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NEW SOUTH WALES.

LEGISLATIVE COUNCIL.

ROYAL COMMISSION ON COLLIERIES.

REPORT

ON THE ACCIDENTS AT

LITHGOW VALLEY COLLIERY.

ORDERED BY THE COUNCIL TO BE PRINTED,

2 *September*, 1886.

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DOCUMENTS REFERRED TO.

SCHEDULE.

1. Evidence of witnesses examined.
2. Minutes of the Commission.
3. Reduced plan of the workings of Lithgow Valley Colliery.
4. Report by Messrs. Swinburn and Usher.
5. Report by Messrs. Jones, Curley, and Usher.
6. Section of Coal-seam worked.
7. General Section of Western Coal-measures.
8. Plan showing position of Collieries in Lithgow Valley.
9. Plan showing arrangement of Bratticing at second accident.

ROYAL COMMISSION ON COLLIERIES.

PROGRESS REPORT ON THE ACCIDENTS AT LITHGOW VALLEY COLLIERY.

June, 1886.

To His Excellency the Right Honorable CHARLES ROBERT BARON CARRINGTON, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Governor and Commander-in-Chief of the Colony of New South Wales and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY,—

The Commission appointed to make a diligent and full inquiry into the causes of the accidents that recently occurred to the Ferndale Colliery, in the District of Newcastle, in this Colony, and also to report upon the condition of the collieries adjacent thereto,—also to make an inquiry into the disaster that happened at the Lithgow Colliery, and to report upon the working and ventilation of the coal seams, and more especially the thin coal seams of the said Colony—have concluded their inquiry into the cause of the accidents at Lithgow Colliery in February and April last, and, with the aid of evidence transcribed from the shorthand writers' notes, have unanimously agreed upon the following statement descriptive of the mine and nature of the accidents, also a *résumé* of the operations and of the evidence taken, and their findings or report on the same. These, together with the documents detailed on the margin hereof, the Commission have the honor to present to Your Excellency.

A general meeting, at which all the members of the Commission (except one) attended, was held in Sydney on the 29th day of April, when, at the request of the Honorable the Minister for Mines, the Commission agreed to open the inquiry into the Lithgow accident before that of Ferndale. Accordingly, they proceeded to Lithgow, and at once commenced their investigations. After spending two days in minutely inspecting the underground workings of Lithgow Valley Colliery, to which access could be obtained, in examining the colliery plan, and in obtaining necessary information from the Government officers, the colliery owners, and their officials, and in discussing and arranging the form of procedure and the evidence required from witnesses, the Commission formally opened their inquiry into the causes of the accidents referred to, on the morning of Monday, the 3rd day of May ultimo, and continued their examination of witnesses till Wednesday, the 12th May, when, from the lack of further evidence, the inquiry was closed.

During these sittings thirty-four witnesses were examined. On the completion of the work of transcribing the shorthand writers' notes the Commission again met, at Newcastle, on Wednesday, the 26th day of May, and, while the preliminaries

for

for commencing the inquiry into the accident at Ferndale Colliery were being completed, the various points brought to their notice during the exhaustive inquiry and examination of witnesses at Lithgow were discussed, together with two special reports by members of the Commission, being the result of—

a. An examination of the workings of Lithgow Valley Colliery, with the view of discovering (if such existed) the presence of photo. or light carburetted hydrogen gas (the fire-damp, stythe, or choke-damp of miners), and

b. An inspection by those members of the Commission on the condition of the coal workings on the adjoining estate of Eskbank along its southern boundary, to ascertain whether an actual connection exists between the abandoned coal workings at Lithgow Valley and Eskbank Collieries, sufficient to permit the passage of water or of air between these two collieries; points which, from the remarks to follow and the exhaustive evidence, illustrated as they are by maps, plans, sections, and documents appended hereto, Your Excellency will readily perceive are of importance in forming opinions on the possibility of the underground fire in the first-named colliery being fed by air derived from the abandoned coal-workings of the latter, and on the consequences that may befall that colliery should an attempt be made to extinguish the underground fire in Lithgow Valley Colliery by flooding that mine.

In obtaining evidence, collecting and preparing information bearing upon the lamentable accidents that occurred in Lithgow Valley Colliery—the first on the 13–14th February ultimo, whereby three men, including the manager of the mine, lost their lives, and the second on the afternoon of Monday, the 19th day of April ultimo, whereby five men lost their lives—the Commission sat thirteen days, from the 29th April to the 13th of May, both days included; and the sittings, while taking evidence, averaged eight hours each day, irrespective of the necessary work of preparing points to be elucidated on the following day. This occupied much time, and could only be accomplished after the arduous investigations of the day had ended.

Lithgow Valley is the name given to the deep hollow at the foot of the Great Zigzag on the Great Western Railway, and is distant 94 miles from Sydney. This valley marks the western line of the Blue Mountains—a broad belt of sandstone—once an extensive plateau, which, by the incessant operation of natural causes of climate and time, has been worn and eroded into a confused theatre of tortuous valleys or glens, bounded by profound precipices, the depths bristling with dense primæval vegetation, and obscured by a blue mysterious haze that has given to this broad mountainous belt its name. The mass of the Blue Mountains is composed of the Hawkesbury Sandstones, that rise to an elevation of about 5,000 feet above sea-level, and overlie the coal-measures of the Colony. The latter measures in vertical thickness about 600 feet, and are for the most part composed of sandstone, conglomerate, and arenaceous shales, the top being marked by a stratum of red aluminous shale. Throughout this thickness the coal-seams are found in stratigraphical order or succession. The coal-beds of the Western Coal-field are no doubt identical with those that occur in the Newcastle and Southern Coal-fields; but, on account of the character of the separating or intervening strata, the work of identifying or correlating the beds in the several districts has not hitherto been attempted.

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The Western Coal-field is therefore a part of the great coal-field of the Colony that has by some stupendous force been elevated many thousands of feet above the original level.

The profound valleys, such as those of Kanimbla, the Grose, Jamieson, and others, which form the feature of this broad mountain belt, have been denuded out of and through the great thickness of the Hawkesbury Sandstones—the coal measures, and below these into rocks evidently of Devonian age.

The coal-beds in the Western District have a general but a very low angle of dip or pitch to the east of north. Very few faults or dislocations of the strata interrupt the continuity of the beds. This angle of dip and rise gradually brings the coal-beds to the horizon towards the west, so that at Lithgow, at an elevation of 2,900 feet above the sea, the lowest coal-bed of the series is underlying the bottom of the valley, and preserving its natural rise, comes to the surface a short distance from the railway station.

The line of outcrop of the Lithgow coal-seam is marked by, and can be traced under, a low escarpment of pebbly sandstone that stretches in a north and south line across the valley, and is continued some distance further under the cover afforded by the extension of the carboniferous sandstone in that direction. The coal-seam measures about 10 feet in thickness (see section No. 6). It is divided by thin layers or bands of stone. The roof consists of a remarkably thick and strong post or bed of sandstone, with a few shale or "chitter" layers contiguous to the top of the coal. The true floor is composed of a very hard close-grained sandstone. The part of the seam worked is shown on section No. 6, and will be seen to consist of from 5′ 4″ to 6′ of coal; from 6″ to 18″ of worthless splinty coal being left on the floor, called "bottoms," and from 3′ to 4′ of coal on the roof, called "tops" or "top-coal"; this lies immediately under the sandstone. The coal in appearance is dull and comparatively lustreless; it is hard and has a cubical fracture, and contains apparently a high percentage of ash.

This coal has been worked for many years at the Bowenfels, Lithgow Valley, Hermitage, and Iron Works Tunnel, and at the Eskbank, Vale of Clwydd, and Zig-zag coal-pits, and is in extensive demand. The estates owned by the proprietors of the collieries enumerated, together with the position of their working shafts, and, in the case of Eskbank and Lithgow Valley, the area and position of the coal worked, is approximately shown on plan No. 8. On referring to this plan it will be seen that the line of outcrop of the seam crosses the western part of the estate belonging to this Company, at a point a few hundred yards south of their northern boundary.

About fourteen years ago a tunnel (position shown on plans Nos. 3 and 8) was begun on the outcrop of the coal-seam, and continued almost due east, following the dip of the seam; this has continued to be the main outlet by which coal has been won. By referring to plan No. 3 the method of winning and working the coal-seam may be seen and followed. The tunnel has been driven due east and almost direct to the dip (the pitch of the seam averaging about 1-34 in that direction) for a distance of about 52 chains=1,144 yards from the outlet.

The method of winning the coal has been that known as bord and pillar, leaving pillars varying from 4 to 20 yards to support the superincumbent strata. About 120 acres (with the exception to be referred to) have been worked in this way, the pillars remaining intact. The

The ventilating currents are shown by arrows, and are actuated by two furnaces. It will be seen that the main inlet for fresh air (intake) is the tunnel, and that the "returns" for the exhausted air are two in number, and are shown by arrows pointing towards the west. Both of these "returns" pass over ventilating furnaces, and are shown on plan No. 3. The ventilating current has been guided and controlled by stoppings composed of slack or small coal, strengthened in some cases by timber.

The coal-seams throughout the Colony enjoy an enviable immunity from the presence of fire-damp—only in comparatively few instances has any accumulation of this gas been seen in any of the collieries. The presence of "fire-damp" has never, it would appear, been observed in this or in any of the adjoining collieries, although it has been repeatedly looked for (see evidence of J. Davies, R. Grant, Jos. Campbell, and Mr. Inspector Rowan, and special report No. 4).

In respect to the mode of winning coal, the size of pillars, and the methods employed to induce and control the ventilating currents, this colliery appears not to have in any way differed, but to have followed the practice of this and the other mining districts in the Colony.

To the north of the main tunnel the coal workings were extended to and stripped the boundary of the adjoining colliery of Eskbank. While doing so it would appear that the workers in Lithgow Valley discovered an encroachment that had been made from the lands of Eskbank. This, of course, forms a link of communication between the two collieries. As the tunnel in Lithgow Valley proceeded it became necessary to deal with the water that collected in the dip workings; and advantage was taken of this encroachment, and the fact that the coal-seam formed a hollow or "swallow" contiguous to that spot, to discharge the water removed from the dip workings into this hollow, and from thence it percolated and found its way into the adjoining coal workings in Eskbank estate, from whence it was pumped. Another hollow of some extent, to the north of the tunnel and contiguous to the boiler, is partially shown on plan No. 3. A third hollow is shown on same plan, near to the left-hand furnace. These hollows were full of water. The limits of the second-named hollow seem to have covered a greater area than is shown on the plan, and to have crossed the tunnel. It was from this reservoir that the supply of water was derived that was used to play upon the underground fire.

The Lithgow Valley mine was managed for several years, prior to the accident of February, by Mr. John Doig; and the owners, who were personally ignorant of mining, and who practically never entered the mine, reposed the utmost confidence in the ability and judgment of Mr. Doig. To him they delegated the full control and management of the colliery in all its branches and details. (*Vide* evidence of Mr. T. Wilton and Mr. E. Gell, corroborated by Mr. Inspector Rowan, Mr. Dixon, S. Passmore, and others.)

Mr. Doig appears to have been a man of much decision of character, but one remarkable for his reticence. The reasons he had for pursuing a given course do not seem to have been required of him, or if asked were not given. Unfortunately Mr. Doig lost his life in the accident of 13th and 14th February. The evidence that he, had he survived, would have given, the Commission feel, might have cleared up many points referred to in the inquiry that appear only to have been known or could have been satisfactorily explained by him.

After

After entering the main tunnel a small split of air was allowed to enter No. 7 cross-cut (see plan No. 3), a few yards below or to the east of the right-hand furnace. The bulk of the air was carried down the tunnel, and at F, 38 chains from the outlet, or 36 chains from the right-hand furnace, another split of air of uncertain amount was taken to supply the boiler furnace—to be after mentioned. Opposite F a secure stopping had been put across, and effectually stopped the passage of air into the main level, marked and known as Tyndall's heading; this stopping was composed of timber, and was air-tight. The main body of air coursed past this point, and was conducted in the tunnel as one stream to the bottom, where it was split or divided. About 2,000 feet per minute was taken to supply the few men who were kept working in bords to the north of the tunnel. This current ventilated about nine bords, until it impinged against a solid barrier of coal, left, it is alleged, to prevent the water in the hollow referred to from reaching the lower workings. The air current was then bent to the south till it reached within one pillar of the main tunnel, when it was again swerved to the west and curved round the boiler at F. At this point it was joined by the smoke and heated gases, and any air that escaped over or alongside the boiler; and again turning to the right, then to the left, it was conducted over the accumulation of water in the hollow, as delineated by arrows on plan No. 3. After leaving this hollow this return or flue enters an empty bord, and follows this for many chains, and, before entering the left-hand furnace, it again crosses another hollow filled with water to within a few inches of the roof, and finally enters the left-hand furnace and escapes to the outer air. With respect to this left-hand return, it appears that from the boiler upwards towards the furnace it has not been travelled or inspected for years. The reason for this is that the level of the water in these hollows reached within 12 or 18 inches of the roof; and this, in the opinion of the Commission, formed an important factor, not only in causing quantities of smoke to collect in the main tunnel spoken of by the majority of the witnesses, but in hampering the easy and rapid exit of the sudden displacement of foul gases, on the 19th of April, by the furnace which caused the death of five men in the second accident.

The right-hand or south return air-ways are also shown by arrows on plan No. 3. This is the principal air-way in the mine, and in the districts ventilated by it nearly the whole of the men worked. Reference to the plan will show that to ventilate the south side workings below the cross-cut the air is divided or split into two currents; the principal current enters Sam's heading, and is conducted through the bords above that heading. A smaller current was permitted to pass this heading, and at the bottom of the tunnel this was divided, one portion going to ventilate the northern bords, as narrated; the other portion was conducted to the right, and, after ventilating the few bords below Sam's heading, joined the main stream of air that was introduced by that air-way.

The conjoined currents then ventilated the working bords, and, crossing No. 1 cross-cut by an overcast, was carried direct to the right-hand furnace and escaped up the ventilating shaft. The bord in which this furnace was built was continued to the left, and passing out to day, constituted the second outlet prescribed by the Coal Mines Regulation Act. With respect to the ventilating furnaces. The left-hand furnace was practically kept for inducing a draught in the flue from the underground boiler, and was of small area. The sectional area of the return was about 30 cubic feet, being that of an air-way about 7 yards wide, with an open

space

space about 18 inches between the level of the water and the top-coal. The exact area of this could not be accurately ascertained, and considerable differences of opinion existed as to the height of the open space above the water (see J. B. Turnbull's and Inspector Rowan's evidence). Under these circumstances the Commission have taken the area suggested by Mr. Inspector Rowan. The area of the left upcast shaft is about 24 cubic feet.

The right-hand furnace was of larger area, and was capable of rarefying from 10,000 to 12,000 cubic feet of air per minute, and of maintaining an adequate ventilating current for the number of men employed. Both of these furnaces were built quite close to the main tunnel, and communicated therewith by a narrow passage, closed not by a double but a light single door. These furnaces have been built in the centre of an ordinary bord. The ashes drawn from them do not seem ever to have been removed. In the case of the left-hand furnace these were wheeled down the return and tipped into the water, over which the return air and gases passed; while at the right-hand furnace the ashes, after being soaked with water, were built up in one large pile against the coal pillars. A large heap had, at the date of the inspection by the Commission, accumulated, and it was brought out in evidence that on one occasion a fire had occurred here; but that the warning thus given of danger had been disregarded, and no attempt was afterwards made to remove them from the mine.

It has been already explained that the mode of winning the coal in this colliery was that known as bord and pillar, and was systematically pursued, and that, following this system, about 120 acres of coal had been worked, leaving the pillars standing to support the roof. The pillars left in this colliery are of ample size. Over a very considerable portion of the area worked the pillars left to support the superincumbent strata measure about 20 yards square, against 7 yards of bord worked; so that nearly two-thirds of the whole coal-seam has been left unworked. To the north of the tunnel, and adjoining Eskbank boundary, pillars over the space of about one or one and a half acres have been wholly taken out. The probable position of this space is shown on the plan No. 3. It is doubtful also whether some pillaring operations have not been conducted contiguous to the encroachment from Eskbank; at any rate, the pillars there are very much smaller than those left in other parts of the mine. No very accurate information could be obtained by the Commission as to the state of the pillars in this part of the workings.

It would, however, appear that considerable falls of the roof had taken place near to this, and that the open waste or goaf was (when last visited by R. Grant, R. Davis, and others) full of carbonic acid gas (the choke-damp or stythe of miners).

It may not be out of place, although anticipating future recommendations connected with other branches of the inquiries entrusted to the Commission, to remark that to have such extensive areas of pillars intact is not only a waste of national resources, but an instance of defective and of a wasteful and thoughtless system of mining. Were it made a rule that all collieries should take out pillars in districts, and as soon as possible after they are formed, the roof would subside equally, and, closing upon the small coal and rubbish, would leave no open spaces where falls could occur or quantities of poisonous gases could accumulate. A large area of open goaf may be considered as a storehouse or magazine purposely left for the storage of black-damp or white-damp. These deleterious gases are given off

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by all coal-seams, and are also the results or the products that represent the waste of animated existences, or are generated by the use of explosives or from the burning of coal or oil. A carefully devised and conducted mine should, where circumstances will permit, have none of these open spaces from whence, on the occurrence of a sudden and unforeseen accident, large quantities of gases inimical to human life could—as in the case of the accident of 19th April at Lithgow Colliery—be forced into a main intake, and there to asphyxiate five men in their nervous struggle to reach daylight and a place of safety.

At F, in plan No. 3, a small boiler about 15 feet in length was erected about three years ago. This boiler supplied steam to a special pump that forced the mine water into a hollow or depression on the north side of the tunnel, from whence it was supposed to find its way into the coal workings of the adjoining estate. Such, however, was the state of the underground arrangements that there is a strong probability that a proportion of this water did not reach Eskbank, but returned to the lower hollow, and was thus repeatedly pumped. This boiler was erected in an ordinary bord 38 chains from the tunnel-mouth, or in bord No. 36, and only a few feet off the main tunnel.

It has been mentioned that some inches of a coarse splint coal is left unworked next to the floor of the coal-seam; the Commission ascertained this on the occasion of their first inspection of the colliery, and particular attention was directed to this circumstance during the examination of witnesses. Samuel Passmore and Henry Grant, on being interrogated on the point, thought that this coal had been lifted at least *under* the boiler, but were uncertain. These men had not seen it erected. Grant affirmed that this coal had not been lifted in front, where the hot ashes were raked out. The evidence of R. Davies, the former deputy, left no doubt on the mind of the Commission that this boiler had actually been built (*vide* R. Davies' evidence) upon 15″ of coal.

The top-coal had not been taken down above this boiler, a space of about 20″ or 2′ only intervening.

The sides of the coal pillars were not protected. An open space of about 8′ existed on the left-hand side of the boiler seat. Across this, and in a line with the front of the boiler, a brick stopping had been built, leaving a small door-way, which was closed by a piece of bag. Through this opening access could be had to the flues and back of the boiler; a brick wall was likewise carried up to the roof in front.

Behind, two 18″ fire-clay pipes were joined into one a few feet from the damper, carried the smoke and waste gases back for 15 yards or so into the left return. The top-coal had not been taken down, except over a space measuring 6′ square at the end of the fire-clay flues referred to. These fire-clay flues were supported on brick pillars and trestles of iron rails, at a height of about 3′ above the floor. The joints of these pipes were said to have been cemented. It would appear that the tail or the end of the water from the hollow behind approached the back of the boiler, and that these pipes discharged the waste gases above the water. This precaution seems to have satisfied the management. Abundant evidence was adduced (see S. Passmore, H. Grant, R. Davies, R. R. Druery, and others) that along the left side of the boiler, and also below the flues, a considerable quantity of small coal had accumulated. The temperature arising from the fire and waste steam was in these positions very great, and this was sufficient to cause the top-coal and the

unprotected

unprotected coal pillars to crumble, and the small coal resulting from this disintegration, instead of being removed, was allowed to accumulate, and, being heated to a high temperature, supplied the materials for an underground fire on slight provocation. The flues appear to have been too small, considering the sooty character of the coal, and thrice every week the attendants required to clean these out in a somewhat primitive fashion. They depended on the men whose duty it was to clean these flues discovering a fire, if it occurred, behind the boiler. Soot had accumulated at the end of the pipes, which was never removed, although it was known that in it fire occasionally smouldered.

Very soon after the erection of this underground boiler—about three years ago—*a fire was discovered in the accumulation of small coal* referred to *behind the boiler* and under the pipes. This was after some difficulty extinguished by means of buckets and water.

Some months elapse, and the witness (R. Davies) describes another fire that occurred, and as the circumstances appear to be nearly identical with the accident of 13–14th February, it may be narrated thus:—

Fire was discovered on the Sunday afternoon; the man in charge going down to raise steam was arrested by a wall of smoke in the main tunnel, about 3 chains above the boiler. The witness, having been joined by the manager, stirred up both furnaces, and opened a communication from the right of the tunnel, so as to permit the body of air to rush directly into the right-hand furnace. The effect of this was that the left-hand furnace, inducing an air current from below, drew the smoke from the tunnel; that enabled the boiler to be reached and the fire extinguished; this was a work of some difficulty. It would appear that Davies after this felt anxiety as to danger arising from this boiler, and expressed his fears to Mr. John Doig of the likelihood of a recurrence of this accident, but did not suggest to Mr. Doig to have the small coal removed.

After these two fires *no steps* were taken to remove the inflammable materials from around the boiler.

A third fire is spoken of by the night engine-man, H. Grant, who also suspected the recurrence of the fire, but did *not* express his fears to Mr. Doig.

About six weeks or so before the accident of 13th–14th February a serious fire was again discovered among the same accumulation of small coal among which the previous fires had taken place. To extinguish this fire R. R. Druery and Sam Passmore were employed the whole of one day. Mr. Doig was present during these operations, and, remarkable to relate, the man in whom was reposed such implicit trust did not report these occurrences to the Inspector of Mines, or even to his owners, but deliberately disregarded these repeated warnings of danger, and took no steps whatever to remove the cause of these fires or prevent their recurrence. It is scarcely credible that a man who for years was a colliery manager could have been guilty of such culpable negligence.

It does not appear that the Government Inspectors had investigated the manner in which this boiler was erected, nor had they travelled, or attempted to travel, the left-hand return. It is right for the Commission to mention that the Government Inspectors do not seem to have been averse to perform their duty in a thorough

thorough manner. The boiler, it is supposed, was erected in the interval that elapsed between the last visit of Mr. Inspector Dixon and the appointment of the present Inspector, Mr. Rowan, to this district, and that Mr. Rowan took it for granted that Mr. Dixon had satisfied himself that all was right. Had the occurrence of these fires been reported to Mr. Rowan, doubtless a thorough investigation would have resulted in that capable officer compelling the manager to make the structure and its accessories secure and safe. It is remarkable that the accumulations of small coal referred to and the presence of the top-coal above the boiler escaped the attention or failed to excite suspicion in the mind of the Inspector.

It has been explained, when describing the character of the left-hand return, that the air from the northern bords, together with the gases and smoke from the boiler fire, passed for some chains in length over a "swallow" filled with water, the surface of which reached within 18″ or 20″ of the roof; the air and products of combustion then passed through open bords, and again, for a space of about 3 chains over another hollow, in which water had collected to within a few inches—14″ to 18″—of the roof. The water no doubt had the effect of reducing the temperature of these gases, and proved a drag or impediment to the free passage of the ventilating current over its surface; in consequence, whenever the left-hand furnace was allowed to burn down (as on Saturday nights), the smoke, instead of continuing to pursue its proper course, as it would have done under more favourable circumstances, remained motionless, or was drawn into the tunnel or "intake" and lodged in the inequalities of the roof where the top-coal had fallen. A small cloud of smoke hung in this situation and was seen by workmen in proceeding to their work, and it remained until the sudden and uncertain eddies caused by the rapid motion of trains of skips dislodged it, when it was swept away by the ventilating current. This was of itself a clear and unerring sign of a defective "return."

The last recorded fire had been extinguished, but the warning of danger had been disregarded; the materials for another conflagration remained untouched, and were doubtless augmented by the inevitable crumbling of the roof coal and from the coal pillars. The defective state of the left return does not seem to have impressed the management, and large quantities of ashes continued to be piled against the coal pillars in the tunnel. Just opposite, and for some distance below, this boiler [to the east] the tunnel was of unusual width [from nine to ten yards], notwithstanding about this time the Manager commenced to bisect the corner pillar just below the entrance to the boiler, thus increasing the width and abstracting the support which the corner afforded to the roof. The fool's paradise which those in authority had so long enjoyed could no longer exist: the easy state of chronic indifference and utter disregard of all warnings of danger culminated on Saturday, the 13th, or Sunday, the 14th of February last.

On the afternoon of that day (13th) S. Passmore, the deputy-day engineman and furnace-man, damped down the fire under this boiler, passed behind the structure to attend to some detail, and, he affirms, left the boiler "all right," and went out of the mine about 4 o'clock p.m. One and a half hours or so thereafter, four miners (Geo. Hall, Wm. Hall, Walter Riddle, and Joseph Buzza), who were working in the bords to the right of the tunnel at the very dip of the mine, discovered a small quantity of smoke in the road adjacent to their working places; they remarked this, and wending their way to the tunnel found that it increased in quantity, and continued to do so as they proceeded upwards. As they approached the boiler they were obliged to stoop to clear the increasing volume of smoke; in doing so Wm. Hall became unwell. On arriving at the boiler, and getting into uncontaminated air, Wm. Hall

Hall continued on his way, while his son George went into the boiler and discovered that smoke was rolling outwards, some coming over the top of the boiler. On arriving at the mouth of the tunnel these men saw S. Passmore, the deputy, conversing with Charles Younger, the banksman (now deceased). The Halls informed Passmore that a great quantity of smoke had collected in the tunnel, and was coming from the boiler. These men did not, however, specially impress upon Mr. Passmore that something very serious and unusual had occurred, but continued on their way, Mr. Passmore remarking "all right," or that "smoke had often been there before," or words to that effect. Mr. Passmore admits the verity of these men's statements; he impressed the Commission, as did the whole of the witnesses, most favourably. Mr. Passmore appears to have been an unusually dutiful and faithful servant, earnest and truthful. The miners referred to likewise gave most intelligent evidence, but the Commission cannot do otherwise than express their surprise at the incurious minds possessed by these men, and the apparently incorrigible indifference of Mr. Passmore in not at once proceeding to this boiler, which he was well aware had been the scene of former fires, and satisfying himself that all *was* "right." No doubt in the honest belief that the smoke referred to by the Halls was nothing more than that which he knew always collected in the tunnel, Mr. Passmore went home.

On Sunday, the 14th, as was his custom, he went to the colliery and proceeded down the tunnel. About 23 chains from the mouth, or about 15 chains from the boiler, his progress was arrested by a dense wall of smoke that completely filled the roadway. This he endeavoured to penetrate, but finding it to increase in density he returned and found that a slight current of air was going downwards. Mr. Passmore, apprehending that something serious had occurred, returned to bank, called upon Charles Younger, the banksman, and sent for John Doig, the manager. On their arrival the three men proceeded into the tunnel, inspected the smoke, and endeavoured to beat it back with their coats, but finding this impossible they returned to the right-hand furnace. Passmore was then requested to fire-up this furnace, and finding no coal convenient he proceeded to the face to procure fuel, where he became overpowered with choke-damp, and had to be removed from the mine and restoratives applied, with the effect that he recovered. The deceased William Rawe and the witness William Martin (who, on the day following, with Henry Grant, behaved with such conspicuous bravery in recovering the bodies of the ill-fated men), hearing from Charles Younger's wife that something was wrong in the mine, at once proceeded down the tunnel and offered their services to Mr. Doig. The four men again attempted to waft or beat back the smoke in the tunnel by means of brattice-cloth, but in this they were unsuccessful. They then resolved (and it seems incredible that they did so) to enter No. 2 cross-cut and attempt to work their way down to Tyndall's heading by way of the right-hand return. On arriving at the junction of this cross-cut William Martin felt overcome by the smoke and black-damp, and expressed his inability to proceed. The three men, John Doig, manager, Charles Younger, banksman, and William Rawe, miner, for some unaccountable reason, left their stock of oil at the junction, and proceeded on their perilous and foolhardy journey, William Rawe requesting Martin to inform his family where he was. William Martin returned to his home, went to bed, informed no one of the proceedings of the evening, and in the morning resolved that he would not go to his work that day.

On Monday morning, 15th February, Patrick Sheedy and another, arriving very early, proceeded down the tunnel into No. 2 cross-cut and commenced work in their

their bord, and remarked nothing very unusual in the ventilation. They continued at work until warned by one R. R. Druery of the accident, and the presence of black-damp in the mine. Other workmen on passing down the tunnel, and discovering the wall of smoke, came out and spread the alarm. The workmen assembling, sent for Charles Younger, when they were informed that he had gone into the mine with Mr. Doig and Rawe on the afternoon before, and had not returned.

Mr. Gell, one of the proprietors, who resided close by, was then apprised of the situation, who in turn informed Mr. Wilton, the commercial director of the Company. On arriving at the mine, Messrs. Gell and Wilton found the workmen in a state of consternation, and for the first time heard of the accident and of their Manager and the other two men being in the mine. They then ascertained that some of the men, feeling the want of a leader, had sent for Mr. J. B. Turnbull, Manager of the adjoining colliery of Vale of Clwydd. Whilst waiting his arrival some of the men suggested that the train of skips that was at the time in the mine should be drawn out, in the hope of restoring the ventilating current. When this was attempted the engine-man discovered that the tail-rope was fast, and in consequence the engine would not move. Suspicions of a fall in the tunnel (afterwards verified) appear to have been assigned as the cause of this. Meantime telegrams were despatched to the Mining Department and to Mr. Mackenzie, Examiner of Coal-fields, who in turn telegraphed the news to Mr. Inspector Rowan, while Mr. Mackenzie, with Mr. Inspector Dixon, of Newcastle, who at the moment was in Sydney, proceeded to Lithgow by special train. While the body of men waited the arrival of Mr. Turnbull, several of the workmen, realizing the position and the necessity of instant action, with commendable resource, organized themselves into a search party, and led by the witnesses Mr. Rodham, Mr. Norwood, and others, entered No. 2 cross-cut, saw where Mr. Doig and his companions had taken down a stopping, and thinking they had gone to Tyndall's heading, boldly penetrated the right-hand return or "goaf," and proceeded downwards. The party, strange to relate, did not find the air in these returns unbreathable, but tolerably good. The intention of this party was to broach the stopping in Tyndall's heading, opposite the boiler. This, it is also believed, was the purpose that Mr. Doig had in view when he took the unaccountable course of entering the right-hand returns, which, from anything he knew, ought to have been more hopelessly fouled with smoke and carbonic acid gas than the main intake or tunnel, which, in a normal condition of things, ought not to have contained such accumulations of smoke or gas. Had any of these parties succeeded in their purpose it is doubtful whether a man of them would have come out alive. Roddam's exploring party seem to have been to some extent ignorant of these old workings, and the Commission failed to thoroughly satisfy themselves on the exact locality that they reached. Messrs. Rodham and Norwood affirm that they actually did reach Tyndall's heading, when Norwood became affected with breathing the partially fouled air, and the party returned, carrying him to the tunnel. They found no traces of Mr. Doig or his companions, although they must have passed close to the bodies.

Another party of searchers, under James Doig and William Martin, also penetrated some distance into these returns without finding traces of the missing men, and were recalled to put up the stopping.

Meantime Mr. Turnbull had arrived, and having been put in charge by the owners proceeded with a party of men into the tunnel, and having procured brattice-cloth began operations by opening stoppings on the right-hand side of the tunnel for

a return air-way, carrying down air, and by its means beating, or forcing, or sweeping away the smoke. Mr. Turnbull was not aware that while he was so engaged parties of workmen were already far below him in the comparatively pure air of the right returns, while he, in his endeavours to clear the tunnel, was forcing foul air directly into the returns where these search parties were. Of course Mr. Turnbull was not aware that search parties were in the waste.

About 10 o'clock a.m. John Sheedy met William Martin, and hearing from the latter that Mr. Doig, with Younger and Rawe, had entered the right-hand workings the night before, and had not returned, they resolved to search again for their mates. Although ignorant of the roads, they, on their own responsibility, entered the second cross-cut, passed into the return, and striking by accident the return air-way kept straight on for six or eight pillars, when, hearing a heavy sigh and a groan, they went a few yards off the road and found Mr. Doig. Jno. Sheedy, with a single-mindedness that sheds a nobility on his unassuming courage, first removed the young man Martin, who was affected by the foul air, and placing his lamp on Doig's body found that it would not burn. Mr. Doig was lying in a stratum of choke-damp. He lifted Doig in his arms and carried him part of the way out, when he received help from J. Doig, and the Manager, still alive, was removed to the surface, where, in an unconscious state, he lived for a period of twelve hours, when he expired.

Wm. Martin again returned, in company with Henry Grant, furnace-man, and proceeded to the spot where John Doig had been found. A pillar length off another party, consisting of Wm. Tait and Edward Power, were also searching, when Edward Power discovered the bodies of Charles Younger and William Rowe, both quite dead (*vide* evidence of these witnesses). The bodies bore no marks of injury or of burning; it was but too evident that they died from the inhalation of carbonic acid gas. On this no two opinions exist; they fell victims to their rashness and their zeal. It is most probable that, their oil having failed—their lamps being empty—the poor men had lost their way, and having wandered for hours in the waste workings, more or less charged with carbonic acid gas, they at last, feeble and unable longer to walk, lay down to die. The Commission cannot but express surprise that such an attempt should ever have been made with an intake full of smoke and "stythe," more especially by a Manager with the experience of Mr. John Doig.

Meantime Mr. Turnbull was making progress in the work of clearing the tunnel of smoke. In the afternoon Mr. Wilson, Manager of the Zigzag Colliery, visited the scene of the accident, bringing the witness R. Davies with him, and introduced him to Messrs. Gell and Wilton as a former deputy, who was conversant with the mine, and recommended him to their notice. It would appear that Mr. Gell, suffering from a chronic illness, was much affected at the moment on account of the terrible loss of life that had occurred, was in no humour to engage in matters of business, and does not recollect saying much, if anything, to Davies (see E. Gell's evidence). Mr. Wilton, with more composure, affirms that Mr. Gell said nothing to Davies, and that he asked him to go and consult with Mr. Turnbull, who was in charge, and explain to him what he would propose to do, or words to that effect. Mr. Davies proceeded down the tunnel, met Mr. Turnbull coming out, asked him to lend him the plan, which he refused to do; Mr. Turnbull proceeded to the surface, and remained there some hours. Mr. Davies thereupon went down to the tunnel—and here the statements of the two witnesses are at variance. Mr. Turnbull, who had never before been in the mine, positively affirms that he was taking down the smoke at the rate of 40 yards an hour, and that when he met Davies it was down

to

to within 3 chains of the boiler (*vide* evidence of J. B. Turnbull); while Davies, with an intimate knowledge of the tunnel, as positively affirms that when he entered the tunnel the smoke was not less than fifteen chains from the boiler, and without hesitation marked its position in the tunnel as it stood at point G, plan No. 3. Misconceiving his status, and unaware of the state of the tunnel (discovered subsequently), Mr. Davies, pursuing the course that Mr. Doig and he had successfully followed on the occasion of the first fire, at once opened the brattice in No. 2 cross-cut, also the right-hand door leading to that furnace, fired-up the left-hand furnace in the expectation that, as narrated (page 10), the smoke would be drawn out by that channel, and with an intrepidity which cannot but be admired, entered alone these right-hand wastes, and remained in them so long that a search party was being formed to look for him when he appeared. Mr. Davies positively asserts that on his return the smoke had, on account of his efforts, receded in the tunnel. Mr. Turnbull, on the other hand, asserts that his actions undid all that he (Turnbull) had done, and that the ground so lost could not be recovered. An angry altercation ensued between Turnbull, Davies, and the Examiner of Coal-fields. The last-named gentleman appears at this stage to have advised closing the mine, and Mr. Turnbull, notwithstanding his statements that the alleged lost ground could not be recovered, set to work to convince the Examiner of Coal-fields that the source of the fire could be speedily reached—a lingering suspicion existing that the origin of the fire was at or near to the boiler. Mr. Turnbull asserts that for three hours he again swept the smoke out of the main tunnel at the rate of 40 yards per hour. Mr. Mackenzie does not corroborate this (*vide* evidence of parties). The Commission are inclined to think that Mr. Mackenzie and Mr. Dixon did not receive the ocular demonstration referred to, and the whole of the parties, sceptical of their ability to reach the seat of fire, agreed to close the mine.

One Norwood, a miner, who had been engaged with Mr. Turnbull, having propounded a scheme for separating the workings above No. 2 cross-cut from the body of the dip or east workings (since carried out), Mr. Turnbull requested permission to have some surveys and measurements made with a view to consider, with the Government officials, whether this scheme was practicable.

Soon after this survey was commenced Mr. Turnbull became affected with choke-damp in No. 2 cross-cut, and was removed out of the mine by his companions. At the advice of the Government officials the mine was then closed by brick stoppings across the outlets.

The coal-mine remained closed for the space of four weeks, and during this time certain experiments were made as to the pressure on the stoppings and the nature of the gas that had accumulated behind them. For some reason that could not be clearly ascertained—probably no valid reason existed. Mr. Turnbull believed that fire-damp would be found, and from time to time experiments were instituted with the object of setting this point at rest. As might have been anticipated, no fire-damp was found, but choke-damp or carbonic acid gas issued from the stoppings and extinguished the lamps.

The miners employed at this mine appear to have been a steady and altogether superior class of men. The majority had been employed for years with the firm, and had built for themselves little cottages adjacent to the colliery. A mutual regard and sympathy existed, and they were loath to leave the scene of their avocations. They

were

were anxious that the mine should be opened, and the owners, conscious of this, appointed Mr. Joseph Campbell as manager, and consulted the Government Inspectors, with the result that, in the expectation of finding the fire extinguished, the mine was re-opened, and in process of time reached the seat of the fire—the underground boiler. Disappointed in finding the fire still burning, but as no provision had unfortunately been made for extinguishing an actual fire, the men were withdrawn, and orders were given to reclose the mine. Bricklayers had actually commenced this work, when the workmen, discussing the position of affairs in groups on the pit-brow, and persuaded that they could of themselves extinguish the fire, agreed to request the owners to permit them to take the work into their own hands. Accordingly, a considerable number being of this mind, repaired to Mr. Gell and Mr. Wilton, who were standing near, and with excellent and commendable feeling informed these gentlemen that they (the men) sympathised with them in their losses and disappointments, and stated that, feeling satisfied that if the work was entrusted to them, and if they were supplied with the materials they required, they would at once recommence operations, and were willing to give a week's trial and ask nothing for their services. Impressed with the chord of sympathy thus unexpectedly struck, the owners consulted the Government officials, with the result that the proposals made by the men (except their gratuitous services) were acceded to, and the volunteers there and then assembled in the tunnel, arranged their shifts, chose their leaders, and at once commenced work.

They beat back the smoke, and when they again got to the boiler it was agreed to extinguish the fire by playing high-pressure steam upon it. The means employed toward this end appear to the Commission to have been of a perfunctory character. A canvas brattice, not even tight, was stretched across the tunnel, and steam was laid on for eighty hours, playing into a portion of the fire. It is difficult to see what good effect could have been expected from the employment of this agent in this way, when no steps had been taken to confine or circumscribe the fire by perfectly air-tight stoppings. On turning off the steam it was apparent that the experiment had entirely failed, and it was only after the work of five all-round shifts that the fire could again be approached, and attacked by the direct application of water. In the interval the fire had increased in intensity; the supply of water from the surface having failed the necessary supply was obtained from one of the "swallows" referred to, which had crossed the tunnel some yards above the boiler. The air was kept to the face by "bratticing" carried down the centre of the tunnel; and by opening stoppings on the right-hand side a return was secured for the smoke.

Opposite the boiler, and extending upwards for about half a chain, a very large fall of rock was observed to obstruct the ventilating current; and the Commission are of opinion that this fall was the cause of the absence of smoke in the right-hand returns that enabled Doig, Younger, and Rowe to wander in these wastes, as well as the search parties who discovered them on the following day. The top-coal under this fall was on fire, and the roof rock was intensely hot. The fire was seen burning, but not briskly, to the left, over the boiler, and along Tyndall's heading. It was necessary to play water on a portion of it, and when cooled it was filled into the skips and drawn from the mine. This very greatly impeded the progress of the operations, during which the fire gained ground.

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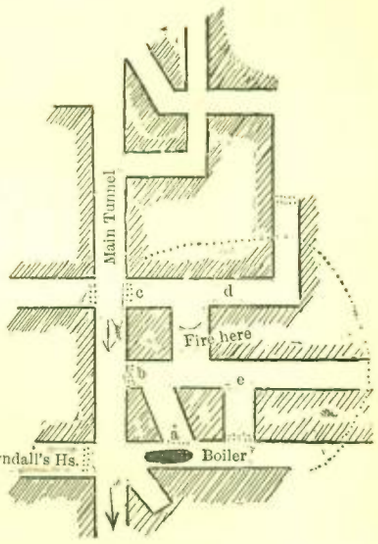

The top-coal, with flakes of the superincumbent rock, had fallen from the tunnel to the left, over and behind the boiler. The workmen had removed the main body of the fall in the tunnel, had put out the fire in Tyndall's heading, and had opened the stopping there, in order to give them relief from some of the steam and smoke. They had cleared the burning top-coal off the top and along the left side of the boiler. The coal was seen burning at the back of the boiler above the flues, and the men were on Thursday, the 15th of April, preparing to deal with this, when on the falling of a piece of rock above the corner of the pillar, near to the end of the boiler, the fire was discovered burning briskly in the bord that had been driven at an acute angle towards the tunnel and through the pillar. The position is marked *a* on marginal sketch.

The men opened out this stopping and saw a brisk fire burning in the bords to the rise of the boiler, and fed with fresh air from the tunnel, by way of the boiler. This fire may have spread in the top-coal. Next day, namely, on Friday, the 16th April, the deceased Isaiah Hyde discovered an extension of this fire inside the first stopping, above the boiler, in the tunnel marked *b* of marginal plan. The men were then withdrawn from the fall in the main tunnel, and were employed cutting down the top-coal to give room to play water on the fire. The following shift discovered an extension of the fire in the next bord, further up the tunnel, at *c* on marginal plan, and at once attacked this as explained. The men at this time seem to have got uneasy, and believed the fire had crept up behind them; in consequence, Sam Passmore made a special search in a bord higher up the tunnel than the last named, and proceeded some distance into the goaf, but discovered no fire.

About this time Mr. Campbell, the manager, who had a few days before tightened the stoppings to the east of C in No. 29 stopping (*vide* plan No. 3) accidentally discovered that it was open, and that a quantity of air was escaping over it into the waste, but saw no fire through it. He called the attention of the owners and the Examiner of Coal-fields to the circumstance, and these gentlemen believing that the stopping had been surreptitiously tampered with by some malicious person with the object of endangering life, the owners offered a reward of £50 for the conviction of the supposed culprit. The Commission regret that this received such prominence. Campbell, the manager, Mr. Mackenzie, and others were closely examined upon the point. The workmen in the tunnel do not seem to have noticed any deficiency in the amount of air while this stopping is supposed to have remained open. The furnace-men at the mouth of the tunnel had received instructions not to admit anyone into the mine who was not immediately employed therein, and there is no evidence that they were remiss in their duties. With ten men at work in close proximity, and with no object to gain by doing so, the Commission cannot conceive of the possibility of such an occurrence taking place, except by one of the men employed. The offer of a reward under these circumstances might be construed into reproach on the *bonâ fides* of valorous men, every one of whom the Commission feel satisfied were impressed with a lofty sense of their duty. The state that Campbell found this stopping in is explainable in many ways; and stoppings in a similar state are seen every day within an extensive mine. No injury was done, the escape of air from the tunnel was trifling, and the Commission see no justification for the action that the proprietors were advised to take.

On

On Sunday, the 18th of April, the workmen had satisfied themselves that with fire in the bords marked *a b c d e* (on sketch plan, page 17) fed by fresh air coming over the boiler they could scarce hope, unless the plan of the operation was altered, to cope with the conflagration, which they had satisfied themselves was confined to the bords and pillars for about 2 chains square referred to above. Having quenched the flames, in that situation, for about a chain back from the tunnel they put in tight stoppings in the two bords above the boiler, with the intention of removing the fall remaining in the tunnel, and afterwards, by an alteration in the circuit of the air-current, to attack the fire at about the points marked on sketch, marginal plan, page 17.

During these arduous operations the Examiner of Coal-fields and Mr. Inspector Rowan were in constant attendance, taking no responsibility, but seeing that the men did not incur unnecessary risk, and ready to withdraw them should unforeseen danger arise. They mingled with the men, remained for hours with the shifts who battled with the fire, and while giving them a helping hand were ever warning the workmen not to endanger their lives. They formed a part of the busy band of toilers who for some weeks laboriously struggled as one man, animated with one desire to successfully accomplish the work they had begun, sharing with these men whatever risk and danger existed, as well as the discomforts of the situation.

The owners and their Manager and subordinates also appear to have shown an equal interest and an unusual solicitude for the safety of the men worthy of all commendation. They were present daily for hours at the very front of the operations, encouraging by their presence, yet urging the workmen to withdraw rather than incur risk, and supplying all their requirements with a willing alacrity. The Commission feel it to be at once a pleasure and their duty to comment favourably upon the part taken by these gentlemen, and refer to the evidence given by the witnesses who were employed at these operations, every one of whom seemed pleased to express their approbation of the help given, and the anxiety felt, by the inspectors, owners, and Manager for their common safety.

On Monday, the 19th April, the men had commenced operations in the tunnel; about 14,700 cubic feet of air was passing to the foot, and everything appeared favourable. The Inspector of Collieries, with a parting word of admonition to the men, left for Sydney.

The position of the bratticing is shown on plan No. 9, appended. About 3.30 p.m. the shift, composed of the following ten men, were at work, namely:—Archibald Durie, Gilbert Kirkwood, Chas. Norwood, John Duncan, William Mantle (all of whom were saved), and of Isaiah Hyde, Lancelot Allison, Thomas Rawe, Thomas Mantle, and Joseph Buzza, who lost their lives. At the hour named a loud crash was heard, supposed to come from a point up the tunnel. The canvas bratticing, saturated with steam and hot water, fell upon and entangled John Duncan, scalding his arms and person. The crash was followed by a strong rush of wind down the tunnel, carrying dust and fragments of grit, and extinguished every light, but does not seem to have knocked down any of the men or overturned a skip. A second crash and second rush of air, less strong, immediately followed, and a gust of air rushing over the boiler carried quantities of smoke and gas back upon the men. Gilbert Kirkwood, the leader of the shift, at once shouted to the men

men to run for their lives, and a rush was made for the skips that were standing some distance above. The air current at once resumed its course, but in diminished volume, and carried with it quantities of choke-damp, which speedily began to affect the terror-stricken men. They tumbled into the skips that were provided to carry out rubbish. Some confusion seems to have arisen as to signalling. This was ultimately relegated to Archibald Durie, who, however, considered that the signal had become deranged, while the men on the surface affirm that no signal was given.

On the surface a sudden jet of smoke was seen to emerge out of the left-hand furnace-shaft, and a belch of air and dust came out of the tunnel mouth, but was not repeated; while H. Grant, who is evidently endowed with an enlarged organ of wonder, affirms that he was ejected for over a hundred yards out of the tunnel, and for many yards into the open air. This is an incredible story, and the Commission feel satisfied, as the man received no injury, and was one of the first to run into the tunnel to render assistance, that the incident referred to did not occur. They refer to the evidence of H. Grant, and the reliable evidence of Joseph Campbell, who was standing near the spot indicated by Grant.

Seeing that something serious had occurred, Jos. Campbell considered it prudent to have the skips drawn out of the mine.

Meantime the men in the mine being in the dark, and feeling that the air-current was sluggish and contained choke-damp, and a gust of smoke having only a moment before come from the boiler, and believing that the tunnel had closed hurriedly, got out of the skips and made for the pit-bank. When, however, the skips began to move C. Norwood and John Duncan got into them. As they proceeded some rubbish from the stoppings, that had been blown out, was strewn across the road. Over this the skips were drawn, and in consequence they left the rails. The jolting thus occasioned threw out Duncan. As they were passing him Kirkwood managed to throw his arm over the end of the last skip, and, hanging on with desperate energy, succeeded in being dragged out of danger. Jno. Duncan afterwards caught the rope, and by it was dragged upwards; while Arch. Durie, with William Mantle leading, walked or crept to positions of safety. For a graphic account of the catastrophe the Commission would refer to the evidence of A. Durie and the other four men saved, viz., C. Norwood, G. Kirkwood, J. Duncan, and Wm. Mantle; and for the positions where the bodies of the other five men were found, see evidence of Jos. Campbell, also plan No. 3.

With a promptitude deserving of the highest praise Joseph Campbell at once entered the mine. He was accompanied by H. Grant and Wm. Martin, both of whom for the second time rendered signal service; and after passing several of the saved men the search party, under Campbell, now augmented by many willing volunteers, observing that the stoppings were more or less blown down, and from the openings choke-damp was emanating, hurriedly repaired the breaches, and in this way restored the ventilating current, so that in a remarkably short space of time the searchers were enabled to reach the 23rd stopping from the tunnel mouth.

At this point the bodies of the unfortunate men, Isaiah Hyde and Thomas Rawe, were found, and knowing that no other bodies were in the mine the searchers withdrew, and the smoke and choke-damp remained stationary at the 22nd stopping thereafter.

The

The five men saved from the catastrophe assert that on their progress up the tunnel they passed over some live coal opposite some of the stoppings. The Commission satisfied themselves in examining witnesses that no fire existed so far as is known beyond the 31st stopping, and none was observed through the blown-out stoppings as far down as the 22nd. (See Jos. Campbell's evidence.) They fail to see how the fire centred at the boiler could extend over the " swallow" of water referred to in the time, and can only refer to the apparently reasonable hypothesis set forth by Mr. Inspector Rowan when examined on this point (*vide* Rowan's evidence). On this subject they cannot offer any further remarks.

The evidence is most decisive that succeeding the rush of air after the loud noise that gave intimation to the unfortunate workmen that a serious accident had taken place the ventilation resumed its course, and carried before it down the tunnel waves or quantities of choke-damp that affected all the men. Some of the saved noticed that the state of the atmosphere deteriorated as they approached some of the stoppings a considerable distance up the tunnel.

The evidence of Campbell, the then Manager, clearly explains the state of these stoppings a few minutes after the accident. Portions of the loose material with which they were composed had been blown out across the road. Towards the top of the tunnel very little damage had been done, and that contiguous to the roof. Further down a greater quantity of the packing had been scattered across the road from left to right, thus indicating the source and direction of the force, whilst others had been bodily shifted. So far as one can judge, the chief force of the blast appears to have been concentrated below the 15th stopping, and extended down as far as the place where the bodies of Hyde and Rowe were found, but the evidence of the survivors goes to show that probably below that point damage had been done to stoppings.

As to the cause of this serious accident, as might have been anticipated, two theories have been propounded. It would appear that of the five survivors some were too nervous and agitated to think of a cause. In the case of others, such as A. Durie, the idea of a fall of the roof seems to have shot through their minds; probably none of the survivors really did formulate any cause until their recovery and had time for reflection. How far their own judgment was then influenced by the anxious inquiries and conversations of friends it is impossible to judge. The causes assigned for this accident have been as follows:—

1. An explosion of Fire-damp.
2. A fall of the Roof.

With respect to the first or explosion theory the Commission consider that they have sifted the subject to the bottom. The theory appears to have emanated from men possessing no mining erudition and ignorant of the chemistry of gases, and to have been accepted by some of them as a convenient reason to assign for a most deplorable and somewhat obscure accident—by men who were groping for light, and who were, from their evidence, perfectly ignorant of the laws that regulate the explosion of fire-damp. To some extent this was looked upon as the cause of the accident by the witness Kirkwood, who, however, considered that the gas that did explode was the smoke that issued from the fire. This, the Commission feel, need only be referred to that its utter absurdity may be seen. In justice to this witness he did not insist upon his opinion, nor apparently was he positive that he was treading upon safe ground. The witnesses J. Davies, R. Grant, and A. Durie, likewise, were inclined to accept

accept this doctrine. The whole of these men had never seen or heard of fire-damp having been seen in the colliery; the former thought that smoke might explode. The second (R. Grant) believed that a reservoir of fire-damp had accumulated toward Eskbank boundary, and in a position where he himself admitted choke-damp —the antithesis of fire-damp—had formerly existed. This man, as may be seen from his evidence on the point, had not considered how many difficulties presented themselves before his theory was possible. He admitted that fire-damp had not been seen, and was ignorant of the nature and composition of explosive mixtures. A. Durie (page 56–57), in his evidence, thought at first that the accident was due to a heavy fall, and he only afterwards inclined to the belief that it might be due to an explosion. On this point he was by no means certain, nor had he cogent reasons for the belief he had subsequently entertained. If the evidence tendered by these witnesses be taken in connection with that given on the point by witnesses such as Messrs. Mackenzie, Rowan, Dixon, Campbell, Turnbull, and Davies, the Commission feel that little remains to be said further than to mention that the whole of the witnesses agree in stating that the ordinary and positive signs or *sequela* of an explosion were absent. No flame was observed, no superheated atmosphere existed, no steam was seen, no evidence of burning on the pillars or woodwork, or on the bodies of the unfortunate men. There was no derangement of the air-current; the force went *with* the wind. The propounders of the explosion theory could not explain: 1st. How it was possible for a mine in which no gas had ever been seen to have an accumulation of this at Eskbank boundary, and why this place should have been chosen by it, so to speak, as a magazine; 2nd. Or where the gas was generated; 3rd. Or how, if exploded, when no light was near; 4th. Or how it was possible for a reservoir of light carburetted hydrogen to get mixed with the requisite volumes of fresh air to render it explosive, with open wastes surrounding it, full of smoke and of carbonic acid gas; or 5th. Nor had they considered that in the event of carburetted hydrogen gas existing it could not explode if, when rendered explosive by the addition of the requisite volume of air, it became mixed with a very small per centage of choke-damp; and, finally, that with light carburetted hydrogen gas in an explosive condition, contiguous to Eskbank or thereabout, it was not possible for an explosion to occur, seeing that to draw it out of its lurking place it *must* pass through wastes filled with smoke and carbonic acid gas, and that at the moment the left-hand return contained or was passing an amount of carbonic acid sufficient to qualify and render inert any explosive mixture. The Commission feel that it is supererogation to remark that the laws that regulate the explosion of photo-carburetted hydrogen gas are fixed and inexorable, and if, as stated, this is qualified with the admixture of carbonic acid gas an explosion is impossible.

The evidence of an explosion was, from the first, not only weak, but was not supported by a single intelligible statement or reason.

With respect to the cause being assigned to the occurrence of a heavy fall of the roof, the Commission feel that they are treading upon solid ground.

Falls of the roof appear to have been of frequent occurrence on the north side of the tunnel; Hen. Grant, in his evidence, refers to his hearing the sound of falls in this locality. While Samuel Passmore refers to one fall that occurred in the waste behind the boiler, when the rush of air, caused by the displacement, blew the doors of the underground boiler open. C. Norwood speaks of a fall that took place behind the boiler only the day before the accident, that blew out smoke and dust, and extinguished lights. Everyone conversant with mining operations knows how frequently heavy falls occur in the old and abandoned workings of a mine.

In

In the present case the fall that suddenly displaced a quantity of air sufficient to partially blow out so many of the stoppings on the left-hand side (northern) of the tunnel, and to have forced open the trap-doors at the furnaces, and displaced the ashes on the grate, and, rushing up the left-hand up east, started the wooden slabbing and clay plaster on the sloping tunnel that connected that up-cast shaft with the chimney, must have been a fall of some magnitude, but not necessarily greater than falls that occur, and are soon forgotten, in mines where the wastes do not contain accumulations of carbonic acid gas.

Mr. Inspector Dixon spoke of a fall that had recently occurred at Lambton Colliery, where the rush of air, had it been directed, *as it was not*, against stoppings, would probably have demolished them. Mr. Inspector Rowan instanced a fall where the rush of air was so great that it forced the winding-cage in the shaft through the "midwall" or partition; while the Examiner of Coal-fields and others described the blast occasioned by a great fall at the Wallsend Colliery as sufficient to knock down horses and men, to level and demolish brick stoppings, and dash the skips about. Other witnesses gave similar incidents from their own experiences, and the Commission, conscious of similar catastrophes, endorse these statements. The Commission feel that although in the present condition of the colliery it is impossible to ascertain the locality, yet they are satisfied that to *a fall of the roof*, and *to that alone*, that occurred towards the left of the tunnel, and probably in the vicinity of the encroachment from Eskbank workings, this lamentable accident is to be attributed.

It is well known that over a considerable area in that neighbourhood the pillars were removed, and from that towards the point G (plan No. 3) the pillars were of small size, and the bords were unusually wide. This part of the mine has been abandoned for years, consequently the timber that originally supported the roof coal must have decayed, and the roof and small pillars, yielding to the decay incident to exposure, must have been considerably weakened, and in a fit state to subside. On account of the fire these old working must have been filled with steam, carbonic acid gas, and the products of combustion. They did contain before the fire quantities of "stythe." A heavy fall occurring in this locality would suddenly displace a quantity of air and gas that would rush impetuously and unrestrained across the open bords, sweeping before it the contained choke-damp until it found relief. The left return, already passing a full quantity of air across the narrow space that existed between the water and the roof, could not give it vent, but a portion of the force was spent in urging the air in that return onward, forcing the door and displacing the slabbing above the up-cast shaft. The residual force spent itself in blowing the stoppings, and the top of these, being thinnest, and offering least resistance, yielded to the extent required.

The resistance of the water in the lower hollow may have been sufficient to prevent any serious blast to travel over the site of the fire, and the slight rush of smoke after the first blast had ceased may represent the amount of force that was spent in that direction.

The stoppings on the left or north side of the tunnel giving way allowed the foul air and carbonic acid gas from the wastes to pour into the tunnel, and this force caused the "wind" that rushed downwards after the first crash was heard by the men engaged at the fire. The incoming air carried or rolled this heavy gas downwards until it became diffused and met the men on their way out, with the dire results narrated.

Having

Having thus, at some length, described the history, mode of working, character of the same, its condition and arrangements, the Commission, after considering the evidence, have unanimously agreed to present to Your Excellency the following findings :—

First—That the underground fire that occurred on Saturday or Sunday, the 13th or 14th of February of this year, *arose at the* underground boiler, and was in all probability caused by the defective arrangements explained, arising from the stolid and implacable indifference and disregard of the management to the unsafe condition of the underground arrangements.

Second—That John Doig, manager, Charles Younger, banksman, and William Rawe, miner, met their deaths by the inhalation of carbonic acid gas, while in the wastes on the right-hand side of the tunnel.

The reasons that induced these men to penetrate these wastes is inexplicable, and the Commission, although most unwilling to pronounce judgment upon the actions of those who have lost their lives while in the discharge of their duty, cannot come to any other opinion than that the deaths of these three men are due to a grave error in judgment, for which they themselves were alone responsible.

Third—That the second accident, of the 19th April, was caused by a "wind blast," the result of a fall of the top-coal, or of the overlying rock, of unknown extent, and in an unascertained locality of the old workings to the north of the tunnel—probably in the vicinity of the encroachment from Eskbank—that forced the foul and exhausted air, smoke, and carbonic acid gas, or carbonic oxide gas, that filled these wastes, as well as the foul air of the left-hand return, through the stoppings, into the main intake or tunnel.

Fourth—That Isaiah Hyde, Thomas Rawe, Lancelot Allison, J. Mantle, and Joseph Buzza were killed by the inhalation of carbonic acid gas, and others as detailed.

Fifth—That this lamentable occurrence was a *pure accident*, one that could not have been foreseen, and was unpreventible, for which no one, in the opinion of the Commission, is to blame or can be held responsible.

The Commission have given great consideration to other points connected with the arrangements in this mine, and would most respectfully desire to report upon these to Your Excellency.

The deceased manager, John Doig, was vested with the whole and sole control of the mine and its accessories, and he had not been in the habit of reporting events to the proprietors. The mine gave them no concern, and was on all hands considered to be a singularly safe one, and the proprietors, being unskilled men, were quite willing not to be troubled with details.

The stoppings were constructed of small coal, strengthened in some cases, where required, with timber. They seem to have been carefully constructed; and the fact that no complaints have ever been made by the men about the ventilation; that it exceeded the quantity prescribed by the Coal Mines Regulation Act; that the Inspectors were perfectly satisfied; and that, during the operations for extinguishing the

the underground fire, the quantity of air reaching the men amounted to 14,750 cubic feet per minute: the Commission can come to no other conclusion than that these were sufficient, and served all the purposes of stoppings. In constructing these of small coal this Colliery followed the custom of the district, and of other districts of the Colony, where large daily outputs are obtained.

In the case of returns that convey smoke and hot gases from the fires of underground boilers, the veriest novice in coal-mining ought to have readily seen and apprehended the nature of the danger. It was enough that the pillars of coal over this long return were perfectly unprotected ; but to add to the danger by controlling this important circuit by means of stoppings composed of slack coal appears to the Commission to be inexcusable. The condition and character of this return was far from satisfactory, and forms but a link in a comparatively long chain of lax arrangements and indifference for the safety of the mine. This was, it is true, not the cause of the accident, and, at the best, had only an indirect influence in determining the course taken by the blast.

For reasons given, the Commission do not attribute the melancholy loss af life that resulted from these stoppings being partially blown out to the character of the stoppings. The accident was not foreseen, nor could it under any conditions have been anticipated. The residual or marginal force inherent in the blast, after blowing the stoppings, must have been considerable, but it is impossible to estimate what that marginal force was. Brick stoppings, though more workmanlike, offer but a poor resistance to a sudden blast where the energy of the air has been suddenly and forcibly generated. In this Colony such stoppings have been demolished by the air force generated by a fall of the roof. Had the stoppings along the tunnel been of brick it is doubtful whether they would have resisted the sudden shock or push of this "wind" blast; and if they had yielded there can be no doubt that the damage would have been greater, and probably not one of the five men saved would have come out of Lithgow tunnel alive. At the same time the Commission are of opinion that brick stoppings ought in all cases to control the course of every return that conveys the gases from underground furnaces; that all returns should be easily accessible, and should be travellable ; and that stoppings of brick, or of some substantial and imperishable material, should control main air-currents. In a future report the Commission hope to give, at length, their views on stoppings as bearing upon ventilation.

The rapper-wire, at the moment after the accident, was, it is believed, deranged. The men requiring its aid were in a state of desperate excitement; probably the signals were not properly managed, but if they were, the Commission see in the damaged stoppings a reason for the derangement of the wire. It was impossible to foresee this accident, and this being so, it is difficult to protect a signalling apparatus from the effects of an accident that could not have been anticipated. The signalling wire seems to have been properly hung, to have been hung in the usual manner, and to have acted before the accident to the satisfaction of the very men who, at the moment of danger, found it, to their horror, unworkable. The wire must have been covered by the *debris* from the blown-out stoppings. To protect a wire in tubes would be to curtail its usefulness, and prevent the possibility of effecting repairs or inspecting its condition; neither would this protect it from all accidents. The Commission, in absolving the management from any blame in respect

respect to the rapper-wire, would desire to point out to your Excellency that the signalling apparatus was not used for the purpose of signalling the embarkation of men, but was only provided for the sole purpose of indicating when a train of coal-skips was ready to be drawn out of the mine.

The practice of permitting large accumulations of ashes contiguous to a ventilating furnace, as has been the custom at this colliery, is a most unsafe and reprehensible one, and betrays a reckless disregard for the general safety of property; these ought, in all cases, to be removed at once out of the mine.

The Inspector of Collieries appears to have visited this colliery regularly and periodically in accordance with the Act, and found no cause to complain of the manner in which it was conducted. The Commission regret that such a zealous officer as Mr. Inspector Rowan had not his attention directed to the condition and arrangements of the under boiler of this colliery, and also that he did not consider it necessary to make any exhaustive inspection either of this structure or of the state of the left-hand return. Had this been done the Commission are confident that his experience and natural caution would have caused the glaring defects elicited during this inquiry to have been removed, and thus have averted a calamity that has brought sorrow to many happy homes, and cast a gloom over the peaceful village of Lithgow.

Although this may be no part of their duty the Commission hope that Your Excellency will pardon them for remarking, that in their opinion, special provisions ought to be taken by the owners to isolate the portion of their workings to the rise of No. 2 cross-cut, and that have been sealed off from the eastern workings by very strong 27″ brick stopping, shewn upon plan No. 3. The doubt that exists as to the exact position of the old bords, on account of the irregular manner that surveys have been taken, is very great. To broach these lower workings that are now full of carbonic acid or kindred gases might lead to grave results. The ordinary flank and straight-in bore-holes in the exploring drifts may not prove sufficient, and a direct safety road and separate opening to the air (a shaft) in advance of the faces should be carried out without loss of time.

The Commission feel it at once their duty and their pleasure to absolve the Inspector of Collieries from all blame or reproach in being ignorant of the occurrence of the previous fires referred to, and which were not reported to him. The anxiety and the good work done by this gentleman during the progress of the operations for extinguishing the fire is beyond all praise, and deserves special record.

The encroachment that has taken place from the coal workings, in Eskbank into those of Lithgow Valley, invests the question of extinguishing the fire in the last-named Colliery with a peculiar interest, and may yet be productive of baneful results. From the Report of the Committee appointed by the Commission to inspect Eskbank southern workings, it would appear that, along the boundary of Lithgow Valley estate, the pillars of coal have been taken out and the roof allowed to fall. (*Vide* Report No. 5.) The Reporters attest, and other Commissions corroborate, that an appreciable current of air is coursing through the crevices of these falls towards Lithgow Valley workings. *If this air* is finding its way into the wastes of this mine, and is supplying oxygen to the conflagration raging there, no other course is open to the owners, if they desire to recover their property, than to form a large dam and impound

impound surface waters, and at all hazards to flood their mine. If this is done, the Commission have no doubt that, after rising a certain height in the workings, the water will flow into Eskbank. If the fire *is* fed with air from Eskbank, and flooding is not carried out, there does not appear to be any limit to the extent over which this fire may not eventually travel.

The operations connected with the attempt to extinguish the underground fire in Lithgow Valley Mine appear to the Commission to have been planned and conducted with judgment and circumspection. The work was cautiously carried on by efficient and capable men, every one of whom were conversant with their duties, and alive to their responsibilities and danger. But for the deplorable accident of the 19th of April success would soon, in all probability, have rewarded their long continued efforts. The Commission, from their experience of such accidents, can fully estimate the trying and arduous nature of the work, and can the more readily appreciate efforts that unfortunately came to nought.

In the recovery of the bodies of the eight men who met an untimely death while in the discharge of their duty in this mine the Commission desire to record, that in addition to the men whose names have already been referred to, many others performed deeds of true heroism, that prove them to have been imbued, when facing danger, with that unselfish humanity and chivalrous gallantry that from all time has been the characteristic feature of, and has lent a peculiar nobility and manliness to those immediately engaged in mining pursuits.

Certified under our hands and seal on this the 10th day of June, 1886:—

(L.S.) JAMES R. M. ROBERTSON, President.
(L.S.) J. Y. NEILSON.
(L.S.) JOHN JONES.
(L.S.) JAS. SWINBURN.
(L.S.) WILLIAM TURNBULL.
(L.S.) WILLIAM DAVIES.
(L.S.) JOHN THOMAS.
(L.S.) JOHN USHER.
(L.S.) JAMES CURLEY.

Witnesses—W. HOGAN,
O. F. FISH.

MONDAY, 3 *MAY*, 1886.

Present:—

DR. ROBERTSON, M.D., F.R.S., C.E., PRESIDENT.

MR. J. USHER.
MR. J. THOMAS.
MR. J. Y. NEILSON.
MR. J. SWINBURN.
MR. JAS. CURLEY.
MR. WM. DAVIES.
MR. JOHN JONES.

Thomas T. Wilton was the first witness called.

Mr. T. T. Wilton. 3 May, 1886.

President, before administering the oath, said: We propose, Mr. Wilton, to examine you upon some general points connected with the calamities that have recently occurred at your colliery.

Mr. Wilton: May I be allowed, Mr. President, to ask one or two questions. Of course you will understand what I am going to ask is merely intended for our own protection, and in your interests as well. I want to know, if you please, what are the powers of the Commission? Can you compel the attendance of any one, for instance?

President: Undoubtedly. The Commission have very large powers.

Mr. Wilton: Will the inquiry be a secret one—with closed doors, I mean?

President: Yes, I believe it will be conducted with closed doors, and that the evidence will not be made public till it is complete.

Mr. Wilton: Then I have to ask you can any of us be present, or can we be represented, so as to enable us to elicit the whole truth, because we feel that statements may be made to you by witnesses which perhaps the Commission would be unable to judge the value of under cover of the secrecy with which these proceedings are to be conducted. It might occur that certain damaging, and at the same time untruthful, statements might be made by some witnesses for interested purposes. At the same time, I wish it to be clearly understood that I am fully convinced the desire of the Commission is to have the fullest and fairest inquiry so far as possible.

President: Yes, Mr. Wilton.

Mr. Wilton: Now, unless some care be taken—such care, I mean, as only a trained or skilled advocate can bring to bear in such inquiries—the Commission might be misled by statements which have no truth in fact to support them. This inquiry is placed in a very different position from that of an ordinary Commission. You are charged with an inquiry which may involve us in very serious consequences. Now, in common fair-play and justice, we should not be standing in the position of accused persons with evidence brought behind their backs, and at the same time possibly to have damaging statements made without any chance of refuting them. In a word, we want to know what charges are brought against us. This is the difficult position in which you and we are placed.

President: We have not yet considered that point, Mr. Wilton. Have you any others to bring forward. If not, we will ask you to be good enough to retire while we consider the question you have raised.

Mr. Wilton: Perhaps it is better to finish one or two other matters first. I want to ask you will the evidence be taken on oath?

President: Yes, by every witness.

Mr. Wilton: What I want to get at is this: We have nothing to conceal, and we wish for the fullest and most open inquiry.

President: I think we have already decided that the principals ought not to be present.

Mr. Wilton: And yet, sir, that appears to be the only way in which we could protect ourselves by furnishing you with testimony in reply to anything that may be charged against us.

President: The Commission propose in the event of any serious charge being made to recall any witness against whom such a charge may be made, so that he may have an opportunity of answering it. Any unsubstantiated allegation must go for nothing, and we are anxious to institute the most thorough and searching investigation into the accidents.

Mr. Wilton: Let us suppose that a witness said a man who was dead had told him something or other.

President: Unless that something could be proved it would go for nothing, and surely in the case you suggest the proof would be extremely difficult.

Mr. Wilton: All I ask you, gentlemen, is, to place yourselves in our position and consider how you would like to have an inquiry conducted with closed doors which might involve the question as to whether you were responsible for the loss of several lives through neglecting to supply certain necessary appliances for any kind of works, or some other culpable neglect. How would you like to feel that such things might be said which would leave an impression unfavourable to you on the minds of persons appointed to conduct such inquiry? Besides which, I would point out that no reporters being present statements might be made which would very likely embarrass the Commission in any report that they may make.

Mr. Swinburn: I think we are quite able to judge of those who may come before us as witnesses. We shall be able to form our own judgment of the statements that may be made.

Mr. Wilton: If the Commission would do this—that in case of any charges being made they would kindly give us an opportunity of knowing what those charges are,—that is all I ask.

President: I hope I made it plain to you that I would recall you, or the principal witness, in the event of a charge being made.

Mr. Neilson: As a magistrate, I can assure you that witnesses will only be allowed to speak of facts within their own knowledge. The examination will be carried out here in the same way as in the ordinary Courts.

Mr. Wilton asked if a representative could be present.

The President pointed out that if the privilege were granted to the owners it would have to be extended to others.

Mr. Wilton: I do not want any solicitor. We are confident of our own position. But can we have a representative present?

[At this stage Mr. Wilton was asked to retire, while the Commission discussed the matter brought under their notice.]

President: Well, gentlemen, I am not surprised that this point has been brought up. It is one that I expected when the Commission was appointed, and I strongly urged several members of the Government

Mr. T. T. Wilton. 3 May, 1886.

Government to appoint some barrister upon the Commission in order to meet this particular point. I do not think it is a point we need to be surprised at. It is one I should have raised myself, and it is one which we have to consider. As constituted, we cannot cross-examine. It will only be an examination-in-chief. Every member of the Commission has the right to amplify the first examination, and put any question he may think has been omitted. But such a thing as cross-examination is out of our province.

Mr. Usher: Surely, as some member has put it to Mr. Wilton, we have brains sufficient to see if any person exhibited a strong prejudice against the Company, and then we should recall witnesses who might be able to give rebutting evidence.

President: We must do that in common fairness to parties.

Mr. Davies: But I understand he wishes to be represented.

President: No; I think he is satisfied with being given an opportunity of being recalled, if necessary.

Mr. Davies: I want to be more clear as to the meaning of Mr. Wilton. He seems to insinuate that there will be witnesses here hostile to the Company,

President: I think he only raised a hypothetical case.

Mr. Davies: Well, it seems to me that we are here to judge impartially of the value of the evidence.

Mr. Jones: I understand that to be also the feeling of Mr. Wilton. But that if statements considered damaging to the Company were made—and as this is a close inquiry—they should be made acquainted with them, and be allowed to call evidence in rebuttal.

Mr. Curley: In a private inquiry like this the Company will be examined, and they and their witnesses will give the fullest information they possibly can. The other witnesses who may come forward will do the same. How then is Mr. Wilton, or any of the Company, to be informed of what may be stated here unless we supply them with such information, If we give them the information, we afford them an opportunity of producing other evidence in rebuttal of any charges that may be made; and if they had this opportunity, the parties giving the information they object to would need to be informed of the nature of the evidence, in order to allow them an opportunity of supporting the testimony they had given in chief.

President: Gentlemen, Mr. Wilton probably misunderstands the objects of the Commission. It is not to place any one in danger. We cannot cast anyone in damages, or fine. Our duty is simply to report to the Governor, and to state our impressions as to the cause or causes of certain accidents.

Mr. Jones: I think we all understand that. If we like to recall one witness, we can recall another.

President: Certainly, if a man makes a serious statement, we may say, "Are you in a position to prove it?" If he says, "I am not personally, but it was told me by another," then he must produce that other. If the other cannot be produced, then we have to consider what value should be attached on the evidence of the person who in the first place made such a statement.

Mr. Davies: The question Mr. Wilton put as to the powers of the Commission seemed to embrace his meaning.

President: We can easily satisfy him on that point by handing him the Commission for inspection.

Mr. Davies: Concerning Mr. Mackenzie, sir, I think it right that I should express the opinion that it is out of place that the Chief Examiner of Coal-fields should be Mr. Wilton's guest. I know it does not come within our power to do anything in the matter. But it seems very much out of place.

President: I think we may all have an opinion on that subject. But at the same time, as you say, it is not a part of our Commission to deal with it. However; I tell you what is part of our power. You can put questions to the Chief Examiner when he is before us as to any question arising out of or depending upon that. I think it is probably imprudent for him to do so, and you can examine him upon that. It would be no fault of Mr. Wilton, for instance, if he, out of a spirit of hospitality, invited the members of this Commision to take up our residence with him. It would be our fault if we did so. Do not press this side issue.

After some further conversation Mr. Wilton was called in, and,—

The President explained the feeling of the Commission in reference to the representations laid before them on behalf of the Company. He said, looking at the matter in all its aspects, we think it would be undesirable for any representative of the Commission to be in the room while the inquiry is proceeding. At the same time, in the event of any point being raised such as you, Mr. Wilton, have hypothetically put before us, you must have perfect reliance on the oath we have taken, and upon our judgment and spirit of fairness as to the recalling of any witness where it would seem desirable to do so. I think, Mr. Wilton, you may feel at ease with this assurance.

Mr. Wilton expressed himself as perfectly satisfied, and was then examined.

Thomas T. Wilton sworn:—

1. *President.*] Mr. Wilton, will you state to us the names of the owners of the Lithgow Valley Colliery? The Lithgow Valley Colliery belongs to a registered Company consisting of eight or nine shareholders, and registered under the Companies Act.
2. Two accidents have occurred at the Lithgow Valley mine, I believe, during the present year? Yes.
3. Can you give the date of the first accident? Either on the 14th or 15th February last. It was on a Monday morning that the discovery was made that something had gone wrong in the mine.
4. How many men lost their lives in connection with the first accident? Three (3).
5. What were their names? John Doig, the manager; Charles Younger, the banksman; and William Rowe, a miner.
6. Can you give us the date of the second accident? It was about a fortnight ago.
7. Can you give us the date? I think it was on the 19th of last month, but there has been so much confusion I cannot be certain.
8. How many lost their lives on account of that accident? Five.
9. Their names? I cannot give you their christian names. I can give you some. There was Isaiah Hyde, Launcelot Allison, and Mantle—whether William or Thomas I don't remember—and a man named Buzza, and young Rawe.
10. Mr. Doig was the manager who was lost in the first accident; how long had he been manager to your

your Company previous to the accident? I suppose ten or twelve years. I cannot tell exactly, but I know it dated somewhere from 1875.
11. Did you consider him a capable manager? Yes; he was a very excellent man.
12. Who is your present manager? Mr. Campbell.
13. When was he appointed? Shortly after the date of the first accident.
14. A few days, I suppose? Yes, after the first accident we took all the men over to the Hermitage Colliery.
15. Returning to Mr. Doig, late manager of the Lithgow Valley Colliery, will you state what powers you or your Company gave him as manager? He had entire control and all power.
16. Was he endowed with all powers as to ordering material for the use of the mine, for example? Yes, certainly, unless any very serious expense was involved. If any sudden necessity arose for his getting anything, he would go to the accountant, and say you must get so-and-so (whatever it might be), and he would order it.
17. What powers did he possess in the case of an emergency as to the purchase or ordering of material? Well, no special provision was made for that, because the occasion never arose. Besides, Mr. Gell, one of my partners, was living here, and was nearly always on the ground, and in nearly all cases reference was made to him. Last year Mr. Gell was away, and then they were in constant communicatinn with me, and I was telegraphed to if any immediate cause arose. But, so far as our experience goes, there never has occurred such an emergency as you suggest.
18. Were the proprietors conversant with the condition of the mine? No.
19. Have you special rules for the colliery? Oh, yes.
20. Could you lodge copies of them with the Commission? Yes, certainly. I may say that the owners were not at all conversant with mining.
21. Did you not in any way control the operations of the mine? Not at all; there was one general instruction given as to the management.
22. To whom did you delegate the conducting of operations? To the manager—that was to keep on with the main headings, for we were anxious to define our boundaries.
23. You delegated the control of all your mining operations above and below to the manager? Yes. I may tell you that it had been a matter of common remark that since we had been working the mine we had had no trouble at all. We had infinitely more trouble given to us about other branches of the business. But, as I have said, we do not understand the practical work of mining, and we left it to Mr. Doig. I do not know one of the people except to see them on pay-day.
24. Do you know if the mine was inspected regularly by the Inspectors of Coal-fields? I believe so.
25. Did Mr. Doig intimate to you or to the Company that such inspections had been held? No, I have heard nothing about it. As I have said, the mine was managed by him, and gave us no trouble; the coal regularly came out, and the matters you refer to were taken as ordinary details. If the inspectors came I never knew of it; I never saw one; but they may have been there for all that.
26. Have the Company ever received any official complaint from the Inspector or Examiner of Coal-fields as to the condition of the mine? No, never. At one time we were told that we ought to have a second opening to the day.
27. Who told you? The Examiner of Coal-fields, I think, or Mr. Rowan.
28. When was that? It must be some years ago now.
29. How many years ago? I do not know; it may be two or three years; another witness will be able to tell you that.
30. What other witness is that? Mr. Gell, I should say; or Mr. Campbell ought to know. At that time we looked upon it that we should be compelled to undertake the work; but other people did not believe that a second entrance was necessary.
31. When you received this communication from the inspector, what course did you pursue? We immediately complied with his request.
32. Did the manager ever report the mine to be in a defective or dangerous condition? Never.
33. Are you acquainted with the provisions of the Coal-fields Regulation Act—have you ever read the Act? I have read the Act through.
34. Then, Mr. Wilton, you are aware that the owners are compelled, under the Coal-fields Regulations Act, to keep an accurate plan of the mine? Yes.
35. Who did you appoint to make plans of the mine? Mr. Doig.
36. And were you satisfied that this work was performed regularly? Yes, or we should have had notice from the Government authorities.
37. Have you ever received any official or other complaint from the examiner or inspector as to the condition of the plan? No, unless something of a general complaint that it was not presentable, but no complaint in any way impugning its accurateness.
38. When was that complaint made? There was no formal complaint; it was more the result of a conversation.
39. Then do I understand you to say that you have received no actual complaint? Yes, never.
40. This is the plan of your mine, I believe, Mr. Wilton [pointing to plan on the table]? I believe so; it was frightfully knocked about on the day of the accident, as you may see.
41. Are you aware of the provisions of the Coal-fields Regulations Act as to the scale which colliery plans should be drawn up on? Yes, 2 chains to the inch, I believe.
42. This is the only plan of your colliery, is it? That is the only plan I know of.
43. You do not possess a working plan and a finished or office plan. Can you explain why the plan of the workings has not been prepared to the scale prescribed by the Coal-fields Act? No; I fancy this colliery commenced before the present Act came into force, and I suppose it was carried on with this plan in accordance with the way the work was commenced.
44. Do you know whether the manager and surveyor took regular and periodical surveys of the mine? I do not, really. I can only say that, from the absence of any complaint, I believe it was done. No complaint was made by any Government official on the subject.
45. I believe you have an underground boiler in your mine, Mr. Wilton? Yes.
46. What was the object of putting it there? For pumping operations.
47. You had a pump connected with it? Yes.
48. Was it within your knowledge that the arrangement of this underground boiler was defective and unsafe? No; I do not know anything about it.
49. Is it within your knowledge that a fire, or several fires, had occurred in connection with this boiler before

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before the fire of the 14th or 15th February of this year? No; we have heard it since, and were very much astonished.
50. When did you hear it? Since the 14th of February. The manager was a very reticent man, and I snppose did not think it worth his while to say anything about this. They appeared to have been small fires, becanse they were put out instantly.
51. Then you know of no precautionary measures taken against the occurrence of fire in that particular part of the mine? No; as I have told you, I never heard of a fire having occurred until lately.
52. Who was the underground manager of this mine under Mr. Doig? I do not know. Oh, yes, there was a man named Passmore.
53. He had to look after this particular fire. He was the fireman, and I suppose would carry out the instructions of Mr. Doig? I do not know; Doig was a man who would wholly trust to no one.
54. Do you know whether Passmore travelled the mine and superintended operations? I really do not know; he may have done so.
55. But were not the ordinary means adopted—was there not a system to follow? Doig made an excellent system for working the mine.
56. He was an anxious manager? Yes, very much so.
57. What was done after the accident, Mr. Wilton? When did you arrive? Well, a message was sent to Mr. Gell first, and he sent one of his daughters to the Hermitage for myself.
58. Was this on Friday or on Monday? It was on Monday morning. I received intimation of the accident at about a quarter past 7 o'clock, and I went over as quickly as I could.
59. Yes, and what next? Well, I found Mr. Gell waiting for me at the mouth of the tunnel, and of course there was a great commotion.
60. Yes? Before we—that is, Mr. Gell and myself—came on the scene the men had sent for Mr. J. B. Turnbull.
61. Can you account for the men having sent for Mr. Turnbull? I have no idea. Of course the proper step would have been to apprise us first.
62. What did you discover on the Monday morning when you went down? Did you ascertain that the fire was discovered? Only that the men could not get into the pit, and I heard that a message had been sent to Mr. Turnbull.
63. Had he arrived? No.
64. Did you ascertain that there were men in the pit? Not immediately. I heard from Mr. Gell that there were men in the mine, and then I was told that three men were in, namely, Doig, Rowe, and Younger—that they had gone in on the previous evening, and had not come out again.
65. When did Mr. Turnbull arrive? About a quarter of an hour after I arrived.
66. Well, was there a consultation? Yes.
67. And I suppose there was a resolution arrived at? Yes; Mr. Turnbull expressed his regret, and said that he would be anxious to do anything he could for us in the way of rescuing the men; and we placed him in charge, and told him to do anything he thought necessary.
68. You gave the fullest power to Mr. Turnbull? Yes; we were very grateful to him for his assistance.
69. What action was taken thereupon? Well, one of the men described the workings to Mr. Turnbull, who then asked for the plan to enable him to better understand. We went to the manager's (Doig's) office, and found the door locked; Doig had the key in his pocket; we burst the door open and found the plan on the table; then a miner—I do not know his name—pointed out to Mr. Turnbull certain things.
70. The nature of the workings and airways? Yes; the underground workings; and he explained where he thought the men had been making for in order to get out.
71. Can you recollect who that man was, Mr. Wilton? I do not know at all.
72. Did you not then ascertain that one of the men who had gone in on the previous night had returned? Yes, we heard that, but I did not see him.
73. Who was that man? I think it was Wm. Martin.
74. What post did he fill about the mine? I do not know.
75. Well, after the consultation at the office, what was done? Mr. Turnbull took charge, and they got canvas and props to try to make a brattice, in order to get down to a point at which they should branch off, for the purpose of making an exploration in search of the men; but while this was going on, I believe Martin and Sheedy and another miner made an exploration on their own account, and Doig was discovered still alive, the bodies of the other two men being found within 27 yards of where Doig was discovered.
76. Do you know the part of the mine where Doig and the bodies of the other two men—Rowe and Younger—were found? I do now; it was in the direction of the two cross-cuts to the south.
77. How long did Doig live after he was brought out of the mine? He was breathing for eleven (11) hours afterwards.
78. Did he make any statements? He never regained consciousness.
79. Can you describe the details of the operations taken after that? I must tell you of another remarkable thing that occurred. Mr. Turnbull was engaged trying to get down to the brattice, when he came back to go to lunch. His object was, I think, to get at the fire, and he was pushing forward his brattice with that view. During his absence at lunch, however, a man entered the mine, passing the man in charge and saying that he had instructions from Mr. Gell to do anything he could to assist in the operations; I think the man's name is Davies. When Mr. Turnbull came back he complained of what this man had done. He had torn up the stoppings in places which Mr. Turnbull had closed, and had taken down a portion of the bratticing, and, in fact, had brought about such a state of things that it was useless to attempt to do anything more. Mr. Turnbull came to us to complain of this interference. I may state that this particular man was brought to us by Mr. Wilson of the Zig-Zag Colliery.
80. What was his christian name? I do not know.
81. Was it Robert? I cannot say. After the appointment of Mr. Turnbull, Mr. Wilson introduced this man to me, and said he would be a capital man to assist us in the emergency; that he had been an underground manager in the mine; that he knew the whole of the workings, and that we should avail ourselves of his services. He (Mr. Davies) expressed his willingness to do anything he could. I know I told him that we had placed everything in the hands of Mr. Turnbull, but no doubt any knowledge of the underground workings he possessed would be of value to Mr. Turnbull, and that if he would kindly

go and assist that gentleman we should be very glad; but I spoke both to him and Mr. Wilton, and told them that as we had placed Mr. Turnbull in charge of operations we could not place any one else in the same position and have a divided authority; I know it has been alleged that Mr. Gell, my partner, gave Davies authority, but the facts are as I have stated them.

82. Who alleged this? The man Davies. When Mr. Turnbull challenged him for undoing this work he said that Mr. Gell had given him instructions; now Mr. Gell never gave him those instruction; I was the only person who spoke; I and Mr. Gell were together, and I told Davies what I have told you; I asked him to refer any suggestion he might have to Mr. Turnbull; it was after Mr. Turnbull left that he went into the mine and opened the stoppings, as I have described to you; I do not know with what object, but I do know that the effect was to prevent our getting at the fire at all; he was round the works so long that a search party was about being formed to go in search of him when he came out.

83. What time was this? About from 4 o'clock; then Mr. Turnbull accused him of this thing; I never saw him, and did not actually know how it occurred until later on.

84. After Mr. Turnbull came, what happened? Well, Mr. Turnbull intimated that on account of the action of this man he was unable to get down to the seat of the fire.

85. That is to say, Davies had by his action undone the work of the morning? Yes, that was the result.

86. And what took place next? A special train was sent up from Sydney with the Examiner of Coal-fields and Inspector Dixon. A consultation then took place, and it was suggested to dam the mine up; previous to that a man named Norwood suggested a plan by which men might be started to work at the second cross-cut. Mr. Turnbull came up to see the Examiner and Inspector, and suggested that this might be done, and an attempt was made with this idea of carrying the air up to the second cross-cut—that is, an exploration was made to see whether this was feasible. Then Mr. Turnbull became affected by the foul air himself, and had to be carried out of the pit's mouth, and it was sometime before he recovered. After this, we thought it would not be right to incur any more danger, and it was resolved that the mine should be sealed up. A water-gauge was inserted in one of the stoppings, and tests were periodically made.

87. What stopping was the water-gauge put in? A brick one in the main tunnel; one was also put across the furnace, on the right-hand side.

88. What pressure did the water-gauge show? It never showed any from first to last.

89. And did you ever suppose it would? No.

90. How long did the mine remain sealed up? For three weeks. The tests made showed her to be full of carbonic acid gas.

91. What induced you to re-open the mine? We re-opened the mine because we were led to believe the fire was out.

92. By whom were you led to believe that? Well, everybody thought so; ourselves, and also Mr. Turnbull. Everybody believed the fire was out.

93. Did the miners think so? Well, we would not ask the miners. But they were anxious to go to work.

94. Who gave orders for the re-opening of the brick stoppings? No direct orders were given. It was generally understood.

95. Was no request made to you to re-open the mine? The men were constantly asking when we thought it would be opened. The general impression when it was closed was that it would not be for very long. Mr. Campbell was then placed in charge.

96. Before commencing operations, did you communicate with the Government? Yes; and asked for the assistance of the Government officials, urging that they should be allowed to take charge of the mine; but this the Minister declined to accede to.

97. Have you copies of the communications that passed to and fro? I cannot say; but I can give you the substance of the Minister's reply to our communication. It was that the Government would take no responsibility whatever; that the inspectors would be present to see that nothing was done to endanger the lives of the men; but that the Government would take no responsibility as to the re-opening.

98. Did the inspectors accordingly visit the mine? They proceeded to Lithgow.

99. Was this before you commenced the work of re-opening? No; I travelled up with the inspector. We had determined to open it on a particular day, and it had been delayed in order that tests might be made in the usual way. It was then decided to commence operations at 8 o'clock at night, because we did not know what might come from that furnace, and we did not want a crowd about. Operations were commenced at about 8 o'clock at night, in the dark.

100. Did you organize shifts of workmen from among the miners? Yes.

101. Did you put before them the danger that was incurred in the operations upon which they were entering? Yes, repeatedly.

102. Were they perfectly aware of the condition of the mine? I can only tell you what they were told.

103. Did you believe, Mr. Wilton, that they were conversant with the danger attachable to the operations? It was only reasonable to suppose so. Nobody anticipated the terrible result that followed.

104. When was the mine re-opened—the date I mean? I really cannot remember; things have got so mixed up. It must be about six or seven weeks ago—the 6th or 7th of April.

105. Well? Operations were commenced. They made their way down the tunnel by bratticing, beating the smoke back, and meeting with nothing but carbonic acid gas and smoke. They carried on in this way until about a week after they got down to the seat of the supposed fire, and saw a glimmer and flickering at the end. This was about 3 o'clock in the morning.

106. I have to ask you this: During the progress of this work, did the owners in any way stint the supply of material—was any requisition that was made to you promptly complied with? Undoubtedly; it was to our interest to do everything we could to facilitate the operations; but apart from that, we should have done so, and did actually do so.

107. What were the general instructions as to providing material? That they were to have all necessary appliances, and that no risk whatever was to be run. In speaking to the men, when it was decided to carry out this work, I myself told them, when they were all assembled, that the whole property was not worth one human life. I begged and prayed of them not to rush into any danger whatever—to be very careful in everything that was done. I have repeatedly said that, and Mr. Gell and myself have urged the different shifts as they went in, if not for their own sakes, for ours, to run no risks.

108. Did you visit the mine yourself? I always went with the men; I was in three times a day. I thought it my duty to be there; they will tell you so themselves.

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109. When you got to the seat of the fire, what steps did you take? When they first commenced they thought there would be nothing but the debris of the fire to remove, but on inspection it was discovered that fire existed in the vicinity of the boiler and further down. They sent for Mr. Mackenzie, who had gone away about 11 o'clock, and the inspector, Mr. Rowan, and the manager. Individually, I did not know anything until the following morning. The manager also sent for Mr. Gell; all went down the mine, and when they saw the fire they said it would be better to close the mine up again. The men were withdrawn, and when I came down at 9 or 10 o'clock on the following morning the matter was under discussion. The men were all at the mine, and were of opinion that it would be a great pity if any one was to run away from the fire, and that the proper thing was to tackle it.

110. What men were there—can you mention their names? No, I cannot tell you the names; but all the men that were there expressed the opinion that it would be desirable to try and extinguish the fire. In fact they came to us with the request that we would give them permission. They said they could stamp it out.

111. Who came to you, Mr. Wilton—it is important that the Commission should know? I really cannot tell you the names; they will tell you themselves. They were all standing about, and one of them was spokesman. Perhaps Norwood will be able to tell you.

112. Then, I understand from you, that, notwithstanding the opinions of the inspectors and the manager, the men held meetings among themselves, and came to you in a body, and requested you to allow them to try and put the fire out? Yes; they called us up—they seemed to have had some consultation—and said something to this effect: that we (the Company) had been put to a great deal of expense, and they were quite sure the fire could be put out, and they offered to work a week for nothing if we would allow them to make the attempt.

113. It would be desirable, Mr. Wilton, if you could condescend upon some of the names of those who made this requisition to you. It is highly important that we should know. I suppose it would be no trouble to you to ascertain their names? I think I can get you the names of the miners; but the thing is well known, and you will experience no difficulty in finding out their names.

114. Very well. Then in answer to the requisition, what did you do? It did not really rest with us; it was in the hands of the Government officials. I may say that we had been receiving communications by letter from all of the Colonies making suggestions as to the best means of grappling with the difficulty. Among them was one from a miner in Gympie, and I think some one in Melbourne suggested the application of steam, giving an instance at Home where all sorts of efforts had been made to extinguish a fire in a pit, when an engineer came from Glasgow and, applying steam to the smouldering mine, the fire went out like magic.

115. I know the place; but was it not steam in connection with something else? We had a recommendation from another party, namely, the pouring in of carbonic acid gas by means of the furnace. There was a man working with us who wanted permission to put out the fire at an estimated cost of £40, with two or three men besides himself, the method being to supply steam. We thought the suggestion might be worth a trial, especially having a regard for the safety of the men; consequently we laid our plan before the Examiner of Coal-fields and the inspector, the idea being to attach pipes to the boiler and pour steam on to the fire, and thus extinguish it. There was a discussion of about two hours as to whether it would be likely to be a success or not. The Government officials did not think it would be of much value, but admitted that it would be worth a trial. Accordingly the attempt was made. This was on the Saturday. We had to go down some 400 yards, but we had a strong force of men on, and carried down our brattice with us, as ground had to be recovered by forcing the smoke back. Eventually the connection with the piping was made, and the men withdrawn. The stoppings they had commenced to build in the mouth of the tunnel were taken down again, because it was thought that the fire would be put out in about four days. At the end of the four days the steam was shut off. The men were continually moving the stuff from the tunnel till they got down upon the fire. We suspected that the whole thing had been lit up again. It was intended to reserve the opening to the left-hand of the furnace to the very last, so as to avoid the danger of the fire relighting.

116. How many men were on each shift? Eight or ten at this time.

117. With an overman to each, I suppose? Yes.

118. And the general instructions were to allow no risk to be incurred if it could be avoided—I think I understood you to say that? Oh, certainly.

119. Do you know the names of the foremen or leaders of the different shifts? There was Kirkwood and John Davies, I know. There was one to each shift, but I cannot remember the names of the others. I happened to call on Mr. Gell after lunch, and he informed me that the men had been over to him and said they could not get along, and proposed to open the left-hand furnace. I do not know whether the men had heard us talking that morning, but we had been in consultation as to whether we should open that left-hand furnace. The work was going very slowly, and great difficulty was experienced in getting a proper and effective return.

120. Was the right-hand furnace going then? Yes, all the time. It was lit almost immediately after we opened the mine. We had been talking about opening the other furnace, Mr. Gell being present, and the examiner, inspector, and manager happening to be there, and I fancy the men must have heard it. When they came to Mr. Gell, he told them, "Very well, open it"; but to our amazement when we came back we found that they had opened this left-hand furnace and made no provision for lighting the fire. We at once took steps to remedy the mischief; first bratticing up behind the furnace, we got kerosene bags and wood and lit the fire, by which we established a good air-current. We were thus able to push on, and found ourselves amid a perfect wall of stuff, including great stones as big as pianos.

121. Sandstone? Yes, a terrible mass. There was also steam and smoke, and so on, and much heat. We played water on it to cool it down, and the stuff was broken up and lifted into skips and carried away, as we were anxious to get it removed.

122. What was done to extinguish the fire? They played on the hot mass for half an hour. First of all water was used from the steam-pipe, to which a hose was attached.

123. There was not much force in that? The water of the pump began to give out. Then some of the men informed us that any quantity of water was to be got by sinking. Accordingly we put down a hole and water came, but then a question arose, was that the water we had been pumping in? However, Mr. Gell started away at night to get a fire-engine from Sydney, and we got one. Meanwhile there was a waterhole outside, and the water came in from the old workings. Then the process of removing the

debris

debris was carried on, and as this was done the smoke and steam could be seen going up. The process was terribly slow, as they had first to play on the mass for a time, then wait till the steam cleared off, then commence with the skips, and so on again. Still we seemed to be gaining our way. At last we came upon unmistakeable evidences of fire. One of our objects was to get to Tyndall's heading, because we knew we should get a measure of relief from the smoke. When we got there there was a stopping in about a chain, and they made a rush for this, and took the stopping away.

124. That was the first stopping on the right? No. 36, at the seat of the fire. When we got up to No. 34 the tops had been taken away. There was a great current of air coming here. A permanent brattice was put across the main tunnel outside Tyndall's heading. The object was to discover if any fire existed in Tyndall's heading. So far as we knew, everything had been thus far confined to the dip side of the workings.

125. That is the fire, I presume—you suspected the fire to be confined to the dip side round the boiler? We suspected the boiler to be the seat of the fire. We pulled away this stopping I have referred to, and smoke and steam were hanging about 4 feet high. Then a strong current came in and swept over our heads.

126. Did this current come down the main tunnel? I cannot say; I know it was very strong, blowing the light away almost at right angles. There was a smaller stopping at Tyndall's heading; it was in about half a chain, and when this stopping was removed we could see evidences of fire on the floor, going towards the direction of the other stopping. A timber stopping with a man-hole was erected contiguous to the main tunnel. It was the opinion of everyone that if we could once get to Tyndall's heading and remove that stopping we should get immediate relief. At some period it was suddenly noticed that there was fire on the floor in Tyndall's heading near the stopping. Then the timber stopping was seen suddenly to light. Water was played on that, and it was extinguished. An exploration was made some distance beyond this by the manager, who satisfied himself that ignition had been caused by the hot air. It was thought we were gaining rapidly, and operations were directed towards the fire at the boiler. There was nothing appalling in this work except the circumstance of men working in such an atmosphere. It was like a Turkish bath. They unbarred the brickwork of the boiler, removed the greater part of the fall, and uncovered the pumps. Then we noticed the fire; it was one mass of debris. On removing this debris, we suddenly came upon the fire on the floor. We were afraid that this fire might extend in the direction of the main tunnel, but there would be no air-course above the debris. The large fall referred to had closed the main tunnel below the entrance to the boiler. The necessity was to attack the fire, and, if possible, get behind it. The men were at this work, and I went away from here on Thursday, and remained away until the time of the accident.

127. When you left the mine on Thursday operations were centred on removing this fire? Yes. The last time I was in the mine they were more intent on stopping the run (along Tyndall's heading) and removing the debris. That was being removed when I left, and subsequently it was removed. They were trying to get behind the fall from the boiler, and from Tyndall's heading.

128. You are quite certain, Mr. Wilton, that this large fall you have been describing blocked up the main heading? There is no doubt about it.

129. Was there a split of air through Tyndall's heading previous to the fire? No.

130. In your opinion, this fall was sufficient to stop the course of ventilation? Yes, completely.

131. When you left on Thursday shifts were engaged endeavouring to get behind the fall from Tyndall's heading and from the front of the boiler? Yes. [Here the witness further described the details of operations.] Operations were also directed to removing the debris from Tyndall's heading. Up to the last Tyndall's heading was always considered safe.

132. Were men operating in this way when the accident occurred? Operations were proceeding in this way when the accident occurred.

133. Then, Mr. Wilton, we will come to the time when you arrived on the scene. Tell us about that? I heard the news in Sydney, at 5 o'clock, and proceeded by the mail train on the Monday night. If I had been there I should certainly have been one of the victims, because I always went into the mine at 3 o'clock.

134. What had been done when you arrived? They were all paralysed. All the men were out within half an hour. Terrible excitement prevailed for a time. Subsequently a consultation took place, and it was decided to seal up all the lower portions of the mine, to the dip and No. 2 cross-cut.

135. Who was present at the consultation? The Examiner of Coal-fields, the inspector, myself, and Mr. Gell.

136. A consultation, consisting of the proprietors, the manager, and inspector. Well, Mr. Wilton, what was done? The question was, could we not rescue some portions of the property, and, instead of opening up at another place, could we not make use of the present roads—the first and second cross-cuts. Mr. Usher was present when the matter was considered later.

137. The suggestion had been made before? Yes, a long time.

138. Whose suggestion was it that these stoppings should be put in? The brick stoppings— it was our own, I think. We decided that we would put in 27-inch stoppings. Relays of men were put on, and a great amount of work done.

139. In carrying your operations down the main tunnel, was your attention ever directed to the stoppings between it and the back headings? No.

140. Did they appear to be tight? Yes. I may mention here that one thing happened which was really awful. About three or four weeks ago the manager had taken down some men, and had made secure three stoppings—either 29, 30, and 31; or 27, 28, and 29. But 29 was the one which was made up. Next day the manager was in the same place getting some timber, when he noticed his light draw the way it should not draw. On searching for the cause of this he found that this stopping which he had made secure the day before had been torn or cut away 13 feet or 14 feet, by 6 inches deep. The stopping had apparently been carefully scraped away. The effect was to break the current of air, and as there had been some complaint that the air was not so good, it was evident that the act of taking down the stopping was the result of fearfully malicious design.

141. Did you suspect anyone? I do not know that anyone was suspected. A reward of £50 was offered by the owners for information which would lead to the detection of the guilty party, but up to this date no information has been received.

142. *Mr. Davies.*] Do I understand that Mr. Wilton saw this? No. It was reported to me by Mr. Campbell. But the inspector saw it.

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143. How could a man remove 6 inches of the stopping from the top at such a distance? I do not know, but a man might work for hours there and never be discovered.

144. *President.*] When you arrived after this second accident, did you proceed into the tunnel on the Tuesday morning? Yes; I and Mr. Mackenzie went in about 22 chains, and were then confronted by a wall of black-damp. I did not notice much difference in the tunnel. There was a little coal spread over the bottom of it. I understand that before they had to throw open the stoppings that had been destroyed by the concussion.

145. Was there anything observable besides the stoppings? Only where the coal had been thrown out from the left-hand side to the right, and shifted the stoppings on the right-hand side.

146. In other words, the small coal that obstructed the tunnel bore evidence that it had been thrown from the left-hand side? Yes, that is it.

147. Have you ever received any suggestion to flood the mine after the fire? I know that it has been spoken of by people. I have read everything I could get on the subject, and I get confused by what I read and hear, there being so many contradictory opinions expressed. I was told, for example, that it would be useless to attempt flooding the mine, and a case was cited where flooding had failed.

148. Is there any communication between the Lithgow Valley mine and the Eskbank Colliery? We discovered some years ago two encroachments, one larger than the other, not very far from one another. These encroachments were to our dip, and the water ran through them, also air. The Eskbank people had fallen their country when we came to it, and immediately our men holed through they reported it. We have a document from them taking an amount of responsibility for these encroachments.

149. In view of this encroachment, what effect would the flooding of your mine have upon Eskbank? I should imagine they would get the water. They say they do not, as it is, but the impression of our late manager was that they did. On the other hand, I have heard that all their water difficulty is got right in an hour.

150. Do you pump any water out of that portion of your mine? I think we have been pumping our own water.

151. Where do you pump your water to? We used to pump up to this encroachment, I think, and there is a pipe which carries the water out to the creek. Other people can tell you more about that than I can. The water difficulty was becoming a difficult one to deal with. The manager said about six months ago we should have to put a shaft down from the main tunnel and pump from there; it would answer the purpose of an air-shaft as well. I told him he had better wait till Mr. Gell came back, as he was the best man to decide about such things. When Mr. Gell came back a spot was selected for this shaft, at the head of the workings; the contract had been let for about a fortnight, and the shaft was going down when the first accident occurred.

152. The second outlet to your mine is contiguous to the main tunnel; how many yards separate? I suppose about 20 or 30 yards; it comes with the return to the right-hand furnace.

153. In the event of any accident occurring to or contiguous to the main tunnel, might it not affect the second outlet? I do not think it would be possible.

154. How long previous to the first accident was it that Mr. Doig asked you for this second shaft? I do not remember. When he mentioned it to me first Mr. Gell was away in England, and I asked him if it was a thing he wanted to be commenced at once, and suggested that it might wait till Mr. Gell's return; the next I heard of it was when the contract had been let.

155. *Mr. Usher.*] Do you know if any dams have been erected by the Eskbank people at the point you have referred to? I do not know at all.

156. *Mr. Curley.*] Was it the custom, Mr. Wilton, to receive any written official reports, periodically, from the manager of your colliery? No, we never had anything of that kind.

157. So that everything that was done between the Company and the manager was done in a verbal way; is that what I understand you to mean? No occasion ever arose for anything of that kind.

158. But you must have had consultations? No, we never had any consultations with the manager.

159. For example, now, you have just said that Doig came to you about putting down this shaft? Well, he came to me and saw me, and I may have met him on the road, for I was up very often, as I had the responsibility of everything thrown upon my shoulders while Mr. Gell was away, and if he wanted anything out of the ordinary run he would come to me and tell me. I always saw him at pay-time with the accountant. Nothing of a grave nature ever happened; anything else was looked upon as ordinary charges of the mine, and he could have anything he wanted.

160. Have you ever heard of fire-damp—light carburetted hydrogen—being seen in this mine? No; the ventilation of the mine was exceptionally good.

161. You have received no complaint or notice of fire-damp having been found in the mine? I never heard of such a thing.

162. *Mr. Jones.*] Did I understand you aright, Mr. Wilton, that the Minister for Mines refused to accept any responsibility in connection with the opening? Yes.

163. Did the inspectors accept any responsibility when the men volunteered to put out the fire? I do not know. I do not know where the responsibility was. They simply allowed the operations to go on. It was not considered there was any danger.

164. Then do I understand you to state now that all the responsibility rested on the inspectors? Oh, no! It was clearly understood, because Mr. Mackenzie gave us distinct notice that they would accept no responsibility whatever.

165. When the men applied to you to be allowed to make the trial, I understood you to say that when this was done you told them that all the responsibility rested with the inspector? No, that is scarcely correct. The Government officials came here to see that we did not run the men into danger. It was in their hands to say whether we should send the men into the mine or not. We could not say to the men, "Go in there." We had to say, "May we do this thing? Will you let them make the trial?"

166. *Mr. Swinburn.*] Then you took no responsibility—the men took it all upon themselves? I do not know that our first question was, "May we make the trial?" the first suggestion having come from the men. Had we taken it upon ourselves entirely, of course the owners would have been responsible for any accident that might occur.

167. Who had charge of the mine at the time? The manager, Mr. Campbell, and ourselves.

168. And he (the manager) allowed it to be opened? No; it would not be putting it correctly to say that he allowed it to be opened.

Mr. T. T. Wilton. 3 May, 1886.

169. Who was it then, Mr. Wilton? The inspectors and the manager; it was agreed, after consultation, that the trial should be made.
170. Did the inspectors and the manager have charge? No, we had charge. They had ordered the mine to be closed, and when we arrived it was nearly closed.
171. *President.*] In other words, Mr. Wilton, the Government officials put no difficulties in the way? No. At the same time they had no hope in the scheme; indeed they ridiculed it.
172. *Mr. Davies.*] Did the men take possession of the mine forcibly? No; they asked for permission.
173. Then who gave them permission? I have already stated that it was a sort of general permission. We could not act without the authority of the inspectors.
174. *President.*] There was a consultation held between the owners, inspectors, and the men? No; we only wanted to know whether the Examiner and the inspectors would consent.
175. Then you appeared on behalf of the men before the Examiner? Yes; and in the interests of all involved. I may tell you this, that during the subsequent operations, for a fortnight the men were continually hoping that the Examiner and inspectors would keep away—that they would not come. This was for fear of being stopped.
176. Do you know that of your own knowledge? Yes; they have often said it to me.
177. The result of the consultation was that the Government officers withdrew their objections, and allowed you to make the experiment? Yes; to put on steam with the view of extinguishing this fire, and at the time we believed it to be really a very small thing.
178. *Mr. Davies.*] I want to be a little more clear about one point. When Mr. Doig wanted anything, did he only apply to you, or did he communicate with anyone else? He would apply to the board, if the board were sitting; but at this time there was only one director and myself left here; the others were in England.
179. Do you know whether Mr. Doig applied to the owners some considerable time ago for this second outlet, some years ago, say? No; the thing is absurd. If he had made application it would have been attended to at once. I know something of the kind has been said, but it is a deliberate, a wicked falsehood. Mr. Doig never asked for any supplies to that mine that he did not get immediately.
180. *President.*] You had perfect confidence in his judgment? Yes; he was a splendid man.
181. Witness (being referred to the plan) said: The shaft was begun about a fortnight before the accident, to the dip of the main tunnel, to a point south-east from Eskbank, and marked on the plan thus: O.X.
182. *President.*] How far was it down? Whatever distance they could accomplish in a fortnight. Since then the men have not touched it. It is of no consequence now.
183. Were the special rules hung up in your office? They were hung up at the mouth of the pit, wherever the Act prescribes.
184. And you say you have never received any complaint from the Government officials as to the mode of working your mine? We have never received any complaint from the Government with respect to our operations, either as to the ventilation or the carrying out of any of the operations of the Act. We have never had a charge brought against us, or been complained about in any direction.

Samuel Passmore sworn and examined :—

Mr. S. Passmore, 3 May, 1886.

185. *President.*] What is your profession or business, Mr. Passmore? Well, my profession has been that of a labourer, sir, until I came here.
186. Have you been engaged about mines? Not until I came to Lithgow.
187. How long ago is that? About five years.
188. How long had you been in the employment of the Lithgow Valley Colliery Company? About three years.
189. Who appointed you? Mr. Doig, the manager.
190. In what capacity did he employ you? As a dayman.
191. Were you employed on the surface? Yes; I was first on the surface for about six weeks.
192. At what were you employed during that time? Making the dam bigger.
193. Subsequently, how were you employed? I was afterwards taken into the pit.
194. And what were your duties when you were taken into the pit? I was employed as underground boss. Mr. Doig told me what to do.
195. What did he tell you to do? To travel along the roads and put up stoppings.
196. The work of a general shiftman, I suppose? Yes, sir. I succeeded Robert Davies when he left the employment of the Company.
197. When did he leave? About eighteen months or two years ago.
198. What were your duties and powers at the time prior to the first accident? I was deputy under Mr. Doig, and had to look after the pump and boiler.
199. Did your duties extend over the whole mine? Yes, all over it, wherever the work lay. Yes, sir; I was instructed by Mr. Doig. He was there every morning.
200. Had you any charge over the miners? The only charge I had was to put them into the bords.
201. Your duties involved the inspection of the working places? Yes, sir.
202. Did you direct operations—that is, did you give the men general directions as to how to work these bords? Yes, according to Mr. Doig's orders.
203. Did you ever inspect these bords under Mr. Doig's instructions? Yes, to see that they were going in straight.
204. How is the Lithgow Colliery worked—on what system? Pillar and stall.
205. Was it your duty to mark off and see that the bords were driven according to the instructions given? Yes.
206. What general instructions were given as to the size of the pillars and the width and length of the bords? The bords were 7 yards.
207. And what pillars did you leave? They were 1-chain pillars.
208. In all cases, were they chain pillars? Yes, they have been all chain pillars since I have been there. When I first went there there was one in half a chain.
209. When you took Davies's place the colliery was working half-chain pillars? No; they were all chain pillars except one.

Mr. S. Passmore. 3 May, 1886.

210. Since Davies left, what instructions did you receive? I had to take a chain between the bords, and that would leave 14 yards of a pillar.
211. Was this size adhered to? Yes.
212. Were the bords never driven more than 7 yards? Sometimes the miners would go wider.
213. If you noticed them working 8 yards, what did you do then? Generally speaking, Mr. Doig would be there himself. He used to go round every morning. The orders he gave me were that if they were going wide to go and put a chalk in them.
214. Then it was you who measured off the width of the pillars? Yes; sometimes he measured them off himself.
215. Did you ever know the pillars to be of less size than you mention? No. It might happen, but as a rule there was very little difference.
216. What is the width of headings? Five yards.
217. Did you have narrower bords in any part of the mine? No, sir.
218. What was the width of the cross-cuts? About the same as the headings—5 yards.
219. Do you know whether the amount of cover was taken into account when the size of the pillars and width of bords were arranged? No, sir, I do not know that.
220. Do you know if there was any alteration in these dimensions in the deep workings under the mountain? No; I do not know of any alteration.
221. Did you occupy the position of oversman or deputy at the date of the first accident that occurred in this colliery? Yes, sir.
222. Who controlled or had charge of forming the stoppings, and carrying out the ventilation? I had charge, my orders from Mr. Doig being to follow the men up, and carry out the ventilation.
223. Tell us how these stoppings were formed? They were formed of slack. They would run about 7 yards in width on the bottom, and about 2 or 3 yards on the top—some wider and some narrower.
224. In carrying round the ventilating current by means of stoppings, did you find these slack stoppings effectual? Yes, they were perfectly tight; we experienced no trouble with them.
225. Did you ever receive any complaint as to the condition of these stoppings? No.
226. Did you ever receive any complaint from the men as to the quantity of ventilation? No, sir, never.
227. I think you said you had charge of the underground boiler? Yes, sir.
228. Where was it situated? On the left-hand going down the tunnel.
229. How many chains down? I should think about 36 chains.
230. [The position of the furnace is marked by a red spot and surrounded by a yellow circle on the plan.]
231. How was the approach to the boiler protected from the main tunnel? There was a brick wall in front between the boiler and the main tunnel, and there was a brick wall from pillar to pillar.
232. Was there a door in this brick wall? Yes.
233. Was it separated from the tunnel by double doors? No, single doors; but that door [pointing to the plan] was never shut from the main tunnel. The boiler was supplied with fresh air from the main tunnel.
234. What was the object of keeping the door open? I cannot say.
235. What was the size of this door? About 5½ feet by 3 feet.
236. Was the boiler built in an ordinary bord, or in a place specially prepared for it? It was in an ordinary bord.
237. How long is it since it was built? I cannot say; it must be over three years ago.
238. Did you observe the way the boiler was built? No; I cannot say as to that.
239. What was the size of it? It was an ordinary boiler, not very big—about 15 feet long.
240. Can you get round about the boiler, between it and the coal pillar? Yes.
[Here the witness described the position of the boiler and its surroundings by means of a rough sketch.]
241. Examination continued:—You could travel right round the boiler? The distance between the outside wall of the pillar and the boiler about 8 feet; on the other side it was nearer. The boiler was bricked right in altogether.
242. *Mr. Usher.*] What was the space between the top of the boiler and the roof? About 2 feet.
243. *President.*] What did the roof consist of? Coal, sir.
244. What did the floor consist of? Coal. I was told that the coal floor was taken out under the boiler, but I am not certain.
245. Who told you? I was told by the brickman and his labourer that they had taken down the foundation.
246. Where the ashes were drawn out of the furnace, was the coal taken away there? No; the coal was left there.
247. Then on cleaning out the fires the ashes would be left on the coal floor? No; there was a brick layer, and underneath the brick the coal.
248. Who had charge of this furnace at or prior to the date of the accident on the 14th or 15th April? That was on the Saturday; I had charge then.
249. In addition to your other duties of inspecting the mine, you had charge of this boiler? Yes; I had charge prior to the date of the accident.
250. What instructions did Mr. Doig give you as to removing the ashes from the furnaces? I had no instructions, only that I was to keep them alongside the main tunnel; he said he wanted them to fill up the swallow.
251. When you cleaned your fires, what did you do? We always threw water on the ashes and drenched them; the pump was close by. She did not make very much ashes.
252. In all cases, were these ashes removed out of the mine? No; they were put on the main road.
253. Were they allowed to accumulate there? Yes, till there was a certain quantity.
254. How many skips, for example? About twenty skips.
255. How long would it take to accumulate twenty skips? I could not say exactly; we used to take a few skips as we wanted them.
256. Leaving the boiler, the smoke and hot gas escaped into the flues; how were these flues constructed? They were 18-inch earthenware pipes, one running into the other; they were carried from the boiler about half a chain; all the joints were mortared up tight.

257.

257. Were these flues leading from the boiler to the up-cast regularly or periodically cleared? Yes; I used to have to go in at the back and pass a wire through with some bushes attached to the end; this used to be done sometimes two or three times a week.
258. You say that these pipes extended for about half a chain? Yes.
259. Where did the smoke go to? To the return air-course.
260. Was that air-course in any way protected by brick? No.
261. Was the current controlled by small coal stoppings? Yes.
262. Then the smoke and heated gas escaped through these earthenware pipes into the ordinary return? Yes.
263. And the smoke and heated gas coursed up this return, and impinged directly upon the sides of the coal pillars and stoppings of small coal? Yes, sir.
264. Was there any small coal lying on the floor of the return? I cannot say.
265. Was this flue regularly travelled from the boiler up to the furnace? No.
266. Was it never inspected? No; you could not inspect it without stopping the boiler.
267. As a matter of fact, this return that carried the smoke and heated gasses into the left-hand up-cast was not regularly inspected? No, sir.
268. Of your own knowledge, do you know whether it contained any accumulation of soot? Not so far as I am aware, only at the end. There was a good deal of soot at the end of the pipe where it entered the return.
269. Then this flue was never regularly cleaned? You could not get at it to clean it.
270. Then it never was cleaned? No, sir.
271. And the smoke and heated gas had been passing through that return for how many years? For three years.
272. Did anyone ever travel the left-hand return? You could not travel it for water. Here (pointing to the plan) were the pipes, and here was a great body of water at the end of them, over which the smoke passed and went up round till it reached the open.
273. Did you understand the plan, Mr. Passmore? I understood very little about the plan, because it was never shown to me.
274. Do I understand you to say that the return air and smoke crossed over the top of this water? Yes.
275. How far does this water extend? The earthenware pipes that conveyed the smoke from the boiler to the return rested on brick pillars, and from the end of these pipes the smoke crossed over a body of water that filled the swallow (or hollow) in the coal.
276. What space was there between the top of the water and the return? About 2 feet. The smoke crossed over this hollow until a point was reached marked "B" on the plan, and opposite the encroachment from Eskbank into the Lithgow Valley ground. Beyond this point the return air-way was clear. It contained at all times a considerable quantity of smoke. The return air-way was clear of water until it approached the left-hand furnace, when it again crossed over a body of water lying in a swallow of lesser extent than that already referred to.
277. You say, Mr. Passmore, that these pipes rested on brick pillars—what height were these brick pillars? They were about three and a half feet high.
278. Who removed the ashes from the boiler to the main tunnel? Sometimes I removed them, and sometimes Mr. Grant. Grant was the night engine-man. We had a lot of water, and were obliged to keep it going. We pumped it up to go down to Brown's pit (Eskbank).
279. Are you quite sure that it had access into Brown's pit? Yes; I told Doig about it. We were certainly under that impression.
280. That is to say, if it did not go there, you were pumping a portion of the same water over again? Yes; I told Mr. Doig about it, and he said it must be so.
281. Was there any slack coal lying in a position contiguous to this boiler, Mr. Passmore? Yes; I believe there was some on the left-hand side.
282. What was the object in keeping this slack coal there? I am not aware that there was any particular object in keeping it there.
283. Did you never think that such an accumulation of dry slack coal was a source of danger? Well, I do not think I ever thought there was really any danger, because I found fire in this direction twice previously, and it was put out immediately.
284. When did you discover this previous fire? About six weeks previously.
285. On the former occasion—that is, the last before the one you have now mentioned—how long ago was it that the fire was discovered? I could not say how long; I think it was in Davies's time.
286. You have suggested that you account for this soot taking fire because of the smoke and hot air discharging at the end of the pipes—were these pipes perfectly tight? The only reason I can give was the soot appearing to be so hot. There was a great deal of it hanging about the end of the pipes.
287. Did you ever observe whether any of this soot hanging about took fire? No, I never observed anything of that kind. When the last fire occurred we found that had occurred (Mr. Doig was there). I told him that the slack had caught fire at the end of the pipes again. I saw the first fire. I assisted Davies to put it out.
288. What was the locality of the first fire? It was just a bit on the top. It might be just half the width of this table from the end of the boiler.
289. Did you have any difficulty in putting out the first fire? No; Davies and I put it out with buckets. But it was very hot in there.
290. Was it always hot? It was very hot at that time, and in fact at all times.
291. Where was the second fire located—was it of a serious nature? No; I and two other men extinguished it. Robert Druery was one.
292. Who was the other man? I think it was William Hammond.
293. What, in your opinion, was the cause of that fire? My opinion is that it originated at the boiler, where there was such a great heat; it was there that I discovered it.
294. How did you discover it? I could not miss it, because I had to go in every day to put water in the boiler, and I was in there several times to sweep the flues.
295. Was it a difficult matter to put the fire out? No; we put it out with buckets of water.
296. Was the coal pillar contiguous to this outlet for the smoke of any size? It was a chain pillar.
297. Have you ever heard of any other fires having been discovered at this point? No.

Mr. S. Passmore. May, 1886.

298. But you are quite positive that the flues and the return air-course were never regularly inspected? Yes; they were not regularly inspected.
299. Beyond the swallow when the encroachment from Eskbank took place, was there much soot lying in the air-course? Not much.
300. Was it very hot there? It was pretty warm.
301. Did you know of any pillars being taken out there, or did you assist to take out any pillars? No, not in my time, but there have been pillars taken out down on the left-hand side.
302. At what position on that side? So far as I have been given to understand, it was to this left side of the boiler—to the rise of where the boiler stands.
303. Do you know of any pillars having been robbed in that neighbourhood? No.
304. Do you know of any bord having been worked unusually wide at that spot? No; that was worked before I went there.
305. Was the area where these pillars were removed of any considerable extent? I cannot say as to that.
306. Do you know whether the roof caved in in this direction? I have been down with Mr. Doig in these old workings, when the top-coal had come away, leaving only the rock. It seemed to me that there was a very wide portion of ground then—it might be 20, or 30, or 40 yards wide—without any coal pillars standing The last time I was there was about fifteen months ago, that is about twelve months last Christmas.
307. Have you known of any large falls taking place in that direction? Yes, I have heard some falls in that direction.
308. Was it in the water? No; I never heard falls in the water. I was there one night between 10 and 11 o'clock; I was pumping, and had just put water into the boiler when a very heavy fall came and blew the fire-doors right open.
309. On any other occasion, Mr. Passmore, have you heard falls? Yes, but I never took particular notice.
310. At what time was this? Oh, it was about nine or ten months ago.
311. Was that near the boiler? It was down that way, but not to say near the boiler; the falls always occurred on the north side of the tunnel.
312. How do you account for these falls always occurring on the north side? Well, I have heard them on the right-hand side too.
313. This fall you specially referred to as having occurred about fifteen or sixteen months ago you say was a very heavy fall? I should fancy so, seeing it blew the fire-doors open.
314. Did it ever blow live coals out? No; it blew soot and dust out, but not hot coals. There was nobody there but myself at the time; I told Doig about it on the following morning.
315. What did he say when you told him about it? Oh, not much; he said there must have been a heavy fall somewhere.
316. Did you ever know the pillars in any part of the mine to be so thin that you could put your arm through them? No, sir, but I have known them very thin when we have been working down below the boiler.
317. In any other part? No, only in this part that I have mentioned, on the north side; I have known them to be 4 yards thick, and also 2 yards thick, that is near the boundary.
318. Have you ever seen the bords cut into each other in any part of the mine? No.
319. Who worked that portion of the mine between the present stoppings in the main tunnel and No. 2 cross-cut—was it worked in your day? No, sir.
320. Were there any thin pillars in that part of the mine? I do not know anything about that portion of the mine.
321. Do you think that any connection exists between the Eskbank and the Lithgow Valley Collieries? Certainly I do. I have been told that the Eskbank people broke through in three places.
322. Did the water run from Lithgow Valley Colliery to Eskbank through these encroachments? I believe the water flowed into Eskbank from the Lithgow Valley mine.
323. *Mr. Curley.*] Does this opinion you have formed regarding the communication between Eskbank and Lithgow Valley rest upon information obtained from others, or upon observations which you have made yourself both in the mine and on the surface? My own opinion is that the water was going down there, but I never visited that part myself, as you could not get there for black-damp.
324. *Chairman.*] Then, Mr. Passmore, on the several occasions when you endeavoured to get down towards the Eskbank boundary with Doig you saw appearances of black-damp? Yes; it was full of black-damp down there.
325. Can you state whether the coal-seam dips towards Eskbank? Yes.
326. What swallows lie between—are they full of water? The water runs down that way.
327. Then about west of the boiler, and towards Eskbank boundary, are the workings in the Lithgow Valley Colliery standing full of water at the present moment? Yes; there must be now a quantity of water there.
328. Now, Mr. Passmore, about the right and left hand furnaces—were these kept going continuously? Yes, when the engine was working. The right-hand furnace was the principal ventilating furnace.
329. Can you give us the names of the furnace-men? I used to attend to the left-hand furnace.
330. That is in addition to your other duties of inspecting generally the workings of the mine? Yes. I attended to the firing of the boiler that pumped the water, and also attended to the left-hand furnace.
331. What was the name of the other furnace-man? There was no regular furnace-man at the right-hand furnace. A man named William Richards attended to that. He worked on the roads as well. He was on duty at the time of the accident. The furnaces were not actually kept going continuously. The right-hand furnace was allowed to be damped down on Saturday afternoon and overnight.
332. Did you find the air-current strong at 6 in the morning with the aid of the right-hand furnace? Yes, sir, I did.
333. What arrangement did you make for the removal of the ashes from these two ventilating furnaces? I used to stack the ashes against the coal.
334. Where these ventilating furnaces are built, was 15 inches of coal left on the floor? I cannot say; they were built before my time.
335. Have any ashes been removed lately? No, not in my time.
336. Have you ever discovered any heat or appearance of fire when these ashes were stacked? Yes, on one occasion at the right-hand furnace; that was up against a stopping.

337.

337. Then the ashes are stacked up against a coal stopping? Well, it was up against this coal stopping, and it caught fire, and was put out.
338. When did that occur, Mr. Passmore? It may be about sixteen months ago.
339. That was about the date you discovered the fire at the underground boiler? I cannot say whether it was at that time or not.
340. What measures were adopted to extinguish the fire at the right-hand furnace? We had to turn all the ashes away, and the slack, and get water and put it out that way.
341. And you believed that you had thoroughly extinguished it? Yes.
342. Did not the occurrence of this fire at the right-hand furnace tempt you to remove the ashes altogether? No. Mr. Doig was there all the time. They have not been removed to the surface.
343. When did you discover the fire—this last fire on the 14th of February? I did not discover the fire; I discovered the smoke.
344. When did you first see it? On Sunday evening, from about 5 o'clock till half-past. I was going down the mine to put fresh fire to the underground boiler.
345. How far down did you discover the smoke? I got down a distance of about 20 chains, and could not get any further.
346. What occurred to you when you saw the smoke? Nothing occurred to me then.
347. What I mean is, did you not speculate as to the cause of the smoke? No. I was that much frightened at the time that I went straight out and proceeded to Younger's—that is the man who is dead now—and asked him if he would allow his boy to run for Mr. Doig; I told him there was a great smoke at the tunnel, and that there must be a large fire somewhere in the tunnel. I may say that I arrived on the Saturday evening previous to that, and every thing was as usual.
348. Was there anyone in the mine when you arrived on the Saturday evening? Yes; there was George Hall, William Hall, and Walter Riddle.
349. Did these men discover anything wrong? As I have said, I went down on the Saturday evening to attend to the boiler. I went to the end of the pipes and shut off the valves, and coming back damped down the fire to keep it in; in fact I put everything in working order for a start on Monday, and having done so I went out and was talking with the man Younger, perhaps for about an hour, when these men that I have named came out. George Hall told me that there was a great smoke at the boiler. I replied, that is nothing new. I made this remark because a great deal of smoke used to hang about there after the furnace was damped down.
350. Was that in the main tunnel? Yes; a good deal of smoke used to hang about them.
351. Do you mean on ordinary occasions? Yes. On the Saturday evening there was no sign of anything wrong when I left, and, as I have told you, when I went down on the Sunday evening I could not penetrate into the tunnel more than a distance of about 20 chains. I then went to Younger's house, and having sent for Mr. Doig, I returned to the mine and put fire on the right-hand furnace. After that I went to the left-hand furnace and got fire on that. I had no coal ready, and went to the face to get some; it was there that choke-damp attacked me. Younger then came in, and I told him that I felt bad. I then went over to the furnace, when Doig came in and asked me what was the matter. I said to him, "I think I am dying, sir." I then got out of the mine, and on reaching the fresh air I dropped and was taken home. They gave me some brandy. I really thought I was dying. That is all I know.
352. You have told us that when the furnace was damped down on Saturday evening that a heavy smoke hung around the furnace in the main tunnel; do you mean to say that the ventilation of the mine was stopped? It was very often when the smoke hung about there. You will find that the men complained of the smoke.
353. What cleared it away—where did the smoke go to? I cannot tell you, only that the furnace cleared it away for the men to work; there was a strong current of air down the main tunnel.
354. Was there any split of air taking in Tyndall's level? It went past Tyndall's level and down to the foot of the tunnel; the main tunnel was very wide just immediately below the opening to the boiler.
355. How wide? Well, from rib to rib it might be about 9 yards.
356. Was there not a pillar removed on the north side? No; there was a split here in this pillar below the boiler.
357. Was the ventilation of the north workings deficient? No.
358. Had you been in the tunnel while the operations for extinguishing the fire were in progress? Yes.
359. A heavy fall occurred in the main tunnel—what was the position of that fall? It seems to me that it fell in the cross-roads.
360. Were the tops down on this part before the fire? No, only the first tops.
361. Was there any timber in to support the roof at this point? There was no timber here (pointing to the plan). There was no sign of the roof coming away at this point.
362. Did this fall that we were talking about just now completely close the main tunnel? It looked to me as if it completely closed the tunnel. If it did not she would have taken her smoke round.
363. That is to say, if the passage had not been obstructed the body of air coming down the tunnel would have carried the smoke away? Yes.
364. And it did not carry the smoke away? No.
365. Where did it go to? It remained there—went up the tunnel.
366. When you went down on Sunday night and discovered the smoke, did you notice whether there was any body of air coming down the tunnel at all? Of course there was air coming down, or I could not have got along.
367. Was the usual current of air coming down? I cannot say that; I met with a fresh breeze until I got into the smoke.
368. Did it not occur to you to examine the strength of the ventilating current? Not at the time; I was too much excited.
369. In travelling through the various parts of the pit in the discharge of your duties, have you ever seen fire-damp? I have heard the miners talk about it, but it has not been seen in these parts, so far as I know.
370. Have you ever heard complaints from the miners about any deleterious gas existing in the mine? No.
371. Have you heard any complaints about the quantity of ventilation? No, sir, because if there had been any complaints they would have gone to Mr. Doig.

Mr. S. Passmore. 3 May, 1886.

372. But if there had been any complaints you would have heard of it? Very likely I should.
373. And you did not hear of any complaints? No.
374. *Mr. Curley.*] I think you have said that the men complained of the smoke at the boiler? Yes; that was when they were passing down.
375. *President.*] Did the smoke pass into the workings? It used to go down the main tunnel a good bit. I have seen it quite thick.
376. Was the smoke constantly coming out like that? No; it was quite clear sometimes.
377. That is to say it was more some days than others? Yes. Mr. Doig said it was owing to the atmosphere.
378. Then, Mr. Passmore, did you consider that the ventilation of this colliery was ample and sufficient? Yes, I considered it so, and Mr. Rowan the Inspector.
379. What was the distance between one cut and another? It runs a chain from one pillar to another.
380. *Mr. Swinburn.*] Is that in the ordinary workings? Yes.
381. Had you ever any difficulty in getting material for the conduct of this mine? No.
382. *Mr. Usher.*] Are we to understand you to say that there is no brickwork in the coal roof immediately above the boiler? Yes; there was just the coal only.
383. I believe the ashes were removed from the front side and back of the right-hand furnace between our first and second visits to the mine? Yes.
384. Why was that done? I cannot say, sir.
385. *Mr. Davies.*] When Hall came to you and said there was smoke in the mine, did it not occur to you that he would not draw your attention to that if it was a usual thing? No; it might have appeared an unusual thing to him because he was seldom in there at that time.
386. *Mr. Neilson.*] Do you know anything about a certain stopping having been knocked down by somebody unknown? Yes; I heard about it, but I did not see it.
387. I think you have stated that it was on a Saturday that you discovered a fire six weeks before the accident? Yes.
388. Assuming that you had not discovered that fire, what time would you have got back? Any part of the day up to 6 or 7 or 8 o'clock.
389. Well, supposing the fire had escaped notice up to the Monday morning, it would have had a much stronger hold, I suppose? I have no doubt it would have had a much stronger hold; I think it was on a Friday morning that I discovered the fire, and I put it out on the Saturday.
390. *President.*] How was that? I tried to put it out on the Friday, but the heat was too great, so I damped the furnace down, and rose no steam next morning, when we were able to get in, the place being cool.
391. You knew that the fire was smouldering all that time then? Yes.
392. And yet you left the mine? Yes; I first damped down, as I have stated, and put the fire out next day.
393. Was it burning briskly? No; it was only smouldering.
394. *Mr. Neilson.*] And when you went in on the Saturday, how was it? It was smouldering still.
395. Assuming that this fire is drowned out, would the water necessary to effect this also affect the Eskbank Colliery? Do you mean the fire at the present time?
396. I want you to suppose that the Lithgow Valley mine was full of water up to the roof,—would that have the effect of flooding the Eskbank property? I should fancy it would.
397. *Mr. Davies.*] Did you have any conversation about an air-shaft being sunk? Mr. Doig did make a remark to me. I was with him about a fortnight before the accident, when we were pumping to see how much the pump would throw, and Mr. Doig then said to me, "Sam, I am going to get a shaft put down here, and then we shall not be troubled so much with the water."
398. Was that the first time he ever spoke to you about it? Yes.
399. *President.*] Was Doig a reticent man—a man who would readily express his thoughts? No; he was a very close man.
400. And has this shaft been commenced? Yes, it has been commenced.
401. *Mr. Curley.*] What quantity of ashes was there near the boiler when the fire took place? There were about half a dozen skips.
402. At the right-hand furnace I understand there were two or three places where these ashes were deposited—what was the extent of the pillar from where they stood? I should say a chain, that is straight from the furnace.
403. From the mouth of the furnace to the side of it, do you know the distance? No, I do not know the distance that way.
404. Did you ever notice Mr. Mackenzie, the Examiner of Coal-fields, often at the Lithgow Valley Colliery previous to the accident? No; I did not know much about Mr. Mackenzie until the first accident.
405. Did he ever examine the workings, do you know? I never saw him down there, but he may have been with Mr. Doig.
406. Have you seen Mr. Inspector Rowan there? Oh, yes; I have been round with him several times.
407. Can you tell me at what intervals? Every two or three months, I should say; I know it was not longer than three months.
408. Did he ever make any observation to you about these ashes? No, sir; he made no observation to me concerning them.
409. Did you ever see him visit the boiler you have been speaking about? Yes; he has been in front of the boiler.
410. And the furnaces? Yes.
411. Did you see him look at the return at the end of the furnace? No, sir.
412. Have you ever seen Mr. Inspector Dixon at the colliery? Yes; I have seen him there, but I was then on the roads.
413. How long ago was that? It was in Davies's time. I was not acquainted with him (Mr. Dixon).
414. *Mr. Swinburn.*] You have had no complaint whatever from any of the inspectors who have visited the mine? No, none whatever.
415. *President.*] Were they likely to complain to you, Mr. Passmore? The only complaint I ever heard was about some boards being knocked off in a certain place, and Mr. Rowan said they were to be fixed up again.

Mr. S. Passmore. 3 May, 1886.

416. *Mr. Curley.*] Are you aware whether these small fires you have spoken of were reported to the inspectors? I am not aware, sir; all I know is that I reported them to Mr. Doig.
417. And what did Doig say? His only remark was that it must be put out.
418. *Mr. Neilson.*] Was any report of these circumstances kept in the office? Not that I know of.
419. *Mr. Swinburn.*] Then you put out the fire in accordance with Doig's instructions? Yes.
420. Was Doig with you when you did it? No, he was not with me when I put it out, but he saw that it was out when I had completed the job.
421. *Mr. Davies.*] If anything was wrong, I understand you reported to Mr. Diog? Yes. I did not report in writing. I made my report on the ground. I only made reports if anything was wrong.
422. *Mr. Jones.*] Did you ever notice any person making surveys for Mr. Doig? No, sir; he did that himself.
423. *President.*] Were these surveys made regularly? There was no stated time; I never knew when he would go.
424. *Mr. Usher.*] Did he leave marks in the roof indicating the result of the survey? Yes.
425. *Mr. Curley.*] Did you ever consult together about the desirability of removing these ashes, and clearing them out of the mine altogether? I once suggested that we should move the boiler further down, and he said he would cut the coal down to the rock.
426. How long was that ago? About three or four months ago.
427. Was it done? No. I told him that unless something was done the water would beat us.

Mr. W. Martin sworn and examined:—

Mr. W. Martin. 3 May, 1886.

428. What age are you, and what is your occupation? I am twenty-three years of age, and I am engine-driver in the Lithgow Valley Colliery. I have occupied that position since the first accident; prior to that I was employed as a day-man.
429. When were you last in the mine before the accident? I think it was on a Friday night.
430. Did you see anything wrong. Not on the Friday night. I heard on the Saturday afternoon from Mrs. Younger, who told me she had heard the pit was full of smoke. I went to get my mate, William Rowe, and we went into the pit together. I went to the second furnace, and saw Doig. Doig passed the remark, "What did we want there?" I said, we had heard the pit was full of smoke. We then went down to where the smoke was. It was about 8 chains down, and presented a white smokey appearance. We started buffeting the smoke with our coats and bags, in order to see if we could get further down. We kept at that till about 10 o'clock, but made very little progress. We then went out and got some canvas, and then we bratticed up to the first cross-cut and took some more canvas with us to where we had been buffeting with our coats. We held the canvas to the roof to throw the draft over the top. There was a ventilating current running down the heading, though it was not very strong. In this way we made some progress, say about 6 chains, and we got to where the tops had been cut down. When we got there, however, the smoke came back upon us, and we could get no further. Then Doig said it would be well to go down the return on the right-hand side. That was when we came back from where the smoke was. His object was to go back to the second cross-cut, and then take the return, because he wanted to get to Tyndall's heading to open a stopping there.
431. Did Mr. Doig say this was practicable? I did not hear him say so. He said we had better try to go round to Tyndall's heading that way. As we were getting back to the cross-cut, I said I would not go with him, that I could not stay any longer, and I went home to bed. This was on the Sunday night. On the Monday morning, about 5 o'clock, I told my wife I would not go to work, as I did not feel well. At about 6·30 a.m. one of the men came and woke me up to tell me that Doig and Younger had not come out of the pit, and that the pit was full of smoke. He wanted to know where I had left Doig and his companion. When I got to the pit I went inside and proceeded about as far as where I had left the men on the night previous. They had left their things by the second cross-cut. I went down to where the tops were cut down, or close to that point, and I saw all the miners sitting there. I suggested that it would be well to go round the back workings. A search party had already proceeded ahead, and I ventured to go, thinking that I could perhaps tell where the missing men had been going. I went in, accompanied by James Doig and another, and got about 3 chains from the main heading when we were called back again to put the stoppings up. I then asked some of the men if they would go with me round the return. I did not know the road, but would go with any of them. Mr. Turnbull then came forward and ordered us all out, except six men he had with him. However, I went in again, accompanied by Jack Sheedy. He said he did not know the road, but we started and proceeded to the second cross-cut. Mr. Turnbull and his party were below us. We got into where the stopping was down, and we happened to strike the return. We left on the return for about 60 yards or more. When I had got this far I heard heavy breathing, and then a heavy sigh and a groan with it. I went into the bord where the sound appeared to come from, and there I found Mr. John Doig.
432. Was the air foul at this point? No; the air-course appeared to be pretty good.

[The witness pointed out on the plan where the body of John Doig was found.] Sheedy then pulled Doig out into the return, where the air was pretty middling. I daresay we stayed in the return about ten minutes, and then went out, carrying Doig with us. We met James Doig on the way, and he assisted us to carry Mr. Doig out. I then went back with Grant to show him where we found Mr. Doig, and just before we got to that spot we came on top of the other two bodies. They were both dead. Where they were found the atmosphere was moderately good.
433. You said that you had been engaged as engine-driver—have you any experience of engines? Yes; I have been engaged at engines ever since I left school. I have papers to show it. My experience of mines has been gained in this Colony. I was engaged as dayman in this mine previous to the accident. I was to do anything that was required of me above and below. I used to go into the mine every morning. I had charge of the rapper. I know the underground boiler, but I have never examined it. I have never seen an accumulation of coal about the boiler. There was a door on the left-hand side, that is a doorway; a piece of bag material was hung over it; I never proceeded through that. I had heard that there had been a fire there about a month or six weeks before the accident.
434. Did any reason occur to you as to the cause of this unusual body of smoke that you found in the

Mr. W. Martin. 3 May, 1886.

mine? No. I asked Doig the reason, and he thought it was the banking of the furnace. I have not seen any smoke hanging about the entrance to the furnace in the morning, nor during any other time of the day in the main tunnel. I know nothing about the returns or flues from that boiler.
435. Have you heard any man complain about poisonous gases or fire-damp, or choke-damp? No.
436. When Doig was found, were you engaged with Mr. Turnbull in extinguishing the fire? No, not when Doig was found.
437. Were you one of those who undertook to work with Mr. Turnbull in extinguishing the fire? No. The last work I did inside of the mine was to find Doig. I can say nothing about what occurred in the mine since then.

Thomas Doig sworn and examined:—

Mr. T. Doig. 3 May, 1886.

438. *President.*] What is your occupation? I am a miner, employed at the Lithgow Valley Colliery.
439. How long have you been employed there? About four years.
440. Before that, were you working anywhere as a miner? Yes, in Newcastle, for about the same period.
441. Are you any relative of the late manager? He was my uncle.
442. Have you had any complaint to make of the quantity or quality of the ventilation in the mine? None whatever.
443. Have you ever seen any accumulation of fire-damp in this colliery? No.
444. Or of carbonic acid gas—choke-damp? I have seen what they call the black-damp.
445. When and where? I never saw it before the late fire.
446. Then you have no complaint to make as to the quality of the ventilation? No.
447. Or of any other matter connected with the working of the colliery? No; we got everything we wanted.
448. Coming to the first fire in February, what do you know about that? I went in on the Monday morning about 6 o'clock, and met a few more men, who said there were three men in the pit on the Sunday night.
449. This was before Mr. Turnbull came? Yes.
450. Where was the smoke standing in the tunnel, as near as you can tell? About 150 yards back from the furnace, below the second cross-cut.
451. How far below the second cross-cut? About 25 chains, or close on 30 chains from the tunnel mouth.
452. That would be a considerable distance down the tunnel, within 6 chains of the boiler, would it not? Yes, about that.
453. You knew that Mr. Turnbull was endeavouring to put back the smoke? Yes; I was there.
454. Do you know how far the smoke stood down the tunnel when he had given it up? Yes; it had been put back about I daresay close on 3 chains below the starting-point.
455. When you went in at 6 o'clock on the Monday morning, what did you do? We were looking for the men. I went down to what is called the top flat, below the second cross-cut, broke the stopping, and went through there; this was on the right-hand side, about the mouth, and before Mr. Turnbull came.
456. Did the air come in there? There was a little air coming in; the smoke was very thick. We went up there a considerable distance, came back again, and went into another place; then Mr. Turnbull came and started bratticing to get down; and another party went in at the cross-cut.
457. What party was that? Martin and Jack Sheedy. They found John Doig.
458. Did you go to the spot? No, I did not go to the spot where they found him.
459. Did you form part of the other search party? No, we were attending to Doig.
460. Did you take any other part in connection with the first fire? No.
461. Do you recollect the men holding a meeting? Yes.
462. Can you tell us why that meeting was held? On the Saturday morning when we came down, that is, the first time the fire was seen, we tried to open No. 35 stopping, but the black-damp was so bad we had to give it up. The men made headway for a time, but then it was concluded to close it up, and we were withdrawn. The men then went up to the office, after holding a meeting, at which an opinion was expressed that they could put out the fire, seeing they had already got close to it. They saw Mr. Gell, one of the proprietors, and told him that if they were given permission they would put out the fire. The result of this meeting was that we were allowed to proceed with the work.
463. *Mr. Curley.*] Are you speaking of what you know yourself? Yes; I was one of the parties.
464. *President.*] Were you one of those who formed a deputation to Mr. Gell? Yes.
465. Who managed the different shifts? The men themselves, I believe, and they selected their own leaders.
466. You are perfectly certain of that? Yes.
467. Did Mr. Campbell take an active part in the operations? Oh, yes, when they started.
468. Did he suggest leaders to you? I cannot say whether he suggested them, as I said, I believe the men selected them themselves.
469. And then you proceeded to work? Yes; we got down to the seat of the fire, and when we came up to Tyndall's heading we saw a mass of loose coal burning, and we took it out. There was a chain burning by Tyndall's heading. In the main tunnel was a large fall which obstructed the ventilation. Very little air came along that direction. There was also fire about the boiler. We got right to the back of the boiler and saw fire burning there. Some stone and coal had fallen there.
470. Did you get that removed? We got to the end of the brickwork of the boiler, and that is where we branched off.
471. There was a split pillar to the left-hand of the boiler going in—do you know whether that was closed with the stopping? I do not know, I am sure.
472. Did you see fire extending to the left-hand side? Not before we broke through. When I was having a smoke in the main drive one morning, two pillars back from the boiler, I heard something crack. I pulled some of the stuff away from the stopping, and could then see a blaze through the stopping, that is No. 34. We cut the tops through, and tried to put it out, but did not succeed, and that is why we knocked off. I was not present at the accident; I knocked off at 6 o'clock that morning. As to the second accident, I heard of it at 3·10. I was between the town and the colliery going home. I returned to the colliery straight and went in.

473. Had the bodies been got out then? They had not been got out. The ones that were rescued were close to the tunnel mouth, having pulled themselves out. Mr. T. Doig. 3 May, 1886.
474. Were the rescuing parties in the pit when you arrived? There were a few there, Mr. Campbell and others. They could not get down until they closed some stopping. The first man we came upon was Buzza, who was about 18 or 19 chains down.
475. Can you point out the spot? I do not know whether I can, as I was very much excited at the time. When we got Buzza we brought him out; and the others, I think, were found a little distance off. I helped to take Buzza out; the others were got out shortly afterwards.
476. In going down the tunnel, did you see any fire in the blown-out stoppings? No; I could see nothing but smoke.
477. Then you know nothing about the positions where the other men were found? No.
478. Is that all you can tell us about this matter? Yes.
479. Did you see any evidence of fire or flame inthe tunnel when you were going down? No;
480. I think you have told us that you never saw any fire-damp in this colliery? No, I have never seen any.
481. Have you ever heard of any? No.
482. *Mr. Davies.*] I would like to be a little clearer as to the reason why you were stopped. I understand that the manager or the inspector stopped you: Was that owing to the prevalence of black-damp? I think it was on account of the black-damp, but the men were dissatisfied when a start was made to shut up the mine.
483. So far as you know, you had no idea of any danger? No; I had no idea of any danger, except it might be from the top-coal; the top could not be seen.
484. *Mr. Jones.*] Have you worked in various parts of the mine? Yes.
485. What was the usual width of the bords? Seven yards.
486. Do they ever exceed that? Yes, sometimes; they might perhaps be 8, but they were supposed to go only 7 yards.
487. Did you ever see a bord of from 12 to 13 yards? No.
488. *Mr. Curley.*] When you were down there eight or nine days ago, did you notice any fire on the left-hand side of the tunnel? No, I did not.
489. Did you notice whether any tops had fallen? No.
490. Did you notice how high the small coal was blown out? It varied. In some places you could walk in if you kept your head down; in other places you could not, because it was blown out very much.
491. Are you quite certain about that? Yes. In one or two places it took us a long time to close the stoppings up.
492. Did you ever go from the main heading into the back heading through any of these stoppings? Not before the first accident. I never went through any of these stoppings.
493. You could see through them? I could not see anything through them.
494. Did you look into them? Well, we were right in front; we must have looked right into them.
495. Did you never venture to go through? No.
496. Or see anything? No.
497. *President.*] The object of your closing the stoppings was to get down to the mine? Yes.
498. *Mr. Neilson.*] Previous to the second explosion some person found a spark of fire in one of the stoppings when it was opened out. Is it not so? Yes; that was No. 34.
499. When you got through, could you see the extent of the fire—the far end of it, I mean? We could see so far right up the bord towards the boiler; but I do not know how much further it went.

TUESDAY, 4 MAY, 1886.

Present:—

THE PRESIDENT.	MR. SWINBURN.
MR. USHER.	MR. CURLEY.
MR. THOMAS.	MR. DAVIES.
MR. NEILSON.	MR. JONES.

William Hall sworn and examined:—

500. *President.*] What is your occupation, Mr. Hall? I am a miner. Mr. W. Hall. 4 May, 1886.
501. How long have you been connected with mining? For fifty-seven years, between the old country and the Colonies.
502. How long have you been in this Colony? Thirty-one years. I first went to the diggings, but have been coal-mining since.
503. Had you a thorough knowledge of coal-mining in the old country? Yes, a thorough knowledge.
504. Where are you working now? In the Lithgow Valley mine. I was getting coal before the first accident.
505. On the Saturday before the first accident you were the last man in the pit, I think? I was the last man in the pit that night; my son was with me; he went out ahead of me.
506. What did you find on your road out? I found some smoke hanging about the top of the rock. It had got almost down to where we were at work. We were working down in the dip below the fire a long way.
507. Where did you find this smoke? I found the smoke the first shift from ours. I noticed a queer smell. It was thick at the boiler, but most dense further along; I have seen smoke there before, but never in such quantity.
508. Did you see any fire? No; and never heard of it at this place before.
509. Was the ventilation going down the engine-plane as good that Saturday night as usual? I cannot say.
510. Did you give any one notice of what you had seen? Yes; I gave notice to Passmore.
511. Had you anything to do with the rescuing of the first party? I had nothing to do with the first accident, except that I went in to help to get the men out. I did not hear of it till breakfast time, and then a lot of us went in to get the men out, and we had not got far in the headway when we found them.

Mr. W. Hall, 4 May, 1886.

512. Did it strike you then that the smoke you saw had had something to do with the accident? It did after the accident occurred. John Sheedy brought Doig out, at 11 o'clock on the Monday morning. When we got down the second time the air was stronger, and then we found the bodies of the other two men.

513. *President.*] Can you point out on the plan the position where the men were found? [Dictated by the President.]

The witness, on the plan being inspected, pointed to a position two pillars to the south of that pointed out by Martin as the place where Charles Younger and William Rowe were found.

514. *President.*] Was the smoke confined to the main tunnel? There was some smoke down the main tunnel. Mr. Turnbull had been putting some bratticing up there then.

515. How far did you proceed down the return air-course? I went no further than where we found the bodies of the men.

516. Did you see their lamps? I did not see their lamps; but there were two lamps hanging on William Rowe's hat. They had no oil in them, and then it was we came to the conclusion that they had lost their way.

517. How did you account for the bodies lying dead in a portion of the mine without smoke, and where other persons could live? The smoke had been there. When the first party went down it was full, but that was before the bratticing had been put up.

518. You felt no effect of choke-damp when you put your head down? Not when we fetched the men out.

519. Did you work at the re-opening of the mine? Yes; we were not satisfied at the mine being closed up, and we applied ourselves to try to get the fire out.

520. You have had long experience in collieries, and you knew that this mine was full of smoke and poisonous gas; you knew that Doig, Younger, and Rowe had been killed by inhaling poisonous gas; and that the mine had become so full of this gas that it was thought fit to abandon operations: Now, when you made a requisition to the owners to be allowed to re-open the mine for the purpose of attempting to put out the fire, did you keep before yourself the fact that there was danger in the work? No; I did not think there was danger, if we kept the air along with us.

521. Did you keep in mind the nature of your employment, as a man of experience? Yes.

522. You knew what you were doing, and going to attempt to do? Oh, yes; I was aware of what I was doing myself.

523. Supposing that any accident had happened to you in the discharge of your duty, were you willing to take the risk of that? Yes; I was myself. I was determined to keep myself safe.

524. Had you plenty of material supplied to you for carrying on the operations? Yes; we had everything we wanted.

525. The fact that there was an underground fire, was that a proof in your mind that gas did not exist? I am sure there is no gas in that coal.

526. Have you ever tried for gas? Yes; I have tried with my lamp, but never found any trace of it.

527. During your operations, did the inspectors and owners and managers pay you frequent visits? Yes, every day. They frequently warned us also not to place ourselves in the slightest danger.

528. From your experience in the old country, in the case of an accident from an explosion or other cause, have you ever seen a management more anxious for the safety of the men than the owners of the Lithgow Vallery Colliery were for your safety in this mine? No; I never saw better people for doing their duty to the men.

529. And about the inspectors—you have seen many of them no doubt—did you think the inspectors did their duty? Yes; I believe so, certainly.

530. Did they share your dangers with you? Yes; I have seen Mr. Rowan come right in with us frequently. He repeatedly told us to be careful, and generally looked after our safety.

531. Were you on shift when the second accident occurred? No; I was on the shift before; I was coming on the shift to relieve these men.

532. Were you satisfied with the ventilation of this mine? I was satisfied that so far as we went we had plenty of air. I never complained, and never had cause to complain. I have worked in other collieries in Lithgow. The ventilation is much the same there.

533. Have you ever seen explosive gas in the district of Lithgow? No.

534. Do you know how the stoppings are constructed? Yes; they are composed of slack.

535. Do you consider them sufficient? No; I do not consider slack stoppings are sufficient.

536. But do they answer their purpose? I have always been used to brick stoppings at Home.

537. However, if these stoppings are carefully put in, do they answer their purpose? Yes.

538. Have you seen the effects of an explosion of gas in the old country? Yes; I have been in it.

539. *Mr. Davies.*] Where was that Mr. Hall? In the Farm Pit, Staffordshire.

540. *President.*] Have you ever seen the bodies of men killed by an explosion of gas? Yes.

541. What appearance do they present? I have seen the bodies roasted and the hair burnt off. I have had my own hair burnt several times.

542. Did you see the bodies of your unfortunate companions in this late accident? Yes.

543. What opinion did you form as to the cause of their death? I thought they were smothered by black-damp.

544. Did you think they had been killed by flames? No. I believe that the black-damp was blown upon them through the stoppings, in consequence of something that had happened in the mine.

545. After having had time to think over it, Mr. Hall, what do you think was the cause of the fire in this mine? I think it came from the boiler somewhere.

546. *Mr. Davies.*] You say you have been in an explosion yourself, Mr. Hall? Yes.

547. Have you not seen men who have been in an explosion without their hair being singed at all? Yes.

548. *President.*] That is from after-damp. Was the ventilation after this accident like what you would expect after an explosion? No.

549. *Mr. Thomas.*] Did those men look as if they were asleep? Yes, just like that.

550. *Mr. Davies.*] Have you had any conversation with Mr. Wilton this last day or two as to the evidence you are giving here to-day? No; I never had a talk with Mr. Wilton about anything.

551. The statements you have made emanate entirely from yourself? Yes, entirely from myself, from my own knowledge. I have never been taught by anyone. 552.

Walter Riddle sworn and examined :—

Mr. W. Riddle. 4 May, 1886

552. *President.*] You are a miner? Yes.
553. Where were you last employed? In the Lithgow Valley Colliery. I was there for fourteen months, and about the same time in the Vale of Clwydd.
554. When did you last work in the Lithgow Valley Colliery? On the night before the first accident happened, Saturday night; I was working past the boiler; I left work about 5·45 p.m.; coming out towards the main tunnel I observed smoke; it became thicker towards the furnace; it was travelling with the air, and was very thick at the boiler; when we got past the boiler there was hardly any at all.
555. Did you go to the boiler? No. We thought there was something wrong, and, personally, I thought there must be a fire in behind the boiler. I thought so because that was where the smoke came from.
556. Had you any reason to suspect that the place was dangerous before that? No; I had never been behind the boiler, and had never heard of a fire occurring there before.
557. Are you quite sure of that? Yes.
558. When you came out of the mouth of the mine, did you report to anyone? No; except that we told the man who was standing outside. The manager was not there, he had gone home.
559. Did you follow him home? No; we told Younger, that was the man.
560. Did you not tell anyone else? No; it did not strike us that anything very serious had happened. I first heard of something seriously wrong on Sunday at 5 o'clock. I proceeded to work again on the Monday evening. I did not know that Doig had been killed; he was brought out before I knew.
561. Have you had any experience of fire-damp or choke-damp? No.
562. Had you any reason to complain of the ventilation of this colliery? No.
563. Were you engaged at the operations that followed the events of 14th February? No; I did not go in any more. I am not working at the mine now. That is all I know about it.
564. Do you know if there is any difference between the mode of working the Lithgow Valley Colliery and that employed in the Vale of Clwydd? No; I believe there is not any difference. The width of bording and the size of the pillars are the same, and the stoppings and ventilation are equally good.
565. Were copies of the different rules distributed among the men? No; they were put up at the tunnel mouth.

John Davies sworn and examined :—

Mr. J. Davies. 4 May, 1886.

566. *President.*] What is your business, Mr. Davies? A miner.
567. How long have you been a miner, and where? I have been thirty years a miner, between this Colony and the old country.
568. Where have you been engaged at Home? In Rhondda, in South Wales, and Cwm Avon.
569. How long have you been in this Colony? Eight years last December.
570. Where have you been working since you arrived in this Colony? I have worked in Newcastle; then a few months at gold-mining; and then I came to Lithgow.
571. In what collieries have you worked since your arrival? I have only worked in Lithgow Valley mine.
572. Have you ever been down any of the other collieries at Lithgow? I have been working in Lithgow Valley for six years.
573. Were you engaged in coal-getting? Yes.
574. Had you any charge? No, I had no charge.
575. You have had considerable experience as a miner at Home. Have you had any experience of explosive gas? Well, yes. I have been nearly all my life-time at work where there was gas. We had to use safety-lamps.
576. That is, you are skilled in the discrimination of explosive gas called fire-damp? Yes.
577. During the whole of the years that you have been engaged in the Lithgow Valley mine, have you seen any appearance of fire-damp? No.
578. You are perfectly certain? Yes, and I have tried for it many times.
579. What induced you to try? Just for my own satisfaction.
580. Did you suspect that fire-damp was present? No, I did not. I wanted to test the thing, and then I was more satisfied. About six months after I started here, I was in one part of the workings, and I thought to myself, "I wonder if there is any gas here," and I made the trial with a naked light, but I could see no sign of anything in the shape of gas. I tried a number of times.
581. During the time that you have been employed in Lithgow Valley mine, have you ever seen any smoke in the workings? No, I never saw any smoke, not before the first accident.
582. Not in the main tunnel? Well, in the morning sometimes we saw a little sign of it by the boiler, but not in the workings.
583. At the boiler, where there any tops taken down? Not by the boiler—it was up the tunnel about half a chain.
584. Did you see smoke hanging about the boiler like a cloud? No.
585. Or lower down the tunnel? No.
586. Suppose that smoke was hanging about the main tunnel where the tops were taken down, or about the boiler, where would that smoke be eventually taken to? When the skips would start to work it would be cleared away with the current of air.
587. That is, the suction of the skips when in motion would produce an air-current? Yes.
588. Was there usually a good strong current of air in the tunnel? Yes, there was a strong current of air.
589. Did it make an impression on the flame of your lamps? Yes; I have had my lamp put out scores of times.
590. Then how do you account, as a practical and experienced miner, for the smoke lying in the tunnel in the mornings? After the boiler was damped down at night a little of it would work its way out of the furnace-doors.
591. The point I want to bring to you, Mr. Davies, is this: The main tunnel was the main in-take? Yes.
592. Then how do you account for the smoke going against the ventilating current, and lodging here above the boiler? Well, there being no break in the roof, the smoke or gas would work back.

593.

Mr. J. Davies, 4 May, 1886.

593. What, against the current? Yes; because it follows the bottom more than the top.
594. On a Monday morning, was it your custom to go early into the mine? I would go in about half-past 5 o'clock.
595. Was the air as free on Monday mornings as other mornings? I never saw any difference.
596. In the working places, was the ventilation sufficient? Yes, in all the places where I have been working there was; of course in some places there would not be so much as others.
597. Did you ever have any conversation with the manager about the question of ventilation? No.
598. Did you ever make any complaint to the manager as to the amount of ventilation? Well, at one time about the stoppings, that they ought to be filled up; but that was nothing, as we had sufficient air. I only mentioned it because I could see what was wanted to be done.
599. At the time when you called the manager's attention to the stoppings, were you in any apprehension of danger? No.
600. Did you ever observe any choke-damp in the workings? No; I never found any.
601. Have you ever travelled the returns? Not all of it; I have travelled some part of it.
602. Did you see any choke-damp there? No, never.
603. Then we are to understand that you have never made a complaint about the ventilation. I suppose if there had been an insufficiency of ventilation you would have complained? Certainly; I should complain to the manager, or the undergrouud boss.
604. Now, about this underground boiler you have incidentally mentioned—have you ever examined it? No; I have not examined it much. I have been several times at it, and was round at the left-hand side.
605. Have you observed any accumulation of small coal on the left-hand side? Yes, there was a body of small coal there.
606. What was the object of putting small coal there? For one thing, they had been cutting some part of the top-coal away, and a little bit of the bottom had been lifted, and the coal was shifted to one side.
607. How did you gain access to the left-hand side? So far as I remember, we used to have a long wire, and pass it through with a brush attached to the end of it. I believe I went in to give Passmore a hand.
608. Then tell us how that operation was accomplished—did you put the wire in in front, and draw it towards the boiler? I think he used to put it in the front, and I would draw the wire across towards the main tunnel, right through.
609. Was it drawn right through the fire-grate? So far as I know, but I cannot say positively.
610. Coming to the front of the boiler,—there was a brick building across the front of it, we understand? Yes, level with the front of the boiler, and there was another one close to the roof. There was a bit of a door through which to get behind the boiler, but whether it was of wood or canvas I cannot remember.
611. Have you ever heard of any fire occurring at this boiler previous to the serious fire of February? Yes; I forget how long ago, but there was a bit of a fire there.
612. Was it months or years before this accident; you can tell that, I suppose? I believe it was about eight or nine weeks before the accident. I did not see it. Passmore told me there was a bit of a fire there, and I heard some of the men talking about it; they did not say much. I asked Passmore if he put the fire out, and he replied that he had. I said, "You had better see that the fire is out, or it might bring you into trouble;" and he said, "I am quite sure of it."
613. Then you, as a cautious man, predicted danger from that fire? Yes.
614. Were you quite satisfied when he informed you that the fire was out? Yes.
615. Was Passmore a reliable man, in your opinion; could you rely upon his word? Yes, so far as I had seen of him, you could rely upon his word. I never could find anything wrong with the man.
616. Was Mr. Doig a reliable man, so far as you could see? He was.
617. Did Mr. Doig and Passmore show an interest in the safety of the men? Yes. I have no complaint to make of the management.
618. Did you consider it a dangerous mine to work in? No, it was, in my opinion, one of the safest mines that I ever worked in.
619. Was the roof a good roof? Yes. In some places it was a bit heavy, but we used to put timber in then.
620. Comparing it with the mines you have worked in at Home, you considered it a safe one to work in? Yes, certainly. There was much more danger attached to the operations of mining in the old country where I have worked.
621. Have you ever paid attention to the stoppings of this mine? Yes; I have noticed them several times. They were composed of slack.
622. Is that the usual way to put up stoppings in coal-mines? In this country, yes. But in most places where I have worked the stoppings were made of stone or brick—that was where there was gas.
623. Were the stoppings used in Lithgow Valley mine made air-tight? Well, I do not think they ever could have been quite air-tight, because the material would slacken from the roof a little.
624. Is it a bad practice to let a little air go through the stoppings—do you know whether it is good mining to ventilate the waste? I am not well acquainted with English. [The question was put in Welsh.] *Witness:* I do not think so.
625. *President.*] What was the last day you worked in the mine before the accident? Before the first accident I was working between No. 1 and No. 2 cross-cuts.
626. Were you working on the Saturday? Yes.
627. When did you come out of the mine? I hardly know—I was on the back shift.
628. When did you first hear of the accident? On the Monday morning. I did hear on the Sunday night that Passmore had come home bad, and I went to see what was the matter. He was in bed, and he told me that something came over him by the flue, and that he was so bad that he could scarcely travel home. He also told me that there was so much smoke in the tunnel that he could not go down. Then he went to the flue, and there was smoke going up, or something.
629. Did that surprise you? Yes, I was surprised.
630. Did you form any opinion as to where this smoke came from? No, I could not do that.
631. Did Passmore give you any opinion as to what was the cause of this? No.
632. What did you do on the Monday morning? I went down to the pit; there were a few men there, and just as I was going to enter the tunnel two or three men came out and said it was full of smoke.

633.

633. Who were these men? George Hopkins was one, and I cannot say whether Norwood was one of them or not. Then I thought of John Doig, and told one of the men to run over to Mr. Younger's and see if he was at home. We made up our minds that he must be in the mine. Mr. Campbell was there at the time, and James Doig. Then we thought to work the "set-in" to restore the ventilation. We started the engine and felt the rope drag; we could not work it. We then rushed into the main tunnel, down to the smoke.

634. Was it the tail-rope that got tight? Yes. Well, we went in as far as we could, and began to open one or two of the stoppings on the side of the tunnel, but we soon saw that we were doing wrong, and we closed them up again, and went out. We talked about going for Mr. Turnbull, and some of the men went to Mr. Gell.

635. Did you form one of the rescuing parties? Yes. We went in search of Doig and his party. We proceeded into No. 2 cross-cut, and opened up the first bord on the left-hand to the cross-cut, leading into a bord running parallel with and to the south of the tunnel.

636. What was your object in opening up a stopping that had never been opened up before? We thought, as the smoke was so thick in the main tunnel, that by opening up the stopping we could take the smoke to the first floor, and make that an air-course.

637. Well, proceed. What did you do? We worked our way down till we came to Mr. Turnbull, who had a brattice, and within a few minutes after this the cry was that they had found Doig.

638. A party of rescuers had preceded you? Yes.

639. Well, what did you do then? I went out.

640. And that finished what you had to do with the first accident? Yes.

641. Then the mine was closed up; is that so? Yes, a day or two after that, and it remained closed for some time.

642. And then it was re-opened, and operations commenced for restoring the ventilation and putting out the fire? Yes, it was re-opened. They thought the fire was out.

643. Did you work in the mine after the opening? Yes, the whole of the time.

644. During this time, Mr. Davies, did the proprietors, Mr. Wilton and Mr. Gell, visit you? Oh, yes they were there.

645. Did they show anxiety for your safety? Yes; they were there during my shift. They told us to be careful, and look after ourselves.

646. They cautioned you not to run any risk? Yes.

647. Just about this time, or rather before, did you hear that someone had pulled down a stopping in the main tunnel? No; I never heard of or saw it.

648. At the time when it was resolved to close up the mine, did the men hold a meeting? On the Saturday morning a number of men were on the top of the pit, and we were talking about the possibility of putting out the fire.

649. You did not want to be daunted? No. So we went to the Company's office, and we told Mr. Gell that we believed we could put the fire out if they would provide us with material. I was one of those who went. Mr. Gell thanked us for our sympathy. He said he was going to see the inspectors.

650. What means did you intend to take to extinguish the fire? We thought to brattice up with canvas, make the stoppings secure, and then, by carrying the air down with us as close as possible to the fire, we thought to put a pump on the flat, and put the fire out that way. Some of us knew that there was plenty of water in the swallow.

651. Did you think you were likely to run any danger? No.

652. Do you know the effect of choke-damp upon the human system? I never proved it upon myself.

653. If there was any danger attending the opening up of this mine, were you prepared to take the risk of that danger when you went to Mr. Gell? Well, I could not see any danger if we were allowed to have our own way, because we would carry the fresh air with us.

654. But supposing danger to exist, whatever danger there was, were you prepared to take the risk? Well, I ran the same risk with the others, but I could not see any danger.

655. A hundred and one things might have occurred that no man could foresee? Oh, yes.

656. Very well, the consent for you to make the trial was given, and did you carry the air down with you? Yes; we carried it right to the fire.

657. Did you get all the material you required from the owners? Yes, we got everything we wanted.

658. You continued these operations on for some time—can you say how long before the accident? No, I cannot say.

659. Do you know the date when you resumed operations? No, I cannot say.

660. Were you on shift when the accident occurred—that is the second accident? No. My shift was from 12 o'clock midnight till 6 a.m.

661. When the shift came within sight of the fire, where did you think the fire was located—did it seem to you to be on the right or left hand side of the tunnel? So far as I could see, it was just in the centre of the tunnel.

662. What was burning there? We could not see that, but we saw two flames.

663. Did you ever get up to that? Yes, when we carried the brattice on. The fire was opposite the boiler.

664. Did you see a fire burning in a pillar a few yards up the left-hand side of the tunnel from the boiler? Oh, yes, the last few shifts I did—on Sunday and Monday mornings.

665. You saw a fire there? Yes, in the pillars on the left-hand side.

666. Did you see the fire on the outside or the inside? On the inside, working out towards the tunnel.

667. Did you see this through a stopping? Yes. It was on Sunday morning. I had been on by the boiler, and had come out for a spell, when I heard something roaring at No. 35 stopping. Kirkwood was there. So we looked down, and we saw the bit of the flame at the bottom of the pillar. The stopping was on fire, and working out towards the tunnel.

668. You could see from the stopping into the bord? Yes.

669. Did the fire seem to extend up towards the mouth of the tunnel? Yes. I made a bit of a hole, and looking through it we could see the fire flaming up towards the north.

670. Well, Mr. Davies, was that fall in the main tunnel, in front of the boiler, a heavy fall? Yes; I could see that heavy rock and tops of coal had fallen away, but I could not see the roof for the sulphur and smoke.

671. Did you direct your operations to the removal of the debris? Yes; it was in my shift.

Mr. J. Davies. 4 May, 1886.

672. What effect would that heavy fall in the main tunnel have upon the ventilation? So far as I could see, it would stop it altogether.
673. After the fire had taken place, when you came to Tyndall's heading, were the stoppings there intact —tight I mean? There was only one stopping in Tyndall's heading, so far as I could see, and when I went close to it I found it tight.
674. What was it formed of? Slack.
675. Was there any timber? No, I did not see that, but I believe Campbell told me there was timber there.
676. Have you ever seen an explosion of fire-damp? Yes.
677. What is the effect of it—do you hear a report? Yes, there would be a report and a flash of light. I have experienced it in Wales. I was thrown down before the flame.
678. And did it pass over you? It threw me right before it till I came to the air-course, and when I passed the air-course the flame was done.
679. Have you seen the bodies of men who have been killed by fire-damp? Yes.
680. What appearance did they present? I have seen them with the skin burnt off, and all their hair singed.
681. Did you see the bodies of the unfortunate men who were killed by this accident—did you see the bodies of Doig, for instance, or Younger? I saw Doig just before he died.
682. Did he present the appearance of a man who had been killed by an explosion? No.
683. Did you see the bodies of any of the victims to the second accident? I saw the bodies of Lance, Allison, and Rawe.
684. Did Rawe appear to have died from the effects of an explosion? No.
685. What do you think was the cause of his death? I would fancy that his death was caused by black-damp.
686. Have you ever seen the body of a man killed from black-damp in the old country? I have seen one, that is all.
687. What appearance did the body present? Very much like that presented by the body of Tom Rawe.
688. Did you see Allison's body? Yes.
689. What appearance did it present? Well, Allison seemed to be a bit burnt. His moustache was a little burnt, but there was no sign of burning at the back of his head.
690. He had bruises about the face, had he not? Yes.
691. How would you account for Allison's appearance? Well, I should think he had fallen into a fire. If he had been in an explosion his hair would have been burnt back and front.
692. Were his clothes burnt in any way? I did not take much notice.
693. Was his body burnt at all? His left arm looked as if it had been burnt.
694. Well, Mr. Davies, towards the last shifts that you worked in the tunnel near the boiler, did you hear of any falls occurring in the gob (waste)? I did not hear any falls there. At about 4 o'clock on Monday morning—the last shift—the canvas door we had put across No. 35 stopping blew out, and the heat came out.
695. Did you hear any noise before it was blown out? No, except a slight noise from the canvas.
696. Was there any light put out? No, I think not.
697. Did any gas come out? No, only a body of heat.
698. Were the Government Inspectors present during your operations, and did they remain for any length of time? They were sometimes in longer than I was myself.
699. Who attended most regularly, was it Mr. Rowan or Mr. Mackenzie? Both were in, but Mr. Rowan was in most.
700. Did he give you any assistance? [The question put in Welsh.] Yes. He was there looking after us, and he was very cautious not to let us run into any danger.
701. Then you have no complaint to make against Mr. Rowan or Mr. Mackenzie? Oh, no; not at all. I consider they were doing their best.
702. *Mr. Thomas.*] Have you ever worked in a pit (in Wales) where you dare use a naked lamp? Oh, yes; but that was when I was a boy, at Cwm Avon; we worked there with a naked candle, and used to test the gas with a naked candle. [Several questions put in Welsh.]
703. *Mr. Curley.*] What was the number of shifts you worked, say at the second accident, from the time of commencing until this last disaster took place? I cannot remember exactly. I was three weeks at night shift, and it may be a day or two, or perhaps three.
704. How many hours were the shifts? Four shifts in twenty-four hours.
705. Can you say who had principal charge of these shifts? No, I cannot.
706. Who had charge of the shift you were on? I had.
707. Are you employed in the Lithgow Valley mine now? Yes.
708. What position do you occupy now? Well, I was doing brick-work last week.
709. *Mr. Curley.*] You have had some experience at Home in fiery mines; had you not an idea that there was some very serious danger in connection with the fire in the opening out of this mine? No, I could not see it, if we carried the air-current down with us.
710. But you know from experience that it takes a certain quantity of pure air to produce an explosion? Yes. But after the test being made with a safety-lamp, I could see no danger, so long as we kept air with us, and kept the black-damp away.
711. Had you a safety-lamp? No, none of my shift had, but I heard that some one had tested with a safety-lamp.
712. Are you aware whether any attempt was made to discover gas during your shift, either by yourself, the inspector, or anybody else? No. I do not remember.
713. *President.*] You have already told us that you have tested the workings for gas? Yes; that was some time ago.
714. *Mr. Curley.*] The question I am asking is whether, after it was decided to re-open this mine, any attempt was made by the inspector, or any one else, to discover gas by means of a safety-lamp? Not with a safety-lamp.

715. *President.*] With any other lamp? Yes.
716. *Mr. Jones.*] You have stated that you did not anticipate any danger; but did you accept whatever risk there might be from a possible accident? Yes.
717. *President.*] Were you satisfied that the owners, inspectors, and managers did everything that man could do to ensure your safety? Yes; they could not have done more.

Mr. J. Davies. 4 May, 1886.

Henry Grant sworn and examined:—

718. *President.*] What is your occupation, Mr. Grant? I have been a miner all my life.
719. Where have you been employed? I was employed in Lanarkshire, Scotland.
720. And how long in this Colony? Seven years. I worked for a few weeks in the Eskbank, and then I came to Lithgow Valley. I was working as a dayman, and attending to the little engine at the underground boiler.
721. Was it your duty to visit the working-face? No.
722. Have you ever seen fire-damp in any of the mines you have worked in? Yes. I was working at Moss End, 10 miles from Glasgow. I have had experience of fire-damp in the old country.
723. Have you ever experienced it in the Lithgow Valley Colliery? No, never. From what I have seen, I should say that black-damp was present; but certainly no fire-damp.
724. Where would the black-damp be? In a part of the old workings.
725. Have you ever heard of fire-damp being seen in the Lithgow Valley workings? No, I never have heard of such a thing.
726. Did you ever put up any stoppings? I have occasionally, when I have been sent for.
727. Did you put them up carefully? Yes. We made them as tight as we could in the ordinary way. Sometimes they would shrink a little, and if we saw them draw air we would return and make them tight again.
728. Did you think them efficient stoppings? Well, I never saw slack stoppings till I came here.
729. What sort of stoppings did you see elsewhere? Brick stoppings.
730. But did these slack stoppings answer their purpose—was the ventilation sufficient? I was not often in the face; I can only speak of the main roads.
731. However, you were careful to make them as tight as you could? Yes.
732. Was Doig very particular on that point? So far as my knowledge allows me to judge, I think he was very particular on that point.
733. You say you attended to the underground boiler and engine? Yes, at night. I was engaged pumping the water.
734. How was the boiler built? It was placed in the centre of a bord, and enclosed by a brick building.
735. Was the coal pillar protected by brickwork? No.
736. What did the pavement consist of? A portion of it was coarse coal 18 inches thick.
737 Was the floor taken up under the boiler? Not that I am aware of; I cannot say.
738. But you can speak of that part in front of the boiler—was it taken out where you cleaned the fire? No; it was not cut away to the rock. The coarse coal was not raised.
739. Well, in front of the boiler, was there a brick building? Yes, from pillar to pillar.
740. How many feet of a passage existed between the left-hand side of the boiler and the coal pillar on that side? About 8 or 9 inches.
741. How did you get access to that side of the boiler? A bit of screen cloth protected it.
742. Was there any close and air-tight building between the boiler and the tunnel? The boiler was protected by two walls.
743. When you came to the boiler down the tunnel, you raised this screen to get there? Yes, there was a screen.
744. In raising this screen, and coming to the side of the boiler, was there an accumulation of small coal there? Yes, a portion was fallen off. It was not removed in my time.
745. Where did the flues of the furnace commence? They commenced from the back of the boiler, and took the smoke direct from the fire into the old workings. They were about 14 or 15 yards long, I think.
746. How did you clean these flues? We had some wire about as thick as a pencil, to which was attached some bush, and this was pulled through from the back and returned again.
747. Did you ever, from curiosity or duty, travel the return road when cleaning these pipes? No. I was only too glad to get out on account of the smoke and heat.
748. How were these fire-clay pipes supported? They were held up by iron rails.
749. What was lying on the pavement? A sort of small coal and soot.
750. Would small provocation raise a fire there? Yes. I have seen it at this spot twice. There was no flame though. The fire was always put out, as we had plenty of water. I do not know how long ago it is that these fires happened. I saw one six or seven months before this accident happened, and I heard of one six or seven weeks before the accident.
751. Then you have heard of one fire and known two to have occurred yourself, that makes three fires under these fire-clay pipes? Yes.
752. Was this boiler divided at one time by a cut-through? Yes; there was a place where Mr. Doig once took us to take coal out for the furnaces.
753. Was that in the corner of the boiler, just between the corner and the main tunnel? Yes.
754. Was the pillar to the left-hand side split with a cut-through? I do not know; I never went down that way—that is, I never went that side of the pipes.
755. Have you seen smoke hanging about at the furnace? Yes, but I cannot say how it came there.
756. Are you aware whether the left-hand furnace that took the air was kept going at night? It was damped down at night.
757. That is, on Saturday night it would be damped down, and the boiler was also damped down? Yes.
758. Supposing a fire had occurred anywhere in the vicinity of that boiler, from any cause, on Saturday night, when would it be noticed? That I cannot say. I arrived at 5·25 on Saturday morning, and never knew about anything occurring. I was not back until the Monday morning—that was when I heard of the accident.

Mr. H. Grant. 4 May, 1886.

Mr. H. Grant. 4 May, 1886.

759. Supposing, Mr. Grant, that the main current of air was from any cause directed into the boiler, and at the same time small coal below these flues was smouldering, what would be the effect of the fresh air rushing in? It would have the effect of kindling it.
760. Did the construction of that boiler ever raise doubts in your mind as to its safety? Well, in any other underground boiler that I have seen in the old country all the top-coal was taken down to the rock, but in this instance I trusted to its being surrounded by water.
761. Do you consider that these flues (the return air-course) were selected and arranged with a due regard to safety—should not the small coal have been taken out from below these pipes? Well, if they had been properly cleaned out the smouldering would not have occurred.
762. Quite so. But supposing you had been manager, and your attention had been directed to such a smouldering as you have mentioned, would it not have occurred to you to remove that small coal to prevent another such fire occurring? Yes. If I had been "boss" I would have had it removed.
763. Would you also have cleared out the accumulation of small coal round and about the boiler? Yes.
764. Would you have taken down the tops? Yes, that certainly ought to have been done.
765. Above these fire-clay pipes, was the top-coal hanging? Yes.
766. Well, supposing the top-coal had broken away in this place from the effects of heat, what would have been the probable effect? It might have taken fire.
767. Do you think it would have been reasonable to suppose in connection with the late accident that something like this did occur? I cannot say that exactly, because everything was right when I was there.
768. What width was the bord that the flues went through? Fourteen feet, I think.
769. Were any of the tops down at all? A portion of the tops were down where they travelled in to inspect the flues.
770. But I understand you to say that above the fireclay pipes none of the tops were taken down? No, it was all coal.
771. Were the tops supported by timber in the flues? I was never there.
772. Did any portion of the tops break away? Not in my time.
773. Did you consider that this was a perfectly safe boiler? No, I did not consider it a safe boiler, owing to its close proximity to the roof and the quantity of steam and heat generated.
774. *Mr. Neilson.*] Concerning the flue in the old bord where the smoke used to go away, has that place ever been cleared of soot? No, I believe not.
775. *President.*] Were you one of those who took part in rescuing the men Doig, Younger, and Rowe? Yes, I was there, and formed one of the exploring party. Martin was also one. I turned down No. 2 cross-cut to the right, and the men were found 12 or 13 yards off the first cross-cut.
776. Did you follow the air in going down to Younger and Rowe? Yes; the ventilation seemed to be pretty well restored. They were lying clear of smoke and damp.
777. Are you certain as to the position where they were found? Martin is quite positive in his statement as to where he found Doig, and traced with his finger on the plan to a point below No. 2 cross-cut; he pointed to a place considerably below—that is, to the east of No. 2 cross-cut. Do you still say it was not below, but above No. 2 cross-cut? The two that I saw lying there were above the cross-cut, but Doig was below.
778. The first cross-cut is a few yards below the right-hand furnace? Yes. [At this stage reference was made to the plan.] Dictated by the President: I am still of opinion that Younger and Rowe were found between the No. 1 and No. 2 cross-cuts, and not in the position indicated by Martin and Hall.
779. Did you take any other part in the operations at the mine? No, not then.
780. After Doig and Younger and Rowe were found, what did you do about the mine? I was put on to attend the furnace.
781. When was that? Just after they opened up the mine the last time.
782. Was the left-hand furnace kept going? Yes, at last it was; it was the right-hand furnace that I attended to.
783. Did you attend shift on and shift off until the accident occurred? Yes; I was there during the day-time between 8 o'clock in the morning and 4 o'clock in the afternoon.
784. Were you on duty at the time the last accident occurred? Yes.
785. How were you apprised of that accident? I was sitting on the road at the right-hand furnace, and I never rightly knew where I was until I looked up and found I was lying up against the drum at the mouth of the mine. I was sitting on some bricks at the place I have stated, when a rush of wind came and carried me out. A young fellow was there at the time, and he saw me.
786. Is there not a gate or fence near the mouth of the mine, Mr. Grant? Yes, the fence was up.
787. Is that not of a permanent character? It is only a slight structure; one-half was kept shut.
788. How do you account for the fence not being blown away? I cannot say as to that.
789. Do you think it possible for a person of your size and weight to have been shot along a distance of 100 yards by such a rush of wind? Well, I thought it was nigh on to that distance.
790. Then, supposing that you had been blown 100 yards out of a tunnel and through these gates, over rollers and over rails, and beyond this again 50 or 60 yards in the open air, how do you account for having escaped without considerable bruises or broken bones? I was shaken a great deal.
791. Do you think it possible that a man could be blown out of a mine through gates and up the open cut without an injury. You know one-half of the gate is always kept shut? I know; I struck my head against it.
792. Would not such a blast have blown the gates off? Well, I got plenty, and that is all I can say.
793. What I want to know, Mr. Grant, is, after considering the matter calmly, do you think it was possible? Certainly I do. I know you think I am telling you a story.
794. No, but I think you are deceiving yourself? No, I don't think I am. Jim Rowe was just the same way, and the boy was just the same. Jim Rowe had been sitting with me on those bricks when the blast came, and he said he was tossed over to the other side. As soon as I came to myself I ran for the furnace-door, and having got it open the smoke was coming back again; and when we went to the left-hand furnace-door we found the small coal had been forced up against it, and we could not get it open. After that I assisted to get out the dead men.
795. What space of time intervened? So far as I can learn, about half an hour. I had looked at my watch a few minutes before that, and it was then just a quarter past 3.

796.

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796. Then your watch was not damaged at all when you were blown out of the mine? No; I had it kept in a little box; it was not damaged at all, and was still going.
797. Neither you nor your watch were injured? Well, I have been pretty bad since; the doctor says my system was shaken.
798. You are sure you did not run a portion of this distance? No, I did not run; I was blown out, and fell on my side.
799. Was the furnace still burning when you got back? It was scattered all over; I got it right in about a quarter of an hour; I had Jack Sheedy to assist me.
800. Was the fire completely blown out of the grate? It was all out and driven all over the place; we put it in with shovels.
801. *Mr. Neilson.*] You are quite sure that the force of the blow was going up the tunnel, and that you were blown to that distance? Yes.
802. Which way was the air going at the furnace? Whenever I got the door shut it took the draught, and the air went down.
803. You were perfectly satisfied that you had the two doors shut at the left and right hand furnaces, and the current of air was restored at once? Oh, yes, sir.
804. *Mr. Swinburn.*] Where were you sitting when this explosion took place, or whatever you term it? I was sitting on some bricks close to the door of the furnace, on the side of the main tunnel.
805. *Mr. Neilson.*] You said that the whole of the fire was blown out—was it blown out at the front or the back? It was driven to the back, and front, and sides.
806. Where did you find the live coal? All along the front it was smashed up, and we put it in with the shovel.
807. *Mr. Swinburn.*] Can you account for some of the fire being at the front and some at the back? The blast would lift it to one side.
808. *Mr. Curley.*] You have stated here that had you been manager you would have fixed that boiler differently; did you ever suggest to the manager the propriety of making some alteration? No. My own opinion is that the top should be taken down for greater security; but it would not be my place to make such suggestions when the manager could see for himself.
809. Did you ever suggest anything of this kind to the Inspector of Collieries? No, sir; I know my place.
810. Then you knew of your own knowledge, and from your past experience, that this was likely to be a source of danger, and knowing this you still thought it was unnecessary to report such a thing to the inspector? I did not report it to the inspector because I had no right to interfere with another man's duties; if I had not been pleased with it myself I could have left it.
811. Then you were pleased with it? Yes, it was my work; I never saw Mr. Rowan, or any of them, when I was there.
812. *Mr. Curley.*] Did you notice whether any of these ashes accumulated at the furnace were strewn about? I do not know whether I had any ashes in my head at the time; I paid little attention.
813. *Mr. Swinburn.*] Did you observe any flame or light when the rush of air came? No; it was only just a mass of smoke and dust.
814. Can you assign any reason for this? No. I never was down beyond the furnace. I know no more about that than yourself.

Charles Norwood sworn and examined:—

Mr. C. Norwood. 4 May, 1886.

815. *President.*] What is your calling, Mr. Norwood? I am a miner.
816. Where have you worked in the Colony? I have only worked in the Lithgow Valley mine; I have worked there for six years.
817. Do you know anything about fire-damp or choke-damp? I have worked a little in fire-damp at Home, but I never saw it in Lithgow Valley.
818. Where did you work in the old country? In the county Durham.
819. Have you ever seen explosive gas? Yes; I have seen it burn a man; I was working next to him at the time.
820. Well, did you consider the Lithgow Valley pit a safe one to work in? I did.
821. Had you any fault to find with the management of the mine, in connection with the character of the working; as to the size of the pillars, for instance, and the width of the bords, and the class of stoppings? No, I had no fault to find in any way.
822. Have you ever worked to the left-hand of the tunnel? Yes.
823. Do you know of any reported encroachment upon Eskbank? No, but I have heard something of it.
824. Have you ever heard of or seen any pillaring in the workings to the left-hand of the tunnel? No, I have never heard of any being taken out to the left or the right either, but it might have taken place without my knowing.
825. Have you ever inspected the underground boiler? No.
826. Did you ever hear of an underground fire having occurred there before February? Yes, but I did not see it.
827. Did the fact raise any fears in your mind as to the safety of the mine? No, it did not.
828. Where were you when the first accident happened? I was at home; I left home about half-past 4 in the morning. When I went into the mine I was met by the smoke; I was with Hopkins at the time, and after staying there a little while we retreated. We then went into No. 2 cross-cut; three men were supposed to be in there, as we had been informed by Martin that he left them at 2 o'clock, and it was thought they were somewhere in the cross-cut; we went on as far as Tyndall's heading, but the damp or smoke took effect upon us and we returned; we then went down the tunnel again, and fell in with Campbell and another man; Campbell asked me if I would go in again to find the men, and I did so accordingly, after breaking a stopping, but I lost the use of my legs and was carried out.
829. Did you take any other part in these operations? Not in the least.
830. After the stopping was removed from the mouth of the tunnel, were you employed as a worker to extinguish the fire? Yes; I went on my own account.
831. You worked for some time, until you saw the fire burning, when something occurred which determined the owners to close up the mine, and we have heard that the miners then held a meeting and came

to

Mr. C. Norwood. 4 May, 1886.

to some resolution; what do you know about that? I cannot say much about it, as I was not there; I have heard that they did hold a meeting.
832. And petitioned the owners to be allowed to extinguish the fire on certain terms—is that not so? Well, I cannot speak with certainty about that.
833. Who chose you as a worker? No one chose me, but I was one of them. A certain line of action was agreed upon, and the men chose their own leaders, but I was not there when it was agreed to.
834. As a matter of fact, permission was given to re-open the mine, and operations were resumed? Yes, permission was given, I suppose, by the inspectors.
835. Did you anticipate that any danger attended this work? Yes, there was a little danger attending it, of course.
836. Had you ever seen a plan of the working? Yes, I did see a plan of it, but I am not much of a scholar, and cannot say anything about it.
837. As a working miner, do you understand the underground workings? Yes, I know all the bords and headings that have been worked since I have been there.
838. Well, having got down to the seat of the fire, did you notice a fall in the main tunnel? Yes.
839. Was it a heavy fall? No.
840. Could you see over it? Yes.
841. Did you think it blocked up the tunnel? No, I cannot say that; it was not a heavy fall of rock; it consisted mainly of tops, and we sent it outside.
842. Coming to the boiler, were the tops on fire? Yes; they were all down and burning, and we put them out.
843. Did you see any fire in the old workings to the left? Yes; and a little burning inwards towards Tyndall's heading.
844. When you were in at the boiler, did you notice the direction of the fire then? Yes; there was a little on the right and also on the left stretching towards the back of the tunnel.
845. Have you ever travelled the flues from the boiler? No, never.
846. In the course of your operations in connection with extinguishing this fire, did you hear any falls in the water? Yes. I have seen and heard them. I saw one on the Sunday before the last accident; it was over the boiler to the left. It was a heavy fall, and had the effect of putting my light out, as I was at work with the hose at the time, and it drove us back.
847. Then you were on shift when the accident occurred? Yes; it was about 3 o'clock, or a quarter past. I should have gone off at 6 o'clock.
848. Did you hear any noise or sound at the time? No; some of my companions said they did, but I could hear nothing.
849. What was the first intimation you had that anything was wrong? A heavy blast of wind came down the tunnel, carrying with it small coal and dust.
850. Have you ever experienced a similar blast to that? Never in my life.
851. How long did the blast last? As far as I can tell, the blast passed away quickly, and the smoke and stythe came gradually. We then went for the skips and pulled the rapper-wire; but the skips did not move, and then we all got out and travelled as fast as possible to the mouth of the tunnel. The strongest men took the lead, I suppose. I was behind, with Duncan next to me. The last thing I remember was Duncan telling me to "come on"; but I said I could not; I was pretty well done. I was lying down when the rope moved; I hung on to it; and as one of the skips came along I got into one of the skips.
852. Did you see any fire on the road? Yes, and I saw fire in the stoppings; but we could not take much notice.
853. Was the fire in any considerable quantity? It looked as if a few hot cinders had been thrown out of the grate. It was scattered towards the right-hand side. As far as I can say, the fire was about 20 yards ahead of the skips, and 200 yards from the fire.
854. Did you foresee any danger just previous to the accident? Well, I never saw any danger as regards what did occur.
855. Do you think anyone could have anticipated such an occurrence? Well, I cannot speak for anyone else. But if I had anticipated it I should not have been there. I was under no compulsion to go.
856. Did the owners and inspectors show a reasonable regard for your safety? Oh, yes; as far as I could see. They told us not to run any danger, and frequently told us to be careful.
857. Had you any complaint to make as to the quantity of ventilation or anything else? No.
858. Would you have complained if there appeared to you to be anything wrong? Yes, of course I should.
859. Do you think the inspectors could possibly have foreseen and prevented the catastrophe? No, I do not.
860. Could you throw blame upon anyone for the accident? No; I do not see that I could.
861. Then you think this was a pure and unpreventible accident? Yes, I do; I do not think anyone could have anticipated it.
862. *Mr. Davies.*] At what time did your shift go on that day? At 12 o'clock. Mr. Wilton, Mr. Rowan, and Mr. Campbell were there. I think Mr. Mackenzie was away that day.
863. *Mr. Swinburn.*] Were they there at the change of each shift? Yes.
864. Did you consult with them at any time, or with those that were leading you? Oh, yes. We generally consulted with them as to how the work was best to be done.
865. Did you take upon yourselves the whole of the responsibility? Yes; we took the responsibility, with Campbell for a guide.
866. *Mr. Davies.*] Who did you recognize that you were under at the time of the accident? I considered that we were under Mr. Campbell at the time of the accident.
867. *Mr. Curley.*] Who had charge of your shift? Mr. Kirkwood.
868. Did you ever hear Kirkwood mention anything about the plan of the mine? No.
869. Or discussing the plan with the manager or inspectors? No, not in my shift.
870. *President.*] Did I understand you to say that Campbell engaged you to work at these operations? No, he did not engage us; but we were working under him.
871. Would he not select the leaders if he were your boss? Of course he would.
872. Do you know whether the men agreed to give their services for a week for nothing? No. I know that I did not. I believe I heard so.

873.

873. The owners did not accept of your generosity—they paid you? Yes.
874. *Mr. Jones.*] Have you any knowledge of any pillars being taken out at any place other than the left-hand side? No.
875. *Mr. Curley.*] Where was the locality of the fire you have referred to? It was to the left of the boiler.
876. How far from the boiler? About 5 or 6 yards.
877. *Mr. Usher.*] Did you ever observe that any of the pillars were less than 1 chain in width? No, I never did.
878. You never saw any half a chain thick? No.

Mr. C. Norwood. 4 May, 1886.

WEDNESDAY, 5 MAY, 1886.

Present:—

The PRESIDENT,	Mr. SWINBURN,
Mr. USHER,	Mr. CURLEY,
Mr. THOMAS,	Mr. DAVIES,
Mr. NEILSON,	Mr. JONES.

Thomas Rodham sworn and examined:—

879. *President.*] What are you? I am a miner, and have been employed in the Lithgow Valley Colliery for four years.
880. Have you worked as a miner in any other collieries? No.
881. At what bords have you worked in the Lithgow Valley mine? I have worked in the rise heading (Tyndall's); at Sam's heading (represented on the plan as the return air-course); I have also worked in the cross-cut where they are going to start now.
882. Where were you working before the accident? Within a chain of the main heading where the skips come up.
883. Contiguous to the tunnel face? Yes.
884. What was the last day you worked in the mine? On the Saturday, and left off at 1 o'clock.
885. Did you observe anything strange in the ventilation? Not in the least.
886. Did you notice anything in passing the boiler? No.
887. Nothing unusual? No; I noticed nothing different from any other day.
888. In passing to your work in the situation you have described, did you ever notice any smoke over the boiler on Monday mornings early? There was always a little in the morning when the fire was damped out, but we never took any notice of it.
889. Have you ever known that smoke to be carried round the workings? No, it never came round to us.
890. Did you take any part in rescuing Doig and his companions? Yes; I went up the rise heading that is next to the second cross-cut.
891. How did you get into the rise heading? We broke a stopping in the main tunnel.
892. Was Mr. Turnbull on the scene before you went down? No.
893. Who went with you? Charles Norwood, Mr. Campbell, and Langford.
894. What did you do when you broke this stopping? When we came to the air-course we turned to the left, and then to the right, until we came to Lewis's heading, and then on to Tyndall's heading. When we got there the air was fairly clear, and was travelling out round from the main drive.
895. Were you one of the parties who found Doig? No.
896. Did you take any other part in this investigation? No, not until we started to put the fire out.
897. Were you one of those who volunteered to make the attempt? Yes. When it was determined to close up the mine we held a meeting opposite to the pit. We came to the opinion that we could put out the fire, and we went to the office and told the owners that we would work for nothing for a week in trying to put it out. They said they could not give us leave unless they obtained permission from the inspectors. They then interviewed the inspectors on the subject, and permission being obtained from them to open the mine the men formed shifts and appointed leaders.
898. Did you apprehend any danger in connection with this work? Not in the least.
899. But supposing any danger to exist, did you agree to take the risk of it? Yes, or we would not have volunteered to work for nothing.
900. What bargain did you make with the proprietors when you volunteered to do the work? That is all the bargain we made.
901. In the course of your operations, did you obtain from the proprietors everything you wanted in the shape of materials? Yes, everything.
902. Well, when you got down to the seat of the fire, did you observe that anything unusual had taken place at the main tunnel? Nothing but the falls at the top.
903. Was not that unusual? Oh, yes.
904. Was it a large fall? Yes, it blocked up the tunnel, and the ventilation seemed to be stopped.
905. Did you ever direct your attention to the underground boiler? Yes, and have passed and repassed it hundreds of times. I believe there was one fire in its vicinity some time ago.
906. Did you see it? No, but I heard of the men putting it out.
907. Do you know if it was of a serious nature? No.
908. Did it ever occur to you that this boiler was a source of danger? No; I never thought it was dangerous.
909. Did you see any fire at the fall of coal? The coal was not burning in my shaft.
910. Do you know whether it was burning? I cannot say.
911. Did you in passing that boiler ever look up towards the left-hand? No; I saw fire to the right of the boiler when I was working there lately, and I have seen fire on the left and parallel with the main tunnel when going up that way.
912. Coming to the main tunnel, and for days before the accident took place, did you see any fire on the side of the main tunnel? No.
913. Did you hear of any fire being discovered in the main tunnel? No.
914. Did you form one of the shift that was on when the accident occurred? No; I was not on that shift.

Mr. T. Rodham. May, 5 1886.

Mr. T. Rodham. 5 May, 1886

915. When you were working down at the face of the tunnel, did you hear any sounds as of falls? No.
916. During the progress of your operations, did your inspectors and owners visit you? Yes; the inspectors used to visit us regularly.
917. Did they remain any length of time? They would remain in ten minutes or a quarter of an hour, perhaps.
918. What did they do? Well, I suppose they were looking after our safety.
919. Did they seem anxious for your safety? Yes; the owners were in every night when we were working at the fire.
920. Did they seem anxious so promote your endeavours? Yes; they did everything they could, and told us not to run into any kind of danger.
921. Was Mr. Campbell, the manager, also present, and if so, what part did he take? He went in with us, and worked along with us many a time.
922. Well, as to the supplying of materials, and the attendance of the inspectors, owners, and manager, was everything done that could be done to assist you in carrying out the work, and to secure as far as possible the safety of the men? Yes, undoubtedly.
923. Have you had any experience of poisonous gas? No; I have been twenty-five years in mines, but never had any experience of that kind.
924. Were you thoroughly satisfied with the ventilation of this mine, and with the character of the stopping? Yes.
925. And you did not think this mine a dangerous one to work in? No; I thought it one of the safest mines I ever worked in.
926. During these operations for extinguishing the fire, did you ever hear any sound of a fall in the roof? There was a bit of a fall straight ahead of us.
927. But not in the old workings? No.
928. Have you ever heard whether a large portion of pillars towards the left of your operations had been removed? Not to my knowledge.
929. But they might have been removed without your knowledge? Yes, they might have been removed, but I think not during the time that I was working there.

Archibald Durie sworn and examined:—

Mr. A. Durie. 5 May, 1886.

930. *President.*] What is your occupation, Mr. Durie? I am a miner.
931. How long have you been following that occupation? About seventeen years; I have been coal-mining ten years.
932. Where have you been working as a coal-miner? In Newcastle, and in the Lithgow Valley District.
933. Are you a native of the Colony? No; I am a native of Scotland, and was born in Stirlingshire.
934. What part of Newcastle were you working in? In Minmi, Woodford, and Greta.
935. In the course of your occupation as a coal-miner, have you ever had experience of fire-damp? No.
936. Or choke-damp? Well, no, not till the late accident.
937. Did you see any fire-damp at Minmi? No, not while I was working there. I did see it once when I was on a visit there—my uncle showed it to me. He had a safety-lamp with him, and it filled with fire.
938. What appearance did it present? It showed a red flame.
939. How long have you worked in this district? About three years and ten months.
940. In what mines have you worked here? Only in the Lithgow Valley Colliery.
941. Have you ever been down any of the adjoining mines? No.
942. Then your experience of the Lithgow District is confined to the workings in the Lithgow Valley Colliery? Yes.
943. Were you employed as a coal-getter in that mine? Yes, for the last three years.
944. In what portion of the mine did you last work? Down in the lower workings.
945. Did you draw a cavil over all the districts in the mine, or only a certain section of it? We cavilled over the whole mine.
946. Have you been working all over the mine? Yes, with the exception of these two cross-cuts.
947. Then you have never been working in No. 1 or No. 2 cross-cut? No.
948. But in all the others? Yes; I worked in every other heading in the pit excepting those.
949. What width were you instructed to drive the working bords? From 7 to 8 yards.
950. And leave what thickness of pillars? I believe they are supposed to be a chain.
951. Have you ever known the pillars to be of a lesser width than that? No; I cannot say so in any bords that I have been working.
952. Then you have never seen pillars of a less width? No.
953. Have you ever seen evidence of crushing in any of these pillars? No.
954. Have you ever seen choke-damp in the working places of Lithgow Valley Colliery? Never bad enough to put the light out; I have seen the air very thick at times down in the dip workings, about 100 or 150 yards off the main road.
955. What were the stoppings composed of? Of slack.
956. Were they carefully put in? That I cannot say—I never put in any of the stoppings.
957. Did it ever occur to you that they were carelessly put in? I think some of them were not very strong. They required trimming up now and then at the top.
958. Did you ever complain of these stoppings to the manager? No; I did not think it necessary.
959. Did you ever notice the Government Inspector paying official visits to the mine? Yes; I have seen him several times where I was working.
960. Then this impression as to the ventilation was not strong enough to induce you to complain to the manager or the inspector? No; I did not consider the ventilation was bad enough for that.
961. Have you ever had occasion to complain of the ventilation in any of the places in which you were working in this colliery? No. Sometimes the air would be a little dull and thick, but if any mention were made of it additional ventilation would immediately be put on. If any complaint were made to the manager the subject-matter of it would be at once attended to.
962. Did you think this mine a well-managed mine? Yes, I did.
963. Did you think it was in any way a dangerous mine to work in? No; on the contrary, I thought it was the safest mine I had ever worked in.

964. Had you ever seen smoke in that portion of the mine you were working in, to the extreme right? No, never.
965. When did you last work in the mine? About four or five days before the accident; I was off through sickness on the day of the accident.
966. Then you were not working on the day of the accident? I was not working on the Friday or Saturday. The accident happened on Sunday.
967. In going to and from your work, did you pass the position of the underground boiler? Yes.
968. Had you the curiosity to inspect it? No.
969. Have you never been in there? No; I was at the colliery when it was being built, but I did not inspect it.
970. Do you know whether the bottom coal was lifted when the boiler was being built? I do not think it was.
971. Have you ever been round the sides of this boiler since it was built? I was about half-way round by the side of it. There was a canvas door which the men had to go through to clean the flue at the back. I remarked that it was too hot for me, and went out; that was not long after it was built.
972. Do you know as a fact whether the top coal was taken down? I know as a fact that it was not.
973. Did you ever go into the flues when the boiler was being built? No.
974. Do you know whether the tops were taken down there? No.
975. Going down the main tunnel and looking towards the boiler, could you see the fire? Oh, yes.
976. I believe there was a brick wall built in the line of the tunnel—is that so? Yes.
977. And there was a doorway there? Yes.
978. Was there a wooden door hung there? Yes.
979. Was it kept open or shut? It was mostly kept open.
980. You are quite sure about there being a door? Yes.
981. Was that door there three or four days before the accident? I cannot speak with certainty as to that. I was there when it was put up shortly after the boiler was built, but I have not seen it closed for a long time.
982. Was the canvas door that you have referred to air-tight? It was like a little trap-door that a man could crawl through.
983. Have you heard of a fire or fires having occurred at this boiler previously? I never heard of anything of the sort until the first accident, and then I saw it in the papers.
984. But have you never heard any of the men make a remark about a fire having occurred at that boiler before this accident? Well, yes, I believe I did hear a man say that he got scalded in putting out a fire there.
985. Did you ever suspect any danger was likely to arise in connection with this boiler? No, I did not.
986. I understood you to have said that you never assisted in constructing the stoppings in this mine? No, I did not.
987. Did you consider that these stoppings answered the purpose of stoppings in directing the ventilation? Well, so far as my opinion goes, I considered that they should have been constructed of brick.
988. Where had you seen brick stoppings? At Minmi; in fact, I never saw any others until I came here.
989. But you have never complained of the ventilation or of the stoppings to the manager or to the inspector? No.
990. Well, did you consider the ventilation of this mine sufficient? Yes; as a general thing, it was well ventilated.
991. Then if the ventilation was sufficient, is the lesson to be drawn from that that the stoppings answered or did not answer their purpose? They answered their purpose certainly.
992. As a matter of fact, then, the ventilation being sufficient, you did not see any cause for complaint—is that the correct way to put it? Yes.
993. How far back from the last stopping was your working place? That I cannot say; it would take about a week to work through where I was working, and then the air would be better.
994. [Further questions on the subject were answered by the witness, and dictated thus by the Chairman:—It was shown on a sketch that the witness was working in a bord that in a few days would have holed through in another working place, which would have conducted the air through his road and rectified the ventilation.]
995. *President.*] When did you become aware of the accident of the 14th February? On the Monday morning; a little boy came to my place and told me there was something wrong in the pit.
996. Did you take any part in carrying down the air under the direction of Mr. Turnbull? No.
997. Did you take no part in connection with the operations connected with the first accident? No; I had nothing to do with the operations until the brickwork was taken out. I was working at the furnace, and worked a shift on the Saturday night. Very little progress was made on account of the smoke and damp.
998. Did you continue working until you got to the proximity of Tyndall's heading? Yes; we kept on working until we came to within about a chain of it; then we could see the fire right in front of us, in the middle of the road. We were stopped then. I forget what happened, but I know that it was a good bit after that before we got to Tyndall's heading.
999. Was it not determined to abandon the mine? No, not at that time.
1000. Do you remember what stopped your progress at that point? I am trying to recollect. I do not exactly remember whether it was then they put the steam on or not. In my opinion the application of steam was not a success.
1001. Well, Mr. Durie, for some reason it was determined to close up the mine, and the men did not approve of the proceeding, the result being that a meeting was held at the mouth of the pit—is that correct? Yes; the men agreed to try and put the fire out. Seventeen of us went as a deputation to the owners; we saw Mr. Gell and Mr. Busby, and I told him that we could put out the fire, and that we would do it for nothing if he would find us the materials to work with.
1002. Did you consider that you ran any danger in carrying out these operations? No, not in the least.
1003. But supposing there actually was risk and danger to be apprehended, were you prepared to take the responsibility? It would depend upon how much the danger was.
1004. But you were the judge of it? So far as we could see, I did not see any danger.
1005. Well, supposing that danger did exist, and you could not anticipate it, did you undertake the responsibility? Yes, we undertook the responsibility; I did for one.

Mr. A. Durie. 5 May, 1886.

1006. In the prosecution of your endeavours to put out the fire, how did you arrange the shifts? There were eight men on each shift of six hours, with a leader on each shift.
1007. Can you mention the names of the leaders? Gilbert Kirkwood was the leader of our shift; John Gibson, senior, was leader of the shift that relieved us; then there was John Davies and either John Gell or Joseph Williams.
1008. Then the shifts were arranged by yourselves? Yes, they were arranged by ourselves; they all worked harmoniously together, and with a common object.
1009. After thinking this matter over, Mr. Durie, can you suggest anything which might have been done during this time to avert the disaster? No, I cannot.
1010. Did the owners provide you with all necessary material to aid you in your attempt to extinguish the fire? Oh, yes, we got everything we wanted. Mr. Wilton was advised that steam was the best agent to put out the fire, and they put steam on, but it did not answer, that is, it had not the effect that was expected, and we afterwards tried water.
1011. Do you attach blame to any one? No; we had everything we required to make the attempt.
1012. Well, you got down in the course of time, and recovered the ground you had lost? Yes; we reached the seat of the fire; we reached Tyndall's heading.
1013. Could you see whether the stopping was tight? No; the previous shift reached it first, and the fire had reached up to it.
1014. Did you, on going down to the boiler, notice anything opposite to it in the main tunnel? Yes; there was a heavy fall there which obstructed the tunnel; it reached close up to the roof.
1015. Did you observe any smoke and air going over the fall? No.
1016. Do you know when this fall took place? No.
1017. Was it there when you arrived at the seat of the fire? Yes; and we heard several small falls in the main heading from time to time.
1018. When you got down to the seat of the fire, what course did the return air take? It went round by Tyndall's heading, where we took down the stopping; a portion returned by the boiler. The same day that the stopping at Tyndall's heading was taken down I knocked out some brickwork on the boiler side, and found the smoke coming out thick. We saw the fire right over the boiler in the return—in the flues; it was burning briskly; there was fire to the left-hand side; it was all over the top of the boiler, and covered the whole space of the bord that had been cut out for the boiler. The fire seemed to be burning on the top-coal.
1019. Did you direct your attention to the left-hand side of the tunnel, a few yards up from the boiler? Yes; we were filling from the large fall in the tunnel and from the side of the boiler at the same time, and half a chain back from the boiler, and further up the tunnel, a fire was observed through a little hole in the stopping.
1020. Do you think that this fire you mention had eaten its way up through the pillar that had been split opposite the boiler? When they cleared the stuff from the left-hand side of the boiler they opened a stopping and could see the fire distinctly burning up towards the mouth of the tunnel.
1021. What progress had you made when this fall took place on the day of the accident? We had got down rather more than a chain, back from the boiler. A fire was found here by another shift the night before the accident; the whole of the bord was one mass of flame; we opened it up and cut through the top-coal which was burning, but we could not play the hose on it as it was eating towards us; they therefore cut through the tops in order to get the hose to operate, and they could then see fire for about a chain in any direction they liked to look. We extinguished the fire where we discovered it last, and then put it out in the one next to that, and we then played the hose over the boiler; but we had to clear away the stuff in the straight-down. An air-tight canvas stopping was placed in the cut through where the last-mentioned fire was smothered, and also in the cut-through a half a chain below that, where they had discovered the fire a few days previously; attention was then directed to the removal of the fall in the centre heading with the object of taking the ventilation current away from the fire. The next proceeding was just a few minutes before the accident; the men were about three-quarters of a chain from the boiler, preparing to erect the canvas in front of it to take the air off that side altogether; one man was at the hose, others were at the brattice, and there were four of us at the pump; Kirkwood, the leader, being seated alongside of the pumps; he had just risen with the object of going out of the mine when there was a loud report, and all our lights were blown out; the report sounded like that which would be produced by a heavy fall, and it seemed to me at the time to come from about the middle of the tunnel, behind us; but we found out afterwards that it was not so, for in that case of course we could not have got out.
1022. Well, after that, what happened? Kirkwood sang out, "Come on, boys, there is something wrong," and we all ran, and had got about 25 yards when there was a second report—a very loud one, like a cannon going off.
1023. Did you think it was in the same direction as the other? Yes, it seemed to come from the same direction. When I first heard it there was a strong pressure of air coming in, and when the second report sounded it seemed to be very close; a powerful rush of wind followed, and I expected to be blown off my legs; that lasted about two or three seconds; I then ran again, and when I had got about 25 yards further the air became very thick and I could scarcely breathe, and it was then I sang out for them to run. We kept on, and some one sang out to get into the skips; several of them got in, and some one pulled the rapper-wire, which I heard fly back. I afterwards got out of the skips and pulled the rapper, but it did not work, and then one of the Mantles sang out, "Come on, boys, let us try and save ourselves." We then proceeded to go out—William Mantle was first, Tom Mantle second, I was third, and Kirkwood was fourth. I knew the positions of the men from their voices; I did not hear the voices of any of the other men. Kirkwood ran against me, and I heard his matches rattling; and William Mantle said, "Do not strike a light whatever you do."
1024. Did you think there was fire-damp in the mine? No, I never thought it was fire-damp.
1025. Did you think anything at the time as to the cause of this phenomenon? Yes; I thought it was a heavy fall right across the main tunnel, and that it would block us in. Mantle seemed to be of the same mind, by what he said afterwards. We had got about 20 or 30 yards from the skips when I fell over Tom Mantle. I said, "Are you all right?" and he replied, "Yes," and I never heard him speak after that. We then saw fire, and I said to Bill Mantle, "We are done for," and he replied, "Yes, I am afraid we are cooked." I thought it was the tail-end of the fall. When I came up to the fire I made a rush

to

to get through it, as there appeared to be a streak of better air beyond. After that, we got down low, and crawled along; I believe it was assuming that position that saved our lives; I think the other men must have kept on their legs too long.

1026. *Mr. Davies.*] Then you found relief when you got down near the ground? Yes; I found I could breathe better. When I had gone a little further I felt someone coming up behind me, and it turned out to be Jack Duncan. I asked him if any of the other men were following, and he replied that he did not know. I crawled out then, and met Campbell and George Rowe coming in.

1027. *President.*] Then did William Mantle get out before you? Yes.

1028. Do you say that you met Campbell and George Rowe? Yes; at least I thought those were the men I met, but I have been informed that I was wrong.

1029. You say that in going up the tunnel Mantle called your attention to some fire. When you got up to that fire, what did you find it to be—was it coal burning? Yes, red coal, like what would be taken out of a fire-place. The fire was about 3 or 4 inches in depth.

1030. Can you say what position in the tunnel it was in? I reckon it was about 250 yards from the boiler.

1031. About 10 chains? Well, I am only guessing. It seemed to be at the particular spot where the tops had been cut up to the rock.

1032. You have told us that your first impression was that it was a heavy fall in the centre of the tunnel? Yes.

1033. And you discovered that that was not the case? Yes.

1034. Have you since formed any opinion as to the cause of this catastrophe? Yes; I believe it was an explosion.

1035. Of what? Of gas of some kind; I cannot say what.

1036. Could it not have taken place from a fall? Yes; I have seen heavier falls than that.

1037. Would it be reasonable for any other person to have an opinion that the accident was the result of a fall? Oh, yes.

1038. Can you give us your reasons for thinking it was not a fall? I could not see where a fall could take place back there and bring the fresh air in from the mouth of the tunnel.

1039. But it appears that a force was applied to the ventilating current at some point between you and the daylight. Would not that accelerate the ventilating current? I suppose it would.

1040. Did you observe that the stoppings were blown down as you came up the tunnel? No; I did not.

1041. But you have heard since that they were blown out? Yes; I know since that several stoppings were blown out on the left-hand side.

1042. With the knowledge before you that these stoppings were blown out, do you not see a reason for the return of the air after the first rush? The only reason I can see is that when the fresh air struck up against this fall it rebounded on to us. It seemed to me that the air went about half a chain out of the tunnel before it started to come back again, and took its regular course.

1043. Then the fresh air was going in the tunnel in its regular way, but a considerable portion went into these stoppings? Yes.

1044. The effect of that would he to draw the smoke and damp up to the point where the air was gaining access? One portion was driving the noxious gas down on to us.

1045. If the stoppings had not been knocked out, would the effect have been different—that is, could the men have got out? Yes, I am quite sure of that. If the stoppings had not been blown out, and made a passage for the foul air, we should have had no trouble.

1046. In other words, Mr. Durie, the carbonic acid gas was pouring out of the stoppings, and the air current was driving it in front? Yes.

1047. And you were meeting this current which was charged with and poisoned by the noxious gas? Yes.

1048. In your opinion, could this accident have been foreseen? No; I do not think it could have been foreseen.

1049. Did you ever anticipate any danger? Not in the slightest. The only danger I anticipated was from the roof, which we could not see for the smoke.

1050. During the progress of the operations for extinguishing the fire, did the owners show reasonable concern for your safety? Yes, they did so; they could not have been more anxious and careful.

1051. And can you say the same for the inspectors? Yes; I have heard Mr. Mackenzie warning us several times, but Mr. Rowan was there more often than Mr. Mackenzie, and he (Rowan) was continually warning us. Mr. Wilton was frequently in the mine.

1052. Did the inspectors seem to understand the serious import of their duty? Well, that I cannot say—I do not know what their qualifications are.

1053. Still you say that they frequently warned the men against running into danger, and that of course would be a part of their duty? Yes.

1054. Do you think that this accident, from whatever cause it arose, could have been foreseen and prevented? No, I do not think it could.

1055. And you do not think the inspectors could possibly have anticipated the catastrophe? No; I do not see how they could.

1056. Do you think everything was done that should have been done for the safety of the men? Yes; both the inspectors and the proprietors were particularly careful.

1057. Have you any complaint to make against any one in reference to this catastrophe? None whatever.

1058. *Mr. Neilson.*] In creeping out of the mine on the occasion of the accident, was the air hot above and cool below? It seemed to be about the same, very hot above and below; I thought my inside was burned out.

1059. *Mr. Curley.*] When it was resolved to grapple with the fire, was the plan of the mine produced previously—I mean amongst the men and the inspectors and the proprietors—with a view of discussing the system of ventilation, the nature of the returns, &c.? No. I never saw the plan until Mr. Fletcher showed it to me when he came up after the accident.

1060. *Mr. Usher.*] You have made a statement with respect to seeing fire at different places in the tunnel—how long do you think it would take for the fire to get such a hold as that? I can scarcely answer that question. We know it would take some weeks at all events, and we know for a fact that it had been burning six weeks. When we opened these two stoppings half a chain and a chain back from the boiler the fire was travelling at a great rate: it was like looking into a coke oven or a blast furnace. The first fire, when we got down to it, would not more than cover this table.

Mr. A. Durie. 5 May, 1886.

1061. *Mr. Jones.*] When coming out of the tunnel, did you notice how far these red coals extended up the tunnel—I mean the live coals that you noticed on your passage out, and which you say were about 3 or 4 inches in depth? They extended for about 10 yards, I think; they were scattered all along the road.

1062. *Mr. Swinburn.*] Did you ever travel from the left-hand furnace in the return towards the boiler? No.

1063. Do you know anything about the return at all? No.

1064. Are you aware whether any pillars were taken out on the left-hand side of the tunnel? Not that I am aware of.

1065. Can you give any reason why such a big fall should take place if there were no pillars taken out? No, I cannot; when I said it was a fall in the early part of my evidence I explained that it was only the impression made upon me at the instant; I have since thought it was an explosion.

1066. Where did you think the explosive gas came from? I thought it was gas generated by the burning fire.

1067. *President.*] Supposing you were assured that a large area of pillars had been removed in the position where you heard these falls, would it cause you to alter your opinion? Yes, it would, but not otherwise.

Wm. Tait sworn and examined:—

Mr. W. Tait. 5 May, 1886

1068. *President.*] What is your occupation? I am a wheeler; I have been twelve years in the Lithgow Valley Colliery; I have been four years a wheeler; before that I was a miner.

1069. Have you ever worked in any other collieries? Yes; I have worked as a miner in the Eskbank, Vale of Clwydd, and Bowenfels.

1070. Generally, is the mode of working coal in Lithgow Valley Colliery different from that adopted in the adjoining collieries? No; I do not think there is any difference.

1071. Is there any difference in the stoppings used in this mine from those used in the adjoining collieries? No, I think not; I have helped to put the stoppings in; they were carefully put in, and could not have been better constructed.

1072. Did you find the ventilation good in the workings where you were engaged? Yes. I had no fault to find, and I never heard any of the other men making any complaint.

1073. Have you seen this underground boiler? Yes.

1074. Have you examined it? I have been in the back part of it; I did not see anything particular; I did not notice whether the tops were down; I was in the right-hand return, but not the left.

1075. Did you ever hear of a fire having taken place at that boiler before? Yes; I have heard of a fire being there, and that it was put out.

1076. Did you ever hear whether the bottoms were taken out? No.

1077. When were you apprised of the first accident? On Monday morning, at twenty minutes to 6 o'clock; I was in the stable when one of the men came to me and said I had better not take the horses in as the place was full of smoke. I said to my mate, "We had better go in and see what is the matter." On going to the pit I went in to a distance of about 300 yards from the mouth of the tunnel, passed the second cross-cut, the air there being quite clear. We found some difficulty when we attempted to get down beyond the smoke; we heard that the late manager and Younger and Rowe were in the direction of the second cross-cut; meantime Martin come out and said John Doig was found. At the request of Mr. Turnbull, I then agreed to lead a party to go round the old workings, to seek for the other men; I took six men, and sent a party of seven with a man named Sheedy; I went up No. 2 cross-cut to the last stopping, and within 20 yards of the face; I went straight down the return, and when down 200 yards the other party came up, and as our lights met they shone upon the bodies of Younger and Rowe.

1078. Was Hall with your party? No; I do not believe he was there at all.

1079. Were you employed in any other way in the mine? I was engaged in trying to put the fire out.

1080. Individually, did you consider there was any risk attached to that work—was there not danger to be apprehended? I could see no risk.

1081. But whatever risk there was, or might be, did you agree to accept that risk? As an individual I did not suppose there was any risk; if it did exist it was unknown to me. I was not prepared to take any risk, because I could not see any danger.

1082. Do you mean you could see no danger whatever? Well, I could see a little danger, but I would not go into it. For instance, I saw a certain amount of danger in the rock overhead, but I tapped it with my bar, and if necessary it was taken down.

1083. Did you see the fall that extended up the main heading? Yes, the heaviest portion of it was right opposite the boiler.

1084. Would you think that fall blocked up the tunnel? In my opinion it did; the smoke was not going over the top of it.

1085. Did you direct your efforts towards the boiler? Yes.

1086. What did you see there? Coal and rock had fallen there.

1087. Was there any fire? Yes; we put it out, and sent the stuff away in the skips.

1088. Did you observe any fire in the direction of the old workings? Yes, both straight down and to my left.

1089. How far to the left did it extend? About a chain I consider.

1090. After that, and going back into the tunnel, did you see or hear of any fire to the left of the tunnel? Yes, we went back about a chain and opened a stopping, and there was fire in there as far as the eye could reach. I did not hear of any stoppings being opened further back.

1091. Had you any reason to complain of the amount of ventilation supplied to you while you were at work? No; it was a little warm, of course, down at the fire, but that we anticipated naturally; the air was perfectly good outside the brattice.

1092. Did you think any danger was likely to arise? No.

1093. Did you hear any falls occurring at this time to the left of the tunnel? I heard falls both straight down and to the left of the tunnel.

1094. Can you localize the position of this fire you saw burning; was it on the top of this large fall, or did it extend further? It was extending upward; it was straight over the fall; I consider the top-coal was burning and falling down.

1095.

Mr. W. Tait. 5 May 1886.

1095. Have you known a fall similar to that in your experience? I have known a great fall of tops in the Eskbank pit.
1096. Did you see the bodies of the men who were taken out of the pit after the accident, and if so, what appearance did they present? I saw no signs of burning except upon Allison.
1097. Might not the marks upon Allison have been caused by other means—might they not have been bruises? Well, I may have been mistaken. Yes, they might have been bruises. I did not notice that the hair was scorched. I knew Hyde; his body showed no signs of bruises; the face looked just the same as if he had been asleep. I believe all of them had some marks on them except Hyde; Tom Mantle had one on his right temple.
1098. Well, did you go into the tunnel to recover the bodies? Yes; I saw Henry Grant at the mouth of the tunnel; he said he thought it was an explosion.
1099. Did he say what happened to him? No, he did not; we stayed there till the skips started, and five skips came out.
1100. What did you do then? We went into the tunnel; the air was very thick; we got down to within 50 yards of where the bodies were found. The first man we came to was William Mantle, a living man; he was struggling along the road, and we fetched him out. I then ran in and put a stopping upon the left-hand side, thinking that would be the best means of driving the air down to the men, and I helped to put up four more; while I was putting up the stoppings the other men passed me; I heard someone say, "Here they are!" The air by this time had very much improved.
1101. *Mr. Curley.*] Who was the manager of your shift? John Gibson was supposed to be leader, but he was bad and could not attend, and I believe Rodham was acting in his place.
1102. Previous to your commencing operations to grapple with the fire, did you know anything of the plan of the mine? No; I never saw it.
1103. Was the mode of operations ever discussed between the management or the inspectors and yourselves? Not that I am aware of.
1104. *President.*] Do you know the geography of the mine? I believe I know the mine pretty well.
1105. You are not a surveyor? No.
1106. But you have an accurate knowledge of the geography of the mine? Yes, from one end of it to the other, where I have worked—on the right-hand side.
1107. *Mr. Jones.*] You have worked in various bords? Yes.
1108. Do you know of any pillars having been taken out in any direction? I have no knowledge of any removal of pillars; I believe they were split down behind the boiler.
1109. Have they been taken out or split in any other part of the mine? I do not believe any were taken out to the right-hand side.
1110. *President.*] Could they have been taken out without your knowing it? Oh, yes, that is quite possible.
1111. Or before you entered the employment? Well I would not say that, because the tunnel was not 50 yards in when I commenced.
1112. Do you know of any pillaring having taken place towards Eskbank? No; I believe, though, there were some pillars split to the left of the boiler.
1113. Would that weaken the pillars? Yes.
1114. *Mr. Curley.*] Do you know whether both furnaces were kept going during these operations? Yes, I believe they were both kept going; in fact I may say that I know they were.

John Dixon sworn and examined:—

Mr. J. Dixon. 5 May, 1886.

1115. *President.*] You are an Inspector of Collieries, Mr. Dixon? Yes; I am Inspector of Collieries for the Northern District.
1116. Would you state, Mr. Dixon, what has been you experience in coal-mining? I have been engaged in mining for about thirty-three years. I have had experience of coal-mining in the north of England, in a place called Haswell; that was a fiery mine.
1117. Then in this Colony, how long have you been connected with coal-mining? Well, I daresay I have been engaged in and about the mines for about twenty years.
1118. When were you appointed inspector? In 1882; about four years next June.
1119. In the discharge of your duties as inspector, did you ever visit the collieries in this district? Yes.
1120. How often? Only twice before Mr. Rowan was appointed.
1121. You inspected officially the different collieries in this district—will you name them? The Bowenfels, Lithgow Valley, Vale of Clwydd, and Eskbank.
1122. Generally speaking, was the Lithgow Valley Colliery constructed on much the same style as the adjoining collieries as regards the mode of ventilation and character of the stoppings? Yes.
1123. And also as regards the size of the pillars and width of the bords? Yes.
1124. Then it was in no way singular in comparison with the other collieries of the district? No; I did not remark anything singular about it.
1125. In the matter of ventilation, for example? I had no fault to find in that respect.
1126. How long is it since you last visited the mine? It must be something over three years.
1127. Are the stoppings that direct the air current similar in construction to those employed over the whole district? So far as I can remember, yes; I think I only went in twice.
1128. Can you tell us the general thickness of the coal-seam? The coal-seam worked in Lithgow Valley is about 6 feet; of course there is the top-coal; that would be about 3 or 4 feet; on the floor there is a foot of wild coal, and then you come on the hard rock.
1129. Above the top-coal, what is there? Conglomerate.
1130. No bands of shale and sandstone? No.
1131. While you were inspecting the district, in what part of the Lithgow Valley Colliery were the workings centred? Principally what I would call straight down; there was only about one split there straight down in the main tunnel.
1132. Were any workings started towards Eskbank at that time? I do not know; the working was straight, so far as I can remember; but only having been twice there I could not be expected to get a very good grip of things.
1133. Do you consider the Lithgow Valley coal-seam to be of an inflammable nature? No; I never heard of it, or came across it.

Mr. J. Dixon. 5 May, 1886.

1134. Is it a gassy coal, in the sense of coal-seams, such as you worked in when you were a boy? No.
1135. I mean does it give off light carburetted hydrogen or fire-damp? I should say not.
1136. Have you ever heard that carburetted hydrogen gas had been seen or heard of in connection with this mine? I have never heard a breath of it.
1137. Would you be surprised to learn that it has been seen? I should be very much surprised, according to the nature of the coal.
1138. When you visited the Lithgow Valley Colliery, were your visits of such a nature that you would be likely to have seen fire-damp if it existed? Yes; I have been in every working place and part of the return, and I think I should have found fire-damp if it had been present.
1139. Have you ever received any complaint about the condition or ventilation of this mine? Not a breath of complaint from any source.
1140. Had you ever any cause to complain about its condition or ventilation? Never. I found it a very nice little mine, and one easily worked, that is without any special difficulties.
1141. Do you consider it was a dangerous mine to work in? Not at all.
1142. Did you know Mr. Doig, the late manager? Yes; I knew Doig for many years.
1143. In your opinion, was he a capable manager for the mine? Well, he was a man who had had a good deal of experience in this district.
1144. Was he a careful manager? I always found him a careful man.
1145. Was he a man who considered the safety of the men? I believe he had the welfare of the workmen at heart.
1146. So far as you know, did he enjoy the confidence of the owners? I think so.
1147. Had you confidence in him? To manage a mine like that I had.
1148. Do you of your own knowledge know whether his requests for material for carrying on the mine were readily responded to? So far as I know, he never made any complaint about that.
1149. Was he sole manager of the colliery? That I cannot say; so far as I know, he alone was manager.
1150. Then, so far as you know, all power was vested in him? Yes.
1151. While visiting the colliery, did you ever have occasion to inspect the plans of the mine? No; I never saw the plans up here; I never had occasion to ask for them here; I have seen a tracing.
1152. When did you see the tracing? I was in Newcastle then, and I think I saw it in the Colliery Record Office with Mr. Mackenzie.
1153. Did you ever direct your attention to the scale of the plan? No, I did not; I know it is not on the usual scale.
1154. Is that an objection, Mr. Dixon? I have no objection to it so far as I am personally concerned.
1155. Are you aware whether the plans were regularly kept up? I cannot say that.
1156. Would that devolve more upon the Examiner of Coal-fields, Mr. Mackenzie? No; as a rule I take the plans round periodically to be kept up, but I cannot say as to this one.
1157. Had you any reason to suppose that these plans were inaccurate? No; such a thing never entered my head.
1158. Did you ever have reason to suppose that the plans were not kept up to date? No.
1159. Did you receive complaints as to the ventilation? No; I never heard a complaint, and I was among the men a great deal.
1160. And, in point of fact, you never did complain to the manager as to the ventilation? No, I never did.
1161. Did you find a readiness on the part of the manager to carry out your wishes? I did.
1162. Then as to these stoppings in this colliery, what are they composed of? Of small coal—slack stoppings.
1163. Are they the same in other collieries in the district? Yes, they are all about the same.
1164. I suppose there is always a large quantity of small coal left in the process of working? Yes, a large quantity in some cases.
1165. And they utilize a portion of the small coal for making stoppings? Yes.
1166. Do you consider these small coal stoppings effectual for ventilating this class of mine? I do not consider small coal stoppings effectual anywhere.
1167. Is it possible to ventilate such a colliery with such stoppings? Yes, it is possible, as proved by experience.
1168. What is your reason then for saying that you do not consider them a proper class of stoppings? My reason is, that the further the workings extend the greater would be the pressure on the stoppings, and there is a danger of a waste of air. I consider that all main-road stoppings should be of brick or stone and plaster.
1169. Have you the power as inspector to dictate to the manager as to the material to be used in the construction of these stoppings? No; I do not think there is a word in the Act as to stoppings.
1170. Do you know any country where inspectors are invested with such powers? I think they are in England.
1171. Are you sure? I think so; I have the Act at home.
1172. Had the underground boiler been fixed when you visited the Lithgow Valley Colliery? I cannot remember that boiler; I have puzzled my head over it a good deal. If I did see it, it has gone from my memory. I do not know where it was fixed.
1173. If you cannot remember having seen the boiler, of course you will not recollect whether you ever inspected it. Did you ever see the flues leading from that boiler? I have not.
1174. Do you consider it safe for smoke and hot gas to impinge against the coal for such a long distance? Not by any means.
1175. Have you any experience of underground boilers? Yes; there is one at work in Newcastle. But it is built up with brick, and there is a well of water to drop the ashes into. The soot is carried upon flat sheets of iron, and is swept up every day. The flue is carried on sheets of iron, and the smoke and waste go circulating with the return. Nothing can get near the roof or sides.
1176. Do you consider it safe? Yes, or I should have something to say about it.
1177. Is the return air-way in the mine you mention regularly travelled? Yes; there is plenty of room; it is the largest in the Glebe, and is very easily travelled.
1178. The brickwork goes from the surface—how far? 8 feet on each side. From the flues there is nothing but the bare coal.

1179.

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1179. When you stated that you considered it unsafe for smoke and hot gases to impinge against the coal pillars, it must be unsafe in the case you have cited? I understood you to say that the smoke came direct out of the chimney out on the coal.
1180. Do you know anything about this underground boiler in Lithgow Valley Colliery? Nothing but what I have heard.
1181. Have you formed any opinion as to whether it is a dangerous boiler. Is it within your knowledge that fires have occurred at this boiler? No, not except the recent one.
1182. If the return air-ways conducting the smoke of the boiler were not regularly cleaned, and the soot caught fire, would that be a source of danger? Undoubtedly it would.
1183. When did you arrive at Lithgow Valley after the accident? On Monday, the 15th February, after the bodies were got out.
1184. Did you assume any responsibility or take any charge? No; Mr. Turnbull had charge when I got up.
1185. Can you describe the position of affairs when you arrived? The operations underway were that Mr. Turnbull was trying to force his way down to the seat of the fire as soon as possible, by means of bratticing; but when he heard that we were on our way he suspended operations till we should arrive to applaud or condemn the action which he had taken. My own opinion was that the fire was not far away, as I believed it had started on the Saturday night, and, if such was the case, if we could only get to the seat of the fire it might be got under. On arrival, however, I learned that somebody had gone into the pit and broached a stopping, and a cry was raised that this man (Davis) was down the tunnel and was lost. Mr. Turnbull then sent in a search party; we followed it for some distance, and while we were waiting for breath these men came out with one lamp between them to the east of the old workings. Davis had done this unknown to Mr. Turnbull or anybody else; the consequence of his action was that the smoke backed up the tunnel; and all the time I was there we were not able to get as far as Turnbull had put in his brattice. My counsel then was to shut the place off, and it was shut off so far as the tunnel was concerned; after this I left, and I was not there again until after the second accident.
1186. Did you see the deceased manager? I did; I was there when he died.
1187. And also Younger and Rowe? I saw Rowe.
1188. What appearance did the bodies present? Well, it is past all power of description to describe what Doig was like. He seemed to be in awful agony, his body being drawn up, and yet he was insensible, as if he was strangling all the time; he was also discoloured in the skin.
1189. What was the appearance of Rowe's body? Quite peaceful, as if death had taken place quickly.
1190. Were there any marks of burning? No.
1191. Do you think it likely that these men died from the effects of an explosion? No.
1192. How do you account for their being in the positions found? I believe, in the first place, that the fire occurred at the boiler on Saturday evening after it had been damped down, and at the time Hall and his father came out the fire had caught hold, inasmuch as one of them turned sick, and had to stoop down in order to get out; in the meantime, from Saturday night till Sunday evening, when Doig and these men went in the smoke had backed away, and when they went in, finding the place full of smoke, Doig probably said—"There is no chance to get along here, let us try some other plan"; and I suspect he went into the second cross-cut; he would naturally conclude that he might by this means get down to Tyndall's heading and reach the stopping there. Then, having got a good distance down, and the lamp going out from want of oil, they, in my opinion, must have lost themselves; meantime, I am under the impression that a stopping must have been broached somewhere down there, and the foul air came through and enveloped them; then possibly Doig, being the younger of the three, struggled away some distance, making for fresh air to the second cross-cut, and that meanwhile the stuff was thickening so fast that the older men succumbed. Doig, as we know, lived for several hours afterwards.
1193. Then, Mr. Dixon, how do you account for so much smoke backing up the main tunnel? We have had evidence that when the operations for putting out the fire had enabled the men to get down to the seat of the fire they saw, and partially removed, a very large fall in the middle of the main tunnel.
1194. Do you think the occurrence of that fall had anything to do with the backing-up of this smoke? Yes, and I believe there was a fall behind the boiler interfering with the left-hand return.
1195. In your opinion, was it an error of judgment on the part of Doig to go off the main in-take and down the return, where, as the pit was full of smoke and choke-damp, you would naturally expect the poisonous gases to be swept round? Yes; the poor fellow is dead, but if you want my opinion, I should say it was an error of judgment; he should have kept out of the smoke at all events.
1196. In other words, as the greater proportion of smoke and damp would be there, you mean to say that his travelling in that direction pointed to an error of judgment? Yes, that is my opinion.
1197. *Mr. Davies.*] You of course formed that opinion in calm moments—Doig was doubtless full of excitement at the time? Of course—I can easily put myself in his place.
1198. *President.*] When did you arrive at the scene of the second accident, Mr. Dixon? The day after it occurred; the accident occurred on the 19th April, a Monday, and I arrived on the Tuesday.
1199. Did you inspect the bodies of the unfortunate men who were the victims of that accident? I saw three of them.
1200. What appearance did they present? Just as if they were in a nice sound sleep.
1201. You do not think they died in agony? No; I do not believe they did.
1202. Have you ever seen people succumb to the effects of carbonic acid gas? I have seen people insensible from it, but not die.
1203. Have you seen the bodies of men killed in an explosion of fire-damp? I have seen them very near dead from such cause; the appearances are very terrible to look upon.
1204. Did the bodies of three men present any such marks? No, none of them.
1205. What appearance would you expect those killed by an explosion to present? I should say they would be charred—burnt to a cinder almost.
1206. *Mr. Davies.*] What about the effects of after-damp? The effects of after-damp would be the same as choke-damp.
1207. *President.*] Did these bodies present any of the appearances of being scorched by fire-damp? No.
1208. You have heard a description of the occurrence that preceded the last unfortunate calamity; to what

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what can you ascribe that blast of air and gas? I have thought the matter out for many an hour since and I have come to the conclusion that it was caused by an immense fall to the north of the main tunnel.
1209. At what particular point would you say? Somewhere in the vicinity of the fire.
1210. Have you ever heard of a similar occurrence? I have been in falls where I was nearly carried off my feet; I may mention one that occurred just before the Lambton miners' strike, in the Newcastle district, when a big current of air came right away from the back.
1211. After a fall, is the current of air readily restored? Yes, almost immediately.
1212. That is one way of diagnosing a fall? Yes, I should say so from my experience.
1213. In your experience, and looking at the accident in a perfectly dispassionate manner (I am aware that you were not present to direct operations at the moment of the accident), do you think that such a disaster could have been avoided under any circumstances? No, I do not; every man carried his life in his hand.
1214. Could it have been foreseen? No; I should say not, under the circumstances.
1215. Had you confidence in the skill of those who were superintending the operations? Yes.
1216. *Mr. Thomas.*] Do you think there is danger of another fall taking place of two or three times the magnitude of the last? Undoubtedly there is danger of another fall.
1217. Do you think the barriers that have been erected are sufficient to resist a heavy fall? I would not undertake to decide; I do not know the thickness of the barriers; I think 27-inch barriers backed up with small coal behind ought to be sufficient to resist almost anything.
1218. *Mr. Swinburn.*] Are there any pillars between the boundary of Eskbank and Lithgow Valley mines taken out do you know? I believe an acre of pillars has been taken out there.
1219. Supposing the Lithgow Valley mine were flooded in order to extinguish the underground fire? I should think the water would tail into Eskbank.
1220. I believe the lower workings of Lithgow Valley are driven to the northern boundary? The lower level goes right in towards Eskbank boundary, and I should think the Eskbank people are also forward to the boundary.
1221. Would you not think there would be a liability for water to pass through say a narrow pillar under pressure? If the pillar were any way thin no doubt it would work through. That is the cause of all the trouble.
1222. *Mr. Neilson.*] Have you had any similar experience in this Colony, Mr. Dixon—as to the fire, I mean? Yes, twice. In Brown's A. A. Company tunnel and Greta.
1223. Was there not a great similarity between the fire at Minmi and this? I think so. It was owing to an accumulation of soot.
1224. *Mr. Davies.*] Two opinions have been expressed as to the cause of this accident, whether it was occasioned by an explosion or a fall. You believe it was a fall. Now, Mr. Dixon, questions have been asked as to the state of the bodies after the accident. Is there any difference in the appearance of a body after death from black-damp and that of a body after death caused by after-damp? I do not think it; there is a similarity.
1225. Then might these men have died from the effects of fire-damp? Certainly not from fire-damp.
1226. I do not mean the immediate cause of death. I am speaking about after-damp? That is a different matter.
1227. *President.*] But after an explosion, Mr. Dixon, I believe a mine presents evidences of that explosion? Yes, certainly.
1228. The atmosphere also gives certain indications. What is the state of an atmosphere after an explosion—is it high or low? It is very high.
1229. What course does the explosion take when there is a reservoir of carbonic acid gas? The blow is against the wind. A vacuum is formed, and then there is an inrush.
1230. I believe you inspected the tunnel as far as anyone could penetrate after the accident. Did you see any evidences of an explosion of fire-damp? No; I saw no evidences of fire having burned or scorched anything.
1231. *Mr. Curley.*] In the event of these stoppings having been built of brick or stone, would that have had a tendency to prevent what occurred? No, I think not; if it had not found vent there the blow would have found vent up the main tunnel.
1232. *President.*] What distance is it from the right-hand furnace to the mouth of the mine? Between 30 and 40 yards, I should say.
1233. And from the mouth of the tunnel to the drum, what is the distance? Perhaps 50 yards.
1234. We have been told that a man was blown from the seat he was occupying at the furnace right out of the tunnel and out into the air as far as the drum, and yet he was amongst the first to go into the tunnel again. Do you think that possible? I do not credit it.
1235. We also have to consider this, that a light structure, such as the gate at the mouth of the tunnel, remained quite uninjured? Such a force of wind would have blown it away, especially as it presented such a broad face to the blast.
1236. *Mr. Curley.*] But you were blown off your feet in the Lambton mine by a rush of air? Yes, but that is different to being blown a hundred yards.
1237. *Mr. Usher.*] Did you pay any attention to the size of the pillars on the occasion of your two visits to Lithgow Valley mine? I did pay some attention. I found all the bords and headings were alike—they were driven about the same width.
1238. If the pillars are of the extent shown on the plan, how could such an extensive fall have taken place? I believe this fire has eaten its way round the pillars and weakened them. I believe it has wound its way round and round and weakened them all the way along.
1239. *Mr. Swinburn.*] Then you think the fire has been there for some time? I do not; but I think it has done its work since February.
1240. Were you ever behind the boiler in the return? No; I do not speak from experience.
1241. *Mr. Jones.*] Did you ever measure the pillars? No, I do not think I did.
1242. *Mr. Swinburn.*] How did the fall bring the carbonic acid back to suffocate those men? If we get a fall through the stoppings here, and get an extra pressure on the lower ground, the carbonic acid gas is pressed in, and by-and-by it comes back; besides which, it was, I believe, working back from the fire to the left-hand working, and it would meet them as the current returned.
1243. Then there must have been a large proportion of the mine locked up without ventilation? At the times

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time I examined the furnace, after the fire occurred, I could see the men labouring as if they had as much as they could do to live.

1244. *Mr. Curley.*] You have just said, Mr. Dixon, that you, as inspector, had no power to compel the proprietors to use other than slack stoppings? Yes, I did say so.

1245. You have read the 25th section of the Act, I suppose? Yes, many a score of times.

1246. Have you ever ordered that brick stoppings should be erected in any colliery when the order was not complied with? I have never used that section for a stopping in the ordinary sense. I have used it many a time, but it can only be applied in cases where there is danger.

1247. The 25th section of the Coal-fields Regulation Act provides:—

Notice by inspectors of cause of danger not provided for by the rules.

"If in any respect (which is not provided against by any express provision of this Act or by any special rule) any inspector finds any mine or any part thereof or any matter thing or practice in or connected with any such mine to be dangerous or defective so as in his opinion to threaten or tend to the bodily injury of any person such inspector may give notice in writing thereof to the owner or agent of the mine and shall state in such notice the particulars in which he considers such mine or any part thereof or any matter thing or practice to be dangerous or defective and require the same to be remedied and unless the same be forthwith remedied the inspector shall also report the same to the Minister. If the owner or agent of the mine objects to remedy the matter complained of in the notice he may within seven days after the receipt of such notice send his objection in writing stating the grounds thereof to the Minister and thereupon the matter shall be determined by arbitration in manner provided by this Act in relation to the special rules and the date of the receipt of such objection shall be deemed to be the date of the reference If the owner or agent fail to comply either with the requisition of the notice given by the inspector when no objection is sent within the time aforesaid or with the award made on arbitration within twenty days after the receipt of such notice or the making of the award (as the case may be) he shall be guilty of an offence against this Act and the notice and award shall respectively be deemed to be written notice of such offence Provided that the Court if satisfied that the owner or agent has taken active measures for complying with the notice or award but has not with reasonable diligence been able to complete the works may adjourn any preceedings taken before them for punishing such offence and if the works are completed within a reasonable time no penalty shall be inflicted No persons shall be precluded by any agreement from doing such acts as may be necessary to comply with the provisions of this section or be liable under any contract to any penalty or forfeiture for doing such acts."

The Witness.—That section only applies where there is danger.

1248. *Mr. Curley.*] That may be your opinion, Mr. Dixon, at all events we have the statement that you have never tested the matter? Never in relation to brick stoppings.

1249. Virtually then you have never tested the power which the clause gives you? Oh, yes, I have, but not in relation to stoppings; if I thought they were dangerous I would, and then the manager could appeal to the Minister.

John Bewick Turnbull sworn and examined:—

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1250. *President.*] What is your profession, Mr. Turnbull? I am a colliery manager, and am at present manager of the Vale of Clwydd Colliery.

1251. Where have you gained your experience? I served my apprenticeship in the North of England.

1252. Have you had any experience of fiery mines? Yes.

1253. You know what fire-damp is, and the effect it will produce? I have seen it, and experienced a little of it.

1254. And carbonic acid gas, and its effects? Yes.

1255. What experience have you had in this district? I have been here about three years.

1256. Have you inspected all the collieries in this district? No; none whatever except my own.

1257. Have you any knowledge of the workings of the Lithgow Valley Colliery? None whatever, only by seeing the plan.

1258. Is the working of the coal-seam in your colliery attended with any special danger? No; there are portions near to the rise where the roof is bad.

1259. What about the dip workings? The roof is good, never saw a better.

1260. Has the seam in the Lithgow Valley mine the same character as the seam in your colliery? I think it has a more tender roof—that is, the top-coal.

1261. How many feet do you work? I am working, in my left-hand district, 5 to 8 feet in the dip workings.

1262. So far as you know, is not the seam much the same as that in the Lithgow Valley mine? It seems to me to be a different class of coal.

1263. But it is the same seam? Yes, the same seam continues right through.

1264. Do you leave any coal on the roof? Yes, about 4 feet 2 inches; that is the tops.

1265. Do you leave any on the bottom? None whatever.

1266. What width do you work your bords? Eight yards, and leave 4-yard pilla

1267. What kind of stoppings do you use? Well, there is a stone band on top of a portion of the coal, and we work up to that, but when it comes down we use it for stoppings.

1268. What thickness do you build these stoppings? From about 4 inches up to 10 inches.

1269. Do you consider these stoppings sufficient for the purpose? Yes, they are very good stoppings; we generally back them up with small coal.

1270. Are they liable to consolidate after being put up? I never found any set. They come down an inch or two in some places, and then we fill them up again, utilizing for this purpose the small coal.

1271. Do you think the working of the Lithgow Valley coal-seam is attended with danger? If they work their coal on the same principle as I work mine, I should say there was no danger, certainly.

1272. Say they were leaving chain pillars and 7-yard bords, would you consider that dangerous? No, I would not.

1273. Have you ever heard of any danger attending the working of the Lithgow Valley Colliery? None whatever.

1274. Did you ever hear that any of the men had apprehended danger? Not with regard to the pressure of the mine.

1275. You have said that you saw the plan of the Lithgow Valley mine, Mr. Turnbull—did you see it before or after the accident? I saw the plan on the morning of the first accident, at 8 o'clock.

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1276. Do you recollect the date. The reason I ask the question is, that you are the first witness from whom we could ask that question? It was on Monday, the 15th February.
1277. The fire was discovered on Sunday, the 14th, and you were sent for on the 15th? Yes.
1278. It is a matter of history how you were sent for, Mr. Turnbull. Then, when you were examining the plan did you hear, or did you inquire, as to whether any pillars, or any considerable area of pillars, had been worked to the north or left-hand side of the tunnel? No. I, on arrival at the mine, went into the left-hand furnace, and attempted to go down the left-hand return, to see if the statement was right as to the area of the return.
1279. Could you proceed any distance for the water? I think I got about 12 or 14 yards. The tops had been standing and the bottoms filled up with ashes, there being about 9 or 10 inches on the top of the water.
1280. As a matter of fact, it was impenetrable—you could not proceed? No, I could not get there. I think the ashes had been wheeled from the furnace into this water, which naturally made it level until it reached the top, and then of course they could not get any further. I threw a stone and found the bottom of the water there.
1281. Do you know whether the body of water extended to the Eskbank boundary? It could not get out of the swallow.
1282. Returning to the inquiries you made when first you were sent for, did you ascertain whether any of the rise pillars had been taken out or worked to the left-hand side of the tunnel? I never made any inquiry as to the pillars. I do not know whether they had been stripped or removed. I went past the furnace, but could not get further after proceeding for 10 or 12 yards.
1283. Was there any return by the left-hand furnace? Yes, there was.
1284. The furnace was burning? Yes.
1285. Did you go into the right-hand furnace? Yes, when first I went into the mine.
1286. Was there much gas passing? Yes, very strong.
1287. Did you see the influence of the gas upon the flame? Yes, a beautiful blue flame; I put it down to fire-damp.
1288. Was the fire dull or lively at the time? It was very dull.
1289. Had fire-damp been passing over it, would the fire have been dull? No; I should think it would have been bright.
1290. Then, do you desire to change your opinion as to the character of the gas? I cannot say, because I did not take very much notice as to the character of the gas when I first entered the mine—I was more anxious to discover the men who were inside.
1291. You went into the right-hand furnace to satisfy yourself as to the state of the return? Yes.
1292. Well, what next did you do? I went past the furnace about 30 yards; when I got to the furnace the trap-door was standing wide open.
1293. Then I can readily understand how it was burning brightly. And when you got down this 30 yards, did you observe a large accumulation of ashes? Yes; I went through the ashes to get into the return.
1294. What was the state of the return at this time? Well, a man could live in it for an hour or two.
1295. What did you then do? I then came out and shut the furnace-door, and authorized the men to put bags on the top of the furnace-door. I then went out to the next cross-cut, and found that it was open; some canvas had been pulled down. There was at this time about 3,000 or 4,000 feet of air coming out and going down to the furnace. I authorized that to be put up. No. 2 cross-cut was also down, and I was half inclined to close that up when I was told that there was a party of men in there. I then proceeded further down the tunnel, made all the stoppings good on the way down, till I came to the seat of the smoke. When this party of men who had been in No. 2 cross-cut came back they told me that Doig and some others were in the right-hand district. I then broke a stopping on the right-hand side and one on the left-hand side. I then formed a party of men, and sent them into the cross-cut, and when they had been in about an hour they told me that they had got Doig. It was Sheedy who told me, and I instructed him to send a party of six or seven men for the other missing men; and I watched to see that the smoke did not come back.
1296. Did you ascertain whether Doig was found? I tried to go myself, but could not get there.
1297. Why were you prevented? Because of the foul air, so I went and increased the ventilation by taking down a right-hand stopping. Where the bodies were got out I went down myself. (*The plan examined.*)

[The witness's explanation of the operations on the plan were dictated by the President, as follows:—
"The point where Doig, Younger, and Rowe were found, Mr. Turnbull believes to be a spot indicated on the plan by marks ⊙ ⊙ considerably to the south and east of the situations referred to by Martin, Hall, and Durie].

1298. *President.*] Well, Mr. Turnbull, Doig and the other men being found, did you think it was an error of judgment for these men to go into the return when they knew that the mine was full of smoke and gas? Well, I cannot say; I can only tell you that I would not have done it myself.
1299. To put it in another way: Do you, with the knowledge before you of the pressure in the main in-take of smoke and gas, consider it a safe proceeding to go into the return as these unfortunate men did? No, certainly not.
1300. Did any of the men report to you that the return was comparatively free from gas? Never.
1301. Did any of the men report to you that previous to your arrival they had reached or approached Tyndall's heading? I think Martin said they had been so far along the cross-cut. I then said I would go. But after trying and failing in the attempt, I came back and put on more ventilation. The search party would never have got there had I not put the ventilation in.
1302. Well, Mr. Turnbull, statements have been made here that before you arrived on the scene a party of men had been down to Tyndall's heading, and returned, and suffered inconsiderably, to put a mild term upon it? Yes; Sheedy was one, I have heard, but I would not be quite sure.
1303. When the bodies were got out, what did you turn your attention to? I came out and met Mr. Mackenzie and Mr. Rowan. I explained to them what I had done, and they approved. I told them that I was going down the tunnel at the rate of 40 yards per hour. We went to the Company's office, and there met Mr. Wilton and Mr. Gell, and I asked them to go into the mine. When I got into the tunnel I found that the smoke had come back 400 yards from the point I had reached when I went away.

1304.

1304. You left the smoke at what point? About 3 chains back from the boiler. It seemed that a man named Davies had opened the furnace-door, and pulled down the stoppings, and the canvas was pulled down in the first and second cross-cut. The men told me that Bob Davies was in the mine, trying to get round behind the fire, and Mr. Dixon and I came to the conclusion that he must be lost, and we went off to find him, but met him and some others coming out. After Doig was found I went out and formed a party of six men, and another of seven, to seek for the bodies of Younger and Rowe. I told them I would watch the ventilation, and for them not to go beyond a certain point. Shortly afterwards they came and told me that the bodies were found.
1305. What was the ultimate effect of the action taken by Mr. Davies in opening the stoppings? Well, it simply undid my work. After the bodies were got out I went up to the office, and on coming back again found that the smoke had returned 400 yards up the tunnel. It was utterly impossible to get down to where my canvas was fixed, whereas I had expected to get to the seat of the fire at 6 o'clock at night.
1306. Did you do your work over again? No. Mr. Mackenzie and Mr. Dixon decided to close the mine, I drove the smoke, however, back 150 yards in their presence.
1307. You came to the conclusion then that you were making progress against the fire? Yes; I told them I would have done that.
1308. Do you think the fire would draw any air from Eskbank? I know the water from Lithgow Valley mine runs that way.
1309. Does it run freely? That I cannot say.
1310. When the inspectors decided or advised the owners to close up the mine, did you take any further part? No, I did not.
1311. Did you come to any conclusion on the subject of closing the mine? Well, if they had asked me to close the mine, and I had authority, I should have told them I would not do anything of the sort.
1312. Yet, in the face of that, Mr. Mackenzie came to the conclusion that it would be advisable to close the mine up? Yes.
1313. And is that all you know about the fire in Lithgow Valley mine, Mr. Turnbull? That is all.
1314. Supposing there is any opening out of Eskbank into Lithgow Valley mine, will it feed the fire that is burning at the present time? Of course.
1315. Do you think Mr. Gell gave Davies permission to interfere as he did? He says he did not. Mr. Wilton also says that Mr. Gell did not tell Davies to go into the mine.
1316. Do you think Davies made a mistake? I cannot say that.
1317. *Mr. Neilson.*] At all events it was done? Yes, it was done.
1318. *Chairman.*] Well, I can quite understand your feelings in getting your work undone in this way. But I would like to know a little more about it. You say you were in the act of rapidly regaining your lost ground? Yes, I was down beyond the fall of tops, and if I had got it down to where the tops were up I could have put more pressure on.
1319. Have you ever seen this underground boiler? Never.
1320. Well, the smoke on leaving this underground boiler went into the left-hand return? Yes.
1321. The left-hand return, so far as we have ascertained, crosses over more than a hundred yards of water, the height of which has not been ascertained. What would the effect on the return air be after damping down the furnace? It would naturally stop the pressure altogether.
1322. It would cool down the air and restore the equilibrium? Of course it would.
1323. Would that be sufficient to drive back some of the fumes from the boiler? It would go into the in-take itself.
1324. Then as to another point, a considerable current of air was wont to go down the main tunnel, I suppose,—what would the effect upon the boiler be if the main tunnel were closed up by a fall? It would stop the pressure again.
1325. What would be the effect upon the returns with a fall stopping the ventilation below the boiler, and with Tyndall's heading stopped with air-tight toppings. What condition would you expect to find the returns in? Very bad.
1326. Then I understood you to say that you left after Messrs. Mackenzie and Dixon told you that they had determined to have the mine closed? I promised them that I would see to having it closed.
1327. Did you tell Mr. Mackenzie your opinion as to that? No; I did not say so to Mr. Mackenzie, it would not be my place. I promised Mr. Gell and Mr. Wilton that I would assist them in closing up the mine. They would have left it closed up yet.
1328. What induced them to open it? Well, I had nothing more to do with it, my Company prohibited me from acting. I told Mr. Wilton that I would undertake to open the mine, if they could get permission from my Company, and if they would provide me with the material I wanted. Mr. Wilton did not get permision from my Company, and therefore I never went.
1329. Did you think it was a right course to open the mine? I did not take it into account; I never interfered in any way with them. I did make a remark at one time, and of course I put my foot into it, so I vowed I would not say anything more.
1330. What was that remark? Oh, it was just a little private remark.
1331. Can you mention it? I do not think I could at the present time.
1332. Well, unless it has a distinct bearing upon the case, I do not think it will be necessary? It has nothing whatever to do with it.
1333. *Mr. Curley.*] Have you any idea of the *modus operandi* employed in the attempt to put out this fire? None whatever, except that I heard they had put on a steam jet at one time.
1334. *Mr. Neilson.*] Do you know anything about this last accident? No. The last word I had about the matter was when I saw Mr. Wilton in the office, and when I told him that I would undertake to open the mine, but must have the reins in my own hands.
1335. *Mr. Curley.*] Who was the party you left in charge when you left the mine to go to the office to see the owner? Hy. Scully. He had to watch the place where I had the bratticing.
1336. *Mr. Davies.*] Did this man Davies say anything? No; Scully never reported to me. Davies had got in himself.
1337. *Mr. Curley.*] You know the positions of the two furnaces in this mine? Yes.
1338. Do you consider they indicate good management? I would not like to say; it is possible they have an opinion as well as myself.
1339. Did you notice the ashes about the furnace? Oh, yes.

Mr. J. B. Turnbull. 5 May, 1886.

1340. What do you do with your ashes in Vale of Clwydd? I have them taken direct from the furnace and put them on the main road.
1341. Would you consider it as a safe proceeding to stack these ashes in the mine after drawing them out of the furnace? All I can say is that I would not do it myself.
1342. *Mr. Usher.*] Did you ever measure the section of air in the main overcast in the morning? No, never.
1343. *Mr. Swinburne.*] Were you satisfied that the return at the left-hand furnace, at the time you saw it, was what it ought to be? I only penetrated about 12 or 14 yards; I could not go any further for water.
1344. What was the area, so far as you could ascertain? From the furnace to where the tops are up, I suppose it is about 20 feet by 5 feet.
1345. Was there a quantity of air passing through when you were there? Not very much.

THURSDAY, 6 *MAY*, 1886.

Present:—

The PRESIDENT.	Mr. SWINBURN.
Mr. USHER.	Mr. CURLEY.
Mr. THOMAS.	Mr. DAVIES.
Mr. NEILSON.	Mr. JONES.

John Gibson sworn and examined:—

Mr. J. Gibson. 6 May, 1886.

1346. *President*] What is your occupation? I am a miner.
1347. Where did you learn your business? I had a good deal of experience in Lanarkshire, in Scotland. I have been eighteen years in this country, and have worked for some time in Newcastle.
1348. Have you ever had any experience of fire-damp? Yes; I was more or less in it the whole time I was in the Old Country.
1349. How long have you been working in this district? Five years, three years of which I worked in the Lithgow Valley mine.
1350. Do you consider this mine a safe one to work in? Yes.
1351. Is it a good roof? I never worked in a better.
1352. And how about the ventilation? It was very fairly ventilated.
1353. Have you ever seen any fire-damp there? No.
1354. Is it a coal you would expect fire-damp to exist in? No; I should scarcely expect it from the workings; I never saw anything of the kind in the district.
1355. So far as you know the coal does not give off this gas? No, it does not.
1356. Do you know the situation of the underground boiler? Yes.
1357. Do you know of a fire having occurred there before this last accident? Yes, just before last Christmas; it was not a serious matter.
1358. Was there an accumulation of small coal opposite the boiler? I did not see it.
1359. Did you ever travel through the return on the right-hand side? Nobody ever travelled there, so far as I know, since I was there. A certain portion of air escaped by the mouth of the boiler; there never was a door there that I could see; a bit of a bag was hung up there sometimes, and that was all.
1360. Would this cause the air to escape? There was not much of a draught that side; it occurred to me that there was something wrong with the return.
1361. Did you think that was a safe boiler? Well, I did not pass an opinion upon it at the time, but I have seen more of it since, and I think it should not have been there.
1362. But at the time it raised no suspicion in your mind? No, not a bit.
1363. Did you ever see smoke hanging over that boiler? Yes, many a time.
1364. Did that raise a suspicion in your mind that something was wrong? No, it happened many a time.
1365. When were you told that the first accident had occurred at this place? I was at home at the time, and was not going out that morning, or I should have been there; it was about 8 o'clock when word was sent to me; I went to the tunnel and went in as far as I could go; Mr. Turnbull and others had been in before me; of course I could do nothing more than go by his instructions.
1366. Did you search for any bodies? No; I saw them brought out.
1367. From your experience, did you think it strange for the manager and his companions to go into that return when the main tunnel was full of smoke? He might have had a purpose.
1368. Supposing the main airway to be full of smoke, what condition would you expect the return to be in? Well, it would be full of smoke; I thought Doig and his party had been a long way down the workings, and the smoke came down to them while they were there, and I think, perhaps, their oil had failed; probably they were going down to get more oil when they were overcome by the foul air.
1369. How did you come to think that? I inferred it from what Martin told me.
1370. When the brick stoppings were taken down, after the mine had been sealed up, was work resumed? I was not there the last week before the accident.
1371. Did you get down to the boiler when you were employed before this; Yes, I was often there.
1372. What was the condition of the main tunnel opposite the boiler, between that and Tyndall's heading? The top-coal was all down.
1373. Did the fall interfere with the course of the air? Yes, until we cut a way through.
1374. Did you see any fire in Tyndall's heading? No; there was fire right ahead of us; we could see a spark here, and that was like stars shining.
1375. When you ceased working it would appear that the great body of fire was discovered? Yes, so far as I could learn, it was.
1376. When the operations had extended down almost to the boiler, for some reason or other the men were suddenly withdrawn from the tunnel, and it was determined to close up the mine—can you tell us what was the reason of that resolution? No, I cannot.
1377. Do you know if that was the case? Yes, it was the case, but I was not on that shift at the time.
1378. In connection with the operation of putting the fire out, you, I believe, were selected as leader? Yes, they selected me as one.

1379.

Mr. J. Gibson. 6 May, 1886.

1379. Had you any fear of danger in connection with this work? No, I had no fear of danger, except, perhaps, in connection with the rock above.
1380. That of course was incidental to your calling? Yes.
1381. Was any pressure brought to bear upon you? Not that I know of; I went just as the others went; I had no apprehension of danger.
1382. During the course of operations, did Mr. Campbell, the manager, the inspectors, and the owners visit you? Yes, very often; I went on at 6 o'clock at night and came off at 12, and I saw them there both when I went and when I left.
1383. Did they appear anxious for your safety, and supply you with all necessary material? Yes.
1384. So far as you can judge, did it appear to you that blame was attachable to any person on account of this last accident? I cannot see that blame could be attached to anyone.
1385. You have thought of it seriously, I suppose? Yes, many a time.
1386. Have you paid attention to the stoppings in this colliery? Yes.
1387. Have you ever seen the same stoppings elsewhere? I never did at Home.
1388. Have you ever seen any like them in any other place in the district? I believe there were similar stoppings in the ironworks' tunnel, but very few stoppings were used there.
1389. Did you think those stoppings served their purpose? Yes, they served their purpose so far, yet there was nothing secure about them.
1390. Do you think there would be extra security in timber in case of fire? Well, the draught would not have got through.
1391. Would timber go quicker than small coal? I do not think it would go quicker than small coal and dust.
1392. *Mr. Neilson.*] You know the left-hand furnace? Yes.
1393. Does it take any more air than what goes over the boiler? Oh, yes.
1394. *Mr. Swinburn.*] Were you ever down in the workings at the left-hand side? Yes; I have worked down that side.
1395. Were you ever over that portion near the boundary of the Eskbank Colliery, and if so, was there any water down there? Yes, there was any amount of water there.
1396. Are you aware of pillars being taken out down in that direction? They were not taken out in my time, but I know they have been taken out.
1397. How did you come to know? I was told by the men who took them out.
1398. Who were they? Robert Grant was one of them.
1399. To what extent were they taken out? I cannot say as to that, but I think I was told that a good many had been taken out.
1400. *Mr. Neilson.*] Have you had any experience of big falls? Yes, I have seen many a big fall. I saw a big fall at the Co-operative Colliery, Wallsend, when the props and dust and things were thrown 100 feet above the surface.
1401. *Mr. Jones.*] Have any pillars in this part of the mine been taken out? Not that I am aware of, the bords are all of the usual width, 8 or 9 yards, some might be more, some might be less.
1402. *Mr. Curley.*] Did you ever suggest to the management or inspectors the propriety of putting up brick stoppings? No. But I think I did on one occasion say, "I do not believe in those stoppings, and if I had my way I would have them constructed of brick on each side of the main drive."
1403. *Mr. Davies.*] Was this said to the proprietors or inspectors? I think Mr. Wilton and Mr. Rowan were with me at the time.
1404. *Mr. Curley.*] How long ago was this? I think it was about a fortnight before the late accident, my attention having been called to an escape in one of the stoppings.

Edward Power sworn and examined:—

Mr. E. Power. 6 May, 1886.

1405. *President.*] What is your occupation? I am a coal-miner. I have been at it about eight years, on and off. I have worked in the Vale of Clwydd, the Ironworks Tunnel, the Eskbank, the Hermitage, and the Lithgow Valley mines. I worked in the Lithgow Valley mine for about three years.
1406. Are you acquainted with fire-damp? No.
1407. Have you seen choke-damp or black-damp? Never, until the late accident.
1408. From your experience, is the mode of conducting underground operations at the Lithgow Valley mine similar to the methods applied in the other collieries? Well, I always thought it was conducted better in the Lithgow Valley mine.
1409. In what way? Well, for better air; the men seemed to be more contented.
1410. But the mode of working is about the same as to the width of the pillars, &c.? Yes, it was similar throughout the district.
1411. Did you ever have reason to complain of the ventilation? No.
1412. Have you ever seen any smoke hanging about any part of the mine? Yes, I have seen a little where this boiler was. It would hang on the top in the morning before the set started to work.
1413. Did you hear of an underground fire taking place at this boiler some weeks before the accident? Yes, I did hear the men talk about it. I did not see it, because I was working in this new cross-cut.
1414. Did you ever surmise that the underground boiler was unsafe, or did you ever think about it? Well, I wheeled there for some two years, and I made a remark to the boss one time that the tops might possibly catch fire.
1415. Were they taken down? No.
1416. Who was the boss? John Doig.
1417. What did he say? He said, "No, they won't catch fire."
1418. Where did this fire originate that took place a few weeks before the accident? I heard it was behind the boiler. I heard it from the men who were engaged in putting it out.
1419. When did you become acquainted with the first accident? I was, I believe, the first man in the pit. At about 3·45 on the Monday morning I was going down the main heading and came to the smoke. I made an attempt to rush through, but found I could not get in further.
1420. Did it make you cough? Yes. I laid down on the side of the road till the miners came. We stopped till five more men came up, and I said we had better go and stop the horses. I went for that purpose

Mr. E. Power. 6 May, 1886.

pose to the stables, and told the man in charge that he had better not take the horses to the pit, as the tunnel was full of smoke.

1421. Did you form one of the parties who went in search of Doig and his companions? Yes; I was with those who started for Rowe and Younger.

1422. Where did you go? We went into the new cross-cut, and through a stopping into the old working.

1423. Was the air bad? No; the air was very good, I think; the light burned well.

1424. Where did you go after passing through this stopping? We went through some old bords, turned to the right for about 3 chains, and we found the men in a bord off the cut-through.

1425. How were they lying when you found them? Younger was lying on his face, and Rowe on his back. They were very close together.

1426. Did you see their lamps? I saw two lamps alongside of Rowe.

1427. Was there any oil in them? I did not look.

1428. Did you test the quality of the air near the floor where you found the bodies—I mean did you put down your light? No; I did not take it off my hat.

1429. Did you see any of the men test the air? No; but I did hear one of them say, "Come away, chaps, the air is not very good here."

1430. Did you take any part in the subsequent operations—did you volunteer to work with Mr. Turnbull, for instance? Not with Mr. Turnbull; but I worked at the mine, when it was re-opened, the whole time.

1431. When you got down to the position of the boiler, did you notice a fall in the main tunnel? Yes. It was a large fall, which obstructed the air-way. No air could get over the top till some of the rocks were removed.

1432. Do you recollect that something transpired after you had got down to the boiler which determined the owners or the Government inspectors to close the mine? Yes.

1433. What had you been using for extinguishing the fire up to this date? We were using water, and were getting on very well, only there was a lot of black-damp and smoke to contend with.

1434. Then you did not know the reason why it was determined to abandon the attempt to extinguish the fire? No; but the miners thought it had not been properly tried. They believed the fire could be put out, and consequently made an application to Mr. Gell to be allowed to make the attempt. He said he was quite agreeable, and then went to see Mr. Mackenzie about it.

1435. How long after that did you receive permission to make the trial? We commenced at 9 o'clock that night.

[The witness here described the process of selecting the shifts and appointing leaders.]

1436. Did you anticipate any danger from this work you had volunteered to undertake? No; I did not see any danger at all till we got down to the fall—this suggested danger in the roof, but we used to sound the roof as we went along and put props up.

1437. Is that the usual mode of heaping up loose stone? I never saw any rock timbered in my life before.

1438. Did they take down any rock? No; they tried to take some down, but it would not come. Then they played the hose on the roof to clear the smoke away, and while thus playing on it the rock came down and filled fifteen skips.

1439. Did you undertake this work of your own free-will? Yes.

1440. Were you at work when the accident occurred? No; I was going on to relieve that shift.

1441. When you got down to the seat of the fire, did you notice any fire in Tyndall's heading? No, I did not; but I believe there was fire in it.

1442. Did you see any fire about the boiler? Yes; I saw fire on both sides. I also saw fire in the stopping which had been opened in the main tunnel this side of the brattice. That fire was put out as far as we could reach, but I formed the opinion that the next shift would not be able to put it out with water, as it had got too firm a hold. I saw this on the Sunday night.

1443. Were you ever in the mine again after that Sunday night? No, not until I came to brick these stoppings up.

1444. *Mr. Neilson.*] Was the fire at the stopping on the left-hand side of the tunnel spreading right across the bord? Yes, and working in the pillar right round as far as we could see.

1445. *President.*] Then it had evidently worked round from the pillar first? Yes.

1446. *Mr. Curley.*] How far would that stopping be from the flue on the main tunnel? About a chain.

1447. *President.*] Did the fire burn as if extending up parallel with the main tunnel? It was going towards the main tunnel. One of the men said to me as we were going home, "They will never put that fire out, and I will not go back any more."

1448. While you were working, did you hear any sounds as of rocks falling in the waste? I heard cracks which I imagined came from the bottom of the coal that was burning. It sounded as if something was splitting with the heat.

1449. *Mr. Curley.*] Did you report to the manager the condition of the fire every time your shift came out of the mine? No.

1450. Was the manager present during your last shift? No; he was at home ill.

1451. *Mr. Neilson.*] Was the manager in the mine between the time of your going out and the time that the accident took place? Yes, he was.

R. R. Druery sworn and examined:—

Mr. R. R. Druery. 6 May, 1886.

1452. *President.*] What is your occupation? I am a miner. I gained my experience first in the North of England, in the county of Durham. I have been about nine years in the Colony following my occupation as a miner.

1453. Have you had any experience of fire-damp? Yes, at Home.

1454. In what mines have you been employed in this district? I have worked in all excepting the Eskbank.

1455. Speaking generally, are all the Lithgow collieries worked in about the same manner? Yes, they are mainly worked on the same principles.

1456.

Mr. R. R. Druery. 6 May, 1886.

1456. When were you last employed in the Lithgow Valley mine? At the time of the first accident.
1457. And for how long before the accident? Seven or eight months.
1458. Was the ventilation sufficient in the mine while you were employed there? I had no complaint to make where I was engaged.
1459. Have you ever seen explosive gas in the Lithgow Valley mine? No.
1460. Have you ever heard of it having been seen there? I cannot say that I have.
1461. Not having made any complaint about the ventilation of the mine, then you considered it sufficient? So far as I was personally concerned, yes.
1462. In going to and from your work, have you seen this underground boiler? Yes. I was called upon six weeks previous to the first accident by the underground manager, Mr. Passmore, to assist him to put out what was supposed to be a fire. The fire was burning behind the furnace, below the flues, among some slack. It appeared to drop off the tops or sides of the pillars.

[Witness described the process of extinguishing the said fire.]

1463. Did you suggest the advisability of removing the slack? I suggested it to Mr. Passmore several times. He said that the manager had seen it.
1464. Did you continue to work in the mine? Yes.
1465. Did you consider the boiler a source of danger? I did not consider it a source of danger in the state in which I left it.
1466. Have you formed any opinion as to the source of this fire? Yes, I think it came from the furnace, probably owing to some of the soot having caught fire on the roof and sides.
1467. Then there was a considerable amount of soot on the roof and sides? Yes.
1468. Did you ever travel in the left-hand return? I considered it impossible; I have been just at the end of the pipes.
1469. Do you know the size of the shaft that leads from the left-hand furnace? I have been given to understand it is 6 ft. in diameter.
1470. Had you ever seen smoke hanging about the boiler prior to this accident? I have seen steam and smoke hanging about the roof.
1471. Do you consider the mine was a safe one to work in? I was not engaged as a miner; I was a day-worker.
1472. Did you ever travel pretty well through the mine? Oh, yes.
1473. And do you consider this mine, generally speaking, a safe one? Yes.
1474. Was the roof a good one? Yes; the rock cover was the best I ever came in contact with.
1475. What part, if any, did you take in finding the late Mr. Doig and his companions? On the Monday morning I went to work as usual; I was then engaged at the extreme end of what is known as the second cross-cut. On going in past the return I found the air thicker than usual. This was about 5·30 o'clock.
1476. Did you think anything was wrong? Yes; it led me to believe there was something radically wrong, and I went to warn the men who were working in the face. They acted upon my advice immediately, and they, knowing the cross-cut road better than I did, took the other way round. Going back again I was knocked down three times in succession by the stithe.
1477. Did you take any part in the recovery of the unfortunate men who fell victims to the catastrophe? I went home, and on running back again I noticed a number of men who were sitting at the side of the tunnel, and I asked them if any instructions had been given to get the men relieved. They said no. I then sent for Mr. Turnbull, and on his arrival, about 7 o'clock, we all went to the office to get the plan. The door was locked, and had to be forced in; then we found the plan on the table. After the plan had been inspected and discussed, Mr. Turnbull asking me a number of questions, which I answered to the best of my ability, we proceeded to the pit again.
1478. Do you know that before this time one or two parties had penetrated the right-hand workings as far as Tyndall's heading? I heard it spoken of, but did not place any reliance on it.
1479. Were you one of the parties who found or searched for those men? I was at the time engaged in the main tunnel with Mr. Turnbull, trying to get in as far as possible. I was among the second party, and we went into the return of No. 2 cross-cut to the left. Having gone in as far as we could, we came back, and then we heard Mr. Turnbull and some others saying that the men had been found.
1480. Did you take part in any subsequent operations after the mine was closed up? No.
1481. You were not connected in any way with the last operations? No.
1482. *Mr. Curley.*] Did you hear Mr. Turnbull receive any instructions from the proprietors? I did not, only to make the best he could of it.
1483. After you mentioned about the position of this boiler to Mr. Passmore, and you found that nothing had been done, did you complain to Doig? I never mentioned the matter.
1484. Had ever such a thing as check-inspection taken place in connection with this mine by the miners themselves? Not that I am aware of.
1485. Do you know that the miners have that power under the Act of 1876? Yes.
1486. Do you think that there would be any difficulty in carrying that out? Not that I can see.
1487. *Mr. Jones.*] You are not aware that the men ever tested the matter? No.
1488. *Mr. Davies.*] During the eight months you worked at the colliery, did you see the inspectors there frequently? I can safely say I saw them twice.

William Mantle sworn and examined.

Mr. W. Mantle. 6 May, 1886.

1489. *President.*] What is your occupation? I am a miner. I have been working in the Lithgow Valley mine, and was previously employed at the Hermitage Colliery. I have also worked in the Eskbank and Vale of Clwydd.
1490. Are the workings in the different mines in this district in which you have been employed all conducted on the same or similar lines? Yes; the stoppings are composed of the same materials, and the bords are about the same width.
1491. And as to the ventilation? They are all about the same.
1492. Then in the matter of the Lithgow Valley mine ventilation, did you find that sufficient or otherwise? I found it quite sufficient. I had no cause to complain, nor have I heard anyone else complain of the ventilation.
1493. Have you had any experience of fire-damp or choke-damp? No; I have never heard of it; I have heard of black-damp though.

Mr. W. Mantle. 6 May, 1886.

1494. While engaged as a miner at this colliery, have you seen the inspectors of collieries paying visits for the purpose of inspection? Yes.
1495. Have they spoken to you? Yes.
1496. Had you ever cause to make complaints to them about anything? No.
1497. Then what part did you take in the first accident? I was not at the first accident.
1498. Have you seen the underground boiler? Yes, I have seen it, but never inspected it.
1499. Did you ever hear of a fire occurring there before this last accident. No.
1500. Were you employed at the last accident? Yes.
1501. Were you down at the seat of the fire? Yes.
1502. Did you see a fall in the main tunnel? Yes; it was a large fall, and a portion was on fire.
1503. Did you hear about a fire in Tyndall's heading? Yes.
1504. Did you hear about the stopping in that heading being on fire? Yes, and it was put out.
1505. Did you see a fire in the neighbourhood of the boiler? Yes. The tops had fallen at the back of the boiler, and were on fire. There was fire at the side of the boiler also, and the corner of a pillar had taken fire.
1506. Did you get to the back of the boiler? No.
1507. So far as you went, did the fire extend to the left-hand side of the boiler? Yes.
1508. Did you see a fire in the left-hand side of the tunnel, near the boiler? Yes. It was a heavy fire, and it had got a good hold of the coal.
1509. Were you employed on shift when the accident occurred? Yes. About five minutes before the accident I was holding the hose to the fire, I and my brother. I came back after being relieved by John Duncan, and had not been back more than five minutes before the accident happened. It was like a clap of thunder, and was followed by a rush of air which extinguished the lights. My hat and lamp were blown away. I was not knocked down, but it gave me a great shock. I then heard one man say, "Take to the skips." At this time we had all got hold of one another. Every one thought we were going to be crushed to death. We went for the empty skips, but they would not move, and I then pulled the signal wire, but it did not seem to act properly. We then got out of the skips and made for the mouth of the tunnel.
1510. Did you see any red coals on your way out? Yes, about 13 or 14 chains from the boiler. It extended over 4 or 5 yards, perhaps a little more or less.
1511. Did you experience any difficulty in crossing this? No; it was just a scattered fire.
1512. Did the second rush of air contain a greater quantity of damp than the first? Yes; I believe it did, because the feeling of suffocation increased.
1513. Did you see any stoppings blown down? Yes, a number of them, and I believe the fire was blown out from the stopping.
1514. An hour or two before the accident happened you say the ventilation was sound, and that an hour or two previous to that you opened a stopping on the left-hand—which way did the fresh air take—did it rush through the stopping into the fire? Yes.
1515. Did you extinguish this fire? Only to a certain distance.
1516. You closed up the stopping? Yes, we bratticed it up again to exclude the air.
1517. Did you foresee this calamity? No, I did not. I had never been in anything of the kind before. The last shift I got frightened of the roof coming down, as we could not see it for the damp and smoke.
1518. That was a danger reasonable to anticipate of course? Yes.
1519. Do you blame anybody for this accident? No, I cannot blame anybody for it.
1520. Did you ever hear either the management, inspectors, or the owners asking you not to run into any danger? No.
1521. Were they ever present during your operations? Yes.
1522. Did they show any anxiety for your safety? I have not heard them, but I have heard other men say they did. I might have been out of the way at the time though.
1523. They were present, however? Yes,
1524. And giving you a helping hand when it was required? Yes.
1525. Then have you formed any opinion on this subject—can you attach blame to anybody? No; but I believe that if the skips had come out we should all have come out right enough.
1526. But the rapper-wire might have been interfered with by the stoppings being blown out, might it not? Certainly it might.
1527. Then you do not attach any blame to the engine-man? No.
1528. Was the rapper-wire free previous to this accident? Yes, I believe it was, because the skips were travelling in and out.
1529. How long before? About an hour.
1530. Could you have signalled with it five minutes before this accident happened? To the best of my belief, I could.
1531. Then the wire got disarranged by the accident? Yes, I suppose so.
1532. *Mr. Swinburn.*] Then the skips were there to take the debris, were they not? Yes.
1533. *Mr. Curley.*] What was the stopping composed of that you bratticed up again? It was composed of slack.
1534. What was it put up for? To travel the air in the right course.
1535. And there was a fire raging at the inside of it? Yes.
1536. *Mr. Jones.*] How many of these skips were there? There were five in the set.
1537. *Mr. Swinburn.*] How could these skips come out, the stoppings being blown out and 2 feet of small coal lying across the tramroad? They must have been pulled over the top.

John Sheedy sworn and examined:—

Mr. J. Sheedy. 6 May, 1886.

1538. *President.*] What is your occupation? I am a miner, and have been employed in the Lithgow Valley mine, where I worked for fourteen years.
1539. Have you had any experience of fire-damp at any time? No. I have not worked in the old country. I am a native of the valley.
1540. Have you had any reason to complain of the ventilation of this mine? No; nor have I ever heard any complaint made.
1541. Have you ever heard of any underground fires at the Lithgow Valley mine before February last? No.

1542.

Mr. J. Sheedy. 6 May, 1886.

1542. What part did you take in finding Doig, Younger, and Rowe? I was in bed when my friend came back from there and told me that a fall had taken place, and that there were three men inside. I put my clothes on and went down the pit and into our own bord to the face of the cross-cut, taking a shovel with me in case I might want it. The air at that time was very good. It was about 10 o'clock in the morning.
1543. Was Mr. Turnbull present? Possibly so. I did not see him. I went in of my own accord. Seeing a light come up from No. 2 cross-cut, I sang out, "Who's that"? It was William Martin, and he asked me where I was going, and I told him to look for the men. We struck the return and followed it down for about 5 chains, so far as I could guess. There was a heading about 2 chains off the return. Here I cooeed, and almost at the same time we heard a sigh.
1544. How far were you off the return when you heard the sigh? It would be about 4 chains.
1545. And you had proceeded about 5 or 6 chains down the cross-cut? Yes. I said to Martin, "There is one of the men there"; and I ran up and said, "It is Mr. Doig."
1546. Do you understand the plan of the mine? No; I am a poor scholar.
1547. However, you adhere to this statement that after leaving the cross-cut you went straight for 5 or 6 chains, then you went a few chains down to the right, and there found Doig? Yes.

On being further examined the witness admitted that he and his companion did not know exactly what they were doing or where they were, although he knew his way. In fact he could not locate the exact spot.

1548. Doig was then carried out? Yes. Where we found him the black-damp was about 2 feet over his face, that is, he was lying in a little over 2 feet of foul air. I put the light down, and it immediately went out.
1549. Did you return for Younger and Rowe? No, I did not. I was affected by the gas, and when I got out I fell down.
1550. Did you work at the mine after that? Yes; at the right-hand furnace. I went on as soon as the men next re-opened the mine.
1551. Did you have any difficulty in keeping the fire alight? The fire burned right enough, but it would not stop in very long.
1552. Did you open the door to give yourself air? Well, I could always keep in myself, but the chap who was with me could not. The air that kept the furnace alight was return air. The damp did affect me, but it was not sufficient to put the fire out.
1553. Was there a large quantity of air passing up the return? Yes, a good quantity.
1554. How often did you clear that fire? I used to clear it every ten minutes.
1555. Were did you put the ashes? I put them a short distance from the fire.
1556. Have you ever known these ashes to take fire? No.
1557. Have you ever felt any heat among the ashes? No.
1558. Did you speak to the manager about keeping so many ashes there? No.
1559. *Mr. Jones.*] You have been engaged for a long time in the Lithgow Valley Colliery? Yes.
1560. Had the pillars in any part of that mine been taken out? Not to my knowledge.
1561. What is the width of the bords? Twenty-one feet.
1562. Did they ever exceed that width? Not to my knowledge, so long as I have been there.
1563. You have never heard of bords being driven too wide then? No.
1564. And never heard any complaint as to that? No. I think it was the best worked place in the valley.
1565. *Mr. Neilson.*] You have had no experience outside the valley? No, excepting Mount Pleasant.
1566. *Mr. Swinburn.*] Have you ever been down the left-hand side of the main tunnel? Yes.
1567. Do you know if there is a connection between Lithgow Valley mine and Eskbank? Yes, there is.
1568. Have you ever seen much water down that part of the district? No; but I believe the water runs into the Eskbank Colliery.
1569. Do you know if any pillars were extracted in that part of the district? No; I do not know.

Gilbert Kirkwood sworn and examined:—

Mr. G. Kirkwood. 6 May, 1886.

1570. *President.*] What is your occupation? I am a miner.
1571. Where have you followed your occupation? I worked as a miner in Scotland.
1572. And how long in this Colony? About two years.
1573. Where have you been engaged since you came to this district? I have worked at the Vale of Clwydd and in the Lithgow Valley mine, where I was fireman and overman.
1574. Have you had any experience of fire-damp in the old country? Yes.
1575. While you were engaged as a worker in the Vale of Clwydd, did you ever see any fire-damp? No.
1576. Nor in the Lithgow Valley mine? No.
1577. Did you ever suspect its presence? No.
1578. Do you think the seam of coal is likely to generate fire-damp? I do not think so.
1579. Have you had any experience of choke-damp? Yes; but I have never seen it where the air was good.
1580. But choke-damp rests in the old workings, as a rule. How long were you working in the Lithgow Valley mine? About eighteen months.
1581. Have you had any reason to complain of want of ventilation? No; there was always good air when I was there. I never had reason to complain of the ventilation, nor of the character of the stoppings. I think the stoppings were carefully put up.
1582. Have you ever heard the miners complain about the want of ventilation, or of the presence of fire-damp or choke-damp? No.
1583. In going to and coming from your operations in the mine, had you occasion to pass the underground boiler? Yes; I passed it every morning.
1584. From your experience as a former deputy, were you curious to see how that underground boiler was built? I never went in to see it, but I did not think it should be there; that is, so far in the workings. I never travelled the return, and I never was in the left or right hand return.
1585. Coming to the first accident, when were you first apprised of it? I was not there at the time. I appeared on the Monday at the accident when the bodies had been taken out.
1586. Did you take any part in the operations that were conducted by Mr. Turnbull? No.
1587. The mine was sealed up a day or two afterwards, was it not? I suppose it was.

Mr. G. Kirkwood. 6 May, 1886.

1588. And it remained closed for some time? Yes, but I cannot say for how long.
1589. Were you employed in connection with the operations after re-opening? Yes.
1590. Do you know anything about one of the principal stoppings being interfered with? I never knew one from the other. I had heard of a stopping having been opened at Tyndall's heading, but I cannot give positive evidence about that. Mr. Campbell told me. I never saw it myself.
1591. When you got to the source of the fire, did you see anything in the main tunnel that attracted your attention? I saw the smoke and a fall when we went down to where the fire was burning.
1592. At this time, we understand that operations were then suspended for a time—do you know the reason why? No.
1593. At all events, we have heard that a meeting of the miners was held after it had been determined to close the mine. Do you know anything about that? I was not one of those who collected at the pit bank, but I was told by some of them of the course which it was proposed to adopt.
1594. Were you a worker? Yes.
1595. Did you at that time anticipate any danger? No.
1596. Was any pressure brought to bear on you to engage in the work? None whatever. The men selected me as one of the leaders.
1597. Did you enter that mine as leader of a shift of your own free-will? Yes, but I always thought that the Company had to pay me; I did not believe in volunteering. I was doing all I could to put out the fire to benefit myself.
1598. Did the owners show a sympathy and regard for the safety of the men? Yes; we got everything we required, and we were told not to run into any danger.
1599. Did your employers visit you during the operations? Yes; they were hardly ever out of the pit, and they showed considerable anxiety for our safety.
1600. Some time elapsed while you worked on in order to gain the seat of the fire, and your efforts were at last rewarded by your being able to bring your operations down to the seat of the fire, and you got past Tyndall's heading. Did you see any fire there? Well, no; there was a little fire in one of the pillars, but it was soon put out. I was not in the shift that first approached Tyndall's heading.
1601. Did you hear that the first shift saw a fire there? No.
1602. Do you know whether the stoppings in Tyndall's heading were on fire? No; the stuff that we lifted came out quite clean, without any appearance of burning.
1603. As to this fall in the main tunnel, would that interfere with the air-course? Yes; I think it did obstruct the air-course, because when we got to Tyndall's heading the air was more clear.
1604. Did you turn your attention to the left-hand beside the boiler? Yes; there was fire there. The tops were down, and we put them out and removed them.
1605. How far was this to the back of the boiler? It was just at the back that we noticed the fire going up behind us, and on the left-hand side a portion was on fire, and an attempt was made to put it out with water, but it was not entirely successful.
1606. Did you observe any fire through the corner of the pillar above the boiler? Yes.
1607. Did you think the fire had a firm hold? It was flaming when I saw it last there. We had to brattice down the tunnel with canvas in order to reach the fire, the return being on the right-hand side, where the stopping was taken out.
1608. Where were you at the moment of the accident? I was sitting down at the time about 18 yards above the boiler.
1609. What was the first intimation you received of something unusual happening? Well, there was a shock like a great sough of wind. This was followed by a second report, much heavier than the first.
1610. Did it knock you down? Yes. I thought at first that the bratticing had given way, and I was in the act of rising when a rush of air met me and knocked me down, and blew my hat and lamp away.
1611. What did you suppose had happened? Well, I scarcely knew. I thought it was a blast.
1612. Arising from what? Arising from the smoke. I did not suppose that there was any gas in that working, but I thought the blast might have been occasioned by the smoke rising from the furnace.
1613. Have you ever heard of a smoke explosion? No.
1614. If you inhaled black-damp, would it choke you? Yes.
1615. Is not the action of choke-damp precisely the same when applied to fire—will it not extinguish it? Yes, I suppose if I put choke-damp on a fire it would extinguish it.
1616. During your long experience, have you ever witnessed the effects of a large and heavy fall? I have seen many a fall. The heaviest one in my experience was in a pit where the workings were 9 feet in height, and it extended over three or four rows of pillars. We were all knocked down, but it did not do any more damage. The workings did not contain choke-damp.
1617. Supposing the waste between these pillars you have mentioned had been filled with choke-damp, what would the effect of a fall have been? It would have put the damp on top of us, and fouled the air-course.
1618. Well, as to this last accident, did you suspect any danger? No.
1619. Did you anticipate this calamity? No.
1620. You looked upon it purely as an accident? Yes.
1621. Did you think any blame could be attached to anyone on account of the accident? No; everything was done that could be done. Messrs. Rowan and Mackenzie were there every day, and did all they could to assist the men, and look after their safety.
1622. And did the owners exhibit due regard for the safety of the men? Yes; they could not have been more considerate.
1623. *Mr. Jones.*] Of your knowledge, have the pillars in any part of this pit been taken out? Not to my knowledge. I know very little about the workings. I have not been very long in the mine.
1624. *Mr. Davies.*] Were the inspectors in during the last shift you worked? Yes, they were in the fore-part of the shift.
1625. You have not been intimidated in any way, have you? Certainly not. I get nothing but what I work for, and I don't care for anybody.
1626. *Mr. Jones.*] Was permission sought from the inspectors or manager or owners before the mine was re-opened? I do not know anything about that. I was not there. I considered that I was working for the owners.
1627. *Mr. Thomas.*] I understand you to say that either the inspectors, the manager, or the owners, were

were always in attendance at the mine? Yes, they attended every day. I have seen one of the owners sitting there for five hours. I have not seen Mr. Gell so often. Mr. G. Kirkwood. 6 May, 1886.

1628. *Mr. Curley.*] About this boiler: I think you said you have sometimes thought it should not be there? I never bothered my head about it, nor did I say anything about it—I had nothing to do with it.

1629. But if you had anticipated danger from that boiler, would you not have spoken to some one about it? I never thought about there being any danger from it.

1630. Why did you think it was in the wrong position then—you have already said something to that effect? Well, I had never seen one in such a position before.

1631. That is, it was a little singular? Yes, that was my reason.

1632. Do you know what distance it is from the mouth of the tunnel? I cannot say; I never measured it.

President.] 36 chains down the tunnel.

1633. *Mr. Jones.*] Were the inspectors present when the stoppings were taken down on the second occasion? I suppose they were, but I was not in the first shift.

1634. *Mr. Usher.*] What was the size of the pillars in the mine where these falls had taken place? I cannot say; I never measured any of the pillars.

1635. What was the width of the bords? Some were 6 yards, and some were only 5 yards, some were 7 yards, and some went as high as 10 yards.

John Duncan sworn and examined:—

1636. *President.*] What is your occupation? I am a miner, and have followed that occupation for fifteen years. I started working in mines in the north of England. Mr. J. Duncan. 6 May, 1886.

1637. Did you in the north of England ever become acquainted with fire-damp? I have never seen fire-damp.

1638. Have you any experience of choke-damp or stythe? I have found it in places where the pure air was not going its proper course.

1639. That is in the gob? Yes.

1640. How long have you worked in this district? Fifteen months.

1641. In what collieries? I have worked in the Eskbank, and at the Ironworks Tunnel, and at the Lithgow Valley mine.

1642. Is the same seam of coal worked at all three places? Yes, so far as I know.

1643. Is the same system of working pursued at all three places? Yes, just the same. The same size of bords, and the same width of stalls.

1644. Did you consider it a dangerous or a safe seam to work? I thought I was as safe as I am sitting here.

1645. Had you any cause to complain of the ventilation of the mine? I have had to say nothing in regard to that.

1646. Or about any other danger that you considered might exist? No; I never spoke to anybody.

1647. Do you know the underground boiler? Yes.

1648. Did you ever examine it? I never saw it until this late accident.

1649. From your own knowledge, do you know whether a fire occurred at that boiler before this last fire? No.

1650. Have you ever travelled the air-courses in the Lithgow Valley mine? I have never been anywhere excepting my own bord.

1651. Did you take any part in the search for the late manager and his companions? Yes; we went along the second cross-cut down to the bord on the left-hand side; then we turned again to the right and across as far as we could get, and made our way to the left again. We could not get further in that direction, so we went to the right and straight ahead.

1652. You turned off to the cross-cut and went straight down to the east? Yes. We found the men lying about 10 yards from the heading.

1653. Have you formed any opinion as to how the men came to be in that position? Well, I think they had gone down as far as they could, and their lamps going out for want of oil, they lost their way in the endeavour to get out.

1654. Was the air in the passage where the bodies were found as pure and breathable as in the return? I think they were found in the returns.

1655. I understood you to say off the return? No, 10 yards up the return.

1656. Before you went in with the search party for Younger and Rowe, had Mr. Turnbull directed fresh air into that portion of the workings? So far as I know, he did. We opened the stoppings and closed them according to his direction.

1657. Do you think his action had any influence on the character of the ventilation when you arrived at the bodies? I think it must have had, because we could live in the air, and the men were dead when we found them.

1658. It is a matter of conjecture as to why they were found in that position, is it not? Yes.

Plan examined for the purpose of indicating where the bodies were found. Witness is uncertain as to the position pointed out by Mr. Turnbull, but he believes it to be about the spot.

1659. Well, Mr. Duncan, the work was abandoned, and the resolution was arrived at that the mine should be closed up—is that so? Yes.

1660. Did you hear anything about any stopping having been surreptitiously opened? No, I do not know anything about it.

1661. Well, with regard to this meeting of the men which resulted in their volunteering to put out the fire if the mine were re-opened—do you know anything about that? It was reported to me. I think it was Archie Durie who told me that the men were up at the pit, and were going to volunteer to put the fire out; I said I would do my best to assist with the others; I was not present when it was put to the meeting, but I understood that the miners were to take the matter into their own hands, and that if they succeeded in putting the fire out they would be compensated by the Company. I agreed to go with the majority. After we obtained permission to re-open the tunnel we assembled and took the

Mr. J. Duncan. 6 May, 1886

shifts. There were eight men in each shift, I think; I was one of the first, and there were four men picked for leaders.
1662. Who picked them? I do not know. They were down in the tunnel, and four men were called in; I think Kirkwood and Gibson were among the number, I forget the others. The leaders took no more special interest in the work than the men.
1663. In doing this work, did you agree to take whatever risk attended it? Well, I knew what the work was, but apprehended no danger; I knew that the only thing to contend against was the smoke.
1664. Did you not consider that in putting out the fire some danger might arise? It never struck me.
1665. At the same time you took your own risk? Oh, yes; I consider that I was running my own risk.
1666. Well, the miners having arranged their own work, did the owners show any concern for their safety? I think the men had it nearly all their own way, working the thing in a practical manner; the owners were in occasionally. I do not think they apprehended any danger. Mr. Gell was right in the midst of it, and if he had apprehended any danger I suppose he would not have been there.
1667. Did they counsel you not to run any risk? Yes. Mr. Wilton said he would rather lose the mine than ever hear of a man's head being hurt.
1668. Did you obtain all the materials you required for carrying out the operations? Yes, we had everything we wanted.
1669. Well, the work proceeded in this methodical manner till you got down and approached the neighbourhood of the boiler, did it not? Yes.
1670. When you approached the boiler and the cross-roads at Tyndall's heading, what appearence did the tunnel present? It was quite clear behind; sometimes there was a little smoke in the roof.
1671. There was a fall opposite the boiler? Yes, a heavy fall.
1672. Do you think it blocked the air-course? Yes, I think it did to a certain extent.
1673. Did you keep both furnaces going? Yes, and obtained plenty of air for the purpose of our operations. In fact when we put on the second furnace it turned the flame of the lamp. We directed our operations to Tyndall's heading, because we saw we could get a direct return for the air. There was a fire in Tyndall's heading. The stopping was 10 yards off the main tunnel; we put the hose on to it; and opened the stopping at the mouth of Tyndall's heading, which gave us relief, the smoke passing round to the furnance.
1674. Did you see any fire at the large fall in the main tunnel? Yes, we saw some fire there.
1675. What did you see at the boiler? We saw fire on the right-hand side of the boiler.
1676. Did you observe any fire to the left-hand in the old workings? Not just then.
1677. When did you observe it? A day or two after that a man named Hyde said he could see fire in that direction. There was a stopping down about 9 yards back from the boiler.
1678. Was this on the main tunnel? Yes. We did not see any fire that time; but the next shift opened the stoppings and applied the hose, and, as we thought, put out the fire. A day or two after that a fire was discovered further up the heading. Of course it was opened in the same manner Tops were cut down and the hose played upon it, but without effect.
1679. Was that fire still burning when the fatal catastrophe occurred? Yes, so far as I know.
1680. Up to this time, was every precaution taken for your safety? Oh, yes, but I could not see any danger. The only thing I saw to be rather afraid of was the roof.
1681. Did you take precautions to ascertain the condition of the roof? Yes; we had a long iron rod to sound it, and put props in occasionally to support it.
1682. Did the Inspectors of Mines visit you? Yes, and remained with us two or three hours at a time.
1683. Then you have no complaint to make of the Inspectors of Mines so far as the performance of their duties went? No; so far as I know they did everything they could to put the fire out, and they used to caution the men occasionally. I quite believe they performed their duty.
1684. Coming to the catastrophe, can you tell us about that? Well, when the men were engaged putting the canvas up to carry the air into the main tunnel, I had just relieved William Mantle about five minutes previously. He said, "Some of you boys come to the pump," and I went to the hose. The men behind me were putting the bratticing on. I was just going to shout to the men to knock off, as we were going to have something to eat, when I heard somebody shout, and turning round I saw some canvas fall away, and the men shouted to me to run. Then the other brattice gave way. The steam from the fire used to play on the brattice, which was smoking and hot, and it fell on my arm. It came away on the top of me, burning me, and I could not fight my way through, but I managed to get out and run against the pump; then a rush of air came through, and I got down on my knees and crawled along.
1685. Was it a strong rush of wind? It was. Before the rush of wind I heard a noise like a dead sort of report, something like a cannon going off at a good distance; that was followed by another noise, but not so loud. By this time I was making tracks for the skips.
1685*a*. What did you think these two reports were caused by? I had no time to think about reports or anything else.
1686. As you proceeded up the tunnel, what took place next? When I got up Norwood was feeling for the rapper-wire in the tunnel; he said, "I cannot find this wire" (the signal wire), and I jumped into the last skip beside Buzza. The men were shouting that the tunnel mouth was closed in.
1687. Why did they think that? I did not think much about it. The air was not very bad then. I passed Norwood sitting on the road. At this time choke-damp was coming in very strong down the tunnel. I was crawling on my hands and knees as well as I could, getting weaker every moment. Then I came to Mantel, Rowe, and Buzza; Mantel was gasping for breath; he was pleading with Rowe and Buzza not to leave him. I went past, and had struggled about 20 yards further, when Mantel said: "I cannot go on; I am done." Rowe said, "I am done, too." I was creeping along as fast as I could, but at last I felt that I could not go any further. I told Rowe to lay aside out of the way. Finally I got hold of the rope, and I knew no more till I got outside. The skips went by, and I tried to grasp the last one, but I could not get up. I got hold of the rope again, and I held on till the skips stopped. I received a good supply of air from underneath the skips. At last, after a great trouble, I met Campbell proceeding down the tunnel; I told him that the men were down there; then someone took me out of the tunnel mouth.
1688. You say the rush of air was preceded by two reports? Yes; there was a report first, then a rush of air, then another report.
1689. What position of the mine did they come from? They came down the tunnel. 1690.

1690. Can you say which side of the tunnel? No.
1691. Was the rush of air attended by any flash or flame? I never saw anything of the kind.
1692. Did some of the force get expended about the boiler? Yes.
1693. In proceeding up the tunnel, did you see any red-hot coals? Yes, in two places.
1694. Opposite where? I cannot say that.
1695. Was there a large quantity of live coal? There were three or four pieces scattered over the tunnel.
1696. Can you ascribe that rush of air to any cause? Well, the only reason I could give is that there must have been an explosion.
1697. How do you know it proceeded from an explosion? I cannot prove it.
1698. In your experience in mining, have you ever seen the effects of a heavy fall—have you ever felt a heavy wind blast? Yes, I have, at Home, at Westwood; everything fell before the rush of wind; the lights were blown out, but there was no black-damp.
1699. Have you ever seen any gas in this mine? Never.
1700. When you stated that an explosion occurred, that is only your opinion? Yes.
1701. Did you ever think of the possibility of its being due to a heavy fall of rock? Yes, that might have been the cause of it.
1702. Have you ever heard of pillars being taken out to the left tunnel? No.
1703. Do you know whether the pillars to the left of the tunnel have been robbed or split? No; I have not been down there at all.
1704. It is a strong roof, I believe? Yes.
1705. Does the fact that you have not seen gas in this mine raise doubts in your mind as to the improbability of an explosion having taken place? Well, so far as I am concerned, I thought that perhaps a fall had taken place on the left-hand side, which would have a tendency to prevent the smoke going away, and it caused it to accumulate behind, and then perhaps a fall came and burnt through the stoppings.
1706. But would a fall, forcing smoke out through the stoppings, constitute an explosion? I do not know that it would constitute an explosion; I never saw any explosive gas in that mine.
1707. Do you think explosive gas could exist in the proximity of a fire? I do not know.
1708. Do you know whether fire-damp will explode when a light is applied to it? Yes, I know that.
1709. Do you know whether it is likely or possible for fire-damp to exist in proximity to a large underground fire and not explode? Yes, up to a certain time.
1710. Have you ever seen or known smoke to explode? No.
1711. Have you ever seen or known smoke to be used to put out a fire? No.
1712. Do you know that it is done? I should think it might be.
1713. Would choke-damp put out fire? I think it would.
1714. Then if smoke is composed, for the greater part, of choke-damp, do you think it would be likely to put out a fire? Yes, if in sufficient quantity.
1715. Do you think this accident could have been foreseen or prevented? No, I do not.
1716. Do you think, from the care and anxiety that the manager and inspectors were showing for your safety, that they would have been likely to forewarn you of danger if they had supposed it to exist? Certainly.
1717. *Mr. Neilson.*] Was the first rush of wind you experienced perfectly fresh? Well, I could scarcely tell as to that, owing to my being entangled in the canvas; but when I got outside of it I thought it was like Paradise.
1718. That is, you judge by comparison? Yes.
1719. After the second rush you found the black-damp, or whatever it was, coming down upon you? Yes, mixed with the fresh air, until we got to the skips.
1720. How many stoppings were blown out? I was in the dark, and could not see anything.
1721. It was the out-by stoppings that were blown out, was it not? Yes.
1722. *Mr. Usher.*] Do I understand you to say that you never saw fire-damp in the colliery you worked in at Home? Well, I was only a boy at the time.
1723. Did they not use safety-lamps? They used Jordie lamps with the lamp inside.
1724. *Mr. Jones.*] Have you any knowledge of pillars being taken out in the direction where you heard the report coming from? Not in the least.
1725. *Mr. Davies.*] Could they have been taken out without your knowing it? Oh, yes; I had not been working there at all.
1726. *Mr. Jones.*] What was the size of the pillars where you were working? About 20 yards.
1727. *Mr. Swinburn.*] Did you ever see any one bord holing into another? No; they were just about the usual size, 20 yards.
1728. *Mr. Usher.*] Were they never less than that? They were not exact to a foot.
1729. *Mr. Jones.*] If the bords exceeded their width, was there any complaint made? Yes; some of the men were taken off occasionally for doing so.
1730. *Mr. Davies.*] Who controlled the operations when you went to the pit? The Company gave power, I think, to Mr. Campbell to instruct.
1731. Well, did he control operations? To a certain extent he did; but he knew that he could do nothing in the case, as the men understood exactly what to do.
1732. Do you mean to say that the men did what they thought proper, or did the leader of the shift control the shift? Well, he was working the same as the other men; all they had to do was to carry the canvas in. Every man was anxious to proceed with the work.
1733. Did the inspectors watch over your safety? Yes.
1734. No once forced you to enter the mine? No; I went in with the majority.
1735. Previous to this, did you ever have any conversation with the inspectors as to the safety of the undertaking? I never said anything to them more than passing the time of day; they could do nothing in the case whatever.
1736. Do you know who the men were who went as a deputation to the proprietors to ask permission to re-open the mine? Archibald Durie was one, and there were some others whom I do not recollect.
1737. Then there was no pressure brought to bear upon you? No, none whatever.
1738. Then if anything had happened to you you would have had none to blame but yourself? Well, we never dreamt of anything; but I suppose we took whatever risk there might be.

Mr. J. Duncan. 6 May, 1886.

1739. *Mr. Usher.*] Did you never expect to get any pay? After the first day or two I did.
1740. Did you ever work in the in-by side of the boiler? Yes.
1741. Did you ever observe any smoke in the main air-course? No; I never was in the air-course on the other side.

Robert Davies sworn and examined:—

Mr. R. Davies. 6 May, 1886.

1742. *President.*] What is your occupation? I am an innkeeper at present.
1743. But before that, what was your business or occupation? I was a miner.
1744. How long ago is that? Two years ago, to the very day.
1745. Where did you work at that time? In the Lithgow Valley Colliery.
1746. In what capacity? I was deputy under John Doig.
1747. Who succeeded you? Mr. Passmore.
1748. Were you deputy when the underground boiler was put in? I was.
1749. Did you superintend the operations? Only by instructions from the manager.
1750. What instructions did you receive? He was there all the time attending to it himself.
1751. Was the boiler placed in an ordinary bord? Yes.
1752. Did you lift the bottom coal? No; the bottom coal was not lifted.
1753. Did you protect the boilers from the pillars? No
1754. How was the smoke conducted from the boiler? At first it came out and struck against the roof.
1755. Did you take down the top? No.
1756. Then it struck the top? Yes; and he thought it advisable to have earthenware to run the smoke to the water. There were about 10 feet square of the roof taken down where the smoke came out of the mouth at that time.
1757. How long was the boiler in operation before you ceased to act as deputy? About eighteen months.
1758. Did you consider that boiler safe? No, I did not.
1759. Did you mention your opinion to Doig? I said we would have bother with it.
1760. What did he say? He said he did not think so.
1761. Did any fire occur in your time about the boiler? Yes; two fires occurred.
1762. When was that? I cannot give the date.
1763. Where did the fires occur? In the slack. Sparks from the flue dropped on the soot and kindled it. That is how I account for the fire.
1764. Did you ever travel the return way from the end of the clay pipes to the furnace? No; not these past five or six years, because it was so full of water.
1765. Might that water not rise and cut off the air return? No; because it would run to the other workings before it got high enough to do any damage that way. There were about 20 inches or 2 feet between the water and roof.
1766. Do you think that that was a good way to conduct the return-way across water? No; I did not think it was.
1767. Could you not have made a return air-way parallel to and nearer the tunnel? Yes; it could have been taken alongside the tunnel to within $1\frac{1}{2}$ chain of the boiler.
1768. Where did you learn your business, Mr. Davis? In the Newcastle district and here.
1769. Then you were never a miner in the old country? No, never.
1770. You have had no experience of fire or choke damp or any gas given off in mines, have you, Mr. Davis? I have experienced black-damp in that colliery. It came from the out-let running into Brown's colliery.
1771. Out of the encroachment? Yes.
1772. Does the water flow from the Lithgow Valley mine to Eskbank? Not very freely.
1773. Do you know whether any pillars were taken out on the left-hand side tunnel? Yes.
1774. About what area would you say? About $1\frac{1}{2}$ chain or 2 chains.
1775. How many pillars were taken out? About three pillars.
1776. Was that any distance from the boiler or tunnel? [Plan examined, and witness pointed out the locality.] A short distance to the north and west of the pillar the tops have fallen over a considerable area.

[Examination of plan continued, and witness, in pointing out the course of the air-way, indicates a spot, about 60 yards from the left-hand furnace, where the water rises to within 12 inches of the roof.]

1777. Did you consider this mine a dangerous one to work in? No, I did not.
1778. Have you ever seen any gas in this mine? No; I have not seen any gas—only black-damp.
1779. Yes, that is in all mines. Was this a well-ventilated mine in your time? Yes.
1780. Did you ever make any complaint as to ventilation? No.
1781. Did you ever receive any complaint from the men? Occasionally; but whatever might be complained of would be rectified in a few minutes.
1782. Then there was no serious complaint? No, none whatever.
1983. Did the Government inspectors pay you visits in your time? Yes.
1784. Who were the Government inspectors? I believe they were Mr. Dixon, Mr. Lewis, and Mr. Rowan.
1785. Did they make a minute inspection of the mine? Yes; they inspected all they could.
1786. Was your attention ever drawn to the furance, as to whether it was of ample capacity, for example? The furnace that is worked from the boiler does not interfere with the ventilation at all.
1787. As to the other one? There was ample capacity in that.
1788. Have you ever been in any other mines in the district? No.
1789. When did you resume your connection with this colliery? Did you come to the colliery when you heard an accident had occurred? Yes; I came to see Doig when I heard that he was alive. While I was there Mr. Gell and Wilton gave me orders to go into the mine and do what I could.
1790. Did they tell you Mr. Turnbull was in the mine? Yes; and I was to get the plan from him, as I would know all the roads better than he could possibly do by the plan. I went in and met Mr. Turnbull and asked him for the plan, but he would not give it to me. I told him that I had been instructed to do the best I could under the circumstances, and that I would give him help to the best of my ability.

1791. What did he say? He did not listen to me.
1792. And what did you do then? I went to the main heading, to where the smoke was accumulating, and I found three men there—namely, David Owen, Peter Owen, and William Hall.
1793. What did you do then? I did the same as I had done previously, to get the fire out when the smoke accumulated in my own time. We found that the right-hand furnace was stronger in power than the little one; I got to the back of the furnace, opened the doors, leaving the air to come out in that way, so as to give the other a chance.
1794. You thought the fire was behind the boiler? Yes, I did.
1795. When was this previous occasion you refer to? About two and a half years ago.
1796. How did you discover that fire? I accidentally went in on the Sunday and found smoke in the main heading, the same as this time.
1797. How far up did it come on that occasion? About $2\frac{1}{2}$ or 3 chains up.
1798. Then it did not come up so far as on this occasion? No.
1799. Well, what did you do then to put out the former fire? I opened the doors of the right-hand furnace and stirred up the fires in the left-hand furnace, and I found that it drew away the smoke, and that I was enabled to get down, and we then put water on the fire; it was at the end of the pipes, about 30 feet down.
1800. Was it a large fire? There was about a ton of slack burning.
1801. Did you find much difficulty in putting it out? No, not much; we had a pumping engine, and used that to throw water on it.
1802. How long did it take you to extinguish it? About a couple of hours.
1803. Very well, coming to the last occurrence, I believe you took upon yourself the responsibility of undoing what Mr. Turnbull had done? Yes; I was instructed to do so.
1804. Were you instructed to go contrary to Mr. Turnbull's instructions? I did not know what his instructions were.
1805. I thought you said the plans were with him? Yes, so I did.
1806. Did Mr. Gell tell you to take the power out of Mr. Turnbull's hands? No; he told me to go down and do the best I could.
1807. However, you took down a stopping on the right-hand side, I believe? I opened the furnace-door and pulled the canvas off the stopping at No. 2 cross-cut to send the air by the nearest cut.
1808. Had the men been got out at this time? This was 3 or 4 o'clock in the afternoon.
1809. Do you know whether considerable progress had been made in putting down the smoke? The smoke was in the same place as on the Sunday, according to the men who were there.
1810. Mr. Turnbull tells us that the smoke proceeded down at the rate of 40 yards an hour, and when he came at 8 o'clock in the morning he was within 3 chains of the boiler? I will show you the exact spot where it was. (*Dictated by President.*)

[*Plan examined.* Mr. Davies, referring to the plan, stated that when he arrived at 3 o'clock in the afternoon the smoke stood in the main tunnel at about 10 chains from the fire, and that he took upon himself the responsibility of opening the door of the right-hand furnace, and of opening the canvas in front of No. 1 cross-cut, and thus cutting off the air from the mine; at the same time he stirred and put fresh coals on the left-hand furnace. Witness explained that this was the mode he had adopted at the first fire, two and a half years ago, to clear the mine of smoke.]

1811. When you extinguished the former fire, did it ever occur to you that it would be prudent to remove the slack where it occurred? The manager was with me in the works extinguishing the fire.
1812. Yes, but did it ever occur to you that it would be prudent to do so? I thought it would be advisable to shift the slack.
1813. Did you say anything to this effect to the manager? No, I did not.
1814. I cannot understand you people at all? The manager was present with me at the time, and did not want me to advise him.
1815. Did you think this was a dangerous boiler after that? Well, I think it is a dangerous boiler to be in where it is.
1816. Would the tops remaining there be a source of danger? At the end of the pipes they were pulled down to the rocks; that was where the flue came out.
1817. Where were the ashes put that you drew from the furnace? They were drenched and put on one side.
1818. Were they not taken out of the mine? No; they were put on the road mostly.
1819. Did you consider there was any danger from the ashes being accumulated? No danger was experienced in my time.
1820. Is that all you know about the accident? Did the inspectors say anything when they discovered what you had done? They censured me.
1821. Did you offer any defence? Yes; I offered the same defence I have offered now, that I had been instructed to go into the mine and do what I could in the light of my experience.
1822. Did Mr. Turnbull say anything? Yes; he censured me in the same way.
1823. What was done after your action was discovered? I cannot tell what was done when I was not in the mine; I only know that I went away when they censured me.
1824. Did you ever return to the mine? No.
1825. *Mr. Davies.*] Did Mr. Gell or Mr. Wilton say anything to you about taking down the stopping? No, neither of them.
1826. Did they see you? They knew about it, I suppose.
1827. *Mr. Jones.*] Does not the water flow up under the pipes you have spoken of? Had the water not been there, would not the fire have taken a greater hold? Well, yes, provided it had enough time it would have spread over a larger area.
1828. Did you ever see the colliery plans while you were deputy under Doig? Yes, dozens of times.
1829. Did Doig do his own surveying? Yes.
1830. Was there anybody else? No; excepting Mr. Gell on one occasion, who was afraid of this encroachment.
1831. Have you any knowledge of the pillars near No. 2 cross-cut? Passing through the pillars where the men were found, were those pillars all right? Yes, the pillars were all right there, opposite where the smoke was at the time the roof was down on the right-hand side.

Mr. R. Davies. 6 May, 1886.

1832. *Mr. Swinburn.*] Did you ever have any conversation at all about the returns? No; I took my instructions, and did no more.
1833. Did you ever have a conversation with the management or manager about the return from the furnace to the boiler? No, not exactly a conversation.
1834. Still you were not satisfied. Why did you not report to some official about it. Did you not think it was your duty? I did report it to the manager, and that was all I could do.
1835. Then you did report it? Yes; I reported it to the manager.
1836. *Mr. Neilson.*] Assuming that it is considered necessary to drown out this fire, when the water is put on a level sufficiently high for that purpose, would it not also flood out the Eskbank Colliery? The water must rise more than 17 or 18 inches at least before it flows over to Eskbank Colliery.
1837. Is the Eskbank mine to the dip of the Lithgow Valley Colliery? Yes. (*Dictated by President.*)

[*On examination of plan.* From the encroachment made on the Lithgow Valley side from Eskbank there is a narrow heading driven down along the boundary to join another heading that at a previous time had been driven up towards this encroachment. The water in this boundary road stands within 17 inches of a point where it would run into and inundate the Eskbank Colliery.]

1838. *Mr. Curley.*] When you met Mr. Turnbull after going into the mine there appeared to be a disagreement between you. Did it not occur to you that the best thing to do under the circumstances would have been to go out again and consult the proprietors, considering that Mr. Turnbull was in charge? I did not know that he was in charge.
1839. When he would not give up the plan, did it not occur to you that the best thing to do would be to go out? I tried to save the mine.

FRIDAY, 7 MAY, 1886.

Present:—

THE PRESIDENT,	MR. SWINBURN,
MR. USHER,	MR. CURLEY,
MR. THOMAS,	MR. DAVIES,
MR. NEILSON,	MR. JONES.

Robert Grant sworn and examined:—

Mr. R. Grant. 7 May, 1886.

1840. *President.*] What are you? I am a miner.
1841. How long have you been occupied in that calling? Twenty-one years.
1842. Where? Most of the time in Scotland.
1843. Have you ever had any experience of fire-damp? Yes; I have worked where there has been fire-damp for over fourteen years.
1844. Have you ever actually experienced it? Yes; while I was working in a large colliery in the Monckland district.
1845. How long have you been employed in this colliery? Seven years, most of the time in the Lithgow Valley mine, and ten months at Eskbank colliery.
1846. As an experienced miner, have you observed any material difference in the mode of conducting the workings in Eskbank colliery and in the Lithgow Valley mine? No, I have not.
1847. Do you consider the Lithgow Valley colliery a safe or an unsafe mine? I considered it safe during the time I was there, but I have not been there during these last fourteen months, having been laid up with rheumatic fever.
1848. Had you any fault to find or any complaint to make in regard to the ventilation? Once or twice I had occasion to complain about the ventilation at Tyndall's heading, but the matter was remedied the next day.
1849. Was it a serious complaint? Well, I do not know what you would call a serious complaint. It is not nice to work in the midst of bad air.
1850. Did you ever see fire-damp in the Lithgow Valley mine? No.
1851. If fire-damp existed in the mine, where would be the most likely spot to find it? It would always be found in the highest level.
1852. While engaged at the Lithgow Valley mine, did you ever work to the left or north side of the tunnel? Yes; I have worked on both sides, from the top flat right down towards the lower level.
1853. Is the top flat situated to the rise of or above the underground boiler? Yes.
1854. Does the top flat approach the Eskbank boundary on the left-hand side? Yes; and goes forward to the boundary.
1855. You have heard of the encroachment, that is the communication between Eskbank and the Lithgow Valley mine, have you not? Yes.
1856. Do you know whether the encroachment came from Eskbank or the Lithgow Valley mine? I do not think it came from Eskbank, for I have heard it said that Doig wanted a place to take his water away.
1857. Do you know the size of the pillars in this mine? I do not think there are any two of one size.
1858. What is the largest size? Some of the pillars, I believe, measure 16 yards, while others only measure 4 yards; some are larger and some are smaller. This is the case all through the left-hand workings. Some of the pillars, I believe, only measure 3 feet.
1859. Do you know whether the pillars were taken out for a considerable area from the left-hand side of the tunnel? I know a good many were taken out.
1860. Do you not think it an extraordinary thing that some pillars should be as much as 16 yards, and others in the vicinity only 3 feet? I had nothing to do with that.
1861. But was it not an extraordinary proceeding? Well, I should not have done it.
1862. Was this area of pillars that you speak of as taken out contiguous to the Eskbank boundary? Yes.
1863. Were any pillars taken out close to the main tunnel? Not that I am aware of.
1864. Have you ever known any of these large pillars being afterwards split? Yes.

Mr. R. Grant. 7 May, 1886.

1865. Have you split them? Yes; we split the pillars 7 or 8 yards, the width of the working bord.
1866. Did you work during the operation of putting out the fire? No.
1867. Have you ever heard of any falls occurring in the situation to which you have been referring, that is, when you were working in the mine? There was one heavy fall close to where I was working about three years ago. Coal came away to the rock.
1868. If a strong body of rock broke, would it break suddenly? No; it would give you some warning. You would generally hear a crashing sound before the fall.
1869. You are positive then that for a considerable area of the north workings the pillars have been systematically left of small size? Yes; I have seen two men working opposite to one another and holing through.
1870. What part was that? More to the right-hand side of Tyndall's heading, about 60 yards from the main heading.
1871. Then the pillars are left with more care now than they were some time back? Yes.
1872. Have you ever seen signs of the pillars crushing? No.
1873. *Mr. Neilson.*] Has you experience been confined to Scotland and the Lithgow Valley mine? Yes.
1874. What was the nature of the coal you worked in Scotland, hard or soft? Both hard and soft.
1875. Did you work pillar or stall? I have worked both long wall and pillar.
1876. This is a very open seam, I believe? Yes.
1877. Concerning the statement as to the late manager Doig driving towards Eskbank to get rid of the water—had they any means of pumping the water in the Lithgow Valley mine? They had this boiler for pumping the water up from the main heading to the lower workings.
1878. Was that water pumped to the surface? No; it never came to the surface.
1879. Do you know if this pump was constantly kept going? It was kept going when it would work, but sometimes it would not work for as long as four or five hours at a stretch.
1880. Seeing that the water was not pumped to the surface, where would it go to? It would flow to Eskbank.
1881. You are quite certain that pillars have been taken out on the left-hand side? Yes.
1882. *Mr. Jones.*] You say these places were driven to Eskbank for the express purpose of getting rid of the water? Yes; it was the common talk among the miners at the time.
1883. Was this done before the straight-down road was troubled with water? No; it was afterwards.
1884. Then do you only learn this from talk that took place among the miners? No; there were men working night and day at it.
1885. *Mr. Davies.*] And were the Eskbank people aware of it? That I cannot say.
1886. *Mr. Curley.*] Was this communication with Eskbank that you have spoken about made prior to the erection of the boiler? Yes.
1887. *Mr. Jones.*] How long? I cannot say how long.
1888. Then how do you trace the express purpose that Doig had in getting rid of the water when no boiler was erected? There was a pump connected with a spindle of the fly-wheel, and when an engine was going it pumped the water from the main heading.
1889. *Mr. Neilson.*] What was the character of the roof above the top-coal? Strong rock.
1890. *Mr. Curley.*] Do you know the nature of the return from the boiler up to the left-hand furnace up-cast? I cannot tell the state of it at present; it never was in a good state. I do not think anyone could travel it properly, because it was full of water, and in some places we had to cut the top-coal to leave sufficient space for the air to pass.
1891. Supposing a large fall had taken place, do you think that a very large displacement of air could have come from that quarter between the boiler and the left-hand furnace up-cast on to the main tunnel? No, I do not see how it was possible.
1892. *President.*] Could an explosion have come? Yes.
1893. Are you aware that fire has never been traced within 7 or 8 or 10 chains of that? I do not know that.
1894. If you were told it was so, would you alter your opinion? I do not know how that could be told.
1895. But there were men down there, and you were not? Well, I do not know.
1896. *Mr. Neilson.*] Assuming it to have been an explosion, where would the generated gas, when it was ignited, go to? It would go about the workings, I suppose, but the flame might go round about and still not go near the men.
1897. *President.*] Indeed, what is the usual course of an explosion? Always against the air.
1898. If you were told that in this case it came with the air, would you see reason to alter your opinion? I cannot say, I am sure.
1899. The evidence goes to show that the force of the blast came down the main tunnel? The force of the explosion came out of the mouth of the tunnel.
1900. Did you see it? My own father tells me he was pitched out 50 or 60 yards.
1901. Your father was an overman? Yes.
1902. You have formed a very decided opinion without sufficient data? It is only my own opinion, and every man is allowed to have an opinion of his own.
1903. *Mr. Curley.*] Do you know whether Doig or any other person in the mine went on the top of this large fall you speak of as being near the encroachment in order to ascertain whether there was anything like explosive gas there? Not that I am aware of.

William Hammond sworn and examined:—

Mr. W. Hammond. 7 May, 1886.

1904. *President.*] What is your occupation? I am a wheel-roller by trade, but a miner by occupation.
1905. Were you employed at the Lithgow Valley Colliery? Yes, for three years; I was engaged as a drayman.
1906. Had you any previous experience of coal-working? No; I was never in a mine before that one.
1907. What do you know about the first accident—where were you? I was going to work at 4 o'clock in the morning to bale water. I went inside the tunnel as far as I could, but I was stopped by the smoke, and returning went to the day boss, Mr. Passmore, and told him there was something wrong. He said he was aware of it, that he had been in there, and that I was to go in and fire the furnace.
1908. Did you do so? Yes, I went in and fired the furnace, as he told me.

Mr. W. Hammond. 7 May, 1886.

1909. Did you know then that Mr. Doig and his companions were inside the mine? Not until breakfast time; it was a good bit afterwards; I cannot say what time it was exactly; there was then a party in search of them, consisting of Hopkins, Rodham, and Norwood.
1910. And where did you go? We went into the second cross-cut and got in the air-way and travelled down a good distance. I then told my companions that I would not go any further, as I had been in the furnace where the gas was strong, and felt weak.
1911. How many pillars down from the cross-cut did you go? I cannot say exactly—about a ¼ of a mile, I suppose.
1912. And then you returned? Yes, I returned then and went to look after the furnace again. I fired the furnace as long as I could, and found I was obliged to go out.
1913. *Mr. Davies.*] At what time did you speak to Mr. Passmore? It was getting on towards 5 o'clock. He said he had been there all night and felt sick.
1914. Did you see Robert Drurie in the mine? I saw him just as I came out of the cross-cut.
1915. Did you have any conversation with him? Yes; he remarked to me, "You should not have gone in there, as I have been in and fell down three times myself."

George Hall sworn and examined:—

Mr. G. Hall. 7 May, 1886.

1916. *President.*] What is your occupation? I am a miner.
1917. How long have you been a miner? About eight years now.
1918. Where have you been working lately? In Lithgow Valley Colliery.
1919. Have you ever been out of the district? Yes.
1920. Where, and in what part? I was employed in Bundemoona, on the Southern line.
1921. As a miner? Yes, as a coal-miner; and also at Ringwood.
1922. How long have you been working in the Lithgow Valley Colliery? I cannot say exactly how long I have been working there.
1923. Well, about how long? About eight months, perhaps.
1924. Were you employed as a coal-getter? Yes.
1925. When were you last in the Lithgow Valley Colliery? It was on a Saturday; I do not remember the date.
1926. Was it on February 14? I cannot say what date; I believe it was some day in February though.
1927. When did you leave the mine on that day? About 5·40 p.m. My father, Buzza, and Riddle were with me. I came straight through the main tunnel. I was working through the south, and on going up the tunnel I recollect passing the underground boiler.
1928. Did you observe anything in there? When I left my bord to go out there was smoke on this side of my bord. I said to father, "What is this; I never knew anything like this before." Father said he did not know. I then came along, and when we came to the flat we had to make way in order to get out.
1929. Was the ventilation good at this time? Yes, but it was carrying smoke with it, and I had never observed smoke in that situation before.
1930. In coming along the tunnel, did the air still contain smoke? Yes; I went to the boiler-door and had a look in, and there seemed to be smoke coming over the top from the flue. It seemed to be coming through the door on the left-hand side.
1931. Was the smoke dense there? I did not take a great deal of notice.
1932. Did you think it was unusual? I cannot say; I was never in that place before.
1933. Did your father and Mr. Buzza go into the boiler? I do not know; they went ahead of us. We had no skip to fill. I do not think my father did go into the boiler; he was a little sick. I have never seen smoke in the main tunnel upon any previous occasion, and I used to go past every night and every morning. I did not pass the boiler during the eight months because I was employed in the cross-cuts.
1934. What took place after you had seen this smoke in the boiler? After I had looked in there I came out, and it was then about five or six minutes to 6, and I saw Mr. Passmore, who was with a man named Henwood. I said to Mr. Passmore, "There is a great smoke in there, and it seems to come from the boiler."
1935. Did you tell Mr. Passmore that smoke extended down the main tunnel? I told him it was past the flue. He said, "All right," and that was all that passed. I was on night-work at the time.
1936. What impression did you form when you inspected the boiler and saw the smoke coming out from behind it? I never took any more notice of it.
1937. Did you not form any impression as to whether it was something coming from the boiler itself, and that there was a certain reason for it? I did not think a great deal about it at the time; it was apparently coming from the back of the boiler, and was of a blackish colour.
1938. In the course of working in the mine, have you ever found reason to complain of the ventilation? No; I always had good air wherever I worked.
1939. Did you ever suspect danger from this boiler? No.
1940. Did you ever suspect danger from the existence of any poisonous gas? No.
1941. Have you had any experience of choke-damp? I never saw it before this occasion.
1942. Have you ever seen fire-damp? No, I have not.
1943. With respect to this particular case, do I understand you have never had the curiosity to go into this boiler and see whether the coal was protected from the influence of the flames? No; the first time I went there was the occasion I have mentioned when I put my head through the door and had a peep round.
1944. Can you form any opinion as to the origin of this fire? No; I never formed any particular opinion about it.
1945. Have you observed the character of the stoppings that have been put in in this colliery? No.
1946. Do you know what the stoppings were constructed of? Yes, of slack; I have never seen any brickwork.
1947. Did these slack stoppings answer their purpose, so far as you know? Yes.
1948. Do you know what kind of stoppings are put in the adjoining works, Eskbank I mean, and Vale of Clwydd? I don't know.
1949. Have you ever put in any of these stoppings? Yes, a few.
1950. What thickness were they? I do not know exactly; but I should say about 3 feet on the top.

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1951. Of course they would be much thicker on the bottom? Oh, yes.
1952. Were you working at the fire when Mr. Turnbull took charge? No.
1953. After the pit was sealed up and re-opened again, were you one of those who were selected to work? Yes.
1954. Did you work the whole time? Yes.
1955. How was the work conducted, that is, what was the length of the shifts? Six hours.
1956. How many men to each shift? Eight.
1957. Was there at any time a greater number than eight men in a shift? There might have been ten, but not more.
1958. Was there a leader or deputy to each shift? Yes; a leader.
1259. Do you recollect when you got down almost to the seat of the fire that you had to abandon the work for a time? When I went to the fire first I kept away a good distance for a while till I could see what it was; I could just see the fire, but did not think there was any danger.
1960. What were you doing? The first time I went I was bratticing down with wood and canvas.
1961. Did you have ample ventilation? Yes.
1962. Was the force of ventilation sufficient to carry down the smoke? Yes; it was sufficient to carry everything before it; we could get down to where the fire was.
1963. What stopped your progress eventually? I do not know; I went to Sydney after that, and did not get back till last Friday.
1964. You had worked down the tunnel by means of bratticing until you got to Tyndall's cross-cut, then something happened which caused the work to be abandoned; don't you know what that was? No, I don't.
1965. Did you know the work was abandoned for a time and the Government inspectors resolved to close the pit up again? Yes; but I do not believe I was in at that time; it was the shift before ours.
1966. Was everything done that ought have been done to assist you in your progress? Yes.
1967. Did you get everything you wanted in the shape of material? We got everything we required.
1968. Did you know there was any danger in undertaking a work of that description, that is, re-opening the pit? I did not see any danger.
1969. Did you think there was no danger in the appearance of the smoke on the lower flat? Yes; until I got up as far as the boiler.
1970. Do you not think there would be danger in a place choke-full of poisonous gas? Well, I suppose there would be; I felt a little bit uncomfortable at first, but afterwards I did not care. The men were anxious that the pit should be re-opened, and there was a meeting in connection with the matter; I was not present myself, but said I would go with the majority of the men. I believe a resolution was passed that the owners should be requested to allow the men to extinguish the fire.
1971. Were you working at Tyndall's heading when the accident occurred? We were working on the left-hand side.
1972. Did you ever hear the reports of falls anywhere in that direction? Yes; I have heard a few falls at the back to the left of the boiler.
1973. Did they appear to be some distance from the boiler? Yes; one or two seemed to be some distance away.
1974. Were the reports very loud? No, not very loud. It used to drive the air back a little, also the smoke, which would come straight in our faces. I was working below the brattice, and the smoke used to come up Tyndall's heading. The pump we had been working was close to the boiler, and the fire was burning on the side of the boiler as I have mentioned; then we got the tops down and applied the water; that was the last shift we worked; it was on a Sunday.
1975. Were the inspectors of collieries there during the course of operations? Yes; they were there day and night.
1976. Who was there? Messrs. Rowan and Mackenzie.
1977. Did Mr. Rowan take an active part in superintending the operations? Yes; he used to be there pretty well all the time.
1978. Did he assist you in any way? Yes.
1979. Did he give you orders? Sometimes.
1980. Was Mr. Campbell there at that time? Yes, and Messrs. Gell and Wilton.
1981. Did they give you instructions what to do? They always told us to stop if we saw any danger.
1982. Did they show much concern for your safety? Yes; they did everything they could, and said they did not want to see any more lives sacrificed.
1983. *President.*] Then, from your knowledge, do you consider that the inspectors of collieries know their duties? Yes, I do.
1984. Did they share equal risks with yourselves? Yes.
1985. Did they ever shirk their work? Certainly not.
1986. And they shared whatever danger there might be equally with yourself? Yes.
1987. Has Mr. Mackenzie given you instructions? Yes, he has in some things. I have known him to stop all day, and very nigh all one night. He took as active a part as the others.
1988. Then you have no fault to find or complaints to make so far as the inspectors are concerned? None whatever.
1989. They showed, in your opinion, great anxiety to further the progress of the work and to protect you from danger? Yes.
1990. I understand you to say that you cannot speak as to the cause of the accident, as you were not present in the mine at the time? No. I may say that I am in a Volunteer Company, and went to Sydney to be present at the Encampment. That is why I was away at the time.
1991. Did you see the bodies of the unfortunate men who were killed? Yes, I saw all of them. I helped to take Mantle home.
1992. Were you one of the relieving party that went in to take them out? No.
1993. What was the appearance of the bodies? Did you see Hyde? No; I did not see much of him, as he was quickly taken home. I saw Buzza. He seemed to be smothered with black-damp and smoke.
1994. Did you see any evidence of burning on any of the bodies? The only one I saw was that of Lance Allison. He was burned a little on his face and fingers.

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1995. *Mr. Curley.*] Describe the appearance of the burns? His fingers looked as if they had been burned. I believe he was using the hose, and possibly he got burned that way.
1996. Was his hair singed? No; I believe not.
1997. *Mr. Davies.*] When you came out of the pit after seeing the smoke, who was it you reported to? When I came out on the Saturday there was Mr. Passmore, and Mr. Younger with him. There were also two or three more present. I did not see who they were, whether working men or not; but I told Mr. Passmore there was a great smoke in the tunnel, and he said, "That's all right."
1998. *President.*] Had you ever any occasion to make a complaint about the general conduct of the mine? No.
1999. *Mr. Curley.*] Were you among the parties who first went in after the discovery of the smoke? Yes.
2000. Were the inspectors present? Yes.
2001. And the proprietors? Yes.
2002. Did you ever hear them express an opinion as to the nature of the work? No; but I heard the inspectors and Messrs. Gell and Wilton say that if we saw any danger we were not to proceed.

James Rowan sworn and examined:—

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2003. *President.*] What is your profession, Mr. Rowan? I am Inspector of Collieries for the Southern and Western Districts of the Colony of New South Wales.
2004. How long have you been engaged in mining pursuits? Since I was nine years of age—about thirty-five years of it.
2005. Have you had extensive experience? Yes; I have been through all branches of coal-mining, both at Home and abroad.
2006. In the working of coal and ironstone you have had extensive experience? Yes.
2007. In what district in the old country? In Scotland—in Lanarkshire, Renfrewshire, and Stirlingshire.
2008. During that time, have you had occasion to meet with fire-damp or explosive gas? Yes; I have had a good deal of experience in fire-damp in Lanarkshire and Renfrewshire.
2009. How often do you inspect the mines in your district, Mr. Rowan? Every eight weeks, more or less.
2010. You inspect the mines every eight or nine weeks as a rule? Yes.
2011. In the course of your professional duties you have visited Lithgow Valley Colliery? Yes, I visit Lithgow in the regular circuit of visits.
2012. You visit it periodically? Yes. There is an interval of eight weeks between each inspection when all things go regularly.
2013. When did you make your last inspection before the first accident in February last? On December the 15th.
2014. Then your next visit of inspection was almost due when that accident took place? Yes; it was just about coming round.
2015. Can you give us the date of the first accident? On February the 15th I received a telegram from the Examiner of Coal-fields that the Lithgow Valley Colliery was on fire, and I was there next morning. I got the telegram in Wollongong. I received it on the Monday, and was here on the Tuesday, and went down the mine.
2016. On your arrival I suppose you heard that three men had lost their lives? Yes—Doig (the manager), Rowe, and Younger.
2017. On your arrival, what responsibility did you take? Well, I took no particular responsibility, so far as that goes, except to go into the mine, and give assistance, to see if we could beat back the smoke. I worked hand-in-hand with the other men.
2018. How long were you thus engaged? From 2 o'clock till 6 on the Tuesday morning.
2019. At that time—6 o'clock—what agreement was arrived at? It was agreed upon by the proprietors that it would be better to close up the mine.
2020. Did you agree with them? Yes.
2021. And accordingly the mine was closed up, I suppose? Well, not at that time. Mr. Turnbull, the Manager of the Vale of Clwydd Colliery, waited on Mr. Dixon, the Inspector for the Northern District, and myself, and said that the men of the Lithgow Valley Colliery were very anxious that they should be allowed to go up the No. 2 cross-cut; and after he had laid down his plan in connection with the method to be employed in getting up there, he said he only required six hours in which to accomplish the task. We agreed to allow him to make the trial, limiting the time to the six hours he had asked for. His object was to get up to the face of No. 2 cross-cut in order to see what difficulties there might be in the way of putting up a stopping there.
2022. That is practically what has been done now? Yes.
2023. Did you have any power to stop him from doing so? No; when pressure was put upon us we agreed that the six hours' time should be allowed for the trial, and Mr. Mackenzie and myself stood there to see that 4,000 cubic feet of air passed up the cross-cut from the main tunnel. At the same time we had two men watching where the smoke was, to see if it came back at all.
2024. Then, Mr. Rowan, what did you do? Well, he went up, and I kept watch with Mr. Mackenzie at the cross-cut. I think he (Turnbull) was away about half-an-hour when I heard the cry coming out: "Help!" I told Mr. Mackenzie to stand there, while I went for lights, as it would be no good for men to go in in the dark; and when I got out Mr. Turnbull was out; he was carried out. He had been overpowered by the gas—that is to say, he was at the last stage. He had power in his limbs, but gave way when he got out into the fresh air.
2025. What next took place? It was then decided to hermetically close the mine.
2026. There was a brick stopping placed across the main tunnel? There were four substantial brick stoppings put in—one in the tunnel; one at the right-hand furnace, to separate it from the tunnel; one at the surface up-cast; and one at the top of the left-hand furnace shaft, which excluded the ingress or agress of the air.
2027. During your periodical inspections, did you thoroughly examine the whole of the mines in this district? Yes; I made inspections of the whole of the mines in the Lithgow Valley district, and examined all the working places of the men.

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2028. You visited the working places? Yes; I may have passed a bord or so, but I have been in nearly all the working places and travelled the roads.
2029. Speaking generally, are the mines in this district around Lithgow all working on the same principle as to width of bords, and thickness of pillars, and the character of the stoppings? Yes, generally speaking. The stoppings are of slack—that is, they are not confined exactly to slack coal; a lot of them are mixed with timber, and many of them are propped up on each side. Nevertheless, we term these slack stoppings.
2030. Have you ever received any complaints as to the way in which the collieries are worked in this district? No; I never received a complaint either by word or letter, except on one occasion a man in the Eskbank Colliery told me something about an engine. They wanted a night watchman put on; the matter was put right. But as to defective working or bad ventilation, I never received any complaint either by word or letter.
2031. Have you ever made any complaints to the manager or owners of the Lithgow Valley Colliery? Nothing but small miscellaneous things, such as a prop here and there being wanted.
2032. Merely incidental matters, I suppose? Yes.
2033. During your inspections, did you notice the state of the workings, the size of the pillars, and the width of the bords? The pillars were about a chain, I think, and the bords 7 yards; I thought them of sufficient size along the main headings; I know in the early history of the mine they have been cut away a little. I never could see anything out of the ordinary way.
2034. Did you consider this coal-seam in the Lithgow Valley mine a dangerous seam to work? In what aspect, Dr. Robertson?
2035. In any aspect. Does it generate gas? Photo-carburetted hydrogen gas? No; I have been through the waste workings myself and in company with others, and I never saw the slightest signs or indications to give me the idea that there was any explosive gas in the mine.
2036. Have you ever heard it said or whispered that explosive gas existed in the mine? No; I never heard such a suggestion made.
2037. The workings of the Lithgow Valley mine are of an extensive character, I believe? Yes.
2038. Can you tell us whether you ever measured the area of the coal that has been worked, and that standing in the pillars? I cannot say that I have.
2039. Have you ever formed an estimate? No.
2040. Have you observed the workings of recent date? Are the pillars left more regular or of larger size? Yes, the system has been very well carried out of late.
2041. What has been the average size of the pillars? About a chain, so far as I could see; I consider they were good substantial pillars.
2042. Did you observe whether the pillars had been robbed or spilt in any of the districts after being formed? No; I did not see anything of that kind, on the occasions that I visited the mine, where the men were working, or round about where they were working.
2043. What was the character of the roof? I have prepared a section, which will best supply an answer to that question.

[Mr. Rowan hands in a section of the whole coal-seam. See Appendix, plan No. 6]

2044. Was there any provision made in this colliery for ventilating the waste workings? Yes; it travelled round the front working after leaving the main tunnel and came out of the second way to the day. I have travelled round about that part.
2045. Were they walled off in any way to prevent the men from entering there along the main roads? Yes, stoppings were in along there.
2046. And the back return ways, were the men prevented from entering these wastes? No, there was no prevention? I went there myself several times.
2047. And you say that you found no explosive gas? No sign of it.
2048. On the supposition of this coal generating choke-damp, would these wastes act as a store-house? There might be a little down in the lower part of it; but there is a good current of air always going in the upper portion of the workings.
2049. Have you ever seen or heard of any portion of the pillars over to the right or left hand of the tunnel having been worked? I have heard of some pillars being taken out towards the Eskbank boundary.
2050. Are you aware whether the roof fell in when these pillars were taken out? That I cannot vouch for.
2051. Have you ever been in this portion of the mine? Well, no; the men had not been working there, and I did not consider it necessary to visit the abandoned portion of the mine.
2052. Do you know any reason why this particular portion of the waste was selected for pillaring? I have heard that it was for some reason or other; I think it was to let the water down to Eskbank.
2053. Do you know any part of the mine to be filled with choke-damp or water? I believe there is a swallow of about 3 chains on the left-hand side, and a portion of water lies there.
2054. Do you know whether choke-damp existed in any quantity towards the Eskbank boundary? As for that, I do not know, as I was only round in that direction seeing if anybody was working there.
2055. If light carburetted hydrogen gas had been present there, could it have escaped your observation? No, not in the workable portions of the pit; and from the road I travelled in the return from where the men were working, and, as I have said, I have never seen any indication of it.
2056. *Mr. Curley.*] In this case the return runs, I understand, from the dip to the very rise of the workings? Yes; it will be nearly 70 feet vertically down from where the men were working.
2057. *President.*] Have you been along the boundary of the Eskbank pit? Yes.
2058. What is the state of the pillars there—are they crushed or open on the boundary? There is a large fall along the boundary, and 8,000 cubic feet of air passes along the margin of the workings.

[Plan of Eskbank produced and inspected. See plan, Appendix No. 8.]

2059. Does any portion of that air come into Lithgow Valley? It passes to the margin of the "cave-in" to the furnace in Eskbank.
2060. You have heard of an encroachment from Eskbank into Lithgow Valley property, Mr. Rowan? Yes, I have heard of it.
2061. Is it to the rise or to the dip of the main tunnel in the Lithgow Valley mine; does the coal dip to the encroachment or rise towards it? The dip is from the entrance to the fall.
2062. Can this encroachment be visited at present? No, I do not think so.

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2063. And we have seen that it cannot be approached from Eskbank? No, there is no possibility of getting to it.
2064. Can the water travel through this encroachment? Well, I do not know; it is expected that it did travel in that direction.
2065. If it did not travel there, how could they get rid of the water in Lithgow Valley, as we have evidence that no water in this mine is pumped to the surface? Well, the encroachment being made, no doubt the water will go there.
2066. But are you aware whether or not it does go there? Yes, I suppose it does.
2067. Where is the water in Lithgow Valley pumped to? It is pumped up to where the encroachment is made, and discharged there down to the waste.
2068. Would a great fire raging in Lithgow Valley be sufficient to draw air through this encroachment? It would be a question of fire and heat certainly.
2069. Do you apprehend any danger of fire extending to Eskbank from Lithgow Valley? That is a question I cannot answer upon my oath; I may have an opinion upon it.
2070. Well we want your opinion, Mr. Rowan; do you apprehend any danger in that direction? Well, no; as far as danger goes, that would be a very slow matter; it would give plenty of time and warning.
2071. In other words, it is a matter for futurity? Yes.
2072. Supposing that the Lithgow Valley mine were flooded with water, what effect would that have upon the Eskbank workings? So far as I am aware, there is no encroachment made except at that particular place (referring to the plan); and I believe that part is above the origin of the fire a good bit.
2073. But if the mine were flooded with water up to that part, would the water, after flooding the Lithgow Valley mine, pass into the Eskbank workings? Not until a vertical pressure is put upon it.
2074. Is there any vertical pressure or "head" upon the water that runs at present? I am uncertain as to this.
2075. Is it an open coal? It is a pretty firm coal; it has very few joints in it.
2076. Is it a favourable coal for the passage of water? It might sweat through it.
2077. It would depend upon the head? Yes.
2078. In Eskbank the workings have gone forward to the Lithgow Valley boundary, and we know that the shell that remains between is very thin? Yes.
2079. Of course they have stripped it there? Very much so, as far as Eskbank is concerned.
2080. If at any future time an attempt were made to flood the Lithgow Valley mine, would the same process flood Eskbank? I do not clearly understand you.
2081. Supposing they flooded Lithgow Valley full up with water? If it came up to the level of the encroachment? Yes.
2082. That is, it would run into Eskbank? I suppose so, if the water they are pumping there goes away now.
2083. What means have been taken to fight the fire in Lithgow Valley mine?

[Mr. Rowan, in answer to the last question, referred to the plan, and his remarks were dictated by the President, as follows:—Strong back stoppings, marked thereon in red ink, have been put in to support the workings to the left of the tunnel, and to the east of No. 2 cross-cut, from the workings to the west of No. 2 cross-cut; that these brick stoppings are further strengthened by 10 feet or so of small coal and debris piled up at the back; and that the left-hand furnace is specially sealed off by stoppings in the return and from the tunnel.]

2084. *Mr. Thomas.*] Do you suppose the fire is still raging, Mr. Rowan? I think it is still smouldering.
2085. *President.*] Is it possible to estimate how long the fire will smoulder? That is a question I cannot answer.
2086. It will not burn without oxygen? No, of course not.
2087. Quite so; you see, Mr. Rowan, for the purposes of this examination, the Commission is not supposed to know anything; what would be the effect of its own combustion? It kills it; the coal generates carbonic acid gas, which is fatal to light and life.
2088. I understand that you have had no cause to complain to the owners as to the working of the Lithgow Valley mine? No, except as I have stated, in respect to certain minor matters, which were instantly remedied when pointed out; I considered it to rank on an equality with any colliery in the district, both for ventilation and safety; so far as I could see, there was no visible danger.
2089. You apprehended no danger from any source? No.
2090. Have you received any complaint from the men on the subject of pillars or pillaring, or gas having at any time accumulated in the mine? No; I never received any communication of that kind whatever?
2091. Was this mine in any way singular or different from any of the neighbouring mines? In my opinion, no; it seemed to rank on the average about here; that is, it was conducted in the same way.
2092. Will you describe on the plan the course of the ventilating current?

[Mr. Rowan, in referring to the plan, indicates the right-hand air-current, as marked by red arrows, the left-hand air-current being marked with blue arrows.]

2093. *President.*] Then as to the ventilating current, how was it directed; can you tell us how these stoppings are constructed? They are constructed of small coal and timber, and built up in the ordinary way of putting in slack stoppings.
2094. Have these stoppings proved sufficient for the purpose of ventilating this mine? Yes; 7,000 cubic feet of air passes Tyndall's heading or convenient to it, and 5,000 cubic feet of air goes up the No. 2 cross-cut; there has been an average of 12,000 cubic feet of air for the last half-year in and around the mine.
2095. Returning to these stoppings, have you seen the same class of stoppings used in Britain? No, not exactly the same stoppings; we had a great deal of brick in them in fiery mines.
2096. Could any defect in these stoppings be readily rectified? I should say so.
2097. Then you made no complaint to the manager on this subject? No, because I got the requisite amount of air in the mine.
2098. Have you received any complaint from the men? Never a complaint, good, bad, or indifferent, in connection with the stoppings.
2099. Have they been found in conformity with the Act? Yes.
2100. Had you power to dictate as to the class of stoppings to be used? No.
2101. Would this be an arbitrary power to place in the hands of an inspector? I should think so. If I were a colliery manager, and any attempt were made to dictate to me as to the class of stopping to be used, so long as I had a sufficient quantity of air, I should require to know the authority for such dictation.

2102. You think then it would be an arbitrary power to place in an inspector's or any one individual's hands? Yes.
2103. You think it would be a power that would be likely to be abused? Yes; I think it would probably be likely to be abused in some cases; of course it would depend upon the man in whom a supreme control of the kind might be reposed, but I would prefer not to have such power. I would prefer to be guided by the law in connection with it.
2104. That is, you would wish it to be first authorized by statute? Yes, because there must be a balance of opinion.
2105. *Mr. Curley.*] Do you know what the law really is on this point, Mr. Rowan? There is no law, so far as I know, in connection with stoppings.
2106. Have you read the Act,—can you refer to a clause in the Act referring to stoppings, and tell us what it says regarding the matter? No, I cannot do that.
2107. *President.*] Did your examination include testing the quantity of air passing through the mine? Yes.
2108. Can you give us the quantity per man that passed? Yes; it would average perhaps 150 feet per man; I may say, however, that my examination appears in the half-yearly report, and will be duly published.
2109. Did it occur to you that the late manager, Mr. Doig, was stinted of his power as to incurring the necessary expenditure in the conduct of the mine? He was a reserved man, but he never gave me to understand that there was anything of that kind, and I had never any reason to press him on that subject. I have no complaint to make about the management of the mine.
2110. In regard to that second outlet, what is its position? Running parallel with the main heading, at the outcrop of the second cross-cut.
2111. Under the existing Act, could you enforce the making of that? No.
2112. At your various inspections of this mine, did you require to see the colliery plans? Yes.
2113. Did you consider them sufficiently accurate? Without any special measurement I had no right to believe but that the workings were fairly represented.
2114. Can you identify the original plan (plan produced). Is this it? I have not a shadow of a doubt, although it is in rather a muddled state, that that is the plan.
2115. By whom was that plan made, do you know? By Mr. Doig, the late manager.
2116. Did you consider Mr. Doig an accurate and skilled surveyor? I cannot vouch for his ability as surveyor, but the plans were in accordance with the Act.
2117. Do you know when this mine was last surveyed? I cannot say, only I have no doubt that it was surveyed further on than it is dated.
2118. Did you lodge any request to have the plan brought up to date? No; I did not serve him officially with notice.
2119. Did you report this to the Examiner of Coal-fields? I never reported it to him, but he has often requested me to see that they were kept up properly; it was a general order.
2120. Returning to the air-current—the current was produced by means of furnaces? Yes; that was the motive power.
2121. And the positions of these furnaces are shown upon the plan? Yes.
2122. Did you consider the original plan of the colliery faithfully pourtrayed the workings? I had no reason to doubt it.
2123. Was this plan exhibited to you in its present dilapidated condition? Yes.
2124. Did you ever suggest the propriety of there being a more presentable plan? It was not in that condition before the fire broke out; people were running about with it during the excitement, and I suppose it got knocked about in that way.
2125. Do you know whether the plans of this colliery were kept in accordance with the provisions of the Coal-mining Regulations Act? Well, I often pressed him very much to keep it up, and he always promised that he would; I told him that it was highly necessary to keep it up to date.
2126. For what purpose is the left-hand furnace used? For taking away the smoke and keeping the current going on the left-hand side.
2127. Have you travelled this return? Not that back return—it was looked upon as a chimney flue.
2128. Was the right-hand furnace solely kept for circulating the ventilating current? Yes.
2129. What quantity of air would ordinarily pass over this furnace? I have seen it as high as 16,000 feet.
2130. What quantity could the return waste pass on the right-hand side—the return air-course? Any amount, because it was full of wide bords.
2131. Much more than the furnace could take? Yes; there was no limit to it.
2132. What was its size and dimensions? About 20 yards from the entrance to the tunnel and 7 yards from the right-hand, 9 feet long; heating surface, 6 feet long; shaft, 22 feet deep; chimney-stack, 20 feet, diameter 6 feet.
2133. Were these air-ways during your inspections kept free and open? Yes, free and open.
2134. Can you describe to us the condition of the left or northern return? Well, I have gone down the second furnace a pillar length, but never waded through the swallow of water.
2135. What was the distance between the top of the water and the roof? About 18 inches.
2136. What was the width of the return? At its lowest dimensions about 7 yards; that would give us about 13 feet of an area.
2137. What is the size of the left-hand ventilating shaft? I suppose about 10 square feet, and 6 feet in diameter, giving 24 feet of area or thereabouts.
2138. Do you consider that the left-hand return on the top of the water had an area corresponding to the size of the left-hand shaft? Oh, yes.
2139. Had you any fault to find with the left-hand air-course? No, I did not see that there was any reason to find fault; it did not seem to me that any more water could rise, and there was sufficient area for the return to pass away; that swallow would be about 3 chains in length.
2140. Did you consider that the ventilating furnace was constructed so as to protect the roof and sides of the mine? Yes, and as a proof of it, the top-coal is standing on the top of the furnace yet.
2141. As a matter of precaution, do you think the top-coal should be taken down from the roof of a furnace? That may be a question. But there is 18 inches of space for the air to pass over.

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2142. Did you anticipate any danger from the state of the roof and sides? No.
2143. And you thought that sufficient precaution had been taken to ensure safety in this respect? Yes, it appeared so to me.
2144. Does all the return air pass over the furnace-grate? Yes, it passes over the grate.
2145. Where the return air of a mine passes over the furnace, can you readily detect the presence of fire-damp? Certainly.
2146. Have you ever seen any appearance of gas in this furnace in the ordinary state of the mine? No.
2147. Have you ever seen light carburetted hydrogen in this furnace? Never.
2148. If the return air contained any appreciable quantity of light carburetted hydrogen, would you detect it here? Yes.
2149. By what means? By the "Davy" lamp, or by its effect upon the flame of an ordinary lamp or on the furnace.
2150. If it had been carbonic acid gas, what effect would be produced on the furnace? The effect would be exactly the opposite.
2151. You have said that you had not detected the presence of light carburetted hydrogen in this colliery—have you specially tested for this in the course of your regular inspections? No, except in a cursory way. I have put down the light when travelling the workings. In fact I may say that I have tested for my own curiosity many times, and found no evidences of explosive gas.
2152. Were the abandoned bords in any part of the mine filled with carbonic acid gas? Not to my knowledge.
2153. In the course of working a colliery, what circumstance would be most likely to force out any gases from the waste into the air-passages? Either an explosion or a heavy fall of the roof would cause a displacement.
2154. If light carburetted hydrogen were so forced out, would it show at the furnace? It would depend upon the proportion.
2155. Some of it would likely be mixed to an explosive point, in which case when would it show first in the returns? It would show on the furnace fire.
2156. Supposing it was forced into the in-take air, when would it show? It would take the first light, if air were supplied to bring it up to an explosive point.
2157. And if the quantities were comparatively small? They would pass away with the air.
2158. When a quantity of carbonic acid gas is forced out into an air-way, does it not occupy a defined position in respect to that air-way; would that gas, until diffused through the atmosphere of the mine, occupy a specific position? Decidedly; it would take to its own gravity.
2159. Have you ever known of accidents occurring in the old country from a want of knowledge of these facts? Oh, yes.
2160. Can you recollect any? Yes, in the case of men not taking the proper position. I have seen many cases where men have had to be carried out through ignorance on this point.
2161. The reason of my asking you that question, Mr. Rowan, was, that a certain accident occurred in the district in which you were brought up, and I thought you might recollect it, and be able to tell the gentlemen of the Commission something about it, but I see you have forgotten it? No; I cannot recollect it.
3162. Do you know how light carburetted hydrogen gas is produced. I am asking you these questions for the purposes of this record? It may be produced from bituminous strata.
2163. Have you ever known that gas to be chemically or artificially produced? No; certainly not.
2164. As far as you know, it is one of nature's mysterious works? Yes.
2165. If uncombined with air, will light carburetted hydrogen gas explode? No; it would put out a light.
2166. In a mine where light carburetted hydrogen has not been found, is there any possible way of anticipating the fouling of the air-current by this gas? No; and this is shown in the English Act, which provides that it is only when the pressure of this gas has been actually found that they are called upon to examine for it.
2167. That is to say, in Britain, managers are not called upon to examine until they have seen cause? Exactly.
2168. In a mine exceptionally free from gas, how would you account for the abandoned bords or return air-ways being filled with carbonic acid gas? The material itself generates it, and it sinks to its own gravity in the old workings and lies there.
2169. Does all animal life exhale carbonic acid gas? Yes.
2170. And the results of these products of life in animals, or of combustion, might be carried into the wastes? Yes.
2171. In these wastes where the air is stagnant, would the foul air be likely to liberate the heavier gases? Yes.
2172. Then in this way you would account for the result of animal life and of combustion having a tendency to fill the wastes? Yes.
2173. And in this way a large waste is a great storehouse for waste gas? Yes.
2174. Returning to the ventilating furnaces, are you aware whether the ashes drawn from these furnaces were removed out of the mine—say the right-hand furnace? Well, there is a store of them lying up on the top there, but they told me they were going to put them on the road.
2175. Were these ashes drenched, when drawn, do you know? Yes, they were drenched with water, and put to one side.
2176. Do you consider this storing of ashes to be unsafe? Yes, unless they are thoroughly burned, and soaked with water.
2177. Would you store them up against pillars of coal? Not unless they were going to be speedily removed.
2178. Have you observed any appearance of danger in this case from following the practice? Well, it would be much better if they were removed.
2179. Have you suggested any alteration? Yes.
2180. To whom? To the manager; I told him it would be better to make doubly sure.
2181. What did he reply? He said he would have them taken out.
2182. How long was that ago? Oh, it is since the accident; I thought you were referring to the present; I did not complain before.

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2183. As to the underground boiler, what was its purpose? The underground boiler was to pump water from the dip workings to where the encroachment was made at Eskbank.
2184. How many chains from the tunnel's mouth is the boiler situated? Thirty-six chains, more or less.
2185. At what distance off the tunnel is the mouth of the furnace? About 12 or 14 feet.
2186. Were the boiler fires open to the tunnel? There was a door there, but it was very often left open a little.
2187. Have you inspected this boiler? Yes, I have, to see that it was in working order, and to ascertain from the furnace-man as to the cleaning of it; he told me it was cleaned twice a week.
2188. Have you ever inquired as to whether the bottom coal was lifted at this boiler? Yes, I made inquiry; they told me that they were not certain, but thought it was founded on the rock; I know myself, however, it is standing now.
2189. Do you consider that the coal at the sides and top is sufficiently protected against fire. Ought it to have been removed? Well, I never saw any particular danger; there is a passage on the side and a passage on the top, and water lying close handy, which, according to Pierce, is a very good thing. Part of the tops were taken down above the boiler.
2190. Have you ever seen the flues of this boiler where they discharged the smoke to the return? I have gone about half a chain along the pipes; they are built upon bricks to carry them off the floor.
2191. Then the smoke was conducted from the boiler through clay pipes into the return air-way, and the return air-way is shown upon the plan with blue arrows? Yes.
2192. Did any portion of the exhaust air of the mine mix with this smoke? There might be a general leakage going through the stoppings.
2193. The air from below the boiler would mix with the smoke? Yes.
2194. Did the arrangement of this boiler ever suggest to you the presence of any danger? No; I did not see any danger to be anticipated.
2195. And of course you did not express any fear on the subject? No.
2196. Do you know whether the pillars in the flue were protected from smoke in any way? No; after it came out of the flue for half a chain length it had free scope outward.
2197. Supposing this mine to the north had given off light carburetted hydrogen gas, would you have considered this method of dealing with the smoke a safe one? No; I should have called it in question very quickly.
2198. Then the gas from the furnace did not pass through any brick flue? No; there is a half chain of 18-inch flue going from that.
2199. You have said that the smoke discharged over the water. Could you proceed down the air-way any considerable distance over that water? I believe you would be in the depths of the swallow there.
2200. How high had the water reached upon the coal? The roof would be 18 inches of space from the water.
2201. Do you think a fire could extend in that direction over this swallow—could it burn the upper coal on the tops? I do not think so; I do not think the tops could catch fire; I do not see how it would be possible.
2202. Well, this boiler is submerged in water—is it likely that a fire could make rapid progess over the tops of this boiler? No.
2203. Would you be likely to discover it in any way? You would be likely to discover it by the smell, say.
2204. Would you discover it from the up-cast shaft? Do you mean in the return air-way?
2205. Yes? Certainly.
2206. Is it your opinion that if the tops caught fire in this situation that its progress in the course of the return air-way would be slow? Yes, on account of the water lying there.
2207. Did the return air and smoke from this furnace, in passing through this return, impinge against the small coal or slack stoppings? No; it had a free opening over the swallow of water.
2208. Was the hollow of any considerable length? Three chains, so far as I can judge from going down; I did not measure it with the chain.
2209. Altogether, did you consider the arrangement of this flue a good one? I cannot say that I found any fault with with it; it was built over with brickwork, and it was safe enough for a small engine.
2210. Would the state of the mine have been remedied by putting down a shaft at the dip of the main tunnel? Mr. Doig told me he was going to put down a shaft at the lower end of the tunnel, and take off the drainage water down there.
2211. Did you ever ascertain whether this flue or return was regularly travelled and inspected? They told me that they cleaned the flues twice a week.
2212. The return air-way—was that regularly travelled? I cannot say.
2213. What was the temperature of the return air-way? We did not take temperature, but I should say it would be ninety degrees or so.
2214. In the vicinity of the left-hand furnace-shaft, I think you have told us—what was the nature or capacity of the air-way passing there? When I went down it was about two pillars length; an ordinary heading, about 6 yards, the full height of the coal.
2215. Coming down from that furnace, what was the character of the return? It was pretty good.
2216. How far would you have to go before you got to the water? You would have to go 40 yards from the furnace.
2217. Did Mr. Turnbull ever make a remark on the state of that furnace and return? No.
2218. On the morning of the first accident, did he not say that he went some distance—14 yards—down there, and was stopped by the water? He may have said so, but I have not the slightest recollection of it. I know I passed a good distance down and did not see any water.
2219. Generally speaking, are underground boilers a fruitful source of underground fires? Yes; and I should be glad if all underground boilers were to be worked by compressed air or steam from a surface boiler.
2220. Have you ever observed small coal piled up at the side of this boiler. No; they may have had an ordinary stack of coals there.
2221. I suppose a foul flue would be liable to ignite? Oh, yes.
2222. Then, if they were not regularly cleaned, would not that be a source of danger? I considered that if the flues were cleaned two or three times a week there could be no danger.

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2223. Did they say whether they removed the cleanings of the flue—unless this were done a spark might be a source of danger? Yes, under certain circumstances; but where they would be lying on coals buried in water I do not consider there would be much danger.
2224. Had you heard of any fire at this boiler previous to the last accident? No; I never heard of it until I heard it at the inquest.
2225. How many fires have you since heard of as having broken out at this boiler before the last and fatal accident? I have now heard of two fires.
2226. Were those fires not reported to you? I never heard a solitary word about them; no report whatever was made to me concerning them.
2227. In the case in question, what, in your opinion, was the cause of the fire? Well, we know that on ordinary occasions when cleaning out the fire, especially on Saturday night, they leave a good amount of red coals lying, and then put on their fire. It is possible they may have done so, and as the stock of coal is only put in to supply Sunday there may have been an extra quantity of fire put on to the floor, and the red embers of the half-burnt coal may have ignited and the fire quickly spread.
2228. Have you any reason to suppose that the origin of this fire differed from those that occurred before? I should think so.
2229. We understand that the fires before occurred at the back of the boiler and on top of the water? I never heard that except at the inquest.
2230. Have you any reason to suppose that the north return was closed on the main in-take? No.
2231. When you got down to the seat of the fire, did you see any fall in the main tunnel? Yes.
2232. Was that a heavy fall? Yes, a heavy fall from the top.
2233. Did it stop the progress of the air? Yes, I should think so.
2234. In the light of subsequent knowledge, what effect would that large fall have upon the progress of the fire? It would spread it very rapidly. It would be like putting a bellows to the fire.
2235. Was the fire localized or diffused over a considerable space? It was spread over a considerable space. I saw it burning from the 35th stopping over the main heading.
2236. About what distance back should you say? It is difficult looking through smoke, but I should calculate there would be about 10 yards of it burning.
2237. Did you entertain any suspicion that the fire extended further than you have delineated on the plan? No; we thought that was about the extent of the fire.
2238. Did you entertain any suspicion that it had returned parallel with and a considerable distance up the tunnel? No; but I did see that she had kindled at the fire, and was burning down the heading or across Tyndall's heading.
2239. How did you account for the fire extending across the main tunnel? Simply because there was more relief to be got about that way, and as there was dry material there.
2240. In the early part of your evidence you said that you arrrived at the scene of the accident early on the Tuesday morning—who was superintending operations on your arrival? One R. R. Druery was leading a shift of men, and he told me that an attempt had been made to bear back the smoke and open up another stopping.
2241. Was Mr. Druery in charge of operations? He was in charge of that shift of men.
2242. What course did you pursue on arriving? We were trying to get down to the seat of the fire by means of canvas, and to close up the stoppings to the right of the tunnel, but the smoke was so great, and coming out in such volume, that it was determined to seal up the mine; but before it was finally closed, as I have told you, a trial was made to travel up the second cross-cut.
2243. Did you take any responsibility? No; I had written instructions from the Department that the owners of the Lithgow Valley Colliery intended to re-open the mine; that I was to render any assistance that I could, but that I was to take no responsibility for the re-opening, as the responsibility must rest with the proprietors and the manager.
2244. And did you state this circumstance to those in authority when you arrived? I said to them that I was here in answer to a communication as to the re-opening of the mine, and I wished to know what method they were going to adopt.
2245. And you ascertained that? Yes.
2246. After the mine was re-opened, you got down almost to Tyndall's heading, and you then thought it right, or the owners did, to abandon operations—what reason was assigned for that course, for it has not been made perfectly clear? Well, after we reached the 35th stopping, we saw a fire burning across the heading. There was an idea that the mine was merely in a smouldering state, and that it could be dealt with by taking the stuff away in skips, but after seeing this fire, and as we had no appliances such as a pump or water at hand, I reported to the Examiner, Mr. Wilton and the manager being there, and we thought it best to withdraw the men. Mr. Mackenzie and I gave orders accordingly; but on the same morning, somewhere about 9 o'clock, Mr. Wilton and Mr. Gell informed us that the men had interviewed them, and said it was all nonsense stopping the mine, and that if they were provided with a pump and water they would go and stamp out the fire, and do the work for nothing.
2247. Did you hear them make this offer? No; we were informed by the proprietors. Mr. Wilton said he had pipes that he could lay on to four tanks, besides which a miner reminded him of the swallow of water at the fire. These things having been put before us, we said it might be worth the trial, and we let them have a trial in that way; the men were only to work six-hour shifts, with a leading man to take charge of each shift.
2248. Did you select any of those leading men? No.
2249. But you approved of the plan proposed? Yes.
2250. Do you know whether this fire was suspected before Sunday, the 14th? No.
2251. Have you heard any report to that effect? No.
2252. On your arrival on the ground, did you make any investigation as to the cause of the first fire? No.
2253. Did any report reach you that any of the workers had known of the fire or suspected it before Sunday, the 14th? No. But I made an examination of some of the men; I inquired of Grant, asking him if he had seen any fire; he said he had not seen it or suspected it; he said that if there had been any fire he would have detected it quickly, as he was short in the breath. I also asked Passmore, who said he had left the pit at half-past 3 or 4 o'clock, and there was no sign of fire then.
2254. We have particular evidence as to the finding of Doig, Younger, and Rowe—can you point out on the plan where their bodies were found? I can only do so from information I received from one of the volunteers—John Sheedy. I showed him the plan, as he knew the workings pretty well, and he pointed out where they were found. [Position indicated on plan of the mine.] 2255.

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2255. Can you give us any idea why Doig and his party should have travelled this part of the workings? No; except that he may have had some idea that he could get opposite the furnace and open up a stopping at Tyndall's heading, and by doing that perhaps be enabled to quench the fire with water.
2256. But do you not think that in a mine, as he knew, with the main air-course full of smoke, the opening of a stopping like that would be a dangerous proceeding? It was highly dangerous, no doubt.
2257. And, Mr. Rowan, with a mine or the tunnel full of smoke, what condition would you, as a practical man, expect the main tunnel to be in? That is easily surmised.
2258. Well, say, would it be worse or better? Why, worse, of course. But, of course, one does not like to speak strongly of a dead man.
2259. We quite understand that; and now, speculating on what you have known from subsequent operations, can you assign any reason why the returns where Doig was found were less foul than the main in-take? I can account for that in two ways: In the first place, the general leakage that would be coming through would be very much diluted, and a fall that existed down about the furnace would have some influence on the nature of the returns.
2260. Did you inspect the body of Mr. Doig and his companions? I did not see them.
2261. Was this fall you speak of in the main tunnel below or above the boiler? It was chiefly below.
2262. Then, in view of these facts, can you suggest any reason for Doig and his companions being found where the air was comparatively breathable? Well, no; except what I have stated, that there would be a general leakage coming through (the stoppings), seeing that there was a stoppage in the main way, and it would be so diluted that it would be somewhat free of gas after it had accumulated.
2263. We have evidence that the lamps of these men were found empty of oil—have you any suggestion to make as to that? Well, I suppose they made an effort to get through, and I have slight reason to believe that as soon as he got relief the smoke began to surround him, and in beating a retreat he lost his way, as he was in the dark, their lamps having given out.
2264. Then the reason you assign seems to point to this, that Doig and his companions reached that stopping at Tyndall's heading, and got some relief? Yes, I think so.
2265. But you are not very positive? No.
2266. If you were told that two parties had gone into the mine in search of Doig, and followed or traced his footsteps, and penetrated as far down as Tyndall's heading, where the air was moderately breathable, would you think that your theory was tenable? Well, it is so complicated a matter that it is difficult to have a clear expression of opinion upon it.
2267-8. John Sheedy, in his evidence, stated without any hesitation that he went down to where Doig was found, and found the unfortunate man lying in a stratum of choke-damp—do you think this probable? By that time no doubt all the lower portions were pretty well filled up; I am really loth to express an opinion upon it.
2269. In the course of the operations for extinguishing the fire, were the men liberally supplied with all the requsite materials? They had everything that they required; for myself, I told the men, and I can say it without fear of contradiction, that they were not trying to save life but property, which was a very secondary consideration. I said to them, "You have only one life to lose; be very careful; do not venture one foot when you see any danger." I was at this time going away.
2270. Did you observe the owners of the mine present during the operations? Yes; Mr. Wilton was in daily attendance, and I have been with him as long as six hours at a stretch.
2271. Did he seem anxious for the safety of the men? Yes; I have heard him say that he would sooner lose the whole of the estate than that one man's life should be sacrificed.
2272. You were kind enough to make a plan showing the mode of taking the air down for the purpose of extinguishing the fire—will you be good enough to explain the nature of those operations? The first operation consisted in removing the cover from the road in the up-cast shaft, and taking down the stoppings leading to that furnace. These operations were carried on with safety-lamps. In lowering the lamp down the up-cast shaft from the surface the strength of the gas almost extinguished the light. 3,000 cubic feet of air per minute was passing through the furnace shaft. Beyond the air-current carbonic acid gas existed as a wall, and extinguished the lamp. The next step was to allow about 6,000 cubic feet of air to pass down the main tunnel into No. 1 cross-cut. In order to do this they had to take down a principal brick stopping across the mine. This quantity of air was continued for the period of about an hour, the return air extinguishing the lamp. That, adding to the waste gas of the mine the percentage of fresh air necessary to make light carburetted hydrogen gas explosive, tests were applied with the result that the lights continued to be extinguished. After satisfying ourselves that no explosive gas existed, the right-hand furnace was kindled; thereupon 9,000 cubic feet of air was passed down the main tunnel to No. 2 cross-cut per minute. This was on Saturday the 20th. The furnace was then kept going continuously until Monday morning the 22nd, but no men were permitted to enter the mine. On the Monday morning, I, accompanied by Mr. Campbell, the manager, proceeded down the mine; entered No. 2 cross-cut, and, with 5,000 cubic feet of air, succeeded in pushing the accumulated gas before us for upwards of 100 yards, the safety-lamp test indicating the absence of fire-damp. Later on in the day, feeling assured as to the condition of No. 2 cross-cut, a canvas stopping was placed at the junction of this cross-cut with the main tunnel, and about 1,000 cubic feet of air per minute allowed to scale through to keep this cross-cut clear. Progress was made by opening and closing the stoppings on the right-hand side of the tunnel, pillar by pillar, until we reached the 35th stopping, about 1 chain west of the boiler. The operation of opening and closing the stoppings was necessarily attended with some difficulty and danger. I was so anxious to ensure the safety of the men that I remained with them for eighteen hours at a stretch. On reaching the 34th stopping, on the right-hand side, we were disappointed on opening that stopping not to get relief for the air, the carbonic acid gas rolling out. We proceeded down with the canvas under some difficulty, the smoke being strong until we reached the 35th stopping, when we got relief. The return air and smoke during this time was taken back on the right-hand side of the canvas to stopping No. 32. On approaching No. 35 we then discovered the fire burning across the heading. The fire was burning across the main tunnel from No. 35 downwards. The body of the fire seemed to be about opposite Tyndall's heading. It was at this stage, and having reached this point, that it was considered advisable to withdraw the men. The men and owners, however,

Note.—No 34 stopping being in a hollow, the witness desires to substitute No. 35.

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however, came to an arrangement, that received the approbation of the Government Inspectors, to re-open the mine. In consequence steam was laid on to conduct water from a hollow above this position (see plan), and this necessitated a stoppage of five days. By this time the smoke and gas had backed up the tunnel to about the 20th stopping. On Sunday, the 28th March, the gas had been beaten down the tunnel to within 20 yards of the seat of the fire, when steam was laid on. The steam was laid on within 10 yards of the seat of the fire. The miners were then withdrawn. On Thursday, the 1st of April, the miners resumed work, they being engaged clearing away the burning coal, and continued to do so until the day of the calamity, on Monday the 19th. A brattice was put across the mine at the nearest point possible to the fire, with the object of driving back the poisonous gas and extinguishing the flames.

[The witness here described the minutiæ.]

2273. About this time, were the operations of the men engaged in putting out the fire hampered or endangered in any way by the surreptitious opening of a stopping? Have you heard of such an occurrence? Yes, I have heard something of it. On the 29th Mr. Campbell, the manager, went in to see if he could get some timber for some purpose, and he thought there was a current of air coming through one of the stoppings in the old workings. Looking up to the top of the stopping he found that it had been opened to the extent of 3 inches clear. It so happened that this partienlar stopping had been thoroughly wedged up two days before. There were in the immediate vicinity certain evidences on the ground of some person having recently been there—about 5 yards from the stopping.

2274. Did you discover a less amount of ventilation coming down? I was not there at the time; but Mr. Campbell drew my attention to it, and told me how he had discovered it. He had thoroughly secured the stopping two days previously, and in his opinion it was not the result of accident. It was stripped right along.

2275. *Mr. Davies.*] Would it not be difficult for a man to take away a strip like that from the top, if a man had to do it with his hands? It would be to some extent difficult certainly.

2276. *President.*] Could a man do it with his hands, or would the assistance of an instrument be required? It would not be past arm's length there.

2277. Could a pick be used? I do not know; but, nevertheless, the stopping was stripped as stated.

2278. Was a watch kept to see who went in or out? Yes; and the watchman was supposed to let no one go into the mine without an order from the manager—no matter who he might be.

2279. What conclusion did you come to on the subject? I cannot say; I am not going to express an opinion about it.

2280. Who was the watchman? The furnace-man.

2281. *Mr. Davies.*] What was the current of air passing down the tunnel on the day of the accident? I tested the air-current by means of the anenometer in the presence of the manager, and Mr. Willis, a clergyman, who had the curiosity to be there, and the instrument registered 26,000 cubic feet of air per minute. At No. 18 stopping I got a register of 14,880 cubic feet.

2282. Where was the balance of the air going? To the cross-cuts, taking the air in that direction. At No. 32 stopping I got 14,700 cubic feet.

2283. Then the stoppings were tight? Well, it was a fair test. This quantity still continued to the seat of operations, with the exception of any allowance for inevitable leakage.

2284. How were the shifts of the men arranged? There were forty men, divided into six shifts of six hours each. Leaders were appointed to each of the shifts.

2285. *President.*] If any danger occurred, did you take a share of that danger? Yes; I should have shared it fatally had I not been away that same day.

The witness here handed in the copies of two letters appended, viz.: One to John Mackenzie, Esq., Examiner of Coal-fields, and the other to Joseph Campbell, Esq., manager, Lithgow Valley Colliery, marked A and B respectively.

A.

Sir, Eskbank, April 17th, 1884.

For your information, I beg to say that I will leave Lithgow on Monday, noon, 19th instant, for Wollongong, as there are six accidents which happened during the last month—four in Kembla Colliery and two in Bulli Old Tunnel. Each accident requires to be examined and reported.

To-day (Saturday) I was down the Lithgow mine, and took a register of the air-current, viz.: —At the entrance of the tunnel, 26,000 cubic feet of air per minute; about 18 chains from the entrance of the tunnel, 14,880 cubic feet of air per minute; 32 chains from the tunnel mouth, 14,700 cubic feet of air per minute. The seat of fire has been reached at a distance of 36 chains from the entrance of the tunnel. Forty men are employed (ten men on each shift) clearing out the burning coal and other *debris*. There is a heavy fall of top-coal and roof behind the brickwork of the boiler; the fire under the fall is still smouldering.

I have, &c.,
JAMES ROWAN, Inspector of Collieries.

John Mackenzie, Esq., Examiner of Coal-fields, Newcastle.

B.

Sir, Eskbank, April 17th, 1884.

Before leaving Lithgow for Wollongong, and in accordance with the provisions contained in the 25th section of the Coal Mines Regulation Act (1876), I hereby give you notice that the Lithgow Valley Colliery must be thoroughly ventilated before the miners resume work (for the purpose of getting coal); and all entrances to any place not in actual course of working, and suspected to contain or be liable to engender dangerous gas of any kind, shall be walled or fenced off, and a danger signal placed at such entrance so as to prevent access thereto.

I have, &c.,
JAMES ROWAN, Inspector of Collieries.

Mr. Joseph Campbell, Manager, Lithgow Valley Colliery.

2286. *President.*] You have already told us about this fall in the main tunnel—was it entirely removed? No.

2287. Did you see any fire among the abandoned workings from the boiler towards the waste, parallel with the main tunnel? I went down twice, my last visit being on Monday morning. I am not aware that I did see it. The fire seemed to have a good hold to the left of the main tunnel.

2288. Did you suspect that the fire had eaten up at the back of the main tunnel for any considerable distance? I do not think so.

2289. Did you give any advice to the men, and explain to them their dangers and perils? Yes; I worked with them and stuck to them all the time.

2290. In the course of the work, did you hear or see any falls in the old workings? No.

2291. Under whose directions did the men work? Under Mr. Campbell, the manager.

Mr. J. Rowan. 7 May, 1886.

2292. Can you tell us the names of the five men who were killed at the second accident? I do not know all of them. There were Buzza, Thomas Rawe, Thomas Mantle, Isaiah Hyde, and another (L. Allison).
2293. When did you arrive after the accident? I arrived by the mid-day train.
2294. Did you inspect the main tunnel at all? Yes—the stoppings were blown out from the left-hand side.
2295. About what was the number of the stopping at which the force of the accident seemed to concentrate? We only got down to the twentieth stopping owing to the smoke. Here there was a lot of debris and confusion.
2296. Have you ever considered what the calamity might be due to? I am of opinion that a great fall had taken place in the interior of the back workings, on the left-hand side, and that this caused a displacement of the carbonic acid gas and smoke, which by the force of the blast found its way through the weaker points on the main current.
2297. Do you think that this could be referred to as an explosion of fire-damp? I really cannot see where an explosion of fire-damp could under any circumstances take place there.
2298. Did you observe any signs of an explosion. None whatever.
2299. Do you know what the state of the atmosphere was immediately after the accident—I mean from inquiry? Going down on the following day there was a great deal of smoke and vapour in the main tunnel.
2300. Would that be due to an explosion? No, certainly not. It was just as if a mass of abomination had been disturbed, and it was all blown up together.
2301. You have stated that you did not see and did not hear that the fire had crept up behind the main tunnel? Not further than the first pillar length.
2302. Have you heard any of the survivors state that whilst making their escape they passed over red-hot ashes in the tunnel at or about the twenty-fourth stopping? I have heard it, and give them credit for thoroughly believing that they think they saw it. But I can quite understand how men in such a state might imagine that they went over ground which in reality they had never passed over.
2303. Had fire-damp existed, was this twenty-fourth or twenty-fifth stopping a likely stopping for fire-damp to lodge? It is quite foreign in principle to suspect such a thing. It would have been away in the higher galleries of the workings.
2304. It has been said that there was a second blast almost simultaneously with the first, and coming from behind the boiler. What would that indicate to your mind? Well, when the great concussion of air took place there would be a certain amount of atmosphere in the main heading, and I believe that the effect would be felt at the top just where the opposite current was coming down, and to my mind it was the effect of re-action.
2305. Supposing that explosive gas was projected with sufficient force into the main tunnel, what course would the blast take? The explosion would be secondary.
2306. Supposing explosive gas was projected into the main tunnel, where would the force of the explosion be most noticed—would it go with or against the air? Well, I am of opinion that it would go in the direction where it would find the readiest course.
2307. In any case, Mr. Rowan, what are the physical signs of an explosion—would you see a flash of flame, or what? Well, if it had been an explosion that had caused that amount of damage I believe the flame would have shot out of the tunnel mouth. The explosion would be caused by the oxygen from the atmosphere.
2308. Does that indicate the course that an explosion generally takes? Yes.
2309. And is not that a reason why the course of an explosion is generally against the air-current? Yes.
2310. What is the state of the atmosphere after an explosion? It raises the temperature of the atmosphere.
2311. Are you aware what the state of the atmosphere was, what temperature existed immediately after this accident occurred? I am not aware.
2312. Do you know whether any length of time transpired between the accident and the finding of the bodies? So far as I can understand, the men were all out in about an hour.
2313. How can you account for red-hot ashes being strewn across the tunnel—you say the men must have deceived themselves; how do you account for it? I should say that ashes had been blown from the fire owing to the concussion of air.
2314. How could they have been carried across the chain of water you have indicated? Well, by that time it is likely the coal would have been burning on the top of the water; I believe it was a reality to the men themselves, and I give them credit for saying it in good faith; but I do believe they were mistaken in the distance.
2315. Did you see the bodies of these five unfortunate men? Yes.
2316. Did you form any opinion as to the cause of their death? Yes; I was of opinion that they died from the effects of carbonic acid gas.
2317. Was this accident expected by you? No, not in the least.
2318. Then, do you think it can be due to any defect in the carrying out of the Coal-mines Regulations Act? I do not think so; there was a fire in the mine to be put out, and the men accepted all risks in the same way as a fire brigade would do in putting out a fire on the surface.
2319. Then you think the accident was due to causes beyond human knowledge; would it have been prevented had every line, word, or clause of the Coal-mines Regulation Act been rigidly complied with? It could not have been prevented.
2320. If you had heard or observed that the Act was evaded, would you have taken action? Yes, most decidedly; I should have seen there was danger to life and limb, and would not have allowed it.
2321. Have you ever heard whether any of the men foresaw this accident? No.
2322. Have you ever heard it said that such an opinion existed? All the opinions I ever heard were in connection with the re-opening; some said it should be filled up with gas, but they were all rumours and reports.
2323. If it were reported to you that a statement had been made that the accident was due to the neglect of the owners, managers, or inspectors, would you give such statement an unqualified denial? Most decidedly I should.
2324. We understand that the workings to the rise of No. 2 cross-cut are sealed off from that portion of the mine where deleterious gases exist by brick stoppings? Yes.

Mr. J. Rowan. 7 May, 1886.

2325. In prosecuting work in this No. 2 cross-cut, are you sure that in continuing its present direction it will not hole through on some of the bords to the old part of the mine? No; No. 2 cross-cut is to be driven at a different angle, and if it did go through anything there would be 12 feet of solid that would be an ample barricade, in my opinion.

2326. *Mr. Usher.*] Would the flooding of the abandoned workings be the best way of dealing with this conflagration? Yes, I believe so.

2327. *Mr. Neilson.*] Do you know whether the Lithgow Valley Colliery pumped any water to the surface? It does not pump any water to the surface.

2328. What is the use of that engine down below? I have no doubt they put it down with the intent of pumping water into the Eskbank Company's ground.

2329. In case of it being decided by the owners or anybody else that the Lithgow Valley mine was to be flooded, would not the Eskbank Colliery be drowned out? When the water comes up to that level in the Lithgow Valley mine we all know where it will go then.

2330. Does the Lithgow Valley Colliery make water? Yes.

2331. And no water is pumped to the surface? No.

2332. Is there any other colliery or creek where the water can get to? No, I do not think so; I believe it goes to Eskbank.

2333. Are the Eskbank workings extensive? Yes, pretty extensive.

2334. Then it will take an immense amount of water to fill them up? Yes; but no such a thing could happen till the water came up to the level.

2335. How long is it since you left Wallsend, Mr. Rowan? Three years.

2336. Were you in the Wallsend or Co-operative Company in 1879? Yes.

2337. That was a large fall at Wallsend? Yes; I was there at the time.

2338. Did you hear of the effects of that fall? Yes; the skips were knocked out and the men injured.

2339. *President.*] Can you tell us the resisting power of those brick stoppings which have been put in in the Lithgow Valley mine? No, I cannot; I know they are put in substantially, with 10 yards of debris and small coal to back them up.

2340. In your opinion, supposing a similar fall to that which has recently occurred, or one of double the force, were to take place, are these stoppings of sufficient strength to resist the effects—of course I am merely assuming that it was a fall? Well, we do not know the balance of the force of the last fall, because it had light material to remove. Seeing that these stoppings are so substantial they ought to withstand a great pressure, but I could not say how much they would stand.

2341. Supposing another fall was to take place of sufficient force even to remove these stoppings, what would be the result? The result would be that it would roll in upon the main air-course and up the cross-cut.

2342. I think you told us in your evidence that the heaviest pressure appeared to be at No. 20 stopping? I cannot properly judge, because I could not get down any further than about the twentieth stopping. For all I know they may have been heavier down below.

2343. In that case, whether this was an explosion or a fall, it must have come from the left-hand side, somewhere either to the north, or down towards the Eskbank boundary? Yes.

2344. As a practical man, and apart from all chemical reasons, an explosion of gas is always directed where there is the largest quantity of air to feed it? Yes.

2345. Was there any fire or indication of fire-damp on the props or brattice, in the straight run or tunnel? No; there was nothing to indicate the presence of an explosion. The props were not singed.

2346. Is the heat from the Lithgow Valley fire likely to draw a considerable amount of air from the Eskbank pit falls? It may possibly be so. But when we believe the mine to be hermetically sealed up we cannot suppose there would be any great quantity of fire burning there. If the fire were raging we might look for something of that kind.

2347. *Mr. Curley.*] What is the state of the mine, with regard to the in-take and the outlet, at the present time? Up No. 2 cross-cut, right along the working face, and back to the furnace, there are two ways to the day, and altogether three openings at the present time.

2348. Has the Company ever made any reports to you about these accidents? No, not in an official way. We have talked over them, but there have been no written communications.

2349. Do you consider that in compliance with the present Coal-fields Regulation Act? Well, I think there should be a little consideration taken in a case like this. We were all there. The country knew of it. I have no doubt when they settle down they will send a report.

2350. *President.*] Who telegraphed to you, Mr. Rowan? I received a telegram from Mr. Mackenzie, the Examiner of Coal-fields, and he got his information from Mr. Gell.

2351. That appears to be all right; you got the information from your superior? Yes.

2352. *Mr. Curley.*] Well, Mr. Rowan, although you knew of this accumulation of ashes at the right-hand furnace, you never made any official complaint to the management with the view of remedying these matters, or did not imagine they wanted remedying? I considered that they were sufficiently informed. I certainly never made an official complaint. I never saw or heard of any fire there at the boiler.

2353. Did you ever go into the left-hand furnace after the second accident? Yes; we put in a stopping there.

2354. Did you notice whether any top-coal had fallen there? No; I did not see any there.

2355. I suppose you had several conversations with the proprietors about the question of putting this fire out? Yes.

2356. Did it ever occur to you that brick stoppings would have been better, especially as you knew the state of the return? No; I think it would have been worse to have brick stoppings, and for this reason, that the blast would have found a vent on each side, and rolled down in a solid column upon the men, and not one of them would have come out.

2357. *President.*] Have you observed the state of the top of this left-hand air-shaft on the surface? Yes.

2358. What is it covered with? It is covered with inch deals, made air-tight with clay.

2359. After the blast, what appearance did it present? It presented the appearance of having been violently shaken, but the shock had expended itself before it reached that point.

2360. *Mr. Curley.*] Would the quantity of ashes you noticed at the right-hand furnace be a source of impediment to the proper ventilation of the mine? I think not; there was plenty of space for the air to go in.

2361. Would the air-course have been improved if the ashes had not been there? I do not think so; I had no reason to complain of the Vale of Clwydd ventilation, and they have only 10 feet of return.
2362. What is the position of the left-hand furnace shaft? It conducted the ventilation at an angle into a brick chimney.
2363. Would not that have a tendency to prevent a strong clear air current going up? No; I do not think so.
2364. Where do you think will be the weakest point in connection with the stoppings at the present time? Well, I believe there will be less force upon the left-hand stoppings, simply because it has a greater way to travel, and must pass many an acute angle.
2365. Still, with the stoppings being up, and if no vent could be obtained, then the concussion would be all the more forcible? This has no connection at all with the old workings. On the former occasion it had two outlets to go down the main tunnel; now it is properly walled off.
2366. Do you think that it was possible for fire-damp to accumulate on top of that fall on the Eskbank boundary? To my mind it is quite clear that light carburetted hydrogen gas could not be manufactured from the burning coal.
2367. Where was this smoke going to (from the fire to the left of the boiler)—which furnace was it going to? I believe the great body of fire burning was sending its smoke in different directions; it was going to Tyndall's heading, passing the other regions, up by the left-hand furnace, and down to the lower workings, which were pretty well full up.
2368. You must admit this, that this force of head coming to these two opposite furnaces must have had tremendous draught power on these old workings when they were closed up? No doubt there must have been a great suction power.
2369. *Mr. Neilson.*] Previous to the fire, Mr. Rowan, what was the ordinary rate of ventilation? I think it was 12,000 cubic feet of air per minute. I think it has gone as high as 17,000.
2370. Could the products of combustion entering into that waste in the neighbourhood of Eskbank boundary, and lodging in the cavities left by a great fall—could these products of combustion be ignited? No.
2371. *Mr. Curley.*] From this big body of fire that was burning, would the air not take the nearest course to the furnace? The air always takes every advantage; it takes the nearest course.
2372. Was there relieving power towards the left-hand furnace for that body of fire? There was a good return; I have seen it as high as 7,000 cubic feet per minute, but you have to take leakage into consideration, as I have already stated.
2373. Did you ever make any experiments as to the power of the draught at the furnace previously? No; it was going on in the ordinary way; the men were working in safety, and I did not think it necessary.

Mr. Curley having asked the witness several questions in relation to the possible existence of fire-damp in the mine,—

2374. *President.*] Supposing, Mr. Rowan, that explosive gas escaped in a cavity of the roof towards the boundary of Eskbank, if the left-hand return acted as a suction power sufficient to draw fire-damp from this cavity, would it not mix with the carbonic acid gas which you have stated filled the workings near to the main tunnel? Yes.
2375. In that case, would the gas explode? No; even one to four would put it below exploding point.
2376. Then you consider the products of combustion were sufficient to render the explosion of fire-damp impossible? Yes.
2377. *Mr. Curley.*] I think you said you had no power under the Act to say what materials these stoppings should be composed of? Yes.
2378. Mr. Curley here read sub-section 5 of section 12, of the Coal-mines Regulation Act.

> If at any time it is found by the person in charge of a mine or any part thereof or by the Examiner or inspector that by reason of noxious gases prevailing in such mine or such part thereof or of any cause whatever the mine or said part is dangerous every workman shall be withdrawn therefrom and the Examiner or inspector shall inspect the same and if the danger arises from inflammable gas shall make such inspection with a locked safety-lamp and in every case shall make a true report on the condition of such mine or part thereof and no workman shall except in so far as is necessary for inquiry into the cause of danger or for the removal thereof or for exploration be re-admitted into the mine or such part thereof as was so found dangerous until the same is stated by the Examiner or inspector to be safe Every such report shall be recorded in a book which shall be kept at the mine for the purpose and shall be signed by the person reporting.

2379. *President.*] That does not provide for a particular stopping? There is nothing about stoppings there. That section only contemplates certain action being taken in case of danger being seen or apprehended.
2380. *Mr. Curley.*] But you have power if you apprehend danger? Yes.
2381. *President.*] Did you apprehend danger? No; I did not apprehend danger.
2382. Then the section does not apply. I suppose that is what you mean? Well, if I had apprehended danger I should not have gone there.
2383. *Mr. Curley.*] And you have never refrained for fear of in any way exceeding your duty as an inspector? No, sir, so far as I know.
2384. *Mr. Usher.*] During your several inspections of this mine prior to the two accidents, did it ever occur to you that it would be advisable to sink another shaft to the extreme east of the workings? Well, that was spoken about, and Mr. Doig said he was about to commence a shaft, and do away with the little engine.

TUESDAY,

TUESDAY, 11 *MAY*, 1886.

Present:

THE PRESIDENT,	MR. CURLEY,
MR. USHER,	MR. DAVIES,
MR. NEILSON,	MR. JONES.
MR. SWINBURN,	

Dr. C. S. Gibbons, M.R.C.P.S. 11 May, 1886.

2385. Dr. Chas. Gibbons, M.R.C.P.S., was next called, and, having been sworn, put in a statement of the evidence which he could give, as follows:—On April 19, I was sent for to go to the Lithgow Valley mine, as there were supposed to be men entombed. On my arrival, I attended to those who were brought out alive, and then went into the pit along with several of the searchers. We were obliged to stop some distance from the pit-mouth, owing to smoke coming from the left side of the tunnel; but were able to go on after fresh stoppings had been put in. On coming to the deceased men, I noted the positions in which they were found, and which were almost identical. The bodies were face downwards, with the mouths partly open, as though in the act of gasping, and the pupils were largely dilated. On examination, I found in each case the chest was more or less collapsed, and several small burns about the bodies, which would most likely be caused by contact with flame. From all I saw and found by examination, I formed the opinion that all the five deceased men lost their lives by suffocation, owing partly to a want of air (probably there being a vacuum formed by the heated air), and partly to the inhalation of some noxious gas, which, in my opinion, was carbonic dioxide gas.—CHARLES S. GIBBONS, 10th May, 1886.

2386. *President.*] Then you have come to the conclusion, doctor, that these men died from suffocation? Yes.

2387. And from the inhalation of carbonic acid gas? Yes.

Maurice Asher, L.C.S.I., &c., &c., sworn and examined:—

Mr. M. Asher, L.C.S.I. 11 May, 1886.

2388. *President.*] Did you examine the bodies of the five men who lost their lives at the second accident? I did.

2389. What opinion did you form as to the cause of their death? I was of opinion from their appearance that they died from suffocation, probably caused by inhaling carbonic acid gas.

2390. Have you had any experience of fiery mines charged with carburetted hydrogen gas? No; I have not seen any victims from an explosion of gas.

2391. Did the bodies of these men bear any marks of burning? Yes; I am of opinion that there were burns on the body of Allison. From the shoulders down to the hands and fingers there were marks which I believe to have been burns.

2392. Have you heard whether Allison was dragged by a rope up a considerable portion of the tunnel? No; I cannot say that I have.

2393. Well, supposing he had been thus dragged along over a rough surface through the tunnel, would that have accounted for the marks you saw? No; I do not think so. The appearance of the marks was exactly similar all over. The edges were well defined, and there was no sign of hemorrhage.

2394. Did his face bear any marks of violence? There were no marks of violence on his face, so far as I could detect. On the back of the head there was an incised wound. I did not notice whether the clothes were torn in any way. I do not think it would be possible for a body to be burned and the clothes remain intact—in fact it is improbable. I believe all of the men had shirts on, although I did not see them until the following morning. I would not be certain that the marks I saw were burns, but they bore the appearance of burns.

2395. Then you are doubtful on the subject, and you are of opinion that the actual cause of death was the inhaling of some irrespirable gas? I am quite certain that the burns did not cause death.

2396. *Mr. Neilson.*] Was the hair or whiskers singed? Not to my knowledge. The hair I know was not burned.

James Doig sworn and examined:—

Mr. J. Doig. 11 May, 1886.

2397. *President.*] What is your occupation? I am a miner. I have been connected with mining since I was about twelve years of age. I have worked in the Lithgow Valley mine between three and four years. I have only worked in that mine in this district. The late manager was my brother. I have had no experience of fire or choke damp. I have never seen or heard of them in the Valley.

2398. Have you ever heard of the miners complaining of the quantity of ventilation in this colliery? No; so far as I was concerned, I was quite satisfied with the amount of ventilation.

2399. Do you know the underground boiler? Yes; I have been working backwards and forwards about it at times. I do not know that it was safe; I have seen coal pretty well all round in the boiler.

2400. Have you ever been at the back of the flues? Yes, two or three times. They were very warm sometimes. I have not heard of any underground fires there, except about eight weeks ago. I heard of one then, but did not witness it.

2401. Did it never strike you that the arrangement of that boiler was not conducive to safety? So far as the management of the colliery goes, I cannot say as to that. I think the present manager knows all about these things. I know that the smoke would accumulate sometimes at night, but it would be carried away with the ventilation currents into the old workings.

2402. Do you know how all these stoppings were constructed? Yes; of slack. Great care was taken in putting them in. I never heard any complaint of their quality. I was in the pit on the Monday morning that the accident took place. When I heard what had occurred, I went as far as I could into the mine—some 20 or 30 yards; then I had to turn back. Mr. Turnbull had not then arrived.

2403. What part did you take as a rescuer of these unfortunate men? I communicated with Mr. Gell, one of the proprietors, and suggested that he should send for Mr. Mackenzie. After that I went to the pit. In the meantime Mr. Turnbull had been sent for, and they proceeded inside the mine. I did not accompany Mr. Martin, but, when I was standing half-way between the tunnel and the second cross-cut, he came out and told me that Doig had been found. I asked him if he was living. He replied, "Yes."

I then proceeded to help carry him out. I took no part in the subsequent operations. I have not been in the mine since, excepting as far as the first furnace. I have been into the ventilating furnace to put coal on. The ashes were never taken out from alongside the boiler, and there was no water thrown on them, so far as I know. I never cleaned the fire, nor have I seen it cleaned. Mr. J. Doig. 11 May, 1886.
2404. As a matter of fact, then you cannot speak from personal experience? No.

John White sworn and examined:—

Mr. J. White. 11 May, 1886.
2405. *President.*] What is your occupation? I am a miner.
2406. How long have you been mining in this district? Twelve years.
2407. Have you confined your operations entirely to this district? Yes; I have been nine years in the Lithgow Valley Colliery without stopping.
2408. Have you ever worked in Eskbank? No.
2409. Have you ever in the course of your life seen fire-damp? No; I never did.
2410. Have you noticed the underground boiler in this colliery? Yes; I was there before the boiler was put in. I saw the first brick that was ever laid.
2411. Were you present at the building of it? No; but I used to pass it.
2412. Do you know whether the bottom coal was lifted? Under the boiler it was, but not at the back; I believe it was lifted under the fire.
2413. Was the top-coal taken down? No.
2414. Have you ever noticed smoke hanging in the vicinity of the boiler? Yes, very often; nearly every day I passed it both morning and evening. The smoke had to travel at the back about 30 chains. I have worked in every part of the mine. A great portion of the left-hand returns where the smoke passed away was partially filled with water. In some places the water would be almost level with the coal. You could not get in to see.
2415. Have you ever seen that yourself? Yes, I have. I have cut through in one place to let the water through; that was just at the back of the boiler.
2416. Have you worked at the left-hand side of the tunnel, towards Eskbank? Yes; right to the boundary.
2417. Is any portion of the pillars removed there? Yes; just about three pillars this side, just at the back of the last explosion or fall. It is about three pillars back from the boiler, allowing a chain for each pillar.
2418. Were there any pillars removed further up the tunnel? No, not one; I believe Robert Grant was the man who took the pillars out.
2419. Up towards the left-hand of the tunnel and near the mouth, were the places worked wide there? Some of the bords there are very wide, and the pillars are left very thin. Some of the bords would average 10 yards wide.
2420. And is each divided from the adjoining bord by a narrow pillar? Yes.
2421. The miners are very fond of doing that, I believe? Yes; to get the coal down. I have seen the bords holing through to one another; I have often done that myself.
2422. That is, you were doing a good thing for yourself? Yes; the coal was coming easy.
2423. Was this on the north side? Yes.
2424. Have you ever seen any falls in this mine? Yes, I have.
2425. Have you ever been over these falls with a naked light? Yes.
2426. Did you ever see any appearance of explosive gas? Not a bit.
2427. Have you ever heard of gas in this mine? No; I never heard of such a thing.
2428. Have you ever complained about the ventilation of this colliery? Well, I did once; it was a long time ago; we complained to Doig.
2429. What was the nature of your complaint? We complained that we could not keep our lamps alight.
2430. What was the cause of your being unable to keep your lamps alight? We put it down to this, that we were working too close together, namely, five of us, and we put the blame on the smoke of the lamps.
2431. Was it removed? Oh, yes; it was removed without hesitation. They took some of the men out of the heading, and the air was then quite different altogether.
2432. Since that time, have you ever made a complaint? No; the ventilation has always been sufficient since then.
2433. How long was that ago? About eighteen months.
2434. Have you ever heard of any underground fires occurring in the vicinity of this boiler? No; they say there was a fire at Christmas, but it was unbeknown to me.
2435. Did you entertain any fear of danger from this boiler? No; I never thought of it for a moment.
2436. What do you know about the first accident? I came down about 7·30 on the morning of the accident, being on the back shift; I met the foreman, who said it was no use taking the picks, as I would not be able to get in; I said I would try; I got in 30 chains, within a few chains of the boiler, and I met smoke about 25 chains down; I got down 5 chains beyond where I met the smoke; I did not take any part in rescuing Doig or Younger; I did not work with Mr. Turnbull; I was outside, putting in timber and one thing and another.
2437. Did you go into the tunnel towards the evening again? No; I went in with the forenoon men, about 11 o'clock, to make the fire up.
2438. Do you know how far Mr. Turnbull got the smoke down? No.
2439. Did you work at the tunnel during the operations preceding the second accident? Yes, all the time; I was engaged at the furnace; I never saw the fire there. When they told me about an explosion, I told them it was not an explosion; I was not at the furnace when the accident occurred; I was in my own house; I was to go on at 4 o'clock, and this happened about 3·30; I saw all the men carried out.
2440. Why did you not think it was an explosion? I believed that it was a fall of the tops caused by the heat, certain props having been withdrawn in the vicinity by Mr. Campbell, the present manager.
2441. Did you ever hear of a fall of roof causing such a rush of air? Yes; I remember one in the Hermitage colliery; a fall took place about the breadth of this room, and the air came down and put all our lamps out. It was about 20 yards away.
2442. You saw the pillars in the vicinity of the fire, were they of very small size? Yes; they were very thin.

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2443. How many yards wide do you think? I worked in there myself, and noticed one which, I suppose, could hardly have been more than 2 yards wide.
2444. *Mr. Usher.*] At the time Mr. Campbell withdrew these props that you speak of, was there any fall? No; it was about three pillars back from the boiler.
2445. What thickness would they average? In some places 7 yards wide, while in others they would not average above 2 yards. I believe some of the pillars were taken out; I cannot say to what extent; I was working up the other side at the time, but I know the props were taken out.
2446. Did you ever travel to the back and left of the boiler? Yes; to the Eskbank boundary. I travelled that four years ago.
2447. Do you know whether a proper return has been kept on that side? No, but of course the day-men used to look to that. It was not my place.
2448. Has a proper return been kept to your knowledge? I cannot say whether it was or not.
2449. So that you do not actually know whether the return was kept good or not? No; I do not know.
2450. *Mr. Neilson.*] Have you ever heard of any heavy fall taking place in the vicinity of the Eskbank boundary? No; I know there was a fall in the main heading, but nothing to speak of; we called it nothing. The bords were driven from the other side then.
2451. Have you ever heard of any previous fire at the boiler? Never, except what I have mentioned.
2452. *Mr. Jones.*] Did Grant relate to you that he was blown from the furnace door to the right-hand side of the drums? Yes.
2453. Do you know if he received any injury? He has not done any work since, but he did not seem to have received any injury at the time.
2454. *Mr. Curley.*] In that place mentioned where the water is, if a fall had taken place there, would there be sufficient force of air coming to blow out the stoppings? It is not all water; it is a swallow.
2455. Supposing that opposite where the water lay a stopping were blown out, do you think there was sufficient space between the water and the roof to allow a sufficient force of air to blow out the stopping? In some places it would not, because the water is too high.
2456. *President.*] I believe there are two swallows, are there not, one near the boiler, and another nearer to the left-hand furnace? Yes.
2457. Was there an open space between? Yes. The water is up to the roof at the back of the left-hand furnace.
2458. *Mr. Usher.*] In going over the falls you referred to in a former part of your evidence, did you observe whether the top was rock or shale? There was no rock, only the coal.

Joseph Campbell sworn and examined:—

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2459. *President.*] What is your occupation and present position? I am at present manager of the Lithgow Valley Colliery. I was formerly employed as an engine-driver.
2460. What are you by profession? I am a miner. I learned my profession in Northumberland, England.
2461. And being brought up in Northumberland, were you accustomed to deal with fire-damp? I have seen fire-damp frequently.
2462. And therefore you would recognize it if you saw it again? Yes; I know it when I see it in my lamp.
2463. How long have you been in Lithgow? Seven and a half years.
2464. At what mines? At all the mines excepting the Ironworks. At the Eskbank, Vale of Clwydd, and the Lithgow Valley.
2465. Have you ever discovered fire-damp in any of these mines? Never.
2466. Have you ever heard of it in any of these mines? No.
2467. Judging from the appearance of the coal—the strata above and below—would you consider that seam likely to give off gas? Not in my opinion.
2468. Where have you worked in the Lithgow Valley mine? I have worked in the right-hand district of the main tunnel, also in the left-hand, but it is a long time since I was in the left-hand side. It was about five years ago.
2469. Have you worked in the coal adjoining Eskbank? Yes.
2470. Was any portion of the pillars taken out there? Yes; some of it was taken out.
2471. Can you say to what extent? I cannot exactly say. I should think there would be about five pillars split and taken out. They were not taken clean out, a portion of them being left standing.
2472. Coming to the main tunnel itself, were any pillars taken out there or robbed? Not that I am aware of.
2473. Were any left small? Yes, but none robbed.
2474. Were any taken out contiguous to the underground boiler? No.
2475. Did you draw any props from the top of the coal near the boiler? No.
2476. A few pillars back, I mean? No. I drew props out from that portion of the mine I have referred to, down by the boundary, but that is a good deal more than three pillars away from the boiler. The plan will show it.
2477. Are you not aware that one pillar back from the main tunnel the pillars are left much smaller than has been the rule? I cannot say; I did not take sufficient notice.
2478. Was that portion worked before you left? They were busy working there when I went.
2479. Do you know as a fact that the pillars were left smaller? I do not know it as a fact.
2480. Then, as to the mode of working this colliery, was it worked in any different fashion or style from that pursued in the adjoining collieries? I do not think it was.
2481. Was it worked much in the same way? Yes. I think some pillars are smaller here than in the Eskbank when I was there.
2482. Have you ever seen any appearance of these pillars crushing under the superincumbent weight? No. When there was a large fall in Brown's pit I heard a rumbling of pillars in the Lithgow pit.
2483. Were the stoppings in the Lithgow Valley mine erected in the same fashion as in the adjoining collieries? Yes.
2484. Then it was a district custom that was followed? Yes. We always put slack stoppings in. The custom is the same in Eskbank as in the Lithgow Valley mine.

2485. Was timber used to strengthen them? Some of the stoppings had timber in them.
2486. Were they carefully constructed? I cannot say. They were never under my supervision.
2487. In your opinion, were they sufficient for the purposes required of them? I think they were for the purposes of ventilation.
2488. Have they conducted the ventilation in a satisfactory manner? Yes. Before the accident over 14,000 cubic feet of air was coming down to the men.
2489. Was that a proof of your statement that they were sufficient for their purpose? In my opinion, yes.
2490. Did you ever complain to the late manager of the ventilation or management of the pit? No.
2491. Have you ever heard of any complaint? No, never.
2492. You have already stated that in the course of working this coal you have not detected any fire-damp; after the accident, did you detect any indication of fire-damp? Not in the least, and I have often searched for it.
2493. Had fire-damp ever existed, would it, in your opinion, have been detected after the accident? I do not know; it is hard to say; but I think we should have found it before if there had been any there.
2494. Where do you think you would have found it? In the highest level.
2495. Did you ever suspect gas in any part of this colliery during the progress of the operations for extinguishing the fire? No; I never had the least suspicion.
2496. If it never existed before the accident, you know no reason why it should have existed after the fire was discovered? No, I do not.
2497. Have you ever heard of an open colliery fire generating fire-damp? Never.
2498. If it were possible for an open fire to generate fire-damp, where would this fire-damp have been detected? I cannot see how it would be possible to generate it.
2499. Well, I daresay a good many people are of your mind, but just suppose it were possible for an open fire to generate fire-damp, where would it have shown its presence, or where would it have gone in the workings? It would have taken the highest level.
2500. Suppose it had taken directly to the return airway, where would you have discovered the fire-damp? We should not have discovered it at all, owing to the air that was returning; if it came back in large quantities it would fire on the furnace.
2501. About this underground boiler, did you see it built? No.
2502. Did you inspect it during the course of its erection? No; I had nothing to do with it.
2503. Do you know whether the tops were taken down over it? There was one band taken down, I know, but all the top-coal was not taken down.
2504. Was the bottom coal removed? I cannot say.
2505. Have you ever seen or heard of any former fire occurring here? Yes.
2506. When? I cannot say the exact date; some time previous to the accident; close on twelve months I should say.
2507. Do you know whether it was a serious fire? I cannot say; I only heard of it.
2508. Do you know what was done at the time? No, I do not.
2509. Regarding this rapper-wire, how was it hung? It was hung on props and over small pulleys.
2510. How was this rapper or signal wire disarranged by the accident? I cannot say; when we went down the tunnel I saw it was covered up with slack; what was ahead of that I do not know.
2511. When you went down the tunnel, immediately after the accident, did you attempt to work this wire? No.
2512. Do you know whether it was really blocked? I cannot say; no one attempted to work it after the accident.
2513. Have you heard that it was blocked? I think so; my judgment is that there was sufficient to prevent it from working.
2514. How could this wire have been hung so as to avoid the possibility of its being disarranged by such an accident? I cannot say; it would be a difficult matter.
2515. What caused this engine to start at first to pull out the skips at the time of the accident? It was the suggestion of one or two men who thought that in all probability the miners had sought refuge in the skips.
2516. It was not because the wire acted, was it? No; they had no intimation outside.
2517. Was the road blocked up by debris? Yes.
2518. Can you suggest any means of protecting this wire from accident; was it properly hung? I cannot conceive any other way; if it had been enclosed in pipes it would have been impracticable, I think, because if the wire broke the pipes would have to be opened.
2519. In working a colliery, can accidents always be foreseen? I think it is quite impossible; you cannot tell what may happen any day.
2520. Are there two separate and distinct outlets for the men from this mine? Yes.
2521. In case of emergency, can these two outlets be used? Yes.
2522. In addition to these two outlets, could the air-shafts be used for taking out the men? Yes, but there are no appliances ready.
2523. *Mr. Neilson.*] There is a main outlet, the furnace, and the travelling road, that is, three outlets; is that not so? Yes; there were four outlets previous to this, but now one is blocked up.
2524. So far as the inlets and the outlets were concerned, was this mine worked in conformity with the Act? Yes.
2525. *President.*] In the case of carbonic acid gas rolling up from an underground fire, would it be possible to keep the return free from the gas? I cannot see how it would be possible.
2526. If you had ten separate outlets, could you have kept them free from gas? No.
2527. In prosecuting the work of getting the fire under, did you take down a large quantity of air? Yes; on the Saturday before the accident there were 26,000 cubic feet of air passing the furnace; a portion went up the first and second cross-cuts, and 14,700 feet went down to the men.
2528. Would this air have the effect of increasing the fire? Yes.
2529 And also increase the gas resulting from the fire? Yes.
2530. And this gas went into the return? Yes.
2531. Then only the main intake was really available for the passage of the men? That is all.
2532. In your opinion, could provision have been made in the Mines Regulation Act to guard against such an accident? I do not think so.

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2533. If every possible precaution were taken to ensure the safety of the work, would Government, in your opinion, be justified in suspending the operation of the Act to enable an attempt to be made to recover a valuable colliery? That is a difficult question to answer.
2534. Do you think you ought to be allowed to extinguish an underground fire? There is a certain amount of risk connected with all fires.
2535. No doubt; in an underground fire where you have two outlets, one an in-take and the other a return, the return must be fouled. Supposing it was so foul that no animal life could exist, would you then, in your opinion, be justified in putting out the fire? If sufficient precautions were taken to ensure the safety of the men, I would.
2536. Well, granting that, do you think you would be justified in making the attempt? I should say yes.
2537. Who was entrusted with the task of seeing that provision was made to ensure the safety of the men who were carrying out the work? Myself and the underground manager, Kirkwood.
2538. Who selected the leaders of the shifts? The men selected their own leaders.
2539. Did you select any? No.
2540. Did you ever offer any suggestion as to the mode in which the work ought to proceed? Yes; the instructions were always given to the leader of the shift
2541. Then you say emphatically that you did not take any part in the selection of the leaders? Yes, I do.
2542. Was each of the leaders aware of the character of the work in which he was engaged? I should think so; in my opinion yes.
2543. Was any inducement held out to them, or any pressure brought to bear upon them? No.
2544. Do you consider this work was attended by any danger? I had no idea of any.
2545. And you repeat that you are satisfied that everything was done to secure the safety of the men? Yes; if it had to be done over again I could not suggest anything better.
2546. To bring your attention to the period immediately preceding this time, when the men held a meeting, and appointed a deputation to wait on the masters, can you tell us why the mine had been abandoned? You had got to the seat of the fire, you saw it, and forthwith the attempt was abandoned; we have never heard any good reason assigned for that? I do not know whether it was intended to abandon the mine or not; however, I was not there that night; I was knocked up, almost unconscious of what was going on, but I went to the pit next morning, and I heard that the men were commencing with the brickwork and stoppings, &c.; it appeared to me that they were going to close the mine on account of its condition, as we had no appliances for putting the fire out. It was a hopeless case until we could get appliances; we had no water for example.
2547. Then do you believe that was the cause of the mine being abandoned for a period? Yes; I think that was the reason.
2548. When you got down again to the seat of the fire, did you satisfy yourself as to the cause of it? No; it was a mystery.
2549. You knew that an underground fire occurred at that time? Yes.
2550. And you knew that smoke and heated gas passed over unprotected heaps and portions of coal? Yes.
2551. You knew that heaps of small coal had been allowed to lay at and around the furnace? Never around it.
2552. At all events you knew that an underground fire had occurred there, that the fire was burning round the bolier, and yet you say you never suspected the cause of the fire. Furthermore, you knew that certain men coming out on the Saturday before noticed an unusual smoke about the boiler and in the workings, and yet you say you did not suspect the cause of the fire? I suspected that it originated down by the boiler.
2553. Before the first accident, did you know the course taken by the ventilation? No; only just what I have had pointed out to me.
2554. You knew that it went down the main tunnel, when it, to a certain extent, stopped and returned, one portion up the right-hand and the other portion up the left-hand side? I knew that the bulk of the air went towards the right-hand workings.
2555. And you also knew, did you not, that Doig and his companions had entered the right-hand air-way? Yes.
2556. And you knew that the main intake was full of smoke and choke-damp? Yes.
2557. Did it not occur to you that it was a strange proceeding for Mr. Doig to enter the right-hand return under these circumstances? Yes, it seemed very strange to me.
2558. Were not naked lights used in the work of endeavouring to put back the smoke in the tunnel? Yes; nothing else but naked lights were used.
2559. To return to the fire-damp; if it had existed, would it have been possible to have used naked lights there, or in the return air-ways? No.
2560. Was evidence of the absence of fire-damp in that case clear and definite, in your opinion? Yes, certainly.
2561. Were you aware that before Mr. Turnbull arrived a party or parties of rescuers had gone down as far as Tyndall's heading? Yes; I knew that.
2562. And that other parties subsequent to that had also, unknown to Mr. Turnbull, penetrated a considerable distance into the returns? Yes, I believe so.
2563. And that also, unknown to Mr. Turnbull, these parties had discovered the bodies of the unfortunate men? Yes, I knew that.
2564. And that the air was not loaded with choke-damp in the right-hand return? Yes, I knew that, too.
2565. Did this circumstance excite any curiosity in your mind as to the reason why this return was not full of smoke and choke-damp? We have evidence that it was comparatively clear and free, and that men could live in it? Yes.
2566. Did it excite any suspicion in your mind as to the cause of this apparently anomalous state of matters? I thought myself that there was a fall somewhere in the main heading.
2567. And as a matter of fact when you got down weeks after that you saw a fall? Yes.
2568. And was it a large one? Yes.

2569. Did it destroy the air-way? Yes.
2570. Were you present when the last accident occurred? Yes; I was present outside.
2571. How long had you been out of the mine? I left it about 2 o'clock.
2572. How often did you visit the underground operations? I was seldom away night or day.
2573. Then what instructions did your owners give you as to the general safety of the men? They charged me very seriously not to allow the men to incur any risk; they said they would sooner lose the whole of the property than that the life of one man should be sacrificed.
2574. And you carried these instructions out in the course of the operations? Yes.
2575. Did you discover a few days before the accident that a stopping had been surreptitiously opened? Yes.
2576. What stopping was that? The twenty-ninth stopping on the left-hand side.
2577. Can you decribe what you saw? On the second shift, before the discovery, I took three or four men in with me to examine these stoppings, and found that some of them were not altogether right, and I put the men to work to tighten the stoppings that were loose; subsequently I was down in that direction removing some timber; my lamp was hanging on a prop, and my attention was directed to the flame of a lamp which I saw was bearing down towards the stopping. I thought that something was wrong, and upon investigation discovered that this particular stopping had been tampered with; about 6 inches of slack had been pulled from the centre of the stopping.
2578. How could this have been done, Mr. Campbell? I could not say, unless somebody pulled it down.
2579. Was anybody admitted into the tunnel but the workers? No.
2580. Then it would seem to lie between the workers? Unless someone got in without being observed.
2581. What object would anyone have to gain? That I cannot say.
2582. Was there any watchman put on at the tunnel mouth? The man who attended to the furnace acted as watchman.
2583. Did they ever admit anyone into the tunnel without an order? Not that I am aware of.
2584. You have no doubt that these men at the furnace did their duty? None whatever.
2585. Were the stoppings below blown out in the main tunnel at the accident which afterwards occurred? Yes.
2586. Would not a similar cause account for a few inches being driven out of this stopping? I do not know.
2587. Did you see any evidence of any person having been at this place where the stopping was tampered with? Yes.
2588. Might some person have got into the mine without being observed? They might.
2589. How could they get out again? They might wait for an opportunity.
2590. What effect had this upon the fire? I do not know that it had any effect, excepting that it would take a portion of air from the main tunnel.
2591. Was that noticed by the workers? No; I never heard them complain.
2592. Did you anticipate or foresee this unfortunate accident? No.
2593. Did any man express to you his doubts as to the general safety of the mine? No.
2594. Did you hear any sound of falls to the left of the tunnel previous to the accident? Some fortnight before I first got down to the fire I heard some falls on the main tunnel in front, but never heard anything to the left.
2595. Coming to the 29th stopping again, did you see over the top of it? Yes.
2596. Did you see any fire there? No.
2597. Did any man hear falls before the accident? I have heard since that some of them heard falls, but they did not inform me at the time.
2598. In the light of subsequent events, could you have anticipated this accidont? No.
2599. In your opinion, what was the cause of the catastrophe? I think it was caused by a heavy fall.
2600. Where could a large fall take place in these workings? It is hard to say. There might be a fall where these pillars were taken out.
2601. In your experience, have you ever known of a very strong rush of wind occurring in consequence of a fall? Yes.
2602. Where? I have known it in the Eskbank mine and in the old country.
2603. Tell us about the fall in the Eskbank mine? I have been knocked down by the effects of a fall there.
2604. What distance where you from the fall? About a chain.
2605. Did it do any other damage? Well, it knocked the skips about that were close to us, and made the slack fly about.
2606. In the old country, what experience have you had of a similar catastrophe to that which occurred in the Lithgow Valley mine? I have known falls occur there when all the lights have been extinguished.
2607. Had the stoppings in the Lithgow Valley mine, along the main tunnel, been built of brick, do you think the result of this accident would have been different? It is hard to say.
2608. Supposing that there had been brick stoppings, and these stoppings had been blown out, what would the results have been? I think the results would have been the same as we have seen in this case.
2609. Where were you when this accident occurred? I was sitting outside on the bank. I saw smoke coming out of the left-hand up-cast shaft, extending up to 15 or 20 feet.
2610. Did you see anything remarkable about the mouth of the tunnel? I saw some smoke coming out.
2611. How long did it continue? For about two or three seconds.
2612. Did you see Grant, the furnace-man, there? Yes.
2613. Did he seem to be in a dilapidated condition? Well, he shouted out to me, and appeared to be in a very great fright.
2614. Did he tell you he had been projected out of the tunnel for a distance of 100 yards? No, but I know that it could not be a fact anyway.
2615. Was Grant injured? I do not know.
2616. Did he complain? Yes, he complained, but I thought it was from fright.
2617. Are the gates at the mouth of the tunnel permanent and strong structures? No.
2618. Were they blown away by the force of the blast? No.
2619. What force would be required to blow a heavy man like Grant out of the tunnel—would not such a force be sufficient to have blown away these frail structures? It would have made a considerable impression on them, anyway.

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2620. Do you credit his statement? No; I know it is not true.
2621. You think the man is possessed with a diseased organ of wonder. What did you do immediately after hearing of this accident? I scarcely knew what to do. As soon as I heard of the accident, I ran to consult with Mr. Gell, and returned in three or four minutes. I did not see Mr. Gell; he was not at home at the time. During my absence they had pulled out the skips. Young Norwood was in the skips. We had heard a cry for help from the tunnel, and we rushed in, Morris and James Rowe being among the number.
2622. What did you see? We found Mantle about 3 chains down the tunnel. He was lying down and calling for help, and appeared to be very much exhausted.
2623. Was he much injured? I never examined him. I saw him lying down, and gave him in charge of someone else. I then hurried on.
2624. Did you notice whether the doors of the right-hand furnace were open? No, I did not; but the left-hand furnace door was open.
2625. Well, after passing the left-hand furnace-door, what did you see? I found Durie and Duncan just past the left-hand furnace. They were going out on the main tunnel. They were standing when I came up to them. I gave them in charge of somebody, and went further on, when I found Kirkwood.
2626. How many chains down was that? About 10 chains. I tried to get further down after this, but could not. The smoke was in the tunnel there, and the stoppings were down.
2627. Was this spot the first place where you saw the stoppings blown down? No; I saw them before this, and noticed that the top was just blown out from the left across the road. We repaired these stoppings.
2628. And having repaired the stoppings you went onwards? Yes.
2629. Where did you come upon the first party? I was repairing one of the stoppings when the party ahead of me found Buzza. It would not be more than a chain from where we found Kirkwood.
2630. That would be about 11 chains down? I would not be positive as to the distance.
2631. Was he dead? I was told he was dead, but I cannot say whether he was dead when he was found.
2632. Was the air very bad then? Yes.
2633. How long would that be after the accident? I should say it would be about half an hour, scarcely so much perhaps. We then proceeded down for a distance of 18 chains, and we found Thomas Mantle at the bottom of the eighteenth stopping, with Lance Allison lying alongside of him; then I dropped the canvas immediately, ran down further and got to the next chain, and there found Isaiah Hyde and Thomas Rawe.
2634. That was at the 19th chain? Yes.
2635. Were these two lying together? Yes; I then called to the men to cease operations till we could find the lot and get the bodies out, because there was a doubt about William Mantle, although he had really by this time got out of the mine. We called the roll over, and I told the others to go outside and see whether William Mantle had got out. In the meantime I went 3 chains further down the tunnel to see if I could find any more.
2636. Had you any difficulty in doing this? The smoke was very thick, as the stoppings were out and the air current disarranged.
2637. Did you observe any cinders across the road when you were passing these stoppings? No, I did not.
2638. At what stoppings did the force of the accident seem to expend itself—which of them seemed to have received the greatest amount of injury? I could not see very much difference in any of them.
2639. Were any of them totally blown out? No, not when I saw them; I think the largest hole was about 15 inches.
2640. Did that extend right across the stopping? No, it was about the centre.
2641. Were these stoppings closed up? Some of them were. As we went down those which had been most blown out were covered with canvas bags.
2642. How far did you get down after the accident? I went down about 22 chains on the day of the accident.
2643. Did you see any fire in the inside of the stoppings? No.
2644. Did you see any evidence of an explosion of fire-damp in going down this tunnel? No.
2645. Have you ever heard it stated that red-hot ashes or coals had been projected out from some of these stoppings? Yes, I have heard so.
2646. And do you credit that statement? My own private opinion is that it was not so; I saw no evidence of it.
2647. Just before this accident, was the return air-way to the left full of smoke or choke-damp? Yes.
2648. Under the circumstances, is it possible for the waste there to be filled with or to contain any quantity of fire-damp? No.
2649. Are you aware of the effect that choke-damp has upon fire-damp? No.
2650. I will put it in another way—Does the presence of choke-damp render an explosion impossible? I have never seen any explosive gas where there is black-damp.
2651. You know that choke-damp will put out fire, I suppose? Yes.
2652. Knowing that, would you say that choke-damp must have the effect of preventing an explosion? I should think so; yes.
2653. Do you know whether fire-damp would be given off by an open coal fire? I have already answered that; I do not think it could.
2654. Do you know of anything to justify the statement that fire-damp accumulated in the left-hand wastes, that is to say, the wastes towards Eskbank? I do not know of anything to justify such a statement, because I have heard Doig say from time to time that they could not get towards the Eskbank boundary for black-damp.
2655. Did you inspect the bodies of these men? Yes, some of them.
2656. What appearance did they present? They did not present the appearance of having been burned.
2657. Did you see Allison? No, except when he was taken out of the mine.
2658. Had these men clothes on? They had flannels on.
2659. Did the bodies you saw differ in appearance from those of Doig, Younger, and Rowe? No, not the ones I saw.
2660. What do you consider was the cause of the death of Doig, Younger, and Rowe? I consider that they died from the effects of carbonic acid gas.

2661. And you attribute the death of these five men to the same cause? Yes.
2662. During the operation of extinguishing this fire, do you consider that the Inspectors of Collieries performed their duty? I do.
2663. Did they extend any privileges in any way? No.
2664. Did they suspend the operation of any clause of the Mines Regulation Act in order to favour any one? Not that I am aware of.
2665. Did they exhibit anxiety for the safety of the men? Yes.
2666. Do you think they could have foreseen this accident? I should think not.
2667. Do you think it was in the power of man to have foreseen this accident? I do not think it was.
2668. Could any application of the Mines Regulation Act have prevented it? Not that I am aware of.
2669. Leaving this accident, the mine is now sealed off, that is, the workings above No. 2 cross-cut from the major portion of the pit, by 27-inch stoppings, is it not so? Some of the stoppings are 27 inches, but others are only 14 inches.
2670. Is there any difference in the thickness of the stoppings on the left-hand side of the tunnel? Yes; the first stopping is a 27-inch brick stopping to the left of the tunnel with Barlow rails behind; there is another on the other side of 14 inches, and one of 9 inches inside the furnace in the return.
2671. Is there any difference in the thickness of the stoppings to the right? Yes; the first two stoppings to the right are 27 inches, and the others are 14 inches, with the exception of one, which is 18 inches thick, that is below the cross-cut.
2672. Can you assign any reason for the difference in the thickness of these stoppings? Yes, some of them were backed up by such a tremendous amount of slack that we considered 14 inches sufficient.
2673. How many yards of slack were these stoppings backed up by? They were of various thicknesses; some of them might be backed up by 6 or 7 yards of slack, and some of them were built right up with timber, and filled in with slack behind and brick in front.
2674. Then, in your opinion, are they substantially built stoppings? Certainly.
2675. Are they built in with cement? No, lime.
2676. According to the plan you are to go by, are any of the old workings forward to the line of the cross-cut? No.
2677. Are you aware that the plan has not been extended for a year? Yes.
2678. In which case to continue No. 2 cross-cut in its present direction might open up some of the workings? I do not think so.
2679. But it might? Yes, it might.
2680. Supposing the workings were cut through, what would be the result? Black-damp would come through.
2681. Would it not be wise to swerve this cross-cut some degrees to the south? I have done so.
2682. How many degrees? 10 or 15.
2683. Are you aware that the water runs freely from Lithgow Valley mine to Eskbank? No, I am not.
2684. Did it once run freely? Yes.
2685. What is the reason it does not run now? Because stoppings have been put in at Eskbank; the water was pumped to deliver into Eskbank.
2686. Then if it did not go, what would be the consequence? It would run back again.
2687. As a matter of fact it did not run back, or you could not have worked your mine? Well, the mine was not clear of water for four or five months.
2688. What was the growth of the water? I believe they have been pumping and re-pumping it over again.
2689. If water would run to Eskbank, would a fire draw air through the same place? Yes, I think it would.
2690. Would the flooding of the Lithgow Valley mine have the effect of flooding Eskbank? If it burst the dams it would.
2691. *Mr. Jones.*] Would not brick stoppings, backed up by 6 or 7 yards of small coal, have been more effective in preventing a recurrence of what took place at the late accident? Yes, I should say so; no doubt brick stoppings are the best.
2692. By whose authority did you proceed to re-open the mine? By the authority of the proprietors, and with the concurrence of the Government Inspector and Examiner.
2693. I understood you to say that the Government officials had nothing to do with the matter? Well, they were there to see that nothing was done contrary to the Act; they were sent by the Government after having received notice.
2694. *Mr. Davies.*] Was their opinion asked as to the safety of the proceedings? They were satisfied that we were doing right, or they would not have allowed us to proceed, I suppose.
2695. *Mr. Usher.*] I suppose there was a reason for your having Barlow rails in No. 1 stopping? Yes, because we could not put an arch stopping there on account of the drift being so near to the main drive.
2696. That is the left-hand corner of the shaft? Yes.
2697. *Mr. Curley.*] At what time did you commence operations? On 17th February.
2698. When you took charge, did you consult with the proprietors and the inspectors upon the line of action that should be pursued? Yes; I suppose you mean before we opened the mine.
2699. I think I understood you to say that you found there were not sufficient appliances, and that determined you on closing the mine again? Yes; but we did not expect that we should find any fire when we opened the mine; we expected that the closing of the mine would have put out the fire.
2700. At the time that the men were working at this fire, in the event of anything occurring in the main tunnel, was there any other way out for them but that by the main tunnel? No.
2701. There was no other safe means of egress? No.
2702. Did you work during the day, or did you work at slight intervals? I was seldom out of the mine.
2703. Did you ever make any observation as to the current of air going up the up-cast shaft? No; but we frequently took the register in the main tunnel.
2704. Have you seen the ashes deposited about the right-hand furnace? Yes; there were some ashes there, but they were all deposited in the water.
2705. Do you consider it advisable that ashes taken from the furnace fire should be deposited in the mine and stacked to such an extent? Well, I consider the best plan would be to take them out.

Mr. J. Campbell. 11 May, 1886.

2706. Judging from your experience in Eskbank as to the effects of a large fall, did it ever occur to you in carrying out these operations that there was a possibility of danger from such a source? No, it never occurred to me; we never had the least apprehension of danger.
2707. At the time of your consultation with either the proprietors or the Inspector of Collieries or the Examiner of Coal-fields, was the matter of a fall, or any other thing from which danger might be apprehended, brought up? No, never.
2708. How far was this rapper-wire erected from the side of the tunnel? In some places it was pretty near the side—only a few inches from the rib.
2709. How high from the floor of the mine? It varied; in some places it was not more than a foot.
2710. In conducting these operations, did you ever refer to the Coal-fields Regulation Act at all to see if you were infringing any of its provisions? No; we had policemen watching us night and day, and if we had been doing anything wrong I take it that we should have been stopped; we conducted operations so far as we knew in compliance with the Mines Regulation Act.
2711. *Mr. Usher.*] Would the fact of your swerving No. 2 cross-cut to the south rise prevent your holing in the old workings? That is the reason why it was determined upon; it was the intention to swerve, but not at such an angle to begin with.
2712. Why was it the intention to do this? Because we thought it best to be safe; I have worked in that direction for a good distance.
2713. Have you taken any precaution to prevent holing into the workings further to the south? Yes; we have put some bore-holes in.
2714. Do you know the size of the pillars on the south-east part of the workings? No, except by the plan.
2715. Did you at any time accompany Mr. Turnbull to ascertain whether explosive gas existed in the waste workings? I accompanied him when we took out the plug in the main tunnel.
2716. Did he tell you he expected to find explosive gas? Yes; he came down and made an examination on the Sunday morning, and he made the remark when he came out of the mine that she was full of explosive gas. He went and told the company the same.
2717. How did he try the gas? With a Davy lamp.
2718. Was he very careful in approaching the openings? Yes, very careful.
2719. Who was present? Mr. Gell, Mr. Wilton, Kelly, and Morris.
2720. What was the result of the examination? He distinctly stated that he believed it to be carbonic acid gas.
2721. Did the gas extinguish the light? Yes.
2722. Do you know the thickness of the rock overlying the coal-seam to the extreme workings? No, I do not.
2723. *Mr. Jones.*] Are you aware that the pillars have been very much robbed on the left-hand side of the main tunnel? I am not aware.
2724. A previous witness has stated that they had been robbed to a very great extent? I did not know that they had been.
2725. Did you ever visit the side of the boiler either previous to or after the first accident? Yes.
2726. What did you observe? When I have been in during the morning I have seen a little vapour hanging there.
2727. Did you ever have an opportunity of going in behind the boiler on the left-hand side? No. I have been behind the boiler since the accident occurred, and saw a fall of rock just close to the boiler; it was composed of coal and stone; it was not on fire when I saw it; I saw a flame behind the boiler after the first accident; I was in charge then; I kept putting on water and taking away the stuff as quickly as possible; I do not think the fire was put out.
2728. What proceedings did you take after that? We commenced to build up the brick stoppings.
2729. And you left the fire burning? Yes.
2730. *President.*] In proceeding down the tunnel after the first accident, you say that the stoppings were down, and you looked through and perceived no fire. Did you see whether any top-coal had fallen? I did not.

William Pitt sworn and examined:—

Mr. W. Pitt. 11 May, 1886.

2731. *President.*] What is your position, Mr. Pitt? I am manager of the Eskbank Colliery.
2732. How long have you been manager of that colliery? Over ten years.
2733. Have you worked the coal along your southern boundary to the left portion of the Lithgow Valley mine boundary? Yes.
2734. Did you work up to the boundary? Well, I consider not.
2735. Have you worked over the boundary in any part? I think not.
2736. Has any communication been made between the Eskbank mine and the Lithgow Valley mine? Yes.
2737. Does water run between the two mines? I cannot say.
2738. Have you taken precautions to prevent the water from running between these two mines—have you put in any dams, or by any other means endeavoured to stem the water? As we worked the pillars out we banked the slack well back.
2739. You have worked the pillars out along the boundary, then? Yes.
2740. What object had you in view in working the pillars out from that point? Simply that when we got to the boundary we took all the coal out.
2741. Have you stopped pillaring that portion of your estate? That portion is already pillared.

(Plan of Eskbank Colliery exhibited.)

Dictated by the President.

[In reference to the encroachment, Mr. Pitt pointed to the position on the plan where an encroachment has been made, being the same as that shown on the Lithgow Valley plan. A large portion of pillars extending over some acres is stated by the witness to have been taken out. The witness also states that the place occupied by these pillars is perfectly closed. He explains that the effect of the Lithgow Valley mine being flooded would be to flood Eskbank also.]

Mr. W. Pitt. 11 May, 1886.

2742. *President.*] In your ten years' experience, Mr. Pitt, have you ever discovered fire-damp in this colliery? No; I never saw the slightest trace of it.
2743. *Mr. Davies.*] Have you ever been where there is fire-damp? No.
2744. *President.*] Do you work with naked lights? Yes.
2745. *Mr. Curley.*] Have you ever searched for fire-damp on the top of these large falls where the pillars are taken out? So far as we could, yes.
2746. Have you ever found any trace of fire-damp? No, never.
2747. *President.*] Have you ever heard of it? No.
2748. *Mr. Usher.*] Did you ever put in any clay dams anywhere near the boundary? No, nowhere along the boundary. No provision has been made for damming back the water from the Lithgow Valley mine, except banking the slack well up behind after taking out the pillars. At the seat of the encroachment a narrow rib of coals was left in.

[Mr. Pitt has no objection to the Commission, or a deputation from the Commission, visiting the Eskbank workings with a view to enlightening themselves upon the statement he has made.]

Edward Gell sworn and examined:—

Mr. E. Gell. 11 May, 1886.

2749. *President.*] You are one of the owners of the Lithgow Valley Colliery? Yes.
2750. How long have you been one of the owners? Ever since it has been opened—about twelve or thirteen years. I do not know the time exactly.
2751. What part have you taken in the management of the colliery? I have not taken any part more than the other members of the Company since during the last five or six years.
2752. Have you frequently visited the underground workings of your property? No.
2753. How often did you visit the workings? I had not been through the workings for four or five years before the last accident, and, as you can imagine, at that time they did not extend to any great distance.
2754. To whom did you delegate the charge of the underground workings of your colliery? To Mr. Doig, the late manager. Perhaps, if you will let me, gentlemen, I could give you a short narrative which, so far as I am concerned, would put the whole matter clearly before you.
2755. Very well, Mr. Gell, proceed? When we first opened this mine we got Mr. Winship to come over to lay it out for us; he performed that duty, and recommended to us Mr. White as a competent manager. He, however, had a failing that rendered it necessary that he should be suspended not very long after his appointment. We then, at the recommendation of Mr. Winship, got a young man named Swan. He was also not considered satisfactory, and did not remain in our employ more than six or eight months. We next engaged a Mr. Douglas, who was an old practical miner. He had been engaged at, and in fact I believe he was at the opening of the Eskbank mine, and had the reputation of being an experienced miner; he remained with us for some time, but he did not turn out very well. You will understand, doctor, that at this time there were none of the proprietors living anywhere near the spot. I lived in Bathurst, and used to come over here once a month to pay the wages; I did not very often remain more than a few hours; I used to come for that purpose solely. You will understand that we had not a very great knowledge of the practical part of the business—in fact we trusted entirely to the men we had employed. Mr. Doig was employed during the whole of this time as an underground manager, and, as a matter of fact, we discovered that the whole of the management of the mine had devolved upon him during the time when we were paying for other men to manage it; hence, when it became necessary to appoint a new manager, we thought it was about time to give Doig the position and the pay, seeing that he had during all this time been performing the actual duties pertaining to the management of the mine for the wages of a subordinate. He was therefore appointed manager, and the whole of the management of the mine was placed in his hands. We had perfect confidence in his good judgment; he had everything that he required for carrying out the operations of the colliery; and, so far as I know, all of his requests in connection with that part of the business were promptly attended to.
2756. He gradually worked himself into your confidence? Yes.
2757. Then we are to understand that all the management and care of the mine underground devolved upon Mr. Doig? Yes.
2758. Practically he had sole management of the mine? Yes.
2759 Did you interfere with Mr. Doig in any way? Never.
2760. Mr. Doig was a man in whom you reposed the utmost confidence? Undoubtedly.
2761. You know this underground boiler? Yes.
2762. Have you inspected that boiler? No; I was up to it during the time we were trying to extinguish the fire, but I never saw it before.
2763. Did you ever hear of fires occurring at this boiler before the accident of the 14th of February? No; it came upon me quite as a revelation; I have no recollection of hearing anything of the kind.
2764. Had you heard of this occurrence, would it have raised your suspicions as to the security of the mine? Yes, undoubtedly. Perhaps it may not be amiss if I state to you that I have some practical knowledge of, though I am not acquainted technically with, coal-mining, as I am an architect by profession.
2765. Then you are quite certain that you did not hear of any fires having occurred prior to the one on the date mentioned? Yes.
2766. Coming to the morning of the accident, in February, when were you apprised of something being wrong? I was told of it about 7 o'clock on the Monday morning.
2767. And of course you came to the mine? Yes; I got up instantly and sent to Mr. Wilton, at the "Hermitage," and he arrived at the mine shortly after I got there.
2768. What was the position of things at the mine? Well, of course there was a great deal of consternation among the men, although the full extent of the disaster was not then known; Mr. Turnbull was at once sent for, being a practical man.
2769. Before Mr. Turnbull's arrival, did you hear whether any rescuing parties had penetrated into the mine? I cannot say that I remember that.
2770. Well, on Mr. Turnbull's arrival, what conversation had you with him—what was the purport of it? Well, I have no distinct recollection; of course you can understand that all was excitement, people running here and running there, and no one knowing hardly what to do; as far as I was individually concerned I was to a great extent paralysed by the horror of the situation, and my recollection is not therefore very distinct as to particulars.

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2771. And when Mr. Turnbull arrived I understand you gave him instructions to do his best under the circumstances? Yes; Mr. Wilton and I were both present at the time, and, so far as I can recollect, we did trust him entirely in the matter, as we were ourselves utterly helpless from want of knowledge.
2772 You trusted Mr. Turnbull with the task of opening out the tunnel? Yes; there was first the rescuing of the men of course; but we gave him full charge also of anything he thought was necessary to be done.
2773. Do you know, of your own knowledge, anything concerning the discovery of the men? Of my own knowledge, no.
2774. After Mr. Turnbull had proceeded with the work which he had undertaken for some hours, do you recollect a man named Davis arriving at the mine? Yes.
2775. Did he speak to you? Yes; Mr. Wilton and I were talking in front of the house where John Doig was lying between life and death; there were a great many persons standing about, and a good deal of excitement prevailed, so that you can imagine that a person would pay very little attention to what was said at such a time. I only remember this man coming up, and with him, I think, Mr. Wilson, of the Zig-Zag Colliery, and they began to talk about what was best to be done under the circumstances. I have no recollection of anything more taking place than some observation being made, such as, "Well, we shall all have to do our best," or, "Everybody must do their best." For my own part, I do not think I said anything; it was represented by Davis afterwards that he was working under my instructions, but I do not remember giving instructions to any one.
2776. Had you any intention of superseding Mr. Turnbull? No; how could I?
2777. Shortly afterwards, did Mr. Turnbull come to you and complain that he had been superseded? I do not know that he complained about being superseded. He did complain about this man Davis tearing down the face of the bratticing that he had put up, and I afterwards learned that Davis said he had done this under my instructions.
2778. What did you say to Mr. Turnbull? I do not remember what I said; I presume I should have said that I did not give him any instructions.
2779. Did Mr. Turnbull assign that as a reason for throwing up his charge? He never said anything about throwing up his charge, so far as I remember.
2780. As a matter of fact, the mine was closed up shortly afterwards. Was any reason given for this; did Mr. Turubull seem to be displeased or piqued at Mr. Davis interfering with his work? I think he was, but I am not aware that that was a reason why the mine was closed. The fact is, the whole thing got into confusion, and it was allowed to drift.
2781. Did not Mr. Turnbull keep the men to their duty, seeing that he allowed things to drift into confusion? Everything was placed under his charge, you say? Yes, but being a volunteer he was to a certain extent irresponsible.
2782. When was the mine closed up, was it on the Monday? It was on the following day, I think, or the day after.
2783. You say you proceeded to the scene of the accident on the Monday morning about 7 o'clock? Yes.
2784. When did you learn that the mine was on fire? It was discovered to be burning before that day—I never heard of it until that morning.
2785. When did you hear that the fire had been discovered on the Sunday? It was Doig's brother who came to call me on the Monday and told me. He said that his brother and Charley Younger were in the mine. They had been apprehensive that something had occurred, as a considerable amount of smoke had been seen issuing from the mine.
2786. When did you hear that an unusual amount of smoke had been seen hanging about the boiler on Saturday night? I presume I may have heard it that same day, Monday. There was a great deal of talk going on about the matter.
2787. I believe that one Martin, an engine-driver, accompanied Doig into the mine on Sunday? Yes.
2788. Did you think it strange that Martin did not report the fire, and the fact that Doig had gone into the workings, when he came out of the mine? He came out of the mine comparatively early on the evening of Sunday and went home to bed, and does not seem to have mentioned the subject to anyone. Do you consider that extraordinary conduct? Well, I do not think I should have acted so myself.
2789. Have you ever questioned Martin upon the subject? No.
2790. We have been told that Mr. Passmore was informed about 6 o'clock, or somewhere about that time, on Saturday night, that an unusual occurrence had taken place in the region of the boiler, and that he replied to his informant, "That is all right," and moved off. Have you ever heard of this? No; I do know of it only from the evidence given at the inquest.
2791. Then the mine was sealed up? Yes.
2792. Was that in accordance with the directions of the Government Inspectors? I think so.
2793. When did they arrive? I am not sure whether they arrived that night or the following day. I may say that my memory is not particularly strong.
1794. Did they arrive early on the Tuesday morning? I really could not fix the date.
2795. Were they present before the mine was sealed up? I should say no. I think it was by their instructions that the mine was sealed up.
2796. What charge or responsibility did the Government officials take on their arrival at the mine? They took no responsibility that I am aware of beyond what I understood their instructions to be, that no risk of life was to be incurred.
2797. Did you second their efforts in that direction? In everything.
2798. The mine was closed for about a month, I think? I believe about three weeks.
2799. What induced you to re-open the mine? Well, the impression was that the fire was virtually out.
2800. Among whom did that impression exist? Mr. Turnbull, I believe, gave it as his opinion some two or three weeks before the openings were made that no fire existed in the mine.
2801. Then you believed that the fire had been extinguished when you re-opened the stoppings? Yes.
2802. How long was it before you got down to the seat of the fire, down to the boiler? I cannot say very distinctly—well on to a fortnight.
2803. And you saw the fire burning? Yes; we found the obstacles greater than we had apprehended.
2804. From what? From the fall of the tops and rock.
2805. Had very much fallen about the main seat of the fire? Yes.
2806. Did you proceed into the tunnel on the morning of your arrival? No.

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2807. Did you hear how far the smoke or choke-damp stood when you arrived on the scene? I cannot say; it did not make much impression on my mind, as I was really too much pre-occupied.
2808. Did you visit the scene of the operations at the re-opening? Yes, repeatedly.
2809. Did you see a large fall in the main tunnel opposite the boiler? Yes.
2810. It was a very large fall, was it not? Yes.
2811. Did it obstruct the air-current to all appearances? Well, we could scarcely tell, as it was almost impossible to see the tops owing to the density of the smoke, but there is no doubt that it was a very large fall.
2812. When was it you abandoned the attempt to extinguish the fire at this time. It appears you got down to the fire, and suddenly determined to close the mine—what was the reason of this? You appear to be labouring under some misapprehension; it was not that time. The time I am referring to was about a week or two before the last accident.
2813. We are informed that immediately after the opening of the tunnel for the first time the workers proceeded down the tunnel and saw a fire. It was then suddenly determined to close the mine, and the men were accordingly withdrawn. We are also informed that the stoppings were rebuilt, when a circumstance happened to which I shall refer immediately. I want to know what the reasons were that caused you to abandon the attempt to extinguish the fire. We have been told to-day that it was for want of the necessary appliances—is that so? I have no knowledge of any difficulty of that kind arising.
2814. Do you remember the men holding a meeting about this time at the Lithgow mine? Yes.
2815. What was the cause of their holding this meeting? I only know of one meeting, and that was when the men expressed great dissatisfaction at the mine being closed.
2816. Why did you close it at that time? That is the time to which I referred; I really cannot tell you. I did not take a very active part in the matter. Mr. Mackenzie and Mr. Rowan were there, as also Mr. Wilton, part proprietor in the mine, who is necessarily a very much more energetic man than I am. I entrusted the matter entirely into their hands.
2817. Then you do not know the reason of the mine being closed? I do not remember any particular reason. I may perhaps be allowed to tell you by the way, as an explanation of my apparent stupidity, that I have been suffering from an affection of the head for some four or five years, and by the advice of my medical man have taken two trips to Europe in order to recover, so that you will understand I have been a great deal away from here. The result of this affliction has also been to considerably affect my memory.
2818. Very well, Mr. Gell; these men held a meeting, when you determined to close the mine. What resolution did they arrive at? In calling it a meeting, I am not aware that it was an organized one in any way. The men used very frequently to mass in considerable force about the mouth of the tunnel, and, so far as I know, this was one of those gatherings. However, they did speak to me about sealing up the mine. Some of them said they were perfectly satisfied that if she were once sealed up she would not be opened again. I may say that a great number of these men have been working there from the commencement of the mine; and I believe the whole of them, with very few exceptions, would be extremely sorry to leave the place.
2819. Then, do I understand that the meeting was attended by the men, by the inspectors, and by yourself, and that it was ultimately agreed to give these men an opportunity of making a trial to extinguish this fire? Pardon me a moment. On this particular occasion it was suggested by one of the miners that we should attempt to work the cross-cut on which we are now working. Mr. Turnbull and Mr. Mackenzie, and, I think, Inspector Rowan, went to examine this cross-cut; and it resulted in Mr. Turnbull's getting overpowered by the gas, and he was carried out of the mine. This, of course, caused further excitement; and then there was some talk of shutting the tunnel up.
2820. What answer did you give to the men? I do not remember that I gave any answer, but, we being down at the place—that is, Mr. Mackenzie, Mr. Rowan, and Mr. Wilton—I believe an arrangement was come to, and the men determined to go to work.
2821. Did you select the men? Oh, no; Mr. Campbell did that, I suppose; I do not remember. I did not take any leading part in the business.
2822. Was any pressure brought to bear on the men who engaged in this enterprise? Oh, dear, no; the pressure was on the other side.
2823. Do you think they were fully alive to the danger which existed in connection with this enterprise? I should imagine so.
2824. Did they know all you knew? Yes, and probably a great deal more.
2825. Was it about this time that Mr. Campbell was appointed manager? I do not remember the exact time when he was appointed. I believe it was a day or two after poor Doig's death. It was necessary to have someone, and he was the likeliest man on the spot.
2826. You repeat, Mr. Gell, that you have received no complaint as to the dangerous state of this underground boiler? Not a word.
2827. Did you know of the existence of any previous fire there? No.
2828. Were you in any way warned of this circumstance before it occurred? No.
2829. You received no complaint from the inspectors as to how the mine was conducted? Not a word.
2830. You received no complaint from the inspectors as to the condition of the plant of the underground portion of the works? Not a word.
2831. Can you assign any cause for this fire? Well, I could assign a cause. There are circumstances connected with it of rather a suspicious character.
2832. We should be very glad to hear your suspicions if they are founded on anything tangible? One of the men working in this mine some week or two before the fire in February saw a light one night when he was returning out of the mine, and when no one was supposed to be there except himself. I could not say how long it might be; two or three weeks.
2833. Very well? That of itself was considered rather a suspicious circumstance. Then we also heard it stated that Doig made a remark to one of the men about the air-course having been changed.
2834. When did he make this remark? When he was in conversation with one of the men, I forget which, either Martin or Passmore.
2835. He made a remark that the air-course was changed? Yes. I am not sufficiently practical as a miner to know what might happen if such a change had been made, but the air-course was down the tunnel.

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2836. That is, it went in the tunnel? Yes; it went a certain distance in and then turned round to the right and left, and it would appear that under ordinary circumstances the smoke would not come back to the mouth of the tunnel. In my judgment what did take place was therefore a singularly suspicious circumstance.

2837. You have spoken of a large fall having taken place in the tunnel in the vicinity of the boiler, and which obstructed the ventilation. Would that not be sufficient to account for the phenomena you have described? I do not think it reasonable to suppose a fall to have occurred at that early date, because I presume the heat from the fire brought down the rock.

2838. Then it is very difficult to say when the fall took place? I remember hearing one of the men making a remark about hearing a heavy fall, but I could not fix the date.

2839. What was the vocation of this man in your employ who had seen the light dodging about in that particular position about a week or two before this occurred? I think his name is Raymond.

2840. Was he the only one you ever heard speak of it? Yes, I think he was the only one. Then there was another suspicious circumstance. One of the stoppings was opened surreptitiously at the time when we were attempting to reach the fire.

2841. Yes, we have heard of that to-day? Well, it seemed to show that some agency was at work trying to prevent our putting out the fire, and it was only reasonable to suppose that the same agency might have been employed to originate it. I would here ask you to allow me to make one more remark. You asked me if I had been at the seat of the fire. I may now tell you that I was there repeatedly, and remained there for several hours together. I stopped in the mine till 12 p.m. and 1 o'clock in the morning with the men, and went as far into the workings as any of them went. I mention this to show you that we—that is, the proprietors—could not have been apprehensive of any danger; and more than this, I may say, that Mr. Wilton, a few days previous to the accident, took my own daughters into the mine to see what was to be seen. That was done with my knowledge; and surely if I had had the slightest idea of, or the slightest ground to apprehend anything in the shape of danger, I should not have allowed my daughters to be taken into the mine.

2842. What part did you take to ensure the safety of the men? We directed them to be very careful, and not to run into any danger. If we did not give them specific instructions it was because we looked upon them as having more knowledge than we ourselves possessed; but we impressed upon them to take special care of themselves, to sound the tops as they went along, and to take every possible precaution to ensure the safety of their lives, and to use timber wherever there was the slightest danger.

2843. *Mr. Swinburn.*] When the mine was closed, and the miners came to you, you gave them your consent to open it again. Did you consult the Inspector or the Examiner of Coal-fields as to the opening up of the mine? When the men spoke to me about this matter I went and consulted the Examiner of Coal-fields, also Mr. Rowan, the Inspector, and Mr. Wilton, before I did anything at all. I did not then give any definite reply myself. The men came down to the pit and settled the matter themselves.

2844. But you were a consenting party? Of course I was a consenting party. The whole matter was talked over, and there was a general consent that a trial to extinguish the fire should be made, the men acting so far on their own responsibility.

2845. *President.*] That is to say, there was a meeting of the proprietors, inspectors, and miners. It was a consultation of everyone interested, was it not? Yes.

2846. *Mr. Curley.*] When you knew that the mine was on fire, and that Mr. Turnbull had withdrawn from the position in which you had placed him, as you state, did you ever cancel the appointment you made with Mr. Turnbull? No; I think it merely lapsed—that is to say, he ceased to do anything.

2847. What would you estimate the value of the mine to be as a property, Mr. Gell, say at the time the fire was raging? ——

2848. *President* thought this question ought not to be put, and it was not pressed.

2849. *Mr. Curley.*] Did it ever occur to you at this time that the best thing you could have done would have been to obtain the service of some skilled mining engineer? No, it never did. In fact I was not aware that anybody possessed more knowledge than the men we had about us at the time.

2850. As an architect, Mr. Gell, do you consider that the services of a labourer stand in the same relationship as those of a professional man, supposing an opinion to be required upon the construction of a building.

2851. *President.*] I am afraid you are scarcely complimentary to Mr. Turnbull.

2852. *Mr. Curley.*] As a matter of fact, Mr. Gell, would you not look to the managers of the neighbouring collieries as being most likely to render you assistance under the circumstances in which you were placed—and, in this case there were also three Government inspectors on the scene, were there not? Yes; I perhaps ought to have mentioned when you were asking me about this that I instantly telegraphed to the inspector, stating the circumstances of our case, and stating that we did not know how to act.

2853. *Mr. Davies.*] Did Raymond give you any information about having seen this light before or after the fire took place? It was after the fire took place. I think it was about two weeks ago. He told me that he had not mentioned the matter to anyone because he was afraid they would laugh at him. But he said he had told his wife about it.

2854. Does it not strike you as being a flimsy occurrence on which to found suspicion? You will remember that I stated several reasons. The tearing open of the stoppings was one, and the change of the air-course was another. I put all three reasons together.

2855. Do you know that when it was decided to re-open the mine whether the Examiner of Coal-fields and the Inspector of Collieries concurred with Mr. Turnbull in the opinion that the fire was extinguished? Oh, yes.

2856. One more question, Mr. Gell. I understood you to say that Mr. Campbell was appointed manager of the colliery on account of his being the likeliest man on the spot? Yes; he was recommended to Mr. Wilton and myself by some residents in the valley who worked on the estate and knew him, as well as by persons who had been acquainted with him for a considerable time and knew his qualifications.

2857. Then you thought that these persons were competent to form an opinion as to his qualifications? Yes; but besides that we had had some experience of him ourselves for some time past, and previous to his appointment he was subjected to an examination.

2858. What did the examination consist of on that occasion? It was not of a scientific character. It was as to where he had been, what had been his experience, and so forth.

2859. Then you thought him fully competent to undertake the management of the colliery? We certainly believed so. He had been underground manager for a number of years.

2860. Where was this, Mr. Gell? I believe he occupied that position in the old country.

2861. Had you any documentary evidence of that? No; it was of a merely verbal character. 2862.

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2862. *President.*] But what you wish to express, Mr. Gell, is that you had perfect confidence in Mr. Campbell, is it not so? Yes; I would as soon take his word as that of any man I know.
2863. *Mr. Neilson.*] He was a thoroughly practical man, was'nt he? I believe so. He had been working for the Company for several years.
2864. *Mr. Usher.*] In what capacity? In many capacities. He had been engaged in the mine laying the rails, and had been also driving the engine for some time.
2865. *Mr. Jones.*] We have been told that shortly before the first accident you had commenced the sinking of a new shaft? Yes.
2866. What was the special reason the late manager assigned for sinking that second shaft? Merely the water difficulty, I believe.
2867. Was there nothing further? It had nothing to do with the ventilation, if that is what you are driving at.
2868. Had'nt it anything to do with the removal of the boiler? No, nothing whatever.
2869. Did he never make a complaint to you on the subject or express a desire that it should be removed? No. I have heard him make a complaint about not having sufficient steam power, but never anything about the removal of the boiler,
2870. How many shafts have you commenced on the estate—I understand you next went on the eastern extremity? Yes, that is the one I am speaking of.
2871. Had you come to the determination to sink another shaft? Yes, we had, and were in negotiation for a person to come and make a survey of the place.
2872. Did you intend to sink that shaft for ventilating purposes alone? No; it was more as a right-of-way or outlet for the men to get out of the tunnel.
2873. Then it was not for the purpose of hauling coal out? No; it was as I say, more for the purpose of giving the men an easy way out. They would get out close from where they were at work.
2874. You did not contemplate any accident at the time of arriving at this determination? Not at all; but still we thought it a wise provision to do this. We should not have hesitated to put down a dozen shafts if we thought it was necessary.
2875. *Mr. Curley.*] Where did you pump your water to, Mr. Gell? We pumped the water into the old workings, and it percolated away, where we did not know and did not care.
2876. You were pumping your own water from your own mine and into your own mine? Yes.
2877. Did it never occur to you that you were pumping the water from one part of the mine to another, and repumping it over again? I have heard people say so; but Doig, who was a good judge, thought otherwise, or he would not have done it.
2878. Is there any encroachment from Eskbank into your property? Yes.
2879. Have you substantial grounds for making that statement? Yes.
2880. Tell us what they are? I have seen it.
2881. Did the Eskbank people ever speak about this? Yes; we have a written acknowledgment from the proprietor.
2882. Did you ever at any time put through a drive into Eskbank? No; we broke through into where they had driven into our ground. They had driven through into our ground about three times the length of this room, and we struck into that.
2883. Was there any object in putting this drive in where you struck through into the alleged encroachment? No. I think we were working in that part of the property.
2884. Was it in the ordinary way of working? I believe so. I do not know anything to the contrary.
2885. Did you suspect anything? No.
2886. Did you think there was any object in putting this drive in, or any knowledge on the part of your manager as to what would likely be the result? I do not know, unless it might have been to prove the fact of their having encroached upon our ground. Some rumour of their having made such an encroachment may have reached Mr. Doig, and he may have driven in to prove it. That I cannot remember; but that he broke through I do know, for I went down at his request to see it. I also went to Mr. Rutherford, the proprietor, and brought him down to see it, and we have from him a written acknowledgment of the fact that the encroachment came from the Eskbank Colliery.
2887. Are you aware whether this opening was ever closed up by Doig? I am not aware.
2888. *President.*] If the Lithgow Valley Colliery were flooded, would the result be to flood the Eskbank Colliery? Yes, I should say so, unless they could wall up the headings.

John Mackenzie sworn and examined:—

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2889. *President.*] What is your official position, Mr. Mackenzie? I am Examiner of Coal-fields.
2890. How long have you been Examiner of Coal-fields? I have occupied my present position since 1872.
2891. Before coming to this Colony, had you any considerable experience in regard to fiery mines? Yes. I was apprenticed to the Earl of Crawford and Belaries Colliery, in Wigan, Lancashire, for five years. I was also three years as assistant, and was in business on my own account for five years in the position of coal-viewer.
2892. You have had experience of fiery mines? Yes, considerable. The Harley mine, for example, is one of the most fiery mines in the world.
2893. In the course of your official capacity, have you inspected the Lithgow Valley mine? The Inspector of Collieries inspects them every eight weeks and reports to me.
2894. But as a matter of fact you have frequently visited and inspected the mines, have you not? Yes, but not lately.
2895. Some time ago? Yes; previous to Mr. Rowan's appointment I used to fill up the required tracings myself and go round the mines, especially when Mr. Lewis was inspector.
2896. During these inspections, did you receive any complaint as to the manner in which the Lithgow Valley Colliery was worked? No.
2897. Have you had reason to complain of the manner of working? No.
2898. Have you received any complaints as to the quantity of air circulating in the mine? No; it has been considerably more than was necessary, double perhaps.
2899. Have you ever discovered the presence of fire-damp in this colliery or in this district? No.

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2900. Have you any reason to suppose that it existed? No; I have every reason to suppose that the seam of coal does not generate gas. I may also say that according to the special rules any man finding the coal to generate gas should report it at once.
2901. Then you have never received any report, Mr. Mackenzie? No.
2902. Have you ever had occasion to report to the owners as to the state of the plan? No.
2903. Or that the surveys were not kept up to date? No. I gave instructions to the inspector that he was to have them kept up every six months, and that they should be forwarded to me. [Mr. Mackenzie here hands in a general sketch of the district, published by him in 1877.]
2904. *President.*] Have you seen this underground boiler in the Lithgow Valley Colliery? I have seen it since the fire, but not before. I saw that there was a large fire at the back.
2905. Did you receive any reports about this underground boiler before the fire? No.
2906. Were you cognisant of the fact that the top portion of this seam had not been taken down above the boiler? No.
2907. Or in the flues? No.
2908. Had that been reported to you, what action would you have taken? I really could not say unless I saw the place myself.
2909. Have you ever heard of underground fires occurring in this place prior to the fire of February? Not previous to the accident.
2910. Then, in your severalinspections of this colliery, do you recollect whether you have travelled the left-hand return air-way? I do not think I have; I just went round where the men worked. I may say I have a great many duties to perform in connection with my position, and I left the inspection of the collieries to the inspectors. Unless there was anything wrong I had far more than I could do outside of that.
2911. You cannot say therefore whether in your opinion these returns were safe? Oh, yes, I should say I could; I have full confidence in my inspector, and he has reported to me periodically, and reported that everything was right. I have full confidence in him.
2912. With respect to these two outlets, Mr. Mackenzie, has this colliery been carried on as required by the law? Yes.
2913. During the progress of the work of extinguishing the fire, were the return air-ways full of choke-damp? Yes.
2914. Well, Mr. Mackenzie, the return air-ways being full of choke-damp and smoke there would be a difficulty about getting an alternative road for the men, would there not? You must recollect, Mr. President, that the second outlet would only be required when the mine was at work.
2915. I was coming to that, but certain statements have been made, and I want to hear your views with respect to them. I was going to put the question to you whether, under the circumstances, you considered there was an evasion of the Act? No. [The witness's attention was called to the 5th general rule, being section 5 of clause 12 of the Act]:—

> If at any time it is found by the person in charge of a mine or any part thereof, or by the examiner or inspector, that by reason of noxious gases prevaling in such mine, or such part thereof, or of any cause whatever the mine or the said part is dangerous, every workmen shall be withdrawn therefrom, and the examiner or inspector shall inspect the same (and if the danger arises from inflammable gas shall make such inspection with a locked safety-lamp), and in every case shall make a true report of the condition of such mine or part thereof; and no workman shall, except in so far as is necessary for inquiry into the cause of danger, or for the removal thereof, or for exploration, be re-admitted into the mine, or such part thereof as was so found dangerous, until the same is stated by the examiner or inspector to be safe.

2916. Certain statements have been made, and we wish to arrive at the truth in regard to this matter? All I can say is that the men were "withdrawn therefrom," to use the words of the Act; but we never anticipated that danger did arise from inflammable gas. I was confident that there was no inflammable gas in the mine. It was examined by means of the safety-lamp. Then again the rule says, "In every case the inspector or examiner shall make a true report of the condition of such mine or part thereof," &c., and all I have to say to that is that the men were not working the mine—they were simply there for the removal of danger, that is to put out this fire.
2917. Then you say there was no contravention of the Act? Yes.
2918. Was the second accident due to the presence of irrespirable gas in the main in-take? Yes, choke-damp.
2919. It was due to carbonic acid gas, or perhaps carbonic oxide, which was in the mine at the time? Yes, it was.
2920. Under these circumstances, would any number of available outlets have offered an opportunity of avoiding the catastrophe? I do not think so.
2921. It has been stated in evidence that someone attempted to signal with the rapper-wire and found that it would not work. What was the cause of this? From what I saw, it would appear to have been caused by the slack that had been blown from the stoppings by what I supposed was a fall of the rock, and by which the rapper-wire was covered over and rendered unworkable.
2922. Could such an accident have been provided against in the hanging of this wire? Could anyone have possibly anticipated the accident which took place? I think not.
2923. Was the wire fixed in the proper manner? Yes.
2924. Is it possible in the practical working of collieries to guard against accidents to the machinery or the accessories of a mine? No.
2925. Do you, as Examiner of Coal-fields, attribute any blame to the owners for the unworkable condition of this wire after the accident? No.
2926. What, in your opinion, was the cause of this fire? It is impossible for me to say what was the cause of it. I believe it was caused near or at the boiler.
2927. Did the boiler not raise a doubt in your mind as to the cause of the fire, especially when you heard that it had been the cause of three or four previous fires? Well, from the evidence with respect to the first accident, I was anxious to see the back of the furnace, in order to ascertain if it could have been caused by the flue. I may tell you, however, that when Mr. Campbell, the manager, with ourselves, was going to the 34th and 35th stopping someone went and opened a stopping, which he must have known very well would have prevented our doing what was required, that is, to send the return out of the furnace, because the black-damp was thrown out upon us.

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2928. Did it not raise a doubt in your mind as to the origin of the fire, especially when you heard that three or four underground fires had occurred before round this boiler? I really cannot tell how the fire occurred.
2929. Do you consider, as a practical man, that the return air ought to travel over such a length of water with only a few inches between the top of the water and the coal? What length of water are you referring to?
2930. There was a swallow, a number of chains broad in one place and a number of chains in another, was there not? I am not aware that it was so.
2931. But I am asking you the question, Mr. Mackenzie, whether this, in your opinion, was a proper return for hot gases to pass over such a length of water within a few inches of the roof? I know of no reason myself. Are you referring to the time before the fire or after?
2932. It has been stated in evidence that the smoke and choke-damp, mingled with the return air, passed over a considerable portion of water which almost reached to the roof, and we have also been told that this smoke, when the furnace was damped, came back again into the tunnel, so that my question is, do you consider that was a proper return? I think it would be quite sufficient myself for what was required of it previous to the accident, that is, at the time the men were working there.
2933. When did you arrive after the first accident? I had notice early on the Monday morning, and we came to Lithgow by special train.
2934. Were you in Sydney at the time? Yes.
2935. What did you do on your arrival? Mr. Turnbull met me at the train, and asked me whether I wished to go into the mine at once. I said I first wanted to see the plan, and went to the office for that purpose. I then went into the mine.
2936. Did you take any responsibility or control? No.
2937. What had been done in the mine up to this point? Mr. Turnbull had carried on the bratticing to within what he thought was about 10 chains off where the fire was; but he evidently did not get so near as that.
2938. That would be 26 chains down, would it not? Yes.
2939. You think he was not so far down as that? Not quite so far, I should say. When we arrived there we found that someone had taken down the bratticing in No. 2 cross-cut, and we made some inquiries into the matter. Mr. Turnbull could not understand it. It was eventually found that some man named Davis had gone to the proprietors, and said that all Mr Turnbull was doing was wrong, and that if he (Davis) were allowed to do it he could easily put matters right. At this time the smoke and carbonic acid were coming along from the fire over the main heading.
2940. Did you generally approve of what Mr. Turnbull had done? Yes.
2941. And then you say that when you accompanied Mr. Turnbull down the mine you found that Davis had been interfering? Yes.
2942. Did Mr. Turnbull not discover that before your visit? No.
2943. Did I understand you to say that on your arrival Mr. Turnbull stated to you that he had swept down the gas to within 10 chains of the boiler? Yes.
2944. And that it had come back some distance owing to what this man Davis had done? Yes. We found Davis, and, in reply to questions from us, he said he had the consent of the owners for what he had done. It was first discovered by Mr. Dixon, and it was so serious a matter that if I had been in Mr. Turnbull's place I would have pitched the man out of the mine.
2945. Did you credit Davis's statement as to his having received an independent charge from the owners? I cannot say, because I knew that the owners were not acquainted with coal-mining operations.
2946. What did Mr. Turnbull do after Davis's interference? Next morning Mr. Turnbull came to me at this hotel, between 10 and 11 o'clock, and said he wanted to try still and put out the fire, and showed me on the plan what he proposed to do.
2947. Had nothing been done to remedy or undo what Davis had done? Yes; the brattice-cloth was put up again.
2948. Had that the effect of driving the smoke down the tunnel? I cannot say that.
2949. Did Mr. Turnbull remedy, or attempt to remedy, what Davis had done in the way of interfering with his operations? Yes; and after that he came to me and suggested something else.
2950. Is it correct that after Davis's interference Mr. Turnbull took you down and showed you how he could force back the smoke in the tunnel at the rate of 40 yards per hour? That was what I wanted to tell you. Mr. Turnbull came to me here and said that before closing the mine he wanted to try another method. He proposed to take the bratticing round the right-hand return and leave the main heading. I did not agree with him, so that idea was put an end to. He then suggested another thing, which was that stoppings should be put at the main headings and left-hand side of the second cross-cut, and that the men should be put to work there. I asked him what he proposed to do. He said he proposed to go and mark the second cross-cut on the plan, and that the cross-cut should be chained up, and he would go and see the exact width of the stoppings to be put in. He said this would take him about six hours. I saw no objection to that, and we went with him. Inspector Rowan and myself were to stand at the junction of the main headings and second cross-cut, and Mr. Turnbull and three men were to go up there as quickly as possible, measure up and take the number of stoppings, and also the length of them; two men were sent ahead along the main heading, with instructions to report to us every five minutes how the smoke and black-damp were coming back, so that we might not be closed in. They may have been in there about ten minutes, when two of them began shouting, "Help, help." Two of them threw themselves inside the second cross-cut. I sang out, "Where's Mr. Turnbull?" they said, "He's all right; they're coming out"; we ran in then, and brought him out, and the moment we got outside of the heading he was overcome.
2951. At this time, did you know whether Mr. Turnbull was taking down the smoke at the rate of 40 yards an hour? I cannot say that.
2952. Did he show you that he could do it at the rate of 40 yards an hour? I do not recollect. I remember his mentioning something about it at the time.
2953. Why was this mine sealed up? The evidence we have got up to this moment goes to prove that Mr. Turnbull showed to you that the smoke could be taken down the tunnel at the rate of 40 yards an hour? That must have been previous to his going up this second cross-cut and nearly losing his life.
2954. Well, the mine was sealed up, was it not? Yes.
2955. By whose instruction? By Mr. Turnbull's instruction, and with my consent.
2956. Are you aware that, prior to Mr. Turnbull's arriving on the scene, two exploring or rescuing parties had penetrated the right-hand return as far as Tyndall's heading? I do not know how far they got in.

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2957. At all events they had penetrated a considerable distance into the right-hand return, that is, where Martin and some others met them? Yes.
2958. And they found the workings fairly free from gas? Yes.
2959. How do you account for the return being free from gas when the in-take was full of smoke? Had everything been right, would not the returns have contained more smoke than the in-take? I should think so, if everything had been going right.
2960. We have the evidence of more than three parties that they had penetrated to Tyndall's heading and had not found much difficulty from choke-damp—how can you account for that? I cannot think they got so far as Tyndall's heading myself.
2961. Did you think it a peculiar thing for Doig and his companions to enter this return when the tunnel was full of gas and smoke—did it not appear to you a foolhardy thing? Well, it is a thing I might not have done myself. I cannot say. You must recollect that Doig had been there and got round and perhaps thought he could do the same again.
2962. In the light of subsequent events, do you see any reason for this return being so free from gas? It has been stated that a fall of considerable magnitude existed near the boiler, in the main tunnel, and that this obstructed the ventilation. Would that be a sufficient reason for this return being in the state mentioned? You must recollect that the whole of the smoke and steam made from that fire were distributed over an area of, I suppose, round the No. 1 return, at least half a mile.
2963. Do you think any obstruction of the main tunnel, below the boiler, would have a tendency to leave this right-hand return comparatively free from gas? No, considering the distance the return air had to travel to the right-hand furnace; at the time we visited these two furnaces both had black-damp in them.
2964. We have it in evidence that these parties found no difficulty of breathing; at the positions where the bodies were found the air was comparatively pure. Of what are the stoppings constructed in this mine, Mr. Mackenzie? Of slack.
2965. Is there any timber used to strengthen them? Yes, in some cases.
2966. Were they efficient stoppings? Yes.
2967. Did they prove sufficient to conduct the ventilating current in the mine? Yes; they had proved sufficient for fourteen years.
2968. Was a large volume of air passing down the tunnel to the workings? Yes.
2969. What quantity of air have you measured going down this tunnel, approximately? The day before I left, I think, it was 20,000 cubic feet. That would be about 14,700 feet at the extremities.
2970. Had you ever had cause to complain of these stoppings? No.
2971. Had any complaint been made to your department about them? No.
2972. Were they sufficient stoppings in the eyes of the law? Yes.
2973. Can you give a reason why this tunnel was re-opened? The proprietors thought it had been closed long enough to put out the fire, and they determined to re-open it.
2974. Were you as confident that the fire was out? No.
2975. What part did you take in the way of re-opening the mine? I rendered every assistance I could in the matter.
2976. Did you see that every precaution was taken to ensure the safety of the men? Yes.
2977. Did you attend the operations in person? Yes.
2978. Did you consider any special danger existed in connection with this work? I knew that there was danger, of course, the same as would exist in attempting to put a fire out on the surface.
2979. But I am speaking of special danger, Mr. Mackenzie. Did you believe that there was any special danger attached to it? I knew there was danger, but could not anticipate what has happened. I may say, however, that the danger signal was put at the mouth of the tunnel, in compliance with the Act, so that every man must have known of it.
2980. Did the owners show a due regard for the safety of the workers? Yes.
2981. Did they also visit the scene of the operations? Yes.
2982. Did they urge the men to exercise caution in the prosecution of the work? Yes.
2983. Did you observe a large fall in the main tunnel, opposite the boiler? Yes.
2984. Did this interrupt the air current? Yes.
2985. Would this obstruction explain the reason why Doig and his companions were enabled to penetrate so far down the right-hand return? Yes, it is very likely.
2986. Then where was the fire situated when you got down? I understand you ultimately got down to the seat of the fire? Where did you find it centred? The steam had put out what fire there was at the main-tunnel heading. There was a fire in Tyndall's heading, and that was put out. Then we could see about 12 or 15 yards ahead in the main tunnel, and we had to remove some of the stuff in order to get at it and at the boiler.
2987. Did you observe whether the fire had spread out behind the main tunnel? I was not there at the very last. That was when I left.
2988. Did you hear of the stopping No. 29 having been surreptitiously opened? Yes.
2989. Did you see it? Yes.
2990. Describe it? Well, you could see that somebody had opened the top of the stopping and taken off 3 to 6 inches for a distance of about 14 feet in length.
2991. What would be the effect of this act on the workers in the tunnel? The effect would be that the black-damp would come out from No. 34 stopping into the main tunnel.
2992. Why, Mr. Mackenzie? Simply because the air would go from the main tunnel through this No. 29 stopping which was opened.
2993. What did happen? Why, when the stopping was opened the black-damp came out of it.
2994. Did the air not go into it? No.
2995. Mr. Campbell has stated distinctly as a reason why his attention was directed to this stopping, that the flame of his lamp was drawn inward, the air escaping to the left return, therefore black-damp could not come out when the air was going in? I think I have misunderstood you. What I mean is, that the fact of opening this No. 29 stopping would be to cause the black-damp to come from No. 34 stopping when that was opened.
2996. Was a watch placed at the mouth of the tunnel? No, not before this; but afterwards there was.

2997. Could anyone enter this particular part of the mine without being observed by some one of the numerous workers? It might be.
2998. Is it probable? Well, yes, I should say so.
2999. What object could anyone have had in doing this? That I cannot tell you.
3000. It appears that no one was observed going in or coming out. This being so, unless it was one of the workers themselves, who could have done it? That is the question. Someone did it, but who I cannot tell you.
3001. What effect would it have on the fire? It prevented it getting a return on the 24th stopping, which was going to be opened.
3002. Was the effect instantly noticed on the fire, or was it discovered by accident? It was instantly noticed when the black-damp came out of the 34th stopping.
3003. Did the men work until this was discovered? Yes.
3004. What effect would a small diversion of the air have on the fire? It would prevent the workers getting any nearer to it.
3005. Did the workers notice any inconvenience from the diminished quantity of air? No; there was quite sufficient air going all the time.
3006. Then, Mr. Mackenzie, if there was 14,000 cubic feet of air going down this tunnel, and only 2 or 3 inches of the stopping opened, and only a small portion of air coming through this stopping, could any real mischief have been done without its being observed and rectified by the men? The only mischief done was to prevent them getting any nearer to the fire.
3007. Supposing that there was any justification for believing the opening of this stopping to have been surreptitiously or maliciously done, do you think it was a prudent move to offer a reward of £50 in the absence of any proof that anybody did open that stopping—in other words, was it not casting a slur on the workers thsmselves to suggest that any one of them could have been guilty of such an act? That is not for me to say, doctor; I did not have anything to do with it.
3008. During the late operations, did you hear of any falls occurring in the old workings? No, not during the late operations; I afterwards made some inquiries on the subject.
3009. Do you know that any considerable area of pillars had been taken out on the left-hand side of the tunnel? Yes; Mr. Campbell tells me that what appears to be 66 square yards had been removed.

[The pillaring operations are shown by a blue circle on the plan.]

3010. In addition to these pillars being removed, do you know if any pillars were subsequently robbed or weakened? No.
3011. Were the bords wide in this situation? They were about 7 yards in width.
3012. Were a number of these pillars left unusually narrow? Yes; on the left-hand side of the tunnel and nearer thereto than the portion where the pillars had been taken out, certain ranges of pillars had been worked considerably narrower than is customary, and the bords had been driven wider than 7 yards.
3013. Are you aware whether the road from the tunnel to the Esbkank boundary was opened before this accident occurred? I cannot say.
3014. Do you know whether the workings were full of choke-damp in this direction just before the accident occurred? Yes; I think there is no doubt about it.
3015. Have you ever travelled to the spot where the encroachment is said to have taken place? Yes; I think I was there once.
3016. Did the Eskbank people pump the water from the Lithgow Valley Colliery—that is to say, does the Lithgow Valley water run into Eskbank? The manager of Eskbank told me he had hardly any increase of water there.
3017. But, as a matter of fact, would the water from the Lithgow Valley mine run into Eskbank? I should say it would, but I cannot say whether they get any or not. Mr. Pitt, the manager, has informed me that he has hardly any increase of water there.
3018. If the way is clear for water, do you think it possible for the fire to draw its air supplies from Eskbank? I do not think so; not from the mine itself. If you were speaking of crevices from the surface it would be a different thing.
3019. Now, if the Lithgow Valley mine were flooded, would the effect be to flood Eskbank also. Let it be understood we do not care from what side the encroachment took place; we have nothing to do with that. But if Lithgow Valley mine were flooded, would it flood the Eskbank mine also? The water would naturally go there, but it might possibly put the fire out here before flooding the adjoining colliery.
3020. How long before the second accident did you visit the workings in the tunnel? I was there on the Friday before.
3021. Why did you leave? I only remained till they took the debris away from the furnace, so that I could see, and, if possible, form an idea how the fire originated. I wanted to see for myself. We found the tops all fallen, and neither I nor anybody else could form an opinion on it.
3022. Were the tops not on fire? Yes, there was no doubt about that.
3023. Then you were satisfied to leave the mine and everything in charge of Mr. Rowan? Yes.
3024. Did you apprehend any special danger? No.
3025. Did you anticipate the accident? Certainly not.
3026. When did you visit the scene of the accident? On Tuesday morning. A letter was brought to me at the Sydney Club, and I at once went to the Department of Mines, and arrived here by special train.
3027. Have you heard or seen any fire at any of the blown-out stoppings? No; there was nothing of the kind to be seen while I was there.
3028. When the men went down to relieve the entombed men, do you know whether any of them saw fire at the blown-out stoppings? I cannot say for myself.
3029. It has been stated that live coal was blown out of these stoppings; if so, of course the coal must have come from the fire? Yes; I heard it spoken of in the evidence at the inquest.
3030. Where, in your opinion, was the centre or force of this blast expended? My opinion is this: that the fall took place where the boilers and props have been taken out. I may state, however, that I have put in writing my views on this point, as being a more convenient form.
3031. Very well, Mr. Mackenzie, we will incorporate that in your evidence.

The witness then read as follows:—

"Supposing a fall of rock to have taken place over an area of 66 square yards only where the pillars are

Mr. J. Mackenzie. 11 May, 1886.

are known by Campbell (the manager) to have been taken out on the left-hand side of the main heading and seat of fire, there would be an immediate displacement of 196,020 cubic feet of smoke, steam, and gases existing there, which smoke, steam, and gases would be forced out of the mine in all directions; and the furnace (5 ft. 6 in. by 4 ft. 6 in.) being unable to cope with this large and instantaneous body of foul gases, &c., driven upon it, it would force itself through the left-hand stoppings, where the men were, causing a rush of air inwards (towards and past the men) and outwards to the tunnel mouth; and after it had exhausted itself, as it would do in a few minutes, a fresh current of air would then go down the main heading (the in-take), in which the men would then be enveloped in smoke and steam heavily charged with carbonic acid, carbonic oxide, and probably a small portion of sulphurous acid gases."

The witness also included in his statement extracts from the special rules, as follow:—(4.) "If any indication of inflammable gas in any part of the workings, *the same* to be immediately reported to the manager"; (12.) "No collier or other person shall go out of the mine on any full or empty skips unless by permission of manager"; (13.) "Every workman shall inform the person in charge of the existence of any choke or fire-damp."

3032. You see, Mr. Mackenzie, other theories have been put forward, and I purpose to put a few questions to you with respect to them. In the first place, considering the extent of the fire, and the time it was burning, do you think it probable that the gases resulting from combustion filled the waste workings? Very probably.

3033. What effect would these gases have upon an explosive mixture of fire-damp? No hydrogen gas could exist in it.

3034. If a reservoir of explosive gases existed, say at Eskbank boundary, could it be drawn through the waste workings by the vacuum caused by the furnace, and, having been drawn to the furnace, could it explode? Certainly not; it could not explode unless it had ten parts of fresh air to mix with it

3035. The returns also were necessarily charged with the carbonic acid gas; that being so, how would it be possible for fire-damp or light carburetted hydrogen to have exploded at all? It is not possible.

3036. What proportion of carbonic acid gas mixed with the explosive gas would prevent ignition taking place? About one in six or seven.

3037. Then, if you can conceive of a magazine or cavity filled with light carburetted hydrogen gas in any portion of this waste, do you consider it is possible that an explosion could take place? It is impossible, to my mind.

3038. You say that light carburetted hydrogen gas has never been seen at this colliery? That is what I said.

3039. Would the fire generate light carburetted hydrogen gas? Certainly not; and even if it did it would be in such infinitesimal quantities as to be incapable of doing any harm.

3040. But let us suppose a certain condition of things, light carburetted hydrogen gas is a product of nature, not of art—that is, it is not a gas that can be produced by synthesis? Certainly.

3041. Well, then, supposing for a moment that all the laws of nature were reversed in this case, and that light carburetted hydrogen gas was generated from this fire, where would it explode—supposing the condition of things that I have stated were possible? It could not explode, because it would mix with the other gas and its effect would be neutralized.

3042. But, supposing the state of things to be as I have put it—you see, Mr. Mackenzie, we are supposed to know nothing for the purpose of this examination—let us suppose such a case? Well, my own opinion is that the only place at which an explosion could have occurred would have been at the furnace.

3043. Then I would put another question: If fire-damp was never seen at the colliery before or during the fire, or since the fire, and that none of the appearances of an explosion of fire-damp were visible, do you see any justification for the assertion of a theory that an explosion did occur? No, none whatever.

3044. What would be the state of the atmosphere in the mine after an explosion? If an explosion had taken place the heat of it would be something like 1,500°; the pillars would be charred, and the men might have been burned to cinders.

3045. Were any of these conditions noticeable after the explosion at Lithgow Valley? No.

3046. Have you ever seen or heard of any unmistakeable signs of an explosion here? No; I have seen none

3047. Or any appearance of it? None whatever.

3048. What, in your opinion, was the cause of the death of these men? They died, I should say, from inhaling carbonic acid gas—choke-damp.

3049. Did you see any appearance of charring or of flame having passed over the timber or the brattice-cloth that was hung in the mine? I was not there to see; we could not get near it when I visited the mine.

3050. Was there any evidence of extreme heat? No.

3051. We have been told that a loud report was heard, and that it was succeeded by a rush of air down the tunnel, then another crash or report, followed by a second rush of impure air, and that then it remained stagnant and impure, with no heat; would these phenomena point to an explosion of light carburetted hydrogen gas? I have already given you my own opinion; there was nothing whatever to show that an explosion had taken place; on the contrary, the appearances were all in favour of the occurrence being the result of a considerable fall of rock.

3052. Had it been a question of fire-damp, what would have been the natural course for the explosion to take? My own opinion is that, if such a thing could have happened, she would have fired at the left-hand of the furnace; we know the return was heavily charged with choke-damp; I have seen this occurrence at Home; to my mind there is nothing to show there was an explosion.

3053. Have you had any experience of a wind-blast caused by a fall of the roof? Yes; I have seen one in Wallsend mine.

3054. Was it a severe one? It was a fall of about 15 acres.

3055. Were the stoppings blown out? Yes.

3056. What were they constructed of? They were brick stoppings, and these and the props and other things were blown about in all directions.

3057. Would the force developed from a wind-blast, in your opinion, be sufficient to blow out a portion of slack stopping? Yes, certainly.

3058. Did you foresee this accident? No; I do not think anybody could have foreseen it.

3059. Was it due, in your opinion, to neglect or want of foresight? It was purely accidental; no one could have foreseen it.

3060. Was it due to any infringement of the regulations of the Act? Certainly not.
3061. In your opinion, was anyone to blame? No one.
3062. Was it a pure accident? Certainly.
3063. An accident that no one could have anticipated or foreseen? Yes.
3064. *Mr. Neilson.*] We are told, Mr. Mackenzie, that the water from Lithgow Valley Colliery is not pumped to the surface, and that it runs towards Eskbank—where does that water go to? I cannot say; it has been a question for some time past. I went down to the Eskbank workings myself, and the manager said that he had no increase of water there. It was then thought that perhaps Doig might have been pumping backward and forward the water in the swallow.
3065. But supposing that the swallow was full up? When I last saw it the water did not increase at all; but that will be a matter merely of commerce between the two companies in the end.
3066. And the late accident occurred, in your opinion, from a fall? Yes.
3067. *Mr. Curley.*] Do you consider that this Company have complied with the provisions of the Coalfields Regulation Act? I do.
3068. Take the 4th section, for example? (*Section read.*)
3069. Having reference to the plans, do you consider that the inspector did his duty in this respect? So far as that is concerned it is impossible for me to say if the plan of the colliery is accurate unless we test it. I do not think myself that the inspector has done anything wrong in passing that plan, supposing it to be accurate. It is impossible for us to tell unless a survey is made.
3070. Do you consider the plan an accurate one of the mine? I cannot say whether it is or not; I certainly cannot say that it is not accurate.
3071. Without an accurate plan of the mine, would you not be working in the dark? We found that we were not working in the dark. We have found so far that the plan is accurate.
3072. *Mr. Usher.*] Did you find that from actual measurement? Sometimes a tape was used.
3073. *Mr. Curley.*] You have just read over a section of the Act. Have the proprietors of this mine complied with that section? Yes; as a matter of fact it is made out to a larger scale than the Act requires.
3074. Has the inspector, in his reports in connection with this mine, pointed out to you the position of this boiler and reported upon the accumulation of ashes in the furnaces? He has never mentioned anything of this in any of his reports.
3075. What would be the distance from the tunnel mouth to the seat of the fire? About 35 chains, a little under half a mile.
3076. Did you not consider that a watchman should have been stationed along this line during the time that your exploration was being carried on? No, or I should have suggested it.
3077. Do you know whether any large fall had taken place in the mine previous to this accident, that is, where the pillars are taken out? No; I have not heard of any.
3078. Has any observation been made since, so far as it could be made on the left-hand side of the workings, to ascertain if any fall had taken place or not? I have inspected the surface and have found no sign, so far as that is concerned.
3079. Did you notice anything underground? I have not been underground to anything like that distance since; it was impossible to get to the place.
3080. In the light of all your recent experience of this particular mine, do you consider that the slack stoppings were adequate for the work that was being done? Yes.
3081. *Mr. Usher.*] When did you last inspect the Lithgow Colliery previous to the first accident? I really cannot say; I have not seen it since Mr. Rowan was appointed; it was probably during Mr. Lewis's time. I did not have the same confidence in Mr. Lewis. The inspectors report to me every eight weeks, and unless I think it absolutely necessary I do not myself go to examine the mine.
3082. What other duties have you to perform for the Government besides the inspection of collieries? I have to report on all applications for authority to mine, and to report on all work done on the ground; also as to mineral leases and a number of other things which just at the moment I cannot think of.
3083. What proportion of your official time do you devote to colliery inspection alone? So far as that is concerned, I simply go to the collieries if the inspectors inform me that the Act is not complied with, or in case of any accident where my presence is required; I should attend on receiving an intimation to that effect.
3084. *Mr. Jones.*] We have been told that the accident caused several of these stoppings to be blown down. Would not brick stoppings have been more effective? I believe that if brick stoppings had been put in that heading not one of the men would have been brought out alive; it would have taken so much longer for the smoke and steam, heavily charged with noxious gases, to get out of the mine; the whole tunnel would have been so filled with it that the men would not have had the slightest chance of getting out.
3085. That is in accordance with your assumption that the accident was caused by a fall? Yes.
3086. Would not that be a reason for having a larger outlet? If there had been no noxious gases in the mine the men would not have been injured at all; the men were choked; the force itself was not so very great after all.
3087. We have been told that in a considerable portion of this return the water was within 10 inches of the roof. Is not that an evidence that if there had been a larger and more efficient return this displacement might have been prevented? I do not think so under the circumstances.
3088. *Mr. Swinburn.*] You have reports from the inspectors from time to time as they make their inspections, I understand? Yes; generally within about eight weeks.
3089. Have you had no complaints from these inspectors as regards the working of the mine? No.
3090. Now I am coming to the root of the matter, Mr. Mackenzie. We have evidence that the fall took place on the main air-drive opposite the boiler. Would that fall close up the air-course? I have already stated that.
3091. Are you of opinion that the return on the left-hand side is a proper return? The reports that I had from my inspectors indicated that the mine was well ventilated, and that the men had twice the quantity of air required by law.
3092. *President.*] There is another question I would like to ask about the stoppings that have been put in. Do you consider them sufficiently strong, I mean the recent brick stoppings? Yes; I consider them more than sufficiently strong.

Mr. J. Mackenzie. 11 May, 1886.

3093. In other words, they are strong enough to resist any ordinary pressure that may be brought to bear against them? Yes, or any extraordinary pressure either; they are efficient and capable stoppings.

3094. Have you ever seen in all your experience stronger stoppings? Never.

[Mr. Mackenzie will mark on the plan of the district the approximate area of the workings.]

The witness, before retiring, handed in the following prepared note, which was ordered to be included as part of the evidence:—As to steam and smoke containing percentage of carbonic acid, oxide, and sulphurous acid gases not being at floor of main heading where brattice for a return was erected, the reason is plain: The fresh air coming into the mine was colder, and therefore heavier, than the atmosphere within, which was mixed with very large proportions of smoke and steam, charged with a percentage of carbonic acid gas, heated to the same temperature. The smoke and steam by their great buoyancy naturally lifted with them the rarefied carbonic acid gas, as the cold and heavy current of fresh air forced its way beneath by the ordinary law of gravitation.

Accidents in Northern, Southern, and Western Districts, for the last ten years, ending 1885:—North: fatal, 65; non-fatal, 206. South: fatal, 18; non-fatal, 46. West: fatal, 5; non-fatal, 3.

APPENDIX.

Memo. for the Royal Collieries Commission.

As desired, we have examined the portions of the workings on the south side of the main tunnel in the Lithgow Valley Colliery that we could enter, with a view to ascertain whether light carburetted hydrogen gas existed in any portion of the same, paying particular attention to all the working faces. Thence to the overcast and by the main return to the right-hand furnace. We also examined portions of the waste workings, and in no instance did we detect any appearance of explosive gas.

There is a dip fault at the face of No. 1 cross-cut, where, if at any point, explosive gas might have been expected to be found, but such did not exist.

We may add:—

1st. We were shown a small hole recently made into the waste workings near the face of No. 2 cross-cut (on the east side), from which the manager, Mr. Campbell, removed the packing he had placed therein, expecting that carbonic acid gas would issue therefrom to such an extent as to extinguish the light of our Davy lamp; but no gas issued.

2nd. Mr. Campbell informed us that immediately on putting his safety-lamp to this hole last night it was immediately extinguished.

JOHN USHER,
JAS. SWINBURN,
Members of the Royal Collieries Commission.

Lithgow, May 4, 1886.

We, the undersigned, made a visit of inspection to the Eskbank Colliery on the 12th May, and beg to report as follows:—

1. In company with the manager of the Eskbank Colliery, we proceeded along the main easterly heading to the face, about 23 chains from the shaft. This heading has been discontinued owing to the seam dipping rather rapidly, and as a consequence is filled up to the natural level with water.

2. In a drive a few yards to the south we found a fall which the manager informed us was the edge of the goaf, the pillars having been removed between that point and the boundary between Eskbank and Lithgow Valley Collieries—a distance of about 12 chains.

3. We inspected other portions of the Eskbank Colliery workings between the point mentioned and the shaft as far as the goaf.

4. *We observed that air passes freely over the goaf in the direction of the Lithgow Valley Colliery.*

5. We examined the flow of water from the goaf at all available points, also at the outlet of the same into the sweep of the pumping shaft. The aggregate flow was but trifling; in fact, the manager informed us that he had never, during a period of several years, seen the flow from that direction to be so small, except during heavy rains. The inference that we draw from this is that the diminution in the quantity of water that formerly came from Lithgow is owing to the discontinuance of the pumping operations in that colliery, arising from the fire.

6. We concur with the manager in the opinion that the present flow is from the overlying strata, and that it is in no way connected with the Lithgow Valley Colliery workings.

JOHN USHER,
JAMES CURLEY,
JOHN JONES,
Members of the Commission.

Newcastle, May 28, 1886.

Sydney: Thomas Richards, Government Printer.—1886.

Colliery

Eskbank

Boundary Line

Workings

Barrier

Oct 3 1894

Sams → Heading

TINDALES HEADING

DAVIES HEADING

BOILER

H

34 chains

31 chains

29 chains

Pillars taken out

Hollow full of Water

Tramway

Fan Roadways

Hollow full of Water

LEFT HAND UPCAST FURNACE SHAFT

RIGHT HAND UPCAST FURNACE SHAFT

ADIT Entrance to Main Heading

CROSS CUT

No 2

No 1

F

G

E

A

B

C

D

4

5

6

7

Reference

A Where Dong Younger & Rowe were found according to Turnbull
B do do do Hall
C do do do Tait
D do do do Martin
E Position of Smoke when Agreement was come to by Men to reopen
F Supposed confines of Fire
G Position of Smoke when Davies arrived
H do Pump used by Men
4 J Rowe (Miner) T Hyde (Miner)
5 S Allison & J Mantle (Miners) } Where the Bodies were found at time of 2nd Accident
6 Buzza (Miner)
→ Direction of Air Currents
| Stoppings
▌ Brick Stoppings put in since last (2nd) Accident

No 3.

PLAN OF THE LITHGOW VALLEY COLLIERY

Scale of Chains

0 1 2 3 4 5 6 7 8 9 10

PHOTO-LITHOGRAPHED AT THE GOVT PRINTING OFFICE SYDNEY NEW SOUTH WALES

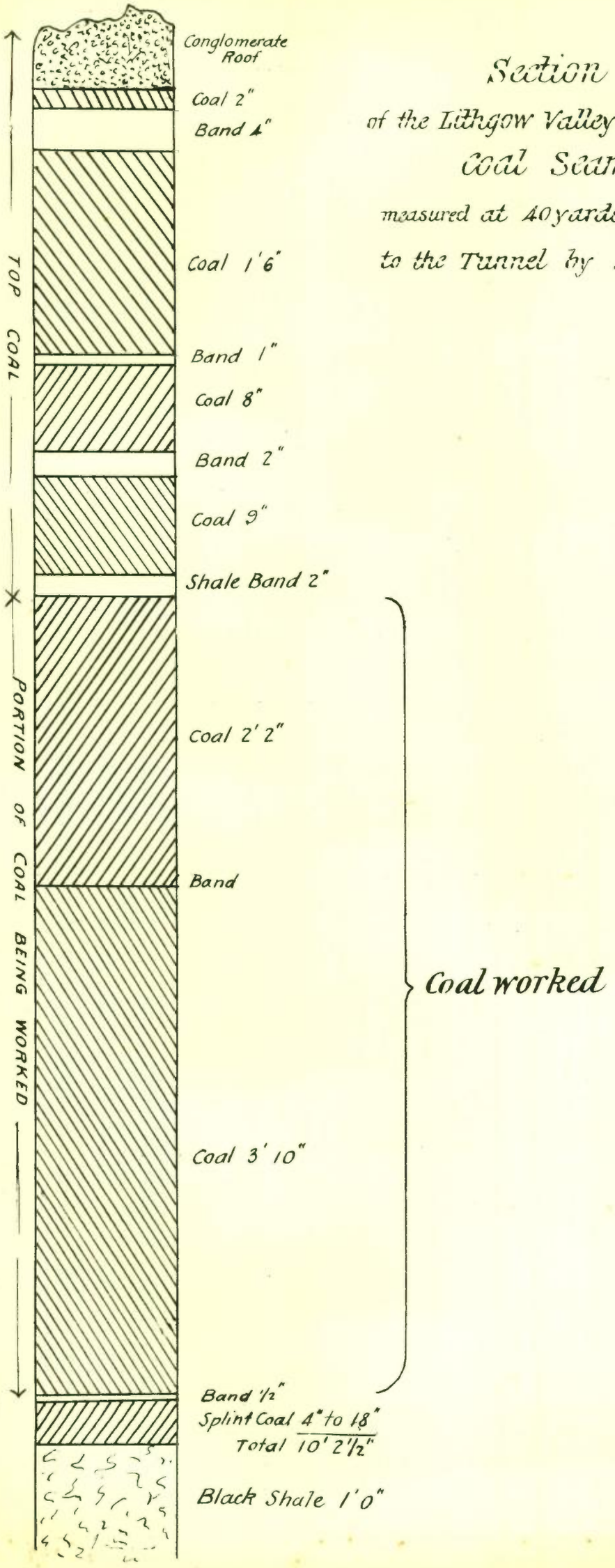
(SIG 576)

Section

of the Lithgow Valley Colliery Co's

Coal Seam

measured at 40 yards from the Entrance to the Tunnel by James Rowan



D on Plan.

THE UPPER COAL MEASURES OF NEW SOUTH WALES.

WESTERN DISTRICT.

SECTION showing the STRATA AND SEAMS OF COAL, at LITHGOW VALLEY, County of Cook, New South Wales, taken on land of Thos. Brown, Esq., M.L.A.

From Actual Measurement, by JOHN MACKENZIE, Examiner of Coal Fields.

Feet	Inch	Description of Strata
10	0	Alluvial
20	0	Sandstone and Shale
4	0	COAL
25	0	Sandstone
13	6	COAL with a number of Clay Bands
150	0	Shales, Sandstones, &c.; cannot be seen on account of alluvial
1	0	COAL to be seen cropping; not sufficient cover on it
7	6	Shale and Fireclay
5	6	Fireclay
1	0	COAL
37	6	Friable Shale with Ironstone Bands
32	4	Sandstone and Shale
0	7	COAL
4	0	Indurated Clay &c. full of Vertebraria
6	6	Conglomerate
1	2	COAL
8	0	Fireclay full of Vertebraria
10	0	Grey Sandstone and Conglomerate, with Coal pipes about
2	0	Blue Metal and Shale
0	7	COAL
0	4	Band
1	0	COAL
0	1	Band
0	10	COAL
0	1	Band
1	0	COAL
0	1	Band
2	2	COAL
0	0½	Band ½ inch to nothing
2	6	COAL
0	1	Band
1	8	COAL

Yards: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130

About 3,280 feet over sea level: thickness and quality not properly proved

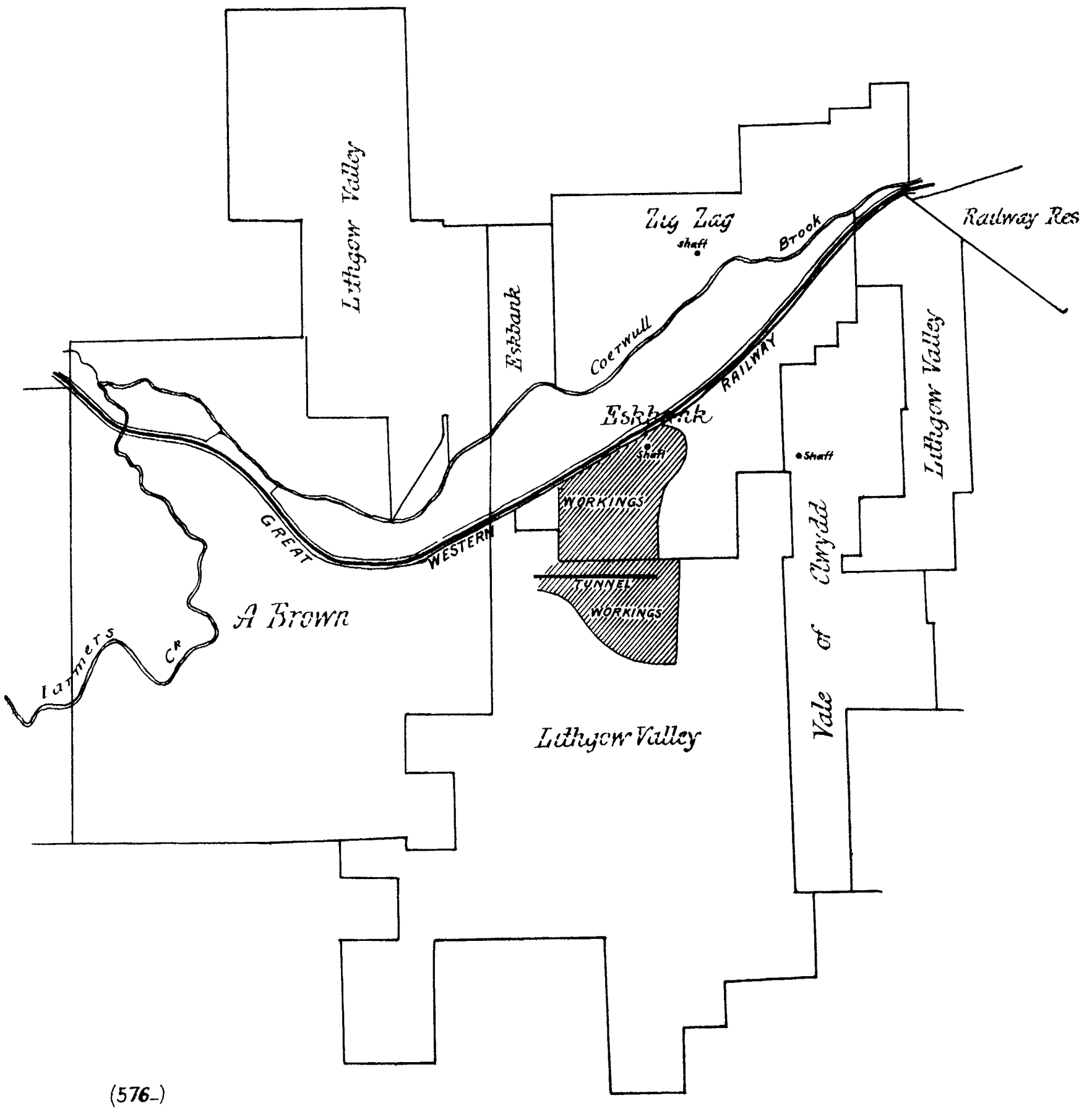
Worked by the Eskbank, Hermitage, Bowenfels, and Vale of Clwydd Collieries

A short distance below this a series of strata of Conglomerates, Sandstones, Shales, and Grits, containing the Fossil Fauna of the Lower Carboniferous formation.

Lithgow Valley Colliery Enquiry

Scale of Chains

0 10 20 30 40 80 120 160 200



PLAN

of part of the

Lithgow Valley Colliery

showing mode adopted for carrying down Bratticing

to get at Seat of Fire

Scale one chain to an Inch

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.