

1900.
NEW ZEALAND.

FIRE AT THE CARDIFF COAL-MINE, MOKIHINUI

(REPORTS AND CORRESPONDENCE RELATIVE THERETO).

Return to an Order of the House of Representatives dated the 3rd July, 1900.

Ordered, "That there be laid before this House Messrs. Alison, Shore, and Foster's report on the fire at the Cardiff Coal-mine, Mokihinui; and also all reports and correspondence received by the Government from Mr. Tennent, Inspector of Mines, in connection with the said fire during the last six months".—(Mr. R. McKENZIE.)

FIRE AT THE CARDIFF COAL-MINE, MOKIHINUI.

COPIES of REPORT of Messrs. ALISON, SHORE, and FOSTER, on the fire at the Cardiff Coal-mine, Mokihinui, and of reports and correspondence received from Mr. R. TENNENT, Inspector of Mines, in connection with the said fire, during the last six months, laid on the table of the House of Representatives in accordance with extract from Journals of the House of Representatives, No. 1 of Tuesday, the 3rd day of July, 1900, on the motion of Mr. R. McKENZIE.

TELEGRAMS from R. TENNENT, Inspector of Mines, Seddonville, to the UNDER-SECRETARY, Mines Department, Wellington.

5th February, 1900.

MINE temporarily sealed since Friday night. After reopening to-day a fierce fire was discovered on main haulage-road, about 27 chains in from entrance to mine, thus necessitating the whole of old mine working to be sealed down, and cutting off all tramway connection with Bridge district of working. Much plant will be lost.

6th February, 1900.

Condition of mine same as yesterday. All plant inside the mine is lost. Main intake is sealed off by three-inch plank-clayed stopping. As no other officer here, am remaining until all outlets are sealed and everything left in safe condition.

7th February, 1900.

The condition of the mine from gases is very favourable for carrying on the work of building stoppings without inconvenience to workmen.

R. TENNENT, Inspector of Mines, to the UNDER-SECRETARY, Mines Department, Wellington.

8th February, 1900.

AFTER-GASES bad, but stopping progressing satisfactorily; expect to finish this week.

9th February, 1900.

Sealing down of Cardiff Mine was completed at 2 p.m. to-day, and I consider the work has been carried out vigorously, substantially, and satisfactorily. We filled in old furnace-shaft to-day. Smoke is not seen to ooze from any part of the property.

Mr. Elliott,—
Inspector of Mines' Office, Westport, 13th February, 1900.
IN compliance with your memorandum 376, dated 9th instant, a full report of the fire in the Cardiff Mine will be furnished, including every detail relating to the work done, and the extent of the fire. I intend to visit Cardiff and Mokihinui Mines to-morrow, 14th instant.

Yours, &c.,

R. TENNENT, Inspector of Mines.

Inspector of Mines' Office, Westport, 16th February, 1900.

[Subject.—Inspection of the Bridge Section, Cardiff Mine.]

SIR,—

I have the honour to report that on the 14th instant, in company of Mr. Alexander Mitchel, underviewer, I made a careful inspection of all levels, headings, bords, and pillared ground, and found them safe and in satisfactory condition. There is no change in the workings since work ceased. Falls were not met with in any part of the mine.

The sealing-down stoppings are thoroughly tight, and as far as practicable everything is done in accordance with safety to life and property. Smoke was oozing through the grass on the cliff that rises from Chasm Creek.

I intend to partly flood the workings, but you will hear further on this in a few days.

I have, &c.,

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

Mr. Elliott,—

Inspector of Mines' Office, Westport, 23rd February, 1900.

PLEASE find enclosed herewith report on the fire at the Cardiff Mine. Copy of the colliery plan of mine workings will be forwarded next mail.

R. TENNENT.

Inspector of Mines' Office, Westport, 19th February, 1900.

[Subject.—The first working and the precautions taken against the occurrence of spontaneous ignition in the Westport Cardiff Coal Company's Mine, situated at Seddonville.]

SIR,—

In compliance with your memorandum, No. 376, I have the honour to report as follows: The term "first working" generally includes all solid cutting, such as levels, headings, bords, &c., in the development and blocking-out the coalfield into pillars. From this class of work the coal gotten by the collier at the face or otherwise is filled into trucks and sent outside to be used for commercial purposes, so that refuse of any kind was unknown, neither was it allowed to remain in the working places. Further, the gross-weight system adopted at the colliery, by which the collier was paid on all coal gotten, prohibited accumulations of slack-coal being stored in any part of the mine; the miner being paid for slack equally as for round coal; also, the pyritical stone-bars that this coalfield was subject to were filled by the collier into trucks, and paid at the rate of 1s. per truck. Therefore, as the faces advanced the workings left behind were practically clear of refuse. This system of carrying on operations was strictly practical, economical, and served two purposes: Firstly, it was a strict precaution against spontaneous ignition occurring in accumulations of slack or other pyritical refuse; secondly, all parts of the mine are kept in proper condition for the removal of top coal or extraction of pillars, without inconvenience in filling the coal clean, as trade demanded.

Locality and extent of Fire.

From the practical examinations made by Mr. Dixon, mining-manager, Granity Creek Colliery, and myself, the seat of the fire is located in the Hannah Hector Block. As shown by attached plan, this block of coal is located between two main fault-lines, and formed the most valuable section of the coalfield. The developments comprise two main headings, No. 1 and 2 inclines. These headings were driven in a direct course from the main haulage-road towards the outcrop of Chasm Creek, and were the chief centres by which the coal was conveyed to the endless-rope haulage. Shortly after the extraction of pillars was commenced in No. 2 incline district, a "creep" was threatened which necessitated large quantities of timber to be built into the workings in the form of "chocks or pig-styes," in order to check or locate the creep. When, after the lapse of several months, the workings settled down, the removal of pillars was started again without further trouble. Thus the timber referred to was ultimately buried amongst the fallen *débris*. My object in pointing out this fact is that the timber may be considered a means from which spontaneous ignition may or may not have originated.

No. 1 incline was holed on the outcrop, and afterwards pillared very successfully, the roof falling in as the coal was removed.

In the extraction of thick coal-seam pillars, even by the most experienced colliers and under the most careful supervision, a large percentage of coal is lost and buried under the falling mass, which in many instances may be considered to give conditions favourable to spontaneous combustion, more especially when the coal is near the surface. In the fire-affected district the natural soft character of the coal, combined with the pressure from the overlying stratas, tended very much to lessen its value as a commercial product. Also the rapid spread and increase of the fire may be attributed to the very loose, dry, and dusty condition of the coal. As evidence of dust-explosions were experienced during the building of the intake permanent stopping, and at the old furnace-shaft pieces of charred wood were picked up from the ground that had been discharged through the shaft. From personal knowledge of the workings I may state that had the fire been detected in its earliest stage great difficulty would have been experienced to locate and seal off the affected district in order to save the main roadway, as the work would have required twelve permanent stoppings to be built, and under most unfavourable conditions, amongst the crushed pillars, where, had it been possible to accomplish, the fire would probably have broken out afresh at a future day.

Viewing the position from every standpoint, it was imperative to watch and study every condition of safety on behalf of the workmen. On this practical theory experience led me to decide

that the fire discovered on the 2nd instant by Mr. Dixon and party on the "back heading of Long Jig" cannot be taken as sufficient evidence that combustion originated and was confined to this particular part of the mine, as was at first supposed, for on the morning of the 5th instant, before the temporary stoppings were reopened (that Mr. Dixon sealed down at 5 p.m., 2nd instant), active fire was burning up through the grass at the extreme boundary at No. 2 incliné workings on Chasm Creek side of the coalfield; these two points being 8 chains apart in a direct line across the pillared ground; the point referred to being the first where fresh air was brought to act on the burning mass.

My opinion is spontaneous combustion has been slowly and surely carrying out its destructive work under the mass of fallen rocks in the pillared ground, and making its way very gradually towards the fresh air on the outskirts of the falls where it was discovered. Mr. Dixon is very plain and truthful on that point when he states the fire is extensive. Time information was received, 1 p.m., 28th January, 1900.

Mr. R. Broome informed me at my residence that a message from the Postmaster at Seddonville stated the Cardiff Mine was on fire, and smoke was coming out at the tunnel-mouth, making ingress impossible. Arrangements with the railway officials were made to convey us by Government tricycle to Seddonville, subject to regulations. Arriving at the mine—8 p.m.—in company of Mr. A. Mitchel, underviewer, I found the tunnel bratticed off. We proceeded into the mine, but on reaching the first curve (7 chains in) the presence of acute after-gases made it impracticable to proceed further. The brattice stopping was again closed. Coming to the colliery office, Mr. Bayfield, the company's local agent, was at the telephone. I told him my opinion was that fire existed in some part of the mine, and a certificated officer would require to be engaged to superintend underground operations.

Monday morning, 29th January.—Orders were given to open tunnel at both ends. This done, the Westport Coal Company's mining-manager at Granity Creek Colliery, Mr. Dixon, and Mr. Bayfield came on the scene. The tunnel being open for thirty minutes a fair intake current was running from the entrance, that enabled Mr. Dixon and myself to make headway in the drive about 16 chains; but, guided by the smell of the gases as we passed along, we considered that fire existed in a district of working behind us. Consequently we went direct up the main heading of North Block until we reached the pillared ground, making a diligent search over falls and all open workings. We were satisfied fire did not exist in that district. Returning to main roadway we found the air-current reversed, which made further inspection impracticable from that end of the tunnel. Crossing over the terrace to Chasm Creek end, we found conditions similar—air-current baffling backwards and forwards. We formed a party and made our way in about 8 chains, but nothing of importance was discovered. The air-current reversing drove us back. We then decided to seal off all openings to the mine until a permanent air-current was established. Underground operations being sealed down until ventilating-fan was removed from its position on Bridge district, and placed on Chasm Creek end of main tunnel, in old working where the fire existed. We left Seddonville by train at 7 p.m.

Monday, 5th February, 1900.—Before reopening the mine I travelled over to Chasm Creek side of the fire-affected section, in view of ascertaining to what extent the fire was showing on the surface and along the outcrops. Indications of active fire were seen at the extremity of No. 2 incliné workings, also from the two drives above main drive and old furnace shaft. Returning to mine entrance, brattice was opened and fan started. Having obtained a reliable air-current, I led the party in the main roadway until we reached the junction of furnace-shaft drive. At this point a continuous column of smoke was discharging from the rise into the main roadway, making progress impossible either to the rise or along the level plane. From this point a fierce fire was discovered on main roadway, which proved the rise workings were one burning mass. To ascertain the intensity of the fire I waited at this point for fifteen minutes, but seeing there was no possible hope of saving the haulage-road I definitely decided to seal off the whole mine.

In the solid rock drive, 80 yards from tunnel-mouth, a suitable site was fixed for permanent stopping, and provision was made for a dam if considered advisable. Difficulty was not anticipated in the execution of this work, as a constant and sufficient air-current keep the men perfectly safe; but during the night an immense fall took place, and at the same time evidence of a dust explosion occurred, which completely changed our ventilating system, and made our work a most difficult and arduous task. Finished this work on Wednesday afternoon. Dimensions of wall: 9 ft. wide, 8 ft. high, 5 ft. 6 in. thick. Two walls of 3 in. black-birch planks, and 4 ft. 6 in. of clay puddle, planks notched into walls, four 10 in. black-birch props set on each side.

Thursday, 7th: The stopping on Chasm Creek end is built on similar lines, but only 3 ft. 6 in. of clay puddle.

Friday, 8th February: Filling in furnace shaft was the last work to complete sealing-off operations. To all hands concerned this part was dreaded, as continuous volumes of heated smoke forced their way through the heavy covering that temporarily sealed down the shaft. Preparatory to opening the shaft, large quantities of filling-in material were ready to pour in directly an opening was made. From outward appearances fate had destined to favour us, for the instant the covering was broken through a dense column of block smoke burst up in a direct line into the air, which caused no inconvenience to the workmen, and in less than two hours the enemy was conquered. Work was continued to 2 p.m., when the shaft was filled to within a few feet of the surface and securely covered. Depth of shaft, 72 ft.

Conclusion.

Cardiff Mine, as a coal producer, is commercially valueless under present existing conditions. The tramway which connects the leading station on the Government railway-siding with the Bridge or Chasm Creek district of workings passes through the old mine, or fire-affected section of the

coalfields. Thus all means of coal transit is cut off. Bridge section was the chief source of supply for fully twelve months previous to operations being ceased at the colliery, and in the old mine coal has not been mined in No. 1 and No. 2 incline pillars for over eighteen months.

My last visit of inspection was in October, 1899, in company with Mr. Broome, mining-manager, and Mr. John Hayes, Inspecting Engineer, when all parts of the mine-workings were found safe and in a very satisfactory condition. Further, Mr. G. H. Broome's report in the colliery report-books shows the mine in safe condition.

18th January, 1900: I beg to inform you that from the 28th ultimo to the 10th inst. I superintended all underground operations with the exception of the passage made into the mine on the 2nd inst. by Mr. Dixon and party. The difficulties contended against from after-gases and other causes were diligently and fearlessly carried out, and under the most trying times my post was at the seat of operations, cheering the men on.

I have, &c.

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

WESTPORT CARDIFF COAL-MINE UNDERGROUND MANAGER'S REPORT.

I HAVE this day examined the whole of the workings in the above-named mine and found them in safe condition. Ventilation sufficient. All levels, headings, and bords are well timbered and a ——— of timber found on all working-places for the purpose of spragging and securing the roof. Indication of gas seen during examination. Barometer, ; thermometer,

Remarks.—A few small falls on rope road. Centre prop required under carrying set at top of No. 2 dip. Several sets required in second tunnel to thoroughly secure.

Time of Examination.—10 a.m. to 2 p.m.

Date.—18th January, 1900.

GEO. H. BROOME, Underground Manager.

Cardiff Mine, 2nd February, 1900.

THE fire in mine was located to-day in the back heading of Long Jig.

Before entering the mine the fan was started, and a measured current 10,440 ft. of air was obtained. The party consisted of J. Dixon, A. Mitchel, R. Broome, J. Clarke, and J. Smith. The party travelled to a point some 29 chains on main road, returned to Long Jig back heading, and discovered the fire some chains up said heading.

The main road was closely bratticed off, and air diverted up heading. Success attended the efforts, and at same time the mass burst into flame for a distance back of 10 or 12 yards. Falls continued, one very heavy one taking place. The fire being so active, and falling roof so continuous, it was decided to abandon efforts to reach the seat. It was positively unsafe to attempt anything of the kind. I therefore decided to withdraw the workmen and close the mine as far as possible until further considered and seen by the Government Inspector.

The heading was closely bratticed at 5 p.m., also all openings to mine reclosed, practically sealing the mine by temporary means. From my close observance of the conditions, I hereby state that the fire is extensive, and the only safe remedy is to seal off the affected district as soon as possible.

5 p.m., 2nd February, 1900.

J. DIXON.

Cardiff Mine, 29th January, 1900.

In connection with the underground fire in the Westport Cardiff Company's Mine, we, the undersigned, have this day endeavoured to locate position of said fire, but owing to the unreliable ventilation, which is "natural," and the air-current thereby reversing every few minutes, we are unable to reach the affected part without incurring undue risk.

We have therefore decided that no further risk to human life be incurred, and that a reliable current of air must be established to obviate this. To secure such current we decide the fan shall be removed from its present position, and temporarily set at opening to Chasm Creek from first section of the mine. Further, in the meantime all openings to-day are to be sealed off by close bratticing, and no workmen are to enter the section of the mine until authorised by the person in full control of operations.

R. TENNENT, Inspector of Mines.

JONATHAN DIXON, Mining Manager.

Inspector of Mines' Office, Westport, 23rd March, 1900.

[Subject: Inspection of Westport Cardiff Coal-mine.]

SIR,—

On the 21st instant I visited and made a full inspection of all workings in the Bridge district, which I consider are safe and in satisfactory condition. I can see no change on the roadways, airways, and faces since the mine was shut down. The stoppings in connection with the fire district of old mine are satisfactory. On my recommendation the company authorised £20 to build a log-dam in the intake end of main tunnel. This work is completed, and the water is rising on the workings. A similar sum is asked from the company to construct another dam in the outlet or bridge end of same tunnel. I consider when these dams are completed we should be able to flood nearly all the coal that is standing in pillars, which will very much lessen the extent of fire area. The surface indications of burning on the Hannah Hector outcrop are very much lessened, the smoke emitted therefrom being chiefly a white steam.

No. 2 Tunnel.—This short tunnel, on the tram-line between the shoots and main tunnel, has been thoroughly overhauled, with heavy black-birch intermediate sets placed nearly the whole length. This tunnel is now in good repair.

The entrance section of the main drive into the old mine-workings is driven in a soft clay until it reaches the solid rock. In this section the heavy set timbers are gradually crushing in at the foot, and in a short time will incur considerable expense for repairs.

The company have been advised with regard to these urgent repairs.

I have, &c.,

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

Inspector of Mines' Office, Westport, 28th April, 1900.

[Subject: Cardiff Fire.]

SIR,—

In compliance with your letter dated the 20th instant, I visited Cardiff Mine on the 25th instant. The workmanship in wedging up the log-dam next to the roof has proved defective, and in consequence the mine-water has not yet reached the outlet or bridge end of main tunnel. However, the leakage may not be considered serious, and the colliery carpenter, who assisted to construct the dam, is instructed to caulk the leaks with dry wood wedges. After this dam is efficiently watertight I will build another dam as aforesaid in the outlet of same tunnel, as flooding is the only practical and effective way in dealing with the fire, for the number of outcrop openings to contend against makes the ordinary way of "sealing off" quite impracticable.

Since my letter of the 23rd ultimo, the company has taken no steps to suppress the fire, neither do they intend to incur further expense. The matter will receive my full attention, and effective measures will be carried out. Approximate cost, £50—that is, as far as can be seen at present.

I have, &c.,

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

TELEGRAMS FROM R. TENNENT, Inspector of Mines, Westport, to the UNDER-SECRETARY, Mines, Wellington.

5th May, 1900.

EVERY practical measure has been taken to cope with fire in Cardiff Mine. Latest investigations made discovered a low-level surface subsidence over pillared workings, from which I anticipate mine-water is flowing freely. This matter is receiving attention previous to further expenditure.

7th May, 1900.

LATEST advice on Cardiff fire states that subsidence referred to on Saturday is connected with mine-working. There is no change to report.

Inspector of Mines' Office, Westport, 11th May, 1900.

[Subject: Westport Cardiff Coal-mine Fire.]

SIR,—

In compliance with your letter dated the 1st instant, I report as follows on the progress and existing conditions of the above-named fire:—

For over two years previous to the outbreak of fire, the outcrops along the Chasm Creek cliffs (which rise 150 ft. to 200 ft. above the stream) were exhausted, caved in, and subsided direct to the surface. Thus combustion is supported by the free admission of fresh air through the mass of broken rocks overlying the burning districts. Under these conditions it is practically impossible to locate or extinguish the fire by cutting off the existing air-currents by means of stoppings. Another difficulty to contend against is the open drives that were holed for ventilation and other purposes as the workings advanced towards the outcrops. Such was the position over the bridge approach of main tunnel, where the fire shows greatest activity. This section I anticipated from the first outbreak would eventually fire, for during the time we were engaged building the first stoppings, these old drives over the main tunnel caved in and collapsed the whole hillside; therefore all practical means of dealing with these outlets were cut off. Hence my original suggestion to partly flood the mine was in view of raising the water through these old drives, where ventilation-fan was formerly placed. About 100 ft. southward from the adit the coal-seam is bisected by a main down-throw fault which absolutely cuts off the fire in that direction. On the 25th ultimo open fire was burning against that fault-line, but was extinguished by diverting a hillside stream that runs during heavy rains. Again, on the 10th instant, fire was renewed on same fault for want of water running constantly over the place. In order to cope with this and other outside fires that may occur over the tunnel, I have arranged with Peter Martin, colliery carpenter, to lay on a 2 in. pipe-line from Cascade Creek, a distance of 15 chains. Cost £15.

Since my letter of the 29th ultimo the log-dam in main inlet was made practically watertight, and, during the heavy rains, the flood waters from two adjacent creeks were turned into the mine. I intend to renew this dam as the bottom shows signs of failure, the workmanship being bad throughout the whole job. At present two miners are cutting out the seat for building. As soon as the seat is ready the raising of the dam will receive my full attention, as I am anxious to

thoroughly test the water in the mine. Taking data from a borehole which taps the main-haulage road, there are 60 ft. in depth of standing water in the mine.

Referring to the removal of the movable plant from Bridge section of workings, the company has contracted with Peter Martin, colliery carpenter, to carry out the work, and a tram-line is laid over the hill for conveying the material. With regard to removal of the plant, I could raise no objection, because the material will be safe and more convenient for use if wanted on other sections of the property. Mr. Bayfield informed me to-day that Mr. Hargreaves, chairman for the company, has given instructions to select the plant into sections, with the object of selling or otherwise disposing of it.

In conclusion, granting that my efforts in building a new dam are most successful, I am not confident that mine-water can be raised the desired height, for the subsidence—already referred to by wire—shows evident signs of being connected with the workings, and in all probability will act as an overflow. I may state that the fire now existing in the old mine, even though it burns to its utmost limit, cannot possibly interfere with or damage any other section of the coalfield. The Bridge or western section is separated along its whole boundary by Chasm Creek Gorge, while the Cave Creek area is disconnected by main fault lines, and the intervening workings southward are under water. The smoke has ceased to rise from the Hannah Hector outcrops over the incline workings where it was first discovered, and appears to travel eastward along the cliffs towards No. 1 workings, the rocks over this district being very much broken.

I have, &c.,

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

TELEGRAMS from R. TENNENT, Inspector of Mines, Westport, to the UNDER-SECRETARY, Mines, Wellington.

18th May, 1900.

LEAVING for Cardiff Mine to meet the persons appointed to examine fire.

22nd May, 1900.

RETURNED from Cardiff Mine yesterday (Monday) with Messrs. Shore, Alison, and Foster.

DEAR SIR,—

Westport, 23rd May, 1900.

We have the honour of submitting to you, as per your instructions of 12th May, our report on the Westport Cardiff Coal Mine, accompanied by tracing of mine workings, copies of reports, and photographs.

We have, &c.,

W. M. SHORE.

ROBERT ALISON.

JOHN FOSTER.

H. J. H. Elliott, Esq., Under-Secretary for Mines, Wellington.

DEAR SIR,—

Westport, 23rd May, 1900.

The photos accompanying report are not toned, and therefore upon exposure will fade. I have no chemicals here to tone them, and the photographer left Westport on Monday. Upon my return to Brunner I will get a set toned and forward them to you, and will be much obliged if you will attach them to report in place of those temporarily forwarded.

I have, &c.,

H. J. H. Elliott, Esq., Under-Secretary for Mines, Wellington.

ROBERT ALISON.

REPORT ON WESTPORT CARDIFF MINE.

ACCORDING to instructions contained in your letter of date 12th May, 1900, we met in Westport and immediately proceeded to the Westport Cardiff Coal-mine on the 17th of May.

On examination we found the mine in a very serious position, there being fierce fires raging along the cliffs facing Chasm Creek for a distance of at least 12 chains between the points marked H. and L. on attached tracing, the most serious part being immediately over Bridge entrance (between H. and F. on tracing) to main haulage-way, the whole presenting a most alarming appearance. We also found staff of men preparing to bring in water-supply. Having examined the water-tight stoppings at point marked A. on tracing that were put in in February last, we came to the conclusion that whatever water had accumulated at an earlier stage had now escaped through the floor of entrance-stopping. The Bridge entrance-stopping, marked F. on tracing, was leaking and admitting a considerable quantity of air, which no doubt was assisting to feed the fire. Having examined so far we returned to company's office to post ourselves with particulars of plan of underground workings.

On the 18th May we returned to Bridge end of workings accompanied by Mr. Tennent, Inspector of Mines; had a general conversation as to position of inside workings prior to fire being discovered. Then, Mr. Tennent giving his attention to getting the water-supply turned on, we made a further examination of burning mass along the outcrops. Some of the places that were on fire were inaccessible, although smoke was given off freely; those parts which could be reached displayed considerable activity, and, when opened to the surface, resembled a blast-furnace more than anything else; in some cases huge masses of the roof rocks, weighing tons, were one solid mass of red heat, the points only being approachable under great difficulty. After consultation we

resolved to try, first, to reduce the area closed in by trying to move the main entrance stopping, marked A. on tracing, back to second stone drive to points marked B. or N. This would also have relieved an unworked area lying between north section and faults bounding the Hector Block. However, the damp was too strong and would not move. This confirms the statements made by Mr. Tennent and others that the main haulage-road is fallen heavily, thus blocking the ventilation, so that after considerable effort we had to retreat and fix up stopping in old position—namely, at point marked A. on tracing.

Before submitting recommendations in regard to future operations it might not be out of place to detail a few facts that have come under our notice. These will tend to show how what at first must have been a trifling fire and easily coped with had there been some capable person in charge, but a fire that has now reached most extraordinary dimensions, and will with difficulty be overcome.

The last report signed in report-book by Mr. Broome, late mine-manager, is dated the 18th January, 1900. The report is No. 1 attached hereto. From that date till discovery of fire no examination of the workings appears to have been made, nor does it appear that any competent person capable of making such an examination and report was appointed after Mr. Broome left. Mr. Tennent, Inspector of Mines, states he was not officially notified of Mr. Broome's leaving, nor, as required under section 19 "Coal Mines Act, 1891," that any such person was appointed.

Prior to the discovery of fire apprehensions appear to have existed that the coal in the mine, especially in the Hector Block, was liable to spontaneous combustion. As proof of this Mr. John Tressman states that about eighteen months ago Guy Fleming and son, who were working on right hand side of back heading, saw cloud-like fog, which died away in two or three days. He (Tressman) examined locality several times and found it hot. Also when Mr. Broome was informed at Wellington that mine was on fire, he wired in reply: "Surmised fire in Long Jig or level workings." In Mr. Cochrane's time sign of fire in mine was seen by Mr. Broome, after which all rubbish was taken out of mine at 1s. per box. This last statement is contradicted by miners who state that they were paid by measurement for stacking rubbish at side of roads. Clause 21 in the memorandum of agreement by the Westport Cardiff Coal Company and the Mokihinui Coal-miners' Industrial Union of Workers bear this out. The following is clause 21:—"No. 21. All refuse to be carefully separated from the coal and to be either filled into tubs or left in the working-places at the option of the company. Refuse in coal to be paid for at the rate of 1s. per tub filled level full. Refuse left in working-places to be paid for by measurement at the rate of 1s. per tub, and to be so placed or stacked that the quantity can be conveniently estimated."

The quantity of rubbish tipped at mine-bins does not appear sufficient in quantity to us to bear out statement that all rubbish was brought out of mine, and we are inclined to believe that some has been left in workings.

The details from the 18th January till our arrival on scene are as follows:—

Sunday, 28th January: Notice of fire officially given to Mr. Tennent by R. Broome in Westport. Both these gentlemen then left for Seddonville on afternoon of that date, Mr. Tennent arriving at mine at 8 p.m. Before Mr. Tennent arrived Mr. A. Mitchel, formerly deputy in mine, put in three brattice-cloth stoppings. Mr. Tennent, on arrival, went into mine about 4 or 5 chains past present stoppings, marked A on tracing. Before leaving Westport on Sunday Mr. Tennent informed Mr. Bayfield, agent in that town for company, that a certificated man must be put in charge. In response to this Mr. J. Dixon, of Westport Coal Company, came out on Monday morning. On arrival at mine of Mr. Dixon he and Mr. Tennent went into second stone drive, marked B. on tracing, afterwards going round north section. They then went to Bridge entrance, and reached a point marked E, about 9 chains from mine-mouth, when they had to retire. In the evening they made Report No. 2, attached hereto, after which both left for Granity and Westport respectively.

In consideration of this report (No. 2) we cannot but express our surprise at the method adopted of sealing off the mine by brattice-cloth stoppings, and must state that if at this point had temporary stoppings of boards, lined with clay, been used, we consider the seat of fire could easily have been located in a day or two, besides preventing spread of fire beyond Hector Block, thus preserving haulage-road and workings from mine entrance to that block.

The utilisation of a fan to create a strong draught through a mine on fire was contrary to recognised custom of dealing with fires.

30th January: Report No. 3 attached. This report clearly shows the futility of brattice-cloth stoppings, as the men working at mouth of mine had to suspend operations for four hours owing to smoke oozing through brattice-cloths.

31st January and 1st February: Reports Nos. 4 and 5 attached. These reports also bear out the disadvantages of brattice-cloth stoppings, as it allowed gas generated by fire to ooze through stoppings which, had stoppings been tight, would have helped to extinguish fire.

2nd February: Report No. 6 attached. Fire discovered about point marked D. on tracing. This report bears out statement *re* use of brattice-cloth stoppings, as there appears no reasonable doubt but that fire was spreading up till this time through leakage of stoppings. The turning of main current of air up heading had the effect which any one with knowledge of underground fires would have expected, and it was not to be wondered at that the mass burst into flames upon getting current of fresh air, the natural sequence being that falls would take place afterwards.

5th February: Report No. 7 attached. The result of closing down from the 2nd to the 5th is apparent, as the fire has travelled from D., where first discovered, to main haulage-way.

We express our surprise that on this date, if not on an earlier one, no effort was made to confine fire to smaller area, say, by putting a timber stopping in at or about point marked B. or N. on tracing.

6th, 7th, 8th, and 9th February: Reports No. 8, 9, 10, 11 attached.

14th February, 21st March : Reports 12, 13 attached.

These last reports explain themselves.

That the fire or fires have done irreparable damage to the mine-workings there can be no doubt, as two explosions or blasts have occurred. These have no doubt been due to the rapid evolution of gases caused by the destructive distillation of the area of coal on fire. The effect of these explosions or blasts would be to blow out timber-work supporting roadways, thus causing large falls of the roof. That these falls have occurred is amply verified by stoppage of ventilation, and on engine haulage-road by the fact that the engine was unable, though under full steam, to move haulage-rope, which had to be cut at a point about 6 chains from mouth of tunnel.

Future Recommendations.

We consider the Bridge section area (from which all plant is at present being removed, a contract to do this having been let by the company after fire was discovered) is of little use as a workable section. There is now no road to it; the cost of making a new one would not be warranted as the amount of coal is small, and the section troubled and bounded on all sides by faults.

Hector Block.—From survey-books we find that splitting and robbing of pillars commenced July, 1897, and continued till January, 1898, and from information gleaned we understand it was customary, upon a rush for coal, to fill all loose coal upon sides of pillars up till quite recently. This was, in fact, carried on to such an extent that, in the opinion of the Inspector of Mines and others, it left the Hector Block valueless as a coal-producing area.

This leaves as a probable workable area only that block of unworked coal between North Section and Hector Block. The area of this block might be anything between 10 and 15 acres. Regarding the quality of coal we are unable to speak, as we could not examine it. From information we are led to believe it would make a fair steam coal.

To enable this area to be worked we would recommend that after a time the shaft marked C. on tracing be cleaned out and an effort made to establish ventilation between shaft and entrance of mine. If this is managed the dam and stoppings erected at point marked A. to be removed, and a stopping placed at or about points marked B. or N. When this is done this block should be available for immediate working.

Extinguishing Fire.

To put in a new watertight dam at A. we consider would be an unnecessary expense. The difference in level between points A. and F., the mine exit, is 65 ft., and to reach seat of fire would require a further 30 ft., making a total vertical rise of over 90 ft. from dam at point A.

At point marked X. on tracing there is a subsidence on surface due to extraction of coal pillars. At this point the surface is 40 ft. above point A. and we are informed that in dip-workings on opposite side of haulage-road the coal has been extracted close to surface. We are confident, should water be dammed at point A., before it would drown out fire it would burst through the surface at point marked X., if not on dip side. Were it possible to get a dam put in at B. or N. we would recommend the erection of one there, as the water would rise well in workings before it would break through to surface (method of getting in to B. has been shown before) and another watertight dam would require to be put in at F. At present the drive behind dam, at point marked A., is full of black-damp, which is a good extinguisher of fire and does not cause same damage to workings that water does.

The present method of dealing with surface outbreak at Chasm Creek, between K. and H., is : A 2 in. pipe has been laid from a creek on Bridge section across bridge to above tunnel; a 20 ft. piece of canvas hose with nozzle is attached to this, and for eight hours per day, from 8 a.m. to 4.30 p.m., one man is in charge playing the water upon the fiercest flames. From 4.30 p.m. till 8 a.m. no one is in charge, and the water during that time is allowed to run on one spot.

We must certainly condemn the above system of working. The water-supply is inadequate, and what is available is not being used to advantage. We would recommend that a 4 in. or larger line of pipes for main column be laid from source of supply to end of bridge at mine exit; a T-piece with 2 in. branches be then connected to the column, and the present 2 in. pipes be laid along face of cliff on both sides, extending altogether from H. to L. At intervals in this line 2 in. T-pieces be placed, so that hose could be attached along line at different points. Two men to be in constant attendance, each working a nozzle. If water-supply ample, at some of T-pieces water to be allowed to run free to worst points.

The following materials would be required :—From 200 ft. to 250 ft. of 2½ in. canvas hose (the length of main column is about 1,000 ft.); one reducing T-piece from main column to 2 in. branches; six 2 in. T-couplings. This, with the assistance of covering up, which will result by falls from terrace, caused by subsidence of strata due to fire, will, in our opinion, quench the surface outbreaks, but it must be borne in mind that, though the surface outbreaks are subdued, there is a very large area of fire underground, which will take a long time to cool, and if after the surface is quenched it is neglected, the probability is that a fresh outburst will take place. We, therefore, think it necessary that a competent man be left in charge, with power to employ extra hands if there is danger from a fresh outburst on surface.

In conclusion, if the department carry out the above recommendations, we would urge that they appoint a thoroughly competent man, who has had experience of underground fires, to supervise the work, as the building of these dams should not be left to others than a person with this qualification.

Cave Area.

We consider that to report upon this area would take at least one week, but, being anxious to give our report on present position of mine, we deem it better to leave this part for a future report,

should such be considered necessary. We also could not get copies of Mr. Broome's plans or bore-holes, which would have been of great service.

If the Cardiff Coal-mine is to be reopened, we consider it an absolute necessity that other ground beside that developed by the company in their present mine must be obtained, and the question arises whether it should be further prospecting on the flat below Seddonville or the Cave area. On this we are not in a position to give an opinion without further inspection.

As a considerable amount of dissatisfaction exists in the district, accompanied by many rumours, it might not be out of place for a commission of inquiry to be appointed to ascertain the cause of and laxity displayed in dealing with the fire.

W. N. SHORE.
ROBERT ALISON.
JOHN FOSTER.

No. 1.—A few small falls on rope-road; centre prop required under carrying set at top of No. 2 dip; several sets required in No. 2 tunnel to thoroughly secure. Time of examination, 10 a.m. to 1 p.m.

GEO. H. BROOME.

18th January, 1900.

No. 2.—In connection with the underground fire in the Westport Cardiff Company's mine: We, the undersigned, have this day endeavoured to locate position of said fire; but, owing to the unavailable ventilation, "which is natural," and the current thereby reversing every few minutes, we were unable to reach the affected part without incurring undue risk. We have therefore decided that no further risk to human life shall be incurred, and that a reliable current of air must be established to obviate this. To secure such current we decided the fan shall be removed from its present position and temporarily set at opening to Chasm Creek from first section of the mine. Further, in the meantime all openings to-day are to be sealed off by close bratticing, and no workmen are to enter this section of the mine until authorised by the person in full control of operations.

R. TENNENT, Inspector of Mines.
JONATHAN DIXON, Mining Manager.

29th January, 1900.

No. 3.—We are vigorously pushing forward the removal of fan to the place indicated. All necessary hands are engaged working night and day. At 1 p.m. we were obliged to suspend work for four hours at the close entrance (Bridge), owing to smoke oozing through bratticing. Current changed then, and the bratticing was more tightly secured, and no change occurred in current till 4 a.m. 31st.

ALEX. MITCHEL, Deputy.

30th January, 1900.

Countersigned.—J. DIXON. 31st January, 1900.

No. 4.—Continued to erect fan. We were not stopped at any time to-day. I examined mine as far as stoppings. I felt a slight odour at this end—viz., office entrance. Bridge entrance did not show which way current was going.

A. MITCHEL.

31st January, 1900.

Countersigned.—J. DIXON. 1st February, 1900.

No. 5.—Completed erection of fan. No current in Bridge entrance; a very strong odour inside of fan entrance when closed in. I examined the Bridge section, and found everything in a satisfactory condition.

Countersigned.—J. DIXON. 2nd February, 1900.

ALEX. MITCHEL.

No. 6.—The fire in mine was located to-day in the back heading of the Long Jig. Before entering the mine the fan was started, and a measured current of 10,440 cubic ft. of air obtained at mine entrance. The party consisted of J. Dixon, A. Mitchel, R. Broome, J. Clark, and J. Smith. The party travelled to a point some 29 chains on main road, returned to long jig back heading, and discovered the fire therein some 4 chains up said heading. The main road was closely bratticed off and air directed up heading. Success attended the effort for some time, but about 4 p.m. a fall took place, and at same time the mass burst into flames for a distance back of 10 or 12 yards. Falls continued, one very heavy one taking place. The fire being so active, and falling roof so continuous, it was decided to abandon efforts to reach the seat. It was positively unsafe to attempt anything of the kind. I therefore decided to withdraw the workmen and close the mine as far as possible until further considered and seen by the Government Inspector. The heading was closely bratticed at 5 p.m., also all openings to mine reclosed—practically sealing the mine by temporary means. From my close observance of the conditions I hereby state that the fire is extensive, and the only safe remedy is to seal off the affected district as soon as possible.

5.30 p.m., 2nd February, 1900.

JONATHAN DIXON.

No. 7.—R. Tennent, Inspector of Mines, headed the same party which accompanied Mr. Dixon on the 2nd instant. We discovered the fire at No. 3 curve at long jig on the main road. It was decided to seal down the mine with clay stoppings, which was begun at once and pushed forward with all possible haste, employing twelve men.

5th February, 1900.

Countersigned—R. TENNENT. 5th February, 1900.

A. MITCHEL.

No. 8.—Working at stoppings this end of works. Six men employed working under difficulties, having to encounter black-damp until back wall of stopping was up.

6th February, 1900.

ALEX. MITCHEL.

No. 9.—Working at stopping at either end of main tunnel.

7th February, 1900.

ALEX. MITCHEL.

No. 10.—Completed stoppings at Bridge end of main tunnel, encountering damp there too, as at this end; ten men working.

8th February, 1900.

ALEX. MITCHEL.

No. 11.—Filling in shaft; ten men engaged at work.

9th February, 1900.

A. MITCHEL.

9th February, 1900.

R. TENNENT.

No. 12.—Westport Cardiff Coal-mine.—Inspector of Mines Report.—I have this day examined the whole of the workings in the above-named mine and found them in safe condition. Ventilation natural, but sufficient; all levels, headings, and bords are well timbered and a sufficient quantity of timber found in all working places for the purpose of spragging and securing the roof. No indications of gas seen during examinations. Stoppings and furnace-shaft all right. The mine throughout is standing in the same condition as when work was ceased. There are no falls in any part of the workings. Time of examination, 11 a.m. to 2 p.m.

14th February, 1900.

R. TENNENT, Inspector of Mines.

No. 13.—Westport Cardiff Coal-mine.—Inspector of Mines Report.—I have this day examined the whole of the workings in the above-named mine, and found them in safe condition. Ventilation sufficient; all levels, headings, and bords are well timbered and a sufficient quantity of timber found in all working places for the purpose of spragging and securing roof. No indication of gas seen during examination. Stoppings in satisfactory condition. Would recommend that the timber in entrance section of main tunnel be made secure.

21st March, 1900.

R. TENNENT, Inspector of Mines.

Six photos attached to this report:—

No. 1. This shows the mine entrance, which is in a very dilapidated condition.

No. 2. At Chasm Creek over tunnel, showing line of 2 in. pipes, also smoke and steam rising.

No. 3. A little further to left, nearer point marked H., entracing line of pipes may be seen on back ground, also smoke rising between the large rocks which have fallen from terrace since outbreak of fire.

No. 4. Further still to left, the stone at right-hand side is fault, marked H. on tracing. The canvas hose attached to piping is seen at left-hand side.

No. 5. This is a nearer view of stone in No. 4. The light mass in centre towards bottom of photo is the glowing coal.

No. 6. This is a view from bridge looking down creek. Where smoke is seen is spot marked K. on plan. Between right-hand side and smoke may be seen loose stones. This is a slip from terrace since outbreak of fire.

W. N. SHORE.

ROBERT ALISON.

JOHN FOSTER.

DEAR SIR,—

Brunnerton, 28th May, 1900.

Under separate cover I am to-day forwarding you one set (mounted) of photos to attach to report on Westport Cardiff Mine. Should any additional sets be required, I shall be only too pleased to supply same. I also, as requested in your telegram of to-day, enclose account of my fees and travelling-expenses.

I have, &c.,

ROBERT ALISON.

H. J. H. Elliott, Under-Secretary, Mines Department, Wellington.

TELEGRAMS from R. TENNENT, Inspector of Mines, Westport, to the UNDER-SECRETARY, Mines Department.

2nd June, 1900.

INFORMATION by wire re Cardiff fire will be strictly attended to.

11th June, 1900.

THERE is nothing fresh to report from Cardiff fire. Pipe-line water-supply is almost dried up owing to dry weather, and necessary material for proposed pipe-line will have to be provided, as pipes of required dimensions are not at the colliery. Writing you fully on the position.

12th June, 1900.

CARDIFF FIRE.—Smoke stronger from No. 1 incline on Hector Block. No change over Bridge approach. Water-supply increased with Saturday's rainfall, but failing to-day owing to continued dry weather.

13th June, 1900.

THERE is no change on Cardiff fire. Pipe-line water-supply very low.

SIR,—

Inspector of Mines' Office, Westport, 9th June, 1900.

I have the honour to inform you that I appointed Alexander Mitchel, Seddonville, on the 23rd ultimo, on behalf of the State, to act as caretaker at the Westport Cardiff Coal-mine. Mitchel is a sober, reliable person, and thoroughly acquainted with every detail connected with the mine-workings and property, having filled the position of mine-deputy for several years, and was underviewer for nearly twelve months previous to the mine being shut down. Wages, £2 10s. per week.

I have, &c.,

R. TENNENT, Inspector of Mines.

SIR,—

Inspector of Mines' Office, Westport, 11th June, 1900.

I have to acknowledge with thanks the receipt of extract from report and plan of operations recommended by Messrs. Shore, Alison, and Foster, in reference to extinguishing the fire in the Cardiff Mine.

As your responsible servant, allow me to inform you that the proposed pipe-line water scheme is impracticable, dangerous to life, and clearly defines their ignorance of the whole position. In fact, any information that was given either by Mr. Mitchel, the late underviewer, or myself, appears to have been taken as misleading. If this scheme has to be carried into effect I would agree with the Commissioners that a responsible person be placed in charge, as the work appears, to my mind, not a matter of time but a question of how long the Treasury will stand the drain. These are facts which will be proved if the scheme is carried into practice. Pardon me in expressing the facts stated, as not being done in order to conflict your mind in any way, but as a point of duty.

Whilst the honourable Minister was in Seddonville a deputation of residents waited on him in relation to the Cardiff fire, and during the meeting one of the deputation repeated the substance of the report furnished by the Commissioners, and pointed out on the colliery plan the whole line of procedure to be carried out.

Bridge Section.—This section of workings was not inspected by the gentlemen named above to ascertain whether the coal was faulty or whether it was a coal- or quartz-mine.

Hector Block.—In May of 1897, previous to my appointment as Inspector of Mines, I visited Cardiff, and was kindly asked by Mr. Broome, mining-manager, to accompany him through the mine. At that date No. 2 incline workings were pillared back from the cliff a considerable distance, and the whole section was built with "pigsties," or wooden chocks, to locate a "creep" which then existed. Since that time considerable numbers of pillars have been extracted, both on Nos. 1 and No. 2 inclines, and when last visited in October of 1899, in company of Mr. John Hayes, Inspecting Engineer, and Mr. Broome, mining-manager, the roadways leading to the pillared ground were all clear and in good order.

The unworked block located between the north and Hector sections of workings is practically valueless. I have made it my business to examine the surroundings of this section most carefully, and the indications are, as represented on plan, a complete network of faults. The late manager was not the person to pass a section of marketable coal after developments were fully completed for its extraction. With regard to the many openings that are driven through the outcrops, I do not hold myself responsible, because this work was all driven previous to my charge.

Furnace Shaft.—It is proposed to clear out this shaft, but there is no plan of procedure laid down, while it is admitted that the mine is soaked in a dense body of carbonic acid or black-damp from stopping marked A. If this line of procedure is considered to be effective, why is it not recommended now, because, so long as combustion continues in the mine the work must become of a more difficult nature? Since the subsidence was discovered in north section of workings I am in favour of trying this experiment, but it will be a very difficult job, and as far as I can see from knowledge of past experience, I could not vouch for its success.

Mark N. on Plan.—On Monday, 5th February, when I entered the mine the main drive was filled with fierce flame about the point indicated N., and at point marked B. a dense volume of heated smoke rolled continuously down the shaft drift marked O., direct from the seat of fire discovered by Mr. J. Dixon, of Granity. This heated column returned into the main roadway; consequently it was impossible under any conditions to attempt blocking off the mine-workings at either of these points. Had an attempt been made to block off the fire on or about B. locality every man engaged in the work would have perished from the effects of flame and smoke that were forced through the tunnel by the "backlash" of an extensive fall that occurred the first night that operations were commenced. After this fall occurred our means of ventilation was cut off and the building of A. stopping was a most difficult task. Assuming it was possible to build a dam at or about mark N. on plan, water could only be raised to the height of the first pillar above main roadway, as a direct line of open communication exists from point O. to mine-entrance. Hence the absurdity of this proposal.

Point B.—As the plan, shows the drive is very wide owing to a deviation being made when driving the main tunnel. During the time the men were preparing the seat for A. stopping I made periodical visits to B. point on behalf of the workmen's safety, and at this point the rock had commenced to fall. Now, since the subsidence in North Block is discovered there is only one

point by which it may be possible to build a dam and raise the mine-water in the workings—viz., between point B. and fault-line marked S. on plan. If this cannot be attained the question is serious, and the stopping at A. must remain.

Should the proposed pipe-line scheme be considered practical, all the material specified in the Commissioners' report will have to be forwarded, as I could not get the necessary furnishings in Westport. Water is only available during heavy rainfalls, for when I visited the property on the 4th, 5th, and 6th instant there was not sufficient water to fill a $\frac{3}{4}$ -in. diameter pipe, and on several occasions I have seen less water in the stream.

The course to carry this pipe-line has given me much thought, as the cliffs on which the Hector outcrops are exposed are nearly vertical and overhanging with loose masses of rock, and over the pillared ground no man has dared to travel. Comparing the altitude of the terrace over the main tunnel with the terrace over which the smoke is issuing from No. 1 incline or Long Jig on Hector Block, the Hector Terrace is considerably higher than the source of water-supply. I attach a telegram from Mr. Mitchel, caretaker, on water-supply from another small mountain stream that runs over Bridge section of workings.

Mr. Elliott,—The problem before us in order to extinguish this fire is, to my mind, a most difficult task. I have had to deal with more extensive underground fires, but the conditions were solid workings. Had the ground been solid in this case the sealing off the mine would have been a simple matter. I am most anxious to carry out any practical or scientific method or further dealing with the case, but I would prefer to confer with some one who knows something of the internal conditions of the mine, as it makes the responsibility lighter should our efforts prove not effective. Mr. Jonathan Dixon, mining-manager of Millerton Colliery, would confer with me should you think it advisable to do so, as I look upon him as a qualified and experienced person.

I have, &c.,

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

TELEGRAM from Mr. MITCHEL, Seddonville, to INSPECTOR of MINES, Westport.

8th June, 1900.

No. 2 Creek trifle better than cascade. Extremely rough. Would require to go back a great distance to get altitude of fire-line if at all possible.

TELEGRAM from R. TENNENT, Inspector of Mines, Seddonville, to the UNDER-SECRETARY, Mines Department.

14th June, 1900.

CARDIFF fire shows signs of increase over Bridge approach, where large falls of rock have occurred; water-supply failing.

TELEGRAMS from R. TENNENT, Inspector of Mines, Seddonville, to the UNDER-SECRETARY, Mines Department, Wellington.

18th June, 1900.

WORK started outside mine entrance preparatory to erecting ventilation-fan. We propose to force an on-current into the mine on air-lock principle, and drive the gases backwards through open burning drives on outcrop, with the object of building dam between points D. and F. on the plan. Should the experiment fail an air-current will have to be led forward by brattice, and all necessary material can be had locally.

18th June, 1900.

THERE is no abatement of fire over Bridge approach. Water-supply still low. I am residing on the premises.

19th June, 1900.

THERE is no change on outcrop fires; weather very dry.

19th June, 1900.

OUTSIDE work in connection with reopening mine is progressing satisfactorily. Nine men employed to-day.

20th June, 1900.

SHOULD resultant gases from coal distillation exist these gases are constantly discharged through the burning outcrops. Black-damp is the opposing element, and large air volumes are necessary to discharge it against the rise workings. I do not anticipate danger from gas explosions. Water accumulations behind falls, which we know have occurred in main tunnel, is the greatest danger.

21st June, 1900.

ARRANGEMENTS preparatory to re-entering the mine are vigorously pushed forward, but cannot be completed before middle of next week.

21st June, 1900.

EVERY effort is being made with water-supply to suppress fire over Bridge approach. Outcrop fires on Hector Blocks are stronger. Mr. Dixon was here all day yesterday.

22nd June, 1900.

THERE is no change to report on fire. Other works are being pushed forward.

23rd June, 1900.

CARDIFF fire shows to extend along the outcrops southward from Bridge. Hector outcrops are burning very fierce.

25th June, 1900.

THE works at mine entrance are being steadily pushed forward. There is no change to report on outcrop fire.

26th June, 1900.

OWING to heavy rainfall last night, we have a full water-supply, and are able to cope with fire over Bridge approach more successful. Other works are well forward.

27th June, 1900.

PIPE-LINE water-supply being full, the fire over Bridge approach is well under subjection. We expect to start fan about Saturday.

28th June, 1900.

WEATHER to-day is very unfavourable for pushing forward outside work. The fire over Bridge approach is very well under, owing to full water-supply. Hector outcrop fires continue to burn strong.

29th June, 1900.

GETTING well on with fan-erection. Expect all work finished to-morrow ready to open mine Monday morning. There is no change to report on outcrop fire.

30th June, 1900.

ALL work in connection with reopening mine will be completed to-night. Four hands were suspended last night. Mr. Hayes and Dixon will be with me on Monday morning.

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