coal-mine.—(17/10/95): Three men working, Mr. Hally in charge. Roof bad, and driving alongside old workings. A good deal of timber used. I requested that the place be kept narrower. Air first-rate. Report kept, and copy of Act on ground. (20/11/95): Place narrower, but still rather wide. Some bad places on main road; these will be seen to.

Breen's Coal-mine.—(25/7/95): The workings had extended a distance of 4 chains in, in the west level, but the coal was thin and soft, so work has been started nearer the mine-mouth. A pillar has been left all the way along the level, and above this has been packed with slack. As the coal in this drive is considered not worth working, a start is to be made in the east level. This requires retimbering, which is to be done.

Sir Francis Drake Coal-mine.—(16/3/95): Two men opening up a 3ft. seam on the opposite side of the road from the old mine, which has been stopped. As there is little cover, this seam is worked open-cast. (21/10/95): As the new mine did not turn out well it has been stopped, and the old one is being re-opened by a short drive. Stays needed at the two outer sets; these will be put in.

Devil's Creek Coal-mine.—(16/2/95): Mr. McIlwham works this mine occasionally for his own use. Air very good, and a second outlet. On subsequent visits the mine was idle, and appeared to be rarely worked.

Cumberland Coal-mine.—(7/3/95): This mine was in fair order, but, owing to the battery not crushing, it has been idle during the latter half of the year. Mr. Walter Irving, at date of writing, has not yet sent in the statistical return from this mine, although repeatedly asked to do so.

Archer's Coal-mine.—(15/2/95): No one about. A new dip-drive has been started at a higher level, and is down some 30ft. From the bottom of it a level runs south-west a short way. The seam dips north-west at 32°, and is about 9ft. in thickness.

Blackball Colliery.—(29/7/95): This mine works two shifts, employing thirty miners and fourteen truckers in each, or a total of eighty-eight men underground. Timbering, as a rule, well done. A fair current of air at all the places except the two next the level-face which is stopped on a roll, but the back-going face will hole through shortly. The total current of air circulating was over 13,000 cubic feet per minute. The upper part of the seam is chosen for the first working as it is found to be stronger. No pillar-work has yet been done. (25/11/95): Fifteen fast places working on west side of main jig and four on the east side. Timbering plentiful and well set, but one or two bad places on roof on west side, to which I drew attention; Mr. Leitch, the overman, ordered to be timbered up at once. One place has also been started at the foot of the main jig; this will form the main west level. Air a little dull, but the stack is to be heightened to improve the draught. Only one shift is now working, employing fifty-nine men underground. Reports duly kept, and Mr. Scott, the manager, promptly forwards a properly made plan of the workings for each half-year.

Brunner Colliery.—(11/3/95): Pillar-workings going on from the dip-drive on the western side and nine fast places to the east. The prospecting drive in the extension of the dip-incline had, at the above date, been driven nearly 500ft. The thickness of saleable coal was about 18in. There are signs of movement as well as pinching of the seam. (30/7/95): The prospecting drive is now stopped after having been driven some 950ft. The face shows all stone on one side, but on the other side a wedge of coal 9in. in thickness comes in. On the way down the coal is seen to vary very much in thickness, wedging out entirely at places and making again, but never regaining a workable thickness, while there are strong signs of movement and strain. As I observed a band of sandstone in the floor of the drive near the face which resembled a bed overlying the seam, I pointed out to Mr. Bishop the desirability of prospecting underneath. A bore was put down some 30ft., but without result. A bore was also put up in the roof considerably further back, which showed one of the overlying seams 2ft. thick. It is to be regretted that this prospecting has not turned out more favourably. Ten faces are working on the south-east side of the incline, the lowest of which has the poorest coal and most stone. Pillar-work is going on on the other side. (27/11/95): Nine fast places on the one side of the incline and pillar-work going on on the other. Plenty of timber, but a few loose pieces of roof are to be taken down. Seventy men in all employed. 17,000 cubic feet of air circulating per minute. Manager's and deputy's reports duly kept. Plan-work not up to the mark, a difference occurring between tracings sent me; this has subsequently been corrected.

Brunner Rise Workings.—This, as already pointed out, is the so-called 20-acre block or new mine, but already there are more than twenty acres of pillars formed. It was inspected several times during the year. (22/11/95): There are twenty-five faces, and the total number of men employed underground is sixty-eight, but the mine was idle to-day for want of trade. The level and one or two places above it have stone bands in the coal. The roof is sound, and the mine is in good order. A drive is to be put out to the cliff-side to the rise for ventilation, as in some of the advanced places the air was getting dull. This has since been done and very good air provided. The coal in this section runs from 10ft. down to 5ft. 6in. in thickness, with the tendency to thin to the rise. At date of writing the above, bands in the level and adjoining places have become more marked, and as they are somewhat in the line of thinning met with in the lower workings, may limit the field in this direction.

Coal Creek Lease.—(14/3/95): The first outcrop occurs in the Seven-mile Creek, about 20 chains inside the boundary line. The coal is 6ft. thick and the dip is south-west at 1 in 4. It is said to

have been traced up the hillside for 25 chains, but there it is quite 300ft. higher. A lower seam 3ft. 6in. thick is next met with in coming up the creek. Further up, loose grits and yellow sandstone in the solid point to faulting up, but soon after the mudstone re-appears, so the movement must have been reversed, or else the first seam occurs in a higher horizon in the sequence than what is customary in this district. Still further up the creek a fine 6ft. coal-seam, with two others above it, is exposed. The coal appears to be of excellent quality. During the year plans have been prepared for the proposed bridge over the Grey River, but work on it has not yet been commenced. Two or three men have also been engaged in further prospecting the various seams, with good results, Mr. Bishop informs me. The ownership of the Brunner Lease has passed into the hands of the Coal Creek Company, which has thus secured a going mine with an established connection.

ACCIDENTS.

1. 13th March.—Coalbrookdale: A miner named James Johnston had his right elbow-joint dislocated, also his right leg bruised by a fall of coal through a sprag slipping. He died on the 17th instant.

2. 14th March.—Cardiff: A youth named W. Lyons fell when coming down an incline and fractured his arm.

3. 17th May.—Cardiff: A miner named Richard Dunn had fired a shot, and was taking down the loose pieces of coal when one of these struck him, fracturing two ribs.

4. 17th June.—Cardiff: A miner named James Bain was clearing some loose coal from the floor to put in a prop, when a fall of coal came away from the roof, killing him almost instantly.

5. 28th September.—Mokihinui: A trucker named George Harris had his leg bruised by a run-away truck on the incline. The stopblock was in place, but the truck ran over it.

6. 7th November.—Ironbridge: A miner named John Young had his shoulder-blade and one rib broken, also his arm dislocated, by a piece of stone falling from the roof. He had sounded the roof about half an hour previously and it was then all right. There was plenty of timber about.

GENERAL.

Weight of Coal paid for.—Dissatisfaction having been expressed to me as to the weights given to the miners by the weighing-machine at Coalbrookdale on the 15th January, without giving any warning, I had the machine tested by adding the customary load in weights to an empty truck. The extra load was correctly indicated, so if there was any discrepancy it was not likely to be through the machine. Mention was made of coal being taken off the mine trucks between the mine and the screens, and I understand steps have been taken to prevent this. The trucks are weighed rapidly in passing over the machine, so errors may have occurred. A check weighman has since been appointed. This ought to be satisfactory both to the men and the company. Mr. Lindop states that the company not only do not gain any weight between what is paid for and disposed of, but that a loss is made.

Accident Funds and other work.—Contributions to the accident funds are being paid by all the larger companies, but pressure of work has of late prevented me from checking the books of the owners, and the balance-sheets of the associations. The latter, with the correspondence involved, take up a good deal of time. Some time has been gained by being relieved of setting the questions for the Colliery Manager's Examination and checking the answers, which I have done for the past five years. Three weeks in June were occupied in a geological survey and report on the Collingwood Coalfield, the main features of which have been already published.

Since writing the foregoing the disaster at the Brunner Mine has occurred, the investigation as to the cause of which is proceeding.

I have, &c.,

N. D. COCHRANE,

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

No. 3.

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

SIR,— Dunedin, 16th March, 1896.

I have the honour, in compliance with section 67 of "The Coal Mines Act, 1891," to report as follows for the information of the Hon. the Minister of Mines:—

My remarks on the several mines in the southern district will be found to follow my list consecutively, commencing at—

CANTERBURY.

1. *Springfield Mine.*—(30/7/95): Since my last visit a new shaft has been sunk on south-east side of the Pottery Works, and distant only about 100ft. from the same. The shaft was sunk to a depth of 100ft., and the coal-seam opened in at about 70ft. The seam is generally about 3ft. thick, under which there is a thin band of stone, and then another foot of coal, in all 4ft. of very good coal. Nearly all the workings have a fairly good roof, and the working-places may be classed as dry. Every care appears to be taken to do the work in a safe manner. The mine is drained by a Tangye pump 4in. in diameter, and works only about five hours in the twenty-four. The discharge pipe is 2in. in diameter. There are at present seven working-places and four workmen. The coal dips slightly to the south and south-east, and is supposed to be the same seam as that worked at the original shaft. The two shafts, however, are probably 30 chains apart, and the workings probably 15 chains apart. The floor of the present workings is being taken out to a depth of about 3ft. for

the use of the pottery works, which consumes about one-third of the output of coal. The shaft is only 6ft. 6in. by 4ft. 1in., divided into two compartments, one for the cage and the other for the ladder, which is vertical. At the time the shaft was being sunk the manager says he "did not know the ladders had to be sloped to a platform every 30ft." The ladder, 18in. wide, is well and thoroughly made, with iron rungs an inch in diameter. The winding is done by a steam-winch and wire-rope.

2. *Sheffield Mine.*—(30/7/95): Following the main-dip drive into the mine, examined all the working-places, and found them being worked in a safe manner; but the roadways leading to and from the working-places were very much in need of repair. Much of the old timber in places requires removing, to be replaced with new in a workmanlike manner. The roadways require widening to give plenty of room for the boxes, and the rails lifted and relaid level transversly and at an even gradient that will allow the drainage water to flow freely to the old dip workings. While in the mine I urged the Austins to do these things, and have since then sent them a written notice to at once put their mine-roads in proper order. At the present time there are pools of liquid mud in places, through which the miners have to wade to and from their work. The air is good throughout the mine.

3. *Homebush Mine.*—(1/8/95): The four working-places were carefully examined, as also the roof from the main dip to these places, and were all in good order. Mr. Thomson is now mine-manager instead of Mr. J. Brown, who has lately resigned. I urged Thomson to do some necessary repairs to the main tunnel during the incoming summer, and I have since then written to the owners of the property to the same effect. The rails require lifting and relaying at something approaching a uniform gradient, and the sides of the tunnel require dressing off in places to admit of a side drain being made to carry away the water instead of allowing it to flow down the centre, where in places the horse works the floor into a puddle and mud-holes. The bad state the line is now in prevents the workmen reaching their working-places in the morning, or their homes in the evening, with dry feet. The incline tunnel within the mine is also very untidy. The coal continues very clean and of the same good quality all through.

4. *Whitecliffs Mine.*—(2/8/95): All the working-places were examined. The roof generally is very bad for flaking. The men are at present removing pillars from the back workings on the south side of and coming toward the main dip or engine-plane. When the pillars are removed to within about a chain of the engine-plane, the men will be shifted to the workings in the north side, where there is said to be but little coal yet removed. The floor is constantly rising in the levels and displacing the rails, which require much labour to keep them in working order. The coal is very open in places, and these openings are generally filled with tough sticky clay. Each box of coal on reaching the surface is immediately placed under a splash of water for a few minutes to remove as much of the clay as is possible without turning it over.

5. *Brockley Tunnel.*—(2/8/95): William Smart, of Christchurch, told me that he had lately driven a tunnel at Brockley, and had therein found a seam of coal 6½ft. thick. I subsequently visited the spot as arranged with Mr. Smart, but he failed to show me any coal-seam of greater thickness than a paltry few inches. It is not a coal formation, and therefore good money is being foolishly spent in driving one tunnel after another into trap rock.

6. *Mount Somers.*—(20/11/95): For many years past the coal has been mined out on several levels. There are several stone-bands of considerable thickness all through the coal. Till quite lately it occurred to the present manager that a considerable quantity of coal might be more easily and safely procured at the face of the mine by stripping, which work could be done expeditiously at a moderate outlay on the construction of a head-race from the gully at hand. A race was cut, and in a very short time a large body of coal was exposed, ready for hewing. The stripping, however, rises rapidly into the terrace, and carries a body of heavy washed stones, which are not easily removed with the small stream of water available. The stripping, from 6ft. to 18ft., lays bare the top 15ft. of coal left overhead when the coal was mined out. This 15ft., with the exception of a 2ft. band of stone near the top, may be classed as good clean coal of its kind. Under foot there are several feet of mixed stone-bands and coal to the top of the old workings. On the west side of the present open cut, and by the side of the gully, the covering is of a finer character, and much less in depth, where much coal may be procured at a small outlay in labour, provided advantage be taken of every heavy rain. The quantity of water available in ordinary weather is not sufficient to do the work quickly. The coal is visible in the bottom of the gully, and in the west side of the same, where as yet no prospecting has been done to test the quality or thickness of coal there. Mr. Park intends at an early date to sink some holes in untried shallow places, with a view of recouping his outlay in sluice-boxes and water-races.

7. *Rutherford's, Albury.*—(16/11/95): Since my previous visit the coal-seam has been followed to the eastward about two chains from the mouth of the pit. In driving that distance a fault of thirty-six yards was passed through, all of which was very stiff clay, and had to be timbered in places as the work went on. This drive requires enlarging, and some more timber in the centre of the clay fault. The coal is now making in the face, and although at the time of my visit it was only 8ft. thick, there is no doubt of it in a short distance resuming its original dimensions as at the pit-mouth. There is now very little (if any) pumping done, most of the water having lately been cut off near the pit-mouth. The working-place is dry, and the air is good.

8. *Springvale, Fairlie Creek.*—(18/11/95): This is a new pit, opened early this year. The seam is about 8ft. thick, and stands vertical. It was opened at the side of the Fairlie Creek stream, a few feet above its flood-level, where a dip-drive was put into a steep terrace, and the coal-seam followed northward, in which direction the coal has thinned gradually to about 4ft. or 5ft. Mr. J. Duke says there is a much larger seam running parallel, and only 30ft. or 40ft. distant from the seam now being worked. I advised him to drive to it from the bottom of his present workings,

but he appears disposed to sink one or more shallow shafts on the opposite side of the stream, with a view of finding a continuation of the present seam going southward. Duke has started to burn limestone within a few hundred feet of the coal-pit.

OTAGO NORTH.

9. *Wade's Awakino Mine.*—(23/11/95): This mine is still being worked on the old adit-level, level with the flat. At the extreme north end of this level, where the seam pinches out, the top coal is being stoped out to the next level workings. At a spot a short distance back from the present working-place the stoping will be extended upward to the next old level overhead, so as to remove as much coal as possible before abandoning that part of the mine. Scott, the manager, thinks there is another seam of coal a short distance on the south side of, and standing parallel with, the one now being worked. He is, therefore, driving a small tunnel in that direction in solid, hard-sand country, to prove the existence or otherwise of a second workable coal-seam.

10. *Phillips's Kurow.*—(23/11/93): Mr. Caffrey is now working this mine, and is at present on the top level, driving on the coal toward the bed of the Awakino Creek, in which direction the quality of the coal is said to be better than it is in the opposite direction under the terrace, where, after driving some distance, he found the coal had been much disturbed and crushed. The present working-place is narrow and shallow, and also wet overhead. The low levels have not been worked for some time, and are now filled with water. The drainage into the pit is heavy. The little water-wheel and new pump are said to be more than equal to the work to be done if kept constantly going.

11. *Wharikuri and Kurow Mines.*—(23/11/95): The Kurow Mine at the time of my previous visit, was full of water to the level of the creek close by, and nothing was being done to get the water out, or to stop its inflow through the creek-wash covering the mouth of the old dip-tunnel to the workings. Quite lately a fresh start was made, and with the aid of two portable steam-engines attached to a large centrifugal-pump, the water was got out. Some puddling was then done, which, although not stopping all the water, has lessened very much the quantity of water to be now pumped out by the old water-wheel. At time of flood the mine is still liable to be filled with water, which was the case at the time of my visit. A new dip-drive has been put down to the coal at the side of the old workings some distance back from the creek; but at the time of my visit, the mine was full of water, the late heavy rains having increased the drainage so much as to be more than the little water-wheel could cope with. I did not see the workings.

Wharikuri Mine.—(25/11/95): This pit has not been working for some months past, in consequence of the old top workings getting on fire. Mr. Cairns is at present working at the Kurow Mine.

12. *Collins's Wharikuri Mine.*—(25/11/95): No coal is being got out of this mine at present, Mr. Collins has been from home some time past, and has no one employed to get out coal. I, however, inspected the workings, and found them somewhat out of order. I learned from Mrs. Collins that there was a possibility of the pit being put in good order, and mining resumed at some future date.

13. *St. Andrew's Mine, Papakaio.*—(27/11/96): Since my previous visit a dip-drive has been put down to the coal a short distance to the east of the old workings, and an air-way between the two places is now being driven. The thickness of seam and the quality of coal is much the same in both places. The roof in the old pit is much better than it was two years ago, and all the working-places are in good order.

14. *Prince Alfred Mine.*—(27/11/95): Some solid hard coal is still being found in "bunches" many yards apart, the intervening coal being generally soft, small, and of no use whatever. There is therefore still a great amount of labour expended for a small quantity of marketable coal. There is really nothing in the mine to indicate a change for the better. When a "bunch" of good coal is found it is generally very good, but never large enough to yield a fair remuneration for the labour expended to find it. They are not found in any regular line or at regular intervals through the pit The method of working is constant driving about in search of hard coal, and when found, to take it out on a face. The roof on top of the hard coal is always good, and will keep in good condition after the coal has been removed to a considerable width. The mine is in good order.

15. *Ngapara, Ngapara.*—(28/11/95): Examined all the workings and found them in good order. The mine has a coal roof of from 12ft. to 13ft., and the thickness of coal hewn is generally about 8ft. This leaves 5ft. of coal under foot. The mine is very dry and the air is good. There are only two men working.

16. *Rosebery Mine, Otepopo.*—(29/11/95): I think this mine is worked out. The face of the hill over the old workings has caved in very much. I think Philip Mathews must have taken out most of the pillars before he abandoned it.

17. *Early Bank, Herbert.*—(29/11/95): It was in this mine Philip Mathews was killed on the 29th of last month. After abandoning the Rosebury Mine he started work in this, but had worked only a few days when he was killed. I called to see the owner of the pit, Mr. Frame, but he was away from home.

18. *Shag Point Mine, Shag Point.*—(4/7/95): Some of the present workings in No. 3 Seam—the 450ft. level—are seaward, and on the north side of the main level, which heads to the eastward. This seam is from 3ft. 6in. to 4ft. thick, and is 400ft. below the bottom of the sea. The roof in the workings is fine conglomerate, which appears to stand very well. On the south side of the shaft the No. 5 seam is being worked, where the coal is generally from 2ft. 6in. to 2ft. 9in. thick, and of excellent quality. These workings are inland, a short distance from the sea-shore. The new pump has been some time fixed in position at the bottom of the shaft, and works about sixteen hours out of the twenty-four. Since my previous visit the three new boilers have had a new

building erected over them, which work, in addition to the fixing of the new pump in the shaft, has very much allayed the fear in the mining camp a short time ago, that the pit was just on the brink of being closed. I examined the books of the manager and foreman, and find no report of any gas or black-damp having been found in the mine.

19. *Allandale Mine, Shag Point.*—(5/7/95): Went down the dip-drive into the workings and then on to the air-shaft, where I measured the air-current, and found 7,700 cubic feet per minute passing through the mine. Examined the old workings on the north and south sides of the air-shaft and found them in good condition. Preparations are being made to take out a portion of the old pillars, and work back towards the air-shaft and main dip-drive. I then went into No. 2 seam, and travelled north-east, to No. 1 seam, which is a fine body of clean coal 9ft. thick. I then passed through a stone drive a chain in length, which cuts into No. 2 seam, where it is 7ft. thick, all clean coal. I followed this to the north-east a distance of 9 chains, where I found some of the men taking out pillars. The work was apparently being carefully done, and the roof was settling down very nicely. I again went into No. 1 seam and travelled 13 chains south-west, to where the bulk of the men were working in 9ft. of clean coal. This work is to be continued in the same direction a further distance of 14 chains, which distance has been tested from an upper level. I also examined No. 3 seam (4ft.), which I reached through a stone drive. This coal is 45ft. below the lowest level of any previously worked. I found all the mine-workings in good order and very dry. The air is good.

OTAGO SOUTH.

20. *Fernhill Mine, Abbotsford.*—(22/7/95): The present working-places are on the north-east and north side of the old workings, on what is shown in plan to be solid and unworked country. A prospecting drive some distance to the westward of the old workings is now in the solid, after having passed through a considerable body of soft coal. The hard coal is about 6ft. thick on a floor dipping to the north-west and north. If this drive can be conveniently extended to the 6ft. outcrop in a gully in that direction it would act as a drain to a large area on that side of the old workings, where there is a probability of marketable coal being got in paying quantity for some years to come. Mr. Gray during last year lost much of his trade by the action of some persons connected with the branch railway to the pit. I fear he cannot now hope to recover the trade of his late customers, since there are so many local pits competing for the small trade to be done.

21. *Freeman's Mine, Abbotsford.*—(14/8/95): The work now going on is the removal of pillars in the old working of ten years ago in the north side of the present engine-plane, where the coal is of very good quality, as much as 18ft. thick in places. The floor of the old bords in many places is now up to the roof, which enables the miners to remove the pillars with the loss of very little timber and perfect safety to themselves where ordinary care is taken. The main level tunnel is in places very much crushed as usual, and requires considerable attention to keep it so as to admit of the boxes travelling through. There does not appear to me any danger of a sudden collapse of any part of the travelling roads. It is intended at an early date to extend the engine-plane following the dip of the coal to the east or south-east, in which direction there is supposed to be a large field of coal yet untouched. A new duplex Tangye pump is already on the ground ready to be fixed in position when required. The miners, first-class picked men, are now hewing the coal at a daily wage of 9s., which I understand is very satisfactory to men and manager of the mine.

22. *Walton Park Mine.*—(6/12/95): Accompanied by the manager, Mr. Pollock, all the working-places were inspected, and found in good order. The main dip-drive to the south-east is now of considerable length. The working-places on either side are generally level, following the floor, but in one or two places northward the floor rises rapidly. In most places the coal chips up in the roof to a very narrow groove, so much so that it has to be timbered in places to prevent the chipping continuing up to the fine sand and water only a short distance overhead. To avoid timbering as much as possible, the bords are being made for the time being very narrow. Notwithstanding the working-places appearing generally very dry, it is said the drainage has been very heavy for some time past. A small steam-pump works near the bottom of the dip, forcing the water to a similar pump of larger size fixed in the main heading at a higher level and nearer the shaft. From this all the drainage is forced to the surface. These pumps are so far from the boilers where the steam is generated as to cause a great waste of steam by condensation in the pipes. Much has been done to minimise this loss since it became a difficult matter for the stokers to keep the steam up to the pressure to do the pumping and winding. Quite lately two new steel flat winding-ropes have been put into use, and the old ones laid to one side.

23. *Saddle Hill, Green Island.*—(13/8/95): This mine is in the same good order and condition as in the past. One man is going back on some of the old workings, hewing down about 5ft. of headings where the coal is 26ft. thick. I do not know of a spot in this mine where the roof has caved in, or chipped sufficiently to remove the original pick-marks. At the time of my previous visit a dip-drive was being driven to a new lease—the adjoining ground on the south side—which Mr. Christie had lately acquired. The coal in the new lease proves to be of equal quantity and quality to that in his old mine. The new workings are well laid-out, and the coal-roof is in splendid order. There is no timber used in the mine. The workings are dry and the air is good.

24. *Burnwell Mine, Green Island.*—(13/8/95): All the workings are in good order, and the coal is very solid. There is a considerable body of coal left overhead, in order to be sure of a good roof. The drainage is very light, and is hoisted in a tank up the incline by a horse, who has his walk on the surface. The adjoining mine-workings on the north side have been, by some blundering on the part of the owner, carried across the county road, and into Harris's lease, from which a considerable quantity of coal has been illegally removed. The opening made from one mine to the other will always give good ventilation.

25. *Glenochiel Mine, Green Island.*—(13/8/95): All the workings were examined, and found in safe condition. The coal-heaving is confined to the south-east side of the incline-tunnel. Since

my previous visit a main heading has been driven a considerable distance to the eastward, in a good body of coal, but, unfortunately for the owner, and through his mistake in laying out the work, most of the driving done is now found to be outside of his boundary, and in another man's property. This blundering is likely to prove a heavy loss to the owner of this pit. There will always be good ventilation in the two mines.

26. *Brighton, Brighton.*—(6/12/95): Examined all the working-places, and found a good coal-roof everywhere. The thickness of the coal overhead is not yet known. The quality at the roof is not so good as the five feet which is being taken out. The air is good, and preparations are being made to keep it good as the work proceeds. An air-shaft has been started at a convenient spot, and is already sunk and timbered to a depth of 24ft., leaving another 20ft. or more to be done at an early date. The drainage-pump is worked by a horse-whim, and less than two hours' work in the twenty-four does the work. I found only two lads at the pit.

27. *McColl's, Brighton.*—(6/12/95): The mouth of the dip-drive at the time of my visit was filled up from a cave-in from the roof, only a few yards from its mouth. The roof is sand, and requires close timbering to keep it up. It appears that one or more sets of timber gave way owing to the heavy weight, and collapsed. It was impossible to get into the mine. McColl was from home. Possibly the tunnel will be cleared out and retimbered at an early date.

28. *Mosgiel Mine, Mosgiel.*—(13/8/95): All the workings were inspected, and found in good order. Most of the present output is coming from the west side of the engine-plane, where there is a great thickness of coal of good quality. On the south-west side of the engine-plane some of the pillars are being split, preparatory to removing them totally, if possible, back to the engine-plane at an early date. The air is good throughout the mine.

29. *Real McKay Mine, Milton.*—(1/11/95): Mr. A. Young is now opening a pit in the old lease held by the Bruce Company. The opening being made is on the south-west side of the lease, where the coal is reached by making an open cut 2 chains in length into the face of the hill. The cutting will average about 7ft. all through. The floor of the cutting is a little below the coal-floor, which will admit of a drain being carried into any low spot that may be discovered in the mine. There is 15ft. of clean coal, and the stripping at the head of the present bench is from 6ft. to 16ft. The stripping is just now well in advance of the coal-face.

30. *J. Reed's Akatore Mine.*—(1/11/95): Reid has started to get coal from an old pit on the east side of a gully, and opposite Hardwick's old workings at the time he was burned out. Reid is getting a little coal by stripping at the mouth of an old tunnel, and is from time to time working at another place, driving a tunnel into the hill in the hope of finding a payable seam. I do not think his prospecting on that side will lead to anything good. I did not find any one working at the time of my visit.

31. *Wallsend, Lovel's Flat.*—(1/11/95): The stripping is gradually getting deeper—now about 14ft.—as the face advances into the hill. About half the stripping consists of water-worn quartz-gravel mixed with clay, resting on from 7ft. to 8ft. of marketable coal. Immediately under this coal is a stony band from 4ft. to 5ft. thick, which is hewn down and cast, or carted, to one side. The next 12ft. to the floor has been fairly good coal so far; but at the present time this part of the open face, 2 chains in length, advancing to the east, does not look promising; in fact it is getting stony all through the full depth of the seam. This sudden change for the worse is very remarkable, and one cannot even guess at its extent into the terrace. The most reliable way of testing the seam further into the hill is to drive a tunnel eastward from the open face and make an uprise at intervals till a good clean coal is found, and then continue the mining.

32. *Tuakitoto, Lovel's Flat.*—(1/11/95): The present workings are at the end of a new dip-drive a little to the westward of the old pit-mouth, and down to the level of the coal-floor, which is found to be from 5ft. to 7ft. below the old workings. There is said to be a 4ft. coal-roof through the old workings, where, as yet, there has been no break in the roof, or any indications of the roof coming down. In the new dip-tunnel, by following the old bords, from 5ft. to 7ft. of coal is very easily hewn down, and with perfect safety to the mine and miners. In order to drain the mine at this lower level, a considerable amount of open drain work has been done up a gully at the pit-mouth, from where earthenware pipes were laid, at a still lower level, into the mine. The mine is in good order, and the air is very strong.

Since my visit last year a boring-plant was procured, and in the gully, close to the present workings, boring was done to a depth of 146ft., through conglomerate similar to that in the Kaitangata shaft. The lowest 15ft. is said to be all coal, without touching the pavement. The bore passed through three small seams before reaching the last bored into. At this stage boring operations were discontinued, and a shaft 9ft. by 4½ft. commenced. It is now down 80ft. The sinking is being done by four men—two on top and two below, turn about, one shift per day. The hoisting is being done by a horse and whim; a large bucket hoists sixteen hours' accumulation of water in an hour and a half. If no large additional drainage is met with in sinking the next 90ft., there is a probability of the shaft being completed to the bottom of the 15ft. seam by about Christmas.

33. *Benhar Mine, Benhar.*—(17/6/95): All the working-places were examined in the newly-acquired land, which is the only place where coal-hewing is going on in the pit. The working-places are in first-class order. The air-shaft is now completed and draws well; I find the current equal to 2,900ft. per minute, which is more than is required by the Act. There is a great thickness of coal and it stands well.

34. *Rigfoot, Benhar.*—(17/6/95): The main heading toward the railway-siding was driven only a short distance when it broke into some old workings, apparently leading into Nelson's Mine—the adjoining ground. Since then no mining has been done in that direction. All the working-places were examined and found in good order.

35. *Mount Wallace, Benhar.*—(22/12/95): This pit has only lately been opened in A. H. Anderson's land, between Benhar and the Lake. The coal is, no doubt, a continuation of the

Benhar seam. The pit is opened in the face of a small hill by a long narrow cutting to the level of the floor of the seam where the open face has exposed from twelve to fifteen feet of clean coal. When a good depth of face was obtained mining was then started. The main heading is going eastward and is driven about 35ft. Two bords are driven north, one 27ft. and the other 10ft., leaving a pillar of 15ft. between. The height of coal hewn out is from 8ft. to 10ft. The coal is conveyed by a level tram a few chains to the base of a hill, and then hauled up the hill by a horse to a convenient place to load drays.

36. *Kaitangata Mine, Kaitangata.*—(12/6/95): The current of air passing through the mine was measured, and proved to be 32,170 cubic feet per minute. The number of men employed in the mine at the time was 123. Examined all the working-places in the southern district, where some pillars are being split and others removed. This work is being carefully and safely done, notwithstanding that 33ft. of clean coal is being taken out, with comparatively little loss. The floor of the old bords in this district is now tight up to the roof, having risen probably from 8ft. to 10ft. since the coal was hewn out. So completely are these places filled up that, were it not for the top of the old timber to be seen in places, it might be difficult to convince a stranger to the work that any coal had been previously removed from these places. This part of the mine is a little warm, in consequence of some of the small coal and a quantity of roof-conglomerate getting mixed behind the workmen. When the roof falls it breaks up and mixes with the dross left behind; it very soon generates heat, and eventually fire. To cope with these contingencies, gas-pipes conveying water at a high pressure are laid through the old workings, and are always ready in case of emergency. There are taps at convenient places, and the water is sprayed over the dross and *débris* from time time as may be necessary to keep down the heat and dust, till that part of the mine is closed and walled off. From the bottom of the main incline-plane, and below that level, there is a considerable amount of work going on to the north, in the direction of the Castle Hill Mine. The bords and air-headings are constantly and steadily advancing in that direction in a body of splendid coal 25ft. thick. There is, in places, a clay band coming in and cutting out again where two seams of coal join. The coal hewn at a convenient distance below the level of the incline-plane is drawn up to that level by a steam crab-winch, and then sent by the engine-plane to the surface. The coal hewn below the crab-winch haulage is lowered by a powerful brake to the level of the main shaft—700ft. level—and hoisted therefrom to the platform. The long tunnel in the coal going north in the 700ft. level is not being extended at present, but is being dressed up and retimbered in places. To the south in the same level the mine is not being worked at present, there being plenty of room for the men in other parts of the mine. Everything appears to be in good order.

37. *Castle Hill Mine, Kaitangata.*—(13/6/95): The workings to the north of the incline are being extended to test the value of the seam in that direction. The main level, south to the upcast shaft, a distance of about 1,260ft., is being extended still further to the south and south-east, where there are a number of men hewing good clean coal. The bords are well ventilated by headings at short intervals. The thickness of coal removed is from 7ft. to 8ft. All soft places in the roof—and there are many—liable to flake, and come down without warning, are timbered at once. I tried the most likely places for gas, but did not find any. At the bottom of the upcast shaft, which is 543ft. deep, is built in brick a double-arched furnace, probably the best and largest piece of work of its kind in New Zealand. It is built in the floor of the coal-seam, has an arched roof, and an inverted arched floor 3ft. thick. The brick-work under the fire-bars is constructed so as to be always several inches deep with water, into which the ashes fall and are immediately quenched. The fire can be drawn and extinguished in the ash-pit in a few minutes when necessary, and the upcast shaft is in a short space of time available as an escape shaft, where are suspended wire-rope guides and a cage, all ready in position, capable of hoisting four men at a time. The winding-engine and winding-plant used while the enlargement of shaft and brick-lining was being done, is kept in good order and ready for any emergency. This engine and plant is examined and worked for a short time once a month, in order to see that all its parts are in good working order. The furnace has two arched passages on both sides to prevent the possibility of firing the coal. It is well designed, and most substantially built. There are, including one brick thick in the construction of the 543ft. of shaft, which is 10ft. in diameter, a total of no less than four hundred thousand bricks in the work. The quantity of air passing through the mine on the day of my visit was 62,914 cubic feet per minute.

38. *Lakeside Mine, Kaitangata.*—(19/12/95): This mine is situated a mile or more in a straight line to the east of the Castle Hill Company's shaft. There is a large body of coal exposed in the face of the hill, at the adit-mouth, but in the working-places only a short distance into the hill 8ft. of coal is being hewn out. The adit is heading southward, and the bords are heading to the east, in which direction the floor rises slightly. At present, on this side only is there any coal being hewn. There are only two men employed as yet. Rising immediately from the pit-mouth is a considerable hill, over which the coal has to be taken to get market. On the top of this hill is placed a portable engine, which hauls the boxes on a tram-line up the east side from the mouth of the pit, and lowers them down on the west side to a continuation of the tram-line of an easy down-gradient, about a mile and a half long, to the main dray-road on the lake side. The output of coal is very small.

39. *Langridge Mine, Kaitangata.*—(14/6/95): This is a new mine on the south side of the Kaitangata a mile or more, and is facing the river. The coal is being followed into the hill at a considerable elevation above the river. Very little work was done at the time of my visit.

40. *Wangaroa Mine, Kaitangata.*—(18/6/95): Went into the mine with Mr. Smith, and examined all the working-places. There is a considerable body of coal left overhead for a roof, which I find in splendid order; no part of it is broken. Seven feet only of coal is taken out, and the working places are narorw.

41. *Lismahagow Mine, Kaitangata.*—(18/6/95): Mr. Sewell has discontinued working in his old pit, and has taken up fresh ground near Smith's pit in the same locality, to which place he is

now making a dray-road. The outcrop of coal is at a convenient elevation to make a road to. There is very little earth-cutting to get fully into the face of the seam, which is probably 5ft. thick, but not very solid near the surface. About an ordinary dray-load has as yet been taken out.

42. *Conical Hills Mine, Waipahi.*—(30/10/95): The working-face is now fully four chains long, and is worked northward. The coal is 21ft. thick at the east end, and 14ft. at the west end, all clean coal. The dip of the seam is slightly to the eastward, at which end of the open face the pumping engine and plant is fixed. The drainage, apart from the rain-fall in the worked-out ground, is very little, and can be pumped out in one hour in the twenty-four. The water is lifted about 28ft. by a small centrifugal pump having direction. The stripping will average about 5ft., three of which is clay of good quality, which is being used in making bricks and drainage pipes at the factory, which is worked in conjunction with the pit on the spot. The stripping is 30ft. in advance of the coal-face.

43. *Shennan's Conical Hills Mine.*—(30/10/95): I was not aware till lately that there was a second pit on Mr. Shennan's land, and not far from his homestead on the east side of his property. This pit, I am told, has been worked for some years past for the use of the homestead only. Quite lately the mouth of the tunnel was completely covered by a large landslip from the hillside in which it is driven. Mr. Shennan intends at an early date to clear a portion of the slip away in order to get into the mine again, I am promised a notification when the mine is opened and fit to be examined.

44. *Valley Road Mine, Pukerau.*—(14/10/95): The open paddock is now about a chain square and is much below the surrounding surface. At the time of my visit, the open-cast was filled with water to near the top of the coal, which is nearly 20ft. thick. The windmill that used to do the pumping had lately been carried away by a whirlwind, and I learned that Mr. Orchard was then in town with a view of procuring a new mill. The floor of the seam rises to the south, but not so rapidly as the surface does, consequently the stripping will be deeper as the work proceeds.

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45. *Colecreek Mine, Roxburgh.*—(16/2/95):—There is very little alteration in the face of coal since my previous visit. There is about 40ft. of an open-face coal, which is obtained by sluicing off 50ft. of clay and large stones. No attempt appears to have been made lately to test the depth of coal under foot. An additional area of land supposed to contain coal has been applied for and granted to Jones.

46. *McPherson's Pit, Roxburgh.*—(16/2/95): Since my previous visit, a considerable opening has been made in the coal at the head of the drain-tunnel. The depth of coal now being taken out from the old floor to the level of the tunnel is about 20ft., so there will be no stripping in this pit for many years. The total thickness of coal is about 40ft. The tunnel is said to be crushing in very much, near where it reaches the coal.

47. *Perseverance Mine, Roxburgh.*—(16/2/95): Craig is now mining out his coal by putting in bords across the seam from side to side, which he says measures 130ft. thick. This is cut into blocks first, and later on the pillars are removed in working from the back of the pit. The present workings are about 12ft. just below the bed of the creek. The next level will be about 16ft. deeper, which will enable Craig to go over a considerable extent of ground, and probably require some years to work out if no faults are met with. The quality of the coal is the best in the locality.

48. *Lett's McQueenville Mine, Alexandra.*—The new shaft is 60ft. deep, and several working-places are being extended some distance from the bottom. I found two men working in the mine, who were taking out about 6ft. of coal. The air is very sluggish in all the working-places, but the work is being carried out with a view to improve the air-current. The ladders are not fixed in the shaft as directed by me on the 16th May, 1895, and as required by the Act.

49. *Welshman's Gully Mine, Cambrian's.*—(21/2/95): The open-cast workings are being gradually carried to the westward, where the stripping is not so deep. The depth of coal taken out is about 16ft., which does not touch the floor of the seam, in consequence of the water standing at that level in the pit.

50. *Cambrian's Mine, Cambrian's.*—(22/1/95): The stripping continues from 9ft. to 10ft., all hard gravel, which has to be carted away a short distance. The coal is from 5ft. to 9ft., with a tendency to thin as the work proceeds to the east. The quality is still good.

51. *Blackstone Hill Mine.*—(22/2/95): This pit is still being worked in the same way, and with a similar output as last year.

52. *Rough Ridge, Idaburn, Beck and McLean.*—(23/2/95): The face of coal looks much the same as it did last year. The stripping is now being removed by casting from the surface. The bad band is carted away from the floor of the pit. The deep face is being worked with safety to the workmen.

53. *L. McLean's, Idaburn.*—(23/2/95): This old pit has not been worked for some time past, but is bound to be re-opened sooner or later, on account of the kerosene shale it is said to contain.

54. *Idaburn Mine, Idaburn.*—(23/2/95): The open face is being carried to the east, in which direction the coal-seam appears to be thinning a little, or else the coal is not being taken out to the floor of the seam. The open vertical partings in the coal make the work of hewing down the coal very easy work. The stripping is getting shallower as the work proceeds to the east. The mine is in good order.

55. *Gimmerburn Mine, Gimmerburn.*—(23/2/95): There is hardly any noticeable difference in the appearance of the open-cast since my previous visit. The work is at present confined to the south end of the pit, in which direction there is a drain that is thought may be utilised at the cost of a little labour to carry away the drainage from the pit at a lower level than the one now pumped into. The pit is in good order.

56. *Commercial Mine, Kyeburn.*—(25/2/95): The coal is being brought out of the same dip-drive as it was last year; after working to the south fault on the same level that part of the pit was

abandoned. A new level tunnel to the north, 5ft. by 6ft., immediately under the old workings, is now being driven towards the north fault, and the present work is supposed to be within 150ft. of it. When reached, stoping back from the old floor will be the place of operations till the mouth of the drive is reached. The air at the north end of the drive was bad on the day of my visit. Mr. Archer promised to remedy this by making a second connection with the air-shaft as early as possible.

57. *Kyeburn Mine, Kyeburn.*—(25/2/95): Since my previous visit a fresh start has been made to get out coal in the gully at the old pit-mouth by sinking a shaft on the coal-seam to where it is solid and at a depth to be perfectly safe to mine under the gully, which carries a small stream. The seam has been driven on about 80ft. south. The drainage has to be hoisted in a bucket by a hand-windlass. There was no work going on at the time of my visit.

58. *Marie's Dairy Creek Pit, Clyde.*—In my last report I stated that Griffiths was helping Marie to put his mine in order. I then thought there was a fair prospect of the mine being continuously worked, as there is a ready sale for as much coal as a small number of men could put out. It appears that Griffiths did not remain any time in the mine, since when nothing, or next to nothing, in the matter of coal-hewing has been done in the pit. I do not now think that the pit will ever be properly worked by Marie. I can do nothing more to help him, I have lost faith.

59. *Kawarau Mine, Bannockburn Creek.*—I did not see Mr. Pryde at the pit on this occasion. I examined all the workings east and west of the main dip drive, and found them in good condition and the air good. There were only two men hewing coal at the time.

60. *Cairnmuir Mine, Bannockburn.*—I visited the spot and learned that the mine had lately been abandoned in consequence of the drainage into the mine being too heavy. It is intended to look for coal in another place in the same locality.

61. *Bannockburn Pit, Kawarau.*—Wilson has driven a new tunnel at a higher level to the coal, and is following the seam under the Bannockburn terrace, where it rises to the east. The long tunnel follows the contour of the floor nearly north and south, about 6ft. of coal is being taken out. The roof is not very good. In order to get the coal to Cromwell and other places and avoid a very bad road on the east side of the Kawarau—the side the pit is on—it is being transported to the opposite side of the river in a cage suspended from a wire rope. Five bags at a time are sent over.

62. *Gibbston Mine, Gibbston.*—(16/7/95): At the time of my visit the old mine was closed. Preparations were, however, being made to get a few tons of coals above the old workings by stripping off a few feet of surface. At a much lower level than the old workings, some prospecting for coal is being done, and in an open cut in the face of the hill some loose coal has been found, where it is now intended to start a tunnel with a view of finding the seam. The country is very loose—a huge slip—consequently timbering must be started with the work in order to keep the place open.

63. *Gibbston Saddle Mine, Gibbston.*—(15/7/95): The coal is now hewn from an open face, and the stripping is done by sluicing it off. The top seam is 6ft. thick, then follows 18in. of clay, under which is 15ft. of coal; a total of 21ft. of clean coal is being hewn down. It is said there is more coal underfoot, but I did not learn how much. The stripping is from 15ft. to 20ft. of very loose surface, easily removed by sluicing, which work is done in the summer-time. The coal is bagged at the pit, and a load of twenty-one at a time is sledded down the hill by horses to where the horse-teams are loaded. Two trips only per day can be made to the dray-road.

SOUTHLAND.

64. *Pukerau Mine, Pukerau.*—(14/10/95): The main-level tunnel into the mine has lately been strengthened by a few additional sets of good-sized timbers, which give the work a very substantial appearance, and is in keeping with O'Hagan's work in the mine generally. There are three men working in the mine, each in a separate place. The coal is hewn out to a good height, from 8ft. to 10ft., which leaves about 5ft. or more overhead for a roof. The thickness of roof is tested at intervals by boring an auger-hole through it to the clay. As a proof of the care taken to leave the roof sufficiently thick to stand is the very wide bords made, it is only necessary to state the fact that throughout the large area worked during the fifteen years it has been opened, no part of the roof has yet broken down. The air is good throughout the mine.

65. *Dudley's Mine, Pukerau.*—(14/10/95): Dudley had 15ft. of hard stripping in hand at the time of my visit, and a horse and cart removing the stuff a short distance to make room. The stripped face is fairly well sloped, and neatly done. It does appear to me unnecessarily heavy work when there is such a large body of coal which could, in my opinion, be more easily mined out as O'Hagan is doing. The seam is 13ft. thick.

66. *Telford and Porter's Mine, Gore.*—(11/10/95): The old pit is abandoned, and a new pit is being opened a few hundred yards on the east side of the old workings. The new open-cast is not yet in good order, but sufficient work has been done to 14ft. of coal, and from 5ft. to 8ft. of stripping. The latter will no doubt increase in depth very rapidly as the work advances. To avoid the deeper stripping, preparations are to be made at an early date to slope the stripping well back, and brush off the coal-face to where it is solid, and then start mining as is being done by Stark and Smyth in the west side of the river. Fourteen feet of solid coal will safely admit of 10ft. being hewn out and leave a strong roof. The drainage is not heavy, and is being pumped by hand at present.

67. *Heffernan's Pit, Gore.*—(11/10/95: The stripping is much the same as at the time of my previous visit. The pit, however, has a most untidy appearance. Loose coal mixed with clay, &c., is piled up feet deep all round the sides of the open paddock, as if it were to be abandoned to-morrow. It would be quite an undertaking to clean out that pit so as to expose the floor of the seam all round.

68. *Johnston's Pit, Gore.*—(11/10/95): The coal is being followed along the outcrop to avoid the deeper stripping in the terrace. The present stripping is about 8ft., and the thickness of coal is about 5ft. The drainage is very light, and has to be lifted only from 2ft. to 3ft. to the level of the long open drain down the flats.

69. *Gulschlag's Pit (Hoffman's Old Pit), Gore.*—(11/10/95): The old open-cast is filled with water and abandoned. A new pit in the eastern end of the paddock is now being opened at the outcrop, where there are two seams with a 5ft. band of clay between them. They stand at a steep angle. The top seam has the surface stripped off, but no coal has been removed. It appears to be from 7ft. to 8ft. thick. The second seam appears to be from 5ft. to 7ft. thick, and the stripping 5ft. The drainage is lifted about 6ft. by a hand-pump into an open drain.

70. *Rejefskey's Pit, Gore.*—(11/10/95): This pit is in much the same condition as it was at the time of my previous visit. I understand it was lately sold to Lettzie, who reports that he is not taking out any coal from it.

71. *Waikaka Valley Mine, Gore.*—(11/10/95): This pit is worked for home use only, and the quantity of coal hewn out in the year is hardly noticeable.

72. *Zoffman's Pit (Kirk and Sheddon's old Pit), Gore.*—I found young Zoffman working here, who admitted having been here for the past nine months, during which time he had not sent me notice as required by section 47 of the Coal-mines Act, neither did he send me the last June output of coal.

73. *Green's Pit, West Gore.*—(28/8/95): The working-places are all dry and in splendid condition. The roof (coal) is, on an average, 4ft. thick, and is in first-class order. The bords are 12ft. wide and slightly arched in the roof. The thickness of coal overhead is tested from time to time by boring an auger-hole at intervals as the works proceeds, and as yet no roof has caved-in anywhere. Since my previous visit the little pumping-engine has been removed, and a fair-sized portable-engine put in its place at the pit-mouth. Nearly all the drainage into the mine comes from the old open-workings at the outcrop, which is a gully. The drainage is not heavy.

74. *Joseph Smyth's Pit, Gore.*—(28/8/95): I did not find any one at the pit, and there were no indications of any recent work having been done. (10/10/95): I found Mr. Smyth in the mine, and examined the workings, which are fairly-well laid out. Notwithstanding the large body of coal being taken out—12ft. high—the auger-holes in the roof show 6ft. of coal overhead. The dip of the seam is slightly to the west and south, in which last direction the main tunnel was driven from the open face to within about a chain of the proprietor's land boundary. From this main tunnel the workings are being extended on the rise to the eastward, where the mine is quite dry, with a fair prospect of it continuing so to the boundary of the property, probably 10 chains. I think it probable this body of coal will continue to the boundary without a fault. The bulk of the drainage, which is not heavy, comes into the mine from the old open-cast workings, and follows the main tunnel to the dip, where it is pumped by hand into a box fixed at a level, from which it flows to an open drain at the pit-mouth. No mining is likely to be done to the west side of the dip till after the eastern side is worked out.

75. *R. Smyth's Pit, Gore.*—(28/8/95): There is not much coal taken out of this pit. It is an open-cast, having from 10ft. to 15ft. of stripping, and, as far as I can judge, about 5ft. of coal.

76. *Knapdale Mine, Knapdale.*—(21/10/95): Irvine Brothers are now opening a new pit a short distance from and on the south-east side of the old workings. The coal-seam—nearly vertical—has been bared in the face of the terrace and a dray-road to it is nearly completed. The seam where exposed is supposed to be about 20ft. thick. It is the intention to mine the coal when a good depth of face is obtained. The Irvines do not think this coal is a continuation of the seam previously worked by them. They anticipate a large sale of coal to a dredge about to be erected on the Mataura River, quite handy to the pit. It is not yet known that the river hereabout will pay for dredging, and I have my doubts about it.

77. *Pemble's Mine, Chatton.*—(16/10/95): This seam is nearly vertical, and is being followed southward by excavating a trench to a convenient level to cart out of. The stripping at the south end is rising rapidly, but the coal may rise with the hill. The present workings give a very good cross-section of the coal. Starting on the west side, there is, first, 5ft. of coal and 1ft. of shaley clay; next 15ft. of clean coal and 9ft. of blue-clay; after which there are supposed to be from 10ft. to 12ft. of clean coal, the exact thickness is not yet known. The present stripping is about 6ft., which may shortly be very much deeper. It is intended after there is a sufficiently high face of coal in the hill-face to open a tunnel and mine the coal out.

78. *Pacey's Mine, Chatton (now Thomas Milne).*—(15/10/95): This large open-cast is full of water to the level of the outlet-drain, which is several feet above the floor of the pit. I do not think the present worker will do anything in the way of pumping or draining the pit in order to get to the old floor. He has started to hew the coal down to the level of the water, at the highest end of the paddock, where the stripping is about 12ft., and the depth of coal hewn about 15ft. A few feet of the top-stripping is being carted to opposite the lower end of the open cut and dumped on the surface. The old paddock is not to be filled with the stripping till the few feet of coal in the floor is lifted.

79. *McGill's Pit, Wendon.*—(15/10/95): Since my previous visit a 6ft. water-wheel has been erected at the pit, also a head-race to, and a tail-race from, the wheel, which now pumps the drainage up 12ft. into the tail-race, through which it is carried into a small gully. The tail-race is about 100ft. long and probably 12ft. deep, and the lowest 3ft. of cutting is in coal all the way. This shows the seam to be very flat in the low-lying land. It appears from some prospecting said to have been done a few hundred yards to the east of the pit, there must be a considerable field of coal in McGill's land. The present stripping is about 5ft., and the thickness of coal about 16ft. The drainage is not heavy.

80. *McDonald's Pit, Wendon.*—(15/10/95): There is an open-face showing about 9ft. of coal, and from 9ft. to 10ft. of stripping. The coal dips slightly into the terrace, and an open drain takes

away the water to the present level of the workings. There is plenty of fall at hand to allow of the coal being worked back for some distance at a small outlay of labour.

81. *Evans's Pit, Wendon.*—(15/10/95): The last hewing done is on the south side of the paddock, where the stripping is from 10ft. to 20ft., and nearly all of it hard shale. The depth of coal at this particular spot is only from 2ft. to 5ft., and apparently on a high ledge. The stripping is neatly done and safe.

82. *McDonald's Pit, Greenville.*—(15/10/95): An open-cast in the bed of a small gully and stream, where the coal is hewn to the level of a very long open drain to same. Some coal was taken out below that level to the floor of the seam, but in consequence of the floor proving to be soft clay, the opening was filled and the bottom not touched since. A certain thickness of coal is now left underfoot to carry the teams up to the face of coal which is from 8ft. to 9ft. thick. The average stripping is about 7ft.

83. *Middlemiss's Pit, Greenville.*—(15/10/95): I learned that the owner was from home, and that the pit was filled up.

84. *Hunter's, Otama.*—(28/10/95): Hunter has again started in his old pit to get coal for his own use only. The stripping is from 16ft. to 20ft. for 2ft. of coal.

85. *Graham's Pit, Otama.*—(21/10/95): This is my first visit to this pit, an open-cast, which I found filled completely by a large land-slip of recent date. There are several places on this man's land showing where coal has been procured for many years past and the farmers in the locality supplied. Mr. Graham was from home at the time of my visit. The stripping, I think, must have been very deep. I therefore think it was a mistake not to have mined the coal out, assuming, of course, that there is a sufficient thickness of seam to conveniently work and leave a strong coal-roof. It would not require much labour and timber to open the mine in a new place, and work it in the way suggested.

86. *Mrs. Cross's Pit, Otama.*—(21/10/95): My first visit to this out-of-the-way place enabled me to add this and another new pit to my list. This pit is on the adjoining farm to Graham's and on the same side of the main road to the Otama Station, probably ten miles from Riversdale. The pit is an open-cast in the face of a terrace, where coal has evidently been hewn out for some years past. The stripping is about 15ft., and the thickness of coal about 10ft., including a band of 4ft. of rubbish in the centre. The rubbish has to be carted away. The pit is on a rising ground very handily situated for drainage, mining, and tipping into the drays at a very small outlay of labour. I think it more than likely that stripping will be discontinued, and the coal mined out at an early date.

87. *H. J. Marshall's Pit, Otama.*—(28/10/95): This pit is opposite and quite handy to the Otama Station, and is the third pit in the locality. It is like the others, an open-cast, and has been opened about three years and worked on a small scale, judging by the opening made to date. The coal is a clean seam 6ft. thick. The stripping will average 10ft. at present, and increase rapidly as the work advances into the hill. Marshall's man was working in the pit at the time of my visit. I understand that some of the coal now removed is sold.

88. *Maslin's Pit, Wendon.*—(28/10/5): The open cutting on the north side of the gully where stripping was going on at the time of my previous visit collapsed some time ago. A fresh start is now being made to open the pit at a higher level—the seam is vertical—but without timber the open cutting will again close in in the winter-time. The old workings on the east side of the gully are now closed.

89. *Perseverance Mine, Waikaia.*—(24/10/95): The water-wheel that was being fixed in position to do the pumping at the time of my previous visit was completed, but is not now working. They found there was not sufficient water in the summer-time to drive the wheel when it was most needed. An open drain fully 6 chains long from the river is now nearly completed to the coal-face. The drain starts at probably 6ft. above the ordinary water-level, which will admit of being deepened at any time if required. The deepest cutting—a chain or more in length near the coal—is 12ft. in places, in very hard compact sand that stands well. The coal-face is almost flush with a nearly perpendicular face 50ft. or 60ft. high, where sluicing operations were at one time carried on to uncover the coal. The coal dips slightly into the terrace, but the present level of the drain will, it is said, drain a considerable area of coal-floor. There are several sets of timber fixed at the head of the drain, and up to the coal-face, to keep the *débris* from the high face filling up the drain. There is already a tunnel 20ft. long by 10ft. wide made into the coal, which is in future to be mined out. There is at the face a 3ft. band of stone on top of 8ft. or 9ft. of clean coal. The stone band should make a splendid roof to mine under. There are 2ft. of coal on top of the stone.

90. *McIvor's Pit, Waikaia.*—(24/10/95: Scarcely anything has been done to get out coal since my last visit. The open-face is little altered. McIvor is at present looking for gold only a few yards from his coal-pit.

91. *Northcote's Pit, Waikaia.*—(24/10/95: The tunnel into the face of coal, by which the mine was inspected last year, is now completely buried with loose *débris* from a large slip from the high and nearly perpendicular face which was lately flush with the coal-face. The slip came down at the time of the last heavy fall of snow. Mr. Hill purposes at an early date sluicing most of this slip away, by which, no doubt, Mr. Northcote, with a little labour may get into his mine again.

92. *Hill's Pit, Waikaia.*—(24/10/95): The very high terrace-face of gravel at pit crumbled down considerably during last winter, and thus filled up the old opening very much above the level of the coal. It now looks a rather formidable undertaking for one man to clean out the old pit again. Mr. Hill, however, thinks he may do so after he has had time "to think over the amount of labour required to do the work." In the meantime he is stripping, by sluicing a quantity of *débris* off some coal, at another place on the north side of Northcote's old workings, where already a considerable amount of work has been done for very little coal. A good body of coal is said to exist handy to where sluicing operations are now being carried on.

93. *Argyle Pit, Waikaia.*—(25/10/95): It is now about two years since I visited this pit, since which time sufficient work has been done to fully expose the seam for over a chain along the face of the terrace. The thickness of coal is from 5ft. at the west end to 12ft. at the east end of the open face. The depth of stripping is from 8ft. to 12ft., which is sluiced off from time to time, when sufficient water is available. There is plenty of fall to sluice for years into a lagoon handy to the pit. The water-race is at an elevation that will strip a considerable area of ground on the south side of the present open face, much of which stripping is already partly done by past operations. The coal-seam appears to rise with the terrace to the east. I did not find any one at the pit. At the time of my previous visit the pit was not then being worked. Quite lately, however, a fair trade has sprung up at the Waikaia Township and neighbourhood, which keeps Cosgrove's team constantly going. The pit is on the east side, and about a mile from the main road to the Waikaia, which is about ten miles distant.

94. *Smith's Waimea Pit, Waimea.*—(23/10/95): This pit has now a clean open face of nearly 3 chains in length, and nearly level, there being just sufficient dip in the floor to the south-east to carry the drainage to the open on that, the outcrop side of the pit. The stripping is hard clay and gravel from 6ft. to 12ft. deep. The coal is very clean, and from 8ft. to 12ft. thick. The dray-road into the pit is just now being metalled, and is of easy gradient. Much of the stripping is still being carted away a short distance, in order to make plenty of room for teams to move about and load coal at any part of the long open face. When the coal is removed to where the stripping is a little deeper, it is the intention to start a tunnel and try mining the coal out, leaving 4ft. of coal overhead for a roof. The stripping at the present time is kept well in advance of the coal-face.

95. *Mataura Pit, Mataura.*—(8/10/95): An open face, 1½ chains in length, is being carried forward south. The coal is about 15ft. thick, and dips slightly to the west. The stripping is principally fine gravel and sand, and from 16ft. to 21ft. deep. It is well sloped, and kept well in advance of the coal-face. The drainage into the mine continues to be very great, and keeps the four pumps constantly going at full speed to keep the water at a level that enables the men to work. I do not think the little water-wheel could do any more work than it is doing. This pit supplies the local paper-mill with all the fuel required to do the drying, steaming, &c.

96. *Beattie's Pit, Mataura.*—(8/10/75): This open face is now about 2 chains long, and is advancing to the north into H. Cameron's land, and parallel with the main Mataura road. The stripping is nearly all fine gravel, and from 10ft. to 13ft. deep, but good shifting stuff, which is all trucked back and dumped into some old workings. The depth of coal is from 12ft. to 16ft., all of good quality. The drainage is light, and is being pumped to the surface by a small pulsometer pump which, in half-an-hour, throws out twenty-four hours' gathering. The steam is supplied by a portable boiler.

97. *Towns Pit, Mataura.*—(8/10/95): I found this pit abandoned, and filled with water to the level of the top of the coal.

98. *Townshend's Pit, Mataura.*—(9/10/95): This is still an open-cast, and very much filled in all round with small land-slips from the side of the terrace. Since my previous visit an attempt has been made to keep back the slipping material with a little timber, but it proved a failure. The stripping is getting deep in bad standing ground. It is intended, during the coming summer, to make a fresh start on the east side of the old open cut, to make a new opening to the coal-face, into which, when there is a solid face of 8ft. above the floor of the seam, to start a tunnel 6ft. high, and rise it slightly as the coal thickens into the terrace to any convenient height the seam will admit of, to allow from 3ft. to 4ft. of coal overhead as a roof. The thickness of coal in the terrace is said to be 15ft. Mr. Townshend purposes getting a collier to open the mine when the open face is ready for him.

99. *Mutch's Pit, Mataura.*—(9/10/95): The pit was full of water to the level of the outlet-drain at the time of my visit. I did not see any one about. The stripping is very shallow and easily removed. Mr. Mutch hews coal for his own use only.

100. *Sleeman's Old Pit (H. Smith's), Mataura.*—(9/10/95): This is an outsider, and very much to the west of all the pits in the Mataura District. It is about two years since I last visited the spot, during which time very little work has been done. The road to the pit does not show any late traffic.

101. *River View Pit, Mataura.*—(9/10/95): The coal is being followed up the bed of a small gully, where the stripping is peaty soil only 2ft. deep. It does not require much labour to get out a few tons of coal here. The open drain keeps the pit in working order at all seasons.

102. *Munro's Pit, Wyndham.*—(7/10/95): The stripping is about 7ft., all good shovelling. In order to keep the workings clear and make room, the stripping is all carted to one side. The coal is nearly flat or level, and about 4½ft. thick. The top of the seam is about the ordinary water level. The drainage is lifted from the floor by hand. There is now a very good road to the pit.

103. *Genge's Pit, Wyndham.*—(7/10/95): Coal is now being got on Munro's southern boundary, where the stripping is 6½ft. for 2ft. of coal. The stripping, however, is fine gravel, and good moving stuff with a shovel. It looks heavy work for so little coal.

104. *Wyndham Pit, Wyndham.*—(7/10/95): I knew nothing of this pit till to-day. It is situated handy to, and on the south side of the town of Wyndham. It does not appear to have been opened any time, since so small an opening has been made. I did not see Mr Walker—the proprietor—nor did I find any one at the pit. The stripping is between 7ft. and 8ft., consisting of fine gravel and clay, and there is probably from 8ft. to 9ft. of coal. The pit was full of water at the time of my visit.

105. *Edendale Pit, Wyndham.*—(8/10/95): The stripping is still very shallow, and there is now a long working-face advancing south and south-east in a workmanlike manner. The stripping is now probably 9ft., consisting of fine gravel generally, and is kept well in advance of the coal-face.

The thickness of coal appears to me to be 5ft. What I take to be the floor is above the ordinary water level. I did not see any one at the pit.

106. *Shield's Pit, Wyndham.*—(8/10/95): A good-sized opening has been made since my last visit, and the work is being carried out in a systematic manner, with an open face fully two chains in length. The work is advancing southward on to a rising ground, which may tunnel a terrace, where the stripping is very even at about 6ft. deep, and well in advance of the coal-face. The thickness of coal at the west end of the opening is 10ft., and at the east end 5ft. only, in which direction the floor of the coal rises 5ft. The top of the coal keeps nearly level. The drainage is light, and is pumped up 10ft. by a California pump, worked by a horse. There are two men stripping.

107. *Marshall's Pit, Wyndham.*—(8/10/95): There is very little covering on the coal, which, though very thin, is very easily got. I did not find any one at the pit which was full of water. It is level with a stream running through the ground.

108. *E. and A. Jones' Pit, Wyndham.*—(8/10/95): I did not find any one about the pit, which is situated on the edge of east side of the low-lying flat on which Marshall's pit is. The stripping is from 8ft. to 9ft., and there is apparently 5ft. of coal. The floor of the coal appears to be several feet above the flat where Marshall has his pit.

109. *Hokonui Mine, Winton.*—(20/8/95): Accompanied by the manager, Mr. Hayes, I visited all the workings in the mine. In one of the working-places at the extreme end of the east-level from the engine-plane, I found the air very bad. Subsequently, on returning to the surface, the manager and overman selected a spot to sink a shaft, handy to where the bad air was found. The depth to sink is not great as it is near the outcrop. The workings on the west and north-west side of the dip-drive are being extended considerably, in which direction the coal keeps very even in thickness and of good quality. The contour of the floor bears round gradually to the north where there is supposed to be a large field of coal. The engine plant and pump is in good order.

110. *Fairfax Mine, Fairfax.*—(23/8/95): The working-places are in splendid order and condition. The roof is laminated shale, and keeps as even and smooth as a barn floor. It is carefully timbered with light sawn timber, to keep the roof from flaking in thin sheets, which would eventually destroy the roof. The floor rises slightly to the working places, now some chains in length. The air is good.

111. *Salton's Pit, Fairfax.*—(23/8/95): Salton has driven a tunnel in the coal, some distance into the terrace from the old open face. The coal is nearly 5ft. thick where he is working, and it has a bad roof, consequently the working-places are made very narrow.

112. *Isla Bank Pit, Fairfax.*—(23/8/95): Stripping is still carried on in a very safe manner, being much in advance of the coal-face. The depth of stripping and the thickness of coal is much the same as at the time of my previous visit.

113. *Nightcaps Coal Company's Mine.*—(24/8/95): All the working-places in the two seams now being worked were inspected by me and found in a safe condition. There is a strong current of air passing through the mine. In what is called the lower seam, there is about 7ft. of coal taken out, which leaves in most places a good thickness of coal overhead, but very jointy in places. These bad places have to be carefully examined and timbered where necessary. This coal, though somewhat coated with a thin layer of soft slime in the partings, is said to be much the better coal in the mine. The second seam is a few feet from and on top of the other, both keeping parallel and nearly horizontal; 8ft. of coal is hewn out, and from 18in. to 2ft. is left overhead for a roof. Covering this, there is from 3ft. to 5ft. of shale, and then another seam of coal. All the coal hewn is very hard. No pumping is required in the present workings.

114. *Wallace Pit, Nightcaps.*—(24/8/95): There is now 16ft. of very hard gravel-stripping at the east end of the open face, but much shallower at the west end. The stripping is kept well in advance of the coal-face, which is 14ft. high. The pumps work two hours out of the twenty-four.

115. *Brazer's Pit, Nightcaps.*—(24/8/95): This pit having been closed for some two or three years is again being opened by the Nightcaps Company. A short dip-drive is being driven, and is now in the coal. The dip is being timbered as the work proceeds, and there is now a face of 4ft. of coal being hewn out. I understand there is only 1¼ acre in the section.

116. *Alley's Pit, Nightcaps.*—(24/8/95): The coal is near the surface, and dips south-east. It is not so solid as it was at the time of my previous visit. It appears to be only a narrow strip, which is nearly worked out. Most, if not all, of his output is delivered to the Nightcaps Company, which company, I am informed, includes this output in their own.

Miles travelled by me during the Year 1895.

Saddle-horse, 655; buggy, 1,149; coach, 310; rail, 5,706; steam, 582; foot, 272: total, 8,674.

Serious Accidents in Southern Coalfields.

I have to report on the several accidents which have occurred during the year, as follows:—

1. *Kaitangata Mine.*—(1/4/95): James Matchet, while taking down head coal, and in his haste to avoid a fall of conglomerate from the roof, fell over the tram-rail and broke his leg above the knee. The stone did not touch him.

2. *Gibbston Mine, Gibbston.*—(2/7/95): James Cowan, while with others stripping some loose *débris* off a body of coal on an open face, suddenly felt the ground give way underfoot. The others jumped back immediately, but Cowan at once disappeared with a quantity of loose *débris* into the old workings, and was killed. The old workings at this spot had not been filled up as the others were.

3. *Early Bank, Herbert.*—(1/11/95): Philip Mathews was killed by a fall of stone from the roof. He worked alone, and when found was supposed to have been dead two days. No one to blame.

4. *Castle Hill Mine, Kaitangata.*—(30/12/95): James Howie, while removing grease from under the three-throw pump-crank while in motion, got his right hand badly crushed, and part of three fingers taken off. It was not his duty to clean the pump or crank.

There have been many slight accidents reported entitling the claimants to relief from the Coal-mine Fund. Some of the claimants failed to comply with the regulations, and others made claims that could not be entertained.

METHODS OF WORKING.

Worked by shafts—		
Steam-power used	6	
Horse-power used	9	
	—	15
Worked by adit—		
Engine-plane	7	
Horse-plane	21	
Horse-power	7	
Hand-power	17	
	—	52
Open		82
		149

I have, &c.,

J. Gow,

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

APPENDIX I.

Statistics of Workings in Coal-mines, 1895.

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 1895.			Approximate Total Output to 31st December, 1894.	Approximate Total Output to 31st December, 1895.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
NORTH ISLAND.																										
													Tons.	Tons.	Tons.	Tons.	Tons.									
Kawakawa District.																										
Kawakawa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	794,845	794,845									
New Bay of Islands Coal Co.	Swinbanks, John	1½	semi-bitum.	1	12′ to 2′	10′ to 2′	1 in 4	bord and pillar	1	6′ x 4′	750′	adit	10,996	..	10,996	2,078	13,074	6	14	20	horse	..	..	..	..	13/8/95
Hikurangi District.																										
West Bryans	Smith, Charles ..	7	ditto	1	6′ to 8′	6′ to 8′	1 in 9	ditto	1	6′ x 5′	400′	″	9,430	..	9,430	13,214	22,644	3	7	10	″	..	..	..	natural	5/8/95
Walton and Graham's ..	..	..	..	..	..	the whole	..	opencast	..	..	..	..	..	..	..	1,210	1,210	..	..	..	..	..	..	..	..	..
Hikurangi Coal Company ..	Moody, T. P. ..	2	semi-bitum.	1	7′ to 14′	7′ to 13′	1 in 9	bord and pillar	..	6′ x 5′	..	adit and engine incline	21,257	..	21,257	11,801	33,058	3	30	33	horse & steam	..	..	..	..	5/8/95
Phœnix	Matthews, W. E.	1	ditto	1	12′	12′	1 in 10	ditto	1	tunnel 10′ x 6′	30′	adit	2,897	..	2,897	..	2,897	1	5	6	horse	..	..	..	..	5/8/95
Whangarei District.																										
Kamo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	225,037	..	..	..	..	..	..	..	..	..
Kamo New	Redshaw, William	1 1/12	brown	1	6′	5′	varies	bord and pillar	1	4′8″x2′8″ tunnel 5′6″x4′1″	28′ tunnel 120′	adit	2,003	..	2,003	2,972	4,975	1	4	5	hand	..	..	..	furnace	6/8/95
Whauwhau	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70,853	70,853	..	..	..	..	..	..	..	..	..
Ngunguru District.																										
Kiripaka	Wight, Edward S.	3	semi-bitum.	1	2′ 6″ to 9′	the whole	varies	bord and pillar	2	4′ x 2′ 5′ x 5′	924′	adit	18,869	..	18,869	16,352	35,221	12	30	42	horse	..	..	..	..	31/10/95
Waikato District.																										
Waikato	Wallace, William	7	brown	1	10′	10′	″	ditto	2	5′ x 5′ 6′ x 5′	tunnel 660′	″	12,332	112	12,444	154,261	166,705	8	20	28	″	..	..	..	natural	7/12/95
Taupiri Extended	Tuttley, William	9	″	1	21′ to 50′	7′ to 22′	″	″	2	10′diam. each	180′ and 204′	engine-shaft	39,116	1,044	40,160	465,510	503,670	13	46	59	steam	13″ 24″	7″ 5″	180′ 204′	fan	6/12/95
Taupiri Reserve	Harrison, Jonathan	9	″	1	18′ to 24′	10′ to 16′	1 in 4½	″	2	9′ x 6′	1,188′	engine-incline	17,135	..	17,135	105,797	122,932	14	30	44	″	2′	5″	140′	exh'st steam	6/12/95
Ralph's Taupiri	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,019	23,019	..	..	..	..	..	..	..	..	..
Miranda, Bridgewater ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20,668	20,668	..	..	..	..	..	..	..	..	..
Bombay	Long, George ..	2	brown	1	5′	5′	..	..	..	tunnel 6′ x 6′	190′	..	12	..	12	20	32	..	1	1	hand	..	..	..	natural	8/12/95
Mokau District.																										
Mokau	Lobb, Joseph ..	10	″	2	3′ 3″ each	7′	1½″ in the yard	bord and pillar	..	8′	15 chns.	horse & trucks	510	25	535	7,087	7,622	1	3	4	horse	..	..	..	return drive & furnace	..
Co-operative	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	940	940	..	..	..	..	..	..	..	..	..
Totals	..	..	..	..	..	..	..	..	..	..	..	..	134,557	1,181	135,738	1,913,664	2,049,402									

COLLINGWOOD.																													
Pakawau, Collingwood	..	Caldwell, W. S. O.	1	bitum.	3	14″, 8″, 5″	all	1 in 4	driving	..	6′ x 5′	406′	adit	216	35	251	132	383	..	3	3	hand	..	..	..	natural	12/2/95
Wallsend, ″	..	Walker, James ..	26	″	2	20″ each	″	N. 60° W.	longwall	..	..	..	″	1,022	242	1,264	46,107	47,371	4	9	13	″	..	..	..	″	5/6/95
Takaka, Takaka	..	..	2	brown	1	2′ 8″	″	1 in 10	driving	..	..	..	″	..	..	..	70	70	sto	pp	ed	..	..	..	..	..	..
Motupipi, ″	..	..	3	″	2	2′ 2″ eac.	″	..	..	..	..	..	″	..	..	..	70	70	sto	pp	ed	..	..	..	..	..	..
Enner Glynn, Nelson	..	Bennett, William	1	″	1	..	″	S.E. 70°	opening	..	..	..	..	100	..	100	..	100	2	2	4	horse	..	..	..	fan	6/12/95
WESTPORT.																													
Mokihinui	..	Alexander, T. ..	14	bitum.	1	30′	9′	14°	bord and pillar	..	9′ x 7′	20ch.	adit	5,626	..	5,626	27,911	33,537	6	32	38	″	..	..	..	furnace	30/9/95
Westport-Cardiff	..	Broome, G. H. ..	2	″	1	20′	7′	N. 20° E.	ditto	..	9′ x 7′	462′	″	24,927	7,775	32,702	5,000	37,702	16	50	66	engine	..	..	..	natural	13/12/95
Coalbrookdale	..	Green, John ..	14	″	2	4′ to 20′	all	variable	″	4	8′, 8′, 8′, 6′	48′, 146′, 90′, 148′	..	144,948	38,797	183,745	1,712,401	1,896,146	82	241	323	″	12″, 12″, 12″	4½″, 6″, 6″	100′ 140′ 100′	fan	5/11/95
Iron Bridge	..	Milligan, N. ..	..	″	..	..	..	..	″	..	9′ x 5′	155ch.	adit	..	..	..	..	..	..	..	..	..	Nos. 5 pulso	and meters	7,	natural	8/11/95
Granity Creek	..	Murray, Thomas	3	″	1	4′ to 40′	7′	varies	″	..	9′ x 6′	22ch., 37ch.	″	..	..	..	..	..	40	..	40	..	..	..	..	water-blast	17/5/95
Waitakere, Charleston	..	Humphries, Jesse	10	brown	1	12′	12′	″	opencast	..	..	..	..	300	..	300	268	568	1	..	1	horse	..	..	..	..	24/9/95
Whitecliffs–Buller Road	..	Croawell, C. ..	3	glance	1	8′	8′	W.	driving	..	..	..	..	..	..	..	374	374	..	1	1	″	..	..	..	natural	..
Flax Bush	..	Rear, Robert ..	1	brown	1	2′	60′	1′ in 15″	longwall	1	5′ x 4′	700′	..	230	..	230	..	230	2	3	5	hand	..	..	..	″	18/12/95
LONGFORD.																													
Longford	..	Goodger, Wm. ..	1	bitum.	1	20″ to 30″	20″ to 30″	15° E.	tunnel	1	6′ x 4′	200′	adit	200	20	220	..	220	1	1	2	″	..	..	..	air-shft.	6/12/95
Alexander	..	Rear, Robert ..	3	glance	1	2′ 8″	all	45° E.N.E.	″	..	..	..	″	..	..	..	282	282	sto	pp	ed	″	..	..	..	..	..
BOATMAN'S.																													
Coghlan's	..	..	6	″	1	12′	8′	W. 1 in 3	bord and pillar	..	..	..	″	..	..	..	370	370	sto	pp	ed	..	..	..	..	..	..
Archer's	..	Archer, D. ..	3	″	1	10′	8′	W.N.W.	ditto	..	..	..	dip-drive	300	..	300	680	980	..	1	1	horse	..	..	..	natural	15/2/95
REEFTON.																													
Murray Creek	..	Bolitho, Thomas	11	″	1	12′	7′	W. 1 in 3	″	1	3′ x 5′	25′	adit	..	..	..	7,760	7,760	sto	pp	ed	..	..	..	..	..	..
Golden Treasure	..	Davidson, J. G. ..	23	″	1	15′	9′	1 in 4	″	..	..	..	″	300	..	300	4,740	5,040	4	..	4	hand	..	..	..	natural	23/11/95
Phœnix	..	Fox, John ..	10	″	1	60′	12′	..	″	..	..	..	″	1,313	..	1,313	7,337	8,650	1	2	3	″	..	..	..	″	23/11/95
Lankey's Gully	..	Lamberton, W. ..	17	″	1	6′	5′	level	″	..	..	..	″	476	..	476	5,971	6,447	1	2	3	″	..	..	..	″	19/8/95
Reefton	..	..	4	″	1	2′	2′	N.W. 1 in 5	″	..	6′ x 4′	800′	″	..	..	..	40	40	sto	pp	ed	..	..	..	..	..	..
Cochrane's	..	Cochrane, D. L. ..	2	″	1	9′	7′	1 in 4	″	..	..	..	″	..	..	..	370	370	sto	pp	ed	..	..	..	..	..	..
Progress	..	Halley, William ..	14	″	1	5′	all	1 in 12	″	..	..	100′	″	1,200	..	1,200	5,757	6,957	..	2	2	hand	..	..	..	natural	20/11/95
Breen's	..	Breen, P. ..	2	″	1	5′	″	1 in 3	″	..	..	66′	″	209	150	359	421	780	1	1	2	″	..	..	..	″	25/7/95
Sir Francis Drake	..	Elliott, A. J. ..	7	″	1	6′	″	1 in 4	opencast	..	..	..	..	280	..	280	1,676	1,956	1	..	1	horse	..	..	..	″	21/10/95
Cumberland	..	Pilling, James ..	3	″	1	8′	″	E. 1 in 5	bord and pillar	..	..	..	adit	90	..	90	980	1,070	..	1	1	hand	..	..	..	″	..
GREYMOUTH.																													
Blackball	..	Scott, Joseph ..	5	bitum.	1	12′	9′	S.W. 1 in 6	ditto	..	9′ x 6′	1,232′	″	38,550	4,505	43,055	31,165	74,220	17	73	90	horse	..	..	..	furnace	25/11/95
Brunner	..	Bishop, James ..	30	″	1	7′	all	S.W. 1 in 4	″	..	10′ x 7′	3,000′	engine-plane	76,510	23,099	99,609	1,154,406	1,254,015	40	156	196	engine	16″	8″	..	fan	27/11/95
Coal-pit Heath	..	″ ..	18	″	1	16′	..	S.W. 1 in 4	″	..	..	..	..	..	..	..	577,190	577,190	..	..	..	..	..	..	..	..	..
Tyneside	..	″ ..	..	″	1	16′	..	S.W. 1 in 4	″	2	10′ and 6′ x 6′	116′ and 25′	..	..	..	..	18,398	18,398	..	..	..	..	..	..	..	..	..
Wallsend	..	″ ..	..	″	1	16′	..	S.W. 1 in 4	″	2	11′ and 14′	670′	..	..	..	..	205,539	205,539	..	..	..	..	..	..	..	..	..

Statistics of Workings in Coal-mines, 1895—*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 1895.			Approximate Total Output to 31st December, 1894.	Approximate Total Output to 31st December, 1895.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit.
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
MIDDLE ISLAND—*continued.*																										
													Tons.	Tons.	Tons.	Tons.	Tons.									
Malvern.																										
Springfield, Springfield ..	Baker, H. ..	19	brown	1	4′	all	S.E. 1 in 6	bord and pillar	1	6′ 6″ x 4′ 1″	70′	shaft	1,392	416	1,808	72,764	74,572	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 ..	G. Rutherford ..	1	″	1	..	″	..	..	..	..	..	..	30	..	30	..	30	1	..	1	..	..	.. ..		..	..
Sheffield, Sheffield	Austen Brothers..	33	″	2	2′ 3″	″	S.70° E.21°	narrow	1	5′ 7″	160′	dip-drive	1,804	..	1,804	42,104	43,908	..	8	8	horse	..	.. ..		natural	30/7/95
Homebush, South Malvern ..	McIraith, J. A. ..	23	″	1	7′	″	E. 10° S. 1°	bord and pillar	2	5′ x 6′	40ch.	adit	3,439	..	3,439	100,341	103,780	..	9	9	″	..	.. ..		″	1/8/95
Whitecliffs, South Malvern ..	Leeming, W. ..	15	″	1	5′	″	E. 5° S. 30°	narrow	1	incline	..	incline	2,405	..	2,405	28,945	31,350	..	6	6	engine	..	.. ..		..	2/8/95
Hartley, South Malvern ..	Hart, L. B. ..	1	″	1	..	..	..	..	..	..	..	..	32	..	32	..	32	..	2	2	..	..	.. ..		..	..
Glenroy, South Malvern ..	Febbes, W. ..	1	″	1	..	..	..	..	..	..	..	..	..	..	..	115	115	..	..	..	..	..	.. ..		..	..
Snowdon, Rakaia Gorge ..	Gerard, W. (owner)	10	″	1	14′	8′	N. 80° E.	narrow	1	4′ x 4′	90′	shaft	125	..	125	735	860	..	2	2	horse	..	.. ..		..	19/6/93
Mount Hutt, Rakaia Gorge ..	Murray-Aynsley, C.	3	″	2	2′	all	..	open	..	..	..	open	23	..	23	132	155	1	..	1	″	..	.. ..		..	21/6/93
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. ..	26	anthracite	1	4′	all	S.W. 18°	″	..	..	..	″	60	..	60	357	417	1	..	1	..	..	.. ..		..	15/1/95
Mount Somers, Ashburton ..	Park, G. ..	31	brown	1	35′	″	S.60° E.10°	open	..	..	..	..	1,755	..	1,755	19,965	21,720	4	..	4	..	..	.. ..		..	20/11/95
Timaru.																										
Rutherford's, Albury ..	Carruthers, James	4	″	1	20′	10′	..	..	1	5′ x 6′	..	incline	184	..	184	1,000	1,184	..	1	1	horse	..	.. ..		natural	16/11/95
Duke's, Kakahu	Duke, James ..	..	″	1	..	10′	..	bord and pillar	..	..	..	..	..	..	..	900	900	..	..	..	″	..	.. ..		..	9/6/93
Spring Vale, Fairlie Creek ..	″ ..	1	″	1	5′	5′	vertical	..	..	dip-drive	..	dip-drive	150	..	150	..	150	..	2	2	″	..	.. ..		natural	18/11/95
Waihao Forks, Waimate ..	Straw, M. ..	3	″	1	5′	..	..	open	..	..	..	open	7	..	7	110	117	1	..	1	..	..	.. ..		..	28/6/93
Studholme, Waimate ..	Cameron, E. H. ..	6	″	1	..	..	..	narrow	..	..	..	adit	..	..	..	84	84	..	..	..	hand	..	.. ..		..	14/7/94
North Otago.																										
Wade's, Kurow	Scott, David ..	16	″	1	5′ to 8′	all	vertical	stoping	1	6′ x 2′ 6″	53′	″	356	..	356	4,305	4,661	..	2	2	″	..	.. ..		..	25/11/95
Phillips's, Kurow	McCaffrey, P. ..	7	″	1	indefinite	30′	″	″	1	8′ x 6′	50′	dip-drive	392	..	392	1,228	1,620	..	2	2	horse	..	.. ..		natural	23/11/95
Wharekuri and Kurow ..	Cairns, W. B. ..	29	″	1	18′ & 5′	15′ x 5′	S.60°W.60°	narrow	..	4′ x 3′	80′	″	486	..	486	9,461	9,947	..	3	3	″	..	.. ..		″	23/11/95
Wharekuri and Kurow ..	Collins, J. D. ..	4	″	1	18′	8′	S.60°W.60°	″	1	6′ x 5′	75′	adit	120	..	120	1,282	1,402	..	1	1	hand	..	.. ..		″	25/11/95
St. Andrew's, Papakaio ..	Nimmo, Thomas	17	″	1	8′	7′	E. 15°	bord and pillar	1	4′ x 2′ 6″	60′	″	1,373	..	1,373	19,428	20,801	..	5	5	horse	..	.. ..		″	27/11/95
Prince Alfred No. 1, Papakaio	Willetts, John ..	26	″	1	7′	6′	E. 10° S. 1 in 5	ditto	1	4′ x 4′	50′	″	1,069	..	1,069	36,781	37,850	2	4	6	″	..	.. ..		″	27/11/95
Ngapara, Ngapara	Nimmo, G. S. ..	17	″	1	18′ to 25′	7′ to 8′	N. 5° E. 1 in 4	″	1	6½′ x 4½′	15ch.	″	520	..	520	13,018	13,538	1	1	2	″	..	.. ..		″	28/11/95
Rosebery, Otepopo	Mathews, P. ..	12	″	1	5′	all	..	..	1	..	..	″	200	..	200	1,224	1,424	..	2	2	hand	..	.. ..		″	29/10/95

NORTH OTAGO—*continued.*																										
Early Bank, Otepopo ..	Frame, W. ..	4	brown	1	3′ 9″	all	E. 1 in 9	bord and pillar	1	4′ x 2′	50yd.	incline	..	..	..	281	281	..	..	..	..	..	..	..	natural	29/10/59
Shag Point, Shag Point ..	Shore, Thomas ..	32	„	1	3′ to 4′	„	E. 1 in 4	ditto	3	16½′ x 6′ 6′ 8″ x 5′	200′ 450′	shaft	11,975	5,443	17,418	256,875	274,293	16	52	68	engine	2′	6″	450′	„	4/7/95
Allandale, Shag Point ..	Campbell, J. ..	8½	„	1	7′	6′	..	„	1	5½′ x 5′	350′	engine-plane	8,599	3,639	12,238	67,807	80,045	8	29	37	„	2′	5″	..	„	5/7/95
SOUTH OTAGO.																										
Fernhill, Abbotsford ..	Grey, James ..	18	brown	1	19′	10′	N. 10° E. 1 in 10	bord and pillar	1	4¾′ x 4½′	..	adit	4,087	..	4,087	100,589	104,676	4	16	20	horse	..	..	..	furnace	22/7/95
Chain Hills, Abbotsford ..	Allen, A. G. ..	1	„	1	6′ to 8′	6′ to 8′	..	ditto	1	6′ x 5′	100′	incline	..	..	..	842	842	..	..	..	..	..	..	..	..	..
Freeman's, Abbotsford ..	Green, E. R. ..	14½	„	1	6′ to 8′	all	E. 10° N.	„	5	4′ x 4′ to 10′ x 4′	45′ to 140′	engine-plane	7,602	1,168	8,770	195,380	204,150	5	14	19	engine	12″	5″	161′	steam	14/8/95
Walton Park, Green Island ..	Pollock, James ..	25	„	1	15′ to 17′	8′	E. 1 in 9	„	3	6′ x 4′ to 12′ x 4′	25′ to 175′	shaft	13,649	2,431	16,080	465,867	481,947	9	38	47	„	4′	9¾″	170′	furnace	6/12/95
Saddle Hill, Green Island ..	Christie, James ..	21	„	1	19′ 6″	10′	E. 1 in 10	„	3	5′ x 2′	50′	incline	1,252	1,101	2,353	81,365	83,718	2	4	6	horse	..	..	..	natural	13/8/95
Burnwell, Green Island ..	Harris, Adam ..	4	„	1	16′	10′	..	„	1	..	..	„	1,000	340	1,340	1,699	3,039	2	4	6	„	..	..	..	„	13/8/95
Glenochiel, Green Island ..	Bryce, D. ..	14½	„	1	16′	7′	varies	„	1	8′ x 4′	43′	„	1,711	..	1,711	11,539	13,250	1	3	4	„	..	..	..	„	13/8/95
Brighton, Brighton ..	Walker, James ..	9	„	1	5′	4′	..	„	1	..	48′	dip-drive	384	..	384	3,209	3,593	1	2	3	„	..	..	..	„	6/12/95
McColl's, Brighton ..	McColl, D. ..	7	„	1	3′ to 4′	all	E. 12°	„	..	..	..	„	131	..	131	729	860	1	1	2	„	..	..	..	„	6/12/95
Mosgiel, Mosgiel ..	Sneddon, James ..	12	„	1	15′	7′ to 8′	S. 1 in 10	„	2	4′ x 4′ 6′ x 4′	27½′ and 32′	engine-plane	1,543	3,603	5,146	46,894	52,040	3	7	10	engine	..	..	..	„	13/8/95
Salisbury, Mosgiel ..	Reid, Donald ..	3	„	1	8′	5′	..	„	1	5′ x 6′	264′	adit	..	..	..	4,433	4,433	..	..	..	..	..	..	..	..	23/8/93
Bruce No. 2, Milton ..	Hardwick, N. ..	20	„	1	16′	6′ to 7′	N.30°E.10°	„	1	4½′ x 4½′	25′	„	..	..	..	23,026	23,026	..	..	..	..	..	..	..	..	25/7/94
„ „ ..	„ „ ..	19	„	1	12′ 6″	6′	varies	„	1	4′ x 3′	20′	„	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Real McKay, Milton ..	Young, A. ..	27½	„	1	15′	all	N. to E. 1 in 8	open	..	..	..	open	934	..	934	18,407	19,341	2	..	2	..	..	..	..	..	1/11/95
Akatore, Milton	Reid, James ..	1	„	1	14′	„	..	„	..	..	..	„	24	..	24	..	24	1	..	1	..	..	..	..	..	1/11/95
Adam's Flat, Adam's Flat ..	Reid, John ..	13	lignite	1	14′	10′	S. 45°	„	..	..	..	„	176	..	176	1,681	1,857	1	..	1	..	..	..	..	..	3/10/93
Paskell's, Adam's Flat ..	Paskell, John ..	31	„	1	8′	all	N.E. 1 in 6	„	..	..	..	„	10	..	10	341	351	1	..	1	..	..	..	..	..	3/10/93
Wallsend, Lovell's Flat ..	Hewitson, Robert	25	„	1	20′	„	..	„	..	..	..	„	671	..	671	7,917	8,588	2	..	2	..	..	..	..	..	1/11/95
Gibson's, Lovell's Flat ..	Gibson, James ..	1	pitch	1	..	6′	..	bord and pillar	2	11′ x 4′ 8′ x 4′	320′ 250′	shaft	..	..	..	89	89	..	..	..	..	..	..	..	..	..
Tuakitoto, Lovell's Flat ..	McDougall, M. ..	6	brown	1	20′	8′	E. 15° to N. 5°	ditto	1	..	..	„	250	..	250	2,016	2,266	..	2	2	horse	..	..	..	..	1/11/95
Benhar, Benhar	McSkimming, —	32	„	1	30′	12′	S. 17°	„	2	4′ x 4′ 8′ x 6′	48′ 462′	engine-plane	3,669	559	4,228	77,241	81,469	1	6	7	engine	..	..	..	natural	17/6/95
Rigfoot, Benhar	Aitkin, Thomas ..	9	„	1	18′	12′	S. 12°	„	1	6′ x 8′	240′	incline	421	..	421	4,742	5,163	1	1	2	horse	6″	2″	60′	„	17/6/95
Morrison's, Benhar ..	Morrison, J. ..	4	„	1	15′	7′	S. 12°	„	..	8′ x 8′	100′	adit	..	..	..	646	646	..	..	..	..	..	..	..	..	..
Mount Wallace, Benhar ..	Anderson, A. H...	1	„	1	14′	8′ to 10′	..	„	..	..	..	„	240	30	270	..	270	1	2	3	horse	..	..	..	..	22/12/95
Kaitangata, Kaitangata ..	Watson, W. P., gen. manager	19	pitch	2	10′ to 40′	10′ to 35′	W. 45°	„	1	13′ x 5′ 6″	704′	engine-plane & shaft	40,933	22,924	63,857	815,541	879,398	17	125	142	engine	2′	6″	704′	furnace	12/6/95
Castle Hill No. 1, Kaitangata	Carson, M. ..	7½	„	1	12′ to 14′	8′	N. 20°	„	1	3′ 9″ x 2′ 6″	54′	adit	..	..	..	9,314	9,314	..	..	..	..	..	..	..	..	20/7/94
Castle Hill No. 2, Kaitangata	Gow, W., general manager	2	„	1	5′ to 15′	5′ to 8′	..	„	1	10′ diam. 11′ x 6′ 6″	400′ and 2,200′	shaft & engine-plane	16,365	..	16,365	9,275	25,640	19	65	84	engine	20″	10″	490′	furnace	13/6/95
Lakeside, Kaitangata ..	Welsh, Patrick ..	1	brown	1	20′ to 25′	8′	W. dip	„	..	..	..	adit	221	..	221	..	221	2	1	3	„	..	..	..	..	19/12/95
Langridge, Kaitangata ..	McAllister, R. ..	1	„	1	..	..	..	„	..	..	..	„	165	..	165	..	165	..	2	2	hand	..	..	..	..	14/6/95
Wangaroa, Kaitangata ..	Smith, Joseph ..	15	„	1	10′ 6″	8′	E. 1 in 6	„	..	8′ x 6′	..	„	35	..	35	960	995	..	1	1	„	..	..	..	..	18/6/95
Owake, Catlin's ..	Copan, W. ..	1	pitch	1	..	..	..	..	..	..	..	..	..	..	..	95	95	..	..	..	..	..	..	..	..	..
Lismahagow, Kaitangata ..	Sewell, R. M. ..	14	brown	1	5′ to 6′	5′	N. slightly	bord and pillar	..	..	..	adit	26	..	26	1,482	1,508	..	1	1	hand	..	..	..	..	18/6/95
Crofthead, Kaitangata ..	Mackie, E. ..	7	pitch	1	12′	8′	N. 20°	ditto	1	6′ x 5′	396′	„	..	..	..	6,713	6,713	..	..	..	..	..	..	..	..	6/10/93
Conical Hills, Waipahi ..	Lischmuir, F. ..	9½	lignite	1	15′	all	..	open	..	..	..	open	1,822	..	1,822	11,022	12,844	3	..	3	..	..	..	..	..	30/10/95
„ „ ..	Shennan, W. ..	2	„	1	..	..	..	..	..	..	..	adit	20	..	20	25	45	..	1	1	..	..	..	..	..	30/10/95
Valley Road, Pukerau ..	Orchard, E. C. ..	6	„	1	20′	all	..	open	..	..	..	open	425	..	425	1,155	1,580	3	..	3	..	..	..	..	..	14/10/95

Statistics of Workings in Coal-mines, 1895—*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 1895.			Approximate Total Output to 31st December, 1894.	Approximate Total Output to 31st December, 1895.	Number of Men ordinarily employed.			Power used for drawing Mineral.	Pumps.			Means of Ventilation.	Date of Inspector's Last Visit
										Size of Shaft or Adit.	Depth of Shaft or Length of Adit.		Coal.	Slack.	Total.			Above.	Below.	Total.		Stroke.	Size of Barrel.	Height of Column.		
MIDDLE ISLAND—*continued.*													Tons.	Tons.	Tons.	Tons.	Tons.									
Central Otago.																										
Cole Creek, Roxburgh ..	Jones, John ..	25	lignite	1	unknown	50′	..	open	..	..	..	open	790	..	790	10,334	11,124	4	..	4	..	..	..	..	..	16/2/95
McPherson's, Roxburgh ..	McPherson, M. ..	25	"	1	"	40′	..	"	..	..	..	"	2,129	..	2,129	7,957	10,086	3	..	3	..	..	..	..	..	16/2/95
Perseverance, Roxburgh ..	Craig, James ..	8	"	1	"	70′	..	bord and pillar	..	6′ x 7′	..	adit	1,545	..	1,545	6,158	7,703	1	2	3	hand	..	..	..	natural	16/2/95
Gully Pit, Roxburgh ..	Cockburn, George	1	"	1	"	..	..	open	..	..	..	open	134	..	134	..	134	1	..	1	engine	..	..	..	..	..
Alexandra, Alexandra ..	Thomson, W. A...	16	brown	1	14′	5′ 6″	N. 20° E.	bord and pillar	2	5′ x 2′ 6″	60′	shaft	1,642	..	1,642	18,203	19,845	1	3	4	horse	..	..	..	natural	22/11/94
McQueenville, Alexandra ..	Lett, Robert ..	9	"	1	14′	5′	S. 75° W.	ditto	2	3′ x 4′ 9″	62′	"	534	..	534	9,940	10,474	2	3	5	"	..	..	..	"	16/5/95
Enterprise, Alexandra ..	Rivers, George ..	2	"	1	6′	5′	..	"	1	4′ x 3′	..	"	489	..	489	214	703	1	1	2	"	..	..	..	"	22/11/94
Perseverance, Alexandra ..	Finlay, R. M. ..	2	"	1	6′	5′	..	"	1	4′ x 3′	..	"	565	..	565	159	724	1	1	2	"	..	..	..	"	22/11/94
" " ..	Cameron, S. ..	1	"	1	..	..	..	"	1	..	..	"	1,111	..	1,111	..	1,111	2	3	5	engine	..	..	..	"	23/11/94
Cambrian, Cambrian's ..	Dunge, C. ..	11	"	1	9′	all	..	open	..	..	..	open	1,077	..	1,077	9,029	10,106	3	..	3	..	..	..	..	..	21/2/95
Welshman's Gully, Cambrian's	Jones, J. R. ..	34	lignite	1	30′	28′	W. 10°	"	..	..	..	..	1,300	..	1,300	18,935	20,235	4	..	4	..	..	..	..	..	21/2/95
Blackstone Hill	Dunsmuir, A. ..	29	"	1	10′	all	N. 70°	"	..	..	..	..	255	..	255	1,250	1,505	1	..	1	..	..	..	..	..	22/2/95
Rough Ridge, Idaburn ..	Beck and McLean	9	"	1	30′	"	N. 5°	"	..	..	..	..	855	..	855	8,438	9,293	4	..	4	..	..	..	..	..	23/2/95
L. McLean's, Idaburn ..	McLean, L. ..	..	"	1	..	"	..	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23/2/95
" ..	Fennessy, M. ..	1	"	1	..	"	..	"	..	..	..	..	52	..	52	..	52	1	..	1	..	..	..	..	..	..
Idaburn, Idaburn	White, John ..	25	"	1	23′	"	N. 30°	"	..	..	..	..	787	..	787	27,274	28,061	3	..	3	..	..	..	..	..	23/2/95
Border Colliery, Idaburn ..	Turnbull, G. ..	25	"	1	12′	"	N.W. 20°	"	..	..	..	..	496	..	496	3,031	3,527	1	..	1	..	..	..	..	..	23/2/95
Gimmerburn, Gimmerburn ..	Dougherty, Charles	30	brown	1	12′	"	..	"	..	..	..	..	425	..	425	1,198	1,623	3	..	3	..	..	..	..	..	23/2/95
Commercial, Kyeburn ..	Archer, Christian	11	}	1	8′	6′	..	stope	..	..	..	..	517	..	517	9,789	10,306	2	2	4	horse	..	..	..	..	25/2/95
Perseverance, Kyeburn ..	" ..	16	"																							
Kyeburn, Kyeburn	Combes, William	22	"	1	8′	8′	S. 45° W. 50°	"	1	5′ x 3′	30′	hand	225	..	225	14,949	15,174	1	2	3	hand	..	..	..	..	25/2/95
Waikerikeri, Clyde	Griffiths, G. ..	13	"	1	20′	..	..	"	2	6′ x 3′	160′	shaft	..	..	..	19,389	19,389	..	..	..	horse	..	..	..	..	19/2/95
Dairy Creek, Clyde	Marie, T. C. ..	23	"	1	unknown	..	S. 45°	bord and pillar	1	4′ x 3½′	..	incline	..	..	..	3,731	3,731	..	..	..	"	..	..	..	..	19/2/95
Kawarau, Bannockburn ..	Pryde, J. ..	18	"	1	8′	8′	N. 1 in 4½	ditto	1	6′ x 6′	34′	"	995	..	995	17,099	18,094	..	3	3	"	..	..	..	..	24/11/94
Cairnmuir, Bannockburn ..	Goodger, G. ..	3	"	1	..	..	..	stoping	..	..	..	"	351	..	351	852	1,203	2	..	2	"	..	..	..	..	24/11/94
Excelsior, Bannockburn ..	Gibson, James ..	14	"	1	17′ to 18′	12′	E. 6°	"	1	4′ x 6′	40′	"	529	..	529	4,670	5,199	1	2	3	"	..	..	..	..	24/11/94
" ..	Parcell, W. ..	3	"	1	..	..	..	"	..	..	..	"	69	..	69	..	69	..	1	1	"	..	..	..	..	24/11/94
Nulli Secundus, Bannockburn	"	3½	"	..	..	..	..	"	..	..	..	..	..	..	..	632	632	..	..	..	..	..	..	..	..	..
Bannockburn, Bannockburn	Wilson, T. ..	6	"	1	6 to 7′	all	..	bord and pillar	1	6′ x 4′	20′	adit	207	..	207	200	407	..	3	3	hand	..	..	..	..	..
Nevis, Nevis	O'Brian, P. ..	2	"	1	20′	"	..	open	..	..	..	open	60	..	60	60	120	1	..	1	..	..	..	..	..	30/11/94
Gibbston, Gibbston ..	Cowan, James ..	28	"	1	unknown	12′	W. 22½°	"	..	..	..	"	523	..	523	18,615	19,138	3	..	3	..	..	..	..	..	16/7/95
Gibbston Saddle, Gibbston ..	Macale, M. ..	9	"	1	18′	all	..	"	..	..	..	"	178	..	178	1,829	2,007	1	..	1	..	..	..	..	..	15/7/95
Cardrona, Cardrona ..	McDougal, R. ..	11	"	1	20′	"	..	"	..	..	..	"	397	..	397	5,700	6,097	3	..	3	..	..	..	..	..	18/4/92
Southland.																										
Waikoikoi, Pukerau ..	Kirk, William ..	8	lignite	1	6′	"	..	"	..	..	..	..	18	..	18	180	198	1	..	1	..	..	..	..	..	11/10/93
Pukerau, Pukerau	O'Hagan, C. ..	15	"	1	16′	10′	W. 1 in 10	bord and pillar	..	6′ x 7′	530′	adit	1,084	..	1,084	21,486	22,570	..	3	3	horse	..	..	..	..	14/10/95

..	..	..
..	..	14/10/95
..	..	..
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..	..	11/10/95
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..	..	11/10/95
..	..	10/10/95
..	..	10/10/95
..	..	24/8/94
..	..	..
..	..	21/10/95
..	..	16/10/95
..	..	16/10/95
.	..	19/10/93
..	..	15/10/95
..	..	15/10/95
..	..	15/10/95
..	..	28/8/94
..	..	15/10/95
..	..	15/10/95
..	..	28/8/94
..	..	28/10/95
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..	..	25/10/95
..	..	..
..	..	23/10/95
..	..	31/10/92
..	..	8/10/95
..	..	8/10/95
..	..	8/10/95
..	..	19/10/94
..	..	9/10/95
..	..	9/10/95
..	..	9/10/95
..	..	9/10/95
..	..	7/10/95

Statistics of Workings in Coal-mines, 1895—*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 1895.			Approximate Total Output to 31st December, 1894.	Approximate Total Output to 31st December, 1895.	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.									
Genge's, Wyndham ..	Genge, Thomas ..	18	lignite	1	3′	all	..	open	..	..	..	open	250	..	250	2,569	2,819	3	..	3	..	..	..	..	..	7/10/95
Wyndham, Wyndham ..	Walker, W. ..	1	"	1	.	"	..	"	..	..	..	"	22	..	22	..	22	..	..	..	..	..	..	..	..	7/10/95
Edendale, Wyndham ..	McDonald, A. ..	5	"	1	5′	"	..	"	..	..	..	"	196	..	196	1,508	1,704	1	..	1	..	..	..	..	..	8/10/95
Shields's, Wyndham ..	Shields, William	15	"	1	6′	"	..	"	..	..	..	"	460	..	460	6,158	6,618	2	..	2	..	..	..	..	..	8/10/95
Marshall's, Wyndham ..	Marshall, H. ..	4	"	1	3′	"	..	"	..	..	..	"	60	..	60	140	200	1	..	1	..	..	..	..	..	8/10/95
Jones's, Wyndham ..	Jones, E. and A.	1	"	1	..	"	..	"	..	..	..	"	50	..	50	..	50	..	..	..	..	..	..	..	..	8/10/95
Neill's, Wyndham ..	Neill, Thomas ..	1	"	1	..	"	..	"	..	..	..	"	25	..	25	..	25	..	..	..	..	..	..	..	..	8/10/95
Robin Hood, Pine Bush ..	Trotter, A. ..	14	"	1	15′	"	..	"	..	..	..	"	182	..	182	550	732	1	..	1	..	..	..	..	..	11/11/93
Monagan's, Pine Bush ..	Monagan, A. ..	2	"	1	8′	6′	..	"	..	..	..	"	..	..	..	11	11	..	..	..	..	..	..	..	..	11/11/93
Hokonui, Winton	Hayes, John ..	8	pitch	1	..	all	W. 14°	bord and pillar	1	4′ x 4′	..	engine-plane adit	9,050	2,000	11,050	35,692	46,742	8	28	36	..	..	..	..	furnace	20/8/95
Fairfax, Fairfax	Graham, P. S. ..	17	lignite	1	5′ 6″	"	N. 60° W. 4°	ditto	..	5′ 6″ x 7′	..	adit	622	..	622	9,708	10,330	..	2	2	hand	..	..	..	natural	23/8/95
Salton's, Fairfax	Salton, R. ..	2	"	1	5′	"	..	"	..	..	..	"	72	..	72	160	232	1	..	1	"	..	..	..	"	23/8/95
Isla Bank, Fairfax	Slattery, M. ..	15	"	1	8′	"	N.W. 5°	open	..	..	..	open	373	..	373	2,932	3,305	1	..	1	..	..	..	..	..	23/8/95
Nightcaps No. 1, Nightcaps	Handyside, W., gen. manager								1	6′ x 4′	130′															
Nightcaps No. 2, Nightcaps	Lloyd, J., mine-manager	14	pitch	1	17′	"	N.E. 1 in 7	bord &	1	5′ x 4′	..	adit	11,309	..	11,309	140,442	151,751	12	16	28	horse	..	..	..	natural	24/8/95
Nightcaps No. 3, Nightcaps							S. 80° E. 5°	pillar	1	5′ diam.	60′															
Wallace Pit, Nightcaps ..	Reid, William ..	10	"	1	13′	"	S. 80° E. 5°	open	..	..	..	open	1,839	..	1,839	6,930	8,769	3	..	3	..	..	..	..	..	24/8/95
No. 1, Morley Village, Nightcaps	Brazer, J. ..	5½	"	1	10′	"	S. 80° E. 5°									2,096	2,096	..	..	..	..	..	..	..	..	18/4/93
No. 2, Morley Village, Nightcaps	Brazer, J. ..	3	"	1	4′	"	N. 60° E. 5°	"	..	..	..	"	..	..	..											
Alley's, Nightcaps	Alley, Jesse ..	3	"	1	4′ to 9′	"	..	"	..	..	..	open	..	..	..	193	193	..	..	..	..	..	..	..	..	24/8/95
Wairio, Nightcaps	Lloyd, John ..	11	"	1	9′	9′	N.E. 50°	bord and pillar	..	6′ x 6′	3 chains	adit	..	..	..	3,452	3,452	..	..	..	..	..	..	..	..	..
Mount Linton, Mount Linton	Chalmers, N. G.	5	"	1	10′	8′	N.W.	ditto	..	..	..	open	120	..	120	242	362	1	..	1	..	..	..	..	..	25/10/94
Orepuki, Orepuki	Love, A. ..	8	"	1	22′	9′	S.E.	"	..	..	..	engine-plane adit	..	..	..	5,483	5,483	..	..	..	..	..	..	..	..	22/10/94
Cluny, Orepuki	Popham, J. ..	4	"	1	10′	5′	S. 12° W. 80°	open	..	..	..	open	..	..	..	156	156	..	..	..	..	..	..	..	..	19/9/92
													621,369	119,458	740,827	8,877,039	9,617,866									
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	27,586									
																8,904,625	..									
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									
																	9,957,222									

HENRY A. GORDON, M.A.Inst.M.E., Inspecting Engineer.

APPENDIX II.

ACCIDENTS in COAL-MINES during the Year ending 31st December, 1895.

No. and Date.	Name of Mine.	Locality.	Cause of Accident.	Above Ground.	Below Ground.	Fatal.	Non-fatal.	Name of Sufferer.	Remarks.
1895.			*North Island.*						
1. Jan. 24	Taupiri Extended	Huntly ..	Explosion ..	..	1	..	1	Samuel Stockbridge	Not serious.
2. Jan. 24	Ditto ..	" ..	"	..	1	..	1	Thomas Hay	Slight injury to hands.
3. Mar. 5	Taupiri Reserve	" ..	Steel splinter, back injured	..	1	..	1	John Dunn..	Not serious.
4. April 10	"	" ..	Fall of earth ..	..	1	..	1	Wm. Crowder	Shaken and bruised.
5. May 20	Taupiri Extended	" ..	Struck his foot with pick	..	1	..	1	Walter Waugh	Not serious.
6. June 10	Ditto ..	" ..	Hand cut by piece of coal	..	1	..	1	Robt. Woolam	"
7. July 6	Waikato ..	Waikato ..	Cut finger while cutting tea-tree	1	..	..	1	Hamilton McCaig	"
8. " 16	" ..	" ..	Fell on a barge and hurt his neck	1	..	..	1	G. E. Skellern	"
9. " 18	Taupiri Reserve	Huntly ..	Slipped on log and hurt his privates	1	..	..	1	Daniel Wilson	"
10. " 23	Taupiri Extended	" ..	Injury to eye ..	..	1	..	1	William Kerr	"
11. Aug. 15	Ditto ..	" ..	Injury to hand ..	..	1	..	1	Wm. Gurnick	"
12. " 23	Taupiri Reserve	" ..	Injury to leg ..	..	1	..	1	Wm. Paterson	"
13. Oct. 26	Kiripaka ..	Whangarei	Injury to eye ..	..	1	..	1	Pat. Whorsky	"
14. " 28	" ..	"	Fall of stone ..	..	1	1	..	A. Darnley ..	Fatal.
15. Dec. 19	" ..	"	Injury to eye ..	..	1	..	1	J. W. Wilson	Not serious.
			Middle Island.						
16. Mar. 13	Coalbrookdale	Coalbrookdale	Fall of coal through sprag slipping	..	1	1	..	Jas. Johnston	Fatal.
17. " 14	Cardiff ..	Mokihinui	Fell on incline ..	1	..	..	1	W. Lyons ..	Broken arm.
18. May 17	" ..	"	Struck by piece of coal after firing a shot	..	1	..	1	Richard Dunn	Two ribs broken.
19. June 17	" ..	"	Fall of coal ..	..	1	1	..	James Bain	Fatal.
20. Sept. 28	Mokihinui ..	"	Runaway truck ..	1	..	..	1	George Harris	Not serious.
21. Nov. 7	Iron Bridge ..	Denniston	Fall of stone from roof	..	1	..	1	John Young	Shoulder-blade and rib broken.
22. April 1	Kaitangata ..	Otago ..	Fell over tramline escaping from a fall of coal	..	1	..	1	Jas. Matchet	Leg broken.
23. July 2	Gibbston ..	Gibbston ..	Fell through into old workings	..	1	1	..	James Cowan	Fatal.
24. Nov. 1	Early Bank ..	Herbert ..	Fall of stone ..	..	1	1	..	P. Matthews	"
25. Dec. 30	Castle Hill ..	Kaitangata	Hand crushed while cleaning crank	1	..	..	1	James Howie	Serious. Right hand badly crushed

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