1883.
NEW ZEALAND.

CONTROL AND INSPECTION OF MINES
(REPORT ON).

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

To the Honourable WILLIAM ROLLESTON, Minister of Mines.

SIR,— Mines Department, Wellington, 25th June, 1883.

I have the honour to forward for your information the usual general report (being the fifth since the Act was brought into force) upon the official control and inspection of mines, under "The Regulation of Mines Act, 1874," showing the work of this department under the Act, &c., since my last general report of the 10th of June, 1882; with an Appendix, containing the reports of inspections of mines, and tables giving particulars of the coal mines, of accidents in them, and of imports and exports of coal into and from the colony.

I have, &c.,
OLIVER WAKEFIELD,
Under-Secretary for Mines.

REPORT.

INSPECTIONS OF COAL MINES AND QUARTZ MINES.

THE operations of this department during the year, under the Regulation of Mines Act, are indicative of still further progress in establishing a system by which our mines shall be worked with due regard to safety, and, again judging by results, after a trial of nearly four years and a half, there appears now to be no room for doubt that this branch of the Mines Department has so far successfully fulfilled its mission, and that its efforts—generally coincident, I am glad to say, with the efforts of those who are most immediately interested in this matter—have contributed very largely to the satisfactory condition of the mines with regard to the small number of accidents which have occurred since the Act was brought into operation. All the principal coal mines, and nearly all the others, have been carefully inspected during the year, Mr. Binns especially having made frequent visits and paid particular attention to some of the larger mines in the Middle Island, the circumstances of which rendered this action necessary. Mr. McLaren has, as usual, made periodical inspections of the North Island mines; and Mr. Cox has this year paid a special visit to all the principal coal mines in both Islands. The reports of these various inspections will be found in the Appendix.

Frequent inspections have been made of the Brunner and Coalpit-heath Coal mines during the year, and at the request of the latter company Mr. Binns was directed to inquire into a question of drainage between these mines, which is referred to more particularly in his report. It will be seen that the Shag Point mine has again demanded much attention, especially with regard to ventilation, and the question of the safety of the submarine workings, of which the inspector was authorized to obtain an accurate survey, soundings above also being taken by the Public Works Department, with the result that these workings were

ordered to be closed, in order to insure the safety of some forty men working in places more or less affected by the system adopted in this part of the mine.

Mr. Binns reports that safety lamps are now used in the rise workings of the Brunner mine, where he saw a small blower of gas in October last, and that one place in the Kaitangata (No. 1) mine—formerly known as "Shore's"—is always worked with locked safety lamps whenever there is any sign of gas, which is said to have been observed there occasionally. It will also be seen that the adjoining mine, in which the explosion of 1878 occurred, continues to be worked carefully and successfully.

In order to satisfy the Inspector of the accuracy or otherwise of the mine plans, Mr. Gordon, the Inspecting Engineer in the Mines Department, has made special check surveys of the Coalpit-heath, Brunner, and Westport Company's (Banbury) mines, and he will continue to make such surveys when required.

Quartz Mines.—The inspection of the West Coast quartz mines at Reefton, Boatman's, and Lyell, which was at first regarded by the managers as a species of Court of Inquisition, has been successfully continued by Mr. Binns, who spent several days at Reefton in conference with a committee appointed by a meeting of managers, and afterwards with the whole of the managers, which resulted in matters being amicably and satisfactorily arranged, and the establishment of special rules, under section 31 of the Act, the greater number of which will be found published in the *New Zealand Gazette* of the 25th of May, 1883. The report of the inspections of these mines, showing that much has been effected since the mines were brought under the Act, will be found in the appendix with the other reports. As Mr. Binns represented that the time occupied in inspecting these mines (which are increasing in number and importance) would interfere with the due performance of his duties with respect to the coal mines, he has been relieved of the inspection of the quartz mines, the duty now devolving upon Mr. Gordon, who has been appointed an Inspector of Mines under the Act for the Westport District, in order that he may undertake the inspection of these mines in the course of his other duties as Inspecting Engineer. I regret, with Mr. Binns, the necessity for his giving up this work, as his reports will show that he has given close attention to and exercised wise judgment in the matter; but I have no doubt that Mr. Gordon, with his special experience of gold fields, will thoroughly well continue the work which Mr. Binns has so ably begun. While upon this subject I should repeat—in order to make the matter clear—my statement of last year, that these are the only gold mines which have been brought under the Regulation of Mines Act, the auriferous quartz mines at the Thames and Coromandel being inspected by Mr. McLaren under "The Gold Mining Districts Act, 1873," and those at the new Te Aroha field by Mr. Wilson, the reports upon these mines being contained in the Appendix of the annual report upon the gold fields.

Statistics, etc.

In a rising colony like ours, in which the development of its mineral resources, concurrently with the growth of trade, becomes every year of more importance, this section of the report must be one of special interest, and it is therefore gratifying to observe that during the past year enterprise in the direction of prospecting and increasing the producing power of the coal mines, and in reducing the difficulties of transit to and from the mines, has been such as to effect substantial results, and to justify the belief that during the present year much greater strides will be made in the progressive development of this industry.

The number of coal mines has again undergone official adjustment. Some of the smaller ones in the Middle Island, being worked out or abandoned, have been struck off the list, and others have been added, the number in the Middle Island now standing at ninety-one, or eight less than last year, and in the North Island five, the same as last year. As usual, those which have been struck off the list were chiefly prospecting drives or mines of no importance, and their deduction does not affect the general question of development, as the larger mines appear to have absorbed more than the labour scattered over these small mines, the total number of men ordinarily employed during the past year showing an

increase of about eighty over the number so employed the year before, the totals (approximately stated) being 963 during 1881, and 1,043 during 1882. The Return No. 1, following the Appendix to this report, contains these and other particulars in detail, as well as the total output from the various coal mines for the year ending the 31st of December, 1882, and the approximate total output from the coal mines in the colony, since any record was kept of them, up to the same date. Return No. 3 contains a statement by the Secretary of Customs of coal imports and exports during the year 1882. The total output for the colony during 1882 is 378,272 tons, and if the quantity imported (129,582 tons) during the same period is added to this, and the export (4,245 tons) deducted—assuming, as in former reports, that the remainder has been consumed here—the total consumption in the colony during 1882 would be 503,609 tons, or an increase over the consumption of 1881 of 43,011 tons; the increase of coal won from mines in the colony during 1882 being 41,010 tons over the quantity raised in 1881, as will be seen in the following table, showing the total production of each of the past five years, and the relative quantity imported:—

	Raised in the Colony.	Imported.
1878	.... 162,218 tons	.... 174,148 tons
1879	.... 231,218 tons	.... 158,076 tons
1880	.... 299,923 tons	.... 123,298 tons
1881	.... 337,262 tons	.... 129,962 tons
1882	.... 378,272 tons	.... 129,582 tons

Although the increased quantity of coal raised in the colony during the year is not nearly so large as one might have been fully justified in anticipating in view of the efforts being made, at the date of the last report, to improve the appliances of some of the larger mines, and to increase the facilities of transit, it is nevertheless satisfactory to be able to show, as above, that there has been a substantial increase in the quantity produced in the colony; while the quantity imported is rather less than the importation of the previous year, thus affording continued evidence of the steadily increasing consumption of our own coal to the exclusion of foreign productions; and from various recent indications there can be little doubt that the relative proportion of home production and imports will be much more in favour of the colony during the present year than during the past.

To analyse the sources of the increased output this year, it will be observed that, while in the North Island there has been a small falling-off in the yield from the Bay of Islands (Kawakawa) colliery, more than the difference has been contributed by the increased yield from the Whangarei (Kamo and Whau Whau) and one of the Waikato (Taupiri) collieries; and in the Middle Island the Westport Company's Banbury mine again comes to the front as contributing the principal increase, yielding upwards of 24,000 tons more than last year. The Brunner mines also show an increase of some 16,000 tons, and these, and the Banbury mine, and the Nightcaps mine, in Southland—which contributes 6,730 tons against 120 tons last year—form the principal items of the total increased output, the Kaitangata and Shag Point mines showing some falling-off in the output compared with their last year's returns.

From the Inspectors' reports it appears that the works at the Koranui mine (Waimangaroa) towards placing it in the position of a considerable coal-producer have not been progressing so satisfactorily as might be desired; but I am informed that recently better progress has been made. Important works, including the sinking of a new deep shaft, are now being carried on at the Wallsend (Greymouth) mine, which has become the property of the Westport Colliery Company, with a view to reopening the mine.

Mr. Cox reports that five workable seams of coal, varying from 3 feet to 7 feet thick, have been struck in Wilson's colliery, South Malvern (noted as "Whitecliffs," in Return No. 1) besides several smaller ones, and that there is every probability of this mine developing largely.

The Springfield Coal Company, which has been a most enterprising one, notwithstanding discouraging circumstances, has now ordered from Australia a diamond rock-drill, with a view to further prospecting for coal of a better quality, the Government having agreed to grant the company a subsidy from the vote for this purpose, in order to assist them and contribute towards the establishment

of a powerful diamond rock-boring machine in this part of the colony. When this arrives, there will be one of these machines in the North (at present at the Bay of Islands), one at Reefton, and one in Canterbury, all being purchased directly or indirectly with Government assistance.

The Collingwood mines have not been visited by the Inspectors since November last, when Mr. Cox was there; but Mr. Russell, the manager of the New West Wanganui colliery, informs me that Mr. Rees (the present proprietor) has now brought the Wallsend mine again into working order, and that the output has recently been twenty-five tons per day, finding a ready market in Nelson as a household coal, and also for the Union Company's steamers calling there. Two upper seams of a greater thickness than the lower ones have been reached within the last two months, and it is anticipated that the working of these two seams will shortly double the output, which will, however, probably be limited to this until improved facilities for shipping the coal at deep water have been effected.

The New West Wanganui Coal Company is now established. Prospecting during the year has proved coal in three bore-holes, and operations for coal-getting will soon be commenced.

The special fleet of steamers referred to in last year's report as having been commenced by Captain Williams, of Wellington, has already assumed much larger proportions, the Union Steamship Company having now engaged in this enterprise by providing two new steamers of a very superior class, and Captain Williams informs me that he has ordered for this trade three more new steamers, which will cost between £40,000 and £50,000 (the first of his new steamers, the "Westport," having been lost near Cape Campbell, on the east coast of the Middle Island, during the past year), and that he hopes before long that his steam colliers trading in the colony will entirely supersede his sailing vessels now engaged in the (Australian) Newcastle trade.

The *Grey River Argus* newspaper of a recent date notes that Messrs. Kennedy Brothers (proprietors of the Brunner mine) have concluded a contract for supplying the Noumea Nickel Company, New Caledonia, with 250 tons of coke and 100 tons of coal monthly, the Messrs. Kennedy having purchased a barque expressly for this purpose, another vessel being provided by an Auckland firm; and this is considered by the *Argus* to be the possible commencement of a considerable export trade.

Published with the Appendix are some notes by Mr. Cox upon what is claimed by the originators—Messrs. Sebastian Smith and Moore—to be an improved system of coal-getting by substituting compressed lime for blasting powder; and, in addition to the advantages specifically credited to this system, it is quite possible that it may to some extent affect the ventilation of mines, and that it may be also turned to advantage in this respect.

Accidents.

The small number of accidents in proportion to the dangers involved which have occurred during the past year is again a cause of gratulation, and, as I have indicated in the first part of this report, there appears little doubt that this may be attributed to a large extent to the operation of the Regulation of Mines Act, and to inspection of the mines under its authority, in establishing, and enforcing where necessary, means and precautions for grappling with the great perils which undoubtedly beset this industry.

The Return (No. 2) of accidents in coal mines during 1882, contained in the Appendix, shows that there were two fatal accidents, and that six persons were otherwise injured during the year in the Middle Island mines. One of these fatal accidents (which occurred in the Brunner mine) was particularly referred to in last year's report as having formed the subject of an inquiry and a prosecution under the Act, and the other was simply caused by a fall of gravel in a small open-work lignite mine or quarry, which had not been brought under the Act. The northern mines have been once more for a whole year exempt from accidents; but Mr. McLaren reports a slight accident from a fall of fire-clay in the Taupiri colliery, which happened during February of the present year. Of the six "non-fatal" accidents shown in the return, only one appears to

have been serious, and this, as far as the circumstances are known, seems to have been caused by the most foolhardy carelessness on the part of the injured man which it is possible to conceive, and had this accident been reported to the Inspector, as required by the Act—which was not done, owing apparently to some misunderstanding—a very strict investigation would have been instituted.

Of the two fatal accidents, I have shown that one had nothing to do with any recognized coal mine or mine under the operation of the Act; and therefore it may be said that there has been only one fatal accident during 1882 for 378,272 tons of coal raised, and upwards of one thousand men ordinarily employed, which gives a still more satisfactory result than that for the year 1881.

Conclusion.

It is impossible to be identified with this department, affecting, as it does, the care and preservation of human life, without taking a deep personal interest in everything concerning its progress; and, although I am satisfied that this feeling is shared equally by its officers, its object, as I have pointed out upon former occasions, is immensely strengthened by the vigilance of all those who are connected with the mines in constantly taking precautions against dangers of all kinds; and, while there is every reason to believe that the almost sacred nature of this duty is generally recognized by those most interested in its observance, it is occasionally disheartening to find instances of gross carelessness and deliberate neglect of ordinary precautions on the part of workmen, who have only themselves to blame for the serious results which sometimes follow this want of attention to their own interests. Last year we had the case of a man who deliberately sounded the coal at his working-place, after being cautioned, and apparently knowing well that it was dangerous, without taking any precaution to set timber or otherwise, with the result that about three tons of coal fell upon him and caused instant death; and this year we hear of a man, immediately after a shot had been blown out, walking up and throwing powder into the hole, sustaining, as a certain result, severe injury, and probably having a fortunate escape from death.

I mention these matters to show the necessity for every one connected with the mines co-operating with the department and with the officers of the mines—many of whom cannot be too highly commended for their care in this respect—in avoiding all causes of danger; and, in view of such cases as those above quoted, it is hardly necessary to add that the most merciful policy of the department will be to continue to enforce the law in all cases in which the circumstances call for the exercise of this authority.

Oliver Wakefield.

APPENDIX.

No. 1.

INTERIM REPORT UPON INSPECTION OF COAL MINES, NORTH ISLAND DISTRICTS.

Mr. Inspector McLaren to the Under-Secretary for Mines.

Sir,— Thames, 13th November, 1882.

I have the honour to inform you that I have returned from a visit of inspection of the coal mines within my districts, and beg to report.

Taupiri Colliery, Huntly.—In the old mine the drawing of the pillars is still being safely continued, there being now only a few left near the entrance. I expect to find, on my next visit, that this mine has been worked out. In the new or lower mine the workings and levels were all in good order. From blasting I found a great part of the mine full of smoke, the rule of only firing when knocking off having been broken through. [See my report of the 6th May, 1881.] It appears, however, that this could not be well avoided on this occasion, as the railway had for some time previous been unable to supply sufficient trucks to keep the output clear, and on the day previous to my visit operations had to be suspended for this reason. In order, therefore, to make up arrears and supply the demand the rule could not be adhered to. It having been found, by borings taken along the main level, that a considerable thickness of coal was being left under foot, the shaft has been sunk to a further depth of 20 feet, and from this a level is now being driven. As near as can now be ascertained the thickest part of this seam must be about fifty feet, without a single band or parting. I found four boys working in the mine, two of whom did not appear to me to be the requisite age. They were both so ready with exactly the same story that they were "over thirteen" that it looked very like as if they had been put up to it. The manager believed, though young looking, they were the age represented, and promised to investigate. Under any or either circumstance it would have been preferable to have seen them at school. The workings on plan were plotted up to date, and the provisions of the Act for the safety of men and mine seemed carefully attended to.

Waikato Company's Colliery, Kupakupa, near Huntly.—There being only about five men employed in this mine the output is not great. The plan is not up to date, but I found the mine in good order. I found a Maori child, about eight years old, in the mine. The little fellow's father or grandfather (which is not clear) works in the mine, being engaged in trucking coal. It appears, as near as I could learn, that shortly before my visit he found the youngster outside, and gave him a ride in the empty truck. The manager (Mr. McGlynn) tried to show the old Maori how the little fellow might wander about and be run over in the darkness; but, as Mr. McGlynn did not understand Maori, or the Maori English, his efforts to enlighten the latter did not appear to be very successful. Mr. McGlynn, however, arranged with me to have the Maori thoroughly informed, so that it would not happen again.

Kawakawa Colliery, Bay of Islands.—There is nothing new to report in regard to this mine. The workings I found generally in good order. In the levels any places that showed signs of weakness were from time to time being carefully attended to. The machinery was also being kept in good working order. The plan was nearly complete, though not quite up to date.

Kamo Colliery, Whangarei.—Work has again been resumed in the upper or 4-feet seam. I found that the manager, Mr. Kerr (as he had promised), had first paid particular attention to its ventilation, and also to cleaning-up and securing the old workings. A horse-incline has been made from the lower to the upper seam, so that the output is now all from the main level of the lower seam. In the lower seam towards the rise the air was very hot and ventilation bad, and such it ought not to be; in fact, there was no current at all. It was afterwards found that one of the ventilation-doors had been left open, preventing the guidance of the air (though, at present, there is no one working in this quarter of the mine). This, on being remedied, soon effected a great change, and before I left the workings were nearly quite cool again. The incline on the dip has now been carried down from the main level for a distance of about 400 feet, where the Tangye pump has been erected, the boilers for which and winding-engine have been placed near the mouth of the main drive. In regard to the latter (winding-gear), the engineering skill displayed in the erection of this machine cannot be classed as first-rate, the last lead of the rope being exceedingly short and not true to the winding-barrel. Sticks and other dodges have to be resorted to to prevent the rope from slipping off the drum, the latter being placed so close to the engine that no ears or guiding-arms can be fixed on to it. Though they now manage to keep the rope on, it is at the expense of a most unnecessary wear and tear; but with all their expedients they have not been able to make the rope wind "true" on the drum: it overlaps itself on one side in a way that on properly-erected machinery it ought not to do. I am aware that on account of the proximity of the mouth of the drive to the railway-station a difficulty occurs in getting a long straight lead to the winding-barrel, but a little thought and engineering knowledge would have easily overcome this. The plan I found very much behind date; surveying operations to bring it up were begun before I left.

Whau Whau Mine, Whangarei.—Mr. Love, the manager, has made great improvements since my last visit by levelling the main tunnel, laying new rails, &c., and by securing and strongly timbering a new main level he has had carried in to where he has got through the fault (or "trouble" as the Scotch miners call it) on to the coal on the other side. To have a large output from this mine what is required is railway-connection to deep water. The length of a branch from the Kamo Railway would only be a little over a mile.

I have, &c.,

James M. McLaren,

Inspector of Mines.

The Under-Secretary for Mines, Wellington.

No. 2.

ANNUAL REPORT UPON INSPECTION OF COAL MINES, NORTH ISLAND DISTRICTS.

Mr. Inspector McLaren to the Under-Secretary for Mines.

Sir,— Inspector of Mines' Office, Thames, 7th June, 1883.

I have the honour to forward yearly report, with statistics, for coal mines within my districts—Waikato and Bay of Islands—for year ending the 31st December, 1882. As I have recently visited the mines I bring my report up to the 31st March, 1883.

With the exception of a slight accident in the Taupiri Colliery on the 15th February last, there have been no accidents in any of the mines. This accident was in the fire-clay level, which was being driven to cut the bottom of the seam. The men were engaged fixing the sill to carry the timbers, when, without warning, a small wedge-piece of fire-clay dropped from the roof and hurt the arm of one of the men. On Mr. Collins informing me of the circumstance I immediately wrote to him that, as the fire-clay was very treacherous, it would be advisable to carry on the work with false sets; this he did, and the remainder of the fire-clay work was carried safely through.

The total output for the year ending the 31st December, 1882, is 5,416 tons 13 cwt. greater than the previous year, being 96,151 tons 10 cwt. against 90,734 tons 17 cwt in 1881.

1. *Waikato Colliery.*—Owing to the difficulty and cost of carriage across the river—there being no bridge—the owners of this mine have not been endeavouring to push an Anckland trade. The output is in consequence less than half the previous year, being 3,224½ tons; in 1881 it was 7860½ tons. During the year the manager, Mr. McGlynn, has been altering and improving the levels of his main roads, so that the use of a horse is not now requisite. Altogether he has the mine in fine working order. Though the workings of the new mine are not extensive, yet, having broken into the old workings, both on the east and west, as these must be kept open for ventilation, &c., and as there is no plan of them in existence, I consider it necessary that a plan of the whole should be made. I have, therefore, written to the manager requesting this to be done at once.

2. *Taupiri Colliery.*—The main work during the year has been sinking the shaft a farther distance of 20 feet, and cutting an underdrift through the fire-clay to carry the water from the lowest dip of the seam to the shaft, also extending the main incline tunnel (through fire-clay) to the bottom of the dip. In regard to Mr. Cox having observed carelessness on the part of some miners when visiting this mine in April last, it is perhaps the greatest trouble mine managers have to force some men to take the precautions considered necessary for their safety. I quite approve of bringing such cases before a Justice of the Peace as examples to the others; but, in regard to this very point, some fifteen to eighteen months ago, I showed the manager there were no police or Justices of the Peace at Huntly; the plaint would therefore have to be laid and the case afterwards tried at Hamilton, necessitating him being absent from the mine for two or three days in each case; this, with so many men at work, might lead to very serious consequences indeed. This being so, it was arranged he would in such cases at once dismiss the men; but here another difficulty now crops up: the demand for coal has so increased that he cannot find enough colliers to supply it. The true solution of the difficulty is, that Mr. Collins should have an underviewer, whose duty it should be to see that the work is properly carried out and that all instructions are obeyed, a thing that at present it is impossible for Mr. Collins to see done. The increased area of the workings, the greater output of coal, and larger number of men now employed, more than fully warrant the appointment being made. In 1880 there were twenty-nine men employed for an output of 14,817 tons, and in 1882 forty-five men for an output of 25,381 tons. Now there are over fifty men, and this without any additioual assistance to the manager, who, as I mentioned in a previous report, has everything to do in connection with the mine. If this appointment were made it would clear away the difficulty in regard to having cases brought into Court, as there would always be a responsible party left in charge of the mine. The other matters alluded to in Mr. Cox's report have been attended to. The mine generally is in very fair working order.

3. *Whau Whau Colliery, Whangarei.*—The output from this mine in 1882 is more than double 1881, being 4,800 tons to 2,804½ in 1881. After passing through the fault, Mr. Love, the manager, has driven a long way to the north and also to the west, as in both directions the coal keeps its height (10 feet) with great regularity, as it also does its level. There being no further appearance of any broken ground it would appear as if this was going to turn out a large mine. The coal also appears to be improving in quality. The only thing required to develop it is a branch from the Whangarei-Kamo Railway, which would carry coal to deep water. The mine is in very good working order,

4. *Kamo Colliery, Whangarei.*—As mentioned in Mr. Cox's report creep has set in and apparently closed a back portion of the mine from the dip to the rise. This, however, is not so bad as at first sight it might appear, as Mr. Kerr, the manager, will certainly save his main levels. As to the creep setting in it cannot be blamed to recklessness: Mr. Kerr is not of that disposition. As he said to me in November last, "He would be happy to leave larger pillars, but having no fresh coal to open out on he was obliged to supply the orders." The tenders for the shaft of the new main having just been received, I remarked to him, "If he took it now, he would likely be saved the more anxious and dangerous work of drawing the pillars." This he was quite aware of; in fact, we discussed the likelihood of this happening; from the crushing of the pillars to the rise about nine months ago, the length of time some of the ground has been open, the fault following round into the dip, loosening the ground all round, and the very tender nature of the coal, and also very bad roof, it was only what might be expected. The only thing is it has not gone nearly so far as we both thought it might; probably this is due to the immense quantities of slack stowed in the bords saving it from coming far. Thus, what we have always considered as an evil has turned out a good in this case, though (as alluded to by Mr. Cox), should this hereafter heat and fire, it will certainly be awkward—that is, for the mine—not the men. I never considered there would be any danger to the men in the event of the ground starting. I

knew it would give plenty of warning, and I had every confidence Mr. Kerr would act wisely, as he did by strengthening his main levels as far as possible, withdrawing the men from the mine, and waiting for some weeks till everything had settled that was going to do so. As regards the thrust it only appears to come from a few feet overhead; there is no appearance anywhere of its coming from the surface. As regards the main levels and also the pillars he is drawing in the rise, he is doing everything that can be done with timber to insure safety. The shaft for the new mine is down about 100 feet, the engines, boilers, and poppet-legs are being erected. The whole of this work is of the most solid description.*

5. *Kawakawa Colliery.*—There has been a considerable reduction in the output of this mine, being 50,227 tons in 1881 and only 41,484 tons in 1882. This is to be accounted for by the seam running thin in the dip, where the seam also turned into a very hard coal, preventing the same quantities being got out. The workings are kept in good order, also the ventilation is good. At one part of the long-wall workings, though the roof was very good, I considered there was rather much ground being left open. Mr. Moody was, however, just starting to put this right when I arrived. The prospecting work (boring and driving) still continues.

I have, &c.,
JAMES M. MCLAREN,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

No. 3.

ANNUAL REPORT UPON INSPECTION OF COAL MINES, SOUTH ISLAND DISTRICTS.

Mr. Inspector BINNS to the UNDER-SECRETARY for MINES.

SIR,— Dunedin, 26th May, 1883.

I have the honour, in accordance with section 40 of "The Regulation of Mines Act, 1874," to make the following report for the information of his Excellency the Governor:—

Having sent in on the 18th January a report (as required by law), which was of a purely formal character, and did not enter into details, there remains for this occasion an account of my proceedings since the 1st January, 1882. During this period, except for five days in last August, during which, though attending the office, I was practically incapacitated from work by the results of a severe cold, caught while travelling, my time has been taken up by departmental work, partly under this Act, for both coal and quartz mines, and partly under "The Westland and Nelson Coal Fields Administration Act, 1877," which has taken up a good deal of time; so much so, in fact, that, finding it impossible to do justice to the whole of the duties of my position, I was reluctantly compelled to represent the matter in my letter of the 22nd March. This resulted in my being relieved of the inspection of quartz mines by your letter of the 7th April, which will enable some of the coal mines, which have been to a certain extent neglected, to receive more attention.

Attached are tables of statistics and accidents. The former refer to the year 1882, with this exception: that the date of inspection in some cases refers to this year. My thanks are due to those managers and owners who have assisted me with particulars of output, &c.

The following is a *résumé* of the work done in connection with each mine:—

PELORUS DISTRICT.

6. *Picton Coal Mine.*—(13th December, 1882.)—A company has been formed to work this mine, and operations have in consequence been carried on more energetically than when the property was in private hands. At the above time a shaft was being sunk, and was 55 feet deep in very hard measures. The Act was not observed. On the 30th January a copy was sent and the ordinary notice. On the 20th February heard from Mr. Hutcheson that he was observing the particulars pointed out, except with regard to special rules, which I had omitted to send.

7. *Picton and Shakespeare Bay Coal Mine.*—(13th December, 1882.)—This mine is still carrying on prospecting works. Two men were driving a level, without having arrived at anything definite. There was no air.

8. *Queen Charlotte Sound Coal Mine.*—This is another prospecting drive, belonging to the Queen Charlotte Sound Coal-Mining Company (Limited), of which Mr. R. Reeves is secretary. The site of present operations is on the other side of the saddle, west of Mr. Weston's house, and at my visit in December there was no coal, though a seam has, it is said, been found on the east side. Copies of the Act were sent to Mr. Adams, mine manager, and to Mr. Reeves.

WEST WANGANUI DISTRICT.

9. *Wallsend Coal Mine, Collingwood.*—In May, 1882, Mr. J. R. Rees, M.I.C.E., wrote that he had bought the mine, and would like me to inspect the works (which, it may be remembered, were in a very bad state) after he had put everything in thorough working order. As Mr. Cox was going into that district I gave him the correspondence, and have not visited the mine.

WESTPORT DISTRICT.

10. *Koranui Coal Mine, Westport.*—My fears as to the backward state of the prospecting works appear to have been too well founded. In April, 1883, I was at the office, but did not go up the incline, as no work was going on. In December the tunnel had been abandoned, and a new one driven. In April last I was informed that, in its turn, this had been abandoned, and a third was to be undertaken. The system of haulage partakes of the nature of tail-rope, the principle being that a set of boxes is fastened on to an endless-rope and run down. In my opinion the ordinary endless-

* It will be seen from Mr. Cox's report that special directions have been given with regard to the working of this mine.—O. W.

rope system would be better. There are four consecutive inclines worked by the ropes, the extreme top being about 2,300 feet above the bottom. The lengths are approximately as follow: First incline, 32 chains; second incline, 60 chains; third incline, 58¾ chains; and fourth incline, 31½ chains. This is a fine coal field, and should not be kept back; the present output, according to the lease, should be 17,000 tons per annum. In December, 1882, a number of boys were unregistered, and one under thirteen years of age was not attending school. Mr. Ferguson dismissed him. Special rules are gazetted. The reports are kept.

11. *Banbury Coal Mine, Westport.*—In the reports for 1881 and 1882 it was stated that artificial ventilation was to be established in this mine. On the 10th March, 1882, I noted: "The air is not good, as it backs; Mr. Elliott proposes building a chimney." On the 27th November: "The furnace is not lighted, and the air backs . . . . Made inquiries among the men, and found that complaints were made about the air." On the 4th April, 1883, I visited the mine and found the air worse than ever. A district on one side of the main level, and offering no inducement to the air to circulate, employed eight men, who were consequently without ventilation. In one place only was there a little indication of a current. Tried two of the outlets to the cliff, which are supposed to ventilate the mine, and in one the anemometer failed to turn, while in the second the air reversed; so Mr. Elliott agreed that the only way would be to sink a shaft on the south side of the main heading and build a 12-feet by 6-feet furnace. It seems that the former furnace was situated on the edge of the cliff, which fell away when the pillars were worked. Except with regard to ventilation, the mine seems very carefully managed. Three slight accidents occurred during 1882. On the last occasion of my visiting the mine a sad accident occurred to a little boy, four years old, who fell off the stage at the screens. I was standing close by, with Mr. Elliott, at the time, but did not see the child till he had fallen. This accident has already been reported at some length, not so much for the purpose of explaining the cause, which was simple enough, but because I thought it my duty to step a little outside the ordinary routine of an Inspector's duties in order to bring before the department the state of isolation in which the population at this mine are living. There is no road to Westport, no telegraphic communication, and no proper trolly on the railway. In this case the child laid sixteen hours without medical attendance, and then died. Although Dr. Thorpe assures me that this case must, under any circumstances, have terminated fatally, yet there are many accidents—and no place is more likely for them than a colliery—where the timely application of skilled treatment would save life. A telegraph would be of great service to the company and community at large, not only commercially speaking, but also to summon aid to wounded persons. Last year I remarked on the dangerous practice of riding on the trucks up and down the incline. It is morally certain that if this continues somebody will be killed. There have been many accidents to the wagons and some hair-breadth escapes to passengers. The difficulty in stopping it is that no proper road exists. The incline is 1,800 feet high and in places exceedingly steep, so no doubt there are many people who cannot walk without great inconvenience. Mr. Elliott states that he has forbidden the custom, and showed me letters to that effect addressed to the men in charge; but the fact remains that it is a general practice, and sooner or later Mr. Elliott will find that forbidding a thing on paper and allowing his orders to be daily disregarded will avail nothing. In reply to a letter on this subject, addressed to Mr. W. H. Dickson, general manager, the following reply was sent: "The practice to which you refer has come under my personal observation, and been absolutely forbidden by me. I have again written Mr. Elliott on the subject, and will adopt your suggestion as to making a special rule to meet the difficulty. I think it right, however, to state that the cause of the practice, viz., the want of a track to Denniston, is one which is not in the province of this company to remove. We have communicated repeatedly both with Government and County Council on the subject, but, owing to some difference of opinion between these bodies, the work remains unperformed." On the 3rd April a boy, aged eleven years, was working on the surface, without attending school. The contention was that there was no proper school, and that therefore the boy came under the exemption provided by law. Mr. Elliott and the boy's father expressed themselves willing to keep him from work, but I thought it better to report the matter, and did so accordingly. The works of this company are extending considerably, and they are putting down a fine endless-chain plant. This is the first in the colony, and will be a mile and a half long, eventually coming out at "Smith's outcrop." The engine is a single 20-inch cylinder (with provision for adding another cylinder) and 4-feet stroke; chain, ¾ inch; the grade varying, but the mean grade up hill for the load. Some of the refuge-holes in the incline had become receptacles for rubbish, contrary to General Rule 5; but immediately on this being pointed out men were put on to clear them. Reports and plans kept, the latter checked by the Inspecting Engineer of the Mines Department, and found to be correct. Timbering well attended to.

12. *Energetic Coal Mine, Reefton.*—Has done little or nothing since last report.

13. *Golden Treasure Coal Mine, Reefton.*—Visited the 14th November, 1882, when no work was being done.

14. *Lankey's Gully Coal Mine.*—Has changed hands. It was visited on the 4th November last and appeared to be worked on a better system.

15. *Newcastle Coal Mine, Reefton.*—This mine is carefully worked, but dynamite was taken in loose. I wrote to Mr. Breen on the subject.

16. *Golden Fleece Coal Mine, Reefton.*—Has been inspected twice during last year. Nothing to report.

17. *Dugan's Coal Mine, Boatman's.*—The big rock mentioned in last year's report has fallen. This mine is too wide. Owner promised to keep it within bounds.

18. *Burke's Coal Mine, Boatman's.*—Belongs to the owner of No. 17. Nothing to report.

19. *New Durham Coal Mine, Reefton.*—Work has been carried on here at various points. A number of drives have been put in, where, if the money had been spent in putting a pair of heads right into the hill, it would, I think, have been better.

20. *Brunner Coal Mine, Greymouth.*—Was inspected twelve times during 1882, and this year

twice. The record since the last report in May, 1882, is more satisfactory. On the 27th June the air was bad on the north side of the dip. A man was imperilling his own life by working under loose coal. Pump and underground engines fenced. On the 7th July the rise-workings were examined; roof on incline required attention, and there were not sufficient refuge-holes. On the 16th October, 1882, a new manager (Mr. Bishop) was in charge. The reports were kept, and a plan had been made, which turned out, however, on being checked by Mr. Gordon, Inspecting Engineer, Mines Department, to be inaccurate. There was no register of boys. The air in the dip was pretty good, except in the bottom places; timbering good; old levels closed by doors. In the rise saw a small blower of gas, so advised safety-lamps, which are now used. The roof in the rise-workings is bad. On the 11th April, 1883, the air in the rise-workings was very bad, there being no artificial ventilation, which I have long urged the company to adopt. The fan has now been for some years in process of erection, and is urgently required. The top heading and bords were too far in advance, so Mr. Bishop stopped them and put the men on to make an air-crossing, which was required for the fan. On the 12th instant Mr. Bishop wrote that the air-crossing was to be finished on the 19th instant, also that the fan had been started, but the supply of water proved totally inadequate, and a steam-engine was in process of erection. A boy, aged fourteen, was working on Saturday afternoons. In the dip the air was better. A new hauling-engine has been put up, two 10-inch cylinders and 20-inch stroke, made by Kincaid and McQueen, of Dunedin, and works very well. In the dip are two pulsometers, which give great satisfaction. This class of pumping-machinery is now being largely introduced in the colony for low lifts. When the ventilation is set right the mine will be in good order. Nothing has been done towards proving the fault on the dip: whether it dies out to the rise, as appears probable, or merely branches, I do not know, but the workings are a considerable distance past the line of fault, as observed towards the dip. This rise district ought to be pushed on, which can be done when the fan is in working order.

21. *Coalpit-heath Colliery, Greymouth.*—Has been inspected six times during 1882, and once this year. On the 6th May, 1882, the pit was off work, and the furnace had not been lighted for three days. We found small quantities of gas in two places. In May, 1882, this company became aware that water from the Brunner dip workings was percolating into their mine, and, having requested a report on the case, I, as Inspector under "The Westland and Nelson Coal Fields Administration Act, 1877," was directed to make inquiries. The report was sent in on the 22nd July. The investigation, which included a detailed plan (made by Messrs. Young Brothers, of Westport and Greymouth), was delayed by various causes, and occupied a period of five weeks, necessitating a special visit to the West Coast. The result was to establish the fact that the water was draining through a pillar of 180 yards of solid coal, and that the position of the present workings in the Coalpit-heath mines is somewhat precarious. Still, this is not of so much importance to the ultimate value of the mine as (to quote the report) "it will be noticed that . . . the main body of coal is beyond the fault, where there is a magnificent virgin field of 700 acres. It is on this field that the future prosperity of the company depends. I may also call attention to the fact that the Pit Heath level is beyond the supposed line of fault. A certain amount of irregularity of seam has been observed, but no actual dislocation of strata has as yet been met with. From knowledge of the Brunner it would be imagined that the throw at this point would be of considerable magnitude, but experiment alone will prove this. Should the level arrive at a large slip the bords would very soon do the same, and, as the dip-workings are very limited, the output would be much reduced. I have for years urged this company to provide for a contingency of this sort by putting down a hauling-engine, and driving direct to the dip, but they have taken no steps to do so beyond driving a road slightly to the dip from the level, but this will open up hardly any coal." On the 12th April, 1883, while I was present, a face of coal bared a fault, which has every appearance of the main slip, and this has effectually stopped any work in this direction. Fortunately the company had ordered a hauling-engine, and commenced an engine-brow, the old slant drive having been very badly worked, and being, in addition, incapable of a large output. The direction of the fault has changed about 20 degrees, as you will see by Mr. Gordon's check survey, on which I have projected the main level in order to show the exact position of the slip. On the 12th April last the air seemed good; and a boy, who was in October last employed overtime, had been dismissed. The output for 1882 is very small, but when the dip is opened out more coal will be available. The ventilation at last inspection was as follows: Intake to dip, 3,754 cubic feet per minute; main return, 12,000 cubic feet per minute. A new steel rope has been put on: it was much needed. The mine has been worked without accident, and carefully managed; but a little more enterprise on the part of the owners is much needed.

Greymouth District.

22. *Greymouth Wallsend Colliery, Greymouth.*—The Westport Coal Company have now possession of this property, and the upper shaft is closed. The old deep shaft was being baled out, but in April last the buckets were stuck in the slides, and the water stood at 375 feet from the top. There is some danger of the gas imprisoned in the rise old workings, which must be at some considerable pressure, bursting out, and exploding at the surface; but Mr. Harrison has promised to take proper precautions. A new shaft has been commenced, and when finished will be a fine work. The diameter will be 14 feet in the clear, and the depth about 670 feet. The water will be kept back by concrete blocks. The new shaft will bottom among the old drives, which I cannot think will increase its stability, as already too much coal has been taken out.

Malvern District.

23. *Springfield Colliery, Springfield.*—On the 10th August, 1882, the bottom seam only was at work: the air was bad, as the doors and brattice were not properly looked after. The pit-top was fenced and all requirements of the Act attended to, also a good plan kept. On the 21st August I wrote to Mr. Moody about the air, who replied that "his vast experience in coal-mining" told him there was sufficient air passing. On the 7th October I examined the mine again and found the air

good in all places. In my reports for 1881 and 1882, and in Mr. Cox's report for May, 1882, the 2nd September, 1882, was mentioned as the date for forming a second outlet, consequently, on the 1st August I wrote to Mr. Moody, who was then manager, on this subject. He replied, "I am fully aware of the fact that the New Zealand Mines Act provides that only ten men shall be employed in a mine at one time, having only one opening to the surface, after the expiration of two years from the original opening thereof." In December last, while at Westport, I received a letter from Captain Parker, who had taken the management, pointing out that, in his opinion, the bords were not broken off till the 5th March, 1881, and that, therefore, the time for reducing the number of men should have been the 5th March, 1883. On investigation it appeared that by some means a mistake had arisen, and that, as Mr. Ball, C.E., the former manager, informed me, the working-faces were broken off on the 15th February, 1881. The correspondence lasted some time, and, finally, on the 12th March, you sent me a copy of a letter sent by Captain Parker to the Hon. the Minister, asking permission to employ a greater number of men than ten for a period of six months from the 5th March, 1883. Before the receipt of this letter, however, and just after having visited Springfield in the ordinary course of inspection, I received a telegram in which you stated, "Letter from manager just received, stating that the former managers are responsible for the date mentioned." In Wellington, on the 31st March, after discussing the matter, I received from you authorization to use my discretion in allowing four men extra for a period of six months from the 5th March, upon condition that the mine was to be ventilated to my satisfaction. This proviso was inserted at my suggestion, for if the mine had not been, for the first time in my experience, well ventilated in October, I should never have given permission; whereas, under the circumstances, I was very glad to do so. This company, as Captain Parker says, in the letter mentioned above, has always striven hard against adverse circumstances for a number of years, and has always employed as much labour as trade would admit of. A diamond drill is to be used to put down a bore-hole on the flat, in the hopes of finding better coal. The reports are well kept.

24. *Smithfield Coal Mine, Springfield.*—This mine was buttied by Mr. H. Ball, from the Springfield Company. On the 10th August a boy, named H. White, eleven years of age, was employed below ground. On writing to Mr. Moody, he replied: "There is no boy so young as you state employed." This was satisfactory, as wilful violation of this section would infallibly lead to legal proceedings. On the 8th March, 1883, I examined a new mine which has been driven to the south of the old Springfield drive, into which it has holed. A good air was passing. Special rules were gazetted for the old mine, and no boy employed underground.

25. *Kowai Pass Coal Mine, Springfield.*—On the 11th August the workings of this mine were very hot, and Mr. Kaye promised to drive a return air-course. On the 27th August he wrote that it was completed. A number of dangerous prospecting-holes existed near this mine, on Mr. McRae's ground; so on the 1st September I gave him notice to have them closed, and on inquiry in April last found this had been done. These old holes, in many cases full of water, are very dangerous near habitations. On the 12th October, 1882, a boy, ten years of age, was employed. It appears that he was ordinarily employed on Saturdays after 2 p.m. Warned the owner. On the 8th March last there was only one man at work removing some pillars. The manager told me that rules were posted up in the house, and a report kept This mine is worked out.

26. *Canterbury Colliery, Sheffield.*—An accident which occurred at this mine in 1882 was duly reported on by Mr. Cox. On the 9th August the air was only moderately good, though the fire-bucket was in full operation. The main return was 3,823 cubic feet per minute for seventeen men and a horse. This would be enough if properly distributed. On the 11th October the air was not good. This year the mine has been examined once: ventilation only 1,521 cubic feet per minute for fifteen men and a horse (half-time). This is not enough, and was not distributed. The men were timbering moderately well. Report one week back. A plan had been made, but all the workings were not shown. The coal to the rise is almost worked out, and a new dip-drive has been put in. The ventilation is capable of great improvement.

27. *Homebush Colliery, Glentunnel.* — On the 12th August the main level was 76 yards before the air. In the fourth slit from the end the air measured 1,680 cubic feet per minute for four men, but it was not guided. The mine was in good order, except as regards air. Report kept. A furnace had been built, which the manager was afraid to light, lest it should set fire to the coal. The furnace is far too small, and is badly placed. On the 9th October the air was better distributed, stoppings having been put in.

28. *Hart's Colliery, Whitecliffs.*—Very little has been done here. On the 13th August, on visiting the mine, I found only pumping being carried on.

29. *Wallsend Colliery, South Malvern.*—Has not been working. On the 13th August the shaft was covered with slabs, one of which was loose, so I nailed it on. The upcast door was off, so I wrote to Mr. Grinrod, who is said to be agent for the owner, requiring it to be properly fenced.

30. *Brockley Coal Mine, Whitecliffs.*—Visited the 10th October, 1882. Air good. Eleven men working. Mine very wet. Report kept, but no rules up or plan. The mine has since been closed, being too far from the railway.

31. *Whitecliffs Coal Mine, Whitecliffs.*—On the 13th August this mine was merely a prospecting drive, and I have not since been there.

32. *Mount Somers Coal Mine.*—Has not been revisited.

Timaru District.

33. *Elephant Hill Coal Mine, Waimate.*—A station-mine, employing one man: seems carefully worked. Copy of Act and set of draft special rules sent on the 29th January, 1883.

Otago District.

34 and 35.—*Wharekuri and Kurow Coal Mines.*—Have not been revisited. I have had no time during the past year for these small out-of-the-way mines.

36. *Black Point Coal Mine, Duntroon.*—This mine was brought under my notice by Mr. Weldon, Inspector of Police, who had received a report from the constable at Duntroon that it was unsafe. It would be a great assistance if other constables would report new mines. I inspected it on the 18th May, 1882, and found a couple of men working in a prospecting drive, apparently safe. A copy of the Act and a draft set of special rules were sent, but, in reply to a question as to why the latter had not been sent up for approval, received a notice that the place was abandoned.

37. *Prince Alfred (No. 1) Coal Mine, Papakaio.*—Very nearly worked out. Mr. Henderson does not keep the Act, and I shall be compelled to take action against him. Air very good.

38. *Prince Alfred (No. 2) Coal Mine, Papakaio.*—Special rules (but not general) were exhibited. Weekly report a little late. The old mine is worked out and a new one commenced.

39. *St. Andrews Coal Mine, Papakaio.*—Now closed.

40. *Ngapara Colliery, Ngapara.*—Might serve as a model for many larger mines. A drive has been taken perfectly straight for nearly 1,700 feet. Air good, and mine all right; but unfortunately there is very little trade.

41. *Glenfield Colliery, Herbert.*—Another well-managed little mine, but is now closed, as there was not sufficient trade. Report kept. General rules, accompanied by a copy of the Ngapara special rules, exhibited.

42. *Shag Point Colliery, Palmerston.*—In the first place I will describe the condition of the mine during 1882, and will then deal with a question that has occupied a great deal of attention during the present year. The workings have been opened out partly below high-water mark in the dip-drive, and partly in a lower seam at the shaft. In the former work no bore-holes were taken in advance, which seemed advisable, as the rock might contain fissures. Spoke to Mr. Williams about this on the 25th April. On the 5th September the air in the dip would have been good had it not been too much scattered. An apprehension had arisen among the men that the sea might break in, and in consequence the south side was very heavily timbered. At the shaft there was no fence; the staging also requires a handrail. The air was bad in some places. On the 30th September the anemometer would not turn in the north intake to the pit-workings, though the place was only 29½ feet area. Eight men were on this side. The return also failed to give any revolutions, though only 21¼ feet in area. In fact, the air generally was very bad. Subsequently this was explained by the fact that the engineer had one of the upcast doors off, and had not reported it. There were two accidents in 1882, which will be found in the accident report. During 1883 I have spent a great deal of time at this mine. On the 24th January the air was badly guided in the dip, the bottom bord on the south side having an intake of 1,500 cubic feet per minute, and a return of only 750 cubic feet per minute by the proper air-way. Mr. Williams had in September pointed out that the plan was inaccurate, but at this visit I was astonished to find that the pillars were, in many cases, utterly inadequate; one (shown on plan 20 feet) being only 6 feet, while the bords were immensely wider than the plan would indicate. On the other hand some of the places marked were non-existent: one pillar on the north side was 1 foot 6 inches in thickness. The power under which this part of the field is worked is a license from the Government. This license is revocable at will, and I suggested that the licensees should be informed that the mine was to be worked to the satisfaction of a Government official. Having this duty placed in my hands, the first step was to have an accurate plan made, and Mr. Twining made a very careful survey and plan for the department. The result was to convince me that, unless very grave risk was to be run, it would be absolutely necessary to close the whole of these workings. The danger was not only to the twenty men working in the dip, but to twenty-four more in the rise-workings of the shaft, into which there was communication by a drive in the upper seam. The cover of the submarine area was from 99 to 160 feet; the average thickness of thirty pillars, not counting those contiguous to the main roads, was 10·296 feet, and the average of thirty-five bords was 13·79 feet. Thus, nearly 57 per cent. of the coal was got, without reckoning bolt-holes. The roof is bad, and I did not consider it safe; so was obliged to take steps which—and the reason for which—were detailed in my report dated the 20th March, 1883, to the Commissioner of Crown Lands, Otago. The future operations of this company, if below the sea, will be carried on under not less than 180 feet of cover (excepting roadways, which may be driven under not less than 100 feet), and on an approved system. Dams are to be put in between the subaqueous area and the shaft-workings. These are now being constructed, and the submarine work is stopped. These operations of the department have been carried on independently of the Act in compliance with which this report is written, but they have the same object; and therefore, although a somewhat detailed report on this subject has already been sent in, I have recurred to the subject. One fatal accident has occurred during this year at Shag Point, and has been investigated by Mr. Cox. Through delay in delivery of the letter I did not hear of the man's death till the day after he was buried; and as Mr. Cox was to be at Shag Point on the day following I left the inquiry in his able hands. Mr. A. W. D. Bell, of the Public Works Department, has just finished a very complete marine survey of Shag Point. This plan, which is very detailed, shows that the sea-bottom has a gradual slope and is free from holes. My thanks are due to the Public Works Department and to Mr. Bell.

43 to 60. All in the interior of Otago. They have not been revisited. Eight are opened, and the remaining ten employ a total of twenty men.

61. *Fernhill Colliery, Green Island.*—Visited twice during 1882, during the last two months of which it was closed, awaiting the completion of a branch railway, which this company has, with great enterprise, decided on constructing: this line is now nearly finished. On the 29th May, 1882, the plan had been recently made up by Mr. Shaw. Reports kept. The dip-drive under the water-race was standing well. Air pretty good. One place required timber. On the 31st August a boy, aged thirteen, was in the mine without the manager's knowledge: his father had brought him in. On the 28th March, 1883, the mine was not working. The old level, which is 800 feet in length, has been cleaned out and retimbered in a substantial manner. It is now laid with 15-lb. iron rails, having a dip of 14 inches per 100 feet. The loaded tubs come out by themselves in less than one minute,

and the empties are easily pushed in, but there are no refuge-holes. The level is well drained, and altogether reflects credit on the manager.

62. *Green Island Colliery, Green Island.*—On the 2nd August, 1882, this mine was well aired and cool. Weekly report entered, but plan not kept at the mine. The old shaft might have been better fenced, as also the rise-shaft in the paddock. The manager said he would attend to these points. On the 23rd February, 1883, pillars were being drawn without timber, and did not appear very safe; so I wrote to the manager. On the 2nd March the pillar-work was closed, but some timber was required on the level.

63. *Saddle Hill Colliery, Saddle Hill.*—Visited four times since last report. The main return averages 8,774 cubic feet per minute, and the air is well guided. Nothing has been done to prove the old workings. The report-book and plan are not kept at the mine, as they should be. Boys do not seem to be illegally employed. There is still some difficulty in fencing the shaft, and at my last visit, on the 25th April, Mr. Christie projected an automatically lifting bar, instead of the gates, which are awkward. This mine has always been in good order.

64. *Glenochiel Coal Mine, Saddle Hill.* (McLachlan's of last year).—The old drive has fallen in, having been worked too wide. Rules, &c., were sent to Messrs. Bryce Brothers, the owners, who sent the rules up, but have persistently ignored the Act. On my last visit, the 8th May, a boy, eleven years of age, was at work on the loading-stage. He does not attend school, although I had previously warned the owners. The cage is uncovered and the shaft unfenced. The pit-workings are all right; but, however serious the consequences may be to the owners, I shall have to prosecute if the law is disregarded.

65. *Walton Park Colliery, Green Island.*—On the 22nd May, 1882, the air was pretty good, but the roof still bad. The furnace was not lighted. Intake by drive 7,316 cubic feet per minute. On the 4th September the air was very good. Some old workings were being approached, and every care was taken by keeping bore-holes in advance and at the sides. Ultimately these workings were tapped, and the water let off without danger. On the 9th January, 1883, the intake by tunnel was 8,350 cubic feet per minute, the furnace being lighted. Pit in good order, and report up to date. On the 27th April the pit was off work, the men being on strike. The roof seemed much better than formerly. Reports kept. This mine is carefully managed.

66. *Abbotsroyd Colliery (No. 1), Green Island.*—The fire, as predicted, got worse, and this mine is now closed.

67. *Abbotsroyd Colliery (No. 2), Green Island.*—Inspected the 2nd August, 1882. No general rules up, and the air bad. On the 31st things were better, and the rules up. On the 23rd February, 1883, the report had been for some time neglected, there being apparently some doubt as to who was manager. The top places very close on account of a fall which had just taken place. Ventilation main return, 1,485 cubic feet per minute for fifteen men and one horse. The minimum should be 2,000 even if it were guided, which this was not. On the 28th March the places were in a better condition, as a communication had been made: the report also was kept.

68. *Brighton Coal Mine, Brighton.*—This is a new mine. I visited it in January, and found two men at work. Act and draft special rules were sent on the 29th January.

69. *Hurdstone Coal Mine, Milton.*—Visited on the 24th April, 1882. Has ceased to be a sale-pit.

70. *Bruce Coal Mine, Milton.*—Inspected on the 26th April and 16th September. The old drive-workings had caught fire, and a new drive had been started. Mr. Hardwick keeps his mine in good order.

71. *Real Mackay Coal Mine, Milton.*—One man is employed here: he does not observe the Act.

72. *Coombe Hay Coal Mine, Milton.*—Was a series of prospecting shafts and drives. It was visited on the 27th April, 1882, and is not now working.

73 and 74. *Cannon's and Bryce's Lignite Mines, Lovell's Flat.*—Both opencast. The latter has ceased to be a sale-pit.

75. *Paskell's Lignite Mine, Glenore.*—This mine has been worked for eighteen years. The first time I heard of it was in October, 1882, when the owner was unfortunately killed by a fall of gravel. An account of this will be found in the accident report.

76. *Monro's Coal Mine, Lawrence.*—A new mine. Visited the 1st June, 1882, when one man was employed below ground. The mine was in good order, but there was too much powder stored. Pointed this out to the occupant, and on the 29th July sent a copy of the Act and draft set of special rules, which were returned through the dead-letter office. In January the manager sent word that it was not working.

77. *Benhar Coal Mine, Balclutha.*—Visited three times in 1882 and once in 1883. Has been generally in good order. On the 21st April, 1882, the furnace was out, owing to the neglect of the man whose duty it was to attend to it. Pillar-working was carried on, and, a large fall having occurred at the surface, was dangerous. I cautioned the manager, and wrote to him on the 22nd. On the 28th, on meeting him in Dunedin, he informed me that this work was stopped. On the 2nd June it had all fallen in. The air is generally sufficient, but a great deal of it is lost at the stoppings. On the 21st March, 1883, the air was deficient; plan too long without addition. Rules appear not to have been properly distributed. Mr. Nelson was in the habit of asking his new men if they had a copy, and an affirmative answer was considered sufficient reason for not giving any more. At all collieries the rules are not the same, so this plan hardly does. On the 22nd March I wrote about the ventilation and rules. There are some bad slips in the roof that will require attention.

78. *Kaitangata Railway and Coal Company's Mine, Kaitangata.*—Has been worked successfully and satisfactorily during 1882. No accident occurred in this mine or the next on the list, which are both in Mr. Samson's charge. On the 25th May, 1882, there was no gas in the fault-drive, nor did we find any in the old workings. Main intake registered 11,664 cubic feet per minute. On the 15th

September examined the mine again. A very heavy weight had come on the south side, and closed a good many of the places. Intake to south side, 3,143 cubic feet per minute; straight-up road, 5,075 cubic feet per minute. On this date and also on the 21st September (when I made a careful examination of the whole of the rise-works) no gas was seen. On the 14th May, 1883, found that a new district had been opened out on the in-bye side of the 20-feet fault, where there is a block of coal which Mr. Samson is working by a dip-drive, twenty-six men being employed here. The places were only a short distance in, but the air will soon want guiding. Reports and plans kept properly. The north-side pillar-workings, having cooled down, have been reopened. No accidents occurred during 1882, and one slight mishap in 1883, for which see accident report.

79. *Kaitangata (No. 1) Coal Mine.*—On the 26th May, 1882, examined the workings and a good many of the abandoned places on the upper levels; saw no gas; air pretty good. On the 18th September all the three pit-levels (in every second or third place) were examined and no gas found. Air much better, being guided with doors and stoppings. One place said to have gas in occasionally, in which case it is always worked with locks and safety-lamps. Intake from shaft, 9,816 cubic feet per minute. On the 14th May, 1883, I examined the places on the two top lifts, which seemed closer than usual, though there was no gas. On the 15th proceeded with examination. Mr. Samson found that one of the lower doors had been open for repairs, and had caused the slackness mentioned above. Went through all the working-places, and nearly all the closed bords, on the rest of the seven top levels. No gas to be seen either in these or No. 8 north and the bottom south level. I found that a number of boys under sixteen are employed below ground nine hours per diem, inclusive of an hour for dinner. Mr. Samson says they do not work for more than forty-four hours per week; but they must not be below ground more than eight hours in any one day. One daily report is written for this mine, and then signed by both firemen. Each should write a separate report.

80. *Wangaloa Coal Mine, Wangaloa.*—Examined on the 19th September, 1882. No Act observed apparently; but nobody was at the mine, which seemed all right.

81. *Wangaloa Coal Mine, Wangaloa.*—A new mine, near No. 80. The owner says he keeps a report. Inspected once.

82 to 88. All opencast. Have not been revisited.

89. *Pukerau Coal Mine, Pukerau.*—Messrs. McKenzie were good enough to send in word that they had begun to mine for coal at this place, the old working having been opencast. I wish all coal-owners would show the same consideration in sending news of any change.

91 to 93. Opencast. Not revisited.

Southland District.

94. *Nightcaps Coal Mine, Nightcaps.*—I have not visited this mine since June, 1882. At that time the workings were always examined before the entrance of the men. The shaft was not properly fenced. Seam thin, and places pretty well aired by natural ventilation. At that time there were twenty-one men below, the open work being still covered by a large slip, to remove which two men were sluicing. Special rules will be established as soon as possible.

95 and 96. Openwork.

Accidents.

During 1882 there were two fatal accidents in the coal mines of this Island, and six non-fatal. The former were: (1) John Kalka, in the Brunner mine, fully reported on last year; and (2) J. Paskell was killed on the 18th October by a fall of gravel in his own openwork lignite mine, at Glenore, Otago. I heard of it at Greymouth on the 25th, and it was not considered necessary to make an investigation at the time. I had never heard of the mine, which has been worked for eighteen years. On the 22nd January, 1883, I visited the place, and was told that there had been no inquest. The stripping is 15 feet, and the accident appears to have been similar to any other quarry accident, only the man was getting coal, and therefore I have included it in the list. The accident at Canterbury Colliery has been mentioned.

On the 9th May, 1882, a man named Dufty was hurt in the Dudley Coal Mine, Canterbury. I heard of it casually on the 13th August, and wrote to the owners inquiring. The accident happened thus: Two men were driving a heading in very hard rock, and, when a shot was blown out, Dufty is said to have rushed in and thrown powder into the hole: he was severely injured. Upon requesting an explanation why the report had not been sent as required, Messrs. Ford and Tipping stated that they were unaware of the requirements of the law. A copy of the Act was sent from the head office some time previous to the accident, and I myself called on Mr. Ford in Christchurch.

On the 9th May, 1882, Ralph Hall (subsequently killed in the Imperial Quartz Mine) was hurt at the Banbury Mine, Westport. As he worked for three days without mentioning his injuries, he cannot have been very severely hurt.

On the 29th July, 1882, Edward Stafford was injured at Shag Point by a fall of coal. This was reported on the 4th August, the reason being, "I should have given you notice before, but when I left home on Monday, the 31st, the doctor then thought he would not be kept off his work."

On the 1st September, 1882, a boy, named McLelland, was injured by a fall of coal at the Banbury Mine, Westport. The accident was reported in time, but some necessary particulars were left out.

On the 9th December, 1882, at the Banbury Mine, Westport, Peter Snayden was injured by some coal which he was trying to pull down. This was duly reported.

These were all the *bonâ fide* mining accidents in collieries. It is worth while, perhaps, as bearing on the investigation of accidents, to analyse the method of reporting, and the time occupied by the report in reaching my hands. Kalka's death was fully reported on last year. The report took seven days to reach me, and the inquiry was made before a jury, on which were ten employés of the mine. There was no adjournment and no notice from the Coroner. I was about 400 miles away. Paskell's death came to my knowledge in seven days by the local papers. I was

about 430 miles away, and could not have arrived in less than five or six days. There was no inquiry or notice. The accident at Canterbury Colliery was not reported. Mr. Cox heard of it casually. Dufty's accident was not reported. Hall's accident was reported as soon as the Manager heard of it. The notice reached me sixteen days after. I was about 640 miles away (by the ordinary route). Stafford's accident not reported for six days. McLelland's, imperfectly reported, reached me 640 miles away. Snayden's accident was duly reported; the notice took twelve days to reach me (distance 640 miles).

You will see from this that the prompt investigation of accidents is rendered somewhat difficult by the long distances intervening between mining centres, and also that there is room for improvement in the method of reporting. Also that it is practically impossible to keep the place where the accident happened, for the Inspector to form an opinion.

In 1882 there were two accidents (neither of which was fatal) connected with mining, but not what may be justly called mining casualties. The first occurred at Shag Point—a boy, named Dunn, being seriously injured by a piece of dirt or coal which struck him while he was under the dirt-tip (which, by-the-by, is situated on the foreshore); the second was at Westport, where a man, named Robinson, was very badly hurt by falling, while intoxicated, off a bridge on the Westport Coal Company's incline. As remarked previously, there is no proper road; though, when the creek is low, it is unnecessary to go over this bridge.

In 1883, so far, one man has been killed at Shag Point, and one boy at Westport, by trespassing on the stage, whence he fell. One man at the Brunner mine and one at Kaitangata had each a leg broken; but in neither case could I find that the officials were to blame.

Death-rate in South Island.

The output being 282,121 tons, and the number of men employed 836, it follows that the death-rate is 141,060 tons raised, and 418 men employed per life lost.

Number of Mines.

The number of mines continues to decrease, and this year we have 91 on the list. It is quite natural that the small mines should be gradually swamped by the larger companies, and this is by no means an unhealthy sign. Of eighteen struck out, the Mohikinui is the only one of importance; and, that will, it is hoped, be reopened. The upper mine at the Greymouth Wallsend Colliery does not appear on the list, but the new shaft is being sunk. There are no mines of importance among the ten added.

Number of Men employed.

During 1882 there was an increase in the number of men employed, the returns showing 836 as against 754 in 1881; but this is not incommensurate with the increased output of coal.

Output of Coal.

It is a matter of regret that the output does not show such a large increase as might reasonably be expected. The total quantity for the Island is 282,121 tons, or an increase of 35,592 tons over the previous year.

Methods of Working.

Worked by adit—Horse-power used, 9; self-acting inclines, 1; engine-planes, 6; hand-power, 30	47
Openworked	25
Prospecting	6
Worked by shaft—Steam-power used, 4; horse-power 7; hand, 2... ...	12
Closed	1
Total	91

Of the above, one is worked by both engine-plane and self-acting incline, and is returned as the former; one by shaft and engine-plane, and tabulated as shaft; and one by shaft and horse-drive, and returned as shaft.

I have, &c.,

George J. Binns,

Inspector of Mines.

The Under-Secretary for Mines, Wellington.

No. 4.

Report upon Inspection of Quartz Mines, Westport District.

Mr. Inspector Binns to the Under-Secretary for Mines.

Sir,— Dunedin, 26th May, 1883.

I have the honour to make the following report on the quartz mines in the neighbourhood of Reefton. The last report was dated the 17th April, 1882; and from that time until March last, when the duty of inspection passed from my hands, only one visit to the district was made. This was in October and November, 1882. The number of the claims which it was then thought advisable to regulate was seventeen, an increase of seven on the last list:—

Report on the various Mines.

1. *Golden Fleece Quartz Mine.*—(31st October, 1882).—Still holds the position of a well-regulated mine. Referring to the requirements mentioned last year, the shaft is fenced and an indicator fitted on the engine. The weekly report very good. The powder-tins, which were too large, had been cut down. Twenty-four men were employed below and twelve above, including battery. This company has shown great enterprise in introducing rock-boring machinery, driven by compressed air. The

drill which I saw is one of Naylor and Thorton's, made in Victoria, and is wonderfully effective and compact, being—to use the very apposite comparison of the assistant manager—"not much larger than a good big tom-cat," but capable of boring a 1¾-inch hole, 39 inches deep, in hard quartz, in 12½ minutes.

2. *Golden Treasure Quartz Mine.*—(9th November, 1882.)—The old mine was practically closed, only two shifts being employed on the main level. A new main shaft was in process of being sunk. When finished it will be 9½ feet by 4 feet, divided into three compartments; lining, 3-inch black birch. The ladders were of the most substantial description, made of 4-inch by 2-inch quartering, with 1-inch cylindrical iron rungs, flattened and bored, and screwed on to surface; secured over all with a 2-inch by 1-inch batten nailed on. Unfortunately they were placed in a vertical position, contrary to General Rule 16 and section 35. There was ample foothold, and the platforms were sufficient, but the verticality could not be permitted, so on the 8th January I wrote to the legal manager requiring them to be altered, and also requiring the plan to be kept at the mine, which has not been done, in spite of a former notice. Report duly made, and Act apparently observed. Ten men were employed below ground and three above.

3. *Energetic Quartz Mine.*—(9th November, 1882.)—Only six men were at this time employed prospecting. I went from the battery-level down the ladders, and found one space of 46 feet without a platform. This was soon remedied. The winding-engine is not used for raising and lowering men. The mine, so far as it goes, is in good order.

4. *Wealth of Nations Quartz Mine.*—(30th October, 1882.)—A winze was being sunk on the level near the battery. In this spot some very good stone had recently been found, but, unfortunately, it did not live. The weekly report kept. A number of detached plans and sections were on the ground, but no proper plan showing all the works. To remedy this Mr. Rae promised to get a new plan made. There was a winze being sunk on the Vulcan level, but the whole of the works were merely of a prospecting nature; still everything was in good order. Ten men were employed below ground and five over.

5. *Keep-it-Dark Quartz Mine.*—(27th October, 1882.)—The shaft was not properly fenced, the sliding gate being fastened up: the manager appeared to think it unnecessary during the day. The ladders had been moved out so as to allow 6 inches foothold. A larger amount of ground than desirable was open on timber, but on the 21st November filling-in was going on, and has been completed since. The shaft also was efficiently fenced. The braceman, who also acted as engineman, appeared excessively nervous, and at my request worked the cages a little; he ended by landing one cage up among the head-gear. In reply to a letter on the subject I was informed that his place had been taken by a more reliable man. A nervous engineman is terribly dangerous, especially with head-gear and machinery like this, which (as pointed out in a former report) is not of the best description. A very good indicator was fitted on to the engine, and a weekly report kept. The cage-covers are not used, as they are said to catch the rope. It is easy enough to prevent this; but, so long as men are not raised or lowered, covers are unnecessary. Powder regulations appear to be enforced, and the rope is well secured. The company are sinking the shaft deeper, and will probably for a long time be one of the leading claims on the field. Two accidents occurred here: On the 12th April, 1882, William Lamberton ignited a fuse, and, thinking the shot had missed fire, went to look at it, when the charge exploded, injuring his face very severely. This was gross carelessness, but was equalled by the conduct of William Eddy, who, in the same mine, on the 27th November, 1882, thinking a shot had missed, went to light it again; it exploded and injured him considerably. These are the only accidents on the field in mines under inspection. Thirty-six men were employed in and about the mines, and six at the battery.

6. *Welcome Quartz Mine.*—(13th November, 1882.)—This claim still holds its place as the premier mine on the field. On the above date a total of sixty men were employed, forty-six below and fourteen above. The shaft from No. 6 level was being sunk, and the work was of the most substantial description. The shaft measures 9 feet by 4 feet, and is divided into three compartments (two for winding, and one for ladders). Sloping ladders with platforms every 23 feet. A chamber has been excavated for the reception of the winding-engine. This subterranean enginehouse is 36 feet long, 20 feet wide, and 15 feet high under the arch; the space for poppet-heads being continued to a height of 27 feet. It is built of 14-inch by 9-inch black-birch timber in sections of 2 feet 9 inches. The cost was £1,120, and no accident occurred during the excavation and erection. A steam-engine will be put down to wind and work an air-compressor. It was intended to put down a compressed-air winding-engine, but the expense was found to be too great. The steam and smoke will be taken up 100 feet in 14-inch pipes. A section was at the mine, but no plan. The manager had some costly and elaborate dynamite boxes manufactured, which, however, held 5 lb. On the 12th January, 1883, wrote to the legal manager *re* plan and dynamite tins.

7. *Fiery Cross Extended Quartz Mine.*—(8th November, 1882.)—On this date twelve men were employed below ground and three above. The manager had done a great deal to comply with the Act. The shaft was well fenced, and cages provided with a cover, which, it subsequently appeared, was but seldom used, on account of a prejudice existing against it, as tending to imprison men should the cage be inadvertently lowered into the sump. The way to avoid this is to cover the sump, as provided by Special Rule 29, where, however, "pump" appears, owing to a misprint. The indicator and fence were, the manager said, found to be decidedly useful. The ladders were altered, a plan kept at the mine, and a very full and complete report. Dynamite was, however, in the mine in larger packages than is allowed. The signals were properly arranged. Speaking generally, this mine has very much improved in detail. On the 12th January, 1883, wrote to the legal and mining managers *re* cage-cover and dynamite; and, on the 23rd January, received word from Mr. Moss that the mine manager had been instructed to carry out the rules.

8. *Just-in-Time Quartz Mine.*—(10th November, 1882.)—A cross-cut was being driven from the old Boatman's Creek level to intersect the western reef; this was in 165 feet without air. Two men were also stoping. The old badly-aired dip-workings are closed, so it was unnecessary to continue

the winze. By the creek a new shaft has been sunk, which will be 210 feet deep when finished; in November it was down 185 feet. Dimensions, 10 feet by 4 feet, divided into three. The ladders are made of 4-inch by 2-inch black-birch quartering, in 12-feet lengths, and spliced; rungs, ¾-inch cylindrical iron, let in. In each ladder three rungs are collared inside, and cottered, making a good job. The only objection is that the rungs may revolve when taken hold of. Platforms every 24 feet. Alongside the ladders is a space for pumps; until used, this will be covered; if used, railed off. The ladders have a good slope. A report is kept at the mine, and a plan also. A water-wheel will be the motive-power. On the 12th January I wrote to the legal and mining managers, calling their attention to the particular requirements of shafts.

9. *Nil Desperandum Quartz Mine.*—(28th October, 1882.)—Since the last report this mine has done very little, and at the above date six men only were at work. The old winze has been cleaned out and fitted with ladders, which are in compliance with the law, but extremely inconvenient on account of the narrowness of the passage. The air is good. The weekly report was not at the mine, neither did I see it on the 21st November. The plan is not kept on the works. The Act has come rather heavily on this company, who have been in low water for some time. On the 12th January, 1883, wrote to the legal manager, giving him notice *re* plan.

10. *United Alpine Quartz Mine.*—(30th November and 1st December, 1882.)—The workings were in a much better condition than at my former visit. A new level had been driven alongside the old No. 4, and there were eight men stoping. Three stopes were standing on timber, and, considering the nature of the ground, the less there is of this the better. Timbering of passes not altogether good. A filling-shaft exists, which required fencing. A new manager had been in charge for three weeks, and had received no instructions as to keeping the Act; so there was no plan on the ground, and no weekly report. A strike had just terminated, and the men were only just beginning to work. The former wages were £3 10s. a week and the men demanded £4, which was not conceded. At the time of my visit there were 12 miners, 2 captains of shift, 2 carpenters, 1 blacksmith, 1 manager, 1 timberman, 2 truckers, 2 incline-men, and 5 at battery: total, 28; and 30 more men were required. The reef is still very thick in places, but, unfortunately, poor. On No. 5 level four men were stoping, and a rise continued to No. 4. This will eventually go to the surface to form a man-road, filling-shaft, and quartz-pass. It is a substantial piece of work. The plan was dated June, 1882. Dynamite was taken in as it was required. On the 1st December the filling-in shaft was covered. On the 13th January I wrote to Mr. Inglis on this subject, and *re* weekly report.

NEW MINES.

The following new mines were brought under the operation of the Act at my last visit, so that the report is more on the condition of, and circumstances of, the mine than as to how the Act was observed, for of course this was only introduced at the time.

11. *Golden Point Quartz Mine.*—(6th November, 1882.)—On this day ten men were employed below and two above ground. The ladders from the top-level to the intermediate are vertical, but are not permanently used. The air is good, and the mine generally in good order; very little work, however, being done, as the machinery was not ready. Went over the requirements of the Act with Mr. Nasmyth, the mining manager. On the 8th January sent to Mr. Perotti, legal manager, notice to observe the Act, and enclosed a detailed letter to the mining manager. On the 26th January, 1883, I received a letter from Mr. Perotti, saying that the new mine manager was Mr. V. Franzini, to whom he had forwarded my letter. The mine is worked by levels.

12. *Globe Quartz Mine.*—(16th November, 1882.)—Nothing but exploring works had been done at this claim at the time of my visit, but, as the mine appeared likely to be of a permanent character, I thought it had better be brought under the operation of the Act, in order that any costly works need not have to be altered subsequently. There was a shaft of 100 feet deep sunk on the reef. This shaft was not fenced, and the same division was used for material and men. Powder is taken down in 6-lb. packages; no iron rammers or prickers used. A tunnel was being driven to foot the shaft. Five men employed. On the 15th January sent the usual notices.

13. *Oriental Quartz Mine.*—(16th November, 1882.)—The mine manager was away; his place was filled by Mr. M. Monaghan, boss of shift. Nine men were employed below ground and one above. At 150 feet deep in the level is a shaft 50 feet deep on the under-lay. The lad ders had only about two inches foothold, but were otherwise not in bad order. Timber good. Powder taken in 6-lb. packages. On the 15th January sent the usual notices.

14. *Imperial Quartz Mine.*—(17th November, 1882.)—This mine was to have been visited on the 11th, with a view to being brought under the operation of the Act. I was, however, prevented from doing so, and on the 4th a man, named Ralph Hall (whose name appears in the list of coal-mining accidents), proceeded, whilst intoxicated, to descend the shaft. The ladders were very bad: the top one measured 9 feet long vertically, and had a pretty good slope, but was not continued over the top of the shaft, and the foothold on the top rung was only 3 inches. There was a rope to catch hold of, but Hall was arguing with the braceman (W. Goodyer), who objected to his descending while in so unfit a state, and stood on the third or fourth rung, leaning back against the other side of the shaft. Unfortunately his foot slipped, and he fell to the bottom—90 feet on the slope. I did not hear of the accident till the 16th, and the next day visited the mine and made inquiries, the result of which is given above. The unfortunate man, whom I saw in the Reefton Hospital, acknowledged the truth of the statements as to his own condition. In the bottom part of the shaft, which was sunk with great haste and little care, to serve merely as a prospecting shaft, the ladders were still worse, being in one case overhanging, and often so narrow as to give very little room for foothold. In one case they are composed merely of saplings. This would, however, have no influence on the accident; but I am not prepared to say the same of the ladders at the top, for, in my opinion, the insufficient foothold may have assisted; still, it is impossible to say that an intoxicated man would not slip on the best of ladders. The Act was not observed: shaft unfenced, both at the mouth and round a staging 19 feet above. This staging also requires a fence round the edge. Timber in mine pretty

good, and air good. A boy, aged twelve years, was engaged above ground driving a horse, and worked eight hours every day, including Saturdays. Twenty-seven men were at work below ground and eleven over. Dynamite taken down in original 5-lb. packages. At that time new ladders were being made, and were to be properly put in; but the place required a thorough overhaul, and on the 21st November I wrote to Mr. Wise, the legal manager, enclosing a copy of the Act, and, as to a general review of the requirements thereof, adding: "Your shaft, not being by any means adapted for a permanency, will require some attention, and I should be glad to hear from you what course the company intend to pursue with regard to it—whether to retimber the old winze, sink a new shaft, or make other arrangements. I am anxious not to unduly press your company, but at the same time cannot regard the present arrangement as at all satisfactory or conducive to safety." The "other arrangements" alluded to were a project for joining the Just-in-Time Company at the shaft described in the report on that mine. On the 7th January, 1883, I telegraphed from Dunedin, asking how Hall was, and what was to be done with the old shaft. On the 10th Mr. Wise replied that the only work then going on was for the purpose of securing the mine, that negotiations were proceeding with the Just-in-Time Company for joint use of the new shaft, and that Hall died on the 16th December, 1882. There was no inquest. I am not acquained with the law of inquests in the colony, but it seems an extraordinary thing that one law—the Regulation of Mines Act—should make such careful and exact provisions for carrying on inquests in mining cases, and that, as is usually the case, no inquiry should be held. Within the last seven months four fatal accidents in or about mines have occurred, and there has been no public inquiry. One was at Westport, one at Reefton, one at Lovell's Flat, and the other at Shag Point. In the first case (an account of which will be found in the Report on Coal Mines) I was unfortunately present, and desired no inquiry; in the second case the man's death was no doubt due in some measure to defective plant; in the third case, reported elsewhere, an inquiry would have probably done but little good; in the last case I have not the slightest idea what could have prevented it, except the fear that a rational jury might bring in a verdict adverse to the incline-man. Last year I had to report that three fatal coal-mining accidents had not been reported by the Coroner, and that two of them, where strict investigation was most necessary, had been unattended by an inspector. This year the case stands thus: In the case of two fatal coal-mining accidents, one fatal quartz-mining accident, and one on coal-mining premises, there has been no public inquiry. The fact is to be much deplored, as, so far as I can see, this is much the best way of arriving at a knowledge of attendant circumstances. These remarks do not belong particularly to the report on this mine, but I desire to make them, and may as well do so here.

15. *Hopeful Extended Quartz Mine.*—(20th November, 1882.)—This is an old mine, recommenced about three months before my visit. The Welcome No. 5 level is used, and about 400 feet in. Stoping was being carried on. Six men were employed below ground and four above. As the Act was not observed, I explained it, and on the 15th January, 1883, sent the usual notices.

16. *Caledonian Quartz Mine.*—(22nd November, 1882.)—This is an old and formerly rich claim, which in November last was only prospecting. The arrangements of the shaft, &c., are as follow: Shaft, 8 feet by 4 feet (divided into three), and 180 feet deep. Water-wheel, 22 feet diameter and 3 feet wide, working the winding-drum (which is 3 feet diameter) with a band. Rope steel wire. The ladders are sloping for 36 feet, and then vertical for 43 feet. At this point is a landing, but no platform, and there is not 6 inches foothold; besides which, the ladders are not in good repair. Four men only are employed. Pumps, worked by the same water-wheel, are 8-inch barrel and 3-foot stroke. Shaft unfenced. The drive, which extended 700 feet to the south, through very hard ground, was ventilated by water-pressure, and the air was good. Dynamite taken down in original 5-lb. packages. No signal up the shaft or cover on the tub, but in future no men will be raised in the latter. A section was at the mine, but no ground-plan. I went over the Act with Mr. Edwards, the mine manager, and subsequently sent the usual notices.

17. *United Victory Quartz Mine.*—(1st December, 1882.)—This mine is at New Creek, near the Lyell, in a very inaccessible locality. The reef is very thin, in hard ground. Act not observed. Air good, except in No. 1 south level. Thirty-two men are employed stoping, 2 underground captains of shift; total below, 34; above 2, and 6 at battery; total, 8; grand total, 42. Timbering good, but ladders not so. Dynamite taken in in 5-lb. packages. The mine is worked by levels. Talked over Act with Mr. Bray, mine manager, and sent usual notices.

Special Rules.

In November and December, 1882, while at Reefton, I made arrangements for establishing special rules for the quartz mines. The method adopted was this: A draft set of rules was laid before several meetings of mining managers, two of whom (Messrs. Trennery and Watson) were appointed to confer with me with a view to coming to an agreement. Mr. W. Faler acted ably as secretary, and to his assistance is due, in a great measure, the satisfactory result of our negotiations. After minor differences of opinion had been removed, I met the whole of the managers, who, after the rules had been carefully considered, unanimously decided to adopt what may, I venture to think, be considered a very good set of special rules. In March, however, you informed me that several companies had not yet sent up copies for approval, and on arriving in Reefton found that there existed a certain amount of anxiety on the part of directors lest the adoption of these rules should lead them into additional and unnecessary expense. The mention of "chamberman, engineman, braceman," &c., in mines where no person was employed solely for such duties had given rise to a not unnatural impression that special appointments would be necessary. This had been, however, provided for by Rule 52: "In case of any of the duties defined by these rules being temporarily performed by any person not specially appointed thereto, the said person shall be subject to these rules in like manner as if he were specially appointed." After a little further negotiation the matter was left in what appeared to be a satisfactory condition; but, in order to insure rules of some sort being forwarded (in case any company were still unwilling to adopt the set referred to), I sent,

on the 9th April, to the legal managers of the Caledonian, Just-in-Time, Oriental, Hopeful, and Globe Quartz-Mining Companies, formal notice to transmit special rules as required by law. The Imperial being closed, and having had a notice in November, 1882, I did not send any further notification. This closes my connection with the quartz mines, of which I was relieved verbally on the 31st March, and by your letter of the 7th ultimo. On account of the consideration and friendly assistance I have met with in almost every instance from the mining managers and owners, and on account of the interesting nature of the occupation, I regret that my letter producing this result should have been written: the more so, as after the introduction of the Act the carrying of it on would have been comparatively easy; but the time occupied by the inspection of these mines intrenched so much on my other duties, for which I was originally appointed, that there was no course open but to represent the case. As suggested by me, in Wellington, and requested in your letter of the 7th ultimo, I have forwarded to Mr. Gordon, Inspector of Mines for Westport District, the records and plans of this work, which has been in my hands for twenty months.

I have, &c.,
GEORGE J. BINNS,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

LIST of QUARTZ MINES, with NAMES of MANAGERS.

Name of Mine.	Legal Manager.	Mine Manager.
1. Golden Fleece Extended ...	G. W. Moss	J. Trennery.
2. Golden Treasure	T. Lee	A. McKay.
3. Energetic	G. W. Moss	J. McCallum.
4. Wealth of Nations	W. Rae	T. Watson.
5. Keep-it-Dark	G. C. Bowman	Raymond Fitzmaurice.
6. Welcome	P. Brennan	F. Rooney.
7. Fiery Cross Extended ...	G. W. Moss	H. Currie.
8. Just-in-Time	G. Wise	J. Lawn.
9. Nil Desperandum	T. Lee	J. S. Treloar.
10. United Alpine	J. Inglis	J. Marshall.
11. Golden Point	G. Perotti	V. Franzini.
12. Globe	W. Hindmarsh	T. Adams.
13. Oriental	P. Brennan	G. Black.
14. Imperial	G. Wise	A. Notman.
15. Hopeful Extended	P. Brennan	J. Bates.
16. Caledonian	G. Wise	G. Edwards.

No. 5.

REPORT UPON INSPECTION OF COAL MINES, NORTH AND SOUTH ISLAND DISTRICTS.

Mr. Inspector COX to the UNDER-SECRETARY for MINES.

SIR,— Mines Department, Wellington, 24th April, 1883.

I have the honour to inform you that I have visited the Waikato, Taupiri, Kamo, and Whauwhau collieries, and herewith submit my report on the same. I did not visit the Kawakawa colliery, since I should have had to lose a fortnight had I done so; but I observe from Mr. McLaren's report that it is, as usual, in good order.

Waikato Colliery.—I visited this mine on the 9th April, and found the workings in good order, good pillars being left and the bords being driven small. The ventilation, though not strong, is ample for the number of men employed, and the air is generally fresh. The manager's book has fallen into arrears, and I have requested Mr. McGlynn to attend to this in future. Very little work is being done at present.

Taupiri Colliery.—The workings in this mine, which I visited on the 10th April, are now all to the dip; they are generally in good order, and the ventilation satisfactory. The plan is well kept up to date, and Mr. Collins pays a daily visit of inspection, and keeps a record of his opinion as to the safety of the works. There were several young persons of fourteen years and upwards employed in the mine, and no register of these had been kept. I have written to the manager requesting his attention to this point. Carelessness on the part of the miners was noticeable in several cases throughout this mine, no sprags having been set where necessary, and in one instance I found a young person undercutting a piece of coal which had been wedged, and without any support under the coal. I satisfied myself that the men were in every case supplied with timber at the face, but had neglected to set it; and Mr. Collins informs me that, unless he stands over every man and sees the timber erected, they will not do it. I have written to him calling his attention to special rules Nos. 17 and 19, and also clauses 28 and 33 of Regulation of Mines Act, and stated that if the colliers will not comply with his instructions it is his duty to bring them before a Justice of the Peace and have them fined.

Whauwhau Colliery.—This mine was visited on the 14th April, and found to be in thoroughly good order, and the position of the mine much better than when I was last there, since they have proved the coal beyond the east and west fault. The bords are kept small, and sufficient pillars left; the ventilation is very fair. A feeder of water has lately been struck in the mine, which will prove a temporary inconvenience, but will, I think, be shortly overcome.

Kamo Colliery.—This mine, which I visited on the 14th April, I found in a very bad state, owing to creep having set in and closed a large proportion of the workings from dip to rise. It appears that about nine months ago a small area in the rise-workings caved in, owing to some two or three pillars having been taken out too small. Since then operations have been continued in the rise-workings at the far end, while to the dip, which is all below the original workings, and has been entirely opened up since my last visit, the main works were pushed forward, and the coal taken out in a most reckless manner. The bords generally have been wider than the pillars, and in several cases the pillars left have not been more than one-fourth of the whole, the rest of the coal having been taken. The result of this was inevitable: the creep came on, starting to the rise, and has almost closed the mine. Besides the creep, the amount of thrust which has come on the pillars has crushed many of them very considerably, the result being that, in addition to the slack which has been left in the mine, a large quantity of fresh slack has been formed, and it is by no means unlikely that this will fire. The workings are now confined to four bords at the far end of the rise-workings, and the ventilation is fair, considering the position of the mine at present. The sinking of the new shaft by the railway-line is being pushed forward as rapidly as possible, and the dip-drive is being reopened to try and get to the coal, but work was suspended there, when I visited the mine, for repairs to the pump. The manager's book, recording the weekly inspection, has been allowed to fall into arrears, and the manager informs me that, during the time the dip-workings to which I have alluded were being carried forward, he was ill and unable to attend to his work, and it does not appear that any responsible person was in charge. I have required him to keep this record again in the future, to take out far less coal in any new preliminary workings which may be started, and to securely fence all those parts of the mine which are not in actual use, and to see that none but properly-authorized persons are allowed to enter, since in many places the roof is not safe to pass under. The plan is now up to date.

I have, &c.,
S. Herbert Cox,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

Mr. Inspector Cox to the Under-Secretary for Mines.

Sir,— Mines Department, Collingwood, 17th November, 1882.

I have the honour to inform you that I have visited the Wallsend Colliery, Collingwood, now the property of Mr. J. R. Rees, and find that it is being worked satisfactorily, and that the Act is observed. The points which Mr Binns took exception to while the mine was in the company's hands have now been remedied. The rope is in good order, a new one having been placed on one drum, while the sound portion of the old rope is employed on the other, good splices having been made at the joints. The brake, which was defective, has been replaced by a new one, which consists of a substantial band brake with drums on each side. The rope coils well and the flanges are sufficiently large, the framework is solid and well stayed, and the position of the brake-handle has been moved. The workings in the mine have not been at all extensive since it was reopened, and the system of work has not been altered. The roof stands very well indeed, but is not being subjected to undue strain.

I have, &c.,
S. Herbert Cox,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

Mr. Inspector Cox to the Under-Secretary for Mines.

Sir,— Mines Department, Wellington, 28th February, 1883.

I have the honour to inform you that during my late trip down the West Coast I took the opportunity to inspect the principal mines in the district, and herewith submit my report:—

Brunner Mine.—The extent of ground now open is far less than it formerly was, and all works which have been undertaken latterly have been carried out with due precautions for safety. The bords are now kept to their legitimate width, and the works all seem to be standing well. The roof is not nearly as good now as it used to be, and at places timber has to be freely used; but the manager, Mr. Bishop, is careful to have this set where required. In the rise-workings there is a little gas coming off, with some water at the end of the lowest level, but no accumulation whatever has yet been found, and the mine is examined daily before the men go to work. The fan, which has now been talked of for some time, is not yet at work, but, as changes in the machinery generally are in course of operation, it is to be hoped that it will not be delayed much longer. The air generally throughout the mine is fresh, but the current is not strong, and the sooner mechanical ventilation is established the better. An accident occurred a short time back from a fall of coal, resulting in a man's leg being broken. It happened after a shot had been fired, a piece falling off the roof while the coal was being cleared away. Although accidents of this sort are no doubt due to carelessness on the part of the men, yet in these high chambers it is very difficult to see when a piece of coal has dislodged, and even with the greatest care accidents will happen now and then. Great improvements have lately been made in the haulage of the coal, and the drainage of the dip-workings will, in a short time, be satisfactorily provided for. The Act generally is well observed.

Coalpit-Heath Mine.—The workings in this mine at the present time are small, and the ventilation is by no means so good as when last I visited the mine. There appears to be about the same quantity of air passing from the main shaft to the air-shaft, but in the dip-workings the air is very weak, and the powder-smoke hangs in the mine for a long time after the shots have been fired. This is due to the manner in which the workings are at present being carried on, the dip-drive being put in at an angle across the plane of the coal to ease the haulage, thus rendering the system of ventilation defective, by making it necessary to have places ahead of the air. The air-courses, too, which have been cut are small, and the angles are sharp, so that there is a good deal of friction. Steps are being taken to remedy this by putting down an engine-plane on the dip of the coal, and before long the air should again be as good as ever. I have impressed on Mr. Alexander, who is,

however, very careful, the necessity of special care in examining the workings, and not allowing the men to go to work if there is any gas in the pit, and also urged him to push on the dip-workings as rapidly as possible. The coal is generally standing well, and care is exercised to avoid casualties from falls, &c.; and the provisions of the Act are carefully observed.

Westport Company's Wallsend Colliery.—Works are progressing here with a view of reopening the mine, but they are hitherto confined to the surface. Preparations are being made to drain the old shaft, and another one is also about to be sunk at a distance of 100 feet from the old one, the poppet-heads being now in course of erection. Mr. Harrison has drawn out a set of special rules for the men employed in sinking this shaft, which I have approved.

Westport Company's Banbury Mine.—The workings in this mine are still in good order, and are carried on upon the same system as hitherto. The drive, which is being carried forward to come out at Smith's outcrop, has yet to be driven for some distance, but will probably be completed in the course of two months. The air is fair, but the furnace, which was erected last year, has now been removed and the pillars drawn, and until the main drive is through it will doubtless be a little slack at times. The work of drawing the pillars has been carried on most successfully hitherto, and every care is taken. The roof still continues very treacherous, and necessitates the employment of a good deal of timber, which is freely used. The machinery for working the endless chain for haulage in the mine is now in course of erection, and the incline-tramway is being improved at some of the awkward points. The provisions of the Act generally are carefully attended to.

Koranui Colliery.—The workings in this mine are small, and the output at present very limited, since most of the coal being worked is very much crushed, and hardly fit to send to market. All the workings appear safe, and the air good. The provisions of the Act are observed.

I have, &c.,
S. Herbert Cox,
Inspector of Mines.

The Under-Secretary for Mines, Wellington.

Mr. Inspector Cox to the Under-Secretary for Mines.

Sir,— Mines Department, Wellington, 2nd April, 1883.

I have the honour to inform you that I have, during the past month, inspected the more important mines on the east coast of the South Island, and herewith submit my report on the same:—

Homebush Colliery.—Visited this mine on the 7th March, and found the workings generally in satisfactory order. The ventilation now is much better than when I last visited this mine, the air being directed by stoppings, which have been built in. The furnace was not alight, but a good current of air was passing through. A fault with 7-feet throw is being met with in the different bords as they are proceeded with. The roof is standing well, but there is a fireclay parting between the roof and coal, which has to be carefully watched. The workings are, as hitherto, all to the rise of the main level.

Canterbury Colliery.—Visited this mine on the 8th March, and found the workings in better order than hitherto. The ventilation was fairly good, and the air is guided; but, since at places it is taken through 18-inch drain-pipes, the volume is necessarily rather small. A grate has been erected at the air-shaft to promote a current. The roof is standing well in all working-places, and timber is freely used; but I had to call attention to some broken bars in one part of the level, and heard instructions given to put in new timber. The men are all supplied with sprags at the face, but there is a tendency to neglect their use as long as the coal sounds solid; and I spoke to the men on this subject in two places. An incline is being put down to take some of the coal left in Jebson's old workings, and is very free from water.

Wilson's Colliery, South Malvern.—I visited this mine on the 9th March, and found that five workable seams of coal had been struck in their drives as follow: One seam 7 feet thick, one seam 5 feet 8 inches thick, one seam 5 feet 4 inches thick, and two seams 3 feet thick, besides several smaller ones from 6 inches to 2 feet in thickness. Some of the larger seams have been opened on to a small extent, and there is every probability of the mine developing largely. It is situated about four miles from the line of railway, and appears to be a continuation of Lee's seam of brown coal at Brockley. The ventilation of the mine is good. An air-shaft has been sunk, and the timbering of the mine has been well attended to. No special rules have as yet been adopted, nor are the requisite books kept, but the manager has promised to attend to these details at once.

Hart's Colliery, South Malvern.—Visited this mine on the 9th March, and found that the old workings in the altered coal had been abandoned and a dip-drive put down, in which a lower seam of brown coal, 8 feet thick, has been struck. A small winding-engine is erected at the mouth of the drive, and a Tangye pump at the bottom. The ventilation at present is by means of air-boxes, and is very poor; but an air-shaft is to be sunk immediately and connected with the workings. The timbering in the dip-drive is well set, but the floor has a tendency to rise.

Walton Park Mine, Green Island.—Visited this mine on the 14th March, and found that the pit-workings have now been carried forward into the new lease, so as to assume a proper form, and the roof is standing much better. It is here that the principal work of the mine is being carried on, while on the opposite side of the shaft operations are limited at present to the carrying forward of a V drive, and working a few bords off it. Some of the pillars are now being split in this mine, with the view of taking as much coal as can be obtained, and closing down parts of the workings. The old workings, to which I alluded in my last year's report, towards which they were driving, have now been struck, and the water is gradually being drawn off. They were tapped by one of the bore-holes which were kept ahead of the drive long before the worked area was reached; and the water, though still running pretty freely, has considerably slackened since it was first tapped. The ventilation is good and the air fresh, although the current is not strong. The Act appears to be observed, and the plan is kept up.

Saddle Hill Mine, Green Island.—The workings in this mine are in good order, and thoroughly

well ventilated. When I visited the mine on the 14th March the slide-gate at the top of the shaft was pegged up, and there was no one about. I requested the manager and also Mr. Christie to either erect a proper self-closing gate, or else to keep the present gate closed whenever the cage was not at the top of the shaft. They promised to comply with this. In other respects the provisions of the Act appear to be complied with.

Green Island Mine.—Visited this mine on the 15th March, and found the workings in good order, and the ventilation satisfactory. In one place a man was working under a piece of coal, which required support, without a sprag. It was placed, and I cautioned the man. Five pillars have been drawn lately, and the roof let down successfully, no timber having been used in the drawing.

Abbotsroyd Colliery.—Visited this mine on the 15th March. The workings are in good order now, but part of the mine has lately been blocked by falls from the roof and creep in the floor. The roof is bad at places, and requires timber and careful watching, but attention appears to be paid to these matters. The ventilation was not very good, but a drive is being put in to connect with some of the old workings, when the air will get a straight run. This work was nearly completed when I was at the mine, and by this time I have no doubt they have broken through. The Act appears to be carefully observed.

Kaitangata Railway and Coal-Mining Company.—Visited this mine on the 16th March, and found that all the workings were in thoroughly good order, the ventilation good, and the Act carefully observed. The mine-workings are now closed in, with the exception of a small area by the fault, which is being working by a horse-incline. The pillars have been drawn, and a large area let down successfully, but the slack formed by the crushing of the pillars has fired, and this area is now stopped off. The principal workings are now in the dip, but here, both north and south of the main incline, the coal becomes poor at a certain distance, and it is proposed shortly to draw the top coal. No gas at all has been seen in the mine for a month prior to my visit, and no accumulation whatever has occurred.

Nightcaps Colliery.—Visited this mine on the 20th March, and found the mine in good order throughout. The under-ground workings are only small as yet, but it is proposed to increase the number of men employed under ground at once. Mr. Lloyd is taking steps in good time to provide a most efficient ventilation for the mine, having erected a furnace, with fire-bars, covering an area of 5 feet by 4 feet, which will serve the mine for a long time. This furnace was not quite completed when I visited the mine, but the air even then was fairly good throughout the workings, No special rules have as yet been adopted for this mine, but they will be introduced forthwith. Hitherto the principal works of the mine have been opencast on the lower seam. As I mentioned in my last year's report, water has been brought in for a distance of about four miles, and the cover of a large area of coal has been stripped in a most economical way, and about two acres of coal yet remain, which can be treated in the same manner, after which the water-power can be utilized for other works in connection with the mine. The mine is well and carefully worked, and the provisions of the Act adhered to.

Shag Point Colliery.—Visited this mine on the 27th March, and found that, in consequence of notice given by Mr. Binns, the dip-workings below the sea had been abandoned, and the process of dismantling was being proceeded with as rapidly as possible. I went through part of these old workings with Mr. Williams, and saw the falls from the roof which had given rise to Mr. Binns's action. The pillars which had been left were certainly small in proportion to the bords, and if work had been continued to the dip through these old workings the expense of keeping up the roof would have been unending, and might in the long run have been unavailing, so that I consider the action taken was well advised. Mr. Williams is following out Mr. Binns's directions in every particular, and proposes to open out submarine works again in accordance with the regulations, but in the meantime the men are all employed in the lower seam worked from the main shaft. This seam of coal is about 4 feet thick, and has been worked longwall over a small area; but the exceedingly bad roof and steepness of the seam have not been adapted to this system, and the works are now being opened up on the bord-and-pillar system, with somewhat better results, although even now the roof requires to be very carefully watched, as no timbering short of close lathing would suffice to keep it up. The ventilation was fairly good on the day of my visit, and care appears to be exercised in the workings of the mine. An accident happened to a man named Peter McAnally on the 17th March, which resulted in his death on the 23rd March. I append a special report on the circumstances of the case.

I have, &c.,

S. Herbert Cox,

Inspector of Mines.

The Under-Secretary for Mines, Wellington.

No. 6.

Mr. Inspector Cox to the Under-Secretary for Mines.

Sir,— Mines Department, Wellington, 16th June, 1883.

I have the honour to forward a few notes on Sebastian Smith and Moore's system of coal-getting by compressed lime, which will, I think, prove of interest to the mine managers of New Zealand, since hitherto no reliable data have been obtainable on the subject. I take these notes chiefly from a paper read by Sebastian Smith before the Chesterfield and Derbyshire Institute of Mining, Civil, and Mechanical Engineers. The cartridges employed consist of nearly pure lime, 2½ inches diameter, which, by hydraulic pressure, are reduced from 7 inches to 4¼ inches in length, the density being thus nearly doubled, and when slaked in an unconfined space these occupy about five times their original bulk, and seven cartridges go to a charge. The shot-holes are drilled by means of a light boring machine. An iron tube about ½ inch diameter is inserted along the whole length of the bore-hole, being provided with a small external channel or groove along the upper side, the

tube being perforated and enclosed in a calico bag. The cartridges are enclosed by tamping in the same way as powder, and they are slaked by means of a small force-pump. The time occupied in drilling a hole 3 feet deep and 2¾ inches diameter, including setting up the drill, averages twelve minutes; charging a hole with cartridges and tamping up, four minutes; and pumping in the water, one minute. In ten to thirty minutes, according to the hardness of the coal, on the removal of the sprags, which are left in, the coal falls clean from the roof in large masses ready for loading, practically making no small. The following are among the principal advantages claimed for this system: There is no smoke or noxious smell of any kind. The roof is not shaken by this process; no vacuum is created as is the case with a blown-out shot; and the coals in falling produce much less dust, thereby reducing the danger which is generally admitted to arise from the air of a mine being heavily charged with small particles of coal. Skilled labour is unnecessary, and the coal can be got with much less exertion to the collier than by wedging. The apparatus is simple and inexpensive, it is easily carried about and kept in order, and it can be used in narrow and cramped workings in thin seams. After pumping the water into the charged holes the men need not discontinue working, as is the case with gunpowder, for, by simply moving away from the face of the coal while the sprags are being taken out, all risk of injury from falls is avoided. Any number of holes can be loaded, and by applying the water to them in quick succession a continuous and gradual pressure is brought to bear along the face, which causes the coal to fall in large masses. It is thus brought to bank in a better condition for stacking or carrying than by other means, and the results, when compared with wedging or powder, show a considerable increase in the percentage of large coal got.

Comparative Result of Wedging and Lime Patent at Shipley Collieries.

Date.	Wedging: No. 2 Stall, Woodside.		Lime Patent: No. 1 Stall, Woodside.	
	Hours of Labour.	Tons got.	Hours of Labour.	Tons got.
Week ending January 25, 1882... ...	96¾	225	58	274
Week ending February 1, 1882... ...	100	178	71	236
Week ending February 8, 1882... ...	123	225	90	258
Total	319¾	628	219	768

Experiments have been made at fifty different collieries in England and Wales with uniformly satisfactory results, and I hope to see the appliance introduced into New Zealand.

Messrs. Sebastian Smith and Moore's price-list is as follows: Press complete, £65; drilling machine, with pair of bits, complete, £4; hand-pump, with stirrup, flexible hose, and patent coupling, £2 2s. 6d.; hydraulic tubes, perforated, slotted, and annealed, each, 1s.; steam taps, with nozzle to receive coupling, 1s. 6d.; grooved rammers, 3s.; buckets, galvanized, and painted to indicate charges, 3s. 3d.; hand cartridge-boxes, 4s.; each charge, consisting of seven discs, and calico bag, 3½d. And their address is 3, Queen Street, Cheapside, London, E.C.

I have, &c.,

S. Herbert Cox,

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

RETURN No. 1.

Statistics of Workings in Coal Mines, 1882.

Number.	Name of Mine and Locality.	Name of Manager.	Number of Years at Work.	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 1882.		Approximate Total Output to 31st December, 1882.	Number of Men ordinarily employed.	Power used for drawing Mineral.	Stroke of Pump.	Size of Barrel.	Height of Column.	Means of Ventilation.	Date of Inspector's Last Visit.
													Coal and Slack.	Total.								
	KAWAKAWA DISTRICT.												Tons.	Tons.	Tons.							
1	Kawakawa	Moody, T. P. ..	18	semi-btm.	2	3′ to 15′	all	varies	bord and pillar and longwall	3	7′ x 10′ 5′ x 5′ 5′ 6″	engine-in-cline	..	41,484	488,009	110	steam engine	6′	12″x 12″	247′	furnace	24/5/83
2	Kamo, near Whangarei ..	Kerr, George ..	6	brown	2	4′ to 12′	,,	,,	bord and pillar	1	..	tunnel and engine-in-cline	..	21,262	45,594	35	steam engine	Tangye	..	..	natural	19/5/83
3	Whauwhau, near Whangarei	Love, Alexander..	18	,,	1	5′ to 10′	,,	,,	,,	1	..	tunnel	..	4,800	24,356½	10	horse	..	..	..	,,	21/5/83
	WAIKATO DISTRICT.																					
4	Taupiri, Huntly ..	Collins, William..	7	,,	1	6′ to 45′	6′to30′	,,	,,	1	5′ 3″	engine-in-cline	..	25,381	99,018	45	steam engine	Tangye	..	105′	,,	30/5/83
5	Waikato, Kupakupa, Huntly	McGlyn, A. ..	6	,,	1	10′ to 18′	all	,,	,,	..	..	hand	..	3,224½	45,080	7	tunnel	..	..	..	..	31/5/83
	PELORUS DISTRICT.																					
6	Picton, Picton	Hutcheson, R. R.	2	..	..	..	..	..	..	1	6′ x 4′	drive	..	8	83	10	hand	..	..	..	natural	13/12/82
7	Picton and Shakespeare Bay, Picton	Pugh, W. ..	2	..	..	..	..	N. 40°	..	..	..	,,	..	3	53	2	,,	..	..	..	,,	13/12/82
8	Queen Charlotte Sound, Picton	Adams, T. ..	½	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	14/12/82
	WEST WANGANUI DISTRICT.																					
9	Wallsend, Collingwood ..	Rees, J. R., M.I.C.E.	14	bitum.	2	27″to32″	all	W. 12½°	longwall	1	6′ x 6′ x 45′	drive	coal 865 slk. 315	1,180	8,232	2 o. 5 u.	hand	..	..	..	natural	17/11/82
	WESTPORT DISTRICT.																					
10	Koranui, Westport.. ..	Ferguson, A. ..	2	,,	..	..	..	..	..	..	..	,,	coal 133 slk. 66	196	4,602	19 o. 19 u.	..	..	..	..	,,	11/12/82
11	Banbury, Westport ..	Elliott, R. ..	4	,,	1	4′ 6″	all	varies	bord and pillar	..	..	,,	coal 43,421 slk. 4,927	48,348	80,228	25 o. 90 u.	h.p., and self-acting inclines	..	..	..	,,	4/4/83
12	Energetic, Reefton ..	McCallum, J. ..	7	pitch	1	10′ 2″	,,	S.W. 22½°	,,	..	..	,,	..	18	3,112	..	hand	..	..	..	,,	10/2/82
13	Golden Treasure, Reefton ..	McKay, A. ..	11	,,	1	6′	,,	S. 30′ E.	,,	..	..	,,	..	274	1,270	1	,,	..	..	..	,,	14/11/82
14	Lankey's Gully, Reefton ..	Notman, A. ..	..	,,	1	11′	9′	W. 8°	,,	..	..	,,	..	400	1,540	2 o. 1 u.	,,	..	..	..	,,	4/11/82
15	Newcastle, Reefton ..	Breen, A. J. ..	8	,,	1	9′	6′	S.W. 32°	,,	1	6′ x 3′ x 40′	,,	..	240	2,900	1 o. 2 u.	,,	..	..	..	,,	21/11/82
16	Golden Fleece, Reefton ..	Trennery, J. ..	12	,,	1	16′	8′	varies	,,	..	..	,,	..	949	6,459	1	,,	..	..	..	,,	14/11/82
17	Boatman's, Reefton ..	Poole, J. ..	..	,,	1	6′	all	W. 1 in 3	,,	..	..	,,	coal 150 slk. 25	175	725	2	,,	..	..	..	,,	23/11/82
18	Burke's, Reefton	Poole, J. ..	..	,,	1	10′	6	N. 30°	,,	..	..	,,	coal 61 slk. 110	171	851	2	,,	..	..	..	,,	23/11/82
19	New Durham, Reefton ..	Connolly, J. ..	7	,,	1	6′	all	..	,,	..	..	,,	coal 500 slk. 100	600	800	2 o. 2 u.	,,	..	..	..	,,	1/11/82
20	Brunner, Greymouth ..	Bishop, J. ..	18	bitum.	1	8′ to 16′	,,	S.W. 1 in 3	,,	..	..	,,	coal 37,406 slk. 6,882	44,288	226,403	2 o. 77 u.	16-h.p. engine, s.a. inclines	2 pul-someters	..	..	,,	13/4/83
21	Coalpit-Heath, Greymouth ..	Alexander, T, ..	6	,,	1	16′	,,	S.W. 1 in 4	,,	2	10′ x 6′ x 280′ x 6′ diameter	shaft	coal 16,465 slk. 2,300	18,765	76,687	10 o. 30 u.	30-h.p. engine	4′	10″	250′	furnace	12/4/83
	GREYMOUTH DISTRICT.																					
22	Greymouth Wallsend, Greymouth	Harrison, J., F.G.S.	6	,,	1	16′	,,	S.W. 1 in 3½	,,	1	11′ diameter x 670′	,,	..	..	12,122	27	48-h.p. engine	5′	10″	670′	fan 15′	13/4/83

	MALVERN DISTRICT.																						
23	Springfield, Springfield ..	General Manager, Parker, O. G., Mine Manager, Moore, W.	6	brown	2	4′ and 7′ 6″	,,	S.E. 1 in 6 to 1 in 12	,,	1	12′ x 5′ 2″ x 246′	,,	coal slk.	7,052 981	8,033	37,355	9 o. 31 u.	engine	..	..	..	steam	8/3/83
24	Smithfield, Springfield ..	Ball, Henry ..	2	,,	3	4′, 1′, and 2′ 3″	,,	S.E. 1 in 4½	,,	1	4′ 3″ x 2′ 1″ x 10′	drive	coal slk.	740 192	932	2,132	1 o. 3 u.	horse	..	..	..	natural	10/8/82
25	Kowai Pass, Springfield ..	Kaye, Fenton ..	3½	,,	3	1′ 7″, 9′, and 1′ 6″	,,	E. 1 in 4	,,	2	5′ x 2′ 6″ x 5′ x 5′ x 10′	,,	coal slk.	850 75	925	2,193	1 o. 2 u.	,,	..	..	..	,,	8/3/83
26	Canterbury, Sheffield ..	Austin, J. ..	20	,,	2	2′	,,	S.E. 1 in 3	various	1	5′ diam. x 25′	,,	coal slk.	3,895 85	3,980	23,298	2 o. 15 u.	,,	..	..	..	furnace	6/3/83
27	Homebush, South Malvern ..	General Manager, McIlwraith, J. A. Mine Manager, Brown, T.	10	,,	1	7′	,,	E. 10° S. 1 in 3	bord and pillar	2	3′ 6″ x 3′ x 60′ x 3′ 6″ x 3′ x 20′	,,	coal slk.	9,057 575	9,632	35,627	2 o. 23 u.	,,	..	..	..	,,	7/3/83
28	Hart's, South Malvern ..	..	..	alter'd brown	3	1′ 6″, 1′ 6″, and 1′ 10″	,,	E. 22°	long wall	..	..	engine-plane	coal slk.	30 30	60	8,410	2 o. 4 u.	engine	..	..	..	natural	9/3/83
29	Wallsend, South Malvern ..	..	6	,,	3	3′	,,	E. 10° S. 1 in 3	bord and pillar	2	6′ x 3′ x 91′	shaft	..		..	3,478	..	..	..	..	..	..	13/8/82
30	Brockley, South Malvern ..	Storey, C. S. ..	3½	alter'd brown	..	..	,,	90°	..	2	..	drive	..		3,000	5,530	17	hand	..	..	..	natural	10/10/82
31	Whitecliffs, South Malvern ..	Smart, W. ..	2	,,	5	3′ to 7′	all	..	bord and pillar	1	..	,,	..		300	300	8	,,	..	..	..	,,	9/3/83
32	Mount Somers, Mount Somers	Milne, James ..	17	brown	1	25′	20′	..	openwork	..	..	..	..		174	3,410	1	..	..	..	..	..	27/12/79
	TIMARU DISTRICT.																						
33	Elephant Hill, Waimate ..	Lindsay, D. ..	2	,,	1	14′	7′ 6″	N. 70° E. 15°	bord and pillar	..	..	drive	..		140	140	1	hand	..	..	..	natural	4/10/82
	OTAGO DISTRICT.																						
34	Wharekuri, Wharekuri ..	Cairns, W. B. ..	16	,,	1	25′	14′	S. 60° W.	narrow-work	1	..	,,	..		400	5,970	1	,,	..	..	..	,,	5/10/81
35	Kurow, Kurow	Scott, D. ..	3	,,	1	8′	all	..	bord and pillar	..	..	,,	coal slk.	150 50	200	495	1	,,	..	..	..	,,	5/10/81
36	Black Point, Duntroon ..	Plennis, A. ..	1	,,	1	6′	,,	S.W. slight	,,	..	..	,,	..		55	55	2	,,	..	..	..	,,	18/5/82
37	Prince Alfred, No. 1, Oamaru	Henderson, A. ..	13	,,	2	9′	,,	E. 10° S. 1 in 5	,,	..	..	,,	..		593	3,567	3	,,	..	..	..	,,	3/10/82
38	Prince Alfred, No. 2, Oamaru	Willets, J. ..	6	,,	2	9′	,,	,,	,,	2	4′ x 4′ x 25′ x 44′	,,	..		1,522	12,237	2 o. 4 u.	,,	..	..	..	,,	3/10/82
39	St. Andrews, Oamaru ..	Willets, J. ..	4	,,	1	6½′	,,	E. 13°	,,	1	4′ diam. x 26′	,,	..		90	4,883	..	,,	..	..	..	,,	6/10/81
40	Ngapara, Ngapara	Nimmo, James ..	4	,,	1	25′	7′ to 8′	N. 5°	,,	1	4′6″x2′8″x36′	,,	..		765	3,584	2	,,	..	..	..	,,	2/10/82
41	Glenfield, Herbert	Nimmo, John ..	1	,,	1	6′	5′	N. 60 E. 1 in 7	,,	1	4′ x 46′ x 30′ x 10′	,,	..		240	450	2	,,	..	..	..	,,	29/9/82
42	Shag Point, Palmerston ..	Williams, W. H.	20	pitch	2	7′ & 12′	all	E. 1 in 4	b. & p., & longwall	2	5′ x 5′ x 60′ x 50′ x 13′ x 5′ x 247′	eng.-plane and shaft	coal slk.	18,242 1,666	19,908	136,421	12 o. 55 u.	engine	2′ 10″ 1′ 6″	4″ 2″	277′ 260′	furnace & steam	23/4/83
43	Hill's Creek, Hill's Creek ..	McKnight, J. ..	18	lignite	1	30′	10′	S. 30°	openwork	..	..	..	..		5	85	1	..	..	..	..	..	6/4/81
44	Idaburn, Rough Ridge ..	Grant, W. A. ..	12	,,	1	23′	all	N. 10°	,,	..	..	..	..		1,144	7,355	2	..	2″	6″	..	..	5/4/81
45	Dunsmuir's, St. Bathans ..	Dawson, James ..	16	,,	2	12′ & 18′	12′	N.E. 1 in 3	,,	..	..	..	coal slk.	70 10	80	540	1	..	..	..	..	..	5/4/81
46	Cambrian's, St. Bathans ..	Jones, J. R. ..	..	,,	1	25′	all	W. 10°	,,	..	..	..	..		1,600	3,227	2	..	..	..	..	..	5/4/81

RETURN No. 1—*continued.*

STATISTICS of WORKINGS in COAL MINES, 1882—*continued.*

Number.	Name of Mine and Locality.	Name of Manager.	Number of Years at Work.	Quality of Coal.	No. of Seams worked.	Thickness of Seams.	Thickness worked.	Dip of Seam.	System of Underground Working.	Number of Shafts.	Dimensions of Shaft.	Output delivered by	Output for 1882. Coal and Slack.	Output for 1882. Total.	Approximate Total Output to 31st December, 1882.	Number of Men ordinarily employed.	Power used for drawing Mineral.	Stroke of Pump.	Size of Barrel.	Height of Column.	Means of Ventilation.	Date of Inspector's Last Visit.
													Tons.	Tons.	Tons.							
47	Kyeburn, Naseby	McCready, D.	9	brown	3	25′	12′	W. 60°	narrow	1	2′ 6″ x 4′ x 20′	drive	coal 590 slk. 350	940	10,308	3	horse	..	..	..	natural	6/6/82
48	Perseverance, Naseby	Stuart, J.	4	lignite	3	6′ to 16′	12′	W. 60°	,,	2	2′ x 3′6″ x 50′ 5′ x 2′ 6″ x 50′	shaft	coal 200 slk. 800	1,000	2,190	2	hand	..	..	..	,,	6/6/82
49	Alexandra, Alexandra South	Thomson, W.	4	brown	1	14′ to 15′	6′ to 7′	S. 75° W. slight	bord and pillar	2	5′ 6″ x 2′ 9″ x 60′	,,	..	728	6,903	1	horse	..	..	..	,,	25/5/81
50	Manuherikia, Alexandra South	Jackson, T.	..	,,	1	12′	6′	N.W. slight	,,	1	40′	,,	..	300	1,720	1	,,	..	..	..	,,	25/5/81
51	Perseverance, Cromwell	McNulty, E.	3	,,	1	5′ 6″	3′ to 3′ 6″	N.W. 1 in 3	,,	1	6′ x 3′ 6″ x 81′	,,	..	201	1,049	2	,,	..	..	..	,,	21/5/81
52	Bannockburn, Cromwell	Smith, James	..	,,	1	12′	6′	N. 70° W.	,,	1	..	drive	coal 1,248 slk. 400	1,648	4,936	3	hand	..	..	..	,,	21/5/81
53	Kawarau, Cromwell	Pryde, John	5	,,	1	5′ 6″	5′	E. 60°	narrow	..	..	,,	..	1,000	3,050	2	,,	..	..	..	,,	21/5/81
54	Clyde, Clyde	Marie, C. T.	11	,,	1	20′	10′	S.E. 5°	brd. & pil.	2	4′ x 3′6″ x 36′	shaft	..	80	2,960	1	,,	..	..	..	,,	21/5/81
55	Clyde, Clyde	Holden, R.	2	,,	1	20′	..	S.E. 1 in 1	..	2	4′ x 4′ x 140′ 3′ x 4′ x 170′	,,	..	350	15,942	2	horse	..	..	..	fan	10/1/82
56	Earnsclough, Clyde	Buckley, John	6	,,	..	16′	12′	W. 50°	bord and pillar	1	..	..	..	358	1,483	1 o. 2 u.	,,	..	..	..	natural	11/1/82
57	Gibbstown, Arrow	Williams, S.	..	,,	1	..	..	..	openwork	..	..	..	coal 1,400 slk. 100	1,500	4,750	4	..	..	..	..	..	..
58	McPherson's, Roxburgh	McPherson, A.	..	lignite	1	25′	20′	N.W. 16°	,,	..	..	..	..	..	..	..	..	..	..	..	..	26/2/80
59	Low and Robertson's, Roxburgh	Low, J.	19	,,	1	28′	20′	various	,,	..	..	..	coal 750 slk. 200	950	6,690	3	..	..	..	..	..	26/2/80
60	Crossan's, Roxburgh	Crossan, R.	13	,,	1	28′	20′	,,	,,	..	..	..	..	30	590	..	..	..	..	..	..	26/2/80
61	Fernhill, Green Island	Shaw, J. E.	5	brown	1	19′ 6″	7′	N. 10° E. 1 in 10	room and rance	1	4′ 9″ x 3′ 6″ x 40′	drive	coal 3,112 slk. 1,407	4,519	15,263	7 o. 10 u.	horse	..	..	..	natural	28/3/83
62	Green Island, Green Island	Richardson, D.	10	,,	1	14′	7′	E. 10° N. 1 in 10	,,	2	4′ x 2′ x 9′ 12′ x 4′ 6″ x 130′	engine-plane	coal 5,395 slk. 1,561	6,956	66,195	1 o. 7 u.	engine	3′	7½″	130	,,	15/3/83
63	Saddle Hill, Green Island	Campbell, J.	8	,,	1	19′ 6″	11′	E. 1 in 10	,,	2	8′ x 4′ 4″ x 60′	shaft	..	5,248	37,122	3 o. 7 u.	horse	..	..	..	furnace	25/4/83
64	Glenochiel, Green Island	Bryce, D.	1½	,,	1	10′	7′	various	,,	2	8′ x 4′ x 48′ 4′ x 3′ x 22′	,,	coal 318 slk. 50	368	368	1 o. 2 u.	,,	..	..	..	none	8/5/83
65	Walton Park, Green Island	General Manager, Loudon, J. Mine Manager, Lindsay, W.	12	,,	1	18′	7′	E. 1 in 9	,,	3	12′ 6″ x 4′ 6″ x 173′	shaft and drive	coal 17,820 slk. 3,350	21,170	219,115	8 o. 34 u.	engine and horses	4′ 6″	11″	175	furnace	27/4/83
66	Abbotsroyd, Green Island	Walker, J.	7	,,	1	16′	7′	E. 10° N. 1 in 10	,,	1	2′ 6″ x 5′ x 22′	drive	..	..	..	6 o. 17 u.	horse	..	..	..	,,	15/3/83
67	Abbotsroyd, No. 2, Green Island	Walker, J.	1½	,,	1	16′	7′	,,	,,	1	3′ 8″ x 4′ 6″ x 42′ x 6′	,,	coal 8,652 slk. 3,155	11,807	50,638		,,	pulsometer	..	..	steam	28/3/83

68	Brighton, Brighton ..	McColl, D. ..	2	,,	1	5′	all	N.E. 1 in 10	,,	..	..	,,	..		200	400	2	hand	..	..	..	none	10/1/83
69	Hurdstone, Milton	Allison, J. and J. (owners)	3	lignite	1	9′	,,	level	,,		..	,,	..		25	75	..	,,	..	..	..	,,	24/4/82
70	Bruce, Milton	Hardwick, N. ..	8½	pitch	1	12′ 6″	6′	varies	bord and pillar	..	..	,,	..		1,259	7,960	1 o. 2 u.	,,	..	..	..	natural	16/9/82
71	Real Mackay, Milton ..	Reid, John ..	14½	,,	1	25′	8′	N.E. to E. 1 in 8	,,	..	..	,,	..		1,046	11,269	2	,,	..	..	..	,,	16/9/82
72	Coombe Hay, Milton ..	..	1	..	1	3′ 8″	..	..	..	..	..	..	..		..	..	4	..	..	..	..	..	27/4/82
73	Cannon's, Lovell's Flat ..	Cannon, T. ..	12	lignite	1	20′	all	varies	openwork	..	..	..	..		460	1,210	1	..	..	..	..	..	17/1/83
74	Bryce's, Lovell's Flat ..	Bryce, J. ..	4	,,	1	12′	8′	,,	,,	..	..	..	..		30	680	..	..	..	..	..	..	31/3/82
75	Paskell's, Glenore	Paskell, J. T. ..	18	,,	1	8′	all	N.E. 1 in 6	,,	..	..	..	..		77	77	1	..	..	..	..	..	22/1/83
76	Munro's, Lawrence ..	Dunikowski, F. ..	1	,,	1	12′	6′	N. 30°	bord and pillar	..	..	drive	coal	160	200	200	1 o. 1 u.	hand	..	..	..	natural	1/6/82
													slk.	40									
77	Benhar, Balclutha	Nelson, J. ..	18	brown	1	40′	8′	8′ 17″	,,	1	4′ x 4′ x 38′	engine-plane	coal	4,000	4,600	25,590	1 o. 7 u.	8-h.p. engine	3″	6″	40′	furnace	21/3/83
													slk.	600									
78	Kaitangata, Kaitangata ..	Samson, W. ..	7	pitch	1	24′	all	N.N.W. 1 in 7	room and rance	3	6′ x 4′ x 9′ x 25′ x 4′ x 2′ 6″ x 64′ x 5′ x 3′ 8″ x 5′ x 60′ x 20′	drive E. 1° into No. 78	coal	23,270	31,752	151,503	7 o. 58 u.	horses	..	..	..	,,	14/5/83
													slk.	8,482									
79	Kaitangata No. 1, Kaitangata	Samson, W. ..	5	,,	1	30′	7′	..	,,	1	11′ 9″ x 4′ 6″ x 392′							engine	bucket	..	..	,,	15/5/83
80	Wangaloa, Kaitangata ..	Smith, Joseph ..	2	,,	1	10′ 6″	6′	E. 1 in 6	bord and pillar	1	..	drive	coal	180	230	466	1	hand	..	..	..	natural	19/9/82
													slk.	50									
81	Wangaloa, Kaitangata ..	Sewell, R. M. ..	1	,,	1	5′	all	N. slight	,,	1	..	,,	..		146	146	1	,,	..	..	..	,,	19/9/82
82	Wyndham, Wyndham ..	Genge, Thomas ..	5	lignite	1	6′	6′	..	openwork	..	..	..	..		308	1,174	1	..	..	..	..	..	1/11/81
83	Elliott's, Wyndham ..	Elliott, R. ..	2	,,	1	6′	6′	..	,,	..	..	..	..		150	329	1	..	..	..	..	..	2/11/81
84	Dawson's, Gore	Dawson, T. A. ..	5	,,	1	6′	all	..	,,	..	..	..	..		79	308	..	..	..	..	..	..	1/11/81
85	Sarginson and Telfer's, Gore	Sarginson and Telfer	4½	,,	1	8′	,,	..	,,	..	..	..	coal	40	65	179	..	..	..	..	..	..	1/11/81
													slk.	25									
86	McKinnon's, Gore	McKinnon, A. ..	7	,,	1	6′	,,	..	,,	..	..	..	coal	70	76	364	1	..	..	..	..	..	1/11/81
													slk.	6									
87	Chatton, Chatton	Pacey, W. R. ..	6	,,	1	..	..	..	,,	..	..	..	..		440	1,413	1	..	..	..	..	..	..
88	Heffernan's, Gore	Heffernan, P. ..	2	,,	1	15′	6′	..	,,	..	..	..	..		20	170	..	..	..	..	..	..	1/11/81
89	Pukerau, Pukerau ..	McKenzie, J. ..	3	,,	1	20′	all	W. slight	bord and pillar	..	..	drive		..	1,358	2,903	4	hand	..	..	..	..	3/11/81
90	Pukerau, Pukerau	Swan, J. ..	4	,,	1	15′	14′	..	openwork	..	..	..		..	1,200	3,179	1	..	..	..	..	..	3/11/81
	SOUTHLAND DISTRICT.																						
91	Mataura, Mataura	McNairn and Stark	7	,,	1	12′ 6″	all	W. 1 in 20	,,	..	..	..	..		336	3,506	1	..	..	..	..	..	1/11/81
92	Mataura, Mataura	Beattie, John ..	7	,,	1	12′ 6″	8′	..	,,	..	..	..	..		1,184	5,330	3	..	..	..	..	..	1/11/81
93	Menzie's Ferry, Wyndham ..	Templeton, J. ..	2	,,	1	5′	5′	..	,,	..	..	..	..		304	520	1	..	..	..	..	..	2/11/81
94	Nightcaps, Nightcaps ..	General Manager, Handyside, W. Mine Manager, — Lloyd	5	pitch	2	3′ 6″ and 8′	all	E. 1 in 4.	openwork and square-work	2	6′ x 4′ 6″ x 12′ x 22′ and 6′ x 3′ x 135′	drive		..	6,730	7,146	15 o. 15 u.	engine	3′ 9″	6″	135′	furnace	20/3/83
95	Fairfax, Fairfax	Todd and Graham	..	..	..	..	..	..	openwork	..	..	..		..	900	900	3	..	..	..	..	..	..
96	Wairio, Nightcaps	Knight, Thomas ..	2	pitch	1	7′ 6″	6′	..	,,	..	..	..		..	400	548	2	..	..	..	..	..	14/6/82
															378,272	2,107,684							

RETURN No. 2.

TABLE of ACCIDENTS in COAL-MINES during the Year ending 31st December, 1882.

No.	Date.	Name of Mine.	District.	Cause of Accident.	Fatal.	Non-Fatal.	Name of Sufferer.	Remarks.
1	Mar. 3	Brunner ..	Westport ..	Fall of coal ..	1	..	Kalka, J. ..	Prosecution.
2	Mar. 28	Canterbury ..	Malvern ..	Fall of roof ..	..	1	Smith Joseph ..	Not reported.
3	May 9	Dudley ..	Malvern ..	Explosion of powder	..	1	Dufty, — ..	Not reported.
4	May 9	Banbury ..	Westport ..	Fall of stone ..	..	1	Hall, R. ..	Slight.
5	July 29	Shag Point ..	Otago ..	Fall of coal ..	..	1	Stafford, E. ..	
5	Sept. 1	Banbury ..	Westport ..	Fall of coal ..	..	1	McLelland, J. ..	
7	Oct. 18	Paskell's ..	Otago ..	Fall of gravel ..	1	..	Paskell, J. ..	Openwork.
8	Dec. 9	Banbury ..	Westport ..	Fall of coal ..	..	1	Snayden, P. ..	Not serious.

RETURN No. 3.

RETURN of the QUANTITY of COAL IMPORTED into and EXPORTED from NEW ZEALAND during the Year ended 31st December, 1882.

Countries whence Imported.	Import.		Countries to which Exported.	Export.	
	Quantity.	Value.		Quantity.	Value.
	Tons.	£		Tons.	£
United Kingdom	3,266	2,731	New South Wales	1,253	1,182
New South Wales	126,258	161,359	Victoria	1,840	1,026
Victoria	33	64	South Sea Islands	111	167
Tasmania	25	23	United States of America in the Pacific	500*	625
			China	3	5
			Bengal	538*	673
Totals	129,582	164,177	Totals	4,245	3,678

* Foreign produce.

REMARKS.—1,050 tons, value £1,050, were exported from Russell; and 1,840 tons, value £1,026, from Greymouth.

WILLIAM SEED,
Secretary and Inspector.

Department of Trade and Customs,
Wellington, 19th June, 1883.

By Authority: GEORGE DIDSBURY, Government Printer, Wellington.—1883.