SESS. II.—1884.

NEW ZEALAND.

WASTE LANDS COMMITTEE:

REPORT ON PETITION OF F. D. RICH AND W. H. WILLIAMS; TOGETHER WITH PETITION, MINUTES OF EVIDENCE, AND APPENDIX.

Report brought up 28th October, 1884, and ordered to be printed.

REPORT.

THE petitioners are the proprietors of the Shag Point Colliery, and they allege they have suffered severe pecuniary loss through the action of the Government Inspector of Mines (Mr. Binns), which action led to the necessity of closing the mine. They pray that relief may be granted to them for the purpose of reopening the mine.

After an extended inquiry into the merits of the case, and having examined a number of witnesses, many of them being experts, the Committee have the honour to report—1. That in their opinion the action of the Inspector of Mines was warranted. 2. That, looking at the capital expended on this mine, and the need of keeping open a coal mine in the district, a lease of the submarine coal fields for a long term should be granted to Messrs. Rich and Williams, and an extension of the existing lease if no private rights are interfered with. 3. That a Government grant should be made in aid of reopening the mine, such grant not to exceed one-third of the total cost of such reopening, and in no case to exceed £5,000.

JAMES FULTON,
Chairman.

28th October, 1884.

PETITION.

To the Honourable the Speaker and Members of the House of Representatives of New Zealand in Parliament assembled.

THE HUMBLE PETITION OF FRANCIS DYER RICH, OF OTAGO, IN THE COLONY OF NEW ZEALAND, SHEEP-FARMER, AND WILLIAM HENRY WILLIAMS, OF SHAG POINT, IN THE COLONY OF NEW ZEALAND, MINING MANAGER.

SHOWETH,—

1. THAT your petitioners are the occupiers of the public coal field and of certain lands, namely, a quarry reserve of 40 acres, and a portion of a coal reserve, containing in all 170 acres, situated at Shag Point, Block III., Moeraki Survey District, in the Provincial District of Otago, under lease, for the purpose of carrying on mining operations on the said lands.

2. That mining operations have been carried on on the said lands for a period of six years, up to the 11th day of February, 1884.

3. That, in carrying on the said operations and works incidental thereto, and in the purchase of machinery for such works, your petitioners have incurred a large expenditure, exceeding in all the sum of £20,000.

4. That, for the better carrying on of the said operations, and for further developing the said works, your petitioners, on the 2nd day of September, 1881, applied to the General Government of New Zealand for a lease of 190 acres of land under the sea, and adjoining the land then held by your petitioners.

5. That your petitioners were prevented by section 147 of "The Harbours Act, 1878," from obtaining a lease of the said land so applied for; but a license to carry on mining operations, revocable at will, was granted to your petitioners as from the 1st day of September, 1881, and the said license contained no regulations as to the manner in which the said operations were to be carried on.

6. That your petitioners thereupon opened up the said land held on license by a dip-incline on the true dip of the seam, 7 chains in length from the boundary of the land held on lease, with a cover at the lowest point of 211 feet, and at the shallowest of 96 feet, and from this incline opened up the seam both north and south on the strike of the seam by working bord-and-pillar system, and also sunk a shaft for an upcast to a depth of 160 feet, and that shaft a further depth of 100 feet, for the purpose of the more economical winning and hoisting of the coal.

7. That your petitioners have laid out a considerable sum of money on the said shaft and submarine drives, amounting in all to the sum of £7,000.

8. That the said submarine workings in the land held under the said license were carried on for a period of about two years, and in a satisfactory manner.

9. That, at the end of that period, after a considerable quantity of coal had been won, the said workings, on being inspected from time to time by the Inspector of Mines, were found to be in a very satisfactory condition, and no complaint was made by him.

10. That, on the 24th day of January, 1883, the Inspector of Mines made a further inspection of the said workings, and took exception to the state of the north end of the upper drive where the roof was soft and falls of roof frequent. He also objected to the width of the pillars supporting the roof of the said drive.

11. That your petitioners' mining manager, on the 31st day of January, 1883, received notice from the Inspector of Mines to have a fresh survey made of the mine and workings.

12. That, on the same day, the Inspector of Mines visited the mine for the purpose of making a survey.

13. That some time previous to this date your petitioners' mining manager had informed the said Inspector that one part of the then existing plan of the mine surveyed by a Mr. Bishop was incorrect, but that the inaccuracy was quite immaterial; and also, during the Inspector's survey, called his attention to the fact that he was making the working-places wider than they actually were, by taking his measurements at the cross-cut openings, which would show a greater width than really existed.

14. That your petitioners' mining manager, on the 14th day of February, 1883, received from the Inspector of Mines a written notice that the works were to be carried on, subject to certain conditions, as follows:—

> "No more pillars to be weakened by splitting or taking ribs off. The following places are to be continued:—
>
> "(1.) Three bords to the north side of the north cuddy to the rise, for the purpose of exploring this portion of the field;
>
> "(2.) Two bords off the main return (old back, heading main dip);
>
> "(3.) The bords off the south cuddy;
>
> "(4.) The cross-cut for continuation of engine plane, which will be driven as small as possible, close-timbered, and packed:
>
> "Provided that no bord be driven wider than 14 feet, and driven with lines; bolt-holes to be driven every 33 yards, and the air guided through with cloths or stoppings.
>
> "The dams which it was agreed were to be constructed, so as to have the power to immediately shut off the mine-workings from the shaft, will be put in."

And the said conditions were accepted in writing by your petitioners' mining manager.

15. That, after receipt of the letter of the 14th day of February, 1883, your petitioners' mining manager had a personal interview with the said Inspector, and obtained leave to prospect to the north.

16. That, on the 24th day of February, 1883, your petitioners' mining manager received notice from the said Inspector to discontinue working the said mine; and thereupon your petitioners' mining manager again saw the said Inspector, who gave him permission to work the said submarine workings until the arrival of the managing director, Mr. Rich, from England.

17. That, some time subsequently to the receipt by your petitioners' mining manager of the letter of the 14th day of February, 1883, your petitioners' mining manager had an interview with the said Inspector, when the said Inspector suggested that it might be necessary to let the upper seam fill with water, and your petitioners' mining manager thereupon pointed out that the water would have the effect of softening the roof and bringing it down, also of swelling the fireclay floor, and throwing out the pillars.

18. That, during the time these negotiations were proceeding, your petitioners' mining manager pointed out to the said Inspector that the falls of roof were no worse than is usual in mines.

19. That your petitioners' mining manager also pointed out that the stoppage of the said works would cut your petitioners off from the whole of the upper district, and suggested that packs of wood, brick, or stone should be put in any place the said Inspector might wish, in order that the pumping might not be stopped; but the said Inspector refused to allow this to be done.

20. That your petitioners could have continued working both on the dip and strike to the north if the said works had not been stopped by your mining manager being engaged in opening up the seam at that time.

21. That your petitioners applied on the 5th day of July, 1883, to the Hon. the Minister of Mines for a Commission to inquire into the serious question of allowing the said submarine workings to fill with water, which said Commission was refused; and your petitioners thereupon called in Mr. Denniston, a mining engineer, to report upon the said mine, and as to the effect of the said water.

22. That Mr. Denniston reported most strongly against the action of the said Inspector in allowing the water to accumulate in the said submarine workings.

23. That your petitioners, upon the stoppage of the said works, continued to take coal from parts of land held on lease, which under ordinary circumstances it was not advisable to do, and which they would not have done if the said works had not been stopped.

24. That the effect of the stoppage of the said works was this: that the water rose to the dams which had been put in to check it in the upper workings, and then threatened to burst through and flood the lower workings; whereupon the said Inspector stopped all operations in the said workings, entirely closing the whole mine.

25. That, after the said mine had been entirely closed, your petitioners applied for a Commission of inquiry into the circumstances which led to the closing of the said mine, which said Commission was also refused.

26. That the said mine could be reopened by sinking two new shafts at a depth of three hundred feet, with a drive a distance of twelve hundred feet, to catch two seams of coal, and moving the hoisting and winding machinery, pumps, &c., to the winding shaft.

Your petitioners therefore humbly pray that your honourable House will take the allegations of your petitioners into serious consideration, and will afford to them such relief as to your honourable House shall seem fit for the purpose of the reopening of the said mine.

And your petitioners will ever pray, &c.

F. D. Rich.
W. H. Williams.

Witness to signature of the said Francis Dyer Rich—George Whitelaw.

Witness to the signature of William Henry Williams—S. P. Rainey, Bank Manager, Palmerston, Otago.

MINUTES OF EVIDENCE.

WASTE LANDS COMMITTEE.

THURSDAY, 18TH SEPTEMBER, 1884 (Mr. JAMES FULTON, Chairman).

Petition of F. D. RICH and another.

Mr. F. D. RICH, examined.

1. *Mr. Hurst.*] Will you be good enough, Mr. Rich, to make a statement to the Committee in support of your petition?

About the year 1880, in consequence of the coal in the land under lease running out, I made an application to the Minister of Mines for a lease seaward, where the coal was known to be unbroken and well defined. The Government could not grant the lease without legislation, but granted a license, revokable at will, for an area of waste land in Otago, which was duly granted. The coal company then proceeded to open up permanent and extensive submarine workings, but before doing so they had to put down a drive, so as to make sure that there was a large submarine seam of coal. These submarine workings were in operation and under the inspection of Mr. Binns for a period of three years previous to February, 1883, and no exception during this period was ever raised by Mr. Binns, either with respect to insufficient cover overhead or as to the plan of the workings, until about January, 1883, when the Inspector expressed his opinion that it would be necessary to go farther seaward and to work with larger cover overhead. The mining manager and myself, as managing director, offered no opposition to the stoppage of taking out coal from the submarine workings, and consented to work under the conditions imposed by Mr. Binns. The mining manager was requested to carry out Mr. Binns's new regulations, which were only imposed after the submarine workings had been going on for three years. We asked that the submarine workings should be kept dry, and not allowed to fill with water. As Mr. Binns, in his letter of February or March, 1883, had instructed that the then submarine workings should be closed, and consequently to fill with water, it was pointed out to Mr. Binns that it would be fatal to the whole of the mainland workings, both upper and lower seams, as they were connected with the submarine workings. Mr. Binns refused to allow the submarine workings to be kept dry, as requested by the mine manager, and told both the manager and myself that the effect of allowing the submarine workings to fill with water would be to support the roof. Both Mr. Williams and myself urged upon Mr. Binns that they should be kept free from water, and that access should be had through them to future submarine workings. Mr. Binns also refused to allow this. The mine manager informed Mr. Binns in my presence that his action would eventuate in the absolute ruin of the whole property, and stated his reasons fully for holding that opinion. As we were working under license and not under lease the Mining Act did not apply, and the license contained a provision that the company should work to the satisfaction of the Inspector. Considering there was no appeal against his decision the works were stopped, and the water commenced to accumulate. About three months after the results prognosticated by the manager were apparent, and the mine manager informed me, as managing director, that nothing but ruin would result from the action insisted upon by Mr. Binns. I requested the mine manager to write a letter stating what he had to say with regard to the injury that was being done, which he did, advising me to apply for a Commission, asking that Dr. Hector and some other competent authorities should inquire into the whole matter, and determine whether the opinion expressed by the manager, that it would eventuate in ruin, could be borne out, or whether the Commission would approve of the action already imposed upon the company by the Inspector with reference to allowing the mine to be filled with water. I enclosed the mine manager's letter in a letter which I wrote to the Minister of Mines, asking him to give his attention to such a very serious matter, and to grant a Commission of inquiry, such as I have now indicated, to investigate the whole circumstances of the case, and to see whether Mr. Binns or Mr. Williams were right. I also enclosed plans, &c., in the letter to the Minister. I afterwards received a telegram from the Secretary of Mines, stating that the Government saw no reason to interfere, and there was therefore no necessity for me to send the mine manager to Wellington, as I had offered to send the manager to Wellington to give all the necessary information. Dams were then put in, at a cost of £500, to shut off the water from the lower seam workings when the water in the submarine work. ings had raised to a certain height. I may say that in the letter of the 5th July the mine manager clearly and emphatically gives his reasons why it would eventually stop the workings in every part. We then put in the dams. When the water had risen to the upper seam of the land workings and reached the dams connecting with the shaft of the lower workings the pressure was about 200lb. to the square inch. There was at the time a large number of men in the lower works, only 70 feet below this large body of water, covering an area of 20 acres, which would have been immediately over their heads. Many of the men then refused to go down until the Inspector had been sent for, but the greater portion still continued to work there until Mr. Binns arrived. Mr. Binns then went down the shaft himself and saw the enormous pressure of water forcing itself through the dams and measures. He was then reluctantly compelled to instruct the manager to withdraw the whole of his men, which was accordingly done, and thereby the whole of the mine became absolutely closed. Mr. Binns, in his letter asking for the withdrawal of the men,

gave his reasons for doing so in almost the same language and in an identical manner to that which was used by the mine manager about twelve or fourteen months before, and the opinion arrived at was the same as that given by Mr. Williams as far back as twelve months previously, the mine manager's opinion being also thereby verified. Just after the mine manager wrote his letter of the 5th July, Mr. Denniston, mining engineer for Westport, Kaitangata, and Shag Point, was asked to inspect the submarine workings of the portion unfilled with water, which would probably be about three-fourths of the area worked. In his report on it he states that the appearance of the pillars and workings showed that there was sufficient and ample support; but that if falls existed to the extent shown upon the Government plan, it would be only right and proper on the part of the Inspector to stop all workings with respect to the taking out of any further coal; and in the same report he most strongly condemns the action of the Inspector in having allowed the water to accumulate. Mr. Binns's statement, to the effect that the company took this action either as to the stoppage of the submarine workings, or as to allowing the water to accumulate, or as to the withdrawal of the men, which led to the closing of the whole mine, is entirely inaccurate. In giving notice for the withdrawal of the men in his letter in February, he asks for the acquiescence of the mine manager (thereby showing that the order came from him) as to the withdrawal of the men. The mine manager, in his reply, stated that he could not do otherwise than acquiesce in the advisability of withdrawing the men who would be working in the most imminent danger, and he stated that this danger had been clearly and emphatically pointed out by him twelve months previously, which would certainly result by allowing the water to accumulate. Therefore the order for the withdrawal of the men, which practically was the closing of the mine, was entirely the action of the Inspector, although I, as managing director, said I should be sorry to see 100 men working where the water might burst on them at any moment. In fact, the lower workings became immediately filled with water after the men were withdrawn. I then asked that the Government should cause an inquiry to be made into the circumstances of the case, and the closing of this public coal field. This, however, was refused by the Government. A second application was afterwards sent to the Government, pointing out that there was a very large sum of money involved in the matter, and also referring to the importance of the industry to the public, but they again refused to grant any inquiry into the matter. I have no hesitation in saying that, if the inquiry which was asked for in July, 1883, had been granted, the result would have been that we should have been allowed to have pumped the water from the submarine workings, and kept them dry, and the opinion expressed both by Mr. Denniston and by Mr. Williams would have been fully borne out, that they would have stood until doomsday. I fully believe that entirely through the action taken by the Inspector the mine has been injured to the extent of from about £10,000 to £20,000. At the time of the withdrawal of the men there was a most efficient plant at the mine, which was second to none in the colony, and through this unfortunate action of the Inspector it has necessitated prospecting the field both north and south, which is now being done by the diamond drill, and which, by a telegram I received this morning, I am informed is now down 603 feet.

2. *Mr. Macandrew.*] There is one question I should like to ask you, Mr. Rich. I understand it is your decided opinion that if the inquiry you asked for had been granted the mine would now have been in full working order?—I have no doubt at all but that the mine would have been now putting out about 150 or 200 tons of coal per day. The day before we closed the mine we put out about 125 tons.

3. What would the railway haulage on 150 tons of coal amount to?—I should think on an average to about 6s. per ton.

4. What would you estimate the actual cost which would be incurred in replacing the mine in working order?—I should estimate that the expense of the diamond drill would be from £1,200 to £1,500; then, the sinking of two shafts, and taking down and erecting machinery from the closed workings to the new works, would cost about £12,000.

5. *Mr. Macandrew.*] Then, you have actually sustained a loss of £12,000, irrespective of profits?—I have no doubt about it.

6. You say that Mr. Denniston is an expert?—Yes; I should say he is second to none in the colony.

7. And you have got a written report from him concerning the action of the Mining Inspector?—Yes; condemning his action in the strongest possible language.

8. How long has the mining manager been engaged in this occupation?—For fifteen years. He has also been manager of the Kawakawa Coal Company for eight years.

9. And you consider that his opinion is of very great value?—I do.

10. *Mr. Bruce.*] Will it be possible, Mr. Rich, to resume working in that mine again?—I may state that it is the opinion of the Government Inspector that it is one of the most valuable coal properties in the South Island. I have no hesitation at all in saying that there are plenty of seams there, and there is coal enough to last for centuries. Dr. Hector, Dr. Haast, and Professor Ulrich have all expressed their opinion that there is an immense field of coal lying seaward, and that the land is full of coal.

11. *Mr. Bruce.*] Would the fact of the mine having been flooded have any bad effect in the event of work being resumed?—No; we shall not go near the closed workings; but there is plenty of coal still available by opening up.

12. *Mr. Macandrew.*] How long have the works been absolutely stopped?—Since about the 30th March. They were stopped shortly after my return from England.

13. Have you any idea of the quantity of coal lost by the stoppage of the works?—The loss in the output to the company since the closing of the mine would be about 15,000 tons. But the quantity of coal which was already opened up, and ready to be opened up, would be about 200,000 or 300,000 tons, which is irrecoverably lost to the company by the flooding of the mine.

14. *Mr. Rolleston.*] Is it not the case that the water had risen to a very considerable height for some time before any application was made for a Commission of inquiry?—No; not to such an extent but that it could be easily pumped out, which the company were perfectly prepared to do.

15. Are you not aware that Dr. Hector was of opinion that Mr. Binns was right in taking the action he did take?—I have already stated that Dr. Hector expressed to me most strongly the great danger that would result from allowing the mine to be filled with water. He took exception to that altogether.

16. *Mr. Rolleston.*] Did Mr. Binns prevent you from pumping out the water?—Most undoubtedly he did, by ordering the absolute closing of the mine, and the withdrawal of all the men from the submarine workings, and thereby prevented the employment of the necessary men for pumping operations. The closing of the mine is entirely owing to Mr. Binns's refusal to allow the mine to be kept free from water, in accordance with the manager's request.

TUESDAY, 30th SEPTEMBER, 1884.

Mr. Chapman appeared for Mr. Rich, and Mr. Reid for the Mines Department.

Mr. Chapman: With reference to the order of proceedings, I understand you will accept the evidence that has been given. I have looked over that; but I see it will be necessary to recall some of the witnesses, because there are some questions that seem to have been omitted. I have the questions I propose to put noted down here, and I propose to put the questions as shortly as possible, and dispose of these witnesses as quickly as possible. With regard to any opening statement, I do not know that that is necessary; because, though I do not know exactly what has been done so far by the Committee, I understand the point in dispute—which is, after all, really the one question—has been pretty clearly put before the Committee already; and I intend, in calling evidence, to direct it to that one point: that point being, the propriety of the action of the Inspector of Mines in causing the mine to be filled with water at the time when he ordered Mr. Williams to withdraw the whole of the men from the seaward workings of this mine. There is one question that I wish particularly to direct the attention of the Committee to, and that is this: In the correspondence with the Government it appears that on more than one occasion, I think, the answer was given to the petitioners that if they had a grievance they might obtain redress by legal process under "The Inspection of Mines Act, 1874:" that their proper course was to insist on a statutory notice in pursuance of that Act, and to proceed to arbitration before the tribunal which that Act constituted for that purpose. The short answer to that is this: In the first place, as I understand the position, this mine was not one within the contemplation of that Act at all. I do not think it was within the jurisdiction of the Inspector of Mines at all. It was a mine beyond any constituted district, and, though the Government seem to have taken up this position, Mr. Binns himself, in his correspondence with the Government, seems to have shown that he was not under that misapprehension—that he clearly apprehended the position. The position of this mine was a peculiar one. It was originally held under license. That license—which has, I think, been before the Committee—was merely, both in the popular and legal sense, a license to mine, and a legal incident of the license was that it was revocable at the will of the grantor, and this is expressed to be revocable at the will of the Government. Then, later, the same gentleman who, under the direction of the Government, granted and signed that license—the Commissioner of Crown Lands at Dunedin—wrote a letter, which I have not seen (the writing of this letter having been originally suggested, I think, by the Inspector of Mines), the substantial effect of which was that the mine was to be worked subject to the approval of the Inspector of Mines. The working having proceeded on the footing of that letter, that letter entered into and must be deemed to be a part of the terms upon which the mine was held; consequently, it is virtually a supplementary license. That being so, the position of the licensees was this: that any breach by them of the conditions under which they held the mine, subject to the terms of the license, would effect the forfeiture of that license: it would not be necessary even to wait for the revocation: it would effect the forfeiture of the license, and they would become virtually trespassers from the moment they committed any breach of it, so that the license would be revoked without any order on the part of the Government; so that the present petitioners were obliged absolutely to work under the orders of the Inspector. And the Inspector fully understood that evidently. Then, there is another misapprehension in the correspondence, apparently, which I wish to clear up once for all. The petitioners are not here complaining of the ultimate action of the Inspector of Mines in finally closing the mine. That is not the subject of complaint, because Mr. Williams, either verbally to Mr. Binns, or by writing, I forget which at this moment, at the time when this original order was given, predicted that it would ultimately necessitate the closing of the mine. The burden of complaint here is that the petitioners were compelled to allow the seaward workings to fill with water. They did not resist the order: they did not contemplate resisting the order to cease getting coal from the seaward workings. If they had been ordered to cease getting coal from there, they would at once have ceased, and they would not—though their position there would have been affected by such an order—have felt themselves in a position to complain in this manner. They might have gone on, as they contemplated, keeping those seaward workings dry, and possibly, upon further inquiry, it might have been found best to go on working them. They do not complain of being compelled to cease getting coal from that portion of the mine; but what they complain of is that they were ordered to withdraw every man from the mine, and they were obliged to allow the seaward workings to fill with water; and that is substantially the burden of their complaint: and to that, and almost solely to that, we propose to direct the evidence before this Committee. As to the effect of that, evidence has been given, and still further evidence will be given; but I will call the attention of the Committee to the fact that originally Mr. Williams pointed out that the effect of that would be disastrous.

Mr. Reid asked the Committee if it was their intention to begin *de novo*, or whether they would take it for granted that a great deal of evidence had been heard, and that this was merely supplementary.

Mr. Chapman said he had opened briefly, and assumed that a large amount of evidence was

before the Committee. He understood that that was so, and the Committee was already familiar with a great many of the facts. It was very undesirable to lengthen the proceedings if they could be treated shortly.

Counsel retired, and the Committee deliberated on the point. After deliberation, counsel were recalled, and the Chairman said the Committee had decided to commence *de novo*. Counsel would probably very much shorten the case by their knowledge of it.

Mr. F. D. RICH, having been sworn, was examined.

17. *Mr. Chapman.*] This statement you have already made: you confirm that?—Yes.

18. Do you wish to add anything to that?—I think not. There is some further cross-examination that has not been published. [Statement put in: *vide* Appendix.]

Mr. W. H. WILLIAMS, Manager, Shag Point Coal-Mining Company, examined on oath.

19. *Mr. Chapman.*] How long have you been engaged as a coal-mine manager?—Since December, 1869.

20. Where were you engaged before you went to Shag Point?—At the Bay of Islands Coal Company.

21. Was that a large mine: were the operations extensive?—Yes.

22. You received your appointment at Shag Point, when?—In 1878.

23. You know the position of all the workings at Shag Point?—Yes.

24. When did you commence working under the license granted by the Commissioner of Crown Lands at Dunedin?—The license was granted in 1882.

25. In those workings there is an upper seam and a lower seam?—In one part.

26. What was the extent of the workings in the upper seam?—In the submarine workings, you mean?

27. Yes?—Somewhere about ten acres.

28. What is the total extent of the workings in the upper seam which is below sea-level? By "submarine" I understand you to mean beyond high- or low-water mark?—About two-thirds of the ten acres are below high-water mark. Part of the license was above high-water mark. The line of the lease ends about a chain above high-water mark.

29. When did Mr. Binns first communicate with you with reference to the closing of the submarine workings?—In January, 1883.

30. What was the nature of his communication?—He said he was afraid the coal being taken out was too much for the safety of the mine. He thought I was taking out too much coal.

31. What further passed between you?—I told him that wherever he considered I was taking out too much coal, if he gave me an order to stop, I would do so.

32. Did he go through any of the workings with you?—Yes.

33. On that occasion or on previous occasions?—On all the occasions he visited the mine I went through with him, with very few exceptions.

34. Did he ever give you any directions with reference to the seaward working held under the license?—No.

35. Had you any directions or instructions from Mr. Binns on the subject of working the mine?—Not previous to the time you are asking me about now.

36. Not previous to January?—No.

37. When did you have any instructions?—By letter, dated the 14th February.

38. That was some time after he had spoken to you, and you had offered to cease working for coal wherever he directed you?—Yes. When he spoke to me about stopping taking out coal he also mentioned at the same time that he might have to stop all operations, and let the mine fill with water.

39. When did he first say that?—I have not the date. This was in conversation at the mine.

40. In what month was it?—In January.

41. He spoke of stopping all operations, and letting the mine fill with water?—Yes; and further, that he would have to let the mine fill with water as a support to the roof. I argued with him on the folly of allowing the water to come in, and pointed out the nature of the cover of the roof. I said I would do anything; would stop taking out coal wherever he directed; would do anything rather than stop the pumping; that wherever he considered a weak place I would put in a stone pack, wood pack, or a brick-and-mortar pack, if desired, rather than stop pumping.

42. What is the effect of putting in stone packs or wood packs?—To support roofs.

43. You protested strongly against letting the water into the mine?—Yes.

44. Was that in the first conversation with him, or not?—When he first broached the subject of letting in the water.

45. Did you, on that occasion, point out to him what would be the effect of so doing?—Yes; very strongly.

46. And what did you say would be the effect of so doing?—I told him that the effect would be that, as the water rose, it would ruin the submarine workings, and when the water rose to a certain height in the shaft it would also ruin the lower-seam workings.

47. These lower-seam workings are underlying a portion of the upper-seam workings?—Yes.

48. And as the water rose it would cover a portion?—Yes; it would cover the whole of them.

49. What did you tell him, in your opinion, the effect would be upon the roof of the upper-seam workings?—I told him the effect would be, instead of supporting the roof it would bring it away, and also called his attention to the fact that while we were driving out we had almost always to keep up the roof while the water was in it; but if we drained it we could work the other portion of the mine, because it was dry and hard.

50. When you drove through it and drained it the roof became hard?—Yes.

51. And is that generally your experience in these matters?—Totally. Whenever there is water

we have a difficulty in keeping up the roof; after it is dry there is no difficulty in keeping the roof up.

52. What was the next step?—His letter of the 14th February.

53. That is the letter giving instructions for the working of the mine?—On the 24th January he inspected the mine; and on the 31st January I received a letter from him to make a fresh survey of the mine. [Letter from Mr. Maitland, 23rd January, marked A, put in: *vide* Appendix.]

54. The first one, you say, is a letter from Mr. Binns of the 31st January?—Yes. He came to the mine himself the same day—just after I received the letter—with a surveyor to make his own survey. I had only just received that letter from Mr. Maitland, which you have read, and I asked Mr. Binns what was the meaning of it; and, he said, that before he had nothing to do with me; but now he had it put into his hands, and he had all to do with it; that I had to work to his satisfaction.

55. Did you reply to Mr. Maitland's letter?—Yes. [Reply to be put in, marked B: *vide* Appendix.] I wrote to Mr. Maitland complaining that it was unfair to me, seeing that I had received no notice of anything wrong in the workings; and asking him to tell me who said the workings were unsafe; that it was unfair to hear from him first, and not from the Inspector. That was the purport of the letter.

56. You had this conversation with Mr. Binns, in which he said this gave him control over it?—Yes.

57. Did anything further pass between you and Mr. Binns on that occasion?—No; but during the time they were making their survey, the mine surveyor (Mr. Taylor) complained to me that they were marking places in their field-book too wide.

58. Complained that their survey was incorrect?—Yes; marking places too wide. He called my attention to one place. I said to Mr. Binns, one morning before we went into the mine, that there was one place too wide, and he said the place was 21ft. I told the under-ground overseer, Mr. Kenyon, and he turned round to Mr. Binns and said, "I'll bet you £5 it is not." I then asked him to go down with Mr. Binns and Mr. Twining. They went down, and when they came back Mr. Binns acknowledged it was only 16ft.—the place which had been marked 21ft.

59. That had been noted in the field-books?—Yes.

60. You had not an opportunity, then, of criticism of Twining's plan?—No; the plan was not made for some time.

61. How long was he there over this survey?—Some days. He came on the 31st. I think he was there most of the next week. On the 12th February I received a letter from Mr. Binns as to conditions of future workings. [Letters marked C, D, and E put in and read: *vide* Appendix.]

62. I understand that Mr. Binns was there on the 31st January, and stayed how many days?—I think some five or six days altogether.

63. Then he wrote this letter of the 14th?—He was at the mine on the 13th, and agreed upon certain places to be worked; but I had said to him that I would not stop the pumping until Mr. Rich came back. He agreed to allow me to work certain places, which he confirmed by a letter of the day after.

64. And he assented to your going on with the pumping?—Yes; until Mr. Rich's arrival.

65. When did you expect Mr. Rich?—In about three weeks.

66. What was the next step?—After receiving his letter I worked at the places he consented to let me till the 26th, when I received the letter dated the 24th; and had men examining all the falls he was so much afraid of according to his letter of the 14th.

67. You strictly complied with his letter?—Yes. [Letter marked F put in and read: *vide* Appendix.]

68. Had Mr. Binns been to the mine between the 13th and 24th?—I have no note of it.

69. What did you do upon that?—When I received his letter I was much put about; I was then laid up in bed, but on the 28th I went to Dunedin, to his office, to see him. I pointed out to him the position I was in, Mr. Rich not being there, and my supply of coal being cut off. We had been getting some thirty or forty tons a day out of that part of the mine where he had allowed me to work. I got permission from him then to work at certain places—to still continue until Mr. Rich's arrival.

70. And what about the pumping?—To keep pumping.

71 You were to work, not in all the places he had originally indicated?—It was in another place in the same district—just to the north.

72. What was the next step?—We worked on until the 19th March. I got a note then to say Mr. Rich had arrived, and would meet him at my office at the mine.

73. Did that meeting take place?—Yes.

74. What passed then?—I went through the whole of my objections to stopping the mine; the results that would accrue from letting in the water; and Mr. Rich heard them, and agreed with me; but Mr. Binns was positive in his instructions to have the mine closed, and Mr. Rich at last turned round and said, "I suppose we have no alternative but to do as the Inspector orders, and you will have to do it." That was acting under his instructions in the letter of the 24th February to close. Mr. Binns said to me that he would feel obliged if I would act on his letter, and withdraw all the men. I then withdrew all the workmen, and kept the pumps going until I had taken out all the plant, up to the 30th March. I then stopped the pumping, and allowed the water to rise.

75. On the 19th March, when Mr. Rich was there, was any reference made by Mr. Binns to the license under which you worked?—I do not remember. I could not state the conversation that took place. There was conversation about the license. The mine was working up to the time Mr. Rich, as the owner of the mine, told me I was to do as the Inspector said.

76. By the end of the month, you, having kept the pumps going, had got out all the plant?—Yes.

77. And then you withdrew the pumps?—Yes; they were the last thing to take up.

78. Then the water continued to rise?—Yes. On the 27th March, before I withdrew the pumps, Mr. Cox came He said he would not go through the whole of the workings, as Mr. Binns

had already given his decision. I had to put a plank in one of the levels where the water was rising. I called Mr. Cox's attention to how the bottom of the floor had risen in some parts 2ft. in seven days where the water was soaking.

79. What was that due to?—The water being allowed to be on the floor. I asked Mr. Cox to give an opinion as to the wisdom of letting the water in, and he said that, as Mr. Binns had already given his opinion that the mine should be stopped, he would not interfere with it, as he was only there once a year.

80. Was there this swelling of the floor while the mine was kept dry?—No.

81. Have you had any difficulty with the roof so long as it was kept clear of water?—No. There may have been a flake off the first part of the roof of a foot or two; not more than that.

82. As to the result of the flooding, will you describe to the Committee concisely and briefly the gradual effect of this flooding upon the mine?—About a month after the pumping had been stopped I made a careful inspection. I found that the water was touching the roof. As it rose up the incline shale and sandstone were coming away in large bodies, falling down in pieces of from 2 to 6 or 8 feet thick. I called Mr. Rich's attention to it.

83. Did you go frequently through the mine while the water was rising?—Yes.

84. What effect had it upon the floor?—The floor was swelling and lifting, and the roof and floor, in a manner of speaking, were coming together. About a month after, I again called Mr. Rich's attention to it—the falls were getting worse as the water rose and spread through the different workings—and again in June.

85. How far had the water come then?—About two chains up the mine.

86. What was the total distance to go?—Nearly seven. Mr. Rich then asked me to write to him officially. I told him that, even then, if we were allowed to pump the water out the damage might be stopped, because it was in the lower parts of the mine where the water had spread.

87. Do you know whether that letter was forwarded to the Government?—Yes. [Letters of 30th June (Williams to Rich) and 5th July (Rich to Minister of Mines), marked G and H, put in and read: *vide* Appendix.]

88. Did you observe anything after that with reference to the operation of water in the mine?—Whenever I saw Mr. Rich or wrote to him in Auckland I always called his attention to the increasing danger. The higher the water rose the more danger there was.

89. What was the danger you referred to?—Of the water breaking away the roof until it would break up to the sea and destroy my lower working. I could see that in a very short time, as the water rose, the roof would break and let the sea in, and it would then be impossible to work the lower seam.

90. You wrote that letter, and it was forwarded by Mr. Rich on the 5th July. What was the next step?—There was no alteration. This district still filled with water. The water still rose. Mr. Rich put in this application, and I understand it was refused. The water was still rising; and on the 20th August Mr. Binns inspected the mine and was down to the water-level, and I called his attention to the damage that was being done; and his answer to me was, "The sooner it is filled up the safer it will be." Mr. Denniston had been engaged by the company just before this to examine and report on the mine, and to give his opinion as to the damage being done by the water.

91. Did Mr. Binns give any reason for his statement that the sooner it was filled the safer it would be?—The old reason, that the water was a support to the roof, although he could see that the roof was coming down in large flakes.

92. When had he first advanced that reason?—In the beginning of the year, when he first spoke about stopping the workings.

93. Did anything further occur then?—This went on till February, 1884, till the water rose against the dams. The higher it rose up the incline the less space it had to cover, and it rose faster. I put in the dams, and they were inspected by Mr. Binns, and considered perfectly right.

94. At what stage did you put in the dams?—The dams were a long time putting in. I did not finish them until some time in October.

95. The water went on rising until what month in 1884?—February.

96. What occurred then?—The water rose against the dams, and the measures round the dams leaked so fast that the water was going down the shaft to the lower-seam workings. The dams were in themselves comparatively tight, but the water forced its way all round the dams and outside the concrete they were placed in. Mr. Binns came to the mine on the 11th February, went down the shaft, saw the quantity of water that was coming in, and came back and gave me an order to withdraw the whole of the men from the lower levels. He stopped the whole workings of the mine.

97. Was that order verbal or in writing?—Verbal first, and in writing before he left the mine.

98. You did not dispute the propriety of that order?—I did not dispute the order because I had pointed out to him twelve months previously that this would happen: that his action in forcing me to put the water in the submarine workings would eventually ruin the whole of the workings.

99. At the time he ordered you to withdraw all the men from the lower workings there was an actual necessity for that step?—Yes.

100. And it was in exact accordance with your own predictions, and what you had always argued to Mr. Binns would be the result?—Yes.

101. Have you anything further to state with regard to this incident of the final closing of the mine?—That stopped the whole of my operations.

102. Besides having been a mine manager, you have had something to do with surveys of mines, have you not?—I have done my own surveys at Kawakawa.

103. And you are familiar with the subject?—Yes.

104. This seam had been worked seaward for how many years before it was closed?—I started to work seaward in 1881. I started to prospect and to put down a drive to prove the coal. I did not largely open up and work the coal until 1882.

105. Do you remember an occasion in 1882 when you showed the Inspector the timbering of some bords?—Yes.

106. On which side of the district was that?—The south side.

107. What had been done there?—I had retimbered some bords that had been stopped working.

108. Did he express any opinion on that course?—Yes; he thought it was perfectly safe at that time. Work was slack at that time, but was brisk on the West Coast, and some of the men, to save giving a fortnight's notice, got up a report that they heard the sea; and, when a man says to the mine manager he is afraid to go down, there is no option but to give him his money. These men had told Mr. Binns this at the West Coast. I had a telegram from Mr. Binns, asking me to bore holes ahead of my workings, and asking me what steps I was taking to prepare against an irruption of water by a fissure. I telegraphed back that I did not understand his telegram, that I had no fear of any irruption of water. After these bords were stopped he expressed an opinion at one time that it would be better if some more props were put in. I did so, and he was perfectly satisfied that this was a good piece of work for a long time.

109. Was there any foundation for this suggestion that they could hear the sea?—None at all. The same men, some three, four, and five months afterwards, came and worked in the same part of the mine, but farther down under the sea than they worked before. One man in particular: I said to him, "Why are you back here: I thought you were afraid to work under the sea?" He laughed, and said, "There are more ways of fear than one; I only wanted to get away."

110. Who made the surveys from time to time in your upper-seam workings seaward?—Mr. Bishop, mechanical engineer and surveyor, and Mr. Taylor.

111. Which side did he survey?—Principally on the north side.

112. What do you know about Mr. Bishop's competency as a surveyor?—No more than what I saw of his work at Shag Point. I found it as a rule correct; but on one occasion I found he had placed the position of one working-place wrong. I called Mr. Binns's attention to it on the plan.

113. And that was the only instance of inaccuracy you know of?—Yes.

114. Was his work generally accurate?—Yes.

115. Was any complaint ever made of it by Mr. Binns?—Never.

116. Under what credentials did Mr. Bishop come into your service?—He was recommended to me by Mr. Binns.

117. Then, as to Taylor, was he a competent surveyor?—Yes.

118. On which side of the district were his surveys made?—On the North side.

119. Have you found his surveys accurate?—Yes. After Taylor left, and went home to England, Mr. Denniston was appointed surveyor, and had to go over Mr. Taylor's survey in the lower-seam working,s and found it was perfectly right.

120. Mr. Denniston is a mining surveyor of considerable experience and reputation: had he any work?—Yes.

121. There is one matter I think, I omitted to refer to, and that is, with reference to some suggestion of falls on the north side?—The seam where these falls took place was split, the principal split was 3ft. 6in.

122. The principal seam is there divided in two?—Yes.

123. Does that split imply anything as to the stability of the seam?—No; because the cover is the same over the top of the split.

124. It is not a fracture, but a dividing of the seam into two?—Yes; a wedge of sandstone coming in between.

125. You say the thickness of the seam was 3ft. 6in. to 4ft. Supposing there were falls there, would that have had the same significance in a seam of that thickness as in a thicker one?—Decidedly not.

126. In what way is there a difference?—The measures would choke themselves much sooner.

127. In the former examination some reference was made as to the loss sustained?—Yes; I said from £15,000 to £20,000.

128. In what way do you say that heavy loss has been sustained?—In the loss of the works. We should have to sink new shafts; in fact, commence the colliery again.

129. Have you made any estimate as to what that would cost?—I said that the two shafts would cost about £12,000, and the drives about £3,000.

130. Before you could get them into fair working order?—Yes.

131. Where is the plant lying now?—At the shafts which are abandoned.

132. There is an actual loss of coal that is all ready to be opened out in the upper and lower seams?—If we sunk again we should lose a rib of coal three chains wide, and I think sixteen or seventeen chains long.

133. Was there much of the coal ready to be opened out in the lower workings?—Yes; we never opened up right to the dip of the present submarine workings.

134. Was there coal ready to be taken out of the upper workings?—Yes; these upper workings were going on.

135. You were engaged in the lower seam and in the submarine drive of the upper seam: had you in both these seams coal you were putting out?—Yes. Of course the work had arrived at such a stage that we should have been in a position to put out more coal every day. We had not long before completed the new plant in the lower seam.

136. And you were in full swing of work at the time?—Yes.

137. *Mr. Reid.*] While your memory is fresh on the subject, I will ask you as to the question of damages: you say you made no estimate of this damage?—No detailed estimate.

138. Your calculation, then, on the amount of damage is purely problematical?—I do not say that I have taken out quantities. We put down the depth of the shafts, and the probable cost.

139. And what did you reckon that at?—The probable cost of working?

140. The probable depth of the shaft?—From 500ft. to 600ft.

141. At what end of the mine did you propose to sink the shaft—the north or the south?—It was immaterial which end, the depth would be the same.

142. When you estimated the damage, you surely fixed in your mind's eye what would be the cost of sinking a shaft, its position, and what would be the cost to put it into fair working order? How did you arrive at it? Did you fix any point at all?—It would be the same at the north end as the south end. The distance of the coal would be the same, and the measures would be the same.

143. You did not decide which end you would put in a drive: you estimated roughly that it would require to be sunk 500ft. or 600ft.?—Yes.

144. Would the driving be the same at either end?—Yes.

145. What did you estimate the cost of driving?—£3,000.

146. The sinking of the shafts and timbering them before you reached the seam would cost?—About £12,000; two shafts of 1,200 feet of sinking.

147. Would not a shaft of 270ft. reach it?—No.

148. What is the depth of the present shaft?—270 feet.

149. How do you come to double it?—We should have to sink down to catch the coal-seam at a lower level.

150. Would not the seam be the same?—Yes; but the working could not be done in the same way.

151. Would you explain how it could not be got at?—I should have to go into a lot of technical explanations. This was for the better working of the mine. It would cost as much to put down a shaft of 270ft. and drive in upon it as it would a shaft of 600ft. The other way you would have heavier expenses in pumping, as you would have to lift the water up an incline.

152. Could you not sink at the same depth you have done now, and open up? How are you working by your present shaft?—I am only working to the rise from the present shaft. The coal comes down to the shaft; but my submarine workings have to go down to the dip for the coal.

153. But you could reach coal at less sinking—at 270ft. on the rise?—Yes; but that would not open up coal. The coal lies to the dip, and the reason for deeper shafts is to avoid the flooded submarine area.

154. It would enable you to get at the coal in the way you were doing?—Yes; but we could not open up any quantity of coal.

155. Is your present shaft, 270ft., not to the rise?—That is, to the lower seam.

156. You estimate that in no case could you possibly get at the coal without sinking 500ft. or 600ft.?—No.

157. And that, you say, would cost £12,000?—Yes.

158. But you could get coal at a much less depth of sinking?—I could not get coal that I could work.

159. Why could you not get coal at a less depth?—Because we should have to go outside this large area, which is flooded.

160. Did that £12,000 include machinery?—The machinery would have to be shifted.

161. You took into consideration the machinery in that £12,000?—Yes.

162. You are part owner of the mine?—Yes.

163. What does the company consist of: how many shareholders are in it?—Two.

164. Mr. Rich and yourself?—Yes.

165. The reason I ask you is, because you used an expression in another part of your evidence—"the public to whom the mine belongs"—who holds the lease that you are working?—The company.

166. From the Government?—No.

167. Who holds the original lease of the land?—Mr. Hutchison.

168. Do you know what amount he pays?—£20 a year.

169. And the company pay Hutchison how much?—£350 per annum.

170. Is that still going on?—Yes.

171. Have you taken any steps to relieve yourself of the burden of that lease—have you communicated with Mr. Hutchison?—No.

172. How long have you got to run?—Fourteen or fifteen years.

173. What do you consider the value of that lease?—Nothing, unless money can be got to work it.

174. You have still got a liability standing of fifteen years at £350 a year, and you have taken no steps to get rid of it?—If we gave it up we should have to give up all we spent on it.

175. You have no desire to relinquish the lease to the original lessor, Hutchison?—No.

176. Have you made any arrangement for reopening the mine yourself?—No.

177. Not the slightest?—No.

178. Is there any one in charge of the mine, looking after the property?—Yes; the underground manager, Mr. Kenyon.

179. What salary is he drawing?—Nine shillings a day.

180. Did you not sink a shaft in April in a different part to your present shaft—to the north?—No; I opened up an old shaft.

181. What was your object in opening that up?—To prove the seam that had been cut in the shaft.

182. Did you succeed in proving it?—In proving it was unworkable.

183. Have you made any arrangements about carrying on the company?—There are no arrangements made up to the present.

184. Have you made any negotiations at all for carrying on the company, either for forming a new company, or carrying on the present company?—There are no negotiations for carrying on the company, or for starting a new company.

185. For carrying on operations?—No.

186. You are simply laying back on your oars to see the result of the petition?—There is nothing doing.

187. What was the amount of the daily output of the mine at the time the hands were taken off?—On the last day it was 125 tons.

188. But the average for some months before—for a month, what would be an average?—We were putting out some months before that 80, 90, and 100 tons.

189. Have you any of the returns with you?—No; but Mr. Binns would have the yearly returns.

190. Can you speak as to what the last yearly return showed?—I did not bring it.

191. Can you not speak from memory?—No.

192. Speaking roughly, how many tons were there for the year?—I think about 14,000 tons.

193. Can you say, from your own knowledge of the returns of the mine, whether it paid expenses for the last year, or whether there was a loss?—It was worked at a profit.

194. Do you know how much?—I cannot speak from memory.

195. When did you become a part owner?—In 1878.

196. You were a partner when the first year's returns were to hand, but you cannot speak roughly as to the amount of profit made?—No.

197. Did the question of profit or loss concern you?—Yes.

198. You cannot remember the amount of profit?—No.

199. Not roughly?—No.

200. Among whom were the profits divided?—Among the shareholders.

201. Who were the shareholders the first year: were they not Mr. Rich and yourself?—Yes, and some others.

202. How many do you think, speaking roughly?—Seven, I think.

203. Do you remember whether the second year you made any profit?—As nearly as I remember, the second year there was something over £2,000.

204. Divided among seven?—There was no division.

205. It was simply carried to the credit of the company?—Yes. The only division amongst the shareholders was a sum of £800. That was actually paid.

WEDNESDAY, 1ST OCTOBER, 1884.

Mr. JAMES LOUDON, examined on oath.

206. *Mr. Chapman.*] Mr. Loudon, what are you?—A colliery manager.

207. Where employed?—At the Walton Park, Green Island District.

208. The Walton Park Colliery is owned by a company carrying on business in Dunedin?—Yes.

209. How long have you been managing that colliery?—I have been carrying it on for about twenty years: eight years on my own behalf, and about eleven on behalf of the company.

210. Do you know the Shag Point Mine?—No; I never was there.

211. Do you know anything of the character of the strata there?—I have seen the sequence.

212. From plans?—Yes.

213. You do not know the actual character of the strata from examination?—No.

214. Have you had any experience in connection with standage water getting into a mine?—No, not to any extent; but I know the effects water has upon the strata.

215. Have you heard described the mode in which the seaward workings of the Shag Point Mine have been flooded with water?—Yes.

216. I ask you to assume that water has risen in the mine?—I am aware of such from newspaper report, nothing else.

217. From your knowledge of these matters, what do you consider would be the effect of water accumulating in a mine—upon the roof and floor?—It would dissolve the shales, and, in all likelihood, bring a creep from the workings. I may say that often moist air affects the shales and the walls. A trickle of water, or moist air alone, will cause, from the roof, shales to flake off and fall rather much, and in side walls it will cause it to bulge out; and a very slight stream on the floor, as I am too well aware, will cause it to heave.

218. You say that the effect of water is to dissolve the shales and cause a creep?—Yes; reduce it to not much better than clay puddle.

219. Will you tell the Committee what a creep is?—It is a subsidence caused through the settlement of portions of the coal remaining. This shale is rather a hard compact body whilst it is being cut, but immediately it is exposed to moisture it loses its strength and becomes not much better than puddle.

220. And what is the effect of keeping it dry after it has been cut?—If you keep it dry very little hurt can come over it.

221. Does it stand?—Yes; except, as I say, that moist air will affect it.

222. I need scarcely ask you your opinion, as an experienced man, whether you would fill a mine with water in order to keep the roof upstanding?—No; that would be the last thing to do, although it should cost nine-tenths of the profits of the concern. I would say keep it dry.

223. Do you know Mr. Binns?—Yes; well.

224. Do you know him as a gentleman of large experience in these matters?—I do not know anything about his experience. I have always found him a very amiable and agreeable gentleman.

225. In your own mine, do you find any great difficulty in keeping the roof up?—Yes; just now we have had a great deal of trouble. As a rule, to save coming in contact with the shales, we keep a portion of coal on the roof and also a portion of coal under foot, but, in driving, we cannot avoid sometimes cutting the floor of an undulating seam. That is always avoided, if possible. I always look on it as running a certain amount of risk in doing so. Just recently—the job is not completed yet—we have been driving, and it has given us a great deal of trouble, and has cost us £250 for timber alone; and, I may say, we are going to lose it after all just on account of salt-water, and

that is brought about through a mere trickle of water: it is scarcely observable; you can simply see it oozing out of the wall.

226. You say you avoid cutting the shales: I suppose you have another source of danger in fire, have you not?—Not of late years. We had a source of danger from fire when we could not dispose of any of the waste, but not since we have been able to dispose of a portion of it.

227. Does it make any difference in the amount of difficulty you have with falls, whether the seam is a thin one or a thick one?—The thicker the seam is, and the more coal you take out, the greater difficulty you have with flood; that is, it will be much greater before it chokes itself.

228. When it does occur it is far more serious in a thick seam than in a thin one?—Yes; because it takes so much more to choke itself.

229. Supposing a fall occurs in a cut through a seam 3ft. 6in. to 4ft. thick, how would you compare the difficulty arising from that with a fall in a seam 7ft. thick?—To put it at the very least, it would not be half.

230. *Mr. Reid.*] You have had no experience of submarine working, I understand?—None whatever.

231. Can you tell us what would be a safe thing to adopt as to the size of pillars in a submarine working, where there was an overhead cover of about 117ft. to 200ft.—the overhead strata being sand and a hard belt of sand above that?—What is the thickness of the hard belt of sand?

232. A hard belt of 18 inches?—I will give you my experience at Walton Park.

233. In this particular mine, could you give us what would be a safe thing to leave for pillars to support that roof?—I should say it would be quite safe to leave pillars, say, 15ft., 16ft., or 17ft., thick.

234. You would not reduce the pillars to less than 16ft.?—I think it would be unwise to reduce below 15ft. It often occurs in a mine that there are thin places in a working. A pillar might be in some places 18ft. or 20ft. thick, and a hundred yards ahead only 10ft. or 12ft. Take an average, I should say, 15ft. thick.

235. You would not allow the pillars in any particular place to attenuate to 18in.?—Not by any means.

236. Nor to 6ft., if you were aware of it?—It would not be advisable at all, unless it was for a very short distance—a few yards—which does occur in the best coal mine.

237. Would not a body of water allowed to flow up to the level of the roof—would not that, by hydrostatic pressure, support the roof?—I do not see that it would have any great effect, unless you confined the water.

238. Allowing it to flow to the level of the roof, would not that, by hydrostatic pressure upwards, support the roof?—I do not think it would support it to any extent. The shales are so many times heavier than the water, and would certainly fall away.

239. Have you ever heard of water supporting the roof in that way in coal mines at Home?—I do not think it would support it to any extent unless you could confine it.

240. I am assuming that the water has reached the roof and is allowed to stand there—when it has filled to the level of the roof, and has filled all the under-ground workings—would it not be sufficient, not only to support the sides and the walls, but the roof itself?—I do not think it would to any great extent at all. I think the shales would wear away and fall.

241. From your experience as a miner, have you never heard that theory asserted that a standing body of water by its pressure upwards would support a roof?—I have never heard of it.

242. You are not aware that English engineers of eminence have asserted that that is so?—I am not aware of it.

243. In a mine of this nature it is usual to have water running over the floor, and which you must pump. Would the action of the water—the ordinary drainage of a mine of that kind—added to the pressure, without allowing extraneous water, help to upheave the floor?—It would have some effect, no doubt, but very little.

244. I understood you to say that the smallest stream of water would operate on and disintegrate it?—Yes.

245. Would it not be a necessity in a mine of that kind that some amount of water should lodge on the floor?—No doubt there would be some; and the manager, no doubt, would do his best to obviate that as much as possible. You cannot avoid it altogether, but the result is just in proportion to the water.

246. Would you, in working, work up to the sand, or would you leave a portion of the coal?—We always leave a portion of coal.

247. You have never seen the action of water allowed to stand for some time in a mine and then taken off?—No, except for a few days; and then the result was very bad. I will give you one slight instance. In driving the original mine at Walton Park, about seventeen years ago, about New Year's time, there was three days' holiday. A quantity of water accumulated during those holidays. In those three days the timber sank into the floor and went all out of shape.

248. The pillars you have in your mine are regular in their size?—Not regular, but as nearly as possible.

249. The greater the regularity of the pillars, no doubt the greater support of the roof?—Yes.

250. *The Chairman.*] About what is the dip at Green Island?—One in nine.

251. *Mr. Chapman.*] Supposing there was hydrostatic pressure of water from below, would that have any counteracting effect, contrary to the ordinary effect of water, in softening the shales, or would the softening go on even though there was pressure?—I should say so; indeed, to my mind, I should judge that, if there was any force at all, it would force itself into the shales all the more.

252. I suppose hydrostatic pressure of water is like any other supporting pressure, it needs to be confined on all sides?—I should say so.

253. Should you expect to see it exerted to any considerable extent if there was a free end or open shaft?—No.

254. **The sand in Walton Park is running sand, is it not, when you strike into it?—The running sand is some distance from the coal.**

255. There is a sand-bar; is it hard?—No.
256. It is not a good roof?—No.
257. Your experience is always to avoid a bad roof, I suppose?—Yes.
258. You see this plan, a portion of which is by Taylor [plan produced: *vide* end of paper.] Supposing this to be the working plan, looking at that, does that appear to be a correct mode of working?—To my mind there is any amount of coal left there.
259. Assuming that to be a copy of the actual working plan, made as the works went on advancing, do you think that that shows a proper working, leaving sufficient support of coal?—Yes.
260. I ask you to look at that [plan produced], and say whether, in your opinion, it is credible that the persons who were surveying from time to time, regularly employed by the company, should be so far out in their surveys as indicated by this?—The difference is terribly great. I should say that the man who made such a difference must surely have had some very strong motive for it.
261. Does it seem credible to you that competent surveyors, employed in a mine systematically for a course of years, should pervert surveys in that way?—No; the difference is so terribly great. In one place it shows plenty of coal left, and in the other there is not enough.
262. Can you credit an experienced mine manager perverting workings in the manner shown there, and having large capital invested in the mine?—No; I do not see what could induce a man to do it.
263. *Mr. Reid.*] Are you aware that Mr. Denniston made a plan of the Walton Park Mine?—Yes.
264. Are you aware that that plan had so many inaccuracies in it that it had to be afterwards altered?—Not so many inaccuracies; only one inaccuracy.
265. It shows it is not unusual to make mistakes in surveying a coal mine?—There was only one inaccuracy of which I am aware.
266. Look at that plan [Twining's]. Have you any knowledge of him as a surveyor: have you seen his work?—Yes.
267. Is he usually correct in his work?—Yes; his outside work is correct, but he does not detail the work as much as Denniston; that is to say, he does not give the inside work as well. It is done in a much simpler manner.
268. Is he a man whose word you could rely on as to the size of a pillar or bord on a special survey?—Yes; I would take his word most assuredly, if he said he measured it.
269. Where he shows inside or other work and certifies it, would you have any hesitation in accepting it as correct?—When he prepares a plan for us, there are many inequalities in the thickness of the pillars; instead of showing the inequalities he shows a direct line. But he is a most correct surveyor in showing the outside.
270. What he does show on a plan he shows correctly?—No; he does not show correctly when he makes a straight line, where there are irregularities.
271. From your experience and knowledge of him, would you take a plan as correct if signed and certified by him?—If he gave me to understand that he did it for a special purpose. He has plenty of ability as a surveyor.
272. You do not think, from your knowledge of him, that he would show a plan of that kind—the workings altogether different from the real state of the mine—merely for purposes of his own?—I think not.
273. Assuming this plan to be correct, and assuming yourself to be in the position of the Mining Inspector, would you have any hesitation in directing the mine to be closed?—I would not say I would have no hesitation, but I would have some fear.
274. For the safety of the men?—Yes.
275. *Mr. Chapman.*] Supposing for a moment you pronounced it unsafe and ordered the work to stop, would you fill it with water?—That would be the very last thing to do.
276. What would you do to uphold the roof here, supposing that the pillars were worn too thin?—It might have been the best plan to have packed it from outside, to have taken out the trees, and come back and allowed it to settle down on that pack; but at all events keep it dry.
277. Supposing you had discovered an actual error of 5ft. or 6ft. in the width of a bord shown in a field-book, should you consider that an accurate survey?—No; it would throw doubts on the whole surveys. And they do make mistakes sometimes, the best.

Mr. R. B. Denniston, examined on oath.

278. *Mr. Chapman.*] What are you, Mr. Denniston?—Mining engineer and manufacturers' agent.
279. What experience of coal mines have you had in this colony?—Twenty-two years.
280. Do you know the principal mines in the colony?—I know them all.
281. How are you engaged just now?—As a mining engineer and manufacturers' agent.
282. Advising several companies?—Yes; the Kaitangata, Walton Park, Shag Point, and occasionally the Westport Coal and Coal Pit Heath Company.
283. I believe at one time you occupied an official position in this colony?—Yes; Coal-viewer under the Geological Department.
284. What were your duties?—To inspect all the collieries throughout the country, to make surveys, and to report generally to Dr. Hector.
285. Was there an Inspector of Mines at that time?—No; I filled that position as far as regards the Geological Department.
286. Do you know the Shag Point Mine?—I do.
287. Are you familiar with all the workings?—Yes.
288. When did you become acquainted with the seaward workings in the upper seam?—About June or July, 1883.

289. What was it caused you to give your attention to that?—The company sent for me to report upon the workings.

290. Did you go through all or most of the workings?—I went through as much of it as was not flooded with water. I thus got through three-fourths of it: within about a chain and a half or two chains of the deep part of the workings: within two chains of the lower level.

291. This particular drawing on the wall is prepared by you, is it not?—Yes.

292. As some reference may be made to it, will you tell the Committee from what sources it is prepared: it does not exhibit surveys of your own?—This survey is the copy of a survey made by Mr. Bell, of the Public Works Department, who took all the soundings.

293. The soundings, rocks, and contour of the shore are taken from a survey of Mr. Bell, of the Public Works Department?—Yes.

294. The further inland portion of the working is taken from your own surveys under the Geological Department?—Yes.

295. The seaward workings of the upper seam are taken from that source?—Part from Bishop's survey, part from Bell's survey, and part from a survey made by Twining on behalf of the Government.

296. The dark shading represents falls as represented by Mr. Twining's survey?—Partly.

297. All these workings marked upon it, you do not vouch for their accuracy?—No.

298. What does the red indicate?—A lower seam of coal below that marked black.

299. The lower seam you surveyed yourself?—A portion of it.

300. With what object did you survey it?—I was instructed by Mr. Williams to bring forward the plans up to date.

301. When?—I think about March, 1884.

302. Mr. Taylor, the surveyor of the company, had left, and you were asked to carry forward the survey to date?—Yes.

303. Had you occasion, in bringing the lower seam-survey to date, to examine Mr. Taylor's work in connection with the portion of the lower seam that was already plotted?—Yes.

304. Had you occasion to check it?—Yes; I found Taylor's work correct. I think there were only some two or three links between us.

305. You would judge, from what you found, that he was a competent surveyor?—Yes; I think it came in very well.

306. Have you looked at his plan of the seaward workings of the upper seam?—No.

307. When a surveyor is kept at the mine, it is his duty to put in the workings from time to time as they are carried forward?—Yes.

308. About how often?—About every three months.

309. Supposing that had been done here [indicating on plan], what would you say as to the propriety of the workings shown here—I mean with regard to leaving support?—There is ample support left there.

310. I would ask you just to look at this, having that in your mind [plan produced]; can you see what difference there is between these two plans?—Yes.

311. Can you suppose this is made correctly from the same survey, supposing that to be correct?—No; I know this is wrong, because it is an exaggerated survey. Everything is exaggerated about it. I think I have stepped several of these bords on the south side, and found them only 16ft. The way this survey is made up is: that in driving bords men are limited to a space by the mine manager of 16ft, while men in driving have a trick of always eating and widening out. If left for a few hours they will perhaps be 2ft. too wide, until the oversman brings them in, which he would do during the shift. It has been carried on in an apparent spirit of vindictiveness to make the very worst of everything.

312. That is your deliberate judgment?—Yes.

313. You have checked that by pacing some of these bords?—Yes.

314. The wide places have been carried forward through the plans?—Yes. In fact, Mr. Taylor told me that while the survey was going on he drew their attention to one or two places, and they gave in in one or two places.

315. You always find in the walls of bords a certain amount of irregularity?—The usual way is to take the average.

316. You are an experienced mining engineer, and have had mining management yourself, and have also done surveys, and you say you went through these workings?—Yes.

317. Did you satisfy yourself on the subject of the sufficiency of the pillars?—Yes; I did, and reported on them.

318. Can you say, speaking generally, whether this plan, signed by Twining, fairly represents the pillars from the point of view of their sufficiency?—No; it does not represent the average: it is exaggerated.

319. To what extent did you find actual error in the represented width of the bords?—I found the bords averaged about 16ft., all that I stepped.

320. Is that a proper width?—Yes.

321. What was the thickness of the pillars left in that way?—From 25ft. to 30ft.

322. You examined the upper seam carefully on this occasion, I understand?—Yes.

323. What did you find to be the state of affairs there?—I found the water to be up in the workings within about a chain and a half above the lower level.

324. Did you find that the water had had any effect upon the measures?—It had swollen the shales, and there was mud about a quarter of a chain in advance of the water. Pillars, in the instances I saw, in places, had sunk about 1ft into the shales, leaving the roof no support at all. It was caused purely by the water lying there.

325. What are your views on the subject of letting water into a mine where the shale is of this character?—It is ruin to any mine.

326. Something has been said about the mechanical effect of pressure of water—hydrostatic

pressure exercised on the roof?—It does not apply in this instance, because the water was constantly flowing up, and not confined. It has had no upward support to the mine at all; and, even if it had, there is the fact of the existence of the shales, and the shales dissolving and wearing themselves into mud. If the water was confined the same effect would take place, because the shales would soften and fall down. It would have no effect as to holding up the measures.

327. Was there, in fact, such a confinement of the water?—No.

328. Do you know when Mr. Cox visited the mine?—Yes.

329. Did he express any opinion to you?—He expressed an opinion the way matters had been put to him. When I put the matter before him he agreed with me as to the action of the water in the mine.

330. Its action upon the shales?—Yes.

331. I think you say in one portion of your report that, if Mr. Binns's survey was correct, you agreed with his action in closing the mine, or something to that effect. [Reports read: *vide* Appendix J and K.] In that report, where you appear to agree with Mr. Binns as to stopping all workings, I understand that you nowhere agree with him as to the propriety of putting water into the mine?—Certainly not.

332. Where you refer to the subject of falls, and the dangerous state of the mine as shown by this plan, what have you assumed as the thickness of the seam?—Ten feet.

333. If you ascertained that the seam was 3ft. to 4ft., do your remarks still stand?—No; they alter.

334. Where a fall is 3ft. 6in., and has been worked, any fall in it fills up and runs out so soon that it is safer down than up?—Yes.

335. Supposing you found in a mine something like the state of affairs shown on that plan, and had to uphold the roof, and as you have already told us you would not do so by letting water in, how would you uphold the roof in those circumstances: what orders would you give as Inspector?—As far as it affects the north side I would have taken the coal out and let the whole down; on the south side I would have most probably stowed (where the coal was thick) all the bords with waste material, leaving the main-dip heading free, so as to keep water pumped out.

336. With packing of some sort?—Yes; leaving one roadway clear, so as to pump and keep it dry.

337. Supposing you had to run a tramway through part of the working; supposing those 3ft. workings were falling through the falling of the workings, what plan would you take to support the right and left?—Brick it all the way, or use very stout timber: close-lathed roof, floor, and sides.

338. You have heard your reports read: is there any further explanation you would like to make upon those reports?—The only explanation I want to make is where I said I agree with the Inspector. You would see, from the tenor of the former report, that I totally disagreed with him as to the effect of the water. I agree with him in his report so far as he considered the work unsafe; that he did perfectly right in drawing the men out and stopping the workings. The first report was written before the water had come in, and this was written for the company after the water had come in.

339. Do you know Mr. Williams as a mine manager: do you consider him a competent manager?—Yes; I have known him for ten or twelve years, I think.

340. Did you know him at Kawakawa?—Yes.

341. I ask you, with your knowledge of Mr. Williams, can you conceive a man, having his own capital embarked in a mine, leaving pillars in the condition he apparently left these?—No; I do not think he would do it. I know the man, and I know he would not do it.

342. When you are working through these shales you say in any case they are always to be kept dry?—Yes.

343. Supposing they are drained and kept dry, how do they stand?—Very well.

344. Do they deteriorate with age?—They flake off a little, if the air is moist.

345. Do they soften?—No; if you keep the water away.

346. Have you come much in contact with Mr. Binns?—Yes; since he came to be Inspector.

347. Do you regard him as a gentleman of great experience in these matters?—When he took the office he had no experience: I proved it. When he visited the Westport works I could see, by the action he took and the way he did it, that he knew nothing about the work. I told him so at the time.

348. Have you had occasion to check Mr. Bishop's surveys in this mine?—No.

349. *Mr. Reid.*] I understand that, in preparing that plan, you took part from Bell's, part from Taylor's, and part from Twining's, and the other was made up from surveys made up by yourself?—Yes.

350. Is that the plan of Twining's from which you took?—Yes.

351. That is the plan you used to insert upon, that plan on the wall?—Yes; as far as the submarine workings are concerned.

352. Why did you take them from Twining's plan?—To strike a sort of general average between the two plans.

353. Are the measurements shown on your plan the exact measurements of Twining's?—Within a trifle.

354. You said that Twining's plan was carried out in a spirit of vindictiveness, to make the worst of everything?—Yes.

355. That being so, how was it you came to take part of that plan and stick it on this plan?—I was anxious to make what I considered a sort of general average from both plans.

356. If you thought that plan, at the time you took it, was unreliable—that it was carried out in a spirit of vindictiveness, to make the worst of everything—how was it you came to use it on your own plan?—Just to strike a sort of fair average on the whole thing.

357. You wished to give no guarantee as to its correctness?—It is an average of the two. I considered the way those workings stood, even on Twining's survey, and even with his exaggerations, that the pillars on this portion of the work were ample to withstand any pressure from the water; therefore I put it on. Mr. Binns, having taken the precaution to let the water in here, apparently was afraid to allow time for other people to be appointed by the company to inspect.

358. Are you on good terms with Mr. Twining?—Yes; I do not think he is a man I have passed half a dozen words with in my life.

359. Have you any opinion as to his abilities?—I do not know anything as to his abilities.

360. If you know nothing about him, why do you say his surveys are carried out in a spirit of vindictiveness?—From Binns's and Twining's behaviour.

361. We are not talking of Binns?—When you talk of Twining you must talk of Binns. When you talk of one man you talk of the other.

362. What experience have you had of submarine workings?—None of submarine workings; though I have been connected with works with large swamps over head.

363. Do you know when Mr. Twining's survey was made?—Some time in 1883.

364. How long afterwards was it you made your survey?—I made mine in July, 1883.

365. You say there were one or two inaccuracies in Mr. Twining's plan that were pointed out, can you state what they were, or whether they were corrected?—He showed the pillars thin, and the bords wide. I stepped the bords and found them the ordinary width, 16ft.

366. Was that in one or more places?—In a dozen instances.

367. How long was it after the survey was made that you stepped the places?—July 1883; I do not know when the survey was made.

368. Had the work been going on to your knowledge between the time of Twining's survey and yours?—Yes; there was a little work going on the south side by the extension of bords.

369. In the part that you examined?—In the extreme south parts I examined.

370. Would it have been possible for the men, working in the places you saw them, within the space of four months to have widened the bords?—No; they would not do that.

371. You saw Mr. Cox with reference to his report on the mine?—He called on me.

372. Was that after he had been to visit the mine?—Yes.

373. Had he written his report then?—No; not that I know of.

374. Have you seen Mr. Cox's report?—Yes.

375. I understand you to say that, after you had spoken to him, he expressed a very different opinion to what he had before, and, the report having been written after he saw you, I presume he wrote it upon what he had heard from you, as well as from his knowledge of the mine?

375A. The report does not look like that. [Mr. Cox's report read: *vide* Appendix I.] That report was written after Mr. Cox had spoken to you. Did you discuss the question of the influx of the sea with him?—Yes.

376. How long have you known Mr. Cox?—Ten years.

377. Would pressure from the overhead covers upon the pillars raise the fireclay floor round the pillars?—Of course it would.

378. Pressure on the pillars and the effect on the floor—apart from water being allowed to accumulate—would it have any effect in raising the floor if the water was not in?—If there was no water in, the shales might swell with dampness.

379. Would not that of itself raise the floor?—Yes; that would raise the floor a little bit, but it would choke itself in its own thickness if free from water.

380. And would eventually rise to the roof?—Yes; and be all the better for it.

381. That is when it is dry?—That would be the effect where water was excluded.

382. What did I understand you to say the average of the pillars was: did you take an average?—No; I said I found them 15ft., 20ft., 25ft., and, I think, 30ft., some of them.

383. You cannot speak as to the average?—I am telling you how I found them; I am not averaging them at all.

384. You say that you were intimately associated with Mr. Cox: what was your opinion of his ability to report upon a case of this kind?—The report is just consistent with my opinion of his ability.

385. You say you were associated with him in the Geological Department. If he is a man of ability that is a very valuable document?—I do not know; I think it is a very great riddle myself, trying to save a brother officer. That is just what I would do myself if I were similarly situated; I would do my utmost to save a brother officer. The last clause of his report says, "If it should be decided;" that shows the doubt that existed in his mind.

386. *Mr. Chapman.*] Do you know what date Mr. Cox called upon you?—No.

387. How long after he had visited the mine?—A day and a half, or so. He had come in the day before.

388. Do you know if he had been into the mine: did he say he had?—He led me to understand he had.

389. Was it before or after your visit?—After; I could not say how long.

390. You do not know whether he had reported at that date?—He had not.

391. I see there are some phrases in Mr. Cox's report which seem to have taken your attention—the last passage—"I fail to see that any definite advantage to the mine is to be gained by keeping the water out of the present submarine workings; and in the event of it being settled that these are themselves unsafe"?—That shows the doubt in his own mind.

392. That it was not a decided matter?—He could not decide.

392A. "It is evident from Mr. Binns's report that he had no idea of allowing the lower seam of coal to be worked below the area which it is proposed to shut off from the main shaft by dams, as he gives instances where a greater cover than would exist between the two seams have proved unsafe, and resulted in accidents and loss of life." Do you see there that Mr. Cox at that date assumes that Mr. Binns was, in reality, closing both the upper and lower workings?—Yes; but Mr. Binns's correspondence shows he was not.

393. But is it not evident, from Mr. Cox's report, that it was a matter of very little moment whether the water went into the mine or not, seeing that the whole mine, upper and lower, was to be abandoned?—No. Mr. Binns says there is to be 150 feet of cover over the upper seam; no future workings of upper seam to be continued unless present works are flooded with water. Mr.

Binns provides in his correspondence for lower seam being wrought, which shows an inconsistency; 150 feet in one instance over upper seam, and only 80 feet of measures between flooded workings of upper seam and that of the lower seam, which, to any one acquainted with the measures, is unaccountable how he could arrive at same.

394. Mr. Binns proceeded on the assumption that the lower workings might continue, and Mr. Williams pointed out that that was impossible?—Yes.

395. Do you not see that Mr. Cox takes that view?—Yes; you can read it that way. His report is a riddle.

396. *Mr. Macandrew.*] Did I understand it as your opinion of a public Government department that, in their own opinion, they can do no wrong, and that there is a sort of *esprit de corps* to bear out that idea?—Yes; that is the general opinion. If you take Mr. Binns, I dare say he would be of opinion that he is conferring a great favour on the Government of New Zealand by giving his services as Inspector.

397. *Mr. Chapman.*] Do you know what Mr. Twining's employment is?—I think he is employed by the Nightcaps, and, at time of survey, employed by the Kaitangata Coal Company.

397A. Was he employed by the company when he made this survey?—I expect so. He lost the Kaitangata works through some misdeeds of his own.

398. *The Chairman.*] Can you give us the date when you examined this mine?—In the early part of July.

399. Speaking of Mr. Cox's report, do I understand you to say that if you were the head of a professional department, holding a professional status such as Mr. Cox did, you would allow your feeling for your subordinates to override your professional opinion upon any matter that came before you?—He was not the head of a department.

400. He was at any rate a superior: do I understand you to mean that you would do that?—If I was in the same office I would certainly do all I could to save a brother officer.

WEDNESDAY, 2ND OCTOBER, 1884.

Mr. J. H. DERHOM, examined on oath.

401. *Mr. Chapman.*] What are you, Mr. Derhom?—A civil and mining engineer.

402. Where do you reside and practice?—In Wellington.

403. Have you had any experience in coal-mining?—Yes.

404. Where and when?—Twenty years' experience in the Old Country.

405. And any in this country?—Very little in this country. I have visited some collieries and reported on them; but my experience is almost solely in the Old Country.

406. Where have you visited collieries in this country: any in Otago?—No.

407. Have you had any experience of the action of water on shales in coal mines?—Yes.

408. And what has been your experience?—My experience has always been among shales. I had five years' experience working nothing else but shales in the Old Country, and I always found that water softened and swelled and disintegrated them.

409. I suppose that would apply whether it was the roof or the floor?—Yes.

410. Supposing in a coal mine you had to uphold a shale roof, what steps would you take supposing it appeared to be falling?—If it was at all dangerous, the first step would be to pack it as tight as possible; and, if I could spare it, build wooden pillars.

411. Pack it, what with?—Anything to fill it; but I would depend more on the wooden pillars.

412. Would you, under any circumstances, let water accumulate in your mine?—Not if I could avoid it.

413. Would you rely on hydrostatic pressure to uphold the roof?—It would assist in upholding a roof like that of solid sandstone, where there was nothing to wash away.

414. Where it would have no disintegrating effect?—Yes.

415. Under what conditions would you resort to hydrostatic support?—It is a thing I do not much believe in at all. In all mining matters, as far as ever I knew, it was the practice to try to keep out what water we could. We always considered water as an enemy.

416. With reference to that sequence: supposing you had to support a roof above the upper seam, would you in any case resort to water?—I would not under any circumstances if I could avoid it.

417. *Mr. Reid.*] What do you say you are acting as now?—As a civil and mining engineer.

418. Practising?—Yes.

419. Have you had any experience of submarine workings?—Yes.

420. Where?—Scotland.

421. Have you had anything to do with a drowned mine at any time?—Yes. I was in a mine that was drowned out.

422. What cover was there in the case of the drowned mine you refer to?—I saw one drowned out: between thirty to forty fathoms of water.

423. Was that submarine?—Yes.

424. How many feet do you make that?—Two hundred and forty feet.

425. What proportion of coal was left there?—A very small portion, because they were taking it all out.

426. What was the cover like there?—It was pretty good; but they tried to excavate the whole thing on the "longwall" principle, that is, excavating everything as they go; and then it took a break.

427. From your experience as an engineer at Home, do you not know that it is generally considered that water has a sustaining power: that the hydrostatic pressure of water will sustain to a certain extent the roof overhead?—Under certain circumstances.

428. Where water is confined?—Yes; and where it will not act on the floor and on the roof.

429. Do you know what the sustaining power of water is: what is the usual pressure to the square inch?—It depends very much on the body.

430. In a mine of that nature, with a roof of the sequence shown there, would you consider it a fair way of working the mine with a cover of 117ft. to 200ft.?—Some are large, and others are small.

431. Would you consider it a fair average, the size of the pillars and bords in a mine of that kind, with the cover described?—18ft. pillars, and about 15ft. or 16ft. bords, I think would be a safe thing. Less than that I think would do; but that would be very safe.

432. What was the thickness of the coal in Scotland where the sea broke in?—Seven feet.

433. *Mr. Chapman.*] What was the cause of the break in the mine in Scotland?—They thought it had sufficient cover, and went on taking out everything before them, and it took a break. They commenced to have no pillars at all: they thought there was cover enough to do it.

434. Just look at that plan—the working plan: does that show a good mode of working?—They seem good-sized pillars and very regular, and the bords seem not too wide. It seems to me to be carried on in a very judicious manner.

435. Supposing you wanted to uphold a roof, and supposing the pillars were worn down to that (indicated on Twining's plan), how would you uphold the roof?—I would use all the old timber up I could get. I consider that timber supports a roof better then anything.

FRIDAY, 3RD OCTOBER, 1884.

Mr. THOMAS PEACOCK, M.H.R., examined.

436. *Mr. Chapman.*] I believe you are a director of the Bay of Islands Coal Company?—I am.

437. You were a director some years ago when Mr. Williams, manager of the Shag Point Coal Mine, was in the employment of your company?—I was.

438. Do you remember how long he was in the employment of your company?—A good many years: I cannot exactly tell.

439. I would ask you, briefly, whether during that time your Board found him a competent and reliable manager?—They did.

440. On leaving your service, did he leave still possessing your confidence?—Yes, he did.

441. *Mr. Reid.*] What was the nature of the workings of which Mr. Williams had charge for your company: were they submarine?—They were working from the dip leading in various directions, following up the seam of coal.

442. But, were they submarine?—No; they were not submarine, merely under-ground.

443. *Mr. Chapman.*] But there was a swamp?—Yes; but the workings stopped short at the edge of the swamp lest the water should be let in and endanger the mine.

Mr. DENNISTON, re-called and examined.

444. *Mr. Chapman.*] I omitted to ask you about that plan in the corner: does it show the sequence and character of the ground?—Yes.

445. Then, as to this section, taken from the dip of the mine (No. 1)?—No; taken from the depth of the shaft.

446. From Mr. A. D. Bell's survey and soundings?—From the soundings, and the angle of dip was 1 in 4 at the time I was in the mine: I made it 1 in 3, and 2 in many places.

447. That section is taken on the marked line, and the dip on the large plan?—Yes.

448. What would be the cost of reopening this mine, so as to place it in the same position as before the submarine workings were closed?—The minimum would be £20,000.

449. *Mr. Reid.*] With reference to the sequence, did you examine the sequence itself: did you see the strata?—I saw it all twelve or fourteen years ago; I have it all on my field-books connected with Government. I compared Williams's sequence with that: it pretty well tallies; the only difference is the number of the stone.

450. Is that sequence taken from Williams's sequence?—Betwixt and between; the only difference is the number of the stone.

451. Hard stone he has it?—I have had hard burr and shale. His book will explain that.

452. How do you make up your estimate of the cost?—I estimate it upon the cost of sinking the shaft: a couple of drives, and so on.

453. What depth of shaft would you sink?—Something about 700ft.

454. Do you fix in your mind's eye where you would sink the shaft?—I have two or three schemes; sinking in these places they would each be something near that depth; there is one place rather higher than the others; in either of these places it would be about 600ft. sinking.

455. Do you know the depth of the present shaft?—240ft. or 243ft., or thereabouts.

456. Would it not be possible to sink near the shaft now?—You could sink down to the water; no farther.

457. Could you not sink farther to the north?—This is ten chains to the north.

458. Does the depth increase so much as 600ft.?—Yes; then you would have to drive off level.

459. Could you not get farther to the north, and sink a shaft less than 600ft.: I mean, of course, keeping within the boundary?—Yes; keeping within the boundary.

460. What would be the cost of the shaft?—You would have to drive two roadways: the one for driving, the other for air. By the time you opened on the coal the cost would not be much less than £20,000. You have always to guard against water. You do not know what water you will have to contend against.

Mr. Reid, in opening the case for the defendant, said: In stating the evidence in this case I will confine myself to the actual questions at issue, so as to be as brief as possible. The points to

be considered are: Whether the mine, when Mr. Binns inspected it, was worked in a proper way, with sufficient cover to the roof; whether Mr. Binns was justified in closing the mine when he did; whether, in the first instance, the mine was worked in a satisfactory manner; whether the closing of the mine in any way conduced to the flooding of these works. We say that the mine was dangerous; that the letting-in the water did not conduce to flooding; that the water being let in, if anything, aided to support the roof. The fact that the sea actually broke in proved the correctness of the defendant's contention. As the mine was in a dangerous state, we say that our action in closing the mine was the means of saving life.

Mr. George Jonathan Binns, examined on oath.

461. *Mr. Reid.*] What are you?—I am a mining engineer, holding a certificate of competence from the English Government, and a Fellow of the Geological Society of London; I am also Inspector of Mines under the General Government, holding my appointments under "The Regulation of Mines Act, 1874," and "The Westland and Nelson Coal Fields Administration Act, 1877."

462. Do you know the Shag Point Mine?—I am familiar with it.

463. When did you first visit it?—In 1879.

464. In what capacity?—As Inspector of Mines.

464A. What was the nature of your visit on that occasion?—It is so long ago that I cannot recollect; I have notes from which I can refresh my memory.

465. On how many occasions did you examine it previous to April, 1882?—On many occasions. I have not the record of each occasion here.

466. Do you remember when they first commenced to work the mine?—No; I was not in New Zealand at the time.

467. Did you ever speak to Williams about taking precautions as to the overhead cover?—The first record I have is April, 1882.

468. What did you say to him passing at the railway-station?—As to whether he was taking precautions in regard to the submarine workings, which were causing me very great anxiety.

469. Do you remember what his reply was?—I imagine it was that he was taking precautions; that was in April, 1882.

470. Did you speak to him again about it?—I telegraphed to him about it on the 3rd July, 1882.

471. Do you produce the telegram?—I produce a copy [telegram read]: "Greymouth, 3rd July, 1882.—To W. H. Williams, Esq., Shag Point, Palmerston South.—*Re* boreholes in advance in submarine workings. Please inform me, by telegram, what precautions you are taking to prevent possibility of irruption of water by fissure.—G. J. Binns, Inspector of Mines."

472. Did you get any reply to that?—Yes; I received a reply, dated the 3rd July, the same day: "Palmerston, 3rd July, 1882.—To G. J. Binns, Esq., Inspector of Mines, Grey.—I cannot understand your meaning. Do not anticipate any irruption of water, not working any new part, to necessitate boring in advance; and should like to know your authority for the information you have received.—W. H. Williams."

473. Did you see Mr. Williams subsequently?—Yes; frequently: on the 24th January, 1883, I saw him at his office.

474. Did you speak, then, with reference to precautions?—I think I did, but I am not quite sure that I spoke to him that day; he was away from the colliery.

475. Have you any note of what took place?—I examined the colliery on the 24th January, 1883. I wrote to Mr. Williams. On the 31st I called on Mr. Williams.

475A. What took place? What are you reading from?—From notes made within twenty-four hours after; what I am reading from was written on the 1st. I looked over the plans and showed him some pillars 6ft. thick. I asked him if he considered them sufficient for submarine works. He said he did. I drew his attention to the state of the mine.

476. Is that all that took place?—I examined the mine that day.

477. Were you satisfied with his answer?—I was satisfied that was his opinion.

478. Did you think 6ft. pillars sufficient?—No.

479. Did you say anything to Mr. Williams?—Yes; certainly I did.

480. Did you express any opinion to Mr. Williams as to what should be the correct thickness of the pillars?—I am not aware that I did at that date.

481. Did you simply take his answer?—Yes.

482. You say you examined the mine that day, have you any note of it?—Yes. I shall read it: "In the afternoon I went down the mine, accompanied by Twining and Kenyon. Found the condition of the mine about the same, the falls being numerous, and moderately high." In the afternoon I went, accompanied by Mr. Twining.

482A. What was the date of that?—The 31st January, 1883.

483. Did you see Williams with reference to the mine then?—I have no note of it.

483A. When did you next visit the mine?—On the 1st February, 1883.

484. Was that for the purpose of inspection?—The purpose was to accompany Mr. Twining on the survey—he was making one for the Government—to see that the survey was made with great care, and to examine the mine myself in great detail.

485. Were you present with Mr. Twining the whole time?—Not entirely; but very nearly all the time.

486. How long did the survey take?—About five or six days; about a week.

487. Did Mr. Twining remain there continuously, or did you go backwards and forwards?—Where to?

488. From the mine; or did you remain?—We did not remain on the works continuously.

489. Did you make any note of the result of your inspection at that time?—I did. I made a note on the 2nd February, which I shall read: "Found a man (William Henderson) in No. 3 bord

from level, north side, south cuddy, taking a 3ft. 3in. rib of a pillar. Spoke to Mr. Williams about this, and he said he would see about it and stop it, as it was not done with his authority. Requested him not to rob any of the pillars at present."

490. Did you see Mr. Twining's plan after it was completed?—Yes.

491. Who was present with you besides Mr. Twining when he made the survey?—Mr. Taylor, the company's surveyor, and, during a portion of the time, Mr. Kenyon, the underground manager.

492. Was Mr. Taylor present the whole of the time?—I think so: I am not prepared to say exactly; think he was the greater part of the time; practically the whole of the time.

493. Did he take any notes or make use of any field-book?—He required permission to take notes. I believe he did take notes. I gave permission. There are copies.

494. Besides Taylor, who was there, or was there any one else?—Mr. Kenyon was there occasionally.

495. Who is he?—He is the underground manager.

496. Any one else?—The workmen employed.

497. In going round?—Yes; the workmen employed on the survey.

498. Have you seen Mr. Twining's plan since it was completed?—I have.

499. What is your opinion of that plan, as to its correctness or otherwise?—It tallies in several respects with independent measurements that I made myself. It also tallies in one point with a survey of a portion of the mine which I obtained from Mr. Taylor. The survey is dated December, 1882.

500. Does it, in your opinion, represent truthfully the state of the mine at the time the survey was made?—It does.

501. On what principle was the survey conducted: was the average width taken, and then run through; or were the wide places and the narrow measured with care?—Whenever there was any irregularity in the size of the bord it was taken off by offset, whether we went through broad or narrow. We endeavoured to take it off with great accuracy, as will be seen on the plan.

502. Then, if Mr. Denniston, sworn on this inquiry, states that the widest places were taken and run straight through, is that statement correct?—It is not correct; it is evident from the plans.

503. *Mr. Reid* (to Chairman).] That plan (Twining's) is not verified; but it will be verified by the next witness. The wide places are not shown all the way through on the plan; where the bords are narrow it is shown on the plan.

504. How many bords are shown: how many pillars?—In this portion of the mine there are ten bords shown: that is the south side, the extreme south side.

505. How many pillars?—The same number of pillars; a little to the north there are nine bords and nine pillars.

506. Is there any average of bords and pillars shown to the south?—I have taken the average, which is included in the report that has been printed. I have not a copy of it. I am referring to my report of the 26th May. The average of bords is given in that report: bords, 13·79ft.; pillars taken out, 10·296ft. average.

507. Looking at that plan, from your experience, do you consider that a safe mode of working that mine?—I consider it very unsafe.

508. Do you remember when that plan was first shown to you?—Towards the end of February, 1883.

509. Did you speak to Mr. Williams again about taking precautions in working the mine previously to your taking steps to close the mine, and, if so, when, after the 31st January or the 1st February, did you speak to Mr. Williams again as to taking precautions?—Yes.

510. When?—I think I spoke to him about it every time I was at the mine. I was there on the 1st February and the 2nd February. I have no note of it.

511. When did you take steps to close the mine, or speak to Mr. Williams about closing the mine?—On the 13th February I saw Mr. Williams at my office.

512. Did you speak to him about closing the mine?—Yes. Mr. Williams also proposed putting a flood-gate and the framework of a dam, in case it should be needed, between the shaft and the present workings. Mr. Williams expressed his willingness to do anything to meet my views. On that occasion it was agreed that a certain portion of the mine should be worked; that he should be careful in watching any weak point. Mr. Williams promised to be careful in putting in flood-gate framework or dam, in case it should be needed, between the shaft and the present workings.

513. When did you next visit the mine?—I became apprehensive that the precautions were not sufficient when Mr. Twining's survey was laid before me.

514. What did you do upon that?—On the 24th February I wrote to Mr. Williams.

515. Having seen Twining's survey, you wrote to Mr. Williams?—Yes; I wrote to him, giving him notice to close the submarine area. [Letter read: *vide* Appendix F.]

The Chairman: It might save printing, and the evidence be equally clear, if the questions were omitted, and the evidence should be taken as to the answer. There are upwards of fifty petitions to be disposed of.

Mr. Reid: I am quite willing that the questions should be omitted if the substance of them should be conveyed in the answers. I am desirous of doing anything that will shorten the inquiry.

516. Give us the date of that letter?—The 14th February. In that letter I recommended him to take certain precautions with reference to the closing of the mine. I considered that it was in imminent danger from the permeation of water from the sea. My grounds for closing the mine were these: I apprehended danger, and because I did not think there was sufficient cover. I also considered that primarily there had been too much coal taken out; and, worse than that, it had been taken out in an extremely irregular manner. If the same amount of coal had been taken out in a regular manner it might have been safe; but, as shown by the plan, it was taken out in patches, which has a great tendency to break the roof. Considerable falls had already occurred. I considered that, if the mine were to be allowed to go on, a very large number of lives would probably

be lost. I do not know that I have any other reasons to give. Having come to the conclusion to close the mine I saw Mr. Williams. He called at my office. It was agreed by us that, on the 28th February, 1883, that a certain portion of the mine should be worked: this was the portion in solid ground. With reference to the submarine part with the balance it was to be carefully watched. On the 1st March I visited the mine, and it was decided finally to close the mine. I quote from notes written at the time: "Decided finally, only in concession to the urgency of the circumstances mentioned yesterday by Mr. Williams, that I would consent to the bords in Barber's district being worked, but entirely without prejudice to their being closed at any time; and on no account is this to be taken as a precedent or justification for leaving the dip-workings open. Read this over to Mr. Williams. All the other places to be stopped, and the air guided round." The mine was finally closed. On the 19th March I visited the mine. I met Mr. Rich there. I had an interview with Messrs. Williams and Rich. In a letter I said, "Had an interview with Messrs. Williams and Rich, in which the latter proved himself willing and anxious to do everything required to make the mine perfectly safe. Pointed out my view of the case, and it was agreed to close the subaqueous workings, and allow them to fill with water to the level of the shaft." The result of that interview is stated. The men were withdrawn shortly after that. On the 20th I wrote to Mr. Williams, making regulations for the submarine workings.

516A. Do these regulations refer to the closing of the mine and the submarine workings?—I shall find them. I visited the mine again very frequently up to the end of the year. The water came in many times. The effect, in my opinion, of letting the water in was that it would have a hydrostatic pressure on the roof equal to the head of water. That pressure would uphold the roof o a very considerable extent. The inbreak of the sea was the result of two causes: first, that not sufficient submarine coal was left; and, in the second place, that a very large amount of coal was taken above high-water mark in the upper seam. In my opinion, this vacant space did much to break the roof, and the sea entered. The effect of letting water into the mine did not accelerate it. The sea would have broken in under any circumstances. The mine was "weighting" during the time that Twining, accompanied by myself, was making his survey in February, 1883. Several men noticed the weighting of the mine: the whole party noticed it. The weighting of a mine is caused by pieces breaking off from the pillars, and shows that enough coal had not been left to support the roof: the pillars are too weak, and these pieces chip off. They make a great noise. They made a great noise on this occasion, so much so that we retired with celerity from the place where we were eating our lunch to what we considered a safer place.

517. When did you go back?—As soon as the weighting had settled—as soon as the noises ceased. These noises are intermittent; they go and come again. The mine probably settles for a considerable period, after that they come on worse.

518. This shows a straining of the mine, does it not?—Yes; that the mine is in a state of tension.

519. Was it a safe thing to work thus?—I think it would not be safe to work thus at all. A mine must be regularly worked; when worked irregularly it would be dangerous. Let me explain to the Committee: If a large block of coal is taken out of one place the effect of that is deteriorating to the strength of other places, the same as if in a house you had a concrete pile in the middle of the floor, which supports the roof, without having piles all the way round. You might have enough strength in that to sustain the whole house, but it is not evenly distributed. There are very large pillars, perhaps, but they are no good. They are worse than nothing, because they are in one place, while all the places round them are weak.

520. When you took steps to let the water in, what steps did you take at the same time for preventing the flooding?—You will see by my report of the 20th March.

521. Tell us what steps you took in regard to the erection of dams?—I agreed with Mr. Williams that dams were to be constructed, so that, in case of an inburst of water in the upper works, the deep workings, 70ft. below, should not be flooded immediately—that it should not flow down the shaft, and imprison the men that were working.

522. Were the dams sufficient to keep off the whole inburst of water other than from the sea?—I do not understand your question.

523. Why were they erected?—In case of an inburst from the sea; to prevent the water running down the shaft from the sea.

524. Did you visit the mine after the sea broke in?—Yes; I visited it.

525. How did the dams work?—The dams were holding moderately well—as well as the timber could hold; but round about the water was coming in in considerable volume.

526. Have you had experience of submarine workings before?—Never. I have been under the sea, but it was at such a great depth that the ordinary workings were perfectly sufficient.

527. If the water had not been allowed to accumulate, would it have been safe to allow pumping operations?—In my opinion, the mine was unsafe; I would not take the responsibility of any man's life who would be in that mine.

528. Have you reports on this?—Yes; they are printed. [Reports put in evidence, dated the 26th May, 1883, and the 20th March, 1883: *vide* Appendix C and D.]

529. Cross-examined by *Mr. Chapman.*] How long is it since you came to New Zealand?—The 2nd July, 1878.

530. What was your experience before that date: how many years' experience did you have?—Six years. My experience was that I served my time as a mining engineer. I obtained a certificate of competency from the Home Government.

531. Did you ever manage a coal mine?—I had been assistant to the manager of the Netherseal Coal Mine, in Leicestershire.

532. Were the workings there anything like what you are accustomed to in this country?—No.

533. How old were you?—I was twenty-three years of age in 1878.

534. You sent a telegram on the 3rd July, and you received a reply: what induced you to

send the telegram?—I am not certain what actually induced me: it was from a question I had been asked by a collier on the West Coast, as to the safety of the Shag Point Mine.

535. Was that the man who said he heard the sea?—No; I do not know that it was.

536. Did you hear such reports?—No; I do not attach any importance to such reports. I do not think it was possible.

537. Did you have any conversation with any one in consequence of which you sent this telegram?—I had a conversation with Mr. Denniston before that time.

538. Did you give Mr. Williams the source of your information?—I do not think so. I could not give them to him; I did not know the man's name at this date.

539. Do you remember a letter from Mr. Maitland, Commissioner of Crown Lands, in which he refers to "rumours and reports"?—Yes. [Portion of letter read.]

540. Was that upon any representation of yours?—It was.

541. Was it your representation to Mr. Maitland?—Yes; to the Government.

542. In what way?—He is Commissioner of Crown Lands.

543. So that in the report you speak of Mr. Maitland refers to these "rumours and reports"?—No.

544. What does he refer to?—He refers to a conversation I had with him in his office on the 27th January, 1884.

545. What was that conversation?—It was that the mine was unsafe.

546. You told him so?—That that was my opinion, and that I would have to investigate.

547. You told Mr. Maitland that?—Yes.

548. Did you mention it to Mr. Williams?—I wrote to Mr. Maitland. I am not aware when that letter came, to my knowledge.

549. Did you inform Mr. Williams? I did not; I did not write to him.

550. You went to the colliery on the 24th January; on the 31st you said something about 6ft. pillars: what was it you said to Mr. Williams?—I asked him if 6ft. pillars were sufficient for submarine mining. It was on what had been ascertained by me.

551. Do I understand you to say that it was when looking at a plan?—No.

552. Do I understand you to say, in reference to the 31st January, that you showed him a plan?—No; I am not aware. I measured the pillars and noted them to be 6ft. thick.

553. Where?—I will show it to you on the plan.

554. What plan is that you have there?—It is a plan copied from the Shag Point Company's workings. This plan may not fix the particular pillar; there is a slight discrepancy; but there is a pillar which I measured.

555. To what length does it run?—To the bolt-hole.

556. Did you make all your measurements to the bolt-hole?—Yes; I had no means of making any other.

557. If the pillar happened to run, then, to the bolt-hole only for a yard or a few feet, that was all you could ascertain?—No; I should provide in a case of that kind by taking a line and marking it off.

558. All the falls were marked off in February, 1883?—I find on Mr. Twining's plan the fall is noted 8 and 9.

559. There is a fall there on the extreme north: did you make any measurement for that?—No; but I had noted that a good deal of ground had fallen in that part of the mine.

560. Is that a portion of the mine where the seam runs very thin?—They do now.

561. How came Mr. Twining to be employed?—He was engaged.

562. By whom?—By me, acting under the instructions of the Government.

563. Did the General Government direct you to him in particular?—No; they did not.

564. What did they direct you to do?—They authorized me to employ a surveyor, and I chose Mr. Twining.

565. Where did you find Mr. Twining: where was he?—At his house; where his office is, in Great King Street, Dunedin.

566. Do you know what is his occupation?—He was a practising mining engineer.

567. Was he in the employ of any company?—I cannot say. He was in general practice as a mining engineer; he might have been in twenty companies; he is a mining surveyor and engineer.

568. Do you recollect Mr. Taylor and Mr. Kenyon complaining of erroneous measurements?—I do.

569. Is Mr. Williams right in saying that your attention was called to a discrepancy of some 5ft. or 6ft. Yes; it was not a discrepancy on the plan, it was a discrepancy in an imaginary plan we had.

570. Was it a discrepancy in the field-book?—Yes.

571. Now, I understand you to say, Mr. Binns, that when you got Mr. Twining's plan you determined that the mine was unsafe?—I believe that was the final thing that concluded my opinion.

572. You then determined to write a letter, which, I understand you to say, you wrote on the same day?—I am not aware that I said I wrote a letter on the same day.

573. You told us that at the end of February you received Mr. Twining's plan?—Yes.

574. On the 24th February you gave directions for the closing of the mine?—Yes.

575. Now, what did you have from Mr. Twining, a plan or a tracing?—I never had a tracing from Mr. Twining.

576. Was it the actual plan laid before you?—Yes.

577. You have had it ever since?—Yes; in my possession.

578. Did you forward a copy of the plan to Mr. Williams?—No, I did not.

579. Did it not occur to you that, in view of the very serious and extreme step you were taking, that it would have been prudent to forward a copy of the plan?—Not when Mr. Taylor had notes.

580. Mr. Taylor was not engaged on the survey?—He was with us on the survey, and insisted upon having notes.

581. But the plan itself on which you acted you did not make yourself directly responsible for: you acted entirely on the plan furnished to you by Mr. Twining?—Not entirely.

582. But you say that was what finally decided you?—Yes.

583. Did it not occur to you that, in taking so serious a step, it would have been better to have laid the whole of this indictment before him?—I was not aware of any indictment.

584. Would it not have been more prudent to have forwarded him a plan?—No; he had notes.

585. How do you know what correspondence there was between any notes Mr. Taylor had and that plan: you did not make yourself responsible for the plan?—No.

586. You do not know that it corresponds with Twining's notes, or Taylor's notes, or any one else's?—No.

587. Did you know that the step you were taking in writing that letter would probably result in closing up these works?—Yes; the submarine workings.

588. Did it not occur to you that you ought to have forwarded a copy of tracing and plan to Mr. Williams?—I did not do so. I forwarded it to Government.

589. When did you forward it to Government?—I think it is annexed to my report of the 20th March; but it has been mutilated since I came here. The first page has been lost.

590. I want to fix the date when you forwarded a tracing to Government?—I cannot say. The first portion of the report has been lost.

591. Forwarding the tracing to the Government was cotemporaneous with forwarding the report to the Government, was it?—Yes.

592. Did you, in the usual way, get a letter acknowledging the receipt of that report?—I sent it to Mr. Maitland. I think I handed it to him.

593. That was a report to the General Government?—No; it was a report to Mr. Maitland.

594. It was not to the General Government?—I did not say it was to the General Government; I said "to Government." He represents the Government to us.

595. I should like to get the date?—I may say that the bulk of this report was written at the end of February; but it is dated the 20th March, 1883.

596. You could restore the portion lost?—If necessary I could.

597. Then, Mr. Taylor and Mr. Kenyon had challenged the accuracy of the field-books on one occasion?—Yes.

598. Did it never occur to you that the accuracy of that plan might have been challenged?—The accuracy of any plan might be challenged.

599. Did it not occur to you that if you had forwarded a copy of that plan to Mr. Williams he might have challenged it?—No; it did not.

600. Did it not occur to you, as a desirable thing, that he should have the opportunity, immediately he had asked for it, of challenging it?—No; it did not.

601. When did he ask for it: was it six months afterwards?—No; I will answer for myself, if you will allow me. It was the 22nd September, 1883.

602. That is, more than six months afterwards?—Yes. If he had asked for it before he might have had it.

603. You saw Mr. Williams on the 12th February, before this final determination was come to at the end of February. After that, was he permitted to work in the mine?—He was permitted.

604. For what length of time?—Until the 19th March.

605. What number of men would that permission involve?—I am not sure; about half a dozen.

606. Pumping would require several?—Yes..

606A. Four men?—Not at once.

607. Were the men permitted to work?—Yes.

608. How many headings were working?—About four.

609. That would involve how many men: about three times that number?—About twelve.

610. Some men would be required for drawing the trucks as well?—Yes; it would be about twelve.

611. So that it was not a matter of momentary or hourly risk?—It was a matter that occasioned me great anxiety. I should not like to go through the same again. It was a matter that kept me in hourly terror.

612. Well, you permitted them to work?—Yes.

613. During that time you reported?—To whom?

614. To the Government. You were preparing a report after the men were in?—Yes.

615. Is it in that report or in some portion of the correspondence that you wished an inquiry?—It is not in the report that I am aware of.

616. Where is it?—I do not know what it is you mean.

617. Is there not a reference somewhere in your correspondence to an inquiry?—Yes.

618. Would you be good enough to show me that?—I know there was a suggestion of an inquiry long after the mine was closed. As to the expression used by myself, I believe I told Mr. Rich that I should be only too glad to have an inquiry, because it would relieve me from such great responsibility. I told Mr. Rich that. I will tell you when the date was. It was in July, 1883. It was the day I prosecuted the company.

619. *Mr. Macandrew.*] You say you prosecuted the company?—It was the day that I had a case against them. Mr. Rich showed me a letter from Mr. Williams, which was forwarded to the Minister of Mines, asking for inquiry. I said I would be delighted to have an inquiry; nothing would please me more.

620. Did you know that you were undertaking a great responsiblity in closing this mine, not only so far as the owners were concerned, but as far as the people of the district were concerned?—I was not closing the mine then.

621. You were closing the mine some months before?—The submarine workings—a small portion of 10 acres out of 190 acres in the lease.

622. Did you not know that your action involved the closing of the whole of the existing works?—No; it did not involve the whole of the existing works.

623. How could it have been avoided?—It was arranged at the time that the pumping was to be carried on.

624. That the pumping was to be carried on?—Yes. I can show you how it was considered. [Explanation given on plan.]

625. You arranged it in your own mind so as to allow it to come to a certain level only?—[Report to Commissioner of Crown Lands part read.] There is a dip shown in one place of 1 in 4. The pressure of water would be 100lb. to the square inch if allowed to rise to the sea-level in the mine. As stated in the report, if allowed to rise only to the lower level it would be 33lb.

626. You would let it rise to the point you have indicated on the plan, and then you would have relied on pumping operations to keep the water in check?—Yes.

627. Suppose the effect of letting the water in were to destroy the roof as well as bring the sea in, then all your pumping operations would be wasted?—If the sea came in all the pumping operations would be wasted.

627A. Then, the whole of this final arrangement of yours depended on the efficacy of your remedial measures?—I do not exactly understand you.

628. If the effect of letting in the water was, so far as you were concerned, to bring about a dissolution of the roof, ultimately letting the sea in, then you could not carry out your idea of checking the water at the point you indicate by pumping?—If the sea came in there it would be of no use to pump.

629. If the evidence adduced is correct, that the effect of letting in the water at all would be to dissolve the roof so as ultimately to let in the sea, then you would not rely on the possibility of keeping it in check?—No.

630. Then you did not contemplate that the effect of letting in the water would be to destroy the roof?—Yes; I contemplated that to a certain extent. I considered that the general effect of letting in the water would be to assist in sustaining the roof; letting the water in would have kept the roof up by the support it would give.

631. What you mean is, by the static effect of the water?—Yes.

632. But that leaves out the question of the dissolution of strata?—I am not aware there is such a thing as the dissolution of strata.

633. *Mr. Macandrew.*] Disintegration of strata?—Strata disintegrates with air.

634. *Mr. Chapman.*] Do you consider that it would disintegrate, more or less, with water?—Very little more, so long as the water was kept on it.

635. It was on that assumption you proceeded, then, in letting in the water?—Yes.

636. Did you refer at the time to any authority on the subject: did you claim the advice of the department here?—I did not claim the advice of the department here at the time.

637. You acted on your own judgment solely on this matter?—I consulted Dr. Hector, and asked him if he had any authority on submarine mining. I sent to different parts of the world for information on submarine mining, which is very rare, at shallow depths; therefore extra care was required. I did not consult any one; I had no one to consult.

638. Did you telegraph to Dr. Hector for authorities?—Yes.

639. But you did not advise with the department so as to relieve you of responsibility?—I reported to the Government immediately when it was arranged; on that they could have acted: I closed the place and reported: that was all I had to do.

640. I suppose you would have been glad to have been relieved of some portion of your responsibility?—I would always have been glad to have been relieved of the responsibility.

641. Now, as a matter of fact, when did the sea come in?—I am not aware: it came in shortly before the 11th of February.

642. In what year?—1884.

642A. Do you know that it has come in: have you satisfied yourself on that subject?—Yes.

643. We will go back to the conversation with Mr. Rich on the 19th of March; Mr. Williams was present, or it was a conversation with Mr. Williams, Mr. Rich being present; was it a long conversation?—It was a very long conversation; we went into everything as closely as we could possibly do.

644. Did Mr. Rich urge his views as to the effect of letting in the water?—I am not aware that he did.

645. Did he not protest to the effect that it was a most severe measure to adopt?—No; I have no note of it.

646. You say it was a long conversation, and yet you have no notes of it?—I have a note of the general gist of the conversation. [Reads.] "Mr. Williams proposes the working out of the block of coal 2½ chains above the present opening."

647. Is that the whole of the note?—Yes; that is the whole of the note.

648. You agreed to allow a month to follow?—Yes; on the 20th of March I reported to the Commissioner of Crown Lands; it was agreed upon as the result of the conversation; it is therefore but shortly indicated in that sense.

649. Did you insist that Mr. Rich should give in?—That would be a short way of putting it; it was open to him to have protested if he thought proper; I reported to the Commissioner of Crown Lands because he was my superior officer; he, not I, was the representative of the Crown.

650. Was that the way that he gave in?—He might have protested.

651. Did he at last direct Mr. Williams to give in?—I do not recollect.

652. You saw Mr. Williams?—I do not remember.

653. There was no agreement on the subject, except in the sense that your authority was sub-

mitted to?—I suppose that it was agreed, but I had no authority; I was merely the delegate of the Commissioner of Crown Lands.

654. Do you remember that Mr. Maitland supplemented the license: was that upon your authority?—It was to be worked to my satisfaction: Mr. Maitland was the superior authority.

655. Did you make any remark as to the possibility of the license being cancelled?—I might have; that is possible.

656. Did you know the legal aspect of the question, that the license was revocable?—I knew that; I knew that it was made subject to a particular condition in Mr. Maitland's letter.

657. That condition was obtained by yourself?—No; it was not obtained by myself.

658. Did you suggest that it should be made revocable?—Every license is revocable.

659. Was not this the suggestion: that the license should be granted on these terms, viz., that unless it was worked to the satisfaction of a Government official?—I did not mean myself; as far as I was concerned, I should have been glad to have someone else saddled with it; the whole of it was placed on my shoulders, very much to my regret at the time.

660. Mr. Rich showed himself willing and anxious to adopt your view?—Yes.

661. You will not dispute the fact that some reference was to have been made to the revocability of the license?—No; I will not dispute it.

662. Ultimately Mr. Rich acceded to what you submitted?—Yes.

663. Was that note read over to Messers. Rich and Williams at the interview of the 19th: was it shown to them?—I have no note of it.

664. As to the other minutes of the conversation, I notice that you made a memorandum that it was read to Mr. Williams?—Yes; I have.

665. Am I right in saying that both these embodied some agreement or arrangement?—Yes; I wrote next day with reference to your observation as to the weighting of the mine; you said something about the "weighting" on the occasion of your visit when the survey was going on; is not this what is known in quartz-mining when pieces are flying off?—That is called "proudness," or the mine being "proud;" it is quite distinct from "weighting."

666. What is "weighting"?—Undue pressure on the pillars. It manifests itself by the coal chipping off the pillars.

667. But when you find that, it does not condemn the whole of the work?—In submarine mining it does; "weighting," in mining engineering, shows plainly that there is not sufficient support for the roof.

668. Could you support it in no other way?—Unless it had fallen so low, as it had in this mine, that you could not get to it.

669. Where had it fallen so low that you could not get at it?—The dip at No. 1.

670. Is that where you observed it "weighting"?—No; I observed it "weighting" in the upper portion of the mine.

671. You heard the evidence of Mr. Denniston?—I did.

672. Do you agree with that?—I do not know what it was.

673. The evidence was that it might have been "packed"?—I did not hear him say that.

674. Suppose he did say it, is that a remedy, viz., to "pack" the area in driving, in the circumstances stated?—I think that would do damage rather.

675. He is a mining engineer; has he not considerable repute in the profession in this country?—That is a difficult question to answer.

676. As far as you know?—I believe there is still somebody that believes in him.

677. Perhaps you do not believe in him?—Perhaps I do not.

678. I believe that more than once you had a wrangle with Mr. Denniston?—No, not at all; I did not wrangle with him.

679. Not through counsel?—I do not wrangle through counsel.

Committee adjourned.

SATURDAY, 4TH OCTOBER, 1884.

Mr. BINNS, cross-examination—*continued.*

680. *Mr. Chapman.*] You referred in your correspondence to a proposed inquiry, did you not?—Yes; I did.

681. Could you show me the passage in your report in which you referred to Mr. Rich's desire for an inquiry?—It was printed and laid on the table, but I cannot find it.

682. I wish you to read the passage?—I think it is in the letter from myself to the Under-Secretary for Mines, dated the 18th February, 1884.

683. What is the passage?—"During the progress of the case Binns *v.* Williams, Mr. Rich showed me some correspondence bearing on the question of a commission. From whom or to whom I had—or at least now have—no idea, as I was hardly able to give it any attention." Is that the passage you refer to?

684. No; that is not the passage. You referred somewhere to the fact of your having a reputation to make, or something of that sort?—I will find it if I can.

685. Well, I do not wish to take up a lot of time in finding these things?—If you will give me the date, Mr. Chapman, I will try to find it.

686. I cannot give you the date. Now, let me ask you this with regard to your action in closing the upper workings: did you anticipate at the time that you were, in reality, closing the whole mine?—I did not.

687. Your action, then, was based on the assumption that the lower workings might continue to be worked?—Yes.

688. And, I think, you have told us your views as to what occurred in your own mind as to the possibility of allowing the water to rise to a certain limit, and there checking it?—Yes.

689. That, if that had been possible, it would have been possible to continue working the lower seam?—Yes.

690. Now, in your report you have referred to falls: in what part of the mine do you particularly refer to falls?—In which report?

691. In your chief report—the long one?—The falls were distributed over the mine.

692. In what part were they, principally?—The worst falls were on the north side, but there were many falls.

693. The worst falls were on the north side: are they approximately represented by the shading on that plan?—I am not aware what that plan is. They are approximately represented on Mr. Twining's plan.

694. Did you go through the mine where those falls were?—No; I could not; it was not safe.

695. Do you know the thickness of the seam where those falls were?—Between 3ft. or 4ft., I think.

696. Did you examine the falls in other parts of the mine?—I did.

697. Do you remember asking Mr. Williams to watch the falls?—Yes.

698. When was that?—I am not aware.

699. Can you give us any idea?—It was in the early part of February, 1883.

700. And did you obtain a report from him later in the same year?—I think I did.

701. Did he not inform you that nothing, or scarcely anything, had fallen since?—I have a recollection of something of that sort in one of his reports. I cannot tell you the exact date of the report; I might find it.

702. Was it a written report you had from him?—I think so.

703. Well, was not that the purport of his report?—I do not find such a report, Mr. Chapman.

704. Very well, then, probably it was a verbal report, was it not?—Probably it was.

705. Do you remember what he told you after you had told him to watch the falls: if you do not remember you can say so, Mr. Binns, and we can pass on?—I do not think I do remember. Tell me on what dates.

706. I have very few questions further to ask you. With reference to your views on the subject of letting water in the mine, you said it was very difficult to find authorities on the subject, and I believe you said you telegraphed to Dr. Hector on the subject of submarine mining?—Yes.

707. Have you endeavoured since to further familiarize yourself with the subject?—I have.

708. Have you consulted authorities on the subject of letting water into mines as a preservative or preventive measure?—Yes; I have.

709. On the subject of keeping water in mines with a view of upholding roofs?—Yes.

710. Have you consulted engineering authorities in this country on the subject?—I have.

711. With reference to Shag Point shales?—With reference to the subject in general.

712. May I ask whom you have consulted?—I have consulted Mr. Bishop, and I have consulted Mr. Harrison, of Greymouth.

713. Yes; are they witnesses?—They were recommended by me as witnesses. I have also consulted Mr. Blackett, Mr. Blair, and Mr. O'Connor.

714. Have you consulted any other mining engineers?—No.

715. Have you consulted any persons who are familiar with the subject of coal mines?—Yes; I have stated their names.

716. Yes; but other than those you have mentioned?—No; I do not think I have.

717. *Mr. Macandrew.*] Have you consulted Mr. Denniston?—I am so familiar with Mr. Denniston's opinion that it was not necessary.

718. *Mr. Chapman.*] You have made some reference in your correspondence, Mr. Binns, to a prosecution in connection with the Shag Point Mine?—Yes; I have.

719. When was that?—I think on the 25th and 28th July, 1883.

720. Some months after you had ordered the closing of the upper working?—Yes.

721. Now, what was the subject of that prosecution?—Deficient ventilation.

722. You laid an information, or two informations, against Mr. Williams, did you not?—I did.

723. And that was tried before Mr. Robinson, at Palmerston, and the trial lasted two days?—Yes; it occupied the Court during two days.

724. You called a large number of men from the mine, did you not, on this subject of ventilation?—Yes.

725. And you called some experts; I think Mr. Denniston gave evidence?—Yes.

726. You did not call him, did you?—No.

727. You are not one of his believers, are you: you do not quite agree with Mr. Denniston?—No.

728. Your views on the subject of ventilation and Mr. Denniston's views came into conflict on that occasion, did they not?—No; Mr. Denniston was not down at the time I was.

729. No; but, on the question of the feasibility of ventilating that mine in certain ways, your views came into conflict with those of Mr. Denniston and others, did they not?—He was on the other side.

730. You called some of the coal-miners who were themselves in the mine: did they bear out your case?—The case was dismissed, if that is what you mean.

731. Did the evidence bear it out?—I consider that it did. I consider it was a very good case.

732. But the case was dismissed?—Yes; I have the Magistrate's remarks on the case here. The Magistrate said it was a good case.

733. But he dismissed it?—Yes.

734. Now, there is one thing I omitted: you said you asked Mr. Williams some question about 6ft. pillars: do you mean to tell this Committee that Mr. Williams stated to you in general terms that he considered 6ft. pillars sufficient for the support of a mine?—I asked him if he considered 6ft. pillars sufficient in submarine mining, and he said Yes.

735. You called his attention to a particular pillar, which you referred to as a 6ft. pillar, did you not?—Yes.

736. And it was with reference to that particular pillar that he gave that answer: do you mean to say that Mr. Williams committed himself to a general statement that 6ft. pillars were sufficient in submarine workings?—(No answer.)

737. *Mr. Reid.*] What was the size of these pillars?—I took the average of thirty pillars impartially, and found it 10·296 feet.

738. *Mr. Chapman.*] From what?—From the plan.

739. *Mr. Reid.*] What plan?—Mr. Twining's plan.

740. Mr. Chapman asked you just now with reference to your consulting authorities; you might as well tell us whether any of these authorities, and, if so, which of them, concurred with you? [Mr. Chapman objected to the question, which was disallowed.]

740A. *Mr. Reid.*] With reference to the falls about which you were asked just now: did you receive any written information about the falls?—I did.

741. From whom?—From Mr. Bishop.

742. *Hon. Mr. Stout.*] He was one of the men working in the mine?—He was surveyor of the mine.

743. *Mr. Reid.*] At the time?—Not when I made the survey.

744. At the time you got this letter?—No; it was subsequently to his leaving. I wrote to him to ask if he had made a survey of the mine. I received, in reply, the letter now produced: "Brunner Mine, 16th February, 1883.—Dear Sir,—In reply to your inquiries *re* submarine workings, Shag Point Mine, I beg to say the plan shows extreme south workings from actual survey, except some bords, which were so fallen as not to be accessible. When at the Point I set off the main incline levels going north and south, also inclines driven up from levels, and from which the bords were turned away. Bords and other places were driven as thought best by the under-viewer. I will look up section of shaft and send them on to Mr. Williams, as he has already written for them. Mr. Twining has sections of both shafts.—Yours faithfully, J. Bishop.—G. J. Binns, Esq., Mines Inspector, Dunedin."

745. With reference to that, you say that is the information you got about the falls?—That is the information I got about the falls and the surveys.

745A. You have seen the plan by Mr. Taylor: have you got it here?—No; it is among the papers in the possession of the Committee. [Plan produced.]

746. Have you compared this plan with Mr. Twining's?—I have.

747. What is the essential point of difference?—In one instance I find, on looking at Mr. Twining's plans, that more bords and the excavations in the centre here, at the point marked A, are not shown. They materially weaken that portion of the mine.

748. The submarine portion?—Yes.

749. *Hon. Mr. Stout.*] Who made this plan?—A man named Taylor, who was surveyor at the mine. It bears his signature.

750. What is the date?—The 30th June, 1883.

751. *Mr. Reid.*] You were asked by Mr. Chapman whether your action in closing the mine was based on seeing Mr. Twining's plan, and you said not altogether: what were the other data that you went upon?—My impression after the inspection of the mine. From the first time I had been struck with its danger up to the very last moment on seeng Mr. Twining's plan, but I waited until I saw the plan in order to have the whole case before me before I decided.

752. The plan was confirmatory?—Merely confirmatory of my impression of the mine.

753. You were asked also several questions with reference to Mr. Williams and Mr. Rich protesting against your action in closing the mine: did you ever receive any written protest from Mr. Williams?—I have never received any written protest as to the danger to the roof and floor.

754. From letting the water in?—Yes.

755. Are you aware, of your own knowledge, of his ever having made any report, either to Mr. Maitland or to others, upon the danger of having closed the mine in that way, and allowing the water to come in?—The only report I am aware of is his report of the 30th June, which does not refer to the danger to the roof at all, as far as I have read it—and I have read it some hundreds of times.

756. You have heard the evidence of Mr. Denniston with reference to the average of the bords shown?—Yes.

757. He has stated that, in some places, the pillars were 25ft. and 30ft. thick: did you find any pillars of that thickness in the mine?—There were pillars of that thickness, which I have already described as a source of danger.

758. In what way?—By upholding the roof in one part, abstracting the general average from the roof, and causing irregularities in the support.

759. *Mr. Macandrew.*] One of your reasons for ordering the suspension of pumping operations was, as I understand, that their continuance would have rendered it necessary to have one man down in the mine to work the pump, and that his life would have been in continual danger: is that so?—That is so.

760. Now, Mr. Denniston, in his evidence, affirms that there would have been no danger. Did you fortify your opinion as to this point by consultation with anybody else?—No; I had nobody to consult with.

761. Well, might it have been possible to have pumped the mine without any one having been stationed underground, that is to say, by means of connecting gear from power situated beyond the reach of water?—It might have been possible to do that, but a man would have had to go down to attend to the pump. You could not leave a pump entirely by itself.

762. Did the breach of the Mining Act in respect of which you prosecuted the company refer to the landward workings?—To the landward workings.

763. Not the workings now in question?—No; quite a different affair.

764. Well now, seeing the important and extensive interest, both public and private, involved

in your action as Inspector of Mines, did it not occur to you to think that it would have been prudent to take counsel with other professional men before issuing such an order?—There is nothing would have delighted me more than to take counsel with any one, but I had no one to take counsel with; I felt it at the time; I was very sorry I had no one to take counsel with.

765. You state that you would have been delighted to take the counsel of others, and to have shared the responsibility with them: did you advise the Minister of Mines not to accede to Mr. Rich's request that some one else should be referred to?—Not for a moment.

766. Had it been referred to you, you would have advised that a commission should be granted?—Most strongly.

767. But it was never referred to you?—Never.

768. *Mr. Cowan.*] You told us yesterday that, on one occasion when you were in this mine, you were alarmed by what you called "the weighting of the coal"?—Yes.

769. That was brought about by the subsidence of the roof?—It is a noise caused by the weighting of the roof. The roof may not be actually subsiding, but it is the prime mover of it, the weight of the roof.

770. You were alarmed at the frequency of these sounds?—We retired from the place.

771. Is it a usual occurrence in a coal-mine?—Not if it is properly worked.

772. On that occasion, did you consider that your life was in danger if you remained in the position in which you were?—I considered it would be prudent to move. I did not consider that my life was in immediate danger, but I considered it prudent to move to a more sheltered place.

773. *Mr. McKenzie.*] You said, in reply to Mr. Macandrew a few minutes ago, that at the time you gave authority to close this mine you could not get any professional advice?—Mr. McKenzie, if you will allow me to say so, a Government official has to undertake his duty; if he were to ask for some one else to undertake that duty he would be stepped upon by the Government. When I am told to undertake a duty I have to do it.

774. That is not an answer to my question?—I am very sorry; I intended it to be so.

775. You stated that you could not get a professional man to consult with?—I had nobody to consult with.

776. How is it you have discovered some one since this petition began?—I asked them as witnesses.

777. Why did you not ask them before?—It would not do for me to disclose the affairs of a mine to any outside individual. I could not think of doing it.

778. Could you not have put a supposititious case to any of these gentlemen?—No; they would have known in a minute; they would have known at once to what mine I referred.

779. I think you gave it in evidence, or it came out in the evidence of some other witness here, that you consulted Dr. Hector, did you not?—I asked him for authorities. I may say that was the only step I took to consult Dr. Hector. I have the telegram here.

780. *Hon. Mr. Rolleston.*] Is it a usual thing in the department for an inspector to apply for extra assistance?—I think it is an unheard-of thing; I never heard of it; I never dared to do it.

781. Did you feel any doubt about the propriety of the course you were taking?—No; I did not after I had considered it.

782. Have you any reason to suppose that the department would not have given you assistance if you had asked for it?—No; I have not.

783. Did the question that lives were in danger influence you?—Entirely.

784. And did you not report to the department that lives were in danger?—Yes; I think I did.

785. And the department had before it information which showed that the matter was one which required decisive and prompt action?—Yes.

786. *The Chairman.*] What evidence have you that the water which did come into the mine eventually was salt?—I tasted it.

787. *Mr. McKenzie.*] What date was that?—February, 1884.

788. *Hon. Mr. Rolleston.*] Did not a considerable time elapse between your order and any written objection being received?—Yes.

789. And before any application was made to the Government the water had been accumulating a considerable time?—Yes; I believe so.

790. *Mr. McKenzie.*] Was this case at Palmerston before or after the closing?—It was before the final closing.

791. *Hon. Mr. Stout.*] What was the date?—The 25th and 28th July, 1883, I think.

792. Let me understand, because I have not been here before. Perhaps you have given the evidence before, but I have not heard the evidence. I understand you examined the mine?—Yes, I did.

793. You gave certain directions, and then you brought the matter before the Court for non-compliance with your directions: was that the reason?—I had had occasion to note twenty times during two and a half years that the ventilation was bad. I had spoken to Mr. Williams previously, and he had told the men, but this time he said it was quite good. There was no course open to me but to try and prove that it was bad, as I considered it to be bad.

794. The question that came before the Court was simply whether there were sufficient ventilating shafts, I suppose?—No; whether there was sufficient ventilation in one portion of the mine.

795. It was decided that there was?—Yes.

796. That was in July, 1883, and, from what I understand, the question of closing the mine at that time did not arise?—No.

797. Now, when did you first consider about closing the mine?—Do you mean the submarine mine?

798. Yes?—That was closed by me in February, 1883, before the prosecution.

799. When was the final closing of the mine?—On the 11th February, 1884.

Mr. Reid: I do not know whether the witness understands. That was not the closing by his order, but the water coming in.

800. *Hon. Mr. Stout.*] I want the closing by his order?—I think the date was the 19th or 20th March, 1883.

801. The questions Mr. Macandrew has been putting, and you have been answering, about consulting people, refer to what date?—February, 1883, I imagine to be the date referred to by Mr. Macandrew's question.

802. Now, I want to know when did Mr. Williams first object to the closing of the submarine workings in writing to you or to the Minister, to your knowledge?—There is a copy of the letter in evidence; it is dated the 30th June, 1883.

803. *Hon. Mr. Rolleston.*] There was nothing to show, was there, during the months of March and April, and for some time after the order was given, that it was accepted in anything but a friendly spirit?—That was my impression.

804. And that was the information which the department had, that everything was satisfactorily arranged as between you and the petitioner; that your action was agreed to by the petitioner?—That was my impression, and the impression conveyed to the department.

805. *Hon. Mr. Stout.*] From the latter part of Mr. Williams's letter it appears that the objection to the closing was not the loss of the coal in the lower workings, but the danger to the workings in the other part of the mine?—Yes; the workings that I closed, to be filled with water, were not above any workings at all.

806. It says here that they were?—Yes; but that is a mistake.

807. Were these lower workings to which Mr. Williams refers abandoned?—Yes; but not by my orders.

808. All that you closed was district A on that map: state shortly what was the reason for closing district A: it was not the mere loss of one man's life?—No; twenty men were working down there possibly. My reasons were on account of the insufficient cover, irregular working, and bad roof.

809. What was the roof?—It was composed principally of sandstones, shales, with a few harder bands and coal in it.

810. How much coal did they leave in the roof?—They took the whole of the coal out of it.

811. Is that usual?—In a thin seam like that it is necessary; it is about 3ft. 6in. thick.

812. On what plan do they work the mine?—They work it on a system of bord without pillar.

813. It is not on the long-wall system?—No; not long-wall.

814. Not as the Green Island Mines are worked?—No. Here is a plan of the mine, which we are going to put in.

815. It is not on the rance-and-room, nor on the longtitudinal, system?—No.

816. *Mr. Chapman.*] We do not agree with that plan?—I have compared it with the plan on the wall.

817. *Hon. Mr. Stout.*] Where did you get that plan from?—It is from actual survey, made by Mr. Twining.

818. You had authorized this working as the only mode of working the mine: I suppose long-wall working would have been too expensive?—Long-wall working would be inadmissible, the roof is too bad.

819. What do they leave as pillars, seeing that they left no roof?—The average that I took, where it was possible, was a little over 10ft.

820. What are the pillars in the Green Island Mine?—I cannot say exactly, 4 or 5 yards.

821. *Mr. Rolleston.*] You say that they ought to have been 14ft.?—They ought to have been 18ft. at least; the witnesses on the other side have given evidence on that point.

822. *Hon. Mr. Stout.*] What I understand is, you were afraid, if these workings were continued, the roof would fall in and the miners would be killed?—That was my fear.

823. *Mr. Macandrew.*] One of your reasons for allowing the mine to be filled with water was that the hydrostatic pressure would help to keep up the roof?—That was a powerful reason.

824. Were you not a little startled to find that Dr. Hector, who is supposed to be a high authority, pooh-poohed that?—I did not hear that.

825. *Hon. Mr. Stout.*] I understand that, whether or not with the roof as it was, it would have been dangerous to work there?—I consider it would have been imminently dangerous.

826. Where is your letter ordering the mine to be filled with water?—It was agreed on the 19th March.

827. There is nothing in writing about that?—I wrote to Mr. Williams on the 20th March, 1883. I said, "You have already, I presume, stopped all work except that necessary for getting out material from the subaqueous area."

828. Was there any distinct order by you to fill the mine with water?—I do not think I have a record of such.

829. *Mr. McKenzie.*] When you authorized the men to be withdrawn, was it not your intention to have the mine filled with water?—Not until later.

830. Although you did not express it in writing?—It was agreed between us: it was unnecessary to state it in writing.

831. You state there was no working under that which you decided should be filled with water?—Yes, I did.

832. How, then, did the water come in?—Those are the workings [pointing to the plan]. These in red are the deep workings. The Committee will observe that these workings are not under those workings.

833. They were accessible by means of shafts, drives, and so on?—No; if the water was kept down here, pumped from this level, and syphoned from here down that shaft, there would be no danger to the workings until the sea broke in; if the sea broke in, of course the whole would be flooded.

834. Then, what was the use of the dams?—In case of a sudden outburst, as expressed in my letter.

835. You are playing with my question: what I wanted to know is, whether these workings were under that portion you wanted to fill with water: if the water rises to a certain level it would come down there?—Yes.

836. You put in the dams to stop it?—Yes.

837. Then, why did you tell the Committee that those workings were not lower than the others?—I did not say that; I said they were not below.

838. Seeing the fact that these dams were of no use when the water had risen to that level, was not that the reason why the lower workings were closed?—The dams were of use.

839. Did they prevent the mine being closed?—They prevented the men from being caught, and allowed the machinery to be got out.

840. You directed the men to be removed, did you not, from the high workings?—No; not from the high workings.

841. How, then, did they come to leave them?—By high workings, do you mean higher in level?

842. The workings that you intended to fill with water with a view of keeping up the roof?—I directed the men to withdraw from those workings.

843. That is the question I put to you: you directed them?—Yes.

844. Did not Messrs. Williams and Rich say at that time they were quite willing to withdraw the men if you would allow them to keep that portion of the mine dry?—That was in order that they might allow the men to work it.

845. Did not they agree to withdraw the men so long as you would allow that portion to be kept dry?—Yes.

846. Did not they point out to you that, if you let the water in, the result that took place would take place?—No; it was never mentioned until it broke in; then every one knew of it.

847. *Mr. Chapman.*] Did not Mr. Rich point out to you that the filling of the upper-seam workings with water would inevitably result in the closing of the lower-seam workings?—No; certainly not. He was going on projecting expensive works until the day the water broke in.

848. *Mr. McKenzie.*] Are you aware that, when you gave directions to leave these upper workings, every practical man said the mine was ruined?—No; I am aware that I was congratulated all over the country on my action by miners and managers.

849. I have heard it stated as I put it?—Very likely.

850. *Mr. Rolleston.*] I want to put these questions, Mr. Binns: Was the order to withdraw from the portion of the submarine workings in consequence of your opinion that the workings were unsafe, and that it was dangerous to life for the men remaining there?—It was.

851. Was not the filling with water a necessary consequence of that order?—It was.

852. Would it have made any difference in your order whether the filling with water supported the roof or not?—I do not think that it would. I should have withdrawn all the men more readily, perhaps.

853. You understand my question?—Yes; I said it would not.

854. Then, the question of your opinion upon the technical point of the support of the roof is not material to the main question of whether it was proper to withdraw the men or not?—No; I considered the place grossly unsafe.

855. *Mr. McKenzie.*] You abandon that portion of your theory, then?—No; not at all: I have a number of witnesses to support it.

Mr. C. E. Twining, examined.

856. *Mr. Reid.*] What are you, Mr. Twining?—A mining engineer.

857. What experience have you had as a mining engineer?—It is between nineteen and twenty years since I served my articles, and I have been at it ever since.

858. How long have you practised as a mining engineer?—About fourteen years.

859. What are you doing now?—Practising as a mining engineer.

860. Still practising?—Yes.

861. Are you acquainted with the Shag Point Coal Mine, in the South Island?—I have been there on two occasions.

862. Are you acquainted with other collieries in New Zealand?—Yes.

863. Have you visited any collieries at Home?—Yes.

864. How many?—I could not answer that question: a great many.

865. More than one?—Well, I had to survey seventy-three different pits belonging to one company. I could not tell you how many.

866. *Mr. Rolleston.*] In what part of England?—Lancashire, North Wales, and South Wales.

867. *Mr. Reid.*] Were you called in to make a survey for the Government of the Shag Point Mine on one occasion?—Yes.

868. Will you tell us when that was?—In was on the 31st January, 1883, when I went there.

869. Who instructed you to make the survey?—Mr. Binns.

870. Did he give you any special instructions as to making the survey: if so, what were they?—To make an accurate survey of the mine, showing all falls, heaps of dross, and any wider places there might be; a general survey; a detailed survey of the mine.

871. Did you proceed to make a detailed and accurate survey?—Yes.

872. Did you complete it?—Yes.

873. How long did it take you?—Ten days, I think; at least, I was four days at the mine, and to make a plan took ten days.

874. You said you went to the mine on the 31st January, 1883?—Yes.

875. Whom did you meet there, do you remember?—Mr. Williams and the underground manager.

876. Anybody else?—Mr. Taylor.

877. Who is he?—He was surveyor, I think.

878. Surveyor for what?—For the company, I believe.

879. Whom else did you meet?—I do not think there was anybody else.

880. Was Mr. Binns there?—I think I mentioned Mr. Binns; I went with Mr. Binns.

881. Who gave you authority to go down the mine, or had you any authority: did you have sufficient authority with Mr. Binns?—I went down, as Mr. Binns told me to do so.

882. Did Mr. Williams go down with you?—I believe so.

883. You are not certain?— No; I am not certain; I think he did, though.

884. Are you certain as to who did go down with you?—The first day that I was there we had a walk round the mine, and I think Mr. Williams went with us, but I am not sure.

885. When you commenced your survey, who went with you, do you remember?—Mr. Taylor, Mr. Binns, and some workmen—I do not know who they were.

886. In what capacity was Mr. Taylor there?—As check surveyor against me.

887. Was Mr Taylor present with you on behalf of the company throughout your survey?—He was there all the time.

888. Mr. Taylor was there all the time, did he take any notes?—Yes.

889. Did you show him your notes?—He had a copy of all that I took; he booked them himself as they were taken.

890. Now, we have been told that one inaccuracy was pointed out in this survey by Mr. Williams: do you remember his pointing it out?—No.

891. Did Mr. Taylor point out any inaccuracy, or was any alteration made?—The evening of the first day, as the survey was going on, Mr. Binns and I were looking at the survey in the book; there were some off-sets taken from the survey-line which showed some of the places, when added together, to be of greater width, and Mr. Binns, the next morning at the mine, mentioned the fact of these places being so wide to Mr. Williams. They were remeasured, and in one place, I believe, it was found to be wrong, but it was never put on the plan; it was found out next day.

891A. What I wanted to get at was whether the inaccuracy was pointed out and corrected?—Yes.

891B. Were there any other inaccuracies to your knowledge, besides that one instance?—No; not that I am aware of.

891C. Would you have been aware of any if they had been pointed out by Mr. Williams to you?—Well, if Mr. Binns had told me. Mr. Williams did not speak to me about them at all. He made his objection through Mr. Binns.

891D. Will you look at that plan there: I want you to look at it very carefully, Mr. Twining, because a great deal hinges upon the correctness of that plan. It is only fair to tell you that one witness has sworn upon oath——[Form of question objected to by Mr. Chapman.] Well, its accuracy has been called in question by one of the witnesses, therefore I wish you to be very careful. Will you look at it carefully, and tell us if that is the plan which you prepared?—Yes.

891E. Is it in the same state now as when it left your hands?—There may be some pencil-marks upon it, but I believe all the writing of it and the workings are the same.

892. Are the bords and pillars the same as drawn by you?—Yes; I think so.

893. I want you to look at it carefully?—I am certain that it is, so far as it goes.

894. That was the plan prepared in February, 1883?—Yes.

895. You visited the mine in January?—Yes; on the 31st January.

896. Did Mr. Williams or did Mr. Taylor get a tracing of that plan at any time?—Not from me.

897. Did they apply to you for it?—No.

898. I understand you to say that Mr. Williams had notes: had he sufficient notes, taken from yours, and from observations made at the time, to have compiled a plan similar to that?—You mean Mr. Taylor?

899. Yes?—He took everything from me; he had the option of using it.

900. And he obtained the same data from which you made that plan?—Yes.

901. Did he ever object to the measurements taken by you, or to the quantities taken out by you, during the survey?—No.

902. Then, are you prepared to say positively and distinctly before this Committee that that plan correctly shows the state of the submarine workings of the Shag Point Mine at the date of your survey?—Yes.

903. Did you tie in your survey at any place during the progress of the survey?—It was tied in everywhere; every place was dialled that we could get through.

904. What was the result of your tying in?—That it was tied in correctly. We always allow, in an underground survey, that if you get to three links it is correct.

905. How did you proceed to take the survey with reference to the measurement of the bords: did you take the bords in the widest places and run a straight line through, and then take the narrowest places and run a straight line through them; or did you follow the inequalities of the bord, and show them upon the plan?—There was a straight line—the survey line. Whenever there was any bend in the sides of the places there was an off-set taken of it, which was taken to the next straight, and so on.

906. With what result?—They are marked on the plan, showing every bend there is in the side of the place.

907. The plan shows every bend?—Yes; and the actual width of every bord.

908. Then, if one witness has sworn that the widest pieces were taken and straight lines run through, that is not correct?—No; it is not correct.

909. Can you state what the average width of the pillars is, according to that plan?

910. *Hon. Mr. Stout.*] What scale is this plan?—A chain to an inch.

911. *Mr. Reid.*] Is there any average width of pillar?—They are very uneven; I should have to measure them all to take them out.

912. From your experience as a mining engineer, do you consider that the safest method of working the mine?—No; not under the circumstances.

913. What leads you to consider that it was unsafe?—Because there is no pillar left in some places, there is nothing left to support the roof in other places, and it would set the weight on to the weaker ones.

914. Were you aware of the amount of cover overhead?—No; not at that time.

915. Did you observe any falls in the mine?—Yes.

916. Can you tell us what these had been caused by, in your opinion?—By taking out the coal.

917. Yes; but what was the immediate cause? Of course, if there had been no coal taken out there would have been no holes in the ground, but that is not what I am asking you: I am asking you if you know, what was the immediate cause of the falls: can you state what was the cause?—I suppose the air.

918. *The Chairman.*] Were the falls owing to any improper working or anything of that sort; I suppose that is what Mr. Reid means?—Some of the places had no doubt fallen from too much coal being taken out; others, I suppose, had come down from natural causes. In some narrow places the coal will come down.

919. *Mr. Reid.*] While you were down there, did you ever see any one working at the pillars or working near the pillars?—I think I saw one man. I did not take any notice of things. I simply made a survey of the mine.

920. You could not recollect?—No.

921. What, in your opinion, would be the effect of letting water into that mine and allowing the place to fill: would it have a tendency to bring down the roof, or would it have a tendency to support the roof?—If left in, it would have a tendency to keep the roof up; if taken out, it would be injurious to the mine after it had been filled.

922. I was not asking you about taking out the water, but what would be the effect of allowing water to accumulate in the mine?—It would assist to keep the roof up.

923. How so?—By the pressure or weight.

924. Would not the water have some effect in disintegrating the roof, or would the pressure counterbalance the disintegrating?—I think the pressure would have a tendency to keep it up more than to bring it down.

925. Then, in your opinion, the danger would be in drawing the water off and allowing the air to get in to the roof?—Yes.

926. So long as the water was allowed to remain in, it would have a tendency to support the roof?—Yes.

927. Did you notice the general condition of the mine when you were in it in February—of course you must have made a survey—but had you your attention drawn to any particular state of the mine at that time by any one?—No; no farther than that I had to put on everything I could see—any falls, any accumulation of dross, &c.

928. No; I am asking you whether your attention was drawn to the state of the mine at that time, by any one, as to the roof, or the sides, or the pillars, or the floor, or anything with reference to the state of the mine, or did your own vision show you the state of the mine?—Well, I could not answer it exactly.

929. Well, I will ask the question, with the permission of the Chairman, in this way: did you notice any subsidence or creep in the mine at that time?—I noticed a creep on one occasion.

930. *Hon. Mr. Stout.*] Can you point out on the plan where that was?—I can point to one or two places, but could not say which one it was. It was there (pointing to the plan), but I could not say which place it was.

931. *Mr. Reid.*] Some of the witnesses have stated that the best plan to adopt in that mine, where it was creepy, and where falls were taking place, was to have packed it: do you think that packing would have been more expeditious or more expedient than allowing the mine to fill with water, or was packing practicable?—It was practicable in some places, but others were fallen at the time. I do not know how high the falls were, whether they could have been packed; I could not get into them. I do not think they could have been packed all over.

932. Do you think that packing would have been preferable to allowing the water in—that is what I am asking you—or do you think that the water would have had an equal power in sustaining the roof?—There were places where it could not be packed, and it would have fallen.

933. Then, you could not say?—It could not be done.

934. Did you ever make a survey for Mr. Louden?—Yes.

935. He has given evidence with reference to your style of working: did he give you any special instructions in reference to that survey? He has stated that your method of surveying that mine was in many respects to take a point and run a line through: he said it was very good outside work, but your practice was to run a straight line through and not to show inequalities of the working: was that your practice in reference to that survey, and what reason had you for adopting that practice, if you had any?—When I was engaged by Mr. Loudon I asked him if he wanted a detailed survey of all the places, or only to go round the faces—that is, the extreme points—and draw the places through from one to another. He said he would have it done that way, and it was.

936. *The Chairman.*] As being less expensive?—Yes; it was done to satisfy Mr. Binns.

937. *Mr. Chapman.*] You made the plan, and you say that an error was pointed out to you in your field-book before you made the plan, and you rectified it?—Yes.

938. Do you remember what amount that error was?—6 links.

939. Was there not an error of 5ft. or 6ft.?—It was 4ft.

940. Was there not a difference between 15ft. and 21ft. or 16ft. and 21ft.?—I do not remember.

941. Now, may there be other errors?—There might be the error of a link in the off-set, but I do not think there are any.

942. Have you compared that plan with Mr. Bishop's plan?—No; I do not remember having done so.

943. Have you seen the working-plan of the mine?—I saw one when I was making the survey at the colliery.

944. Have you seen this plan [producing Bishop and Taylor's plan]: look, for instance, at this portion—the submarine workings; you see there is a very great difference between that and yours?—Yes.

945. Well, now, would you be surprised to hear that Mr. Bishop had made this plan from the same workings by actual survey, except some that were filled in and were not accessible; you see there is a great difference?—Will you allow me to put it on this [the witness then compared Bishop and Taylor's plan with his own]. A portion of it, the extreme boundary, appears to be correct, but it does not seem to fit very well in this other part.

946. If that plan is made from actual survey, does it not show a correct mode of working and safe pillars?—If they were left as they are represented.

947. Now, as to the other questions you were asked, Mr. Twining, how do you say the water would tend to support the roof?—If the mine was filled with water, the weight of water—the pressure—would have a tendency to keep the roof up.

948. The weight of the column of water?—Yes; and the solid body.

949. That is all that you mean—the mechanical question as to the upward pressure, because of the weight of the column of water?—Yes.

950. Now, what effect has water upon shales such as these: are you familiar with the shales there?—At Shag Point?

951. Yes?—No; I cannot say that I am familiar with them.

952. Do you know the effect of water upon any shales?—If it is left standing full of water, and the water is drawn off, afterwards the shales have a tendency to come in; but if the water is not drawn off the shales do not come in.

953. What shales are you speaking of?—I am speaking of coal measures, generally, that I have seen.

954. Are you aware what has been experienced in this mine—that water has the effect of disintegrating the shales?—I have had no experience of the shales in this mine; I am only speaking generally of other places.

955. The weight of the water, the pressure of the water, would tend to drive it through the shales, would it not?—No; I do not think so.

956. Now, you say you noticed a creep on one occasion: would you point out again where that was?—I cannot say exactly where it was; but we had come there (pointing to the plan).

957. It was not in the submarine workings?—We had come through here, and were having something to eat at the time, when it began to sound and crack on the roof.

958. That is what you speak of as a creep?—Yes.

959. You heard a cracking?—Yes.

960. Did you see the falls?—No; I only heard it, and we withdrew from the place. I cannot tell you exactly where it was.

961. You do not know the coal-measures at Shag Point: would you be surprised that, in the ordinary coal—solid walls of coal—a great noise is made where it is perfectly and absolutely safe?—No; not at all; it is very common.

962. In supporting a roof of this sort, supposing you had falls taking place, should you resort to packing?—I should have been inclined to pack that roof, I think.

963. And if an Inspector of Mines had ordered you to do it, you would have set to work to do it, I suppose: what would you then pack it with?—I think with timber.

964. Props or chocks?—No; cross-way chocks.

965. Do you think you could have packed these drives that you saw?—Some of them.

966. Do you know that these are shallow workings here—thin seams?—Yes; on that side it is thinner.

967. Would the falls have had less significance here, where the coal is thin, than here, where it is thick?—Yes; they would not have had the same effect on the roof.

968. Could they have packed these supposing coal is taken out and the roof began to come in; at what height will it choke itself?—Of course it varies according to the strata.

969. But in strata of that character?—To make it solid, do you mean, so that no water could come in?

970. So that it would stop the falling of the roof—stop it from coming in any longer?—It would have to fill solid so far up; I do not know what thickness.

971. How far?—It just depends upon what thickness it was there.

972. What, the roof?—No; the coal.

973. But suppose the coal is taken out?—It might have been 10ft. or 12ft. thick there.

974. No; I assume that it is 3ft. or 4ft. thick there?—It might have fallen 12ft. or 14ft.

975. In the 3ft. or 4ft. seam?—Yes.

976. That would all depend upon the character of the measure?—It might be more on the upper seam; it was very high there; you could not see on the top of the fall.

977. Where the thin seam was, how were they?—Some of them I could not tell you; we went as far as we could get.

978. I suppose you expect to find falls in every mine, do you not, especially with a rock cover?—Yes.

979. *Mr. Reid.*] There is one question I will ask you with reference to packing. You say you could pack in some places: would it be the lesser falls or the larger falls that you could pack?—When it was first starting to fall; before any large falls had taken place.

980. I understand you to tell the Committee you could not get into the places where the falls had taken place to any extent?—No.

981. *Hon. Mr. Stout.*] You saw the mine before it was closed, did you not?—Yes; I made this survey.

982. The men were working in it then?—Yes.

983. Did you form any opinion as to whether it was safe or not to work the mine, looking at the support that was left and the pillars?—Not at that time; when I was plotting it I had my own thoughts about it, but I was never asked for my opinion.

984. What were your thoughts at the time you examined it?—I thought that the mine did not look in a very good condition.

985. Supposing the men had been withdrawn from these workings, what would have happened: would the water have come in, or not?—In time it would, I should think.

986. Was there any pumping going on when you were there?—Yes.

987. In what way?—There was a Tangye pump at the bottom of the shaft.

988. Had they a well?—I think they pumped out of the lower level, but I did not see. There is one on that plan (Mr. Bishop's).

989. You say the mine was not in a good condition: was that from insufficient support?—Yes; through the pillars being so uneven.

990. Through too much coal being taken away?—Yes.

991. You say you think you saw a creep in one place?—The roof was on the move.

992. You hear a noise from the pavement when there is a creep in the mine, do you not?—No; I have never heard it.

993. You saw no creeps in the mine, at all events?—No; only falls.

994. Did you see the roof falling in at any place?—No; I never saw any actual falling.

995. *Mr. Bruce.*] Had you any experience in submarine mining at Home?—No.

996. You say you have had twenty years' experience, at least, of coal mines?—Not quite.

997. There or thereabouts, I suppose: did you consider that the action of the Government Inspector, in the first place, in letting water into the mine was judicious, or otherwise?—I do not know what the state of the mine was when he stopped it; I could not say.

998. Do you think that letting it in would have led to the eventual abandonment of the mine as it appears to have done?—I thought the sea would break in sooner or later.

999. I understood you to say that you fully approve, with the experience you have had of mining, the action of the Government Inspector in causing certain workings there to be abandoned?—I should certainly have withdrawn the men from that part of the mine.

1000. *Mr. Rolleston.*] After the men were withdrawn, was the filling with water a natural consequence?—They could still have had a pump working in it.

1001. Would that have been safe?—The pump would have done no harm; it could have been kept working.

1002. *Mr. Bruce*] Would it not have entailed the necessity of having a man down there in the place you say was unsafe?—The pump could have been removed, and they could have had it at the top instead of at the bottom.

1003. *Hon. Mr. Stout.*] How deep was the shaft: a pump can only pump 32ft.?—They could have had a ram.

1004. *The Chairman.*] Have you had any experience amongst shales except in this colony?—In general measures of coal mines.

1005. Only in this colony?—At Home.

1006. Among shales?—Yes; all sorts of measures connected with coal.

1007. *Mr. Macandrew.*] The mine could have been kept dry without having any man down in it?—Yes; by having the gear on the top and sending a man down occasionally.

1008. How often?—Perhaps once a fortnight or once a month.

1009. For how long?—Perhaps an hour.

1010. Perhaps he need not have gone down more than once in six months?—It just depends how the bucket was and the valves were.

1011. *The Chairman.*] Referring to your plan: is that plan prepared in the usual way, such as mining engineers adopt?—Well, the falls and the dross heaps that Mr. Binns wanted specially to be put in would not have been put in a working-plan.

1012. Are the bords and pillars shown properly in the usual way?—If I was surveying for a colliery, and stationed at the colliery, I should survey it in that way. If I was simply making a general survey, I should not go into these details.

1013. Were you influenced by any feeling adverse to the mineowners in making that plan?—Not the slightest.

1014. Would the other plan (Bishop and Taylor's) fairly represent the workings: does that plan fairly represent the bords and pillars?—They are not all in it.

1015. Does it fairly represent those that are?—Not for a colliery survey; for a working plan it does.

1016. Would you explain what you mean by that?—If I were surveying for a colliery, and wanted a detail plan to know what I was doing, I should go into details. If I was surveying for this sort of plan, if the mine was abandoned, I should go in for a plan like that.

1017. Does it fairly represent the width of the bords and the pillars?—No.

1018. I want to know whether it is an absolute plan of the mine?—No.

1019. Was water collecting at all when you were in the mine?—They were pumping.

1020. Do you know at all at what portion it was coming in?—No; I have no idea.

1021. Was it coming in from anywhere except the ordinary drainage of the mine?—I do not know where it was coming from.

1022. Then, you cannot give us any information as to how long it would take to fill the mine up

to the dams, which were subsequently erected, at the ordinary rate it was coming in?—No; I had no idea what water was coming in.

1023. *Hon. Mr. Stout.*] Did you taste the water to ascertain if it was salt or fresh?—No; I did not.

1024. *Mr. Chapman.*] I just want to ask you this, Mr. Twining: You were through the mine; now, was there any reason, that you could see, to prevent the mine manager from keeping the workings pumped and dry?—Not of the water that was coming in.

1025. No; but supposing that you thought that it was safer not to take any more coal out, could the mine manager have gone on keeping the whole workings dry?—Yes.

1025A. *Mr. Reid.*] I want to ask you this, as a professional opinion from you: would, in your opinion, the keeping of the mine dry have the effect of keeping the sea out for a longer time than allowing the mine to fill with water?—No.

1026. You understand my question?—You mean, if it had been kept dry, would it have had the effect of keeping the roof up.

1027. Yes; would it keep the sea out?—No; it would keep up better if the mine were filled with water.

1028. You think it would have kept up better if the mine had been allowed to fill with water?—Yes.

MONDAY, 6TH OCTOBER, 1884.

Mr. BISHOP, examined on oath by Frank Bird, Esq., R.M., at Greymouth.

[Questions sent and replies received by telegraph.]

1029. What are you and how engaged at present?—Am mining engineer engaged as manager of Brunner Mine.

1030. What experience have you had?—Some twenty years as coal-mine manager.

1031. Have you any experience of brown coal-mining in any other part of the world than in New Zealand?—Yes; in Bohemia.

1032. If so, what, and for how long?—Two years, as manager.

1033. How long were you at Shag Point Colliery, and in what capacity?—Nearly two years; mechanical engineer and surveyor.

1034. When did you leave?—July, 1882.

1035. Did you survey submarine workings up to date of leaving?—No; but nearly so.

1036. In your survey, did you show exact width of bords and pillars, or only approximately?—Only approximately.

1037. Are you aware if the widths of the bords was increased after you left?—Not to my own knowledge.

1038. Were there any falls in submarine area when you left; if so, state particulars?—There were some slight falls in south level, and also in some bords on the rise of this level.

1039. With a cover of from 118ft. to 200ft. over the seam in the submarine workings at Shag Point, what sized pillars and what sized bords would you leave at the least, consistent with safety?—The bords 5 yards wide, and the pillars 11 yards.

1040. Ought the coal to be got regularly?—Yes.

1041. Do you consider that allowing the submarine area to fill with water would have effect of so damaging the reef as to assist in letting the sea in?—No.

1042. Would the hydrostatic pressure of the water assist in sustaining the roof?—Yes; I believe it would.

1043. Have you any knowledge of a creep having set in in any mine where the floor was dry?—It is quite a common occurrence for a creep to set in.

TUESDAY, 7TH OCTOBER, 1884.

Mr. Chapman: There is a matter I wish to bring before the notice of the Committee. At the last meeting Mr. Twining was examined, and a great deal was made of the plan that he produced. The objection that we had to this was this: That, although it is now stated to have been the very ground of closing the working of the mine, it was not served on the manager of the mine at the time that it was made, nor was it stated to have been the ground for closing the mine; and as we are not now in a position to survey the mine we complain that we are at a great disadvantage. The chairman of directors of the Kaitangata Coal-Mining Company is present, and I should like the Committee to call him (as his company has employed Mr. Twining from time to time), and to ask him what reliance is to be placed upon his surveys.

Mr. Reid: I object to any one being called to give evidence as to the value of another witness's testimony; if that course were to be pursued the Committee would never end. If you are to drag in some one for the purpose of saying that such and such a witness is not a trustworthy person, we should claim a like privilege. If Mr. Brydone can give us any evidence as to the practical working of the mine, or the letting-in of the water, it is properly admissible; but I object to any one being called to throw aspersions on the evidence of a witness who has now gone away.

Mr. Chapman: It is not a matter of throwing aspersions. But I wish to impress on the Committee that this survey was not stated as the grounds for closing the mine in the letter which Mr. Binns forwarded ordering the works to be closed, and we have had no opportunity of verifying it. We have shown grounds for casting a doubt on it, and the only way we can meet it is by evidence of the sort which I wish to be called. I simply ask the Committee to ask Mr. Brydone what reliance can be placed upon the surveys.

Mr. Macandrew: There is a great deal of force in what Mr. Reid has said; there must be some finality to the matter. At the same time, we are going into the case to get at the truth, and, as Mr. Brydon is here, I should be inclined to hear what he has to say.

Mr. Thomas Brydone, examined on oath.

1044. *Mr. Chapman.*] I believe you are now chairman of directors of the Kaitangata Coal Company?—I am.

1045. Have you had anything to do with coal-mining practically?—I have had some experience at Home.

1046. Do you know Mr. Twining?—Yes.

1047. He was employed by your company?—Yes.

1048. Is he now in your employ?—No.

1049. Will you tell the Committee generally what reliance you would place on his surveys, and whether you have any grounds for casting a doubt on them?—Mr. Twining was what was termed specting engineer of the mine, and was expected to visit the mine regularly once a fortnight, or once a month at the least, and to report. We began to discover that he was careless in his reports and in his examination of the mine, and we consequently lost confidence in him, and about a year ago we dispensed with his services as consulting engineer, and appointed another man. When the new engineer went to examine the mine he made some measurements and surveys, and corrected some that had been made by Mr. Twining. This was Mr. Denniston, whom we employ at present.

1050. *Mr. Reid.*] I understand that you have had no practical experience in surveying?—No.

1051. Your knowledge as to the incorrectness of the survey was arrived at from what you have seen of the plans corrected, and from what you were informed by Mr. Denniston?—Yes.

1052. *Mr. Chapman.*] Did Mr. Twining retain your confidence as a surveyor?—No.

1053. *Mr. Reid.*] You discovered that he was careless as consulting engineer. Have you any reason to believe that, if Mr. Twining was sworn before the Committee to give evidence as to the measurements on the plan, he would willingly make incorrect statements?—I do not think he would.

1054. Has Mr. Denniston your confidence still?—Yes; he is still in our employment.

1055. *The Chairman.*] Of your own knowledge, did you find any of the surveys incorrect?—No; I am not an engineer.

1056. Have any been pointed out to you as incorrect?—I have only seen them as corrected.

1057. *Mr. Macandrew.*] You have seen the discrepancies on the plan?—Yes.

Mr. Binns, recalled.

1058. *Mr. Reid.*] The small tracing marked A2 was made by you?—It was compared by me with Mr. Taylor's plan.

1059. Where?—At Shag Point.

1060. Are you prepared to swear that it is a correct copy of the section of the plan it purports to be?—Yes; it was taken by me from a small section of a plan prepared by Mr. Taylor.

1061. Do you know the date?—December, 1882; it is a portion of the mine that subsequently fell so largely.

1062. *Mr. Chapman.*] You say it was taken from a section of a plan?—It was taken from a plan of a section of the mine.

1063. Does it embrace all you saw?—I am not certain.

1064. It was not taken from a plan of the mine, but from a small piece of it you saw in the office?—Yes; from a special survey.

1065. Was it taken from a piece of the plan that this tracing (Bishop and Taylor's) was taken from, or from another?—No; not from the same as that one.

Mr. Williams, examined.

1066. *The Chairman.*] Do you put in this letter (marked AB) as part of your statement?—I do.

1067. *Mr. Reid.*] I understood you to say, in your examination in chief, that, when Mr. Binns proposed to close the mine and allow it to fill with water, you made strong objections to that course?—Yes.

1068. Verbal objections?—Yes.

1069. That was in March, 1883, was it not?—No; it was before the letter of the 14th February.

1070. Then, it was subsequent to this date that you, on more than one occasion, spoke to Mr. Binns about it being inadvisable to allow the water into the mine?—It was in March; and the time that I again objected was at the meeting with Mr. Rich. I objected all along to the folly of letting in the water.

1071. Did you ever communicate in writing with him on the folly of allowing the water to accumulate?—No.

1072. Did you ever forward any objection to Mr. Maitland, the Commissioner of Crown Lands, or the Government, against letting the water into the mine?—I wrote a letter to Mr. Maitland; the letter has been put in.

1073. That was in June or July, was it not?—No; it was written when the communication came that Mr. Binns had been appointed to inspect the mine.

1074. But that letter makes no remarks on the danger of allowing the water to accumulate?—Mr. Binns had not then forced the water in, but was only talking about it.

1075. When did you first object to the course of letting the water in?—My letter to Mr. Maitland was on the appointment of Mr. Binns. Mr. Maitland wrote to me about the reports of the mine not being safe, and I wrote, in reply, complaining that the matter had not been communicated to me first.

1076. When did you first write about the danger of letting the water in?—When I wrote to Mr. Rich in June, 1883.

1077. What did you apprehend would be the immediate or ultimate danger of letting the water in?—Exactly what I pointed out to Mr. Binns: that, as soon as pumping stopped, and water accumulated, the roofing would at once commence to fall in from the action of the water.

1078. What would follow from the roof breaking: would not the sea come in?—In time; the roof would break up until it reached the last sandstone under the sea, and then it would allow the sea to come in.

1079. Did you ever make any estimate as to the time it would take for the sea to come in?—Not exactly as to the time the sea would take to come in, but as to when we should have to stop working. I put it down as about eighteen months; but the fresh water rose faster than I calculated.

1080. If you thought the sea-water was likely to come in, how was it that you pushed on the works in the mine, making efforts to connect the level in the lower seam with the shaft in the north?—I was not going to stop the work in the mine because the sea was coming in in eighteen months' time; I had to push the works on.

1081. You did not think the sea would come in until after eighteen months?—No; I could not of course speak with any positiveness that it would come in on a certain day; but I thought that, in eighteen months, when the water rose to a certain height, and the dams did not answer (which I did not expect them to do), it would stop me from work below.

1082. How long after was it that the sea came in?—I cannot say.

1083. When do you think it came in?—I could not tell you; I could not say that it has come in now. All the damage that has been done has been caused by the actual rising of the water, that should have been pumped out.

1084. Do you not believe, as a matter of fact, that the sea coming in on the roof was the cause of the flooding of the mine; forcing the water into the dams and round them?—No; as the sea-water had not come in before the water was up to the dams, the dams being 141ft. below the sea-level.

1085. When did the water reach the dams?—On the 19th February, I think.

1086. Then, when did the sea-water come in after that?—I cannot say.

1087. Did you ever observe sea-water in the shafts round the dams?—No; I could not say that it was sea-water.

1088. Did you ever taste it?—Yes.

1089. Was it brackish?—It was more brackish after the 11th February.

1090. If the sea came in, it would force the fresh water up to the dams?—No; the sea-water would remain above the level of the dams.

1091. Have you ever told Mr. Binns that the tide was rising and falling round the claims in the mine?—No; I told him I believed that there was a rise and fall in the water of about 4in.

1092. What would that be caused by?—I told him that I believed it was the action of the tide; but I could not say positively.

1093. I suppose it is impossible to say positively, but you can form a good idea of where a large body of water would come from in workings of this sort?—I know that the large body was fresh water that we were pumping out.

1094. Do you mean to tell the Committee that the flooding of the mine was entirely due to the fresh water?—Yes; entirely so. The damage done was entirely due to it; the sea has had nothing to do with it. The damage was done where the sea-water was 140ft. above the level of the dam.

1095. Did you ever mention to Mr. Binns, either verbally or by letter, that the sea was likely to break in?—No; I never mentioned it as being likely to break in. I said that the sandstones and shales would gradually wear away till the last sandstone was reached, which would then crack and allow a small portion of water to come in.

1096. It would only come in, not break in?—No; what I call breaking in would be pouring in.

1097. You have seen this plan (Bishop and Taylor's) before?—That is a tracing taken from the plan.

1098. Where is the plan itself?—At Shag Point.

1099. You have not produced that?—No.

1100. Does the company's plan show more on it than this tracing?—Yes; there are four cross-cuts in the submarine portion of the mine, marked A in the tracing.

1101. Were they cross-cuts or bords?—Bords put through.

1102. Narrow or wide?—Some 14ft.

1103. Do you know any to be more than 14ft.?—Only in one case.

1104. What is the width of that, and which is it?—It is the second. On going through the mine with Mr. Binns I found the men had cut it nearly 20ft. wide for about 3ft. in length.

1105. This tracing is taken from a plan made some time ago: How long ago?—It was made at different dates.

1106. When was the portion marked A made?—In 1880 or 1881. It was the first portion done.

1107. When was the portion to the north of A made?—Somewhere about the same time. Part of it was added to as the works progressed.

1108. What do you call this portion?—I have no name to identify it; it is at the north side of the submarine works; A is about the centre.

1109. Was any alteration in this part of the works made on the plan subsequently to the date of survey from which this tracing was taken?—The only alteration I know of was the inaccuracy of the top bord, next the water-lodge room.

1110. What was the inaccuracy there?—The bord should not exist at all; and with Mr. Binns's consent I marked off a new bord in the centre of the block of coal and worked it.

1111. Then no fresh survey of the submarine works was made subsequently to the date of the original plan, from which this tracing was taken?—The surveys followed on from the time the work started; and as the bords progressed were plotted then on the plan.

1112. You knew when Mr. Twining visited the mine?—Yes.

1113. Do you remember the exact date?—I do not.

1114. He told us that he started on the 1st February and remained there ten days; do you remember his visit?—Yes.

1115. Were you present at the mine?—Yes.

1116. Did they tell you what they had come for?—Yes; Mr. Binns wrote to me and told me.

1117. Do you remember Mr. Taylor being present?—I do.

1118. What was he?—He was a mining surveyor.

1119. What was his duty there with reference to the survey?—He went through the mine to take measurements and help in the survey.

1120. He took notes, did he not?—He did.

1121. Did you see those notes?—Not all of them.

1122. Did you at any time see them after they were finished?—No more than the note-book in his hand; except when he called my attention to the bord that I spoke of in my evidence.

1123. Did you ever give him instructions to prepare a plan from his notes?—No; Mr. Taylor asked me if he should make one, and I said he might go on with one; but that I should not take his plan until I had seen the Government one—that is, Twining's plan.

1124. Did he ever make a plan from his notes?—He started to make one directly afterwards.

1125. Who stopped him?—He left for England, and never finished it.

1126. When did you first see the Government plan?—After Mr. Denniston put it on his map, in August, 1883.

1127. Did you ever apply for it before?—I applied for Mr. Denniston to get a copy of it. He had applied to Mr. Binns and was unable to get it.

1128. Did you get a copy of it?—Mr. Denniston got a copy, or the map to copy from.

1129. Mr. Taylor did not leave for England till four or five months after the survey was made?—No.

1130. You knew that Mr. Twining's object was to make a special survey of the mine?—Yes.

1131. How was it you did not instruct Mr. Taylor to make a plan from his notes, seeing that you had the material to hand?—I did not want him to make one.

1132. You had a nice plan already, with regular bords, &c., and did not want to spoil it with irregular ones, I suppose?—I do not know of any irregularities. I was waiting for the Government plan, and then I was going to take his notes to see if there were any inaccuracies.

1133. Did you get the Government plan before Mr. Taylor left?—I do not know exactly when he left.

1134. Did he not, before he left, tell you any particulars from the information he had got on this survey, or did he give you any idea of the results obtained from the measurements?—Mr. Taylor told me that when the Government plan was produced I should find that the measurements were all much too wide, as against his notes; that they had been taken in all the widest parts and made the most of.

1135. Did you know that Mr. Taylor was going away?—No; not till the day before he left.

1136. Why did he leave?—He had a letter from the captain of a vessel in Lyttelton, who knew his people, and who offered him a free passage.

1137. Did you ever communicate with him with a view to get a copy of a plan from him?—I wrote to him to ask him to lend me the notes he took. I received no answer.

1138. When was that?—Some few months ago. There has been time for an answer.

1139. Then, you got no plan from Mr. Taylor's notes, although you were informed that the measurements taken by Mr. Twining were exaggerated?—I was not aware that Mr. Taylor had taken his field-book with him.

1140. What was the object of your having Mr. Taylor at the mine?—It was not for checking the measurements; neither Mr. Binns nor Mr. Twining would have taken any opposition from Mr. Taylor.

1141. But, if he was there to make a check survey, would he not take measurements of his own to point out any errors?—He did take them, and took notes of where they were wrong.

1142. And, notwithstanding that, you got no plan made?—No; I was waiting for the Government plan, and was quite satisfied with my own plan.

1143. Do you know the average size of the bords and pillars as shown on Bishop and Taylor's plan?—The bords average about 14ft.; the pillars vary.

1144. Can you show me a 16ft. bord on that plan?—No; they are all about 14ft.; some 13ft.

1145. Mr. Denniston has told us that the pillars are from 25ft. to 35ft.: can you show us any on this tracing of that width?—Here is one that scales over 7 yards.

1146. What is the width of the newest part?—At the cross-cut it is 5 yards; another is 24ft.; another is a little over 16ft. In the underground workings, in the 3ft. 6in. seam, there is a pillar varying from 9ft. to 21ft. in width.

1147. It is a very difficult thing to take an average, I suppose, the measurements varying so much?—Yes.

1148. Will you compare this tracing (marked A 2), taken from the original plan, with the corresponding part of the tracing (Bishop and Taylor's) before you, and say in what respects they agree?—They do not agree at all. A bord which has been taken out is not shown in the larger tracing.

1149. The small tracing (A 2) shows a later survey?—Yes.

1150. It shows, therefore, more coal and less support?—Yes.

1151. Will you measure this centre pillar (on A 2)?—It is about 7ft.; its length is about a chain and a half.

1152. What is the width of the top bord?—Seven yards. I should like to state to the Committee that Mr. Taylor submitted this small plan to me, and I told him then that it was not right—that he had made a mistake, and that there was some part of the mine, shown according to this one, that showed 21ft. of coal taken out.

1153. *Mr. Chapman.*] Does it represent a survey, or only a sketch?—Only a sketch; which I would not have put on the plans.

1154. *Mr. Reid.*] In these matters, were you supreme in the matter of survey, or was your surveyor: did you dictate to him what measurements to take?—Only if I found they were wrong.

1155. Why was this plan made?—For the purpose of putting into position the bord that was taken through the chain pillar.

1156. That is not shown on the trig. plan?—No; it was taken out afterwards.

1157. There is a good deal more shown on the plan at the mine than on this tracing?—No; only one bord.

1158. Why did you not bring with you the working plan of the mine, which shows the latest working up to date?—I understood that it would not be wanted; that Mr. Binns's—or, rather, Mr. Twining's—plan would be taken.

1159. What experience have you had besides at the Shag Point Mine?—I have had none besides at Kawakawa from 1869 to 1878.

1160. *Mr. Chapman.*] As to this tracing, A 2: Mr. Taylor made a survey with the object of putting in one bord to the rest of the plan; it is only a sketch?—Yes; I told Mr. Taylor that he had made a mistake in it.

1161. Did he go down to look at it afterwards?—I went down with him and showed him the place.

1162. Did you measure it?—Yes; the widest part was where the pillar was splitting, and we took off some 6ft. or 7ft.; this would make it about 21ft., where the pillar split, of about half a chain in length.

1163. *The Chairman.*] This cannot be said to be a special survey?—No.

1164. *Mr. Chapman.*] I understand that at the first, when Mr. Binns ordered you to take the men from the seaward workings and let the water in, you refused to obey that portion of the order?—I distinctly refused to stop pumping. I said, whatever the consequences might be, I would not stop the pumping.

1165. And he assented to that until Mr. Rich's return?—Yes.

1166. And you constantly protested against the idea of letting in the water?—Yes; each time I saw him.

1167. Did you ever try pumping at a later date?—Yes.

1168. When?—For some months before February, 1884.

1169. And what could you do with the pumping?—I kept the water back, and took it from the upper seam by a syphon to the lower seam, and kept it back from rising against the dams. My whole fear was that when once it got to the dams we should be stopped.

1170. And up to the time the water got to the dams you had no reason to suppose that the sea-water had come in?—No.

1171. With reference to Mr. Twining's survey, you called attention to an inaccuracy complained of by Mr. Taylor?—Yes.

1172. Did other complaints of inaccuracies reach your ears?—During the survey Mr. Taylor told me that they were making the places far too wide.

1173. Any notes that Mr. Taylor took were of the same measurements that Mr. Twining entered in his book?—Exactly.

1174. Mr. Taylor was not making measurements to check the others?—No.

1175. When Mr. Denniston required the Government plan, do you know if he got it at once?—After a little difficulty; he had to telegraph to Wellington, and then to me to get an order to get it, although Mr. Binns knew that he was acting for the company.

1176. When did you come to know first that the plan had been made at all; for there is no plan mentioned in his letter ordering the closing of the mine?—When it was required for Mr. Denniston.

1177. Mr. Binns has said something about your agreeing with him in the construction of the dams or flood-gates: will you tell the Committee what passed between you with reference to the flood-gates?—When Mr. Binns wanted me to put in dams I told him that I did not see the use of them, and said that we might put in some flood-gates; so that, supposing the water to rise rapidly, we might lower them in a few minutes and check the water; not that I expected them to be of any use.

1178. Something has been said about the weighting of the mine; about a noise that was heard in the mine: what importance do you attach to hearing noises in a mine?—Very little; there is no mine in the world that noises are not heard in. On the men sitting down to dinner—and especially in coal the same as Shag Point—they would try to hole to a back, and the coal would split off from the back and make such a noise that strangers at any rate would want to get out of the mine.

1179. Were there any symptoms of weighting in this mine?—Never; not of any consequence; no more than a bord breaking down. The only weighting that took place was as the water rose up the incline.

1180. With regard to the safety of this mine generally: have you had a considerable number of accidents?—No; I have had very few.

1181. *Mr. Reid.*] Do you know the number of accidents in mines recorded for the year 1882 or 1883?—Not from memory.

1182. Are you aware that in one year half of the mining accidents in the colony took place in the Shag Point Mine?—Yes; I am aware of that; and I know of a reason for it. A great many more than half the accidents that happen in the mines in the colony are not reported. In many instances I have reported things that were trivial; I have been very particular. I have never had a man hurt through carelessness in managing the mine; all the accidents have been attributable to the men's own carelessness.

1183. *Mr. Macandrew.*] I understand that you are a partner in this mine, as well as manager?—I am.

1184. You have therefore a direct personal pecuniary interest in seeing that it was properly worked, and so as not to prejudice its safety?—All I possess is in the mine.

1185. You would have sacrificed you own interest had you allowed any irregularity?—Certainly.

1186. How many men were employed in the mine?—From eighty to one hundred and thirty.

1187. Did they at any time express a fear of danger?—Never. At the time they were thrown out it was a matter of great discontent that they were obliged to come away from such good-paying work.

1188. If the mine had not been stopped, you would have had no difficulty in getting any number of men to work?—No; I can get men as fast as any man in the colony.

1189. *The Chairman.*] Why were not the matters concerning Mr. Twining, which are referred to in your letter of yesterday and now before the Committee, spoken of when Mr. Twining was here?—I was not here when he gave his evidence.

1190. Were you informed of what his evidence was?—I was.

1191. How was it that these matters concerning Mr. Twining and his surveys were brought up by you now, after he has gone away: was it because you did not remember to speak of them before?—On thinking over the matter I thought about his report; but when giving evidence I did not think of it.

1192. Do you not think it has a look of prejudicing Mr. Twining somewhat for new matter to be brought in after he has left?—It does look like that; but there are many things besides that I did not think of in giving my evidence.

1193. It did not occur to you to make this reference to the Committee while he was here?—No.

Dr. HECTOR, examined on oath.

1194. *Mr. Reid.*] You have had considerable experience with reference to coal-mining generally?—Yes, I have, all my life, as a geologist.

1195. Have you examined the Shag Point Mine?—Not for many years; I have no knowledge of recent workings.

1196. You have reported on the action of Inspector Binns with reference to closing the mine?—I wrote some minutes on it; I have not made a formal report.

1197. Are you aware of the action taken with reference to closing the mine?—Yes; so far as I remember, Mr. Binns closed the upper workings of the submarine portion on account of its being unsafe.

1198. Please look at the sequence shown on this map (on the wall) to show the nature of the cover of the submarine workings. Will you tell us whether, in your opinion, it would be a wise thing to let water into this mine, with that cover of 118ft. to 200ft; or whether the water would give any support to the roof?—As far as I remember, from the case as formerly explained to me, there is no object in preventing the roof from collapsing, because there is no working below. My first idea was that it was intended to work the coal from beneath, in which case it would be wrong to allow water to stand in the upper seam. I was formerly labouring under a misapprehension when before the Committee. I do not know what object you could have in keeping up the roof. The best thing in an old worked-out mine is to let the roof subside

1199. Would the water if allowed to accumulate in the mine give any support from its hydrostatic pressure?—It would support the roof generally. The support would be greatest at the lowest part of where the water is standing, and would vanish in the upper part. The support would increase about half a pound per square foot for every vertical foot you descend. The roof could only subside as a whole by displacing the pressure of the water. But in the ordinary sense, supporting a roof in a mine means supporting bad portions of the roof. Now, the water would not do that, because the specific gravity of water is not increased by pressure upon it. A stone becoming loose would fall with equal velocity through water whatever the pressure on that water.

1200. Suppose the water were kept out of this working, would the air have a disintegrating effect on the roof equal to that of water?—Damp air would disintegrate shales with iron pyrites in them more rapidly than water. It would do this by the formation of alum salts, and the expansion of the clays, by the crystalization of such salts in them, would cause disintegration.

1201. *Mr. Chapman.*] Does this roof contain shales with iron pyrites in them?—As far as I can remember, some of the shales have iron pyrites in them.

1202. *Mr. Reid.*] Do you think, from your knowledge, that the action of water standing in the mine would have so disintegrated the roof as to bring the sea in?—No; it would be only the immediate roof that would disintegrate. Long before it would disintegrate all through, the expansion of the hydrated strata would completely fill the underneath space.

1203. As a matter of science, taking water out after it has been allowed to accumulate does more damage than anything else?—Yes; it is in the drying of strata that have been saturated with moisture that all the cracks and fisures occur.

1204. What would be more likely to bring the roof in than allowing water to accumulate in underground workings?—Anything that tended to dinsitegrate the strata.

1205. Would not the weakness of the pillars have more to do with it?—If the pillars are not sufficient the roof would fall in in any case. The reason of leaving pillars is to prolong the existence of the mine. Sooner or later all mines collapse, and the pillars are merely left to prolong their existence, and the proportion that the pillars bear to the worked out coal is carefully considered according to the circumstances of the case.

1206. With reference to the method of working this mine; with a seam of from 10ft. 6in. to 3ft., and into a dip of 1 in 4, what would be a safe thing to leave in pillars for submarine workings, at the very least?—About half and half. It would depend again on the roof. Judicious management in shaping them so as to take advantage of proper lines of support might enable more coal to be taken out.

1207. Would the pillars require to be regular or irregular?—They should be all on a regular system.

1208. Please look at this plan (Twining's): is that a judicious system of working, with reference to the width of the pillars?—Some of these are very narrow. Perhaps the coal thins out. Merely looking at the plan, I should fancy that in this case there must have been a thinning out or a fault, but there is nothing to show; otherwise, these supports would be very narrow.

1209. Is there any regularity in the method of working these?—If you have a seam that thins out in places you must alter the mode of working very considerably. You could not expect to work it with the same regularity as with a regular seam.

1210. Please look at this tracing (Bishop and Taylor's), and see if you see any difference in the mode of working?—The latter must have been drawn at a different stage of the development of the mine altogether. I think it has been commenced right enough.

1211. Would you think it advisable to take bords of this size (between the two main headings) out?—No; decidedly not. For instance, here is a space, 7 yards wide by 10 yards, without any support, and the thickness of the coal there is from 8ft. to 10ft.: the space is too large.

1212. *Mr. Chapman.*] You assume now that there was no object in keeping up this roof?—I assume that the object was not to protect workings beneath the seam.

1213. Do you now understand that these workings beyond the water-line are in the upper seam; that the workings marked red (map on the wall) are in the lower seam; but that the water, before it rose to the level in the upper workings, would flow into the lower seam through the shaft which intersects the upper seam 140ft. below the sea-level?—The papers shown to me show a dam to prevent the water getting into the shaft.

1214. Do you understand that it was put up with a view to keep the water out of the lower workings?—Of course that would be the object: to enable them to work the lower seam.

1215. Do you think it would be possible to fill the upper-seam workings and at the same time keep the water out of the shaft?—You could do so to a certain extent, and then begin pumping, and not allow the water to rise above the dam.

1216. Would you allow it to rise to the level of the dam?—No; the success of the pumping operation would depend on whether you could keep the water down to a certain level in the upper workings.

1217. If the sea broke into the upper workings you would not expect to pump against the inroad of the sea?—It would depend on the size of the orifice. It would be a matter of whether you could cope with the sea or not; but the sea would break in sooner or later.

1218. Do you think that the roof of the upper workings would be maintained longer by filling with water?—I do not think it would make very much difference; but, if anything, it would prolong the life of the mine. It would give a certain general resistance, but it would not give resistance against special falls in the roof. The pressure of the water would not act like props to the roof. The pressure would be greater in the deeper part of the workings.

1219. Then, the value of this hydrostatic pressure takes no account of any effect the water might have in disintegrating the shales?—That would depend on the character of the water.

1220. But supposing them to be dissolved by a, so to speak, mechanical process?—The space would very soon fill up with sludge.

1221. The water would rapidly dissolve such shales as there are there?—No; I did not say that. I said, if it did so, the space would fill up.

1222. If the person who examined the mine while the flooding was going on, and who was intimately connected with the character of the mine, had said that the shale was dissolved by the water, you would have nothing to contradict that statement?—If he says that the water dissolved the shales I should have nothing to say; but I have never experienced such a thing.

1223. You are not intimately acquainted with the mine at present?—No.

1224. Your attention has been called to some ground on the plans said to represent falls: would you attach much significance to them in the 3ft. seam?—The expansion of the strata would give the roof support again.

1225. The injury falls do, in a very narrow seam like that, is less than half what it is in a seam double the size?—I suppose the falls took place in consequence of the coal taken out. The injury would be the removing the lateral support to the other masses of coal; but that injury would cease when the packing relieved the weight.

1226. You have spoken of weighting mines, and the quality of coal that can be taken out. There is a considerable difference in what is shown on the two plans. Taking the parts of this (Bishop and Taylor's) plan unaltered, does this appear to you a safe and prudent mode of working a mine?—I think there is abundance of support left in ordinary cases.

1227. Even for submarine workings?—I should think so. The supports to the north of the part marked A appear a little confused and narrow. Certain irregularities are permissible, but they should be very carefully considered before being permitted in submarine workings.

1228. With reference to all coal-workings, I presume the method in different mines is left much

to the judgment of the mine manager?—Yes; to a certain extent; under the proper inspection of the surveyor of the mine.

1229. In one of your reports you said that you thought letting water in should be undertaken with great care, as it might be a standing danger to the mine?—I was then under the impression that it was proposed to work the lower seam.

1230. But would it not be a standing danger to the mine under the circumstances?—Not if the mine was pumped whenever the water approached the shaft, unless a fracture took place. If a slip or fault occurred from any cause it would be a question of how rapidly the sea was admitted.

1231. It would be a standing danger to the mine if the dams did not hold out?—I do not consider so. Being full of water and not working underneath, and if the water is kept from rising and passing down the shaft, there would be no standing danger.

1232. That depends on whether you could keep the water under?—Yes; so far as I can remember, the rise was exceedingly gradual.

1233. I understand that you expressed no opinion as to the filling of the mine with water?—No; because, as I have stated, I wished to consider the matter more carefully. The papers submitted to me showed that the increase of water was very slight, and I thought that the question of allowing the works to fill should be very carefully considered; always being under the impression that the object was to prevent the tendency to collapse in the upper strata being transmitted, so as to crush what was below. How I got that impression was that in Mr. Williams's letter he pointed out that he desired to work the lower part of the mine.

1234. The water rising would in time inevitably press on the lower workings?—I do not think it could ever press on them, for they were not allowed to extend underneath.

1235. Would not the water, if allowed to accumulate in the upper workings, rise and lie above the lower-seam workings?—Yes; to a certain extent.

1236. Would not this add to the burden that the cover of the lower seam had to bear?—No; I do not think the mere weight would materially do so, because the weight of a thin stratum of water would be a very small fraction of the whole weight of the superincumbent strata.

1237. Would it find its way through?—No.

1238. Would it not be safer to keep the water off these workings altogether?—I do not see any object in keeping the water out.

1239. Can you see any object in letting it in?—If my opinion were asked, I should keep the water pumped back to the vertical line over the lower workings; that would be 60ft. or 70ft. below the level of the dam in the shaft; although I do not think it would make very much difference.

1240. What objection would there be to keeping the upper workings dry altogether?—One objection would be the great expense of pumping; another that they would be deserted works, and always undergoing deterioration; besides the enormous risk of life in sending men down to keep the pumps free. There is no particular object in keeping the water out of these parts. The question of whether it should be kept out of the part overlying the lower workings that are not submarine is a minor one.

1241. You say that allowing water to come into a mine is always a serious question?—Yes; in any working it requires to be carefully studied, and precautionary measures are generally taken when works are going to be carried on underneath the water.

1242. In this case you were not consulted as to the letting in of the water?—No; I approved generally of what Mr. Binns had done; that was, after the water came in.

1243. Did you express approval of that?—Yes; in one of my minutes. I do not think that the accumulation of water has been the cause of the sea getting in.

1244. But you do not speak from examination?—No.

1245. At the time you reported in July, 1883, did you think it was a matter for inquiry?—I do not know.

1246. Did you think it desirable that the Inspector of Mines should have been relieved of the responsibility of deciding such a matter?—I do not think it is ever a good thing for any one to interfere with a statutory officer in the discharge of his duties. There is a certain course prescribed by the Act, which is to be followed. I do not know whether he was an Inspector under the Act, or whether he could enforce what he recommended.

1247. Did you express any opinion as to the inquiry that was to be held?—I thought Mr. Binns could take no exception to an inquiry. I stated as much to Mr. Rich, who came for the purpose of asking if such an inquiry would be felt by Mr. Binns.

1248. *Mr. Macandrew.*] Do you not think it would have been prudent on the part of the department to have granted a Commission of inquiry into all the circumstances of the case, seeing the interests at stake and the consequences that have resulted from closing the mine?—Inquiry was made of me, and I answered it according to my ability. That turns upon whether the mine has been shut up in consequence of anything that the inquiry could have disclosed.

1249. The inquiry was to prevent the threatened action?—I am not sufficiently familiar with the working of the Act to know whether it would involve any complications; but I think all possible information should be got in these cases.

1250. The hard-and-fast letter of an Act should not be allowed to be detrimental to the public interests?—I quite agree with that.

1251. *Mr. J. McKenzie.*] You are aware that Mr. Williams and Mr. Rich had strongly protested against the action of filling the mine with water, as what has happened would, in their opinion, happen: were you asked to give advice?—Not for the reason given: that, if the water was kept out, it would permit the seam to be worked underneath it

1252. In your opinion, you did not think that what was expected to occur would occur?—No; it has not occurred. The coal has not been worked out from underneath the submarine workings.

1253. But the mine has been closed?—If I had had at that time all the evidence I believe I could have got, I would not have objected to filling in the mine to cover that part of the seam which was not being worked.

1254. You do not think the reasons given against it are not sufficient?—I say that now, from the light of what has taken place. Judging from what I see now, a Commission would not have altered the circumstances; nothing else could have been done than what has been done.

1255. *Mr. Bruce.*] From the fact of your having said that it would have been attended with enormous danger, keeping these workings dry, you entirely approve, with all the knowledge you possess, of the action of the Government Inspector in allowing the water to accumulate?—I do.

1256. Then, I understand you to say that it was problematical that the sea has yet broken into the mine?—No; I cannot say. It is a mere matter of evidence whether it is sea or fresh water in the mine.

1257. You said, as I understand, that there was 136ft. of cover, and that as the falls come down, the sea does not necessarily come in by the falling of the roof?—No; it might come in by a fracture of the superincumbent strata; but long before the roof would scale so as to admit the water, the workings would be tightly packed.

1258. How can they not now keep it dry?—I expect that there have been fractures; but I do not think that the roof falling over the seam would be a cause of fracture of itself.

1259. *Mr. Rolleston.*] When you wrote this minute in July the mine had been closed for some months?—Partly closed; they were still working in the other part of the mine.

1260. You were then asked your opinion: Had you not then in your office the advice of a legally-qualified Inspector of Mines, who had been in the mine?—Yes.

1261. You have read his memorandum?—Yes; I talked the matter over with him.

1262. Did you not understand, from this memorandum, that sooner or later the sea would break in from the falls in the roof?—Yes.

1263. And, further, that, if the sea did break in, nothing but the wedge-dams would save the other workings?—Yes; that was the chief object of them.

1264. And that nothing could then save the mine?—Yes; that is what was to be inferred from the report.

1265. That, unless the dams were efficient, it was evident, in Mr. Cox's opinion, that the water would prevail?—Yes.

1266. What were Mr. Cox's qualifications?—He was a trained and qualified mining engineer.

1267. You have entire confidence in his judgment?—I have.

1268. Could a better-qualified man have been applied to to give an opinion as to the proper course to be taken?—No.

1269. If you had been asked to advise upon any one to act on a Commission, would you have suggested Mr. Cox?—Certainly.

1270. Seeing, then, that your own judgment led you to the conclusion expressed in your minute, and that Mr. Cox held a like opinion, are you now of opinion that any good purpose would have been served by the Government appointing a Commission to inquire?—No; I do not think any other conclusion could have been arrived at but to support the action of the Inspector.

1271. Would it not be a very serious responsibility for a department to throw doubt on the act of an Inspector where life is involved?—Very serious; it is always most dangerous to interfere with an officer like an Inspector of Mines. Any interference would tend to relieve him from feeling the weight of his responsibility, and prevent his taking that prompt action which is imperatively necessary in order to save life.

1272. Are you aware of other instances in this colony where loss of life has been the consequence of the Government not promptly insisting on the advice of their inspectors?—Yes; the Kaitangata explosion is a case in point. That was because the Act was not in force; but the Government had been advised two months before that the explosion would take place; but the advice was allowed to be neglected as the Inspector was not at that time a statutory officer, and the machinery of the Act not in operation, and he had no means of acting on his own responsibility.

1273. Who was the Inspector who gave that advice?—Mr. Binns.

1274. *Mr. Chapman.*] Under the Act there is something in the nature of appeal. If the Act was not in operation with regard to this mine, and if there was no statutory mode of appeal, do you not think that some way of appeal should be afforded by the Government?—It should be brought under the statute.

1275. But supposing it was not, should not some equivalent be given?—It should depend on what equivalent they might have got for being outside the statute. If any mine is not controlled by the statute it must be in a peculiar position, and must enjoy some advantage which others do not enjoy. It would depend on that whether it should receive consideration in another direction.

1276. *Mr. Rolleston.*] Are you not aware that, supposing it had been under the Act, the application that was made by Mr. Rich was after a lapse of time that is not contemplated by the Act? I do not know enough about the Act.

WEDNESDAY, 8TH OCTOBER, 1884.

Mr. A. B. LINDUP, examined on oath.

1277. *Mr. Reid.*] What are you? I am a mining engineer.

1278. What experience have you had?—I gained my certificate in 1877; I have been connected with mining ever since I left school.

1279. In what places?—Station Colliery, Roughwood Colliery, Glebe Colliery, and collieries in Staffordshire.

1280. How long have you been a certificated manager?—Since 1877.

1281. Have you been practising since then?—Ever since.
1282. Do you produce your certificate?—I do.
1283. From what authority?—From the Secretary of State.
1284. Please look at the sequence shown on this plan (wall plan.) With this sequence and this cover, if water were allowed to accumulate in the submarine workings, would it have any effect in sustaining the roof or otherwise?—The water would have a tendency to uphold the roof and sides according to the vertical height of the water.
1285. Do you think that the effect of the water, if allowed to accumulate, would be to raise the fireclay floor as much as 2ft. in seven days in places?—No; I do not think so; but I have seen fireclay raised more than that from the superincumbent weight of the strata above pressing on the pillars. The smaller the pillars are the more would upheave.
1286. What would you think should be the average size of pillars and bords in this mine, with a cover of from 118 to 120ft., at the least, consistent with safety?—Forty per cent. would be the maximum amount of coal that should be taken out, consistently with the safety of the mine. The bords should be 4 yards and the pillars 6 yards.
1287. In these submarine workings do you think that allowing water to accumulate in the upper-seam workings would have the effect of accelerating a splitting or cracking of the roof overhead?—No; it would crack anyhow. The water would tend to stop it. But it would go on cracking whether water was left in or not. The water, however, would have a tendency to keep the roof up.
1288. Please look at this tracing (Bishop and Taylor's), what do you think of the workings as shown there?—It seems to be very irregular; in some places there are 4 yards, and in others 5 yards.
1289. What does this narrow bord scale?—About 8ft.
1290. Please look at this plan (Twining's): what do you think of that system of working?—More extensive working is shown on this plan. The narrow bord, according to this plan, scales over 15ft. in the broadest and 13ft. in the narrowest part.
1291. Are the workings as shown on this plan regular or irregular?—They are very irregular in some places; and, however well the rest of the system may be laid out, one weak spot would damn the whole concern.
1292. Please scale the south side of the workings?—It measures 90 yards for ten bords and ten pillars.
1293. Then, if there are ten bords at 14ft. each, what is left for the pillars?—130ft. for ten pillars, which makes the average width of the pillars 13ft.
1294. Taking the bolt-holes out of this, would you consider that sufficient for safe working?—No; it would be dangerous,
1295. With this system of working, what width of pillars would you leave for support?—I would leave 6-yard pillars, taking care to keep them regular and of a uniform width.
1296. *Mr. Chapman.*] You say you would keep them regular?—Yes.
1297. Can you always keep them regular in brown-coal?—I have had no experience in brown coal; but I should think it would make no difference.
1298. Looking at this plan (Twining's), can you imagine that it shows the correct workings under a prudent manager, who has his own capital in the mine?—No; I should not think so.
1299. Can you imagine a man having his own capital in the mine working it so as to show this state of things?—No; I cannot: it shows a want of foresight.
1300. You see a great deal of difference between these plans apart from the little detail of the particular bord which has been picked out for measurement: does this tracing (Bishop and Taylor's) show generally a sufficient width of pillars?—Yes; in a good many cases; but there are irregularities.
1301. In the 3ft. seam you do not require so much support, I suppose, as in larger seams?—Yes; almost as much.
1302. But there is not so much to fear from letting down the roof in a seam of this size?—Not so much as there would be in a larger seam.
1303. You were asked what width of pillars you would leave: you do not agree with a person who says it is necessary to leave 11-yard widths?—No; that would be excessive; but I should not have commenced working in the manner shown on this plan (Twining's).
1304. *Hon. Mr. Stout.*] You would have come back?—Yes.
1305. *Mr. Chapman.*] But it is safe to work the bords at an ordinary width in advancing?—Yes; but you had to fear losing the mine.
1306. But under prudent management, and leaving sufficient pillars, you might go on working the mine at a profit and getting coal in the advance workings?—Yes.
1307. You were asked with reference to the hydrostatic effect of water: that would be, if the water were unconfined, equal to the vertical weight of the water?—Yes.
1308. This would have no effect in keeping up the roof in detail?—Yes, it would; for it is a fact well known in mining that the fall of the barometer conduces to a fall of the roof.
1309. You have seen a floor swelling and coming through in the drives. Supposing you observed that, so long as the floor of the mine was kept dry, there was no swelling, but the moment that water was let in the floor began swelling as the water rose, should you not then attribute the swelling to the direct action of the water?—If I saw it I should believe it to be the case; but I should not think that it would have that effect. It would be a new experience to me.
1310. You do not know this particular mine?—No.
1311. Have you been mining in Otago?—No.
1312. You do not speak, then, with a local knowledge?—No.
1313. *Hon. Mr. Stout.*] What system of mining were you trained to?—Longwall, pillar, and stall systems.

1314. You had no brown coal?—No.

1315. What were your roofs?—All kinds; binds, shales, and different descriptions.

1316. Some of the mines in your district are very deep, are they not?—Yes; the last one I was in was 600 yards.

1317. Your pumping was done by steam?—We do not have much water, as a rule, in deep mines. We tube it back at the earlier stages at about a depth of 150 yards.

1318. *Mr. Rolleston.*] From this plan (Twining's) you think the workings dangerous to human life?—Decidedly so.

Mr. Blackett, examined on oath.

1319. *Mr. Reid.*] What are you?—I am Engineer-in-Chief for the colony.

1320. Are you familiar with coal-workings?—I have seen a good deal of them in different parts of the world.

1321. Have you ever seen a drowned mine?—No.

1322. Are you aware of the effect of water confined in a pit, as to its pressure or otherwise?—Yes; I should know what the effect would be.

1323. Please look at this plan (wall plan) and the sequence marked on it. With this sequence and this cover, could you tell us whether water allowed to accumulate in the lower workings would have a sustaining effect or otherwise; whether it would have any hydrostatic pressure in supporting the cover?—It would have a pressure equal to the head of water.

1324. Are you familiar with the method of working coal mines?—I have studied it a good deal, but have had no practical connection with the working.

1325. Please look at this tracing (Bishop and Taylor's). One of the witnesses has sworn that this narrow bord is 14ft: what do you make it?—8ft. 3in.

1326. Are you aware of any railways or superstructures built on land partly supported by water?—No; I could not quote an instance.

1327. Do you know the Chatmoss Railway?—I have been over it.

1328. Do you know if that is partly supported by water?—It is floating on a bog.

1329. What supports the line?—The embankment is supported by the moss or peat.

1330. Has the water nothing to do with it?—Yes; the water assists in the support.

1331. *Mr. Chapman.*] If the Chatmoss were drained it would shrink, I suppose?—Yes; the railway would go down.

1332. Water, if absolutely confined, has a large supporting power, I suppose?—Yes.

1333. If it is not confined it has a supporting power equal to the vertical weight of the column pressing?—It exerts an upward pressure on the roof, and a downward pressure on the floor.

1334. *Mr. Macandrew.*] Would it be possible to pump a mine by machinery without risk or danger to human life; and could not the whole operation be conducted from the surface?—That would depend on the depth of the mine.

1335. The connecting gear could go to any depth, could it not?—That would depend on what facilities you had for getting at the lower part of the mine.

1336. What I wish to know is, whether the mine could be kept pumped dry without a man or men going underground?—It could only be so kept by perpendicular shafts, for there would be no means of getting at the water except that which is directly under the shaft.

1337. *Mr. Chapman.*] But, if there was a lower level, could you not conduct the water into it from the inaccessible parts, and so pump it up?—Certainly; if the lower level was accessible.

Mr. H. A. Gordon, examined on oath.

1338. *Mr. Reid.*] What are you?—Inspecting Engineer to the Mines Department.

1339. Are you also a surveyor?—I am an authorized surveyor.

1340. Do you know anything of the sustaining power of water?—It would be equal to about 2½ tons per square yard for every 10ft. in depth.

1341. Have you had anything to do with underground workings where water has come in?—Yes; a good deal.

1342. Have you had any experience in coal?—Not a great deal.

1343. What was your experience?—In alluvial and quartz mining; the former at Ross.

1344. What was the nature of the ground?—Very heavy and wet.

1345. Many of the claims have been abandoned on account of the water, have they not?—They were not exactly abandoned, but flooded out time after time; and finally they were left full of water for over twelve months, while draining machinery was being procured.

1346. Had you occasion to examine any of the shafts in which the water had been allowed to stand?—Yes; the ground was so heavy that it had to be closely timbered, and even built up with stones, during the time we had been working; but after it had been standing full of water for over twelve months, as soon as it was pumped out the workings were standing in the same state as when we left it.

1347. What effect had the water on it?—It had the effect of keeping up the roof while it was in, but it had also the effect of bringing it down after it was pumped out.

1348. What was the nature of the ground overhead?—It was gravel.

1349. Were you surprised or not to find that the water had sustained it?—No; I should have expected it to sustain the roof from the hydrostatic pressure and cohesion of the ground. That is, the hydrostatic pressure of the water is a certain amount, and, although the material or ground to be supported, if detached in blocks would weigh about two and a half times heavier than water, still the amount of cohesive force and friction produced by separation of particles is such that the hydrostatic pressure in many instances nearly balanced.

1350. You are an authorized surveyor: have you had anything to do with colliery plans?—Yes; in New Zealand.

1351. What kind of plans?—Working-plans of coal mines.
1352. What plans have you checked?—The Brunner Coal Mine, Coal Pit Heath, and Westport.
1353. On what principal were these surveys made? Did you notice anything peculiar in the surveys?—The principle roads or headings are laid down accurately in the plans; but the bords from these headings are not exactly a correct survey of the mine. They are projected on paper and afterwards taken as it may happen.
1354. Have you had anything to do with Mr. Bishop's surveys?—Yes; in connection with the Brunner Mine.
1355. What was your opinion of them?—They were not accurate; they were as I described. The bords were taken out wider than as shown on the plan.
1356. Do you consider him an accurate surveyor?—No; I do not consider him a surveyor at all.
1357. *Mr. Chapman.*] Would you be surprised to hear that Mr. Bishop was recommended to the Shag Point Company by Mr. Binns as a most competent man?—No; not at all. He may be a good colliery manager, although not a surveyor.
1358. His surveys would not grossly distort the actual state of affairs, would they?—No, I cannot say you would call it a misrepresentation; the angles were wrong, and, in place of being in one direction, the plan showed the workings (I am speaking of the Brunner Mine) to be in another.
1359. If Mr. Bishop had made a plan from actual survey, and said that it was approximately correct, would you expect to find it grossly misrepresenting the state of affairs?—The plan was shown to me as an actual survey; and, when I went to make a check-survey, it was not correct according to my survey. My survey corresponded with another one made by Mr. Young, of Westport.
1360. Do you suppose that, when Mr. Bishop generally stated that he had made his plan from actual survey, and that it approximately represented the state of affairs in the mine, you would find a gross misrepresentation?—No; because I think he believed he was doing it correctly.
1361. These mines that you speak of were through gravel, not through shale?—Just so.
1362. And were they naturally wet?—Yes.
1363. And when dried you found them apt to come to pieces?—After two or three days, or perhaps a week.
1364. You have not had experience in coal-mining?—No.
1365. *Mr. Rolleston.*] For purposes of safety, is there any great difference between coal- and gold-mining underground?—Not so far as safety is concerned.
1366. Please look at Mr. Twining's plan: does this represent a safe condition of a mine as to the relation between the bords and pillars?—It would depend on the nature of the strata and the artificial pillars that might be built up.
1367. If there were one or two unsafe places, would it not shake the whole workings?—Yes; it would tend to bring down the roof and crush the pillars that are left.

Dr. HECTOR, cross-examined.

1368. *Mr. Chapman.*] You have said that you approved of Mr. Binns's action in putting in dams?—Yes.
1369. On what ground did you arrive at that conclusion?—To secure the safety of the mine in the event of water percolating from the upper seam through the shaft.
1370. Did you think these dams would guard the shaft against the percolation of water?—Yes: certainly, if properly constructed, and provided the ground was left untouched round the shaft, and precautions taken to preserve enough round it to form shaft-pillars. I am not aware how far such precautions were taken.
1371. Were you aware that the plan of the dams was submitted to Mr. Binns?—Yes; and I suppose he satisfied himself that they were effectual.
1372. If the Commission asked for had been granted, and you had been on it, and on inspection of the workings you found ample pillars left for the support of the roof and the safety of the workings, would you have said that Mr. Binns was right in his action in closing the mine?—I do not think that any Commission could have relieved him of the responsibility of deciding.
1373. That is, assuming the Act to apply to the subject?—I do not know under what power Mr. Binns was acting.
1374. But in your answer you assume that he was acting under the Act?—Yes.
1375. You said in your evidence that you considered, if half the coal were taken out, 15ft. bords and pillars would be a safe method of working?—I think I did say so. It was perhaps owing to the way the question was put, for there is no hard-and-fast rule; it must depend on the nature of the floor and roof, and the varying thickness of the seams. In some cases much more or less could be taken out than in others.
1376. The plan that has been exhibited by Bishop and Taylor shows a larger proportion of pillars than that left; and the evidence given by Mr. Williams and Mr. Denniston confirmed the plan: if that is correct, should you consider that a justification for closing the mine?—I think, from a casual inspection of the plan, that the mine was closed more on account of the shape of the pillars. I pointed out in my evidence that some of the excavations were too large, and I think I particularized one.
1377. You speak of a casual inspection of a plan; you refer to Twining's plan?—Yes.
1378. In your former evidence I see that Mr. Macandrew asked you this question: "Looking at the large interests at stake, public as well as private, do you not consider it would have been wise of Mr. Binns, before taking the action he did, to verify his own opinion by that of another man?" To this you replied, "In his place I should have endeavoured to do so." Are you still of that opinion?—Yes, if he had any doubt. As for closing the mine, he would have to do that on his own responsibility. Whether he would privately talk the matter over with his colleagues or not is a

matter for himself to consider. If I had been in his place I should have done everything I could to verify my opinion.

1379. Mr. Macandrew also asked you: "Looking at the large interests involved, are you of opinion that the request to refer the matter to a Commission was a fair and reasonable one?" Your reply was, I think, "There should have been some way by which no single person should have the power of affecting public interests; there should have been some loophole by which an appeal should be given on either side." Do you still think that some such facility should be available?—Yes; similar to that given by the Act.

1380. Mr. Rolleston asked you: "When you wrote that minute in reply to the manager asking you whether this was a case for inquiry, did you not consider that he conveyd the impression that there was a *primâ facie* for inquiry?" To that you replied: "The question should have had consideration to it at once; I anticipated that the Inspector would have considered the question." Are you still of opinion that the manager's letter demanded immediate consideration?—Yes.

1381. Mr Rolleston further asked you: "Did not the closing of the mine allow the water to accumulate?" You replied: "Certainly; there was no reason to suppose that the water would have come in with such rapidity." Would an inquiry at that date have dealt with the question?—Yes.

1382. The Chairman asked you: "Could any possible harm have occurred to the mine from taking the water out of the mine if the company had gone to the expense of pumping it?" You replied: "No."—I do not think I merely gave that simple negative, because, as I understood the question, it was in consequence of the water being kept out of it. Harm might happen from a dozen other causes.

1383. You would anticipate no harm from keeping the water out?—I do not think that the keeping-out of the water or letting it in is of much importance.

1384. Do you adhere to your former opinion?—I do.

1385. Mr. Macandrew asked you: "Did you approve of allowing the water to accumulate?" You replied: "No, I never approved of it."—I think my reply was, that I deferred consideration of it; I neither expressed approval nor disapproval.

1386. You know Mr. Denniston?—Yes.

1387. Do you consider him a man of experience in these matters?—He is an underground manager.

1388. And an expert?—I have no means of judging. He is a very good coal-viewer; I employed him for the Government to make plans during the surveys of the Greymouth and Oxford coal fields; and he afterwards collected, for the Government, information concerning all the coal mines in the colony.

1389. And he acted in the same capacity as Mr. Binns now does, as Inspector of Mines?—No; not exactly: there was no Act in force at that date; he merely collected information about the mines.

1390. Did he not inspect the workings for the Government?—He merely inspected them to put on record the condition of the mines.

1391. And he did put it on record?—Yes; as to the extent of the workings. He gave no opinion as to whether they were properly conducted.

1392. Do you know if he has had large experience?—I do not know whether he has had a great deal of experience in connection with working mines in this colony.

1393. With regard to Mr. Binns's experience, did you not express an opinion to Mr. Rich that he had neither the age nor experience to justify his decision alone on matters involving such great interests?—I said that at Home he would not be in a position of superior Inspector of Mines. I thought that he was too young to occupy such a position at Home.

1394. And that, in deciding such questions, reference should be made to older or higher authorities?—At Home, I think so. But my reason for stating that was to show Mr. Rich that there was no reason why Mr. Binns should object to any inquiry.

1395. In your second memorandum to the Minister of Mines, respecting Mr. Rich's letter, you say you modified your views when you saw Mr. Twining's correct plan?—Yes.

1396. How do you know it was a more correct plan than the one attached to the manager's letter, which Mr. Rich handed to you?—I assumed that it was more correct, as it gave much more detail; showed that coal had been worked out to a greater extent, and showed more irregularities.

1397. The minute depends on the assumption that it is more correct?—Yes. I should have stated that I was then only hearing one side of the case when I conversed with Mr. Rich on the subject; but I told him that it would be necessary to have the matter more fully explained.

1398. The value of the opinion you expressed then, and of the opinion you express now, as to the safety of the mine is based on the assumption of the correctness of Mr. Binns's opinion and Mr. Twining's plan?—Yes; I have never visited the ground myself.

1399. With regard to the shales: Mr. Loudon, Mr. Denniston, and Mr. Williams, all practical men, of from fifteen to twenty years' experience, have given a most emphatic opinion, based, in at least two instances, on personal observation, that the effect of water on the shales or sandstone is ruinous to the stability of the roof: do you contradict this?—A roof will deteriorate either when there is standing water or when there is no water: it will deteriorate most rapidly when it is soaked and dried again.

1400. If they say that standing water will affect the roof more than in any other case, you dispute it, although they speak as having had the practical management of mines?—If they say that standing water, as a rule, is more injurious to the roof than alternate wetting and drying, I most certainly contradict them.

1401. You have not had the actual management of mines?—No.

1402. With reference to the Commission, in the answers you gave, you assumed that Mr Binns was acting in his capacity as Inspector under the Act?—Yes.

1403. *Mr. Rolleston.*] Under the Regulation of Mines Act, if any owner of a mine objects to an order, a notice has to be given within fourteen days. Would the same purpose be answered by giving an inquiry three months afterwards, when the water had accumulated in the mine: would there be the same possibility of inquiring?—No; the difference between three months and fourteen days would produce a material difference and prevent a satisfactory inquiry.

1404. Then, the course taken by the owners of the mine was not parallel to the course that would have been adopted had the mine been under the regulation of Mines Act?—I should say not.

1405. *Mr. Smith.*] Has Mr. Binns ever been employed in your department?—Yes.

1406. In what capacity?—As an irregularly appointed Inspector of Mines, prior to the formation of the Mines Department. After the formation of the department the Act was brought into force.

1407. Was he appointed to his present position on your recommendation?—I do not remember whether I was consulted as to his being transferred to the Mines Department.

1408. *Mr. Macandrew.*] He was transferred as a matter of course?—Yes.

1409. *Mr. Reid.*] With such a cover as has been described, do you think, as an expert, that the fact of allowing water to accumulate gradually in the mine would induce a fracture of the roof?—No; it would not have any effect in producing it.

1410. What would be more likely to do so in this mine?—Excavation of coal and consequent weakening of the support along lines that in themselves are naturally weak, and especially the removal of coal in excess in the neighbourhood of the shaft.

Letter from Mr. W. H. WILLIAMS to COMMITTEE.

SIR,— Wellington, 6th October, 1884.

As I do not feel myself able to stand much questioning before your Committee, I would respectfully ask that the following letter and report attached should be received as evidence and printed. I am willing to be cross-examined by Mr. Binns, if necessary.

In the latter part of 1881 Mr. Twining made a very careful inspection of the Shag Point submarine workings, in the interests of the Kaitangata Company, between which company and ours negotiations were being made either for amalgamation or to buy from us, our mine being valued at £30,000. Mr. Allan Holmes, a Kaitangata director, had visited and reported very favourably on our mine, and Mr. Twining's report was to conclude the matter as far as inspection went.

He went through the whole of the mine with me, and the submarine workings. Made measurements in my presence of various headings—width of bords, pillars, &c., and, after looking at our working plans, went again into the submarine area to make a perfectly independent inspection.

He made a very favourable report on the works, and his estimate as to the quantity of coal to be opened considerably exceeded mine, his inspection lasting over some three days.

Nearly the whole of the south side which he then inspected was surveyed by Mr. Bishop, and has stood as he then saw it, and nothing has been altered by taking out coal until he came again some fifteen months later, when he made the survey for Mr. Binns. The same applies to Mr. Bishop's survey on the north side.

During Twining's survey, Mr. Taylor, our surveyor, who was with him, warned me as to the incorrectness of the measurements he was making.

I may now state positively that during the whole of the time from his first report up to his survey for the Government no change in the plan of the workings had been made; but that all my anticipations were in opening up such a field of coal to the seaward that would last us for ten to fifteen years, without any more expense than actually opening out the working-places, as all my necessary and expensive plant was in course of erection, and would have enabled me to produce 500 tons per day, if required. It is, therefore, manifestly absurd to suppose that I should have had my submarine workings in such a condition as represented by Twining's survey.

I have, &c.,

The Chairman of the Waste Lands Committee,
House of Representatives, Wellington.

W. H. WILLIAMS,
Manager.

APPENDIX.

A.—Mr. J. P. Maitland to the General Manager, Shag Point Coal Company.

Sir,— Crown Lands Office, Dunedin, 27th January, 1883.

It has been represented to Government that the submarine workings of your colliery are in an unsatisfactory condition.

I have to call your attention to the fact that the license under which you are authorized to mine under the sea is revocable at the will of the Government.

In the event of the mine not being worked in a satisfactory manner, I should consider it my duty to recommend the revocation of the license. I have now to inform you that it will be necessary that all the workings under the license should be carried on to the satisfaction of Mr. Binns, the Inspector of Mines, who will report from time to time on the state of the mine.

I trust that, by this arrangement, a result satisfactory to both parties may be arrived at.

I have, &c.,

W. H. Williams, Esq., J. P. Maitland,
General Manager, Shag Point Coal Company. Commissioner of Crown Lands.

B.—Mr. W. H. Williams to the Commissioner of Crown Lands.

Sir,— 1st February, 1883.

I beg to acknowledge receipt of yours of the 27th January, relative to our submarine workings. I am much surprised at it, as I think if Mr. Binns had any fault to find he should have given me some notice in writing about it, and I must protest against such unfair treatment.

The workings have been going on for some time, and in my opinion (which I think should be of some weight, as I hope to carry on these workings for many years, and if not safe the onus will fall on my reputation) are perfectly safe; but I say it advisedly that Mr. Binns hears reports from men who leave the mine, and, to get away without giving a proper notice, make the excuse that it is not safe. Some nine or ten months back many of the men left on the same excuse, and almost all of them have since come back and worked in the same district; and I must ask you in fairness to me to give the authors of the report that our workings are unsafe, as we cannot let the matter rest, as such damaging reports get about that miners strange to the mine do not care to come, although I am short-handed, and which means a serious loss to the company.

I take it that it is the duty of the Government to afford all parties in the position of our company all the support possible, and I say that Mr. Binns does not consider sufficiently the difficulties under which we are labouring in having to work a very thin seam of coal, with a soft roof immediately over the coal but hard some six feet above, and will want me to work under such conditions that I shall have to stop the working in that district.

In the meantime Mr. Binns is now making a survey of the workings for the Government, and I will wait his instructions and will then advise you further.

I have, &c.,

J. P. Maitland, Esq., W. H. Williams,
Commissioner of Crown Lands, Dunedin. Manager.

C.—Mr. Binns's Report.

1. *Description of Lease, &c.*—The lease under which this company is working is for a term of twenty-one years from the 25th May, 1878, from the Queen to David Hutcheson; the rent is £20 per annum, and the area 163 acres. The submarine area, which is 190 acres, is granted by license from the Commissioner of Crown Lands for Otago, at a yearly rent of £10. This license is dated the 19th September, 1881, and is liable to be revoked at will by the Government. The whole rent is thus £30 per annum for 353 acres, or a little under 1s. 8½d. per acre per annum. Calculating the royalty at per ton, we have last year a little over one-third of a penny (0·36d.) per ton; in 1880 the output was 36,066 tons, and the royalty £23 13s. 4d. (£20 lease, and four months' license-fee at £11, £3 13s. 4d.), or under one-sixth of a penny per ton. It is thus evident that, as a royalty-paying affair, or as a direct source of revenue, the mine is practically valueless; and, therefore, the only commercial aspects to be considered are—(1) The value of the property for releasing at the end of the present term; and (2) the railway freight on the coal. But apart from, and far above, commercial considerations, we have the safety of the miners to take into consideration, and this it was that prompted my letter of the 25th January. I may here, perhaps, be allowed to devote a few lines to the terms of the lease as regards royalty, which is a constant figure not varying with the output, and taking no note of coal spoiled. With due deference I may suggest that a lease in which the coal worked, or so left that it cannot be worked, is paid for by the ton or foot thick per acre, would be more likely to insure care in working, whereby as much coal as possible would be raised; whereas by the present system the lessees are naturally disposed to pick the eyes out of the field, and leave a large area of coal of value neither to themselves nor their successors. A clause certainly does exist in the present lease, and probably existed in the earlier ones, for working to the satisfac-

tion of an official appointed by the lessors; but this course is cumbersome, requires constant attention, and is very likely to give rise to disputes. As, however, the mine has been worked for twenty years without any such appointment having been made, the clause cannot so far be said to have resulted in much good or harm. As will be seen by the plan, the workings in the main seam have been carried on over an area of about 21 acres on the west side of high-water mark, and over about 10 acres to the east. In addition to these there exists, at a depth of 217 feet in the shaft (see section on line QR plan), about 1½ acres of working, mostly to the rise.

2. Details of Bords and Pillars in Ordinary Working.—André, on coal-mining, says (p. 309), "Experience gained under similar conditions is alone worthy of confidence, and, following this experience, will lead for the sake of safety, to excessive dimensions. Hence it has come to pass that minimum dimensions have been left altogether out of consideration, and another principle of working adopted. Whenever it is important that no surface disturbances should take place, the size of the pillars is calculated in the same way as that of the shaft pillars, the base of the calculation in this case being designed to give security by means of great surplus of strength." Again (p. 278), he says, "The dimensions of the shaft pillars are determined by four conditions, namely, the depth of the seam from surface; the angle of inclination of the beds; the strength of the coal; and the nature of the thill or floor. In no case can safety be obtained with pillars less than 35 yards square. These may, therefore, be considered to be minimum dimensions in the shallowest mines, when the other conditions are favourable, say, up to the depth of 150 yards. . . . These dimensions are given as sufficient on the assumption that the other conditions are favourable. But it is evident that those conditions may be such as to require an augmentation of the dimensions determined according to the depth alone. Thus, if the strata are highly inclined, the tendency of the pillars to yield is greater than when the strata are flat." From the Transactions of the North of England Institute of Engineers, Vol. viii., p. 87: The Brockwell seam at Woodifield was 7 feet thick, "the roof falling freely." Only 4 feet was worked first, leaving a band and the top coal. The depth from the surface was about 120 feet, and the chief peculiarity a soft bad roof. Originally the pillars were left 90 feet long and 22½ feet at the headways; the bords were turned away 13½ feet, and increasing to 18 feet or 21 feet at the centre, and diminishing again; that is, the pillars were 22½ feet at the headings, and diminished to 14 feet or 17½ feet. "In the foregoing plan the chief difficulty arose from the great width of the bords near the middle and consequent thickness of the pillars. In the present case, therefore, the bords are turned away 12 feet wide, and continued the same width throughout, the pillars being left 24 feet thick by 90 feet long."

From the same, Vol. ix., p. 18 in same, Notes on Old Workings at Dipton Colliery: Pillars 24 yards long by 2 yards to 3 yards wide; bords 4 yards, and walls 2 yards; that is, the pillars were 6 feet to 9 feet thick, and the bords 13 feet, "these being the only effective excavations, the pillars being abandoned, causing a loss of 33 per cent. of the coal, as well as endangering the entrance of the mine. Unless the seams of coal, the stratum above and below it, are of a very hard nature, and sufficiently thick to resist the pressure of the incumbent strata, no great extent of workings could be excavated on such a system."

Mr. George Fowler says, in South Wales, "the stalls are set sufficiently far apart to leave a pillar equal to twice their width between them. It is, however, very commonly the practice to leave much thinner pillar, and heaving and pucking bottoms are the consequence."

In Leicestershire, where the new red sandstone rested unconformably on the coal measures, we worked 18 feet, leaving 48 feet, in order to prevent the possibility of an influx of water from the red measures, which were a considerable distance above. Though there was no danger to life, the miners were fined if they exceeded the proper width.

Of course it would be easy to indefinitely multiply examples of this sort, but I merely wish to show that the Shag Point pillars are smaller than those ordinarily left, where the attendant circumstances do not threaten loss of life. In order to take the average of the Shag Point bords and pillars, as shown in plan, I drew a number of lines at chance, and took the average at the points where these ran, with the following results, viz., the average of 30 pillars (not counting main-road pillars) was 10·296 feet, or a little under 3½ yards, and the average of 35 bords taken in the same way was 13·97 feet.

Tabulated as follows:—

Names of Colliery, &c.	Bords. Feet.	Pillars. Feet.	Proportion.	Remarks.
Woodifield ...	16½	19·125	1,000 to 1,600	Unsatisfactory, pillars too small.
,, (new system) ...	12	24	1,000 to 2,000	
Dipton	12	7½	1,000 to 625	Endangering the entrance.
South Wales	...	...	1,000 to 3,000	Less proportion causes floor to swell, &c.
Leicestershire	18	48	1,000 to 2,666	
Shag Point	13·97	10·296	1,000 to 729	

The proportion is shown much more clearly, but the method of averaging does not show the true aspect of the case. For instance, though several small pillars followed by a large one may bring up the average, yet it does not offer the requisite uniform support to the roof.

3. *Notes on Accidents by Irruption of Water.*—Although there are, unfortunately, many accounts of accidents from this cause, yet they are nearly all caused by too close proximity to old workings, in which water has accumulated, and few of them offer any analogy to the circumstances under consideration.

In the year 1827 the sea broke into a colliery off the coast of Cumberland, causing great loss of life.

On the 6th July, 1878, at the Kilkeevan Colliery, in Scotland, an irruption of water took place. This was from an old working, but as there was 25 or 30 feet of measures intervening the case is somewhat apposite.

Two seams were worked, one 6 feet thick at 108 feet from the surface, and the other 9 feet thick at 162 feet. At the time of the accident the workings were confined to the lower seam. Overlying the stratified rocks are about 54 feet of measures, principally composed, for 40 feet, of sand. Several dislocations exist, and the fracture is usually found filled with sand, so that in mining up to these fractures it is customary to meet with a partial discharge of water. In May, 1878, such a discharge took place, and a rough dam was put up, which shut off all the water. On the 5th July sand and water were passing; this was stopped, but on the 6th it burst in, making an opening down the fracture of 25 feet x 4 feet x 10 feet. Three men were killed.

On the 23rd January, 1877, an accident occurred at the Home Farm Colliery, in Lanarkshire. Three seams of coal were worked: the ell coal, at 282 feet; the main coal, at 357 feet; and the splint coal, at 432 feet. On the 15th January a heavy fall had taken place in the extreme rise workings of the ell coal, where it was known to be within 108 feet of the surface, near the River Clyde. This allowed the water from the overlying sand and gravel to run down into the ell coal, and by the shaft to the splint. Four men were killed, and about sixty escaped. On the plan accompanying the report from which the above particulars are taken, the Clyde is shown to be about 11 feet deep, and distant horizontally about 370 feet.

Though not an accident, the following case may be included in the list:—

In the Chancery Division of the High Court of Justice, before Mr. Justice Kay, on the 24th March, 1882, Mr. Mundy sought to restrain the Duke of Rutland from leasing certain seams of coal of the Shipley Estate, in Derbyshire, to the Manners Colliery Company. The section of the coal field is as follows:—

Deep soft coal	...	...	4ft. 3in., at 350 yards.	
Deep hard coal	...	...	4ft. 6in., at 366 "	Difference, 270 yards.
Kilburn coal	...	...	4ft. 1in., at 636 "	

The two upper seams were leased to Mundy, and the lease provided that a barrier 66 yards wide on the south and 50 yards on the north should be left as a protection against a body of water in some old workings. Subsequently the Duke leased the lower seams to the Manners Colliery Company, and the plaintiffs endeavoured to prove that the working of this seam, at a depth of 804 feet below the deep hard, would damage a barrier measuring 66 yards by 1,450 yards, so as to let the water through. The working would be conducted on the long-wall system. An enormous amount of evidence was taken and the injunction granted, but the case is not yet concluded.

4. *General Remarks.*—In a matter of this sort it is not desirable to approach within a "measurable distance" of the limit of safety. Where the circumstances of the mine are such as to require immunity from the chance of accident it would be folly to attempt to leave pillars of an ordinary size. Besides the pressure due to gravity, we must consider the effect of storms. The force of waves is well known, but the circumstances here are so different that I will not compare them.

On inspection of the plan it will be seen that the dangers to be provided against are—(1.) Irruption of water into the subaqueous area, whereby the twenty men thereby employed would probably have lost their lives. (2.) Overflow down the shaft into the pit-workings, where there were twenty-four men working mostly above the level of the shaft-bottom, and therefore possessing very small chance of escape. I have thought over the matter for some weeks, and can come to no other conclusion than that the existence of these workings is a constant danger. That they may stand for some time without coming in is possible; that, as Mr. Williams thinks, the sea would come in gradually if at all, may be true: but I cannot take the responsibility of allowing them to remain open.

5. Suggestions for future working:—

It must not be imagined that the abandonment of this district would have the result of closing the Shag Point Mine. The main seam no doubt exists under a very large area of the 190 acres secured by license. The seam at 247 feet in the shaft is practically untouched, besides which there may be, and probably are, other seams yet improved, which alone would make the mine a valuable property. The regulations under which I can sanction submarine working are as follow:—

(1.) No coal to be wrought under less than 180 feet of solid measures, provided that the owner or lessee of such area may drive passage-ways to win the coal under less cover than 180 feet, but not under less than 100 feet of solid measures.

(2.) A boundary of 66 yards shall be left between the present submarine workings and any future workings.

(3.) A proposed system of working shall, before work is commenced, be submitted to and approved of by the Inspector or Viewer appointed by the Commissioner of Crown Lands or the Minister of Mines, and no change shall be made in the approved system without the written sanction of the Inspector.

(4.) A report shall, once in each month, be sent to the Inspector, stating fully the condition of the works and any other particulars which may be required.

On the 24th February I wrote to Mr. Williams requiring him to discontinue working in the submarine area, and to put dams in. On the 28th February he called at my office, and represented that, if these workings were suddenly stopped, he would be (in the absence of Mr. Rich, the principal proprietor) financially unable to carry on. I was naturally unwilling to close the mine altogether, and therefore, with great reluctance, after an inspection on the 25th, gave my consent to work being carried on in one district where a good cover rendered the operation less risky, but entirely without prejudice to its being closed at any time, and on the express understanding that the concession was by no means to be taken as a precedent or justification for keeping the dip open. On the 19th instant I revisited the mine, and met Mr. Rich, of whose readiness to fall in with my views I cannot speak too highly. We agreed to close the submarine area, and let it fill with water. This will, of course, be a great support to the roof in the worst place, as there will be a sustaining

pressure of about 30lb. per square inch. But Mr. Williams was very anxious to keep a few men in an old portion of the mine marked ST on plan, and I consented to this on condition that proper means of escape were provided.

This so far concludes the subject. It will naturally be a somewhat costly chapter in the history of the colliery, but will also, I hope, be the means of avoiding what might have been an awful calamity.

I desire to add that Mr. Williams afforded me every facility in making the survey and inquiry, and that he expressed his willingness to do anything requisite.

The Public Works Department have been good enough to undertake a marine survey, which will be of great service. It is, however, not yet commenced.

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

20th March, 1883.

D.—EXTRACT from Mr. BINNS'S ANNUAL REPORT of 26th May, 1883.

37. *Shag Point Colliery, Palmerston.*—In the first place, I shall 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 openings 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, and as the rock might contain fissures it seemed advisable. I 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 end 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 up-cast doors off, and had not reported it.

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 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 accurate survey and plan for the department. The result was to convince me that, unless 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 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 road-ways), 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 been already sent in, I have recurred to the subject.

One fatal accident has occurred this year at Shag Point, and has been investigated by Mr. Cox. Through delay in delivering the letters I did not hear of the man's death until 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.

E.—Mr. G. J. BINNS to the MANAGER, Shag Point Coal Company.

SIR,— Office of Inspector of Mines, Octagon, Dunedin, 20th March, 1883.

I have the honour, referring to our conversation of yesterday, to request that you will at once proceed to put substantial dams between the old dip-workings and the shaft. The dams to be 10 feet long, built of kauri logs and tightly wedged; the whole to be securely bedded in concrete, which must be let into the solid measures.

You have already, I presume, stopped all work (except that necessary for getting out material), as arranged, in the dip subaqueous area. The old bords on the west side of the E.P. will be continued as agreed, provided that an outlet is made 2½ chains at least above the present one, and fitted with ladders. The bolt-holes will in no case be more than 33 yards apart.

With reference to the dip-workings under the sea the following are the regulations to be adopted:—

1. No coal to be wrought under less than 180 feet of solid measures, provided that the owner or lessee may drive passage-ways to win the coal under less cover than 180 feet, but not under less than 100 feet of solid measures.

2. A boundary of 66 yards shall be left between the present submarine workings and any future workings.

3. A proposed system of working shall, before work is commenced, be submitted to, and approved of by, the Inspector or Viewer appointed by the Commissioner of Crown Lands, or by the Minister of Mines, and no change shall be made in the approved system without the written sanction of the Inspector.

4. A report shall, once in each month, be sent to the Inspector, stating fully the condition of the works, and any other particulars which may be required.

How do you propose to ventilate the district to the west of the plane when the shaft is stopped? By the old furnace shaft?

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

W. H. Williams, Esq.,
Manager, Shag Point Coal Mine, Shag Point.

F.—Mr. G. J. BINNS to the MANAGING PARTNER, Shag Point Coal Company.

SIR,— Dunedin, 24th February, 1883.

I have the honour to call your attention to my letter dated the 14th instant, *re* submarine workings, and to inform you that I am unable to recommend that men should any longer be employed in this district.

Will you therefore be good enough to withdraw the miners and other workmen from this part of the mine, and prepare—if you have not already done so—to place double dams in all roads connecting with the shaft.

If the existing plan does not show all the workings in the main seam in the neighbourhood of the shaft, will you have them, so far as is possible, put on before closing.

It is with much regret that I find myself obliged to take this step.

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

W. H. Williams, Esq.,
Managing Partner, Shag Point Coal Company.

G.—Mr. W. H. WILLIAMS to Mr. F. D. RICH.

SIR,— Shag Point Colliery, 30th June, 1883.

I have to bring before your notice a very serious matter in connection with our submarine workings.

You are already conversant with the correspondence, as well as what transpired at the interviews with Mr. Binns with reference to closing the workings in the district marked A on the tracing attached and dotted with a red line; also my strong objections to doing so, and which I shall name in order presently.

On the 19th March Mr. Binns stopped me from working in this district, and further obliged me to put in two very expensive balk-timber wedge-dams at the shaft-openings connecting with our upper seam, and also other very stringent conditions as to any future working under the sea. (See letter attached of 20th March, to which on the 28th March I sent him a reply accepting the conditions.)

You will see that the district worked and now stopped, and the boundary rib of 66 yards round it, occupies a space of 21 chains, out of a frontage of 46 chains, with a width of 9½ chains. This large space has to fill with water, and will cover when the dams are in, and the water reaches to its level, which is only 40 feet from the surface, marked on tracing B at the shaft about 20 acres, with a perpendicular height from the bottom of the A District of 200 feet, with a pressure of 100lb. to the square inch, as against a pressure from the sea over the abandoned workings of 25lb. to the square inch.

This large body of water would be right in the centre of our workings; and the lower seam being only 70 feet from the upper seam, it is a much more serious consideration with a pressure of over 100lb. over only 70 feet of cover, than 25lb. pressure over at the shallower part, 86 feet; and, if the water is allowed to fill the closed workings, I shall have to leave a large block of the lower seam unworked to keep it safe; and this means a serious loss to the company, as we should have to work all round it both to rise and dip, and we should lose a larger quantity of coal, and also have a lot of deadwork to do round it.

I would therefore ask that the area marked as A District should be kept open, the company guaranteeing to keep all fallen places well timbered, and put either stone or wood-packs as required. I could then open the upper seam to the dip of the A District, and work according to the Inspector's directions as to size of bords, pillars, &c.

This is the more important as our coal is 12 feet thick in the face of the dip-heading marked C, and at that spot is still maintaining the regular dip of 1 foot in 4; and the sea is only 55 feet deep one mile out in the same line, and at the mark C. We now have 156 feet of cover, and would gain 16 feet more in every chain.

By doing this we do not make any more connections between the two seams now being worked than the one now open at the shaft, and the new upcast shaft, which has to be sunk during the current year, will be available for a return of both seams.

I cannot put it too strongly in saying that if closed I shall have to abandon my present lower seam workings, which are immediately under this large body of water.

Another bad effect the closing has had is, that through the downcast air not travelling through the district, owing to its filling with black damp, has caused a very heavy drag on the current, and the ventilation has not been so good since the water rose above the air-levels; and to put stoppings in all the openings would cost a lot of money, and they must be kept open to examine them as far as possible from time to time.

I would, therefore, strongly recommend your seeing the important interests that are at stake, both as regards the present occupiers of the mine and the public, to whom the mine belongs; that the Minister of Mines should be asked to appoint a Commission of, say, Dr. Hector and other practical authorities, with Mr. Binns, to examine and determine upon this, to our company, very serious question; as I firmly believe, if this large space is allowed to fill with water, it will be a standing danger to our future operations.

I have, &c.,
W. H. Williams,
Manager.

F. D. Rich, Esq., Managing Director,
Shag Point Coal Company (Limited.)

H.—Mr. F. D. Rich to the Hon. the Minister of Mines.

Sir,— Wellington, 5th July, 1883.

I beg to enclose letter from the manager of the Shag Point Coal Company (Limited).

Our manager is asking that an official inquiry should be held by competent authorities (including Mr. Binns), with a view that the workings referred to should not be closed. As I believe the matter referred to is of the most vital importance to present occupiers, as well as to the future welfare and value of the mine, I trust you will grant the desired investigation to determine what shall be done. I should take it as an especial favour if your decision and action arising therefrom should be with as much despatch as possible, as the manager is preparing, in compliance with Inspector's letter, dams which will cost from £300 to £500, and which will be unnecessary if it is decided not to close the submarine working.

I have, &c.,
F. D. Rich,
Managing Director, Shag Point Coal Company (Limited).

The Hon. the Minister of Mines.

I.—Mr. Cox's Report.

Sir,— Geological Department, Wellington, 9th July 1883.

Referring to the question of closing the Shag Point submarine workings, I have to point out that Mr. Williams's objections to the steps taken have no real value, and that Mr. Rich appears to misunderstand the position.

It is evident from Mr. Binns's report that he had no idea of allowing the lower seam of coal to be worked below the area which it is proposed to shut off from the main shaft by dams, as he gives instances where a greater cover than would exist between the two seams have proved unsafe, and resulted in accidents and loss of life. The fact that the water is to be allowed to accumulate in these old workings does, in the first instance, relieve the mine from the expense of pumping which would be necessary to drain them; and, whether they were filled with water or not, the dams would have to be constructed as a safeguard against an influx from the sea, which would assuredly follow at some time or other, owing to the falls; and, although this may be very remote, the contingency would have to be provided for, and an overflow down the shaft prevented, unless great risk to life is to be incurred.

Of course, if the present submarine workings were drained, and the dams required put in, the lower seam could be worked below this area, so long as no falls of the roof occurred and no influx of salt water came in; but the workings would have to be conducted as if a head of water was lying above them, and in case of falls the men would have to be withdrawn, and the workings dammed off in the same way as is now necessary in the upper seam. I fail to see that any definite advantage to the mine is to be gained by keeping the water out of the present submarine workings; and, in the event of it being settled that these are in themselves unsafe, I think the steps taken are the best which suggest themselves.

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

The Director of Geological Survey.

(Telegram.) Palmerston, 3rd July, 1883.

Shag Point closed, and water in shaft. Cannot get down to see anything. Will write you fully. Leaving for Dunedin.

S. Herbert Cox,
Assistant Geologist.

Dr. Hector, Wellington.

Mr. Oliver Wakefield to Dr. Hector.

(Memorandum.)

Please see Mr. Rolleston's minute within. Mr. Binns's Annual Report (Mines, 83/651) appended, Shag Point.

6th July, 1883.

Oliver Wakefield.

The Hon. W. Rolleston to Dr. Hector.

(Memorandum.)

Will you read the papers bearing on this matter, and say whether you consider there is a *primâ facie* case for inquiry. I attach Mr. Binns's report (annual), from which it appears that his action

has been well considered, and that there is considerable risk both from the water and bad air. It is a serious matter to Mr. Rich, no doubt, but should not feel justified in interfering, unless you thought there was sufficient ground to do so. Mr. Cox, I think, has reported approving of Mr. Binns's action.

6th July, 1883. W. Rolleston.

Memoranda, &c., by Dr. Hector.

The Hon. Mr. Rolleston.

After careful perusal of these papers I am of opinion,—

1. That Mr. Binns has done right in closing the old workings.

2. That the wedge dams, to prevent possible overflow from the closed workings down the shaft, are absolutely necessary in any case, and cannot be avoided, as Mr. Binns supposes.

3. That the question of allowing water to accumulate in the closed workings is not urgent, and requires much consideration. My private opinion is that such an accumulation would be a standing danger to the mine, but not for the reason Mr. Williams gives, as I doubt if the Inspector will permit the lower seam to be taken far under the old workings except under most stringent regulations. The real question is whether the danger is so great as to require the mine to be charged with the constant expense of pumping the old workings; and, as I have said, the question can stand over, and does not alter the question of constructing dams, which should be pushed on without delay. James Hector.

9th July, 1883.

Reply that after careful inquiry Government does not see reason to interfere with the course taken by the Inspector. W. Rolleston.

F. D. Rich, Palmerston, 12th July, 1883.—J.S. 11th July, 1883.

Dr. Hector to the Hon. Mr. Rolleston.

The discrepancy between my minute on the former papers (9/7/83) and Mr. Rich's account of what I said to him is easily explained. My conversation with Mr. Rich took place before the papers had reached me, and before I had seen Mr. Twining's correct plan of the mine, which differs materially from the tracing of the company's plan that was used by Mr. Rich when he explained his manager's reasons for being dissatisfied with the action taken by Mr. Binns. The remarks I made were therefore based on the supposition that Mr. Rich's version of the matter was correct, which I found not to be the case when I had examined the papers.

As my minute shows, I distinctly approve of the action Mr. Binns has taken, as the responsible Inspector, in closing the old workings. I have a very high opinion of Mr. Binns's skill, integrity, and judgment in the performance of his duties; but, as I told Mr. Rich, he is probably a younger man than would be placed in the position of a final referee in such cases at Home, and I was not aware if he ever had any practical experience of submarine workings, which often present very unusual and difficult problems. The subsequent examination of the papers has proved that, so far as my knowledge goes, he quite understood what he was about.

Nelson, 29th February, 1884. James Hector.

J.—Mr. Denniston's Report.

Dear Sirs,— No. 14, Ross Buildings, Dunedin, August, 1883.

At your request I have made an inspection of all parts of the Shag Point Colliery workings now open, while my special attention was directed mostly to those points of the workings known as the Eugen's Plane and submarine workings, which, for the present, has been suspended by the Government Inspector of Mines (Mr. Binns), pending some alterations which he, individually, considers necessary, upon his assertion that the covering overhead of the metals are insufficient for the safety of those workings. The continuance of the submarine workings the Inspector appears to be willing to allow to extend seaward, provided the company conform to leaving a solid rib of coal, 3 chains or 66 yards thick, round the seaward or west dip side (seaward), and also north boundary of these workings; and, further, to allow of these workings so confined to fill with drainage water from the higher parts of the coaly workings reaching thus high up into portions of the workings not under the sea, thus reaching past and flooding the workings around shaft known as No. 2 Shaft, now working; while in detail he (the Inspector) has ordered shaft to be built round with timber back-dams, thus confining the water in a confined space. In his opinion, he, no doubt, expects the water so confined to withstand against risk of downward settlement.

While from results of survey made by the Public Works Department of those submarine workings, also from soundings taken, results of which show a covering at least point of a 130 feet of cover at the foreshore, with increasing cover on reaching to the dip seaward, Inspector Binns has confined his restrictions, being favourable to allow of these submarine workings extending to dip where a cover shows overhead of 150 feet.

From inspection made of those parts of the workings, with a view to special examination, I found them wrought upon the system of post and stace, with four roadways, driven to dip, forming incline planes driven 9 to 12 feet wide, and distance apart 1¼, 3, and 3½ chains, with bords or staces broken off at intervals of 20, 25, and 30 feet apart, and driven 15 feet wide on the strike of the coal.

While the full thickness of coal, varying from 8, 10, and 12 feet, has been taken out by the process wrought, the workings, after standing unused for some time, appear to be sound, and ample allowance made by having strong and ample pillars to withstand pressure through the narrow roadways that have been prudently driven, thus giving provision support of strata, which consists of shale and soft sandstones, covered with hard bands

compact shale and sandstones, where by comparison with the journal of the metals sunk through in Shaft No. 1. The nature of such metal being that, when kept free from water saturation, they withstand great pressure, though with saturation they soften and swell, as may reasonably be expected to do, through the action now taken by Inspector Binns, in causing these workings to be filled with water; that, in place of the flooded water acting as a support, I am of opinion, will have a material aiding tendency to keep heavy falls taking place within these workings, thus causing a weakening tendency upwards, through water being confined together, in time assisted by after downward pressure, aiding thus an early settlement from pressure from the sea. Though not losing sight of the provision made by Inspector for a rib of coal to be left 66 yards thick, I am strongly of opinion that the water so left confined in these workings, considering the soft nature of the strata, such weight would cause percolation, and ultimately find vent in volume into the future dip workings outside of this rib; the space made, forming a suction with weight of water on high side, would assist the percolation through the shales that exist on roof and also floor of coal.

From results of inspection made of those submarine workings, and in examinations of the few falls that have taken place throughout the workings have, in all instances, jammed themselves and settled sufficiently tight to withstand the downward pressure in about 20 to 25 feet, which includes the thickness of the coal wrought out, the falls appearing to take that of a wedge shape and key the measures thus:—

[Here diagram shown.]

That from such results it has, at first sight, led me to the conclusion—that is, assuming that all the pillars average 5 to 6 yards wide—that the Inspector has somewhat hurriedly arrived at his conclusions; as comparing the fact that the measures dip seaward 1 in 4, in that so far as they have gone, they appear to hold, the same dip that the amount of cover required being 150 feet is met with in the dip part of these workings and still increasing on working seawards.

Considering the interests of capital invested in opening out of these workings, and, jointly, that of the safety of the workings, all interests under such circumstances would be better protected by keeping the overhead measures constantly drained and free from standage water, and by adopting a system of stowing tight the four incline planes, with waste from the higher parts of the workings; while as such work advances I would be in favour of drawing the timbers from the bords or staces, and allow same to settle. By such a system a rib of coal one chain thick would be ample to withstand the future safety of the dip workings, and thus confine the area so treated; that by this system the interest of all concerned would be met from possible inroads or risk of danger.

At this stage I am met with, on comparing the tracing plan of these dip-workings supplied me by your company, I find large pillars showing 20, 33, also lower pillars between last bord and lower level 60 feet thick with bords showing as driven 10 and 15 feet wide (that is more particularly on the portion of workings to north), and roadways showing as regular driven (on plan), holding a given width. These portions of the workings I have not been able to traverse and judge for myself owing to their being flooded. While, on the other hand, the recent Government survey and plan of these submarine workings shows bords driven 20 feet, and in instances greater widths, together with bords running into each other, thereby leaving little or no pillar supports, in most instances 2 to 3 yards thickness of pillar holding. Thus for considerable extent in one place, more particularly where pillars have been crushed close to extreme north point of these workings, shows a space of fallen area and necessary crushed pillars, equal in the two falls of over quarter of an acre. Such discrepancies between the two plans are to me unaccountable.

If the Government plans are to be taken as the correct state (latest) of these workings, with such an extent of fallen area, and also thin pillars, then I am reluctantly compelled, with all prudence, to agree with the action taken by the Inspector. It would then be left for the best, ultimately, interests of the company the laying-out of a new plan of operations seaward, starting in the lower seam from present Shaft No. 2, with a view in time of driving through to, and opening out in the upper seam after sufficient safe distance has been driven from present flooded workings, which, probably only would be sanctioned by Inspector after safely securing present working shaft from danger of flooding.

Though, should the company be prepared to uphold the accuracy of their survey as to up-keep and safety left for support (that is, to thickness of pillars left exceeding 5 yards thick, and regularly driven, as shown on plan), also to non-existence of fallen areas as appears on the Government plans, I would then be of opinion that the workings would be safer and to better advantage stowed tight with waste in the manner as previously described, and kept free from standage water, thus permitting safety with great extent of margin for up-keep of overhead strata, which, under such circumstances is ample, that the future extended workings could be carried on seaward with perfect safety, which I insist upon; the fact obtained from the Government plans showing overhead of present lower level of those parts of the workings 211½ feet of measures.

I have, &c.,

The Shag Point Coal Company, Shag Point. ROBT. B. DENNISTON.

K.—Mr. Denniston's Supplementary Report.

DEAR SIR,—

Referring to my remarks made in report to you on the submarine workings at Shag Point, bearing date August, 1883, in which the reports reads, page 5, thus:—"If the Government plans are to be taken as the correct state (latest) of these workings, with such an extent of fallen area and also their pillars, then I am reluctantly compelled, with all prudence, to agree with the action taken by the Inspector"—the meaning I intend by the clause so written to convey being that the Inspector, in his opinion, considering the workings unsafe, took upon himself (which probably is within his duties to do) to issue orders for the workmen to be withdrawn and abandon the

workings; that upon these grounds, if unsafe, I agree with the Inspector in his action. Such being done, the full exercise of his duties being carried out allows of him having no further say as regards these workings.

The after action the Inspector apparently took of issuing orders for the mine to be flooded with water (it is not intended by the reading of the clause referred to in report that I in any way "embrace" or agree with such an action, which may be seen from the general tenor of the report, it being against water being allowed to accumulate in the workings), I could not under any circumstances agree with Inspector Binns's action, knowing he is incompetent to judge practically of such matters as to effect, &c. While from my own knowledge, considering the nature of the measures overhead to surface being shales and sandstones, their structure in the mass being that, when kept free from standage water in underground workings, they afford a good and substantial support, but from accumulative water in workings they swell and act detrimental to the upkeep of subterraneous workings, and somewhat very detrimental, in the case of the Shag Point submarine workings, by swelling the shales, eating the foot from under the pillars left for support, saturating the shales overhead, and necessarily causing a loosening of the strata and weighting of the overhead measures. Such action, taken to the instruction of Inspector Binns, has evidently been the means (cause) of the inroad of sea water to Shag Point workings, while otherwise, if such an excess of duty had not been resorted to by Inspector Binns, those workings would no doubt be in a state of preservation at the present time, and afforded access for others to judge of the state of the lower parts of these workings.

In conclusion, I may say that all practical men I have conversed with upon the action taken (and have no doubt any other practical men, should matters be properly represented to them, likewise other Government Inspectors) could not do otherwise than disagree with Inspector Binns in what appears his arbitrary exercise of his theoretical ideas, resulting in such a loss of property to your company.

I have, &c.,

The General Manager of the Shag Point Coal Company. R. B. Denniston.

Mr. G. J. Binns to the Under-Secretary of Mines.

(Telegram.) Dunedin, 13th February, 1884.

Re Shag Point Colliery. The mine is not closed by me but the ocean, which has broken into the upper seam, and is rising gradually to fill the old workings in this seam. This will leave only seventy feet of measures for the protection of the lower or shaft workings, which is obviously insufficient, and I have written Mr. Williams as follows: "I therefore regret that, in my opinion, there is no other course open than to withdraw the whole of the workmen from the pit:" thus leaving ample room for him to object to my opinion. I have no power to arbitrarily close the mine, and it is quite open to the owners to proceed to arbitration as provided by section 19 of the regulations of Mines Act. Indeed, I have not even given the statutory notice, especially as Mr. Rich appeared as apprehensive of danger as myself. The water is salt, is rising much more rapidly than before, and there are said to be a number of fissures recently open on the beach between low- and high-water-marks. A number of men withdrew from the pit on Monday last, as salt water was descending the shaft, and they were frightened of losing their lives. They gave in their notices rather than work there. Grossly inaccurate and damaging statements have appeared in the local Press, and I am waiting for Ministerial authority to contradict them officially. Any further information required can be sent. A report was posted yesterday.

G. J. Binns,
Inspector of Mines.

Mr. G. J. Binns to the Under-Secretary of Mines.

(Telegram.) Dunedin, 14th February, 1884.

From information received, I fancy that Mr. Rich will rely on portion of Denniston's report relative to inadvisability of allowing subaqueous workings to fill with water. If you will read that report entirely you will see that Denniston, in the last three paragraphs, upholds my action, if Twining's plan is correct, which it is.

G. J. Binns,
Inspector of Mines.

By Authority: George Didsbury, Government Printer, Wellington.—1884.

APPENDIX TO REPORT OF WASTE LANDS COMMITTEE ON PETITION OF F. D. RICH AND W. H. WILLIAMS—*continued.*

Messrs. CHAPMAN and STRODE to the Hon. the MINISTER of MINES.

SIR,— Dunedin, 28th February, 1884.

We have the honour, by instructions from the managing director of the Shag Point Coal Company (Limited), to inform you that the Shag Point Mine has ceased working, and to draw your attention to the following facts in connection with the suspension of operations:—

The mine has for some time past been worked in two different directions: one of the workings being under the sea, and the other under the mainland. On the 19th March, 1883, Mr. Binns, the Inspector of Mines for Otago, after inspecting the mine, informed Mr. Williams, the manager of the company, that, owing to the fact that water was percolating through the roof of the submarine workings, the miners must be withdrawn, and the working under the sea stopped. Mr. Williams accordingly stopped work in this part of the mine, and withdrew the men; but at the same time he requested Mr. Binns to allow the submarine workings to be kept dry by means of pumping, as he anticipated that the introduction of a large body of water into the submarine workings would not only tend to soften and destroy the roof, but that in course of time the water would rise sufficiently high in these workings to render those conducted on the mainland unsafe. This request was refused by Mr. Binns, who insisted upon Mr. Williams closing the submarine workings, and permitting the water to enter.

Mr. F. D. Rich, the managing director of the company, communicated Mr. Binns's instructions to yourself on the 5th July last, and asked that, before such an important step as the closing of the company's submarine working was taken, a Commission of experts should be appointed by the Government to determine upon the wisdom of the course forced upon the company. No Commission was however appointed, and the company had to submit to what was considered by the directors and others a fatal mistake on the part of the Inspector.

During the early part of the present month Mr. Binns again inspected the mine, and found that exactly what had been anticipated by the company had actually happened. The walls and roof, which were composed of shale and sandstone, had, owing to the rise of water, become loosened, and large blocks had fallen; and, in addition to this, the water was then rising in the submarine workings at such a rate as to make it apparent that in a very short time the land workings which were connected with the marine workings would be flooded. The pressure of water had by this time increased from 25lb. to 100lb. to the square inch, and the walls which previous to this were well able to sustain the pressure became unable to do so, and an inroad from the marine to the land workings was imminent.

On the 11th instant Mr. Binns wrote to the manager of the company, pointing out that the water had risen in the submarine workings, and to such an extent as to render the remaining workings quite unsafe, and requesting him to withdraw the whole of the miners from the pit. The men were accordingly withdrawn, and the mine was entirely closed.

We are instructed to point out that the casualty which had been anticipated by the manager, and which he had drawn the Inspector's special attention to in March, 1883, has actually occurred; and that it is due entirely to the fact that the company were forbidden to continue their pumping operations, and compelled to allow the water to rise in the submarine workings; and, further, that not only did the manager of the company and the managing director urge the strongest objections to the course insisted on by the Inspector, but the engineer whom the company called in at the time agreed with the company in this matter.

We may point out that the Inspector of Mines has almost unlimited power in deciding upon the mode of working coal mines, and that from his decision there is virtually no appeal; that, in the present instance, not only was the course insisted on by him most strongly objected to at the time, but that the very misfortune which has now happened to the company was predicted by the manager.

We have the honour, under the above circumstances, to request that you will allow the facts contained in our letter to be investigated by a Commission, consisting of competent persons, who may decide the question as to whether or not the submarine workings of the company should have been allowed to fill with water.

Should you consent to such a course being adopted, we have the honour to suggest that the Commission should be composed of three experts—one chosen by the Government, one by the Shag Point Coal Company, and a third by both of the persons nominated.

We are, &c.,

The Hon. the Minister of Mines, Wellington. CHAPMAN AND STRODE.

Messrs. CHAPMAN and STRODE to the Hon. the MINISTER of MINES.

SIR,— Dunedin, 28th March, 1884.

We have the honour to request that, in referring to our former letter of the 28th February, you will allow us to correct a mistake which has occurred in it. We stated therein that "on the 19th March, 1883, Mr. Binns, the Inspector of Mines for Otago, after inspecting the mine, informed Mr. Williams that, owing to the fact that water was percolating through the roof of the submarine workings, the miners must be withdrawn." We understood at the time that this was the case, but we have since found that we were wrong. It was when Mr. Binns made his final inspection in February, 1884, and not in March, 1883, that he informed the Shag Point Company's directors that water was at that time percolating through the roof.

We understand that on the 19th March, 1883, there was no percolation of water through the roof at all, and that the only water coming into the mine was the ordinary leakage, and that this was quite fresh, showing that at that time no salt water had come through.

We have, &c.,

The Hon. the Minister of Mines, Wellington. CHAPMAN AND STRODE.

The UNDER-SECRETARY for MINES to Messrs. CHAPMAN and STRODE.

GENTLEMEN— Wellington, 12th March, 1884.

I am directed by the Minister of Mines to acknowledge the receipt of your letter of the 28th ultimo upon the subject of an inquiry into the circumstances of the stoppage of the Shag Point Coal Mine, and, in reply, to inform you that, after having carefully considered the matter, it does not appear to Mr. Rolleston that any action which can now be taken will afford a remedy or reinstate the mine in its former position, the time when inquiry might have been applied for, such as that contemplated by the Regulation of Mines Act, having passed.

Under all the circumstances, therefore, and seeing that the Inspector of Mines has not exceeded the powers conferred upon him in terms of the license held by the company, or such as would ordinarily be exercised by him under the provisions of the Regulation of Mines Act, the Government is now unable to comply with the request for a Commission of inquiry not provided for by the Act.

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

Messrs. Chapman and Strode, Dunedin.

Messrs. CHAPMAN and STRODE to the Hon. the MINISTER of MINES.

SIR,— Dunedin, 20th March, 1884.

We have the honour to acknowledge receipt of your letter of the 12th instant, in which you inform us that our request for a Commission of inquiry cannot be granted, "it not being provided for by the Act."

We cannot help expressing our surprise and regret that so serious a calamity to both public and private interests should be so lightly passed over, and so technical a reason given for not allowing an inquiry to take place.

We do not expect that any action which can now be taken will afford a remedy or reinstate the mine, but we respectfully submit that, when private individuals have expended large sums of money in opening up an industry of public importance, as has been done by the Shag Point Colliery Company, they have a right to expect some consideration at the hands of the Government, and to expect that an inquiry at least should be instituted into the acts of their officer under whose direction and decision they were compelled to act.

We submit, moreover, that, should it be proved that the disaster to the mine has been caused by the Inspector's directions having been followed, the Government may fairly be expected to compensate the proprietors to some extent for their loss.

We may add, further, that the proprietors are most anxious to avoid any litigation, and would submit to their loss should it be shown that Mr. Binns was right in the course he directed them to take; but, if the Government thinks it right to refuse their most reasonable request for an inquiry into the action of their officer, they must take such steps to enforce their claims as they may be advised. They trust, however, that the Minister will admit the justice of their claim to have an inquiry instituted, and will therefore reconsider the determination conveyed in your letter.

We are, &c.,
CHAPMAN AND STRODE.

The Hon. the Minister of Mines, Wellington.

The UNDER-SECRETARY for MINES to Messrs. CHAPMAN and STRODE.

GENTLEMEN,— Mines Department, Wellington, 25th March, 1884.

I am directed to acknowledge the receipt of your letter of the 20th instant, in further reference to the subject of an inquiry into the circumstances connected with the stoppage of the works at the Shag Point Coal Mine, and, in reply, to inform you that Mr. Rolleston does not see any reason to alter his previous decision.

I have, &c.,
H. J. H. ELIOTT,
Under-Secretary.

Messrs. Chapman and Strode, Dunedin.

Plan to accompany supplementary Report on Submarine Workings at SHAG POINT COAL MINE

REFERENCE.

Heights below L.W.O.S.T. shewn in feet thus. 7

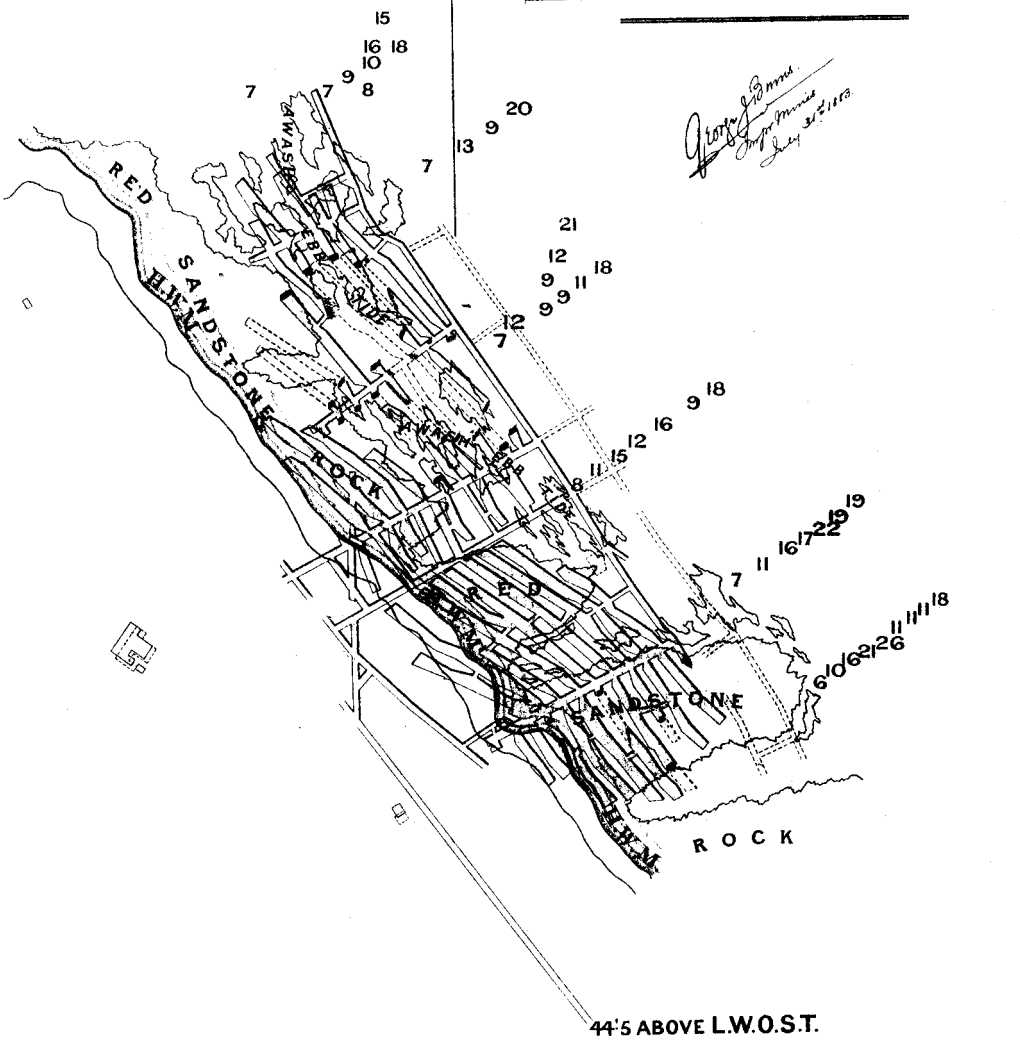
Depth of water " " " " " " 19

Workings on Mr Twinings plan shewn thus.

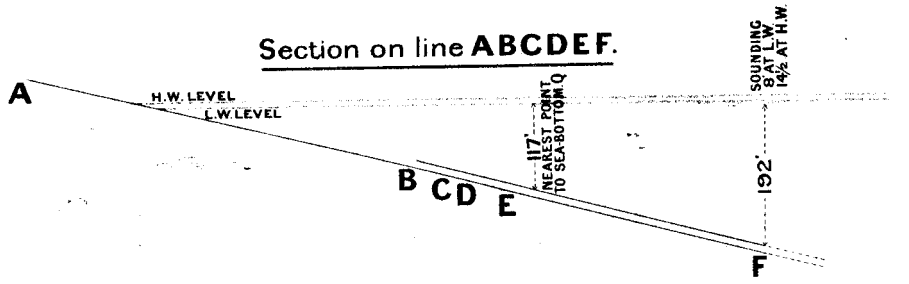
" copied from the Colliery plan "

SCALE OF CHAINS.

1 0 1 2 3 4 5 6 7 8 9

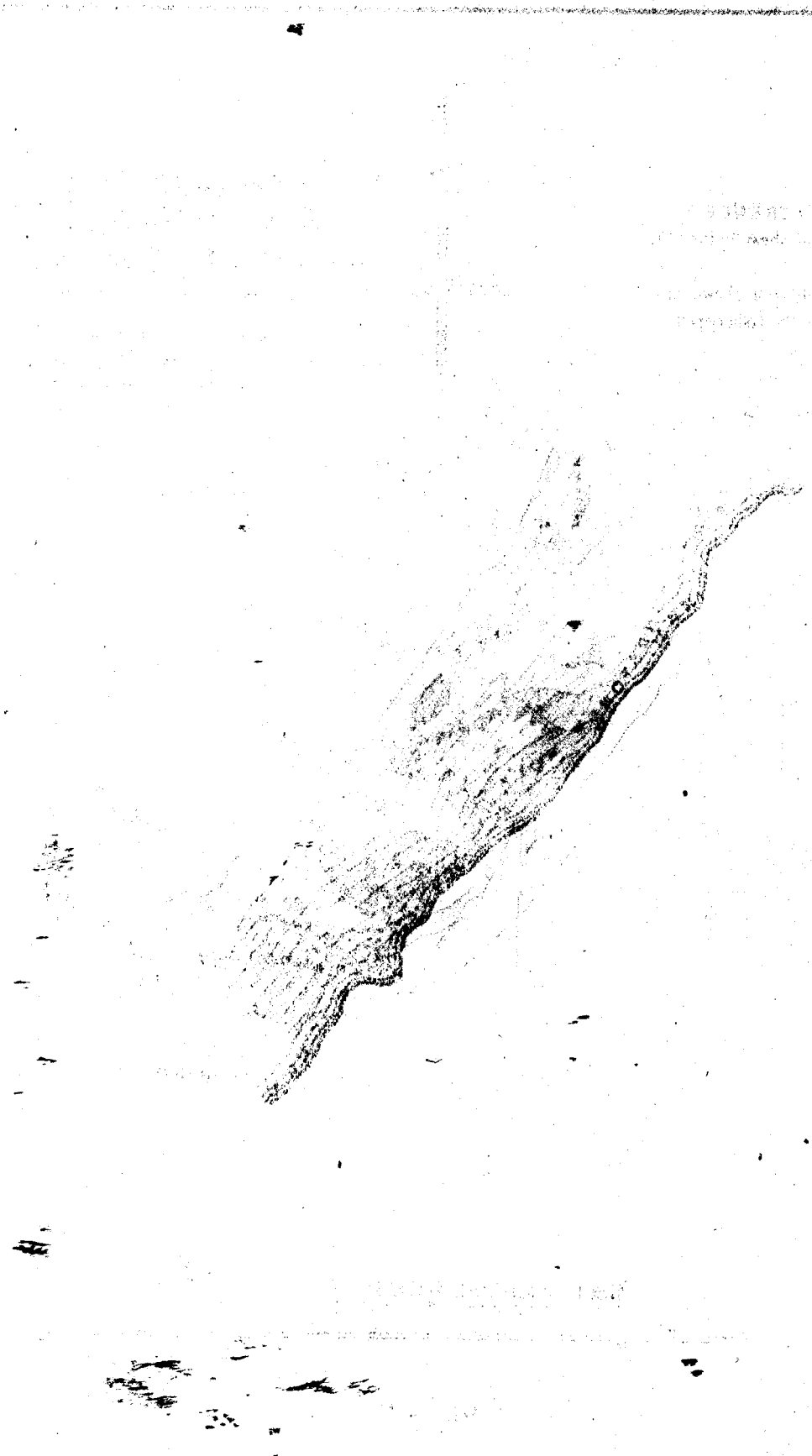


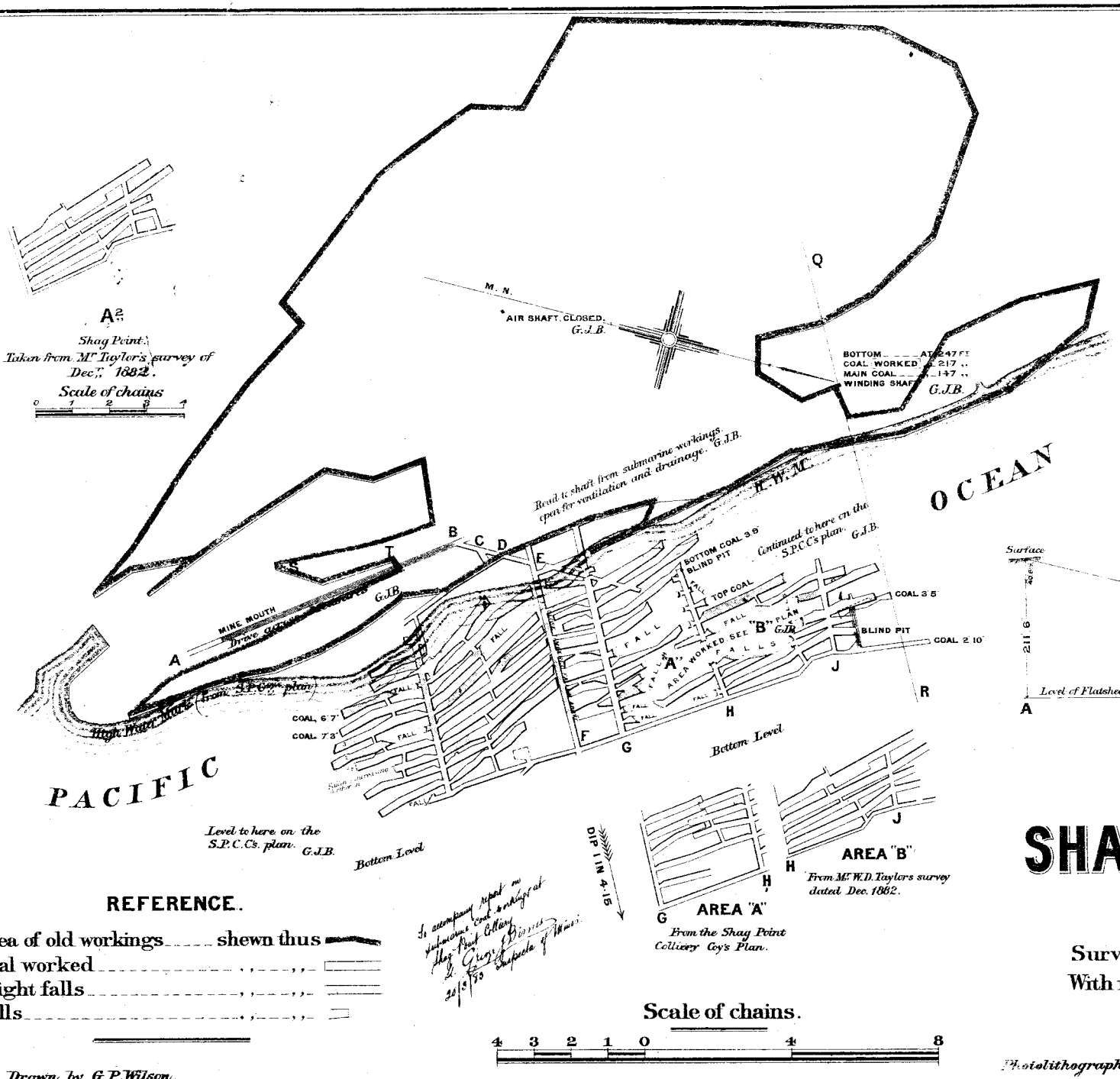
Section on line ABCDEF.



Drawn by T.M.Grant. Jan. 1885.

Photo-lithographed at the General Survey Office, Wellington, N.Z.





REFERENCE.

Area of old workings ____ shewn thus ▬▬▬

Coal worked ____ ,, ____ ,, ▬▬▬

Slight falls ____ ,, ____ ,, ▬▬▬

Falls ____ ,, ____ ,, ▭

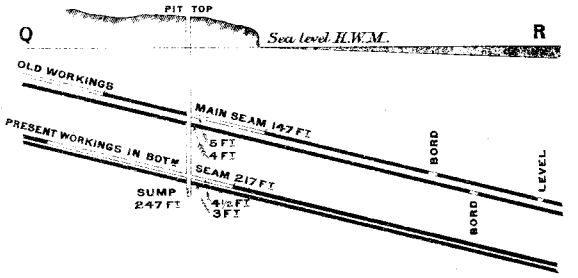
Drawn by G.P. Wilson.

Scale of chains.

4 3 2 1 0 4 8

SECTION ON LINE Q.R.

Showing approximately the relative levels of High Water Mark and the various workings at the shaft. By G.J. Binns.

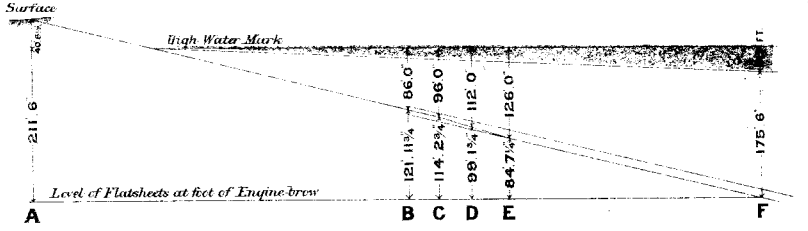


Note. There are some local divisions in the seams which may not be correctly shewn. G.J.B.

Scale of chains, approximate.

0 1 2 3 4 8

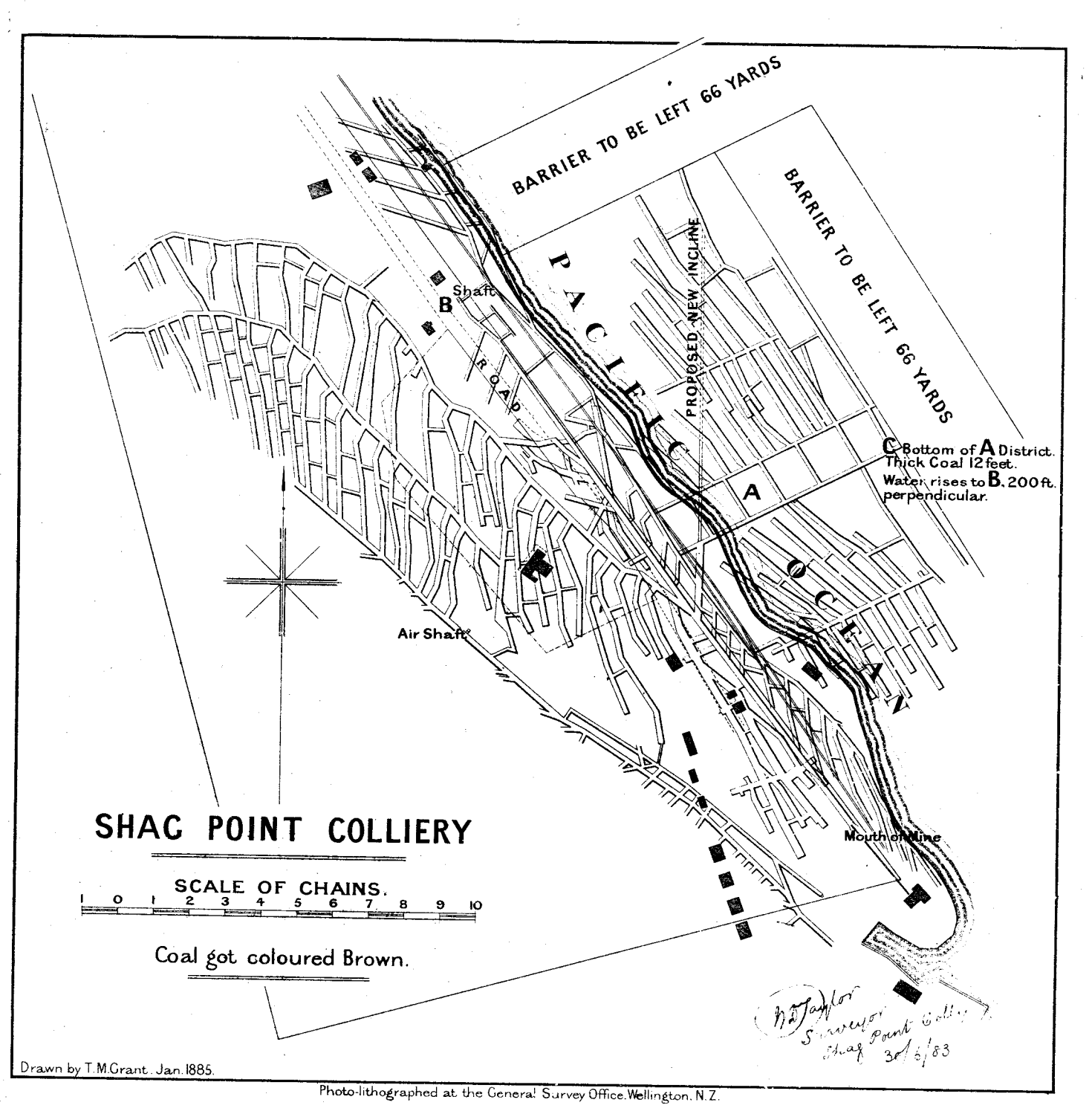
SECTION ON LINE A.F.



PLAN OF
SHAG POINT COLLIERY
OTAGO N.Z.

Surveyed by C.E. Twining, Feby. 1st to 7th 1883.
With remarks by G.J. Binns, Inspector of Mines.

Photolithographed at the General Survey Office, Wellington, N.Z. January, 1885.


BARRIER TO BE LEFT 66 YARDS
BARRIER TO BE LEFT 66 YARDS
PROPOSED NEW INCLINE
B Shaft
ROAD
PACIFIC
A
OCEAN
C Bottom of A District.
Thick Coal 12 feet.
Water rises to B. 200 ft.
perpendicular.
Air Shaft
Mouth of Mine
SHAC POINT COLLIERY
SCALE OF CHAINS.
1 0 1 2 3 4 5 6 7 8 9 10
Coal got coloured Brown.
Surveyor
Shag Point Colliery
30/5/83
Drawn by T. M. Grant. Jan. 1885.
Photo-lithographed at the General Survey Office, Wellington, N.Z.