

1903.

—
LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

MOUNT KEMBLA COLLIERY DISASTER

31 JULY, 1902.

REPORT

OF THE

ROYAL COMMISSION,

TOGETHER WITH

MINUTES OF EVIDENCE AND EXHIBITS.

Printed under No. 1 Report from Printing Committee, 9 July, 1903.



SYDNEY: WILLIAM APPLGATE GULLICK, GOVERNMENT PRINTER.

ROYAL COMMISSION OF INQUIRY RESPECTING THE MOUNT KEMBLA
COLLIERY DISASTER.

Commission.

EDWARD THE SEVENTH, by the Grace of God, of the United Kingdom of Great Britain and Ireland,
and of the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India.

To Our Trusty and Well-beloved—

CHARLES EDWARD ROBERTSON MURRAY, Esquire, one of the Judges of the District Court
appointed in and for the Metropolitan, Suburban, and Hunter District Court of Our
State of New South Wales, President;

DANIEL ALEXANDER WILBERFORCE ROBERTSON, Esquire; and

DAVID RITCHIE, Esquire,—

Greeting:—

KNOW Ye, that We, reposing great trust and confidence in your ability, zeal, industry, discretion, and integrity, do, by these presents, authorise and appoint you, or any two of you, as hereinafter mentioned, to make a diligent and full inquiry into the causes of the explosion that recently occurred at the Mount Kembla Colliery, in the District of Illawarra, in Our State of New South Wales, whereby many valuable lives were sacrificed; and also to investigate all the surrounding circumstances, in order to ascertain whether blame attaches to any person or persons, and, if so, to report the person or persons to whom, in your opinion, the blame attaches; and, further, to make any recommendation affecting the general management, especially the ventilation, of collieries, and to offer any suggestions which you may deem advisable for the amendment of the law relating to the working of Coal Mines, especially with regard to the treatment of coal-dust, the prevention of the accumulation of dangerous gases, and the use of safety-lamps and explosives: And We do, by these presents, grant to you, or any two of you, at any meeting or meetings to which all of you shall have been duly summoned, full power and authority to call before you all such persons as you may judge necessary, by whom you may be better informed of the truth in the premises, and to require the production of all such books, papers, writings, and all other documents, as you may deem expedient, and to visit and inspect the same at the offices or places where the same or any of them may be deposited, and to inquire of the premises by all lawful ways and means: And Our further will and pleasure is that you do, within one month after the date of this Our Commission, certify to Us, in the Office of Our Colonial Secretary, under your or any two of your hands and seals, what you shall find touching the premises: And We hereby command all Government Officers and other persons whomsoever within Our said State, that they be assistant to you and each of you in the execution of these presents: And We appoint you, the said Charles Edward Robertson Murray, to be President of this Our Commission, which said Commission We declare to be a Commission for all purposes of the Act No. 23, 1901, intituled "An Act to consolidate the law relating to the taking of Evidence by Commissioners under the Great Seal."

In testimony whereof, We have caused these Our Letters to be made Patent, and the Public Seal of Our said State of New South Wales to be hereunto affixed.

Witness Our Trusty and Well-beloved Sir HARRY HOLDSWORTH RAWSON, Vice-Admiral in our Royal Navy, Knight Commander of Our Most Honorable Order of the Bath, Our Governor of Our said State of New South Wales and its Dependencies, in the Commonwealth of Australia, at Sydney, in New South Wales, aforesaid, this sixth day of November, in the second year of Our Reign, and in the year of Our Lord one thousand nine hundred and two.

(L.S.)

M. H. STEPHEN,

By Deputation from His Excellency the Governor.

By His Excellency's Command,

(L.S.)

JOHN SEE.

Entered on Record by me, in REGISTER OF PATENTS, No. 24, page 201, this sixth day of November, one thousand nine hundred and two.

For the Colonial Secretary and Registrar of Records,

CRITCHETT WALKER,
Principal Under Secretary.

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ROYAL COMMISSION OF INQUIRY RESPECTING THE MOUNT KEMBLA
COLLIERY DISASTER.

REPORT.

To His Excellency SIR HARRY HOLDSWORTH RAWSON, Vice-Admiral in the Royal Navy, Knight Commander of the Most Honorable Order of the Bath, Governor of the State of New South Wales and its Dependencies in the Commonwealth of Australia.

MAY IT PLEASE YOUR EXCELLENCY,—

1. We, Charles Edward Robertson Murray, Daniel Alexander Wilberforce Robertson, and David Ritchie, Commissioners appointed on the 6th day of November, 1902, “to make a diligent and full inquiry into the causes of the explosion that recently occurred at the Mount Kembla Colliery . . . whereby many valuable lives were sacrificed; and also to investigate all the surrounding circumstances, in order to ascertain whether blame attaches to any person or persons, and, if so, to report the person or persons to whom, in our opinion, the blame attaches; and, further, to make any recommendations affecting the general management, especially the ventilation, of collieries, and to offer any suggestions which we may deem advisable for the amendment of the law relating to the working of Coal Mines, especially with regard to the treatment of coal-dust, the prevention of the accumulation of dangerous gases, and the use of safety lamps and explosives,” have the honor to submit the following report:—

Description and Short History of the Mine and
its Development.

2. The Mount Kembla Colliery, which is the property of the Mount Kembla Coal and Oil Company, Limited, is situated in a southern outlier of the Illawarra or Coast Range, which is here a long spur of the main plateau, approaching the coast in a north-easterly direction, and then running parallel to it to the northward. On the coast, off the point where, at Mount Keira, the range turns toward the north, lies the Port of Wollongong: about 7 miles by road, or 5 in a direct line, to the westward of the Port is the Mount Kembla Mine. Mount Kembla itself is a prominent dome-topped hill, 1,752 feet above high-water mark; the mine tunnel enters the mountain at a height of about 800 feet above sea level, under the saddle which joins the hill with the main range. Wollongong is connected with Sydney by the South Coast Railway; the distance by rail from Sydney being 48 miles, the actual distance about 40—southerly. Some 9 miles north-east of the Mount Kembla Mine, in the same range, and working the same seam, is the Bulli Colliery, where an explosion of fire-damp and coal-dust, which caused the death of 81 persons, took place on the 21st of March, 1887.

3. The first year in which the Mines Department have any record of coal being obtained from the mine was 1883, when the output was 21,522 tons: since then the mine has been constantly worked, the output for 1901 (the last year available being) 261,350 tons, which gave employment to 83 persons above-ground,
and

and 253 below. The workings at the time of the disaster extended over an area of about 760 acres, from some 270 acres of which the coal had been entirely removed, either by the Longwall, or by the Pillar-and-Bord, System. The former system of working was extensively adopted a few years ago, on the south-west side of the Main Tunnel; and, to a small extent, later; but the Longwall workings had been standing idle for some time when the disaster occurred; and at that time the Pillar-and-Bord System was the only one in use.

4. The seam worked at Mount Kembla is the highest in the Coal Series of New South Wales: it is known as the "Main or Bulli Seam," and is the only one extensively worked in the Southern District. At a depth of about 32 feet below this is what is called at Mount Kembla "the Four-foot Seam": which has been utilised, by driving, to carry off water from the workings above. The thickness of the Main seam varies from 2 ft. 8 in. up to 8 ft. 6 in.

5. The seam crops out on the Pacific slopes of the Illawarra Range; thus rendering it possible to work Mount Kembla Colliery, as well as all the other mines in the Illawarra District (with the exception of the Metropolitan Colliery), by means of adits or tunnels driven into the seam from the outcrop.

6. The dip of the seam is about 1 in 19, in the direction N. 47 W., for 37 chains along the Main Tunnel, which then crosses an up-throw fault of 10 feet: past this, in the next 44 chains (as far as the Down-throw Thrust Fault mentioned later on), the dip of the seam is about 5 feet; while for some distance beyond the latter fault the seam is level. So far as the workings had penetrated in No. 1 Right District, where the disaster originated, the seam was found to be rising towards the north from a point near the 4th Right.

7. There are at present four tunnels or adits through which it is possible for persons to travel to or from the workings of any part of the mine, and two others, which remain as intakes, but are otherwise disused, though only one of these (the Main Tunnel) is used for the conveyance of coal to the surface. The existence of these Adits or Daylight Openings as media for supplying fresh air to the workings, and as travelling roads to the surface for the workmen, had an important bearing in saving the lives of many of those who were in the colliery at the time of the disaster.

8. There may be said to be two principal main haulage roads, though each of these gives off numerous branches: one is known as the Main Tunnel, and bears, generally, north-west, passing near, and to the south-westward of, the Ventilating Shaft, into what is called the Shaft District. The adit of the Main Tunnel is on the outcrop of the 4-ft. seam; and the tunnel reaches the Bulli Seam by a cross-measure drift, practically on a level. The other main haulage road, known as No. 1 Right, branches off the former at a distance of 12 chains from the mouth, and bears north, ending, at the time of the disaster, in what are called the No. 1 Front and Back Headings, the latter being the northern end of the travelling road which runs, on its east side, parallel to the No. 1 Right Haulage Road. On each side of these two main roads there branch off other subsidiary haulage roads, which are known by numbers: thus, those which branch off the Main Tunnel are the No. 1 Right, No. 1 Left, No. 2 Right, No. 2 Left, No. 3 Right, No. 3 Left, No. 4 Right, No. 4 Left, No. 5 Right, No. 5 Left, No. 6 Right, No. 6 Left, No. 7 Right, and No. 7 Left; and those which branch off the No. 1 Right are called First Right, First Left, Second Right, Second Left, Third Right, Third Left, Fourth Right, Fourth Left, Fifth Right, and Fifth Left (now being driven in the coal). It is around the No. 1 Right Main Level (the Eastern District of the Mine) that the interest of this Inquiry centres. On the right hand (eastern) side of this road, between the 3rd and 5th Right Rope Roads, there is an area of 35 acres from which the coal has been extracted and where the roof has been allowed to fall, forming a goaf which is referred to in the evidence either as "the 35-acre Waste" or "the 4th Right Goaf." The last portion of this area to be worked was that near the end of the 4th Right Rope Road; where, about a fortnight before the disaster, the last pillars of coal were extracted, and the props supporting the roof were withdrawn, with the object of letting it fall. A week before the accident there was a fall of $2\frac{1}{2}$ feet; but there still remained a space of more than 5 feet between the fallen mass and the roof above.

9. The haulage power is supplied by a steam engine installed at the mouth of the Main Tunnel. This engine drives a system of endless ropes at a speed of between 2 and 3 miles an hour. The skips, which are connected to the endless rope by clips, are of the close-sided type, and do not permit, to any appreciable extent, the escape along the roadways of small coal or dust. Between the working face and the haulage roads where the endless rope is laid the skips are hauled by horses. Haulage of coal begins at 7 a.m. and ceases at 5 p.m. The mine working day is divided into two shifts, the front and back shifts. The Front Shift of Miners enters the mine at 7 a.m. and leaves about 3 p.m.; the Back Shift enters at 9 a.m. and leaves about 5 p.m.

10. When the mine was started, a furnace was erected near the outcrop of the upper seam above the Main Tunnel, and the air necessary to ventilate the workings was drawn through the mine by the draught of this furnace. About four years later, a second furnace was built at a daylight opening (adit) about 200 yards N.E. of the Main Tunnel. This second furnace provided the ventilating power for the mine until the year 1891, when, the workings having become very extensive, the present furnace was brought into use. This furnace is situated at the bottom of an upcast shaft nearly a mile from the surface along the Main Tunnel. The upcast shaft is over 400 feet deep; and the fire-grate area of the furnace is 69 square feet ($11\frac{1}{2} \times 6$). After the construction of this third furnace, both of the others were dismantled, and what were then the return air-ways were converted into intakes and made into travelling roads for men and horses. The current of air induced by the present furnace varied, before the disaster, from 80,000 to 100,000 cubic feet per minute passing into and out of the mine. The Annual Return for 1902 gives the quantity of air passing per minute at 86,000 cubic feet. The air enters the mine by four tunnels, circulates through the workings, and then passes over the furnace to the upcast shaft, by means of which it reaches the surface.

11. The Metropolitan Colliery being taken as an extreme example of a dry and dusty mine, Mount Kembla Colliery appears, by comparison, to be generally damp and free from dust. But there are certain moderately dry areas, of varying extent, especially in the 5th Right and 4th Left, off the No. 1 Right; and various dry, alternating with wet, lengths of road; but even in these, where a layer of dust may be found on the roadways, and dust may also be observed hanging on to ribs, timbers, roof, &c., it is of such a consistency that, unless disturbed by some violent motion of the air, it does not rise, nor does it remain suspended long after it has risen. The clothes and skin of a person passing through the mine at Mount Kembla are only blackened by contact with the actual floor, rib, or roof; while, in the case of the Metropolitan, there is impalpable dust also suspended in the air-currents, which leaves a coating that, while it is readily shaken from any dry garment, is very difficult to remove from the skin, and especially from the eyelids.

12. The roof of the seam varies from a dark arenaceous shale to a grey argillaceous sandstone; but, in some places where the coal seam is thin, the roof consists of a conglomerate.

13. Beneath the seam, for a depth of 5 feet, there is a floor varying, in places, from a dark to a sandy shale; and, under that, sandstone. Where the seam is thinnest, in the workings to the South-west of the Main Tunnel, "Rolls" in the floor are rare or absent; but to the North-east of the Main Tunnel they are fairly numerous; though, as they are not so high as at some of the other collieries in the district, these "Rolls" do not, in this Colliery, interfere with the direction of the roads, or with the shape or size of the pillars.

14. Apart from the "Rolls," and two Basalt Dykes near the outcrop, only two faults of any magnitude are crossed, viz., the Upthrow Fault of 10 feet about 37 chains down the Main Tunnel already referred to (par. 6), which, towards the North-east, decreases or is split up by a number of small displacements; and a Thrust Fault about 82 chains from the Tunnel Mouth, which displaces the seam 7 feet down, but reduces to the West and to the East, and in the latter direction has formed a fissure full of small coal, the opposing faces of which show "Slickensides." A water level driven for $25\frac{1}{2}$ chains, from the Shaft District across the No. 1 Right District to daylight, in the "Four-foot Seam" (32 feet below the Bulli seam), showed that it was destroyed, to a large extent, by interbedded basalt; and a winze,
sunk

sunk to the Four-feet Seam at a point 700 yards south-west of the Main Tunnel, proved that its structure there also was destroyed by intrusive basalt: but the basalt did not, in either of these cases, show in the upper, or Bulli Seam; though, at a distance of about a mile north-70°-west from the Tunnel Mouth, an area of several acres of coal has been found to be cindered.

Short Account of the Disaster—List of the Victims.

15. At about 2 p.m. on the 31st of July, 1902, while the Manager of the Mine, Mr. W. Rogers, was absent in Wollongong, about 7 miles distant, attending at the Industrial Arbitration Court, which was sitting there hearing a dispute between the Miners and Colliery Proprietors of the Illawarra District, a large volume of flame and smoke was seen to burst from the Main Tunnel, accompanied by a terrific report. Smoke was also blown in dense clouds from the Main Travelling Road near by; and, as deposed to by an eye-witness, when the outward force had expended itself, some of the smoke was drawn back into the mine by the back-draught. The force of the blast from the Main Tunnel wrecked the engine-house, which was situated directly in line with, and a few yards from, the mouth of the Tunnel: it also slightly displaced the weighing-office, which was a little further from the Tunnel Mouth, but not directly in line with it. It was at once apparent to those outside the mine that a serious accident had happened.

16. At this time there were 261 persons in the mine, comprising the Under Manager, a Government Inspector, two Deputies, 208 Miners, 27 Wheelers, 15 Shiftmen, &c., and 7 Clippers; but shortly after the flame and smoke had cleared away a number of these managed to find their way out, either singly or in parties, by the adit of the Main Travelling Road, or by other adits. The largest of these parties was led out by Deputy David Evans, by a circuitous route from near the Ventilating Shaft to the Adit near the Manager's house, round the face of the old Longwall workings. Great credit is due to Evans for his coolness and judgment in such alarming circumstances. The roof of the Main Tunnel had collapsed near the Tunnel Mouth, so that escape by this road was cut off.

17. A message was sent by telephone from Mount Kembla to Mr. Rogers at Wollongong, informing him of the disaster, and was communicated by him to the Court of Arbitration, which at once adjourned. He hastened to the mine, and was accompanied and aided in rescue work by the Managers of most of the Illawarra Collieries, and by the Miners' representatives, who, like himself, were gathered at Wollongong to attend the Court. This party from the Arbitration Court was the first to render help to those in the mine, although not actually the first in the mine. Rescue parties were at once organised among the Managers, Miners, and others, who came from all parts of the district to help. The various Physicians of the district, the Matron (Miss Woodward) and Nurses of the Wollongong Hospital, and other willing helpers, were speedily on the scene to relieve the sufferings of the injured. It has been estimated that, at the beginning of the rescue operations, there were 160 men still in the mine; and the operations for their relief or the recovery of their bodies were continued through several days.

18. The work of rescue was rendered difficult by the great lengths of road to be traversed, by the many falls of roof that had occurred, but, most of all, by the deadly after-damp, which was found to be present almost all through the mine. The force of the explosion disarranged for the time being, of course, the ordinary ventilating currents of the mine. Fortunately, the ventilating furnace (which is situated in the Shaft District) was not in any way damaged (the origin of the force being in the No. 1 Right District); and, as soon as the blast had exhausted itself, which was the work of a few seconds, the ventilation-currents returned, for the most part, to their usual channels. Thus, as each Adit or Daylight Opening was an intake airway, the after-damp, containing the poisonous gas, carbon-monoxide, which caused the death of almost all those lost through the disaster, was gradually carried in by the air-currents, round the workings, and ultimately to the furnace, to the upcast shaft, and thus to the surface. The fresh air followed, and thus enabled rescuers to get well into the mine within an hour after the accident; though they
often

often ran great risks by advancing faster than the incoming air, in their self-sacrificing eagerness to save life. Two of the rescuers, indeed, Mr. H. O. MacCabe and Mr. William McMurray, after they had assisted in saving the lives of several miners, were overcome by the after-damp, and died before the help which was speedily despatched could reach them.

19. The following is a list of the persons killed or injured in the disaster :—

KILLED (95).

Name.	Occupation.	Name.	Occupation.
Aiken, Henry, 23	Miner.	MacCabe, Henry Osborne, 45...	Mining Engineer.
Aiken, John, 47...	"	McCann, Patrick, 33	Miner.
Annesley, James, 33	"	McDill, James, 47	"
Bellis, Richard, 62	"	McLister, Hugh, 24	Wheeler.
Best, Thomas Sylvester, 40	"	McLister, James, 22	Miner.
Blackett, Albert William, 21	"	McMurray, William, 48	Deputy.
Blackett, Robert George, 23	"	Meurant, Henry, 20	Miner.
Brasher, William, 56	"	Meurant, William, 22	"
Bray, William Varcoe, 40	"	Morris, George, 34	"
Brennan, Michael, 22	Wheeler.	Morris, Thomas, 25	"
Bryson, John, 53	Miner.	Morris, Walter, 49	"
Carter, Arthur, 28	"	Morrison, Alexander, 15	Clipper.
Church, Charles, 68	"	Morrison, Henry, 17	"
Dixon, George Henry, 22	Wheeler.	Muir, John, 18...	Miner.
Doherty, William, 28	Miner.	Muir, Peter, 41...	"
Dungey, Frank, 46	Deputy.	Murphy, John, 50	"
Dunning, Frederick Redmond, 19	Wheeler.	Nees, John George, 34...	"
Dunning, Joseph Francis, 24	Miner.	Nelson, Jacob, 14	Clipper.
Dunning, Thomas Reid, 46	"	Nelson, William, 39	Under Manager.
Egan, Edward, 19	"	Nixon, William, 21	Wheeler.
Egan, Dennis, 20	"	Peace, Matthew, 38	Miner.
Egan, Michael, 28	"	Price, William J., 26	Wheeler.
Egan, Thomas, 32	"	Purcell, James, 38	Shiftman.
Filby, William, 48	"	Purcell, James, senior, 60	Miner.
Gallagher, Daniel, 50	"	Purcell, John, 33	"
Gallagher, Edward, 38	"	Purcell, Thomas, 39	"
Gallagher, Michael, 45	"	Rich, Henry, 66	"
Gill, Edward, 23...	"	Rich, James Henry, 39	"
Gleeson, Stephen, 33	"	Robson, Edward, 65	"
Hartley, George Oliver, 22	"	Russell, George, 20	"
Head, James, 28...	"	Ryan, John, 33...	"
Healey, Daniel, 31	"	Scott, Daniel, 40	"
Hewlett, Alfred, 27	Shiftman.	Silcock, William, 14	Clipper.
Hewlett, William, 21	Miner.	Skelling, Albert, 15	"
Hitchins, Jehu, 62	"	Smith, Frederick, 15	"
Howell, Thomas, 27	"	Stafford, Claude, 17	"
Hughes, Thomas, 32	Fitter.	Stafford, Kembla, 17	Wheeler.
Hume, Reynold, 26	Miner.	Stafford, William, 25	Miner.
Hunt, Wm. (known as Allen), 45	"	Stewart, Francis, 38	"
Hunt, Percy Alexander, 42	"	Thomas, Richard, 26	"
Hunt, Percy Spencer, 18	"	Tost, Thomas, 30	"
James, Henry, 33	"	Walker, John, 16	"
James, John Henry, 33...	"	Walker, Richard, 42	"
Jeffrey, John, 42...	"	Walker, William, 18	Clipper.
Jones, Robert, 21	"	Wilkinson, Joseph, 26	Miner.
Kendrick, Thomas, 69	"	Woodroof, Charles, 35...	"
Lane, Richard, 44	"	Youngman, George, 38...	"
Lane, Richard Charles, 17	"		

INJURED (14).

Name.	Occupation.	Name.	Occupation.
Western, George...	Boiler fireman.	Richards, Stanley	Clipper.
Clarke, John	In charge of tunnel mouth.	Peace, George	Miner.
McDonald, George W.	Miner.	Peace, Jonathan	"
Brasher, James	"	Walker, George...	"
Smith, Thomas	"	Gillespie, Arthur	Surface hand.
Bates, Thomas Lionel	Inspector of Collieries.	Stone, Percy	Clipper.
		Purcell, Patrick	Engine-driver.
		Peace, Isaac	Miner.

The Appointment of this Commission—Course Adopted at the Commission's Inquiry—Evidence Taken—Theories Advanced to Account for Disaster.

24. On the 6th of November, 1902, the Governor-in-Council appointed us a Commission to, primarily, inquire into the cause of the explosion, and to report on various other questions raised thereby, as recited in the first paragraph of this report. From various causes, which need not be further referred to here, the Commission was unable to enter upon its duties until the 5th of December, when a preliminary meeting was held, at which the notification of the appointment of Mr. J. Garlick as Secretary and Principal Shorthand Writer to the Commission was received, the course of procedure to be adopted was determined, and it was resolved to visit the Colliery on the 9th and 10th of December. As, however, one of the questions which had led to the former delay again came under the consideration of the Government, the further action of the Commission was deferred until the matter was settled, and the Commission did not visit the mine until the 16th and 17th of December. The Christmas Holidays were then close at hand; and it was considered inadvisable to begin the taking of evidence until after they had passed, in view of the probable absence of important witnesses and Counsel from Wollongong, where the Inquiry was to be opened. The intervening time was therefore spent in reading and discussing the evidence taken at the Coroner's Inquest, which the Commission decided to accept as evidence at their Inquiry, in order to avoid the expense and delay involved in re-taking the testimony. By this decision 22 days were, in effect, saved. The Commission began the examination of witnesses at Wollongong on the 6th of January, 1903, adjourned to Sydney on the 29th of January, and concluded the taking of evidence in Sydney on the 20th of March. They again visited the Colliery on the 24th, examined one witness there, made a number of tests for fire-damp with a hydrogen lamp (the most reliable of the more-sensitive instruments science has, so far, devised for the purpose), and carefully inspected certain portions of the mine to which their attention had been directed by the evidence. The next day, the 25th of March, they visited Helensburgh, in order to be able to compare the conditions at Mount Kembla Colliery, a mine which was, up to the time of the accident, reputed to be safe in relation to dust, and to the issue of fire-damp, with those at the Metropolitan Colliery, a mine acknowledged to be exceptionally fiery and dusty. At Helensburgh a number of very instructive tests were made in the presence of the Commission as to the explosibility of Mount Kembla and Metropolitan coal-dust, and the safety of "permitted explosives" as compared with gunpowder, particulars of which will be found in the minutes of evidence (pars. 30766-30769 Com.). The remainder of the sittings of the Commission were devoted to the consideration of the evidence and the preparation of this Report.

25. The Commission having decided to begin taking evidence at Wollongong on the 6th of January, the following advertisement inviting persons interested to appear was inserted in each of the Sydney daily newspapers, and in the papers published at Wollongong, Newcastle, and Lithgow:—

ROYAL COMMISSION OF INQUIRY RESPECTING THE MOUNT KEMBLA COLLIERY DISASTER.

Notice is hereby given to all concerned that the above Commission will commence its sittings for the taking of evidence on Tuesday, the 6th January, 1903, at 11:30 a.m., in the Court-house, Wollongong.

The scope of the Commission embraces not only the causes of the explosion which occurred at Mount Kembla Coal Mine on 31st July last, but also (1) the General Management of Collieries, (2) Ventilation, (3) the Treatment of Coal Dust, (4) the Prevention of the Accumulation of dangerous Gases, (5) the Use of Safety Lamps, and (6) the Use of Explosives.

All persons having a knowledge of these matters are invited to attend the meeting of the Commission, or to communicate with the Secretary.

For the convenience of witnesses the Commission will sit in Wollongong and Sydney. The Commission will also visit other places for the purpose of taking evidence, if necessary.

By Order of the Commission,

J. GARLICK, Secretary.

22nd December, 1902, 72A Phillip-street, Sydney.

In response to this advertisement the Commission received a few letters from persons in different parts of the State who were desirous of giving evidence: these persons were then asked to state generally the nature of the evidence they could give

give, and their experience; and their replies enabled the Commission to decide in which cases it would probably be of service to the Inquiry to call the writers to give evidence. The Commission regret that none of the Colliery Managers, or proprietors, whose interests are vitally affected by the questions upon which the Commission were directed to report, accepted this invitation, or the opportunity of appearing which the President held out at the opening of the Court.

26. The first sittings for the taking of evidence were held at the Wollongong Court-house, which had been kindly lent for the purpose by the Justice Department at considerable inconvenience to their local officer, the Police Magistrate, who courteously did all in his power to assist the Commission in their duties. After having heard the evidence of all the witnesses then available at Wollongong, the Commission adjourned to Sydney, where the Land Appeal Court was, for a time, placed at their disposal; then, in succession, a room at the Treasury, the No. 2 Jury Court, and, lastly, the No. 2 District Court.

27. On the opening of the Court at Wollongong, Mr. A. A. Lysaght, solicitor, appeared on behalf of (a) the representatives of deceased miners, wheelers, &c. (victims of the disaster), (b) the employees of the Mount Kembla Colliery (miners, wheelers, &c.), and (c) the Illawarra Colliery Employees' Association; Mr. C. G. Wade, Barrister-at-Law, instructed by Messrs. Curtiss and Barry, solicitors, appeared on behalf of the Mount Kembla Coal and Oil Company, Limited; and Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. H. D. Wood, of the Crown Solicitor's Office, appeared to represent the State, through the Mines Department—Mr. A. A. Atkinson, Chief Inspector of Coal Mines, being present by leave of the Court to assist Mr. Bruce Smith, though to be called, later, as a witness. The President announced that the application of any other person or body wishing to be heard or represented on the Inquiry would at any time be entertained.

28. The parties were then informed that the evidence taken at the Coroner's Inquest would be accepted as if it had been given before the Commission; but that, if any party desired it, any witness who had given evidence at that Court might be recalled for the purpose of further examination or cross-examination.

29. The taking of evidence was then proceeded with, and occupied forty-one days, the following being a list of the witnesses examined:—

LIST OF WITNESSES CALLED TO GIVE EVIDENCE BEFORE THE COMMISSION.

Date.	Name of Witness.	Profession or Trade.	Called by—	Paragraphs.
1903.				
6 Jan.	Morgan, Thomas Richard	Miner	Mr. Lysaght ...	93-621½
7 "	Biggers, Edwin	"	" ...	657-679
7 "	Maguire James	"	" ...	680-1307
7 "	O'Sullivan, Edward	Ex-miner	" ...	1308-1372
7 "	Quinn, Michael	Miner	" ...	1373-1710
8 "	Smith, Charles	"	" ...	1711-2474
8 "	McDonald, Frank... ..	"	" ...	2475-2696
14 "	Hicks, Alexander... ..	Check-weighman at Corrimbal Colliery.	" ...	4144-4396
15 "	Sweeney, John	Miner	" ...	4417-4881
15 "	Sells, John... ..	"	" ...	4882-5218
20 "	"	"	" ...	5220-5453
20 "	Marshall, William	"	" ...	5454-6145
20 "	Scott, Robert	"	" ...	6146-6326
21 "	"	"	" ...	6330-6518
21 "	Gleeson, Patrick	"	" ...	6519-6928
21 "	Gleeson, Alfred	"	" ...	6929-7105
21 "	Harley, William	"	" ...	7375-7619
22 "	McLeod, John	"	" ...	7625-7936
22 "	Midgley, Sidney	"	" ...	7937-8176
22 "	Raynor, John	"	" ...	8177-8411
22 "	Josland, Charles	"	" ...	8412-8568
3 Feb.	Heron, John	"	" ...	12060-12257
18 "	Bower, William	"	" ...	17765-18180
19 "	"	"	" ...	18210-18791
19 "	Gray, Michael	"	" ...	18792-18902
19 "	Paterson, John	Miner	" ...	18903-18969
19 Mar.	Brownlee, Patrick James... ..	Check-weighman at Mt. Kembla Colliery.	" ...	29615-29909

Date.	Name of Witness.	Profession or Trade.	Called by—	Paragraphs.
1903.				
19 Mar.	Stafford, William ...	Ex-miner ...	Mr. Lysaght ...	29911-30000
19 "	Ramsay, Harry ...	" ...	" ...	30001-30043
27 Jan.	Morrison, John ...	Deputy at Mt. Kembla Colliery	Mr. Wade ...	8862-9011
2 Feb.	" ...	" ...	" ...	11194-11754
3 "	" ...	" ...	" ...	11755-12056
28 Jan.	Livingstone, William ...	Miner ...	" ...	9232-9868
29 "	Muir, Thomas ...	" ...	" ...	10831-10983
29 "	Johnson, Thomas ...	" ...	" ...	10984-11190
3 Feb.	Biggers, Charles ...	Deputy at Mt. Kembla Colliery	" ...	12258-12740
23 "	Sellers, Alfred Ernest Oswald.	Manager, South Bulli and Bel-lambi Collieries.	" ...	18970-19533
24 "	" ...	" ...	" ...	19537-20408
26 "	" ...	" ...	" ...	21348-21540
25 "	McGeachie, Duncan ...	Manager of West Wallsend Colliery ...	" ...	20411-20817
18 Mar.	" ...	" ...	" ...	29527-29612
26 Feb.	Warburton, Silvester Henry	Mining Surveyor at Mt. Kembla Colliery.	" ...	20831-21347
2 Mar.	Hay, William ...	Clerk and Weighman, Mt. Kembla Colliery.	" ...	21541-21986
2 "	Barr James ...	Manager, Co operative Colliery, Newcastle.	" ...	21987-22051
3 "	" ...	" ...	" ...	22052-22316
3 "	Leitch, George ...	Manager, Stanford Merthyr Colliery, West Maitland.	" ...	22317-22795
4 "	Jones, Jacob Carlos ...	Manager Mt. Keira Colliery ...	" ...	22803-23659
4 "	Robertson, Dr. James ...	Mining Engineer... ..	" ...	23660-23704
5 "	Robert, Miller ...	" ...	" ...	23705-24321
9 "	" ...	" ...	" ...	24322-24891
10 "	" ...	" ...	" ...	24893-25490
10 "	Rogers, William ...	Manager, Mt. Kembla Colliery...	" (by direction of Commission).	25491-25667
11 "	" ...	" ...	" ...	25668-26375
11 "	" ...	" ...	" ...	26441-26766
4 Feb.	Atkinson, Alfred Ashley ...	Chief Inspector of Coal Mines, Department of Mines, N.S.W.	Mr. Bruce Smith	12744-13295
5 "	" ...	" ...	" ...	13296-13945
9 "	" ...	" ...	" ...	13946-14240
10 "	" ...	" ...	" ...	14241-15054
11 "	" ...	" ...	" ...	15072-15858
12 "	" ...	" ...	" ...	15859-16163
16 "	" ...	" ...	" ...	16241-16810
17 "	" ...	" ...	" ...	17713-17764
19 Mar.	" ...	" ...	" ...	30044-30460
20 "	" ...	" ...	" ...	30475-30688
21 Jan.	Hammon, Clifford ...	Wheeler ...	The Commission	7106-7374
28 "	Jubb, Henry ...	Assistant Under-manager at Mt. Keira Colliery.	" ...	9869-10379
28 "	McDonald, Alexander ...	Deputy at Mt. Keira Colliery ...	" ...	10380-10464
29 "	" ...	" ...	" ...	10465-10830
12 Feb.	Cabbage, Richard Hind ...	Mining Surveyor, Mines Department, Sydney.	" ...	16164-16240
11 Mar.	Mingaye, John C. H. ...	Analyst and Assayer to Department of Mines.	" ...	26376-26440
18 "	" ...	" ...	" ...	28705-28984
18 "	" ...	" ...	" ...	29145-29149
12 "	Humble, William ...	Inspector of Collieries ...	" ...	26767-27344
17 "	" ...	" ...	" ...	27713-28645
18 "	Goodwin, John Dickinson	Mining Engineer for Borough of Ashfield.	" ...	28986-29144
18 "	Parton, Thomas ...	Mining Engineer... ..	" ...	29151-29526
24 "	Hotchkis, Daniel ...	Under-manager at Mt. Kembla Colliery.	" ...	30708, 30722-30752
13 Jan.	Silcock, James ...	Miner ...	" (at the request of the witness).	2698-3451
13 "	May, Jonathan ...	Lecturer on Mining, Geology, and Mine Surveying.	" ...	3452-3466
14 "	" ...	" ...	" ...	3475-4143
27 "	Wynn, John ...	Contractor ...	" ...	8569-8861
27 "	" ...	" ...	" ...	9012-9231
17 Feb.	Bailey, John William ...	Miner ...	" ...	16811-17408
17 "	Coulson, Thomas ...	" ...	" ...	17410-17712
12 Mar.	Jeffries, Joshua ...	Manager of the Metropolitan Colliery	" ...	27346-27712
17 "	" ...	" ...	" ...	28646-28704

30. In the conduct of the Inquiry it was arranged that Mr. Lysaght should call his evidence first, that Mr. Bruce Smith should follow, then Mr. Wade, and lastly the Commission; with the understanding that, if necessary, any witnesses could be called out of the prescribed order by any party, and that all fair latitude and elasticity with regard to calling witnesses in contradiction, or in reply, would be allowed.

31. Mr. Lysaght opened his case by submitting to the Commission a number of Recommendations made by the Illawarra Colliery Employees' Association; and, at a later stage, he supplemented these Recommendations by others from the Mining Employees at Newcastle and Lithgow. He then proceeded to call officials of the various Associations, and working miners, to give evidence in support of these Recommendations. With respect to the Disaster itself Mr. Lysaght called evidence of miners; some of whom supported the theory endorsed by the Coroner's Jury, viz, that it was caused by the ignition and explosion of fire-damp at the face of No. 1 Right Back Heading; while others advanced theories fixing the seat of the disaster variously at about Aitken's Working Place, Morris' Working Place, and elsewhere; but these theories were not supported by any evidence of weight. Mr. Lysaght also endeavoured to prove that the officers of the mine had been negligent in the performance of their duties in that the standing places (places in which no work was being done) at the face (the extreme Northern end) of the No. 1 Right Back and Front Headings had not been examined for fire-damp, and that, if the accident was caused by the ignition of gas in the Back Heading, this neglect directly contributed to the disaster. At a later stage, when the weight of the evidence pointed to the Junction of the 4th Right Rope Road with No. 1 Right Main Level as the seat of the explosion, Mr. Lysaght directed his efforts to prove that the Management contributed to the accident by their neglect to make weekly examinations at the edge of the 35-acre goaf on the 4th Right Rope Road as prescribed by Special Rule 10.

32. Mr. Bruce Smith called only Mr. Atkinson, Chief Inspector of Coal Mines; who first expressed his opinion upon the recommendations of the miners, and then proceeded to detail his observations, made on a number of inspections, as to the evidences of the force of the explosion, and the directions in which the force operated, as deduced from those evidences. Mr. Atkinson produced a plan on which were marked (*a*) the places where the various men in the mine at the time of the disaster were working, (*b*) the places where victims were found by the rescue parties, (*c*) the ventilating currents, and (*d*) the directions of forces, shown by arrows. He also produced a plan and two sections, prepared under his direction, of that part of the No. 1 Right Main Level Rope Road between the 3rd Left Rope Road and the 6th Cut-through from the face. On these plans, Mr. Cambage, Chief Mining Surveyor, and his assistants, who had spent four days in the mine gathering the information, had depicted graphically the general indications of the force of the explosion—overturned skips, bodies of men and horses, rails torn up, stoppings blown out of cut-throughs, telephone wires broken and twisted, coal thrown from skips, &c., &c. At the Coroner's Inquest, Mr. Atkinson had been divided in opinion between the No. 1 Back Heading and the 4th Right Junction as the place where the disaster originated. He now stated, as the result of further examinations of the mine and a careful consideration of the plans, that he believed the accident to have occurred through the ignition, by a naked light (Wheeler Morrison's), at the 4th Left Junction, of a body of gas which issued from the 4th Right Road; and that this body of gas had been driven from the higher portions of the 35-acre goaf by a fall of the roof there.

33. Mr. Wade called the evidence, on behalf of the Mount Kembla Company, of a number of the mine officials and Managers of other Collieries; who gave evidence in opposition to the theory that the disaster was caused by the ignition and explosion of gas, and advanced various theories by which they considered the disaster could be accounted for without such an explosion.

34. Mr. Sellers (Manager, South Bulli and Bellambi Collieries) advanced the theory that, assuming that 44 yards square of the roof of the 35-acre goaf at the end of the 4th Right fell in half a second, the depth of fall being 4 feet 6 inches, the air beneath would be driven out through the 4th Right (an opening

12 feet x 6 feet) at a velocity of about 700 miles per hour, even after allowance was made for the escape of 50 per cent. of the air into the surrounding goaf: that thus the air would be so compressed that, at the opening to the 4th Right, there would be a pressure of 35 lbs. per square inch, which would give an increase of temperature of 228 degrees, which, added to the temperature of the air at starting, 70 degrees (the assumed temperature of the strata), would raise the temperature of the blast to 298 degrees, and that this temperature would be more than sufficient to cause the ignition, without gas or flame, of the coal-dust which would be raised by the fall and the blast, as Professor Bedson had—it was contended—shown, by his experiments, that coal-dust would ignite at a temperature of 291 degrees.

35. Mr. McGeachie (Manager of West Wallsend Colliery) was of opinion that a fall of roof in the 35-acre goaf drove out a blast of wind, which, separating at the junction of the 4th Right with the No. 1 Main Level, travelled outbye and inbye, and caused all the damage found in the No. 1 Road. The portion of the blast which went inbye was compressed against the face, and became heated by the compression; thus causing the partial coking of dust noticed there, and the singeing of the men upon whom signs of heat were found.

35A. Mr. Barr (Manager Co-operative Colliery, Newcastle) submitted the theory that the air forced out of the 4th Right divided when it reached the Main Level, one portion going outbye and the other inbye: the latter volume of air proceeded at such a terrific pace that it overturned skips, blew tubs off their wheels, and wheels off their axles; and, as the skips were blown along, the steel clips by which they were attached to the haulage rope were dragged along the rope at such a rate that the friction produced fire like flashes of electricity. The air, on reaching the face, was heated by compression to such an extent that, though no gas was present, an explosion of air, "oxygen," took place when it rebounded, and there was a little flame. This theory the Commission at once rejected as absurd.

36. Mr. J. C. Jones (Manager, Mount Keira Colliery) thought the first cause of the accident was a fall in the 4th Right Goaf, which, he reckoned, would force out the air at the rate of 742 miles per hour (assuming a quarter of an acre fell 5 feet in 1 second). This blast of air, he thought, went straight outbye towards the Main Tunnel Mouth, causing the destruction found on the way. He did not think it would go all the way, though there was no doubt that some force had gone right to the Tunnel Mouth; but what that additional force was he would not like to say. Probably that would be caused by a dust explosion, though how the dust was ignited he could not explain. The coal-dust raised by the blast would be "pretty well heated" by the compressed air, and would be ignited in some way, either by the rails or skip wheels striking fire or by an electric spark from the telephone wires. He had seen a statement in Mr. Stokes' evidence before the 1892 (Eng.) Royal Commission on Colliery Explosions that coal-dust begins to distil at a temperature of 210 degrees; so that gas may have been given off from the dust raised by the wind-blast, and ignited by a spark. Later, in cross-examination, Mr. Jones said he thought that gas and coal-dust issued from the 4th Right a few seconds after the blast of air; also that the vacuum which he thought would be caused by the blast allowed the escape of occluded gas from the seam inbye, and that this gas might have been ignited at some naked light.

37. Dr. Robertson (Consulting Engineer to the Mount Kembla Coal Company) stated that he had had some plans prepared by Mr. Warburton, the Surveyor at the Mine, showing the indications and directions of forces (1) in the No. 1 Right between the 4th Right and the 5th Right, (2) in the No. 1 Right between the 2nd and 4th Right, and (3) in the No. 1 Right Front and Back Headings from the 5th Right to the face, together with the workings to the left, or westward, of the No. 1 Right as far as Annesley and James' Pillar (No. 85 Working place on plan of Mine). He did not think the evidences of force he saw in the Mine could be accounted for by the theory of an explosion of gas; but it appeared to him that all the appearances could be reconciled by the theory that a great wind-blast was forced out by a fall in the 35-acre goaf at the end of the 4th Right; and that the damage was done by percussion throughout the mine without any explosion: in fact, there were practically no evidences of flame or heat. In cross-examination he admitted that
carbon

carbon monoxide played a part in the after effects of the wind-blast; and carbon-monoxide could only be produced by incomplete combustion of coal, or, rather, in this case, of coal-dust. The heat produced by the compression of the air was, he believed, so great that, without flame, it caused the coal-dust to distil. He thought the velocity of the air out of the 4th Right would be 700 miles per hour. This calculation was made from data partially assumed—that an area of roof 44 yards square fell in a block in a little under half a second from a height of 6 feet: and that 50 per cent. of the air beneath the falling roof escaped into the surrounding goaf or into the space from which the fall came. The damage done at a great distance from the 4th Right, as, *inter alia*, in the overturning of skips, &c., at Price's Flat (at the extreme west end of the 4th Left Rope Road, 32 chains away by the road), could not have been caused by the direct force of the wind-blast; but he considered that would be caused by the percussion produced by the fall, which would operate at long distances though there would be no direct forcible motion of the air. He did not see any smoke in the mine himself; but the smoke of which witnesses had spoken would be caused by the distillation of the dust. He could not account for the heat observed by several witnesses in the mine shortly after the disaster except by the derangement of the ventilation.

38. Mr. Rogers (Manager of Mount Kembla Colliery) said the only theory he had as to the cause of the disaster was that a fall in the 4th Right Goaf drove out a big blast of air. He thought coal-dust played a part in the disaster; it might have been heated by the compression of the air; but he had seen no indication of flame in the mine.

39. Mr. W. Humble (Inspector of Collieries), called by the Commission, stated that he had made several examinations of the mine within a few days after the disaster: he supported Mr. Atkinson's theory that a fall in the 4th Right Goaf drove out gas which had accumulated there, and that the ignition of this gas and of coal-dust caused the disaster; but he differed from Mr. Atkinson in his opinion as to where the gas was ignited. He thought it was probable that the gas ignited at a naked light somewhere on the No. 1 Travelling Road (parallel with the No. 1 Main Level), and then the light flashed into the main body of the gas, causing the explosion proper at about the junction of the 4th Right with the Main Level. In his opinion the light at which the gas was ignited was that of T. Purcell (whose body was found in the Travelling Road some distance—23 chains south—from the 4th Right), and that the ignition took place as Purcell passed down the Travelling Road across the 4th Right.

40. Mr. T. Parton (Mining Engineer), called by the Commission, stated that he had inspected the mine after the accident, and had heard the evidence given at the Inquiry as to the "wind-blast theory"; but his opinion was that there was a fall in the 4th Right Goaf, which forced out gas onto the nearest lights, and an explosion followed, which, igniting the coal dust, would exhibit the evidences of force seen in the mine.

41. After the evidence of the experts called by Mr. Wade had been heard, Mr. Atkinson was re-examined, and stated that he could not agree with the theory that the disaster was caused by a wind-blast without the ignition of gas, and that he saw no reason to alter the opinion he had previously expressed.

Consideration of the Evidence as to Where the Disaster Originated and its Cause.

42. In their efforts to ascertain the cause of the accident the Commission were confronted with two important questions; 1st—At what part of the mine did the force originate which caused the disaster? 2nd—What was the nature of that force?

43. The Commission have had little difficulty in arriving at a conclusion on the first question, for the evidence of the various witnesses was almost unanimous (and that of the experts quite unanimous) in indicating the point where the 4th Right Rope Road joins the No. 1 Right Main Level as about the centre from which the
the

the principal force of the disaster was exerted. The plans and sections prepared by Messrs. Cambage and Warburton, showing the nature of the damage done in the No. 1 Right Main Level and other roads, together with the evidence of the witnesses, prove that almost all the damage between the 4th Right and the Tunnel Mouth was caused by a force exerted outbye (*i.e.*, towards the Tunnel Mouth), and that the damage between the 4th Right and the 5th Right was caused by a force exerted in the opposite direction, inbye. It is true that there are a few apparent evidences of force having been exerted in each case in directions which clash with this conclusion; but this fact is capable of explanation, and really supports the conclusion at which the Commission have arrived as to the nature of the accident, as will be shown later.

44. In seeking an answer to the second question, viz., what was the nature of the force which radiated from the 4th Right, the Commission have had a somewhat more difficult task. Mr. Lysaght's witnesses contended that the disaster was caused by an explosion of fire-damp (though they did not all place its centre at the 4th Right); Mr. Atkinson, the Chief Inspector of Coal Mines, called by Mr. Bruce Smith, believed that it was an explosion of fire-damp; but Mr. Wade's witnesses were unanimously of opinion that the sole initial cause was a terrific wind-blast, travelling at the rate of about 700 miles per hour; though some of them thought that, before the force of the blast diminished—as it necessarily would quickly diminish—its work was taken up and carried on by explosions of coal-dust, and (as put by Mr. J. C. Jones) of fire-damp also.

45. Though they have given the matter careful consideration, the Commission cannot see any justification for accepting what may be called the "wind-blast" theory. This theory depends on too many assumptions, some of which are quite untenable. It was assumed that an area of roof 44 yards square fell in a body from a height of 4 feet 6 inches above the floor; that the time of falling was about half a second (the rate at which it would fall in vacuo); and that it would drive out half of the air beneath it through an opening 12 feet x 6 feet. Allowance does not appear to have been made for the fact that the time of fall would be prolonged by the resistance of the air beneath, which would be enormous if the air were to be—*ex hypothesi*—compressed to such an extent as to raise its pressure from—say—14 to 35 lbs. per square inch; in fact, the calculation could only be correct if the height of the falling mass were so great that the pressure on the air below, due to its fall (assumed for the sake of argument to be rightly calculated as a resistance varying in half a second from 14 to 35 lbs. per square inch) were infinitesimal in comparison with the weight of rock the motion of which such pressure tended to retard: the weight would have to be an infinite multiple of the resistance in order to reduce its retarding effect to zero; and yet a resistance of only 28 lbs. per square inch would balance a mass of rock of at least 24.6 feet in height. This aspect of the case will be found touched upon later, when the question of gas, as a factor in the catastrophe, is considered. The hypothesis, even if it be possible, is certainly grossly improbable—so improbable, indeed, that, even if there appeared no other possible explanation, the Commission would have to conclude that the catastrophe was not reasonably explicable.

46. The Commission, having come to this conclusion, proceeded to examine the other theories brought forward, in each of which it was assumed that the accident initiated in the ignition of fire-damp. Here the Commission were brought face to face with a very important question, viz., Is fire-damp given off in Mount Kembla Mine? The concensus of opinion, both of officials and miners, before the accident, appears to have been that Mount Kembla Colliery was free from fire-damp. Apparently the last occasion on which the discovery of fire-damp in the mine was officially reported was in 1891 (when a man named Gallagher was severely burnt through the ignition of a quantity of gas which entered his working place from a cavity—an old working place—into which his pick had penetrated); so that there was evidently some reason for the feeling of entire security pervading both management and men. The mere fact, however, that gas was not reported does not necessarily prove that it was not there; for the ventilation of the mine, since the construction of the new furnace and upcast shaft, has been so good that small quantities of gas, even though they may

have been given off constantly, would be at once diluted, rendered harmless, and carried off to the outer air; and such small quantities could, under normal conditions, hardly be detected with the safety-lamp ordinarily used in testing, though they might possibly be found by means of the hydrogen lamp. The only chance of such gas being present in dangerous quantities would be, possibly, in an abandoned working not properly swept by the ventilating current, or in a goaf (or worked out portion of the mine) the roof of which had fallen, and so prevented the free circulation of air. In the latter case it would be very unlikely that the presence of fire-damp could be discovered; for it would be, in most cases, impossible for any person to cross the fallen stone a sufficient distance to reach the higher parts of the fissures, to which the gas would naturally ascend, its specific gravity being considerably less than that of air.

47. Between the date of the burning of Gallagher (1891) and the date of the disaster, the only evidence of the occurrence of gas in the mine of which there is any record is found in the proceedings of the Royal Commission of 1895 on the Coal Mines Regulation Bill. Mr. Ronaldson (then Manager of Mount Kembla Mine), on the 1st of October, 1895, gave the following evidence:—

5264. Q. Does the mine give off any fire-damp? A. Very rarely, in cracks.
 5265. Q. It does give off a little? A. Yes, from fissures, rarely.
 5266. Q. It either gives it off or does not give it off? A. It gives it off rarely.
 5267. Q. In what section of the mine is this? A. All sections.

48. After the disaster occurred, however, quite a number of persons who either were or had been working in the mine came forward and gave evidence of having seen gas ignited at their lights (which were naked) when at work. The evidence of these witnesses is summarised below:—

E. Meurant, Miner, (p. 3, Inquest) stated that he had, during the 21 months that he had worked in the mine, heard "blowers of gas" (i.e., gas hissing as it issued from coal); but he had never been able to locate them with his lamp. He did not report the fact to anybody (though bound by law to do so). His only experience had been in two bords in the shaft district.

W. Broadhead, Miner, (pp. 6 and 8, Inquest) said he had found gas in the mine many times when he had fired shots, both in No. 1 District and the Shaft District. He did not report it, as the quantity was not sufficient to be worth talking about. He knew he ought to report it.

The following day Broadhead was again questioned regarding this; and then he said he did report the finding of gas, "when it was severe," to David Evans, one of the Deputies; but he never saw more than the air would put out (i.e., dilute to such an extent as to render it harmless). He also stated that he had reported gas to Deputy Dungey (who was one of the victims of the disaster) the quarter before last (five or six months before the disaster); that, all that time, William Hopkins was his mate; and that, about nine months before the disaster, he had reported the occurrence of gas to Mr. Nelson, Under Manager (killed in the disaster). When he reported the gas to Evans, he said, Evans wrote on a shovel, with chalk, "Fire! do not go past this; put your light out; take your coat and go in and fan the place well out." He had also reported to Mr. Rogers that a certain place was "very gassified." When he saw gas after firing shots, the flash was red. Later, in cross-examination, he said he never went to Mr. Rogers himself and complained about the presence of gas; that Mr. Nelson was a strict and careful man, who always gave special attention to the safety of the miners; that the miners could trust Dungey to look after their interests; and that Mr. Rogers is a man who shows every care for the safety of the miners.

William Hopkins, Miner, stated (p. 55, Inquest) that he never saw a sign of gas while working in the Shaft District with Broadhead; nor did he ever hear Broadhead make a complaint to Dungey, or any other fireman, about gas being in the mine.

David Evans, Deputy at Mount Kembla, stated (p. 31 Inquest) that Broadhead did not report the finding of gas to him; and he did not write on a shovel as stated by Broadhead. He was sure there had not been a report of gas for the past five years; but he had come across gas 11, 12, or 13, years ago, when the old furnace was in use; and had found some in several places before the five years; when he found the gas, he stated, he reported it to Mr. Rogers, who was then Under Manager; and also reported it in a book.

Mr. W. Rogers, the Manager of the Mine, stated (pp. 35, 36, and 40, Inquest) that he did not know that gas was constantly exuding from the coal in Kembla, even in small quantities; though he knew gas was found in the mine years ago; but he knew there was no gas during the last ten years, because the Deputies would have reported it if there had been. He did not remember Evans reporting gas to him, as stated by Evans. He did not admit that, as stated by Mr. Ronaldson, gas was given off in all sections of the mine, though rarely. He would swear there had been no gas in Kembla to his knowledge during the last five years, i.e., since the new air-shaft was constructed; since that shaft was put in he did not consider that there was any gas at all in the mine. He knew that it was a seam that gave off gas; but he relied on the superior ventilation and on the fact that gas was not found.

W. Moran, Miner, stated (pp. 47-48, Inquest) that, when Mr. Ronaldson was Manager of the Mine, and Mr. Rogers was Under Manager (seven or eight years before), on one occasion when he went into work, gas lit at his flare-lamp, and the flame rolled round and round for about 15 or 20 yards out of the heading and then back again; and he dropped down to save himself from being burnt (the gas was apparently lying along the roof, as would be natural). He reported the fact to Evans. It was after the construction of the present ventilating shaft. This was in the cinder heading. His hair was burnt a bit. When working in the No. 1 District he did not see any fire-damp to speak of; but at times he would meet a "blower." That was over two years ago. He thought he had told Mr. Nelson about the "blowers." In the No. 1 he never had any lighting up like that he spoke of in the cinder heading; it "just burnt like a candle."

M. Quinn, Miner, stated (pp. 51, 52, Inquest) that one day, about eight years ago, when Mr. Rogers was Under Manager, he had lit a jet of gas in front of Mr. Rogers in a heading in the No. 1 District; he had lit the gas several times when by himself; he told Nelson (then Deputy) there was gas in the place; gas could be seen in any bord; about seven or eight months ago (say, in January, 1902) he saw gas oozing out of the face into the bord in the 5th Right (No. 1 District), and on several occasions set fire to gas in that place; he drew Deputy Dungey's attention to it. He could find gas there any time, after a shot which had not broken down the coal, in cracks. He reported gas when he thought it was dangerous. The next day, being recalled, Quinn stated that he did not speak to anybody when he found the gas in the 5th Right. He was talking to everybody about the gas, it was such a common thing; it was common talk at Mount Kembla for about nine years. When he reported the gas to the Under Manager, he (Mr. Rogers) took the proper precautions. He never saw any other men light gas; but he expected they would do as he did; setting fire to the gas (to clear it away) was an idea of his own. (See also Qs. 1577-1592, Commission).

Examined before the Commission, Quinn stated that eleven years ago a man named Robinson had his beard singed by gas which was lit at the face. It was subsequent to the erection of the present furnace (Qs. 1411-1414).

G. Ramsey, Miner, stated (p. 54, Inquest) that about twelve months ago, when working with O'Sullivan, he saw gas in the 4th Left (No. 1 District); he told Deputy Nelson,

- E. O'Sullivan, ex-miner, stated that about 11 o'clock one day in November or December, 1900, or 1901, he was working in the 4th Left off No. 1 Right, when Ramsey put his light up to the face to look at it, and some gas lit; Ramsey reported it to Mr. Nelson. (Pars. 1313-1327, 1346, 1352, 1368, 1372, Commission.). He had two or three times seen men put a light to the face after firing shots, and gas had lit and burnt for a few seconds. (Pars. 1329, 1334, 1339, 1361, 1366).
- E. Stafford, Miner, stated (p. 55, Inquest) that he had worked in the 3rd Right, off No. 1 Right, and, while there, three and a half years ago, one night when he and his brother were going in to the face, gas lit from their lamps; they went out and told Deputy Dungey. He had worked in the 4th Right and 4th Left, but never found gas in any portion of the mine except the 3rd Right.
- C. Smith, Miner, stated (Qs. 1893-1906-2276, Commission) that, about six months before the disaster, he was working in No. 44 in the Shaft District, and one day, after firing a shot, his mate, Prior, went back, and some gas lit up. He told Deputy Evans about it. About a week later gas lit again in the same place, when he himself went back after firing a shot; he reported this also to Evans. He had also heard Jackson, in the next bord, No. 39, report to Evans the lighting of gas.
- J. Silcock, Miner, stated (Qs. 2710-2728, 3137-3148, 3211-3249, Commission) that he had seen small flashes of gas after powder shots twice (about January, 1902). He did not report the gas. He did not think there was a sufficient quantity to be dangerous. The mine was talked of as a non-gassy mine. The real reason he did not report gas was that he was afraid to do so; if a man were to report everything he saw, he would never work again in his life.
- J. Sells, Miner, stated (Qs. 4959-4991, 5184-5213, 5258-5262, Commission) that, about seven or eight months before the disaster, he was working a heading running towards Powell's Flat, and there was gas there; after firing shots, his mate, Allen, lit gas on numerous occasions. While working there, Deputy Evans came in, and Allen drew Evans' attention to a singing noise where water was oozing from the coal, and Evans said it was gas. Evans was a good Deputy.
- J. McLeod, Miner, stated (Qs. 7629-7699, 7739-7768, 7819-7900, Commission) that during the nine months before the disaster he worked in the Shaft District in a heading towards Powell's Flat, near where Maunders and Williams were working. After Maunders and Williams had fired a shot, they went to see what work the shot had done, and gas lit. He also saw something similar in the No. 1 District in a place off Price's Flat, No. 72 on plan, about a month before the disaster: the gas lit after firing a shot. He did not report it: he had heard of a rule which required the men to report: he had a copy of the special rules.
- T. Muir, Miner, stated (Qs. 10845-10861, 10870-3, 10888-10912, Commission) that he had often seen gas light after powder shots, but not under any other circumstances. He had worked with Quinn; but never saw Quinn light gas.
- T. Johnson, Miner, stated (Qs. 11061-11089, 11107-11111, Commission) that, when working in No. 4 Right, Shaft District, twelve years ago, gas lit at his flare lamp; he saw the same kind of thing once in the 4th Left or the 2nd Left off No. 1 Right Main Level some years ago. He had seen his mate light "powder-smoke" after shots. When he found gas in No. 4, he reported it to Mr. Rogers, then Under-manager, who ordered himself and his mate to use safety-lamps to finish the work with.
- J. Heron, ex-miner, stated (Qs. 12077-12136, Commission) that he had twice seen gas lit in the working-places off the 4th Left (twenty to twenty-three months before the disaster): he threw down his hat, to which his flare-lamp was attached, on the floor, and some gas lit. He did not report that. About nine or ten months before the disaster he met Deputy Dungey going
down

- down No. 1 Right Main Level, where it was rising (northern end), about 100 yards from the face; and Dungey said to him "If you had been here before me, you would have got your head blown off; she was standing full of gas for 10 or 15 yards back; the brattice was all down." Between seventeen and eighteen years ago he (Heron) lit gas in "Old No. 4" after a powder shot. He did not report it.
- C. Biggers, Deputy at Mount Kembla (Qs. 12272-12282, 12513-7, 12562-12573, 12604-12613, 12629, Commission), stated that, when a miner, he had seen gas lit after shots—eight or nine years ago. He thought it was fire-damp; but they called it powder-smoke. Of late years he did not think there was any. He had heard a hissing sound; but did not know whether it was water or gas; he could not find it with a light, and took it for granted that it was water.
- P. J. Brownlee, Check Weighman, ex-miner, stated (Qs. 29719-29736, Commission) that, ten or twelve years ago, he lit gas in No. 4 Right in Shaft District when he first went in in the morning, and got the hair burnt off his head. He reported it to Deputy Evans.
- Mr. W. Rogers, Manager, Mount Kembla Mine, whose evidence at the Inquest on this point is summarised above, stated to the Commission (Qs. 25971-25997, 26212-4, 26625-6, 26701-9, Commission) that, about two years before the Gallagher case, he saw a little gas in the 4th Left; but since that case he never knew of gas being given off in Mount Kembla in any quantity. He would not say that the mine gave off no gas; he thought it did, a little. He denied that Quinn lit gas in his presence; and that Evans reported fire-damp to him (Qs. 25971-25975).
- Mr. G. Leitch (Manager of Stanford Merthyr Colliery), ex Under-manager of Mount Kembla, stated (Qs. 22329-22340, 22473-6, 22545-22562, 22568-22576, 22599, Commission) that he had seen "powder-smoke" lit after a shot; but had never seen fire-damp in the mine, nor had it been reported to him. When he heard of the accident, he did not believe Kembla gave off gas.
- Mr. A. A. Atkinson, Chief Inspector of Coal Mines, stated (pp. 56, 57, Inquest) that, on the 2nd of August, 1902, (two days after the disaster) he made an inspection of the mine, in company with Mr. McGeachie, who carried a hydrogen lamp; in No. 79 working-place they found 1 per cent. of fire-damp; in the next place $\frac{1}{2}$ per cent.; in No. 89 they found 1 per cent. On the 4th of August another inspection was made by a party; and in No. 82 they found $\frac{3}{4}$ per cent.: (both tests with hydrogen lamp). In the No. 1 Main Heading, between the jig and the face, gas was found with safety-lamp; in Morris' working-place, No. 89, with the hydrogen lamp, $1\frac{1}{2}$ per cent. was found.
- Mr. Atkinson, when examined before the Commission, stated (Qs. 12842-12854, Commission) that, on the 4th of August, some thousands of feet of gas which would explode in a safety-lamp were discovered in No. 1 Main Heading.
- Mr. W. Humble, Inspector of Coal Mines, who accompanied Mr. Atkinson in his inspections, corroborated (Qs. 26792-8, 26808, 26822-26897, 26928-26966, Commission) the Chief Inspector's evidence as to the finding of fire-damp after the disaster; at this time the ventilation was all disarranged. Speaking of the 4th of August, he stated that in No. 1 Back Heading, opposite the Northernmost cut-through, he and Mr. Littlejohn, who had separated from the rest of the party, found their safety-lamps full of fire-damp. They immediately retreated to the good air. They then gradually returned towards the face, testing with safety-lamps, till they again found the gas, at a point 4 yards on the outbye (South) side of the last cut-through. As the heading was rising they concluded that the gas extended to the face, through the cut-through, and to the face of the back heading also, which would give a volume of inflammable mixture of 10,000 cubic feet. They called the attention of the rest of the party to this; they

then

then went on with the inspection. Later, on again joining the party, Mr. Humble stated, he and Mr. McGeachie tested for gas in the 4th Right at the Goaf edge and found 1 per cent. with the hydrogen flame. (This is denied by Mr. McGeachie). On the 8th of August, he stated, he tested at 4th Right Goaf edge with Mr. D. A. W. Robertson, and found $\frac{1}{4}$ per cent.; but an examination of Mr. Humble's note-book discloses that the note he made on this occasion was that $\frac{1}{2}$ per cent. was found. Mr. Robertson's recollection of the inspection referred to was that no gas was found; and he has since shown to the Commission his note, made at the time, which reads as follows—"No gas in hydrogen."

49. It will be seen that nearly all the evidence of miners, above quoted, refers to the ignition of gas after powder shots—referring, it would seem, in all cases, to shots that have split, but have not thrown, the coal; and there is a certain amount of doubt as to whether this gas was fire-damp, or whether it may not have been a mixture of carbon monoxide and other inflammable gases produced by imperfect combustion of gunpowder. The remainder of the miners' evidence, however, taken in conjunction with that of Mr. Atkinson and Mr. Humble, formed a body of testimony going far to prove the existence of fire-damp. The Commission, however, decided to make tests themselves with a hydrogen lamp, as already mentioned; with the result that fire-damp was found to be given off by the coal in several widely distant parts of the mine; but in such a very small proportion that it is, under present circumstances, easily dealt with by the existing efficient ventilation. This result, taken in conjunction with the evidence quoted, leads the Commission irresistibly to the conclusion that, right through, from the opening of the mine to the present date, it has been capable of producing enough fire-damp to warrant the assumption that, given favourable conditions for accumulation, a dangerous collection might be found in almost any part of the workings. The accumulation that was found at the end of No. 1 Right Front and Back Headings after the explosion, and before the proper ventilation of the mine had been re-established, may possibly be explained away by supposing that the gas was somehow distilled, and left unburnt, by the heat generated in the disaster itself, as was suggested by some of the witnesses called by Mr. Wade on behalf of the Mount Kembla Coal Company; but the Commission are not inclined to accept what appears to them to be so far-fetched and improbable a theory.

50. Having arrived at the conclusion that fire-damp was being continuously given off in the mine, the Commission proceeded to consider the evidence bearing upon the effects of the accident, in order to ascertain, if possible, whether it was or was not primarily caused by an explosion of gas. The history of similar occurrences elsewhere goes to show that, after the majority of gas explosions, signs of great heat and of flame are found, in the shape of coked or cindered coal-dust, charred or burnt timber, the burning or blistering of the skin of miners, and the singeing of their hair. On behalf of the Mount Kembla Company it was contended that none of these evidences were present to such an extent as to prove that flame had been an operating agent in the disaster: and, though marks only explicable by the presence of flame had been observed by witnesses, it was contended that these could have been produced by the comparatively moderate heat of the wind-blast; that they could certainly have been caused without the presence of actual flame; and that in the case of those who were injured at the mouth of the main tunnel the blistering might have been due to the steam which escaped from the fractured steam pipe. As against this, the Commission have the opinions of many intelligent, though unprofessional, eye-witnesses that the degree of burning or singeing which they noticed on the bodies of the victims could not have been caused except by flame, and the evidence of the medical gentlemen who examined the victims that a number of them were actually burnt by flame. The question was definitely settled, however, on the last day but one of the taking of oral evidence, when Mr. Lysaght (who, when he closed his case, had not supposed that the occurrence of flame would for a moment be contested) called two witnesses who testified, and whose evidence the Commission had no reason to doubt, that they had seen a large volume of flame burst from the Main Tunnel Mouth when the disaster occurred; and another witness who saw a tongue of flame shoot upwards from the old disused ventilating shaft to the East of the No. 1 Right Rope Road, with which it was in direct communication. Marks of charring

charring (said by witnesses called at this stage to have been caused by the flame that burst from the tunnel mouth) were plainly to be seen on the lining-boards of the weigh-cabin, and were pointed out to, and examined by, the members of the Commission on the occasion of their last visit to the mine; and the Company's Officers, some of whom were present, did not dispute this fact.

51. In addition to this direct evidence of visible flame seen by eye-witnesses to burst from the mine, there is strong presumptive evidence deduced from analyses made by Mr. Hamlet and Mr. Mingaye. The samples analysed by Mr. Hamlet were two, one taken from a prop in the first line of cut-throughs off bord No. 87 (the third bord to the west of No. 1 Right Main Heading), at a point about half way between the 4th Left Rope Road and the last line of cut-throughs to the north, the other from the eastern rib of No. 1 Right Back Heading, just opposite the last cut-through connecting the two headings. Mr. Hamlet found a difficulty in analysing the samples sent to him, by reason of the smallness of the quantity. No satisfactory conclusion could be drawn from the difference in the percentage of volatile hydrocarbons in the samples and in a sample of coal from the mine afterwards analysed by Mr. Hamlet; for the difference actually found (so far as it can be taken as a real difference due to distillation, and not a merely accidental variation) was only 76 per cent. (24.30 per cent.—23.54 per cent.) (*see* Exhibit No. 17); but the microscopical examination of the three samples of dust led Mr. Hamlet to the conclusion that they had been probably subjected to the direct action of flame, and that a temperature of at least 400° Fahrenheit would be necessary to produce the effect found.

51A. The evidence, however, of Mr. Mingaye (Q. 26376 *et seq.*), Analyst and Assayer to the Department of Mines, is of much greater value. He was supplied with twelve samples of coal-dust, in quantities sufficient to enable him to make satisfactory tests. The samples had been collected by Mr. Inspector Watson some short time after the accident: the respective positions in which they were found are marked by numbers on the plan (Exhibit No. 29) corresponding with those used by Mr. Mingaye in his report; and, with one exception (No. 11—from the 4th Right Rope Road), they came from various points on the No. 1 Right Main Engine Road. Taking, as he does, on an apparently sound basis, the mean amount of volatile hydrocarbons contained in Mount Kembla coal as 23 per cent., Mr. Mingaye finds in the samples losses of their hydrocarbons, apparently due to distillation by heat, varying from 91 per cent. of the whole mass of a sample as it is presumed to have been constituted before distillation (or 4.09 per cent. of the hydrocarbon originally contained in it), up to 12.96 per cent. or 56.35 per cent., respectively: the means of these two percentages of loss, taking the whole of the samples, being 5.39 and 23.43. From these facts, added to a microscopic examination, which showed clearly visible signs of coking, Mr. Mingaye unhesitatingly concluded that the particles had been subjected to flame at a temperature represented by a cherry-red heat, 700° to 800° Fahrenheit.

52. Taking all this evidence into consideration, the Commission do not consider that there is any room for doubt that flame did play a part, and a very important part, in the disaster.

53. But the question arises whether this flame was the result of the ignition of gas or of coal-dust, or of both in conjunction. In recent years it has been recognised that coal-dust has been a very important factor in Colliery explosions, and that by far the greater portion of the damage caused by explosions in mines where there was dust has been due to the ignition and explosion of the dust rather than to the explosion of the fire-damp which was first lit. The occurrence of explosions in mines believed to be free from gas has even given rise to the suggestion that coal-dust alone may ignite at a naked light and cause a disaster; and experiments have been made by scientists for the purpose of settling this question. The most notable of these were the experiments of Professor Bedson, who found that a mixture of coal-dust and air would ignite at a temperature of 291 degrees Fahrenheit. This has been quoted by a number of Mr. Wade's witnesses in support of the wind-blast theory; but they appear not to have given weight to the fact that, in his experiments, Professor Bedson applied the heat gradually, so that there was time for fire-damp to be distilled from the very
fine

fine dust (in the presence of air) which he was testing, before the actual ignition took place—and to this element of appreciable time, for the necessary condition precedent of complete chemical action, the Commission attach substantial weight; whereas, at Mt. Kembla (even if it be admitted—a conclusion which appears to the Commission wildly improbable—that the air was suddenly compressed to a tension of 35 lb. to the square inch, and that thus a temperature of over 291 degrees Fahrenheit was attained), the pressure would be at once reduced when the blast reached the Travelling Road, where there were two openings, and the heat resulting from compression would be immediately very greatly lowered by re-expansion; this reduction, continually increasing as the ejected air moved on into what would relatively be almost a vacuum, would find another outlet for further sudden relief at the junction of the 4th Right and the Main Engine Road: and, although a position in the latter road about this junction was evidently the centre of force—the dead point of destruction—quite clearly the mixture of air and dust must have passed, and fallen well below, its maximum temperature *before* that position was reached by the blast; which, moreover, as a body advancing with—according to the hypotheses—enormous, if not incredible, speed, would, by reason of the acuteness of the N.E. angle of intersection of the two roads, tend to travel to the southward; on that side, therefore, and not on the north, of the junction, the compression would rather be sustained, and the consequent ignition, if such a thing could happen, would take place—and yet this it evidently did *not* do. The Commission, therefore, do not see that there is any probability that there was, just before the disaster, any such excessive heat evolved as would, without contact of flame, cause inflammable gas to distil from the coal-dust and thereafter become ignited: so they are forced to the conclusion that the initial cause of the disaster was the ignition of an inflammable mixture of fire-damp and air about the junction of the 4th Right Rope Road with the No. 1 Right Main Level.

54. As to how this fire-damp could have been ignited, only two suggestions were advanced; that of Mr. Atkinson being that it was lit at the 4th Left Junction, at the naked light carried by the wheeler found there after the disaster; while Mr. Humble was divided in opinion between Mr. Atkinson's theory and another suggested by himself; which was that the ignition took place as T. Purcell passed across the 4th Right on his way down the Travelling Road, and that the flame then flashed through the 4th Right to the main body of gas in the Main Level. But Purcell's body was found in the Travelling Road some 23 chains south from the 4th Right; and it seems highly improbable that, if his light had been the source of ignition, he would not have been injured to such an extent as to render him incapable of walking, in the dark, and over a number of falls, so far from the scene of the explosion. Mr. Atkinson's theory, which seems very reasonable in the light of the ascertained facts, is that the lighter portion of the fire-damp was carried forward by the in-flowing air to the 4th Left Road, where it was lit at the naked light carried by Wheeler Morrison, as already stated. This the Commission believe to have been the case.

55. The next point to be considered is: Where did the fire-damp come from? It could not have come from any point on the No. 1 Main Level itself, because that is a main intake air-way. Nor could it have come in the return air along the Travelling Road, because that was separated from the Main Level at the 4th Right by canvas doors; and, though these were blown down, that destruction of the division between intake and return would require a considerable force, and there is nothing that can be suggested which could have generated such a force on the Travelling Road. The fact, however, that canvas from the door or doors (the Commission are not quite clear as to the existence of more than one) across the 4th Right between the Main Level and the Travelling Road was found blown into a crack in the coal on the opposite (western) rib indicates that a force of some kind had probably operated in the 4th Right from east to west, whereas if these doors had been blown out of place by the explosion itself they would have been forced in towards the Travelling Road, from west to east. Again, the fact that the main force of the explosion radiated from about the 4th Right Junction proves that that is where the main body of explosive gas was at the time of the ignition; and these two indications, taken together, naturally suggest that the gas came out of the 4th Right. Examinations which were made of the 4th Right showed that a large area of the roof of the

the 35-acre waste had fallen ; this being the fall of roof referred to in both the gas and the wind-blast theories ; and, for the purposes of the latter theory, it was assumed that there was a fall of an area of roof 44 yards square ; but the evidence of Mr. Leitch (Manager of Stanford Merthyr Colliery, West Maitland) who was Under Manager of Mt. Kembla up to six weeks before the disaster, gives the area which remained to fall as much less than this, being only 1,242 square yards (Qs. 22495-22528 Commission) which would be quite insufficient to develop the energy requisite to support the wind-blast theory. There can be no doubt, however, that such a fall as did occur might drive out a volume of air with enough force, notwithstanding the lateral relief it would get on reaching the Travelling Road, to blow out the canvas doors between that road and the Main Level, and so drive any gas that may have been with it out on to the Main Level ; but much doubt was expressed by Mr. Wade's witnesses as to the probability of there being any gas in the 4th Right Goaf to be so driven out. Morrison, a Deputy in the mine, stated that, a week before the accident, he went to the 4th Right, to see if the roof had fallen, and found that there was a fall of about 2 feet 6 inches in thickness, lying on the floor. He was carrying a safety-lamp at the time ; and, if gas had been issuing from the goaf in any proportion over 2 per cent. of the atmosphere, he would probably have noticed its effect on his lamp ; but, as his attention was directed, principally, to the state of the roof and the nature of the fall, and he does not appear to have had any thought in his mind of the possibility of gas, or of any danger incidental to its presence, he may even have failed to observe some slight indications that would otherwise have attracted his attention. In reply to the obvious argument that the gas, being lighter than the air, may have, even then, been present in the higher parts of the goaf, against the roof, without showing in the roadway, it was contended that, if gas had been there and if a fall would drive it out, then the fall which Morrison saw a week before the disaster would have done so. It was further pointed out that, the coal having been all extracted from the area, there was nothing in it to produce gas, the strata above and below being sandstone ; and, even while coal was being won, gas was never found in any of the 4th Right workings. As against this, Mr. Atkinson considered that there might be gas in the roof strata which would be released by a fall. This, however, he advanced merely as a likely supposition, having no means of getting at the actual facts. In support of his assumption, however, there is the evidence of Mr. T. Parton (Consulting Mining Engineer) and Mr. W. Humble, Inspector of Mines. Mr. Parton recounts how, in the sinking of the shaft of the Sydney Harbour Colliery at Balmain, gas was found in fissures and cavities of the strata 1,000 feet above the seam of coal, in some cases under such pressure as to cause the floor to lift beneath the feet of the men engaged in sinking ; but Mr. Parton did not agree with the theory that gas might exist in the strata above the seam at Mt. Kembla.

56. Mr. Humble, whose evidence has been summarised in paragraph 48 of this report, deposed to the finding of 1 per cent. of fire-damp with the hydrogen lamp on the top of the fallen stone at the entrance to the goaf from the 4th Right, four days after the disaster, by Mr. McGeachie in his presence. Mr. McGeachie (who had taken no notes) denies this. There is a conflict of evidence here—perhaps it is better to call it a conflict of recollection : but, taking into consideration all the circumstances (one of which is the important fact that Mr. Humble's notebook contains an entry of the finding of the gas), and bearing in mind that, at the time the discovery is said to have been made, the importance of the 4th Right in relation to the origin of the explosion had hardly begun to dawn upon the minds of the inspectors (so that the discovery in this particular place of so small a percentage would be likely to be regarded by them as a comparatively trifling incident), the Commission have come to the conclusion that Mr. Humble's account is correct.

57. Heron's evidence, also, suggests that it is possible (though the Commission do not think it is probable) that gas may have been given off even from parts of the floor of the goaf, either from "false bottoms" or from the strata separating the two seams, in which the upward curvature known to be commonly induced in the course of taking out the pillars, by unequal distribution of weight, would naturally have caused cracking. It may also be inferred that a splitting of the roof, due to downward curvature, must precede every ordinary fall. Approximately, the lowest pressure of air (in changing barometrical conditions), at the elevation of the Mt.

Kembla workings, may be put down at 14 lbs. to the square inch. In the absence of partial detachment of a stratum of rock, allowing air pressure to operate *above* the stratum, this pressure would, by itself, hold up 123 feet perpendicular of the roof, even taking the specific gravity of the rock as high as 2.66 (2 tons to the cubic yard). In addition to this, there is the tensile strength of the material, capable of sustaining several feet more, as well as the lateral attachment. As long as the over-weight remains absolutely rigid, no fall of less thickness than considerably over 123 feet can begin; unless—a far-fetched suggestion—interlaminated hydrostatic pressure, or gas in a state of high compression (inconsistent with the no-gas hypothesis), were assumed to operate downwards against sustaining air pressure. It seems, therefore, almost self-evident that when, as commonly happens, and as had, shortly before the disaster, happened in this case, a fall of a few feet in thickness occurs, curvature (starting, it may be, even at the surface, where overhead air pressure operates, or, perhaps due to general rock expansion) must have begun, imperceptible though it may have been. This would almost certainly be accompanied, in such a slightly elastic mass, by cracking; and, as experience shows does actually always happen, the rock would fall, not in a solid sheet, but in what may be called a storm of broken stone. Shortly before the fall, and during its continuance, gas, if contained in the strata, would be extruded: the air, driven out with violence proportionate to the suddenness of the fall, would be, in part, forced upwards through the avalanche into the cavity above and would finally carry out with it a portion of this gas. So that, in the result, whatever gas had collected in the hollow roof left by the first fall would almost all be forced out, and would be supplemented by part of what was released by the second fall. Of course it is not known what the thickness of the second fall was; and the action of the management in sealing up the 4th Right prevented the Commission from making a much-desired examination.

58. The above considerations, as well as suggesting sources of gas, go to show the absurdity of the hypothesis that the roof can have come down instantaneously in one solid sheet that drove out in a moment (half of it through the 4th Right Rope Road and half in other directions) the whole bulk of underlying air, generating a blast compared with which the worst-known tornado would have been a trifle, and which, if it had taken place, would have left the orifice through which it rushed a shapeless wreck.

59. Therefore, considering all these circumstances (*viz.*, that the seam generally gave off fire-damp; that the explosion was initiated by the ignition of that gas; that there was a large fall of the roof of the 4th Right Goaf; that this fall did force out a blast of air with sufficient force to blow out the canvas door or doors between the back and front headings; that the centre of the explosion was in just such a position as would be reached by gas if that gas were forced out with the blast of air into the Main Heading through the 4th Right); and considering the expert evidence of Mr. Atkinson, together with the actual finding of gas in the Goaf by Mr. Humble after the explosion; and the fact that the Commission themselves found the Mount Kembla seam generally to be giving off gas; the Commission have come to the conclusion that it is reasonable to assume that the fire-damp which was the primary cause of the disaster came from the 35-acre waste, though of this there is no positive proof.

60. The fact, however, that gas was never before found in the 4th Right Workings, or in the Goaf after the workings were completed, seems to indicate that there could not have been a very large volume of gas there to be driven out; and it is almost certain that the explosion of such a volume as the Commission deem it reasonable to suppose was driven out could neither have caused all the exhibitions of force seen in the mine, nor have operated over so wide an area as was affected. This, at first sight, would seem to be a difficulty in the way of the conclusions at which the Commission have, so far, arrived. Another circumstance which would also appear to be difficult to reconcile with the Commission's conclusions is the fact that, though, as a general rule, the indications showed the force of the explosion to have operated from the 4th Right outbye to the tunnel mouth and from the 4th Right inbye to the face, there were several indications of energy having been exerted in directions contrary to or
inconsistent

inconsistent with such a force. It is, however, a well-known and widely-accepted fact that, where coal-dust has been a factor in explosions, the evidences of force have generally been found to be contradictory in character; and thus, where contradictory indications of force are found, it is reasonable to deduce, conversely, that they have been caused by the ignition and explosion of coal-dust. This consideration led the Commission to carefully examine the evidence as to the nature, composition, and explosibility, of the Mount Kembla coal-dust. As already pointed out by the Commission when describing the mine, the dust is not, like that of the Metropolitan Colliery, a very finely-divided powder; and it does not, unless disturbed by some violent motion of the air, rise, nor, when it has risen, does it remain long suspended. While, however, in relation to its state of mechanical division, Mount Kembla dust is much less likely to assist in, or carry on, an explosion than the Metropolitan dust (and this conclusion seemed to be strongly borne out by the results of the experiments made by the Commission, *vide* pars. 30766-30769 of the evidence); still, chemical quantitative analysis has shown that it contains a much larger amount (over 23 per cent.) of volatile hydro-carbons than is found in the Metropolitan dust (18.4 per cent.). Moreover, the tests made at Woolwich in December, 1901 (*vide* p. 75 Inquest) show that Mount Kembla dust stands relatively high in explosive force, giving rise to what is described in the report as "violent explosion," while the expression used in relation to the Metropolitan dust is "explosion." The probability is that these tests were so carried out as to allow the excessive inflammability due to the presence of this high percentage of hydro-carbons to have full play, the instantaneous combustion required for explosion being very thorough: and it is a reasonable conclusion that, if an initial explosion caused by the ignition of fire-damp, mixed with some fine dust and an appropriate quantity of air, were violent enough to represent fairly the conditions of these Woolwich experiments, there well might follow, in spite of the comparative heaviness and low divisibility of the Mount Kembla dust, a most destructive and long-sustained series of dust explosions. This, indeed, is what the whole trend of the evidence before the Commission leads them to conclude has been the case in the disaster at Mount Kembla, and disposes of the difficulty before stated, by explaining how the explosion of a relatively small quantity of fire-damp in the atmosphere of the No. 1 Main Level at about the 4th Right Junction started a series of explosions of coal-dust, which penetrated a large portion of the workings, and travelled right out, with apparently unabated force, to the Tunnel Mouth. That the conditions would be favourable to such an ignition and explosion of coal-dust there can be no doubt; for the blast of air forced out from the 4th Right was, without doubt, sufficiently violent to raise and diffuse a cloud of dust from floor, roof, and sides; this would be ignited by the explosion of the fire-damp, which would raise a further cloud of dust; and so each explosion would, in turn, raise supplies of fuel which would ignite in such quick succession as to be practically one instantaneous explosion, receiving fresh accessions of force as it reached fresh supplies of oxygen in the air-courses which it passed or traversed on the routes which it took.

Cause of Disaster shortly stated.

61. The Commission having thus traced the course of their reasoning, the conclusions at which they have arrived may now, for convenience, be shortly summarised as follow:—

62. A fall in the 35-acre Waste drove an inflammable mixture of fire-damp and air down the 4th Right Rope Road to the No. 1 Right Main Level with sufficient force to cross the Travelling Road without distributing itself in that road to any great extent, and to blow out a canvas door (or doors, as to which there is a doubt) between the two headings. The mixture, driven, in a state of compression, into the Main Level, with a tendency (due to the angle at which the 4th Right meets that road) to travel rather outbye than inbye, met the intake air current; and, its forward movement thus retarded and its momentum quickly reducing, its centre came to be about the 4th Right Junction. The northern extremity of the mass, spreading
inbye

inbye along the Main Level, first reached the wheeler's light at the 4th Left in an over-diluted state; but, as soon as a mixture rich enough to burn came in contact with the light, a flash of flame ran back, starting the destructive action by communicating the ignition to the whole body (which was made more violently explosive by the presence of coal-dust raised by the first blast). Thus the centre of force showed itself at the centre of the explosive body, and not at the point of ignition; though there is a prevailing and natural, but the Commission believe erroneous, inclination to assume that in such cases the force must necessarily radiate from this point. The fire-damp and air exploded; and, in turn, started a series of explosions of coal-dust, which wrecked a large portion of the mine, and killed a number of the miners. These explosions of fire-damp and coal-dust generated a large quantity of carbon-monoxide; and it was this deadly constituent of the after-damp of the explosion which caused the death of by far the larger number of the victims of the disaster.

Verdict of Coroner's Jury and Finding of Commission Compared.

63. This conclusion, it will be seen, is at variance with that at which the Coroner's Jury arrived. The Commission would have been only too glad to accept that finding as a true solution, if they had not found very good reason to depart from it. So far as the verdict gives a gas explosion as the primary cause of the accident, the Commission consider it to be correct. The expression "accelerated by a series of coal-dust explosions" has apparently been used by the Jury in the sense of "aggravated," or "intensified," or "continued," by a series of dust explosions: as these explosions necessarily followed and did not precede the moment of initiation of the catastrophe (being the effects, and not one of the causes, of its origin) they cannot have accelerated it, though they certainly might add to its operation. But, in so far as the Coroner's Jury fixed the origin "at a point in or about the No. 1 main level back headings" (a conclusion which the finding seems to intend, and not merely that the gas explosions started from thence), the Commission cannot but think that this part of the verdict was mistaken; but they recognise the fact that the body of evidence upon which it was founded stood, at that time, much less weakened than it had been, at the time of the Commission's Inquiry, by Mr. Cambage's careful and exhaustive examination. There were arguments appearing at the time of the Coroner's Inquest in favour of one view that were, later, completely answered by the overpowering evidence of the direction of force—a force relatively too great to be taken as secondary—going to prove the other contention at the time of the Commission's Inquiry: so that, in departing from the verdict of the Jury on the question of origin, the Commission feel—and they wish this to be clearly understood—that they in no way reflect on, nor have they lightly regarded, the conclusion carefully and honestly arrived at by the tribunal properly entrusted with the duty of attempting to discover the truth. And, after all, in expressing their own view, the Commission say no more than that their finding is, after the fullest consideration, the explanation they think most probably consistent with truth—certainty is quite impossible to attain, in the face of such remarkable, and in many cases inconsistent, conditions. Few of the expert witnesses who gave evidence at the Inquiry as to the place of origin, based upon an examination of the operation of the forces, were called at the Inquest. Although Mr. Atkinson had made his inspections, he had not then the assistance of the plans afterwards prepared, showing the directions in which the force of the explosion operated, and had not had time for mature consideration of the observations he had made; so that, though he had more than a suspicion that the seat of the disaster was to be found near the 4th Right Junction, he was apparently unduly influenced in his judgment by the discovery of such a large quantity of fire-damp in the No. 1 Right Front and Back Headings at the face; and was thus led to incline to that locality.

Does blame attach to any Person or Persons? In other words, has the Negligence of any Person Caused, or Contributed to the Cause of, this Disaster?

64. One of the directions to the Commission is to "ascertain whether blame attaches to any person or persons" in connection with the disaster, "and, if so, to report the person or persons to whom the blame attaches." This has been the subject of careful and anxious consideration. During the Coroner's Inquiry the fact was elicited that Special Rule No. 10 of the Mount Kembla Mine (which has, under the Coal Mines Regulation Act, the force of law) regarding the examination of waste workings, had not been strictly complied with. The rule provides that :

He (meaning the Deputy) shall, at least once in every week, examine, so far as is practicable, the state of the waste workings and make and sign a true report of the state thereof in a book kept at the office for the purpose.

When under examination, John Morrison, the Deputy in charge of the No. 1 Right District of Mount Kembla, stated that he made the examinations of the 35-acre waste and the other wastes in his district once a month, not once a week, as required by the Rule (pp. 16, 28, Inquest). He did not consider it reasonably practicable to examine the waste workings every week : he could not say who fixed a month as the period in which the waste workings were to be examined. His superior officer, Mr. Nelson, Under-manager, (one of the victims of the disaster) told him when the inspections of waste workings were to be made (pp. 17, 29, Inquest). He had only made two monthly inspections of the waste workings (p. 29, Inquest). He had only held the position of Deputy for nine weeks when the disaster occurred (p. 13, Inquest). (See also Qs. 11625-11631, 11748-11754, 11755-11777, 11810-11835, 11858-11880, 11895-11936, 12030-12056, in evidence before the Commission.)

64A. This evidence shows clearly that Special Rule No. 10 was not being complied with, as the wastes (or goafs) were not examined once a week. The only explanation that Mr. Rogers could give was (Qs. 25610-25614, 25624-25627, 25659-25661, 25661-25664, 25666-25667, 26212-26214, Commission Evidence), that he understood the rule to mean that, if it was practicable to examine the goafs once a week, it should be done ; and, as he did not consider that practicable, he had them examined once a month.

65. This is a strangely mistaken interpretation of the Rule, which, of course, means, and clearly enough expresses the meaning, that waste workings shall be examined once a week, to such an extent—for instance, as far into the fallen ground—as "practicable" : a word that is equivalent to "physically possible as well as reasonably safe." How the rule came to be so erroneously read in the first instance does not appear : indeed, it seems hardly possible that any careful and fairly educated man could make such a mistake. Still, assuming that Mr. Rogers, whose literary attainments are not of a high order (English not having been his native language), whatever may be his practical experience, found the error accepted and acted upon, he could perhaps hardly be censured for allowing its continuance : but, when it was actually, as the Commission believe it was, brought under his notice by Mr. Leitch (vide Qs. 22628-22650, Commission Evidence—Mr. Rogers' denial, Qs. 25661 &c., is so vague that the Commission accept Mr. Leitch's account as substantially correct), and Mr. Rogers justified himself by saying in effect that the rule was being substantially obeyed "because he was examining the waste workings every day"—an examination which cannot possibly, if it could be said to be an examination at all, have been more than superficial—the Commission think Mr. Rogers certainly deserving of censure. As to Morrison, however, it seems unfair to impute any appreciable blame to him for practically obeying the orders of his superior officer.

66. The disclosure of the fact that the 4th Right Goaf (the 35-acre waste) was not examined once a week naturally led Mr. Lysaght to suggest that this neglect had contributed to the disaster. The last of the regular monthly examinations was made by McMurray and Morrison on the 19th of July : the disaster occurred on the 31st. Morrison, however, states that he went in and examined about the 24th, 30th, and 31st, of July, notwithstanding that he had made his monthly examination on the 19th, because about that time the workings in the 4th
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Right were finished, the props were withdrawn, and he was expecting the roof to fall. There was some confusion in Morrison's evidence as to how the monthly examinations were made (pp. 15, 16, 17, 18, 19, 20, 28, 29, Inquest). The roads leading to goafs are fenced off; and no person, except an official on duty, is allowed to go past these fences. Morrison at first said that, on examining at the 4th Right and other goafs, he did not go inside the fences (p. 16, Inquest). This would, obviously, not be a compliance with the rule. But later in his evidence he said that he did go inside the fences, and right up on to the fallen stone at the edge of the wastes, as far as it was possible and safe to go (p. 18, Inquest). (Q. 11750). Regarding this examination on the 19th of July, Morrison stated that he and McMurray used naked lights (p. 16, Inquest); they did not expect to find gas; they did not look for it; but they would have found it with their naked lights if it had been there (p. 17, Inquest). Later, Morrison said he did look for gas; and that he put the lamp into the waste to look for gas (p. 17, Inquest). When before the Commission, he said that he used a flare-light in making the monthly examination of the wastes: the first time he took a safety-lamp, Nelson laughed at him and told him that he (Nelson) always went with a naked light (Q. 11753): yet the next day Morrison said, "I did not go in the 4th Right with my flare-light." (Q. 11880, Commission). Respecting the examinations of the 4th Right Waste after the 19th of July, Morrison states that a few men were at work there up to about 7, 8, or 9, days before the disaster; these men were withdrawn, and the props taken out in order to let the roof fall; and he went in the next day to see if the roof had fallen, for his own satisfaction (pp. 16, 17, Inquest). Mr. Rogers, after having had an opportunity to refer to written records, stated that the date on which the men were withdrawn from the 4th Right pillars, and the place was fenced, was the 18th of July (p. 45, Inquest); so that the examination which Morrison made the day after the men were withdrawn would be that of the 19th of July already referred to. But, in his account of the examination made "about seven days before the disaster," Morrison adheres consistently, in spite of cross-examination, to the statement that he went in with a safety-lamp (pp. 17, 18, Inquest); whereas he had previously asserted, with almost equal assurance, that he had only a naked light with him when examining on the 19th of July (pp. 16, 17, Inquest). (Qs. 11752-3, Commission). It therefore appears probable to the Commission that Morrison has confounded in his memory the circumstances of two examinations, that made on the day after the men were withdrawn (19th of July), and another which he seems to have made about the 24th of July.

67. As to whether, when he examined the 4th Right Goaf about the 24th of July, Morrison made the usual test for fire-damp with his safety-lamp, the evidence is not absolutely definite. He said several times that he went in to see if the roof had fallen (pp. 16, 17, Inquest), that he went inside the fence; found there had been a light fall; but did not go on top of the fall (p. 16, Inquest). He was not supposed to go inside the place; but he did so, to see how the roof had fallen (pp. 16, 18, Inquest). It was on this occasion that he found black-damp (p. 18, Inquest). It would, considering all the evidence, appear to be probable that, on this occasion, Morrison's sole object in visiting the 4th Right was to ascertain whether the roof had fallen, and that he did not test for gas; though, if any large quantity had been present, it would have forced itself on his attention by the effect it would have had on his light. It might, however, have been possible for less than $2\frac{1}{2}$ per cent. of gas to be present in the air at that part of the mine, and not be discovered by Morrison.

68. In addition to making the examinations of the 4th Right already described, Morrison states (p. 15, Inquest) that he went there with a safety-lamp on the 30th and 31st of July (the latter was the day of the disaster); but there is much doubt whether this was really an examination of the waste or merely an examination of the road leading to the waste (pp. 15, 16, Inquest).

69. The Commission are thus led to the conclusion that, not only were the wastes not examined once a week as required by the Rules, but even the monthly examinations, being made with naked lights, were of no use for the purpose of detecting the possible danger of the presence of a small percentage of fire-damp; and it is very doubtful whether the examinations made on the 24th, 30th, and 31st, can be considered to amount to a virtual compliance with the Rule.

70. The conclusion reached by the Commission as to how the disaster was caused, however, is consistent with the presence of fire-damp in the higher parts of the goaf, not in the 4th Right Road; and it was clearly not incumbent upon Morrison, nor could it be expected of him, that he should (on the 19th of July) go under a large area of roof from which the props had been withdrawn, or (on the 21th, 30th, or 31st) that he should, in order to make his examination, go over the $2\frac{1}{2}$ feet fall, in view of the fact that the whole of the stone was hanging and likely to come down at any moment. It does not appear probable, therefore, that, even if the waste had been carefully tested once a week with a safety-lamp, the disaster would have been averted.

71. Whilst the Commission consider that Mr. Rogers has been guilty of a grave irregularity in allowing the provisions of Special Rule 10 to remain uncomplished with, and thus permitting so lax and ineffective a series of examinations of this particular waste, still they cannot say that this irregularity actually contributed to the disaster. And, however exactly weekly examinations might have been carried out in conformity with the rule, it is abundantly clear from all the evidence that, in the making of all such examinations, the presence of fire-damp, as an appreciable element of danger, was so far ignored that there would have been hardly any, if any, difference between the weekly examinations and those which Morrison did actually make. The reputation of the mine, as one free from gas, led to this mode of action. All other possible sources of danger were kept in view: but gas, though no doubt not quite forgotten, became a relatively remote consideration. In a grave degree this appears to be the fault of the system provided by law for the detection of gas (mere verbal reporting on the part of miners who discover it, and tests made only with the safety-lamp); and of the law which allows many mines, even though known to be giving off some gas, to be worked with naked lights. What, in the opinion of the Commission, is the obvious remedy is suggested in the next section of this report. In connection with this subject, the Commission think it is much to be regretted that the fact that Special Rule 10 was not being observed escaped the notice of the Government Inspectors, whose duty it was to see that the Rules were properly carried out and to draw the Manager's attention to any omission, and also to report it to the Chief Inspector for such action as he might consider necessary. If the Inspectors had made the discovery, and had carried out their duties properly in this respect, the misinterpretation of the Rule would have been pointed out to Mr. Rogers, and he would, the Commission are sure, have taken steps at once to see that it was strictly observed.

72. The Commission cannot, however, leave this subject without drawing attention to a serious defect in the method of making the regular examination of the goafs; and the use of naked lights in doing so. This, though, strictly speaking, within the limits of the law, is a reprehensible practice; and the Commission have, therefore, included among their recommendations one to the effect that *all* examinations in mines, including those worked with naked lights, be made with safety-lamps.

73. At this point the Commission would draw attention to the fact that, up to quite recently, the examination of wastes has been singularly neglected in mining legislation: in fact, until the report of the Court of Investigation into the Stockton Accident, in 1897, containing certain recommendations on the subject, brought it prominently under the notice of the Department, it was a question that was generally ignored. This Commission, seeing its great importance in relation to safety from explosions ("goafs" being liable to act as most dangerous reservoirs of undiscovered fire-damp and other explosive or noxious gases), now strongly urge legislation on this subject (*vide* suggestion No. 4, post).

Alleged Breaches of the Law.

74. During the course of the Inquiry a number of statements were made as to alleged breaches of the Mining Act or of the Rules framed thereunder, in addition to that mentioned in the preceding paragraph. It was not suggested, however, that any of these failures to observe the law contributed to the explosion. Most of the statements referred to may be dismissed from consideration so far as they are in the nature

nature of charges directed against persons now dead—victims of the disaster. But the statements of four witnesses refer directly to David Evans, who was a deputy at Mt. Kembla before the explosion; and, in a second matter, there are the statements of Mr. Rogers and Deputy Morrison with reference to their own actions. These are treated in order, but cannot be absolutely separated.

75. 1st. Regarding David Evans: in paragraph 48 of this Report the evidence of witnesses Broadhead, Smith, Sells, and Brownlee, is quoted; and each of them testifies that the discovery of gas was reported to Evans, who, at the Inquest, had stated that no report of gas had been made for the past five years. Brownlee's evidence may be put on one side, as it refers to something that occurred ten years ago, and Evans admitted at the Inquest that the discovery of gas was reported to him ten years ago, and says that he reported it in a book in accordance with the law. Not much reliance can be placed on Broadhead's statements, on account of their peculiar and contradictory nature. They are denied by Hopkins and by Evans, and may fairly be dismissed from consideration. The evidence of Sells and Smith refers to reports said to have been made to Evans, eight and six months respectively before the disaster, as to the discovery of gas; but in each case the gas was lit by the miners' lamps on their return to the face after firing powder-shots; except on one occasion, when Sells says that Evans expressed the opinion that something oozing from the coal was gas. On the whole, the Commission is inclined to the belief that Evans was rather lax in his treatment of what information he did receive, information that should have put him upon diligent inquiry as to whether the mine was or was not giving off gas in sufficient quantity to be a possible cause of danger. He seems to have been under, and to have been only too ready to disregard anything which might tend to dispel, the prevailing and almost universally accepted impression that Mt. Kembla was a mine practically free from fire-damp. He may have believed, but he could not possibly be certain, that the gas, the lighting of which was reported as following shots, was "powder smoke": but his expressions, narrated by the witnesses, do not bear the construction that he felt by any means assured of this. Even by itself, and much more so when coupled with such a very suggestive phenomenon as a buzzing or humming of something from the coal, the reported lighting of gas should have put him on inquiry, which he does not appear to have made: and he certainly should have acquainted the Manager with what he had been told, and what he had himself noticed; yet this too he seems to have neglected. If the occurrence was important within the meaning of Special Rule 11, which reads thus:—

In the Under-Manager's absence, he (the Deputy) is empowered to act on his behalf, and shall report any important occurrence, disobedience, or violation of rules, on the part of any employee, to the Manager or Overman. In the absence of a Lampkeeper, he shall see to the condition of any safety-lamp that may be in use in special cases; and in this he shall carry out the instructions of the Manager or Under-Manager.

he should have reported it to the Manager; although it is rather difficult for anyone, and it may have been specially so for Evans, to understand exactly what this rule does mean. But, apart from any special provision, common-sense dictates to a Deputy the propriety of informing someone higher in authority of any occurrence that may suggest danger from explosive gas, especially in a mine worked with naked lights. It is impossible to say that any more vigilance on Evans' part would have led to the adoption of means whereby the catastrophe might have been averted: probably it would not: probably nothing would have resulted beyond perhaps a little more constant attention to the brattice: still, Evans' laxity was a factor in the conduct of the mine which calls for comment.

76. It is painful to question the conduct of other officials whom the disaster has deprived of the power of vindicating their actions: but, if Evans' too easy mode of doing his duty was a prevalent feature in the management, a conclusion to which the evidence would appear to point, this is a state of things very much to be deplored, and one that seems to reflect upon Mr. Rogers in his position as Manager. But, though the Commission cannot but suspect that greater vigilance in connection with this one most vital question of fire-damp ought to have been exercised, and enforced at headquarters, the Commission do not think they can reasonably draw the conclusion that, in the then history of mine explosions and the accepted mode of regarding precautions, a change to the use of safety-lamps would have resulted from a fuller recognition

recognition of the possible danger of explosion. This giving up of naked lights is the only change in management that would have been likely to avoid the disaster: it can be said with almost absolute certainty that it would have prevented it. But all concerned—the officers of the mine, from the Manager down, as well as miners and workmen—were living in what the event proved to be a fool's paradise. The tradition of immunity from accident for many years: the universal belief—it might almost be called faith—in the exceptional safety of the mine: the fixed idea that the comparatively new furnace shaft, constructed at great cost, had power more than enough to sweep away any little gas that such a harmless seam might happen occasionally to give off, even though the workings extended much farther than they yet had grown: this atmosphere of confidence in which he moved, never doubting that it was well founded, explains Mr. Rogers' mental condition of security, tending to laxity of control. It is the opinion of the Commission that, from his own point of view, he was under the honest belief that he was doing his duty well; that he was managing the mine to what seemed to him to be the very best of his ability; and that, when the awful blow fell, it was to him a horrible surprise, beyond his power to explain. He cannot, in the light of what he then saw and heard, have avoided the impression, certainly at the first, that there had been a gas explosion, whatever he may have imagined at a later stage, by way of explanation of the disaster: but neither he nor anyone else—no Inspector, assuredly, who knew the mine, personally or by repute—dreamed beforehand of the possibility of a gas or dust explosion in Mount Kembla Colliery: and, as the Commission find, the combination of circumstances, including the quite unlooked-for accumulation of gas, was so peculiar and unprecedented as to be almost beyond the reach of the clearest foresight: no one could be expected to anticipate that so many unforeseen conditions would exactly fit together to lead to so terrible a result. Therefore, on this question of want of diligence in dealing generally with the search for gas, the Commission cannot go so far as to say that either Deputy Evans or Mr. Rogers, the two on whom alone a suggestion of culpability in this relation might possibly be supposed to fall, is to blame for the disaster, or that any negligence of theirs actually contributed to its cause.

77. 2nd. Regarding Mr. Rogers and Mr. Morrison—Standing Places not examined in Daily Inspections.—At the time when attention was specially directed to the No. 1 Right Back-Heading face as the locality where the explosion originated, particular interest naturally attached to the fact whether or not that place, and the face of the Front Heading, had been regularly and properly examined for the presence of inflammable gas. Mr. Rogers was questioned at the Coroner's Inquiry, and stated (*vide* pp. 40, 41, Inquest):—

Morrison inspected up to the fence at the very end of No. 1 Right. No one had examined the two faces right up to the end of No. 1 Right on the morning of the 31st of July. The fence is about 30 or 40 yards from the extreme face. That 30 or 40 yards would not be inspected on the morning of the 31st of July by anyone. . . . There was no reason for not inspecting the 30 or 40 yards beyond the fence at the top of No. 1 Right, except that there were no men working there.

The fence at the top of No. 1 Right was put there because there was no one working up there: the bratticing was up to the face of that place. . . . No. 1 heading had been standing for six or eight months because it was far enough for the cut-throughs . . . to go into it.

78. Mr. Morrison, the Deputy in whose district these two headings are situated, admitted (Qs. 11230–11253, 11734, Commission) that Mr. Rogers' evidence, as quoted above, was correct. He stated, further, that he had only once been up beyond the fence across those headings (Qs. 11236–9) and that was some weeks before the disaster, when he had just newly started as Deputy. [*Note.*—Morrison was appointed as Deputy nine weeks before the disaster.] Nelson, the Under Manager, however, Morrison stated, told the latter on the 21st of July that he had examined these headings on the 19th.

It was understood, Morrison said, that he had not to examine the place. His examination was the examination of the working places: the man who was there before him did not examine it; and this man showed Morrison how to examine the places. These two facts led him to believe that he had not to examine that place (Q. 11277).

When his attention was drawn to Special Rule 9 (*vide* p. 63, Inquest) Morrison said he was authorised by Mr. Nelson when he first started not to make a report on any place except the working places (Q. 11448). From the date of his appointment

appointment to the date of the disaster he (Morrison) never, in the morning examination, inspected any place that was not being worked (Q. 11452). There were nine or ten places in the No. 1 Right District not being worked, which he did not examine. He would not admit that, because he had not examined these standing places, he had failed to carry out his duty under Special Rule 9; because he had examined all the "working places" (Q. 11463). He did not know anybody who was supposed to examine standing places (Q. 11469). These places would not be examined when he examined the old workings (wastes). He was told what to examine. He had no instructions to examine those places (Qs. 11734-11740, 11828-11858, 11889-11894, Commission).

79. Mr. W. Hay, Clerk and Weighman at Mount Kembla, stated to the Commission that, being desirous of obtaining experience in the detection of gas before submitting himself for examination, he went with Mr. Nelson on his inspection on a pay Saturday, when the furnace was out, and the ventilation, consequently, at its poorest, to try to find gas. They went to the highest portions of the mine—among others, to the No. 1 Right—but found none (Qs. 21541-21986). Mr. Hay was in some confusion as to the date; but it was between the 13th and 19th of July.

80. Mr. Rogers, when examined before the Commission, stated: That Hay asked his permission to go round with Nelson looking for gas, and afterwards informed him that they had been to a number of places, of which No. 1 Right was one (Qs. 25515-6, 26102-6, 26113-26129).

This inspection, however, said to have been made by Mr. Hay, does not appear in any report; and the Commission are very doubtful as to whether there has not been a mistake about it—whether such an examination was actually made at that particular place or not. But, even if it did take place, it would be of such a casual nature as by no means to comply with the practice which, whether it can be said to be prescribed by any special rule or not, the Commission are strongly of opinion should be made compulsory, namely that these standing places should be examined daily.

Questioned as to his knowledge of Morrison's practice in making examinations, Mr. Rogers stated that "Morrison would not examine only working faces. That is the Deputies' practice, to examine all working faces." The places not working would be examined when the monthly examination was made. That would not be the only time when such a place would be examined. The Underground Manager would go there to examine it; and perhaps he (Mr. Rogers) would go there to examine it. The Under Manager would go there on making his rounds—there was no rule about it. They had no stipulated time when such places would be examined. (Qs. 26323-26335, 26754-26760.)

81. Special Rule No. 9 of Mount Kembla Colliery reads as follows:—

He (meaning the Deputy) shall make a true report of, and enter and sign *daily*, in a book, . . . the state of the mine roads, doors, stoppings, brattice, faces, and ventilating appliances, . . . and shall continually during his shift inspect the working faces, roads, doors, brattice, and ventilating appliances.

82. This rule, carefully read, seems to include as a subject for examination the faces of what are called "standing places"—*i.e.*, places that are temporarily, or even permanently, put out of work, lying on the intake side of, or otherwise practically associated with, actual working places. Considering the collocation and order of the words, and in the light of common-sense, such places, especially where, for some reason, the air is actually led past the face by brattice on its way to working places, would appear to be included; and it would naturally be supposed that any ordinarily intelligent man would so read the rule. Further, even if he did not read the rule to expressly include such places, it would, in the exercise of his general duty (which requires him to apply to his work reasonable care and intelligence), be incumbent on any officer having charge in or of a mine to exercise as much and as constant vigilance in inspecting a face past which intake air is led, or supposed to be led, as would be proper in seeing to an actual working face. The Commission cannot but characterise the omission to make a daily examination of such faces as at least very bad management; and they regret to have found the practice prevailing at Mount Kembla. The Rule, however, is so vaguely worded that it may well be mis-read;

mis-read; and perhaps some competent authorities would even hold that the reading here condemned, excluding such standing faces, was, on the wording, the correct one. Certainly Deputies might actually be misled by the Rule, acting under the illogical belief that what is not specifically prescribed is therefore, though obvious y expedient, not to be done. These considerations may have some little weight in palliation of the stupid course adopted at Mount Kembla. At any rate, the Commission, holding on this point a strong opinion, not only that the Rule should have clearly expressed what the Commission believe it intended, but that it should be given what may be called the primary force of law, instead of being left for adoption as a Special Rule at the choice of the Management or of the Department, have made the recommendation to be found on paragraph 108 of this Report.

83. So far as the disaster is concerned, however, the Commission, finding, as they do, that the initial explosion was at the 4th Right Junction, and seeing no reason to suppose another gas explosion at the face of No. 1 Back Heading, do not find any direct connection between the practice they are here condemning and the catastrophe itself.

Prevention of Colliery Explosions in Future.

84. The terms of the instructions issued to the Commission lay upon them the duty of reporting how such explosions can be averted in future; and, in considering this question, the first point that strikes the Commission is that a serious explosion of fire-damp occurred in a mine which was generally believed to be free from such inflammable gas. Though many miners now come forward and say that they have seen fire-damp in the mine, several of them admit that they did not report the fact; some giving as the reason for such culpable neglect that they did not consider the quantity they saw was dangerous; others giving no reason at all. This terrible disaster emphasises the conclusion, to which other similar accidents in this State, as well as elsewhere, have pointed, that no quantity of fire-damp, however small, given off in a mine can be neglected with impunity. It would also seem that, though reports are said to have been made to officials that gas had been seen, the information was not passed on to the management, on whom lay the responsibility of taking steps to minimise the obvious possible danger. The weakness in the present state of the law, which operates only through special rules made by each mine, appears to be that reports made to officials need, at present, be only verbal; and the persons who make them have no means of knowing whether they are recorded in the report-books as provided by law, or otherwise brought before the Manager; while the Manager has no means of knowing that gas has been discovered, unless it is recorded in the Deputies' report-books. In order to bridge this gap, the Commission have included amongst their recommendations one to the effect that miners who discover gas, no matter how small a quantity, shall be required to make a verbal report of the fact to the nearest official, and then to go and make a *written* report in a book kept for the purpose. So that as much facility as possible may be afforded to miners to do this, it is recommended that books for the purpose be kept at each Deputy's cabin underground. It is further recommended that any official to whom such report may be made shall communicate the fact to the Manager or Under-manager by the quickest available means (by the mine telephone, or by messenger, or personally), and that the written report shall afterwards be shown to the Manager. If this recommendation be adopted, it should not be possible for a mine to give off fire-damp in such quantities as to be forced on the notice of the miners without the Management also being aware of it; especially if a substantial penalty be provided for a breach of the law in this respect.

85. Another weak point in the practice is that, in the official inspections of coal mines, the duty of searching for fire-damp, the most important duty of the Deputies in relation to the safety of life and property, is carried out with an instrument (the safety-lamp) which will not, generally, detect the presence in the air of the mine of a proportion of fire-damp less than $2\frac{1}{2}$ per cent. (some of the best lamps, however, with mineral oil, will detect as low as $1\frac{1}{2}$ per cent.), whereas this disaster proves (as several explosions have shown before) that a much less proportion than this may be given off regularly, and may not be discovered because of the
inability

inability of the ordinary safety-lamp to detect it; but yet that this small proportion may, under favourable circumstances (which are bound to occur, some time or other, even in the best-managed collieries), accumulate, and be a source of serious danger. In the hydrogen-lamp, science has provided an instrument so delicately sensitive that, not only will it detect with certainty a proportion of fire-damp in the air as low as .5 per cent. ($\frac{1}{2}$ per cent.), but that with it a well-trained observer may detect even a proportion of .25 per cent. ($\frac{1}{4}$ per cent.). There are, however, several very good reasons why this lamp could not be recommended for ordinary every-day use in mines; the principal being that, in the hands of any person, however careful, but more particularly one not specially trained to its use, it may become a greater danger to him and to others in the mine than the gas for which he is searching. The hydrogen with which the lamp is supplied is stored in a cylinder at a pressure of 1,500 lb. to the square inch, and is highly inflammable; and a slight turn too much of the screw which regulates the flow would allow the hydrogen to escape in such a quantity as might, with the great pressure behind it, force the flame through the gauze of the lamp, and so at once, if the fire-damp for which search was being made were present, cause an explosion. Other reasons against the every-day use of the lamp are the high cost of the hydrogen, the fact that supplies cannot at present be obtained in Australia, and the great difficulty of obtaining them by importation. Nor do the Commission think it necessary that the ordinary examinations for gas should be made with the hydrogen-lamp: for ordinary purposes the safety-lamp is considered by all authorities to be sufficiently sensitive. But the Commission do, after mature consideration, strongly recommend that the management of every mine be required to have as many as 30 separate tests made, at least once in every three months, with a hydrogen-lamp, in the principal winning-out headings, waste workings, and return airways: such tests to be made by a competent person or persons, appointed in writing by the Manager for the purpose, who shall report the results of such tests and the places where they have been made in a book to be kept for the purpose.

86. If these two recommendations be made law the Commission are confident that it will not be possible for gas to be given off regularly in any mine without its presence being detected.

87. There is a further consideration of great importance to which this disaster will direct the special attention of everyone who studies the evidence; and that is the great danger inherent in the practice of using naked lights in coal-mines, even though, according to ordinary acceptance, they are not of the class known among mining people as "gassy" mines. Too much reliance would seem to have been placed in most mines on the non-detection of gas in the usual examination with the safety-lamp, or on the fact that it was only occasionally so detected; and it has hitherto been the practice, both here and in Great Britain, to use open lights not only in any mine where fire-damp could not be discovered by means of the safety-lamp, but even in mines where it has been so discovered. The Commission believe that the most valuable lesson to be learned from this disaster, which resulted in the loss, in one day, of 95 lives, is that the use of naked lights should not be allowed, under any circumstances, in any mine where any quantity of fire-damp, however small, has been discovered, whether by safety or hydrogen lamp, or in any other way. Such a mine should, in the opinion of the Commission, be treated as a "gassy" mine. The Commission recognise that a change in the law to this effect would be considered by many in the mining profession to be a drastic one; but they are convinced that to provide any less comprehensive rule would be simply paltering with an evil which has lain at the root of many appalling disasters.

87A. The Commission are much impressed with the necessity for the ventilation of mines to be sufficiently ample, not merely to sustain life in the mine, but also to thoroughly dilute and quickly carry off any inflammable or noxious gas—indeed, the Commission regard the latter as the more important consideration. In their recommendation on this subject (Suggestion No. 8) the Commission recommend that the minimum supply of air shall be 150 cubic feet instead of 100 cubic feet per man, as at present; but they regard it as important that this minimum should not be looked upon, as it often is in effect, as the maximum, and that the attention of Inspectors of Mines should be specially drawn to the necessity for their insisting upon an "adequate amount of ventilation," *i.e.*, adequate to effectively dilute and remove dangerous gases.

88. At present the Coal Mines Regulation Act permits the use of gunpowder in all mines; the only restrictions being that gunpowder shots may not be fired in places which are dry and dusty, unless the places are first watered, and that they may not be fired in any place, if gas has been reported to have been found in the same ventilating district, until that gas has been cleared away. Though no one has suggested, and the Commission do not find, that the fact that gunpowder was used in Mount Kembla had any connection with this disaster, they certainly think the practice of blasting with gunpowder in any mine which is not naturally wet, and also free from inflammable gas, is fraught with grave danger. The evidence of the witnesses called by Mr. Lysaght shows that, when charges of gunpowder are fired, and merely crack, without dislodging, the coal, the imperfect combustion of the powder results in the generation of a volume of inflammable gas. Then, on the miners' returning to the working place and holding their lights to the face of the coal, in order to see what work the charge has done, the gas, issuing from the cracks, lights with a flare that might easily, under favourable circumstances, prove to be the cause of a serious explosion. Further, the experiments made in the presence of the Commission at Helensburgh showed, most clearly, that the usual charge of gunpowder, 8 ounces, when it blows out, throws a large volume of flame at a great heat into the air of the working place; and that, when there is coal-dust in suspension in the air, an ignition will, almost certainly, be caused, which may also prove the starting point of a grave disaster. The Commission therefore propose, in the list of recommendations given at the end of this report, that the use of gunpowder be absolutely prohibited in all mines unless they are (1) naturally wet, and (2) free throughout from inflammable gas. The Commission further recommend, among other precautions, (*a*) that only such explosives as are, for the time being, included in the English list of "Permitted Explosives" (*i.e.*, explosives as nearly flameless as have yet been invented) shall be allowed to be used in mines which are not both (1) naturally wet, and (2) free throughout from inflammable gas; (*b*) that in such mines explosive charges shall not be fired by any person other than a certificated Deputy and Shot-firer, appointed in writing by the Manager of the mine for the purpose; and (*c*) that, in such mines, the roof, sides, and floor, of the place where the charge is to be fired shall first be thoroughly saturated with water within a radius of 20 yards from the shot-hole (provided that, where the roof may be injured by watering, and if the Chief Inspector of Coal Mines concur, the roof may be thoroughly brushed free from dust instead of being watered).

89. Another important factor, in relation to the safe working of mines, *viz.*, the necessity for the proper ventilation, and frequent careful examination of the state of, waste workings, has been specially referred to in a preceding paragraph of this Report.

90. Among the suggestions made by the Illawarra Miners' Association are two, on the subject of doors in mines, which have an important bearing on the question of the prevention of disasters. As the due ventilation of a mine is one of the most important conditions of safety, particularly in relation to the dilution and carrying off of inflammable gases, and as the ventilation entirely depends on the keeping closed of doors provided to prevent its taking wrong courses, it is especially necessary that every possible precaution should be adopted—(1st) to ensure the immediate closing of doors after they have been opened; and (2nd) to prevent the temporary checking of the flow of a main intake current of air by the opening of a door which closes the passage connecting it with a return. In the latter case there is an instantaneous tendency to short-circuit; and any continuance of the opening, whether accidental or otherwise, may seriously affect the ventilation. This risk would, clearly, be much reduced, and the instantaneous diversion of the ventilation due to the mere opening and closing of the door would be quite obviated, by the adoption of what may be called the "air-lock" system of double doors, which is in use in nearly every really well-managed mine. With this system, no short-circuiting can begin unless both doors are open at once; and the Commission are strongly of opinion that it is time that there should be legal compulsion to adopt it. Perhaps the reason for its not having, long before this, been made the subject of legislation is that it was assumed that, as a matter of course, every mine of any extent would adopt it. But experience unfortunately shows that this is not the case. The Commission regret to have to call attention to the fact that, in Mount Kembla Mine itself, in this respect, the management failed to a very noticeable extent.

91. As to the former question—the securing of the closing of every door immediately after use—the expediency of making this closing automatic has been questioned on very good authority, as it has been contended that the individual feeling of responsibility among workmen is thereby reduced. One of the most important coal mines in Australia (and a very fiery one) has been successfully managed for about 14 years without the introduction of the automatic closing system, which has been deliberately, and with very satisfactory results, rejected. Mr. Robertson has grave doubts as to the expediency of making the system compulsory; but the Commission have, on the whole, come to the conclusion that it will be safer to make it so, and have attempted to do away with any idea that the fact that a door is supposed to close itself lessens personal responsibility, by the recommendation of a slight variation in the wording of a suggested regulation, the original of which is to be found among the Special Rules of certain collieries, adopted since this disaster occurred.

92. The Commission have also included, among the suggestions which follow, recommendations which, if brought into operation, will (a) have the effect of raising the standard of Managers and Under-Managers, by providing that, in future, no person can obtain the necessary certificate for such a position except by proving his competency by examination; will (b), the Commission believe, evoke a greater feeling of personal responsibility in mine officials, by providing a sure and certain method by which any person, whether Inspector or miner, may have the conduct or competency of an official investigated on making a bona fide complaint; and will (c) enable Inspectors of Mines to take official cognisance of any matter in which they may consider a mine or its management to be defective—a provision that is not in the present Act. The Commission feel confident that these recommendations, together with the very important precautions dealt with in the preceding paragraphs of this section of their report, will, if given the force of law, as they strongly urge should be done, go very far indeed to reduce the number of avoidable accidents or explosions in Coal Mines.

93. While on this subject, the Commission desire to point out that, though a great step in advance will be taken if their recommendations, as to the use of safety-lamps in mines in which any quantity of fire-damp, however small, is given off, and as to the prohibition of the use of gunpowder in such mines, be adopted, there is yet one question of vital importance to be considered. According to Rule 7, where a mine official finds that, by reason of the prevalence of inflammable gases, a mine or part of a mine is dangerous, the workmen shall be withdrawn; and the question is—What constitutes a dangerous percentage of fire-damp in the air of a mine? On this point opinions differ, as the different conditions of various mines must be taken into account in arriving at any conclusion; and there is no preponderance of opinion in favour of any particular percentage. Under these circumstances, though the subject has been discussed to some extent in various mining communities already, the Commission suggest for the consideration of the Department that a conference of experts be invited to consider and report upon the matter. Even though, possibly, no direct conclusion might be arrived at by the Conference, the Commission feel sure that it would have, indirectly, a good effect, by specially drawing the attention of all mining officials to the importance of the question, and to the great personal responsibility placed upon them by the fact that the Act, as it at present stands, leaves the matter entirely to their individual judgment.

Recommendations affecting the General Management of Coal Mines—Suggestions as to the Amendment of the Law.

94. As briefly mentioned earlier in this Report, Mr. Lysaght, the miners' representative before the Commission, brought forward a number of recommendations prepared by the Miners' Associations of the Illawarra, Newcastle, and Lithgow, Districts, for the amendment of the present Coal Mines Regulation Act. Some of the witnesses also brought under notice matters which they considered required attention; and Mr. Atkinson prepared a number of suggestions, the most important of which was one for the amendment of General Rule 12, respecting the use of explosives in mines. The Commission themselves have also noticed, in the course of the evidence, a number of directions in which the law might, with great advantage, be altered.

95. Owing to the great length which this report has necessarily reached, the Commission will now merely state the nature of the various suggestions and by whom they were made, and will then give, in the form of recommendations, the conclusions at which they have arrived; without traversing the evidence or arguments bearing on the proposals—clearly set out in the evidence. For convenience of reference the Suggestions are numbered; and, when an amendment of a clause of the Act is recommended, the clause is copied in ordinary type, words that the Commission recommend to be omitted are ruled through, and words which the Commission recommend to be inserted are shown in capital letters. They are as follow:—

SUGGESTION No. 1.

From Illawarra District Miners :

“Managers, Under-managers, Deputies, and Shot-firers, to hold Certificates of Competency by examination, and to have had five years’ practical mining experience, before being eligible for respective positions.”

Newcastle District Miners agree, and suggest addition of—

“All the examinations have to be passed in the State of New South Wales.”

96. *As to Managers and Under-managers*, the Commission recommend:—

(a) that no more Certificates of Service should be issued,

(b) that Service Certificates held by persons who have never yet held positions under those certificates should be cancelled.

97. If this recommendation be approved, the following is suggested as a suitable clause to insert in the Act to effect the object desired:—

Any Certificate of Service, either as Manager or Under-manager, which may be on the register at the time of the passing of this Amending Act, shall, at the expiration of 12 months from the said date, be cancelled and removed from the register, unless the holder thereof shall, before that date, have proved, to the satisfaction of the Board constituted by section 6 of the Principal Act, that he has, legitimately, and bona fide, occupied the position and exercised the functions of a Manager or Under-manager of a mine in New South Wales since obtaining, and by virtue of, such Certificate of Service.

98. Consequent on the foregoing recommendation, Section 8 (and all its subsections) shall be omitted from the Act.

99. *As to Deputies and Shot-firers*, the Commission recommend:—

That Deputies and Shot-firers be required to hold certificates of competency gained by examination; such examination to be entirely practical and oral; and that, as the law provides that they shall make written reports as to the performance of their daily duties, they be required to be able to write legibly.

100. If this recommendation be approved, the following amendment of Section 6 will be necessary:—

(1) There shall be three descriptions of certificates of competency under this Act—(1) first-class certificates, that is to say, certificates of fitness to be Manager; (2) second-class certificates, that is to say, certificates of fitness to be Under-manager; and (3) THIRD-CLASS CERTIFICATES, THAT IS TO SAY, CERTIFICATES OF COMPETENCY FOR THE COMBINED POSITION OF DEPUTY AND SHOT-FIRER; but no person shall be entitled to a certificate of competency under this Act unless he has had practical experience in a mine for at least five years.

101. While dealing with this subject of Certificates of Competency, the Commission desire to also recommend that section 7 be amended as under, and that an addition be made to it, as shown, to provide for the recognition in New South Wales of Certificates of Competency gained elsewhere in the British Empire, provided that the standard of examination is equal to that required in this State:—

The Minister may ON THE RECOMMENDATION OF THE BOARD make, alter, and revoke, rules as to the places and times of examinations of applicants for certificates of competency under this Act, the number and remuneration of the examiners, and the fees to be paid by the applicants, so that the fees do not exceed those specified in the Third Schedule to this Act. Every such rule shall be observed by the Board appointed under this Act.

THE MINISTER SHALL, IF RECOMMENDED BY THE BOARD FOR APPOINTING EXAMINERS, ACCEPT FOR REGISTRATION IN NEW SOUTH WALES, IN LIEU OF A CERTIFICATE FOR ANY OFFICIAL POSITION IN A MINE THAT MAY BE GRANTED UNDER THIS ACT, ANY CERTIFICATE OF COMPETENCY ISSUED IN GREAT BRITAIN OR ANY OF ITS DEPENDENCIES FOR A SIMILAR POSITION RESPECTIVELY,
WHETHER

WHETHER AS MANAGER, UNDER-MANAGER, OR ANY OTHER OFFICER, IN COAL OR SHALE MINES: PROVIDED THAT, IN CASE OF A CERTIFICATE ISSUED IN A DEPENDENCY, IT SHALL BE PROVED TO THE SATISFACTION OF THE BOARD THAT THE STANDARD OF COMPETENCY REQUIRED TO BE ATTAINED IN SUCH DEPENDENCY IS PRACTICALLY EQUAL TO THE STANDARD REQUIRED TO BE ATTAINED IN NEW SOUTH WALES.

102. As an amendment following necessarily on the above, the Commission recommend that section 9, subsection 2, be altered as follows:—

A register of the holders of certificates of competency or service under this Act and under any of the Imperial Acts aforesaid, OR SUCH OTHER CERTIFICATES OF COMPETENCY AS MAY BE APPROVED BY THE BOARD FOR APPOINTING EXAMINERS, AS PROVIDED BY SECTION (7), within the State, shall be kept by such person and in such manner as the Minister directs.

SUGGESTION No. 2.

From Illawarra District Miners:—

The Inspectors to be vested with absolute powers to order the use of safety-lamps.

Newcastle District miners are opposed to this as it stands; but suggest that, where a doubt exists about safety-lamps going into a mine, the Inspector and District Check Inspector should appoint a third party, the three persons named to be an Arbitration Court, to settle the question whether safety-lamps are to go into the mine or not.

103. The Commission recommend, in connection with this suggestion, that General Rule 8 be amended as under:—

No lamp or light other than a locked safety-lamp, OF A PATTERN APPROVED BY THE CHIEF INSPECTOR OF COAL MINES, shall be allowed or used—

- (a) ~~in any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous~~ IN ANY MINE IN WHICH ANY QUANTITY HOWEVER SMALL, OF INFLAMMABLE GAS HAS BEEN GIVEN OFF WITHIN THE PREVIOUS SIX MONTHS:
- (b) ~~in any working approaching near a place in which there is likely to be an accumulation of inflammable gas~~ IN ANY WORKING WHICH IS WITHIN 20 YARDS OF, AND IS BEING ADVANCED TOWARDS, ANY LOCALITY WHERE IT IS DOUBTFUL WHETHER OR NOT THERE MAY BE AN ACCUMULATION OF INFLAMMABLE GAS, OR IN ANY PLACE IN THE SAME VENTILATING DISTRICT ON THE RETURN AIRWAY SIDE OF SUCH WORKING.

BUT THE CHIEF INSPECTOR OF COAL MINES SHALL HAVE THE POWER TO DIRECT THAT SAFETY-LAMPS ONLY SHALL BE USED IN ANY MINE.

~~And when it is necessary to work the coal in any part of a ventilating district with safety-lamps, it shall not be allowable to work the coal with naked lights in another part of the same ventilating district situated between the place where such lamps are being used and the return air-way.~~

Add to General Rule 8 the following:—

- (c) IF ANY DISPUTE ARISE BETWEEN ANY OWNER, MANAGER, OR AGENT, OF ANY MINE, AND THE CHIEF INSPECTOR OF COAL-MINES, (1) AS TO WHETHER ANY PARTICULAR PATTERN OF SAFETY-LAMP SHOULD OR SHOULD NOT BE APPROVED FOR USE IN SUCH MINE, OR (2) AS TO WHETHER THE MINE IS GIVING OFF, OR HAS, WITHIN THE PREVIOUS SIX MONTHS, BEEN GIVING OFF, ANY QUANTITY, HOWEVER SMALL, OF INFLAMMABLE GAS, SUCH DISPUTE SHALL BE REFERRED TO ARBITRATION AS PROVIDED BY SECTION 25 OF THE ACT.
- (d) WHERE THE CHIEF INSPECTOR OF COAL-MINES DIRECTS THAT SAFETY-LAMPS BE USED IN ANY MINE WHERE INFLAMMABLE GAS HAS NOT BEEN DISCOVERED, AND THE OWNER, MANAGER, OR AGENT, OF SUCH MINE, DISPUTES THE PROPRIETY OF SUCH ORDER, THE QUESTION WHETHER, IN VIEW OF THE SAFETY OF LIFE OR PROPERTY, IT IS EXPEDIENT THAT SUCH ORDER BE ENFORCED SHALL BE REFERRED TO ARBITRATION, AS PROVIDED BY SECTION 25 OF THE ACT; AND IN THE MEANTIME THE ORDER SHALL STAND GOOD; BUT THE MANAGER SHALL, ON APPLICATION WHICH HE MAY MAKE, IN A FORM TO BE PRESCRIBED,

BE

BE TEMPORARILY SUPPLIED BY THE DEPARTMENT WITH A SUFFICIENT NUMBER OF SAFETY-LAMPS TO KEEP THE MINE GOING; AND FOR THE PROPER CARE AND SECURITY OF SUCH LAMPS HE SHALL BE RESPONSIBLE; AND HE SHALL PAY A REASONABLE RENT FOR THEIR USE, TO BE FIXED BY REGULATION.

- (e) AFTER SAFETY-LAMPS HAVE BEEN INTRODUCED INTO ANY MINE, NAKED LIGHTS SHALL NOT BE USED THEREIN WITHOUT THE SPECIAL PERMISSION OF THE CHIEF INSPECTOR OF COAL MINES: AND, IN THE CASE OF ANY DISPUTE BETWEEN THE OWNER, MANAGER, OR AGENT, OF SUCH MINE, AND THE CHIEF INSPECTOR, SUCH DISPUTE SHALL BE REFERRED TO ARBITRATION, AS PROVIDED BY SECTION 25 OF THE ACT.
- (f) PROVIDED ALSO THAT, IF THE CHIEF INSPECTOR OF COAL MINES APPROVE, NAKED LIGHTS MAY BE USED AT THE BOTTOM OF, AND IN THE MAIN HAULAGE ROADS WITHIN A RADIUS TO BE FIXED BY HIM NOT EXCEEDING 200 YARDS FROM, THE DOWNCAST SHAFT OR THE MOUTH OF THE MAIN INTAKE TUNNEL.

SUGGESTION No. 3.

From Illawarra District Miners:—

Ventilation by furnace should be prohibited, and that by fans substituted.

Newcastle District Miners agree.

104. The Commission recommend that the following provision be inserted in the Act:—

(1) It shall be imperative that, in the opening of any mine in the future, employing thirty men or more, the mine shall be ventilated by fan, unless specially exempted from the operation of this Rule by the Chief Inspector of Coa Mines. Before the Chief Inspector grants such exemption, he shall satisfy himself that it would be safe to use a furnace. The following shall be the circumstances under which exemptions may be granted by the Chief Inspector:—

- (a) Where the amount of coal to be won may not warrant the expenditure required for the provision and erection of a fan:
- (b) Where the physical configuration of the country renders it impracticable to instal a fan;
- (c) Where, from any cause whatever, the Chief Inspector is satisfied that there is a substantial difficulty in the way of using a fan instead of a furnace.

(2) In respect to existing mines employing thirty men or more, where, in the opinion of the Chief Inspector, the ventilation by furnace is insufficient or dangerous, he may order the substitution of a fan for a furnace, within a certain time to be fixed in such order; the owner, manager, or agent, of the mine to have the right to appeal to arbitration under Section 25 of the Act.

105. The Commission also recommend that provision be made, in any future legislation, to enable mine-owners to sink ventilating shafts on land under the control of the Water and Sewerage Board, and to put up the buildings and machinery necessary to be erected at such shafts. At present the Water and Sewerage Board refuse to grant permission for this to be done; though it is absolutely necessary if use is to be made of the vast beds of coal extending from the coast beneath the catchment area of the Sydney Water Supply, as it is impracticable to obtain sufficient ventilation to enable the mines to be worked a long distance in from the coastal slope of the Illawarra Range without the construction of ventilating shafts in the catchment area. The Commission consider that, with proper regulations, stringently enforced by the Water and Sewerage Board, there need be no fear of the pollution of the water-supply because of the existence of such ventilating shafts within the catchment area.

SUGGESTION No. 4.

From Illawarra District Miners:—

Waste Workings to be absolutely sealed off, and surrounded by return airways (for fear of emissions); such return airways not to come in contact with intake.

Newcastle District Miners oppose this recommendation as impracticable.

106. In view of the varying constructions placed by different witnesses on the term "Waste Workings," the Commission recommend that it be defined, in the interpretation section of the Act, as follows:—

"Waste Workings" shall be taken to mean parts of the workings of any mine (1) where pillars have been extracted, whether the roof has fallen or not, and (2) workings that have been permanently abandoned.

107. With respect to the suggestion itself, the Commission recommend that the following provisions be inserted in the Act:—

(1) In every mine worked on the Pillar-and-Bord system, waste workings shall, as far as practicable, be ventilated, and kept reasonably free from inflammable or noxious gases.

(2) As far as practicable, the ventilation of waste workings shall be from return airways only.

(3) If it is not practicable to ventilate Waste Workings from Return Airways, they may be ventilated from a separate intake airway;

(a) provided that, when waste workings are ventilated from separate intake airways, notice of the fact shall be sent to the Chief Inspector (within a week), and that such notice shall describe the position of the intake and the mode of its construction.

(4) Subject to the provision of paragraph 3, all Waste Workings which are passed or pierced by an Intake Airway shall be sealed off from such intake by brick or stone walls, set in mortar; the sufficiency of such stoppings to be subject to the approval of the Chief Inspector.

108. The Commission, having in view the laxity of the examination of waste workings, as disclosed in the evidence, recommend that the following new sub-section be added to General Rule 4:—

(d) As to inspection of waste workings:—A competent person or persons, not being a contractor for getting minerals in the mine, holding a certificate of competency as Deputy and Shot-firer, shall, with a locked safety-lamp, inspect, at least once a week, every part of the waste workings which is safely accessible; and shall ascertain the condition thereof, with respect to the presence of inflammable or noxious gas, ventilation, roof, and sides, and general safety; and, whether such examination occupy one day or more or less than one day, the examining official shall, before leaving the mine on each and every such day, make and sign a written report of such examination in a book to be kept at the mine for the purpose.

SUGGESTION No. 5.

From Illawarra District Miners:—

All places, except prospecting drives, to have cut-throughs not more than 30 yards apart.

Newcastle District Miners:—

All cut-throughs to be not more than 30 yards.

109. The Commission consider that it is impossible to make a hard and fast rule as to how close together cut-throughs should be put, without creating serious difficulties in the management of mines generally, owing to the varying conditions, such as, for example, differences in thickness of seams, in depth of seams below the surface, in the crushing strength of the coal, in the lateral tendency of the coal to scale off, in the nature of the roof, and in the nature of the overburden. They cannot, therefore, endorse this suggestion.

SUGGESTION No. 6.

From Illawarra District Miners:—

Inspection to be made with locked safety-lamp in all cases.

Newcastle District Miners agree with this.

110. The Commission recommend that the daily inspection of the working places, &c., and all other inspections provided for by the Coal Mines Regulation Act, should, in every case, in every mine, whether such mine be worked with naked lights or not, be required to be made with a locked safety-lamp (except where, as the Commission next recommend, they are required to be made with a hydrogen lamp).

SUGGESTION No. 7.

From Illawarra District Miners:—

Monthly examination and report should be made by Deputies and District Inspector with hydrogen flame.

Newcastle District Miners agree with this.

111. This suggestion, as made by the Illawarra Miners' Association, was not very clear; but it transpired, in the course of the evidence submitted in its favour, that what was desired was that once every fortnight an examination of the whole of the mine

mine should be made with a hydrogen lamp; and that this duty should be carried out by a Deputy of the mine and the Government Inspector for the District alternately, so that each would make an inspection once a month. When it was pointed out that it would be dangerous to allow a hydrogen lamp to be taken into a mine by persons inexperienced in its use, the suggestion was altered to apply to Managers or Under-Managers and Government Inspectors.

112. The Commission, however, do not consider that it would, under present conditions, be practicable for the Government Inspector to comply with such a rule; nor do they think it would be reasonable to require the management to examine the whole of the mine in this way; but they are strongly of opinion that the hydrogen lamp should be more generally used in the future for the detection of fire-damp than it appears to have been up to the present. They therefore recommend that the following new clause be inserted in the Coal Mines Regulation Act:—

In every mine, a competent person or persons, appointed in writing by the Manager, shall make at least 30 tests (in all) once in every three months with the hydrogen flame in the principal winning-out headings, waste workings, and return airways; and it shall be the duty of such person or persons to make a written report specifying the places where the tests are made, the dates, and the results of the tests, in a book to be kept for the purpose.

113. The Commission consider that this, while not imposing an unreasonably burdensome duty on the management of mines, would yet fully attain the object desired, viz., to ascertain whether fire-damp was being given off in the mine.

SUGGESTION No. 8.

From Illawarra District Miners:—

Minimum of 500 cubic feet of air per minute to be provided for every horse instead of 100 as at present.

Newcastle District Miners:—Agreed to, and

All Not less than 200 cubic feet of air per minute for each man and boy.

114. The Commission recommend that the following be inserted in the Act in place of General Rule 1:—

(a) In every mine which is in operation, whether any person employed therein shall be below ground or not, an amount of ventilation, by air drawn from a pure source, shall be constantly produced, except when the mechanism or furnace supplying the producing power shall be wholly or partially suspended for necessary repair or alteration, adequate to dilute and render harmless inflammable and noxious gases, from whatever cause arising, to such an extent that the air in all parts of the mine wherein miners or other workmen are required or permitted to be, for the purpose of working, travelling, or otherwise, and in all stables where horses or other animals are kept, and also in all standing places on the intake side of any working place, shall be safe in relation to risk from inflammable gases in the mine, and wholesome and sufficient for the support of human and animal life.

(b) And, when any person or animal employed or used in the mine is below ground for any lawful purpose, then such supply of air shall, in the place in which each such person or animal shall be, be not less than 150 cubic feet passing such person per minute, and 300 cubic feet so passing such animal, for each and every such person or animal, or such larger quantity or quantities as the Inspector may from time to time direct; and the air so supplied shall be forced, in the prescribed quantities at least, into and to the face of every working place where any person or animal is engaged or passing.

(c) But the provisions contained in part (b) of this Rule, as to a minimum supply, shall in no way operate to reduce the obligation imposed by part (a) thereof.

115. With respect to this matter Mr. Robertson desires to state that he does not believe in the minimum as an effective provision for ensuring adequate ventilation; but he agrees to this recommendation, as he recognises that the Legislature has already laid down the principle that there shall be a minimum, and because, as the evidence before the Commission shows, most mines at the present time provide more than 150 cubic feet per man, the minimum proposed.

SUGGESTION No. 9.

From Illawarra District Miners:—

All doors erected so as to close and remain closed of their own motion.

Newcastle District Miners:—Agreed to.

116. The Commission recommend that the following provision be made in the Act:—

All doors in a mine shall be so erected that they shall close and remain closed automatically.

117. They also recommend that the following General Rule should be inserted in the Act to fix the responsibility on the employees to see that doors close after they pass through :—

General Rule.—No person shall open any door or screen in a mine unless it be necessary for him to pass through it : and, when any person has passed through any door or screen, he shall at once properly close the same or take care that it is properly closed ; and no person shall be, to any extent, relieved from seeing to the closing of a door by the fact that it is so constructed as to be self-closing.

SUGGESTION No. 10.

From Illawarra District Miners :—

Double doors required on drives between main intakes and returns and main headings.

Newcastle District Miners :—Agreed to.

118. The Commission recommend that the following provisions be made in the Act :—

(a) There shall be double wooden doors in drives between main intakes and returns, and in main headings ; and in other places such screens or wooden doors as may be ordered by the Inspector.

(b) Where double doors are provided, it shall not be permissible to open or keep open more than one of such doors at any one time.

SUGGESTION No. 11.

From Illawarra District Miners :—

Weekly measurements of air should be made in each Section, and report thereof sent to Inspector.

Newcastle District Miners :—Agreed to, and

Add, " Instead of monthly as at present."

119. With respect to this suggestion, the Commission see no evidence to warrant any departure from the present practice.

SUGGESTION No. 12.

From Illawarra District Miners :—

Extra supply of safety-lamps and their requisites equal to one-third of number of persons employed below ground, to be kept constantly in good order and ready for use.

Newcastle District Miners :—Agreed to.

120. The Commission recommend that safety-lamps be required to be provided at all mines worked with naked lights, or *extra* safety-lamps, at all mines worked with safety-lamps, according to the following scale :—

(1.) One safety-lamp for every man employed up to and including fifteen men, with a minimum of five lamps.

(2.) At a mine where more than fifteen men are employed, a minimum of fifteen lamps ; and, in addition, (a) one lamp for every five additional men employed, in the case of a mine worked with naked lights, or (b) one lamp for every ten additional men employed, in the case of a mine worked with safety-lamps.

(3.) All safety-lamps required by this rule to be provided shall be kept constantly in good order, with wicks in place ; and a sufficient supply of oil to fill each lamp shall be kept available.

SUGGESTION NO. 13.

From Illawarra District Miners :—

Travelling and haulage roads, and other places necessary, to be properly watered.

Newcastle District Miners :—

Add, " All travelling, main, and horse, roads to be 6 feet high."

Lithgow District Miners :—

Add, " And properly timbered, and kept clear of any props that may have fallen ; and that the travelling roads be made not less than 6 feet high."

121. The Commission have, in their proposal to alter Rule 12, (*vide* Suggestion No. 25) embodied the proposal that, in every dry and dusty place, where shots are to be fired, the roof, floor, and sides, shall be thoroughly saturated with water within a radius of 20 yards from the shot hole, provided that, where the roof may be injured by watering, and where the Chief Inspector concurs, the roof, instead of being watered, may be thoroughly brushed free from dust.

122. The Commission further recommend that the following provision be inserted in the Act:—

Where watering of parts of the mine, other than those contiguous to places where shots are to be fired, is not deemed, by the Manager, to be necessary or practicable, the Chief Inspector may, nevertheless, order the mine, or any specified part thereof, to be watered: and, in the event of objection by the owner, manager, or agent, the matter shall be referred to arbitration.

123. With regard to the recommendation as to timbering made by the Lithgow miners, the Commission would point out that the proper timbering of all parts of a mine is provided for by General Rule No. 22; which fact has apparently been overlooked by those making the recommendation. The General Rule says:—

The roof and sides of every Travelling Road and working place shall be made secure; and a person shall not, unless appointed for the purpose of exploring or repairing, travel or work in any such travelling road or working place which is not made so secure.

124. Regarding Newcastle and Lithgow Recommendations respecting brushing roads to a height of 6 feet, the Commission do not think this matter comes within the intention of their instructions.

SUGGESTION No. 14.

From Illawarra District Miners:—

Manager to be compelled to give more personal time and attention to the management of colliery.

Newcastle District Miners:—“Agree with this.”

125. The Commission consider that the best way to attain the object desired by the bodies making this Recommendation, without unduly hampering the Managers in the performance of their duties, is to make better provision in the Act to deal with the Certificates of any Managers who neglect their duties in any respect.

126. The following amendments of the Act are therefore recommended:—

Section 10:—

If at any time representation is made to the Minister by an Inspector or otherwise ANY OTHER PERSON that any Manager or Under Manager OR DEPUTY AND SHOT-FIRER holding a Certificate under this Act or under any Imperial Act is, by reason of incompetency, ~~or gross negligence~~ ~~OR~~ ~~NEGLECT OF HIS DUTY,~~ OR OTHER MISCONDUCT (INCLUDING DRUNKENNESS), unfit to discharge his duties, ~~or has been convicted of an offence against this Act,~~ the Minister may, AND, UNLESS HE HAVE GOOD CAUSE FOR SUBSTANTIAL DOUBT AS TO THE BONA FIDES OR ACCURACY OF THE PERSON OR BODY MAKING SUCH REPRESENTATION, THE MINISTER SHALL, cause inquiry to be made into the conduct of the Manager, or Under Manager, OR DEPUTY AND SHOT-FIRER: and with respect to every such inquiry the following provisions shall have effect:—

- (a) No alteration.
- (b) No alteration.
- (c) No alteration.
- (d) No alteration.
- (e) No alteration.
- (f) The Court may cancel or suspend the certificate of the Manager, or Under Manager, OR DEPUTY AND SHOT-FIRER, if it finds that he is, by reason of incompetency ~~or gross negligence~~ OR SUCH MISCONDUCT AS AFORESAID, ~~or of his having been convicted of any offence against this Act,~~ unfit to discharge his duty:
- (g) The Court may require a Manager, or Under Manager, OR DEPUTY AND SHOT-FIRER, to deliver up his certificate: and, if any Manager, or Under Manager, OR DEPUTY AND SHOT-FIRER, fails without sufficient cause SHOWN to the satisfaction of the Court to comply with such requisition, he shall be liable to a fine not exceeding one hundred pounds. The Court shall hold a certificate so delivered until the conclusion of the investigation, and shall then either restore, cancel, or suspend, the certificate, according to its judgement on the case;
- (h) the Court shall have, for the purpose of the inquiry, all the powers of a Court of Petty Sessions, and all the powers of an Inspector under this Act: AND A CERTIFICATE, PURPORTING TO BE UNDER THE HAND OF THE OFFICER OF ANY COURT, THAT THE PERSON WHOSE COMPETENCY OR CONDUCT IS BEING INQUIRED INTO WAS CONVICTED BEFORE SUCH COURT OF AN OFFENCE UNDER THIS ACT, SHALL BE PRIMA FACIE EVIDENCE THAT HE WAS SO CONVICTED, AND THAT HE WAS, IN FACT, GUILTY OF SUCH OFFENCE.
- (i) No alteration.

Section 12 :—

(1) Where a certificate of a Manager or Under Manager OR DEPUTY AND SHOT-FIRER is cancelled or suspended in pursuance of this Act, the Minister shall cause the cancellation or suspension to be recorded in the register of holders of certificates.

(2) ~~The Minister may at any time, if it is shown to him to be just to do so, renew or restore, on such terms as he thinks fit, any certificate which has been cancelled or suspended in pursuance of this Act, and cause the renewal or restoration to be recorded in the register aforesaid.~~

New Sub-section :—

(2) If application be made to the Minister at any time to renew or restore any certificate which has been cancelled or suspended in pursuance of this Act, the Minister, if he consider it just to so renew or restore such cancelled or suspended certificate—

- (a) shall give 14 days' notice of such application in the Sydney daily press.
- (b) shall, if any objection to the proposed renewal or restoration of any such certificate be lodged within fourteen days by any person or persons, submit the proposed renewal or restoration of such certificate and the objection thereto to a Court constituted similarly to the Court provided for by Section 10 of the Act, who shall have power to make any order that they may think fit for the renewal, restoration, or otherwise, of such certificate; and such order shall be recorded in the register aforesaid; and
- (c) may, if no such objection be lodged, renew or restore, on such terms as he may think fit, any such certificate; and may cause the renewal or restoration of such certificate to be recorded in the register aforesaid.

SUGGESTION No. 15.

From Illawarra District Miners :—

Instruments to be placed at bottom of upcast to determine variation of heat and air pressure.

Newcastle District Miners :—“Agree with this.”

127. The Commission do not think that there is any need for an alteration of the present law, in respect to the providing of instruments.

SUGGESTION No. 16.

From Illawarra District Miners :—

Size of manholes should be enlarged.

Newcastle District Miners :—Agree and

add “To be not less than 6 feet high, 6 feet deep, and 3 feet wide, and to be whitewashed.”

128. The Commission recommend that Rules 14, 15, and 16, (in which three quite different subjects are dealt with) be altered to read as follows :—

New Rule 14 (Same as first part of present Rule 14).

Every underground plane on which persons travel which is self-acting or worked by an engine, windlass, or gin, shall be provided, if exceeding 30 yards in length, with some proper means of communicating distinct and definite signals between the stopping places and the ends of the plane.

New Rule 15 (Second part of present Rule 14, first part of present Rule 15, and whole of present Rule 16, amended as recommended by the Commission) :—

- (1) Manholes or places of Refuge shall be provided :—
 - (a) On every underground haulage road, on which miners travel to and from their working places, where the main and tail system of haulage, or a self-acting incline, not worked by endless rope, is used; and the distance apart of such manholes or places of refuge shall not be more than 10 yards on roads where there is not sufficient room for a person to stand between the side of the tub and the side of the road, and shall not be more than 20 yards where there is sufficient room to so stand.
 - (b) On every underground haulage road, on which miners travel to or from their working places, where the endless rope system of haulage is used; and the distance apart of such manholes, or places of refuge, shall not be more than 20 yards.
 - (c) On every main road underground on which miners travel to or from their working places, where the load is drawn by a horse or other animal; and the distance apart of such manholes, or places of refuge, shall not be more than 50 yards.
- (2) All manholes or places of Refuge shall
 - (a) be not less than 6 feet high, 3 feet wide, and 4 feet deep; but need not be more than 6 feet high, even where the road itself is of greater height than 6 feet;
 - (b) be constantly kept clear; and no person shall place anything in any such manhole or place of refuge.

(3) ALL SUCH MANHOLES SHALL BE, AND SHALL BE KEPT, CONSPICUOUSLY WHITEWASHED AT THE CORNERS ADJOINING THE ROADWAY.

New Rule 16, (Second part of present Rule 15) :

There shall be provided, in every steam-engine room and in every boiler gallery under ground, at least two proper travelling ways.

SUGGESTION No. 17,

SUGGESTION No. 17.

From Illawarra District Miners :—

Cancellation of Certificate of William Rogers, Manager.

Newcastle District Miners :—

We are of opinion that Mr. Rogers, Manager, should be called on to show cause why his certificate should not be cancelled.

129. The Commission do not consider that this comes within the scope of their instructions; but, so far as Mr. Roger's actions call for comment, the Commission have already dealt with the matter in this Report.

SUGGESTION No. 18.

From Illawarra District Miners :—

Instruction should be given to employees regularly on means of escape.

Newcastle District Miners :—

Add "That proper machinery be kept at the second shaft outlet to lift all employees to the surface within one hour."

Lithgow District Miners :—

Add "And that all escape shafts be properly equipped with means to draw men, in case of accident; and that proper means of signalling be also fixed."

130. The Commission recommend that provision be made for the instruction of employees as to the means of escape from mines, as follows :—

(a) Once in every quarter as many men (not exceeding twelve from each district) as may make application, either verbally or in writing, at the Deputy's Cabin, shall be instructed by the officials as to the means of escape by at least one alternative route; unless provision is made to indicate the ways out of the mine by means of direction boards, or by any other method approved by the Chief Inspector.

(b) The official so instructing the workmen shall make a written report, stating the number of persons from each district so instructed, and the route taken.

(c) At least a week before it is intended to so instruct the workmen, the management of the mine shall exhibit a notice to that effect at the Pit-top or Tunnel-mouth.

131. As to the Newcastle suggestion, the Commission recommend that Section 43, Sub-section (1), par. (c) of the Act be amended as follows :—

SUCH proper apparatus AS THE CHIEF INSPECTOR SHALL DEEM NECESSARY for raising and lowering persons SHALL BE PROVIDED AT EACH SUCH SHAFT OR OUTLET: ~~at each such shaft or outlet shall be kept on the works belonging to the mine and such apparatus if not in actual use at the shafts or outlets shall be constantly available for use~~ SUCH APPARATUS SHALL BE TESTED IN OPERATION AT LEAST ONCE EVERY DAY; AND STEAM SHALL BE KEPT ALWAYS UP ON THE BOILERS PROVIDED TO DRIVE THE MACHINERY; OR, IF STEAM BE NOT THE MOTIVE POWER, SUCH OTHER MOTIVE POWER AS MAY BE PROVIDED SHALL BE KEPT ALWAYS AVAILABLE FOR IMMEDIATE USE.

132. General Rule 26 at present exempts mine-managements from providing shafts under 50 yards in depth with signalling arrangements. The Commission, however, are of opinion that every shaft, of whatever depth, should be so provided. The following amendment of General Rule 26 is therefore recommended :—

Every working shaft used for the purpose of drawing minerals or for the lowering or raising of persons shall, if exceeding 50 yards in depth, and not exempted in writing by the inspector of the district, be provided with guides: and EVERY SHAFT, WHETHER USED FOR THE PURPOSE OF RAISING MINERAL, OR FOR LOWERING AND RAISING MEN, SHALL BE PROVIDED WITH some proper means of communicating distinct and definite signals from the bottom of the shaft, and from every entrance for the time being in use between the surface and the bottom of the shaft, to the surface, and from the surface to the bottom of the shaft, and to every entrance for the time being in use between the surface and the bottom of the shaft.

SUGGESTION No. 19.

SUGGESTION No. 19.

From Illawarra District Miners :—

Coal Mines Act to forbid a Black-list of employees being kept, and penalising improper prevention of discharged persons obtaining employment.

Newcastle District Miners :—Agreed to.

133. The Commission, having fully considered all that has been said on this matter, have arrived at the conclusion that no practical result would be secured, even if the provision asked for by the miners were included in the Coal Mines Regulation Act. Whatever opinion may have been honestly held as to the existence of some such practice in the past, the Commission do not consider that it exists at present.

SUGGESTION No. 20.

From Illawarra District Miners :—

Safety-lamps not to be unlocked for shot-firing.

Newcastle District Miners :—Agree with this.

134. This suggestion is dealt with by the amendment of Rule 12 which is recommended by the Commission elsewhere in this Report. (*Vide* Suggestion No. 25).

SUGGESTION No. 21.

From Newcastle District Miners :—

That the Miners of each district should have the power to recommend for appointment an inspector for their respective districts.

135. The Commission consider that the appointment of Inspectors should more properly come under the functions of the Public Service Board. They therefore recommend that Section 17 of the Act be amended, as follows :—

(1.) ~~The Minister may appoint~~ THE GOVERNOR MAY, ON THE RECOMMENDATION OF THE PUBLIC SERVICE BOARD, APPOINT AS INSPECTORS OF MINES duly qualified persons, ~~to be inspectors (under whatever title he may fix) of mines; and assign them their RESPECTIVE duties, and may award them such salaries as THE PUBLIC SERVICE BOARD think fit or Parliament SHALL approve. and may remove any such Inspector.~~ AND EACH SUCH PERSON SHALL BE, AT THE TIME OF HIS APPOINTMENT, THE HOLDER OF A FIRST-CLASS CERTIFICATE OF COMPETENCY.

(2.) To stand as in Act.

(3.) To stand as in Act.

(4.) ~~Every Inspector under this Act shall hold a first-class certificate of competency or service as hereinbefore provided in regard to Managers, but for the purposes of this Act service as an Inspector of Collieries will be equivalent to service as manager of a mine.~~

136. Mr. Robertson is strongly of opinion that candidates for the position of Inspector of Mines should, in addition to holding 1st Class certificates of competency, be required to have had at least five years' experience as Managers of Mines before they can be considered eligible. The President agrees with Mr. Robertson in attaching great importance to the practical experience gained by an applicant in managing a considerable mine, but agrees with Mr. Ritchie in thinking that, if the appointments be placed under the Public Service Board, the Board may be trusted to select thoroughly competent inspectors, and that no candidate who is otherwise eligible should be rejected merely because he has not actually held the position of manager of a mine for five years.

137. The Commission unanimously desire to point out that, in their opinion, the salaries at present paid to the Inspectors are far too low to attract the best men; though, in saying this, they do not desire to, in any way, reflect on the present holders of the positions.

SUGGESTION No. 22.

SUGGESTION No. 22.

From Newcastle District Miners :—

That a red light should be carried on the front of trains or sets on engine planes, or other self-acting inclines.

138. The Commission recommend that the following provision be inserted in the Act :—

On every haulage road used as a travelling way, where the speed of the skips exceeds five miles an hour, the trains or sets shall carry a red light on the front.

SUGGESTION No. 23.

From Newcastle District miners :—

That a clause be inserted in the Act whereby better sanitary arrangements should be adopted in all mines where workmen are employed.

139. The Commission, while recognising the desirability of some better sanitary arrangements in mines, are of opinion that the matter might be dealt with by the mine management themselves by Special Rule ; and suggest that such rules as may be made should be stringently enforced.

SUGGESTION No. 24.

From Newcastle District miners :—

That the management of a mine should not interfere with the right of an employee to go out of the mine when he deems fit.

140. The Commission cannot see their way to acquiesce in this recommendation, put in such an unqualified way. They think the matter might be dealt with by an addition to Special Rules of the various collieries, giving the men the right to leave the mine when they have good and sufficient cause, but not on frivolous pretexts.

SUGGESTION No. 25.

Prepared by Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

Proposed alteration of General Rule 12, Section 47, which is based on the assumption that the use of gunpowder for blasting will be prohibited in all mines where safety-lamps are used, or which are not naturally wet throughout, and that in such cases only certificated shot-firers will be permitted to fire shots.

Rule 12. Any explosive substance shall only be used in the mine below the ground, as follows :—

- (a) It shall not be stored in the mine.
- (b) It shall not be taken into the mine, except in cartridges in a secure case or canister containing not more than five pounds.
- (c) A workman shall not have in use at one time in any one place more than one of such cases or canisters.
- (d) A workman shall not take into any mine any iron or steel pricker, charger, tamping rod, or stemmer ; nor shall any workman use an iron or steel scraper in the process of charging or stemming for blasting ; and only clay or other non-inflammable substances shall be used for stemming, and shall be provided by the owner of the mine.
- (e) No explosive shall be forcibly pressed into a hole of insufficient size ; and, when a hole has been charged, the explosive shall not be unrammed ; and no hole shall be bored for a charge at a distance of less than twelve inches from any hole where the charge has missed fire, and shall, as far as practicable, be parallel with it : provided that in case where a fuse is used no person shall return to a place where such charge has missed fire until a period of eight hours has elapsed from the lighting of the fuse attached to such charge.
- (f) In any mine in which the use of a locked safety-lamp is for the time being required (by the Coal Mines Amendment Act, 1903), or which is not naturally wet throughout, only Permitted Explosives, according to the most recent Imperial Coal Mines Order, shall be used ; and in such case the following precautions shall be observed :—

1. No shot shall be charged or fired except by a certificated shot-firer appointed by the Manager of the mine in writing.
2. No shot shall be fired except by means of an electric battery or apparatus : and the certificated shot-firer shall himself couple up the cable to the charge, and whilst doing so shall have the battery with him. He shall also himself couple the cable to the battery.

3. No shot shall be fired until the certificated shot-firer has examined the place itself where the shot is to be fired, and all the contiguous accessible places, and found that there is no accumulation of inflammable gas, however small, within a radius of 30 yards, or if inflammable gas is being given off in dangerous quantities. No shot shall be fired whilst an accumulation of inflammable gas is being removed in the same ventilating district.
4. No shot shall be fired unless the roof, sides, and floor, of the place or places have been thoroughly watered for a radius of 30 yards.
5. No shot shall be fired on a haulage road worked by steam or other mechanical power (including inclines worked by gravitation) or on main intakes or main return roads without special permission in writing from the certificated manager, and unless all workmen have been removed from the seam in which the shot is to be fired, except the men engaged in firing the shot, and such other persons, not exceeding ten, as are necessarily employed in attending to the ventilating furnaces, steam boilers, engines, machinery, winding apparatus, signals, or horses, or in inspecting the mine.
6. No shot shall be fired if from any cause whatever the certificated shot-firer apprehends danger, and that thereby life or property would be in peril.
7. Only one shot shall be fired at a time in any one place (sinking shafts excepted); and, after each shot has been fired, the certificated shot-firer shall return to the place, and carefully examine it for inflammable gas, and as to the security of the roof and sides, and shall not permit any person to enter therein (except for repairs) until he has reported the place to be safe.
8. The certificated shot-firer shall have in his possession all detonators intended for use, and shall take care that in cases where men charge their own shots that only the requisite number be handed out; and those not used (if any) shall be deposited and kept under lock and key in some suitable place to be provided for that purpose.
9. No missed shots shall be unrammed; but in all cases a fresh hole shall be drilled, which shall not be within 12 inches of any hole which has missed fire, and shall, as far as practicable, be parallel with it. Should the missed shot contain a detonator, the certificated shot-firer shall, before firing the fresh hole, attach a string to the fuse of the missed shot and secure it to the prop or to the cable. Immediately after the firing, the certificated shot-firer shall, with his hands only, and with the greatest care, search the coal or stone; and, if he fails to find the detonator, or is not satisfied that it has been exploded by the second shot, he shall cause the coal or stone to be loaded with the greatest care, and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstance to the Under Manager without delay, and hand the detonator to him when found.

(g) In this Act "Ventilating District" means such part of a seam as has an independent intake commencing from a main intake air-course and an independent return air-way terminating at a main return air-course; and "Main haulage road" means a road which has been or for the time being is in use for moving trams by steam or other mechanical power.

(h) Where a seam of a mine is not divided into separate ventilating districts, the provision in this Act relating to "Ventilating District" shall be read as though the word "seam" were substituted for the words "Ventilating District."

141. The Commission recommend that the following be inserted in place of Rule 12 of the present Act:

Rule 12.—The following shall be the conditions under which explosives may be used in mines below ground:—

- (1.) Explosives shall not be stored in the mine.
- (2.) Explosives shall not be taken into the mine, except in cartridges, which shall be in a secure case or canister; and such case or canister shall not contain more than five pounds' weight of such cartridges; and there shall not be at one time in any one working or other place more than one such case or canister.
- (3.) A workman shall not take into or use in any mine any iron or steel pricker, charger, tamping rod, or stemmer; nor shall any workman or shot-firer use an iron or steel scraper in the process of charging or stemming for blasting.
- (4.) Only clay or other non-inflammable substances, provided for the purpose by the management of the mine, shall be used for stemming.
- (5.) Shot-holes shall be made of a sufficient size for the easy insertion of the explosive cartridge; and an explosive shall not be forcibly pressed into a hole either because of the insufficient size of the hole or for any other reason.
- (6.) When a hole has been charged and stemmed, or partly stemmed, the stemming shall not be withdrawn.
- (7.) When an explosive charge has missed fire, or, from any cause, remains unexploded, no hole for an additional charge shall be started or driven so as to come, in any place, nearer than 12 inches to such hole containing such unexploded charge.

In case of a shot missing fire, to which any fuse other than an electrical fuse has been attached and lit, the person who fires the shot shall immediately put up a signal or fence to prevent persons entering the place, and shall not remove the same within eight hours; and no person (including an examining deputy) shall return to such place until such period of eight (8) hours shall have elapsed from the lighting of the fuse.

(8.) Neither gunpowder, nor any other explosive which is not on the list of "Permitted Explosives" in force, for the time being, in Great Britain, shall be used in any mine which is not both naturally wet and free from inflammable gas; and, in mines where such "Permitted Explosives" are used, the following additional precautions shall be observed:—

- (a) All shots shall be charged, stemmed, and fired, by one or more certificated Shot-firing Deputies, who shall be appointed in writing by the Manager of the mine for the purpose; and no shot shall be fired by any other person.

(b)

- (b) Shots shall not be fired in any place (1st) if inflammable gas is being given off in dangerous quantities in such place; (2nd) while an accumulation of such gas, in any part of the ventilating district in which such place is situated, is being removed; or (3rd) if there is an accumulation of such gas, however small, within a radius of 50 yards of the shot hole; or (4th) if the Shot-firing Deputy apprehend danger from any cause whatever.
- (c) The Shot-firing Deputy, when firing shots, shall proceed as follows:—
- (1st) He shall examine the shot hole; and,
 - (2nd) If the shot hole be properly drilled, be of sufficient depth, and be placed to the best advantage, he shall take the necessary quantity of explosive; and,
 - (3rd) He shall insert the electric fuse and detonator; close, and secure, the cartridge paper round the fuse wires; and,
 - (4th) He shall place the cartridge detonator and fuse in the hole; gently push them home; and, if any difficulty be experienced in so doing, by reason of inequalities in a bore, shall cause it to be reamed out to permit of the cartridge, etc., being easily inserted, and then insert them; and,
 - (5th) He shall stem the shot with clay or other non-inflammable substance; and,
 - (6th) He shall warn all persons to remove from the place by shouting loudly "Fire"; and
 - (7th) He shall connect the fuse wires with the leading wires; and
 - (8th) He shall connect the leading wires to the magneto-exploder; and, lastly,
 - (9th) He shall then fire the shot.
- (d) No shot shall be fired unless the roof, sides, and floor, of the place or places have been thoroughly saturated with water within a radius of 20 yards from the shot hole:
Provided that where the roof may be injured by watering, and if the Chief Inspector concur, the roof, instead of being watered, may be thoroughly brushed free from dust.
- (e) No shot shall be fired, on a haulage road worked by steam or other mechanical power (including inclines worked by gravitation), or on main intakes, or main return roads, unless by the special permission in writing of the manager; which written permission shall be returned to the manager immediately after the firing of the shots authorised therein has been completed; and, in firing such shots, the following precautions shall be observed:—
- (1st) The place within a radius of 20 yards from the shot-hole shall be cleared of material accumulations of fine small coal or dust; and
 - (2nd) the roof, sides, and timber, shall be brushed clear of all dust; and
 - (3rd) All stringy, or readily inflammable, bark shall be stripped from all timber within a radius of 10 yards from the shot hole and removed to beyond such radius; and
 - (4th) the roof, sides, and floor, within a radius of 20 yards from the shot hole, shall be thoroughly saturated with water; and
 - (5th) any brattice cloth which may be within a radius of 5 yards from the shot hole shall be well damped; and,
 - (6th) a wet cloth shall be placed in a position to intercept the flame which may result if the shot blow out; and
 - (7th) All persons shall be removed from the seam in which the shot is to be fired; with the exception that the shot-firing Deputy may permit to remain therein all such persons as are necessarily employed below ground, either in (a) assisting him in shot-firing, or (b) in carrying out necessary repairs, or (c) in carrying out necessary inspections.
- (f) Only one shot shall be fired at any one time in any one place; but more than one shot may, if the permission of the manager shall, first, have been obtained, be fired at one time in sinking shafts or in stone drives.
- (g) After a shot or series of shots shall have been fired, the certificated shot-firing Deputy shall return to the place; shall carefully search for the presence of inflammable gas; shall examine the roof and sides as to their security; and shall not permit any person to enter therein (except such persons as he may direct to carry out repairs therein) until he shall have reported the place to be safe.
- (h) Detonators shall not be issued to, or handled by, any person other than the certificated shot-firing Deputy, or his superior officers; shall be packed in tins containing sawdust, or other suitable cushioning material; and shall be taken to the surface after each shift by the person to whom they have been issued, and shall be deposited, and kept, under lock and key, in some suitable place to be provided for that purpose.
- (i) Should a missed shot contain a detonator, the certificated shot-firer shall, before firing the fresh hole, attach a string to the fuse of the missed shot and secure it to the prop or to the cable. Immediately after the firing, the certificated shot-firer shall, with the greatest care, search the coal or stone; and if he fail to find the detonator, or be not satisfied that it has been exploded by the second shot, he shall cause the coal or stone to be loaded with the greatest care, and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstances to the Under-manager without delay, and hand the detonator to him when found.

142. In connection with this recommendation, the following shall be put in Interpretation Clause of Act:—

- (j) In this Act "ventilating district" means such part (or the whole) of a seam as has an independent intake commencing from a main intake aircourse, and an independent return airway terminating at a main return aircourse; and "main haulage road" means a road which has been, or, for the time being, is, in use for moving trams by steam or other mechanical power,

SUGGESTION No. 26.

From Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

That General Rule 4 be altered so as to require the inspection of all places in a ventilating district by Deputies, including those temporarily idle.

143. The Commission recommend that General Rule 4 be amended as follows :—

A station or stations shall be appointed at the entrance to the mine, or to ANY different parts PART of the mine, as the case may require : and the following provisions shall have effect :—

(a) As to inspection before commencing work :—

A competent person or competent persons EACH OF WHOM SHALL BE A CERTIFIED DEPUTY AND SHOT-FIRER under this Act, appointed for the purpose by the owner, agent, or manager, and not being a contractor for getting minerals in the mine, shall, within such time, immediately before the commencement of each shift, as shall be fixed by Special Rules made under this Act, inspect every part of the mine situate beyond the station or each of the stations, and in which workmen are to work or pass during that shift ; AND ALSO ALL PLACES TEMPORARILY OR PERMANENTLY IDLE ON THE INTAKE SIDE OF ANY WORKING PLACE, and shall ascertain the condition thereof, so far as the presence of gas, the ventilation, roof, and sides, and general safety, are concerned.

No workman shall pass beyond any such station until the part of the mine beyond that station has been so examined, and stated by such competent person to be safe.

The inspection shall be made with a locked safety-lamp. ~~except in the case of any mine in which inflammable gas has not been found within the preceding twelve months.~~

A report specifying where noxious or inflammable gas, if any, was found present, AND STATING, ALSO, WHETHER THE GAS WAS OR WAS NOT FOUND PRESENT IN QUANTITY SUFFICIENT TO RENDER THE MINE IN SUCH PART DANGEROUS ; the condition of the ventilation ; and what defects, if any, in roofs or sides, and what, if any, other sources of danger, were or was observed, shall be recorded without delay in a book to be kept at the mine for the purpose, and accessible to the workmen ; and such report shall be signed by, and, so far as the same does not consist of printed matter, shall be in the handwriting of, the person who made the inspection.

~~For the purpose of the foregoing provisions of this rule, two or more shifts succeeding one another without any interval are to be deemed to be one shift.~~

(b) As to inspection during shifts :—

A similar inspection, similarly reported, shall be made in the course of each shift of all parts of the mine in which workmen are to work or pass during that shift, INCLUDING PLACES TEMPORARILY OR PERMANENTLY IDLE ON THE INTAKE SIDE OF ANY WORKING PLACE. ~~but it shall not be necessary to record a report of the same in a book: Provided that in the case of a mine worked continuously throughout the 24 hours by a succession of shifts, the report of one of such inspections shall be recorded in manner above required.~~

SUGGESTION No. 27.

From Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

“That, as far as practicable, doors, for the purpose of directing the ventilation, should be avoided in the haulage road, where mechanical haulage is adopted.”

144. The Commission recommend that it be provided :—

That no door, for the direction of the ventilation, or for any other purpose, shall be erected in a haulage road where mechanical haulage is used, except under the following conditions :—

- (a) Notice shall be sent to the Inspector, either beforehand (of the intention to erect the door) or within a week after (of the fact that the door has been erected) : and such notice shall describe the position in which the door is proposed to be, or has been, erected ; and
- (b) The Inspector shall have power to veto the erection of any such door as proposed, or to order the removal of any such door, if erected, if, after consultation with the Manager of the mine, he considers it necessary to take such a course.

SUGGESTION No. 28.

From Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

“That, having regard to the many fires caused by the use of naked lights, all roads and workings, in collieries where naked lights are used, should be inspected by the officials with a locked safety-lamp, on the cessation of the day's work ; and a report should be made of the inspection.”

145. The Commission recommend the addition to General Rule 4 of a new sub-section as follows :—

(c) As to inspection after the cessation of the day's work :—

An inspection in every respect similar to that provided for in paragraph (a) of this Rule shall be made, with a locked safety-lamp, in every mine in which naked lights are used, on each occasion of and immediately after the cessation of work in the mine ; and a report of such inspection shall be recorded without delay in a book to be kept at the mine for the purpose, as provided in paragraph (a).

SUGGESTION No. 29.

SUGGESTION No. 29.

From Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

“That, where steam is used for raising or lowering persons, safety hooks, to prevent the cage from being over-wound, shall be compulsory.”

146. The Commission recommend that a provision be inserted in the Act as follows :—

Where steam or other mechanical power (excepting a winch or other machine worked by men or horses) is employed in mine shafts ordinarily used for the purpose of raising and lowering persons, safety hooks shall be fitted to all cages, buckets, &c., for the purpose of effectually releasing such cages or buckets from the winding rope and retaining them in a position of safety, in case of the rope being over-wound.

147. It is also recommended that Section 47, General Rule 27, page 36 of Act: be amended as under :—

Rule 27. In any mine SHAFT IN WHICH the winding apparatus is not REQUIRED BY THIS ACT TO BE provided with some automatic contrivance to prevent over-winding, AND IN WHICH NO SUCH CONTRIVANCE IS PROVIDED, then the cage, when men are being raised, shall not be wound up at a speed exceeding three miles an hour, after the cage has reached a point in the shaft to be fixed by the Special Rules, NOT BEING LESS THAN 20 FEET BELOW THE BANKING LEVEL.

SUGGESTION No. 30.

From Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

That, in mines where safety-lamps are not in use, a book be kept for the purpose of reports as to the presence of gas seen by workmen, such reports to be signed by the workman who makes the report.

148. The Commission recommend that the following provision be inserted in the Act :—

(1.) In mines where safety-lamps are not used, any workman, who sees the ignition, or otherwise becomes aware of the presence, of inflammable gas, shall (1) immediately fence off his working place, if that be the place where the gas is found, (2) report the discovery of gas to the nearest mine official, and (3) write and sign a report of the circumstances in a book which shall be kept at the Deputy's Cabin for the purpose.

Provided that, if such workman cannot himself write the necessary report in the book,—

- (a) if there be a check-weighman at the mine, he shall dictate to such check-weighman, and sign by a mark which the check-weighman shall witness, a report of the finding of gas and of the circumstances: such report shall be written either in the book provided for the purpose as aforesaid or on a separate sheet of writing paper, whichever be more convenient, and shall be read over to him slowly and distinctly by the check-weighman before being signed; and it shall be the duty of the check-weighman to so assist any workman as herein provided:
- (b) if there be no check-weighman at the mine, he shall procure some person to write the report at his dictation, to read it over to him, and to witness his mark in lieu of signature in accordance with paragraph (a):

and he shall hand such report, so dictated, written, signed by mark, and witnessed, to a responsible official of the mine within 12 hours of the time when he shall have so discovered gas.

(2) In mines in which safety-lamps are used, any workman who becomes aware of the presence of inflammable gas shall at once report the fact to the nearest official; but such report need not necessarily be made in writing.

(3) It shall be the duty of any and every official to whom any report of the finding of gas is made by any workman to communicate such report immediately by the most expeditious means reasonably available to the Manager or Under-manager, whichever may be the more readily accessible; and the book containing the written report, or, if it be more convenient, a copy of such report, or, if the report be not made in a book, then the original, shall be, also, as early as may be practicable, taken or sent by the officer who shall first have possession, or become aware, of such report, to the Manager or Under-manager.

149. As an amendment following as a consequence on the recommendation in the preceding paragraph, the Commission recommend that General Rule 38 be altered as here shown:

The books mentioned in these Rules shall be provided by the owner, agent, or manager; and the books, or a correct copy thereof, shall be kept at the office of the mine, EXCEPT WHERE OTHERWISE PROVIDED BY THIS ACT; and any Inspector under this Act and any person employed in the mine may, at all reasonable times, inspect, and take copies of, and extracts from, any such books; but nothing in these Rules shall be construed to impose the obligation of keeping any such book or a copy thereof for more than ~~twelve months~~ THREE YEARS after the book has ceased to be used for entries therein under this Act. Any report by this Act required to be recorded in a book may be partly in print, including lithographs, and partly writing.

SUGGESTION No. 31.

SUGGESTION No. 31.

From Mr. A. A. Atkinson, Chief Inspector of Coal Mines :—

That, at Collieries employing more than 20 persons, a tracing of the workings should be kept, showing the direction of the air-currents, the positions of the air-crossings, doors, stoppings, &c. This tracing to be posted up at least once in every twelve months; and to be posted up for general information.

150. The Commission recommend that the following provision be inserted in the Act :—

- (a) At all mines where more than 20 workmen are employed there shall be kept a tracing of the plan of the workings, on which shall be shown (1) the directions of the air-currents by which the workings are ventilated; and (2) the positions of air-crossings, doors, screens, stoppings, brattices, &c.; and this tracing shall be open to the inspection of the Miners' Check Inspectors for the time being;
- (b) such tracing shall, from time to time, at intervals which shall not exceed six months, be posted with the additional information rendered necessary by the extension of the workings.

SUGGESTION No. 32.

From Mr. J. Wynn, ex-miner, and Miners' Check Inspector (Illawarra District), and Mr. W. Bower, ex-miner, and Miners' Check Inspector (Newcastle District) :—

That the law, which, at present, requires Check Inspectors to be "practical *working* miners," should be amended by the omission of the word "working."

From Mr. W. Bower :—

That the prohibition contained in the Act against the appointment of a Mining Engineer as a Check Inspector be repealed.

151. The President and Mr. Ritchie recommend that General Rule 39 be amended as follows :—

Rule 39.—~~The persons employed in a mine may from time to time appoint at their own cost two of their number or any two persons not being mining engineers who are practical working miners~~ EITHER ONE OR TWO PERSONS to inspect the mine at their own cost: and the PERSON OR persons so appointed shall be allowed AT ANY REASONABLE TIME ~~once at least in every month,~~ accompanied, if the owner, agent, or manager, of the mine thinks fit, by himself or one or more officers of the mine, to go to every part of the mine, and to inspect the shafts, levels, planes, working-places, return airways, ventilating apparatus, old workings, and machinery. Every facility shall be afforded by the owner, agent, and manager, and all persons in the mine, for the purpose of inspection: and the PERSON OR persons appointed shall forthwith make a true report of the result of the inspection; and that report shall be recorded in a book to be kept at the mine for the purpose, and shall be signed by the PERSON OR persons ~~who made~~ MAKING the inspection: and if ~~the report states the existence or apprehend existence of any danger,~~ the owner, agent, or manager, shall forthwith cause a true copy of the report to be sent to the inspector of the district.

152. Mr. Robertson does not see his way to concur in leaving out the words "not being mining engineers," but thinks that they should follow the word "miners"; he is also of opinion that the provision imposing upon the mine management the duty of forwarding a copy of the report to the Inspector should be repealed, and that this duty should be cast on the Check Inspector. The President and Mr. Ritchie think the Rule had better be amended as above.

SUGGESTION No. 33.

From Mr. W. Bower :—

That the provision in the Act, requiring objections by Unions to proposed Special Rules to be forwarded to the Department in print, be repealed.

153. Mr. Bower, and the other witnesses who mentioned this subject, have been misled by the involved phraseology of section 51 of the present Act, which they have understood to mean that miners who may raise objections to proposed special rules must forward them, *printed*, to the Inspector; whereas in fact the provision contained in this section which has been wrongly applied by them is that
the

the owners of the mine shall *exhibit a printed notice* stating that objections may be made. The Commission recommend that, in amending the Act, the following re-draft of this section be adopted :—

Section 51. Subsection (2) The owner, manager, or agent, of the mine shall, during not less than two weeks before the proposed special rules shall be transmitted to the Inspector, KEEP posted up, or cause to be KEPT posted up (in like manner as is provided in this Act respecting the publication of Special Rules for the information of persons employed in or about the mine) ;

- (a) the proposed special rules ; and
- (b) a printed notice TO THE EFFECT that any objection to the proposed special rules (on the ground of anything contained therein or omitted therefrom) may be sent, in writing, by any of the persons employed in or about the mine, to the Inspector of the District, at his address, which shall be stated in the notice.

And a certificate that the Rules and notice have been so posted up shall be sent to the Inspector, with two copies of the rules, signed by the person sending the same.

SUGGESTION No. 34.

From Mr. W. Bower :—

That refuse or small coal should not be stowed behind brattice in airways.

154. The Commission consider that the provisions of the Act with regard to ventilation sufficiently safeguard the interests of the miners against the practice of stowing waste in airways being carried to such an extent as to cause danger by interfering with the supply of air : this being the only danger to be apprehended, even remotely, from such a practice. The Commissioners are, therefore, of opinion that there is no need for any alteration of the law in the direction proposed.

SUGGESTION No. 35.

From Mr. T. Coulson, ex-miner, Helensburgh :—

That an inspection of each mine be made, once in every six months, by a representative of the mine (the Under-manager), a representative of the miners (the Check Inspector), and the Government Inspector, conjointly ; and that the report be published.

155. The Commission do not see their way to endorse this recommendation.

The following are suggestions which have occurred to the Commission when considering the evidence :—

SUGGESTION No. 36.

156. The Commission recommend that the following be inserted in the Act as a new clause :—

Wherever any duty is imposed upon any Deputy and Shot-firer or Under-manager of a mine by virtue of the provisions of the Act such duty may be discharged by the Under-manager or the Manager.

SUGGESTION No. 37.

157. The Commission recommend that section 20, subsection (1), of Act, be amended by omitting certain portions as shown hereunder :—

20. (1) 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, or with the control, management, or direction, thereof by the manager to be dangerous or defective, ~~so as in his opinion to threaten or tend to the bodily injury of any person,~~ he may give notice in writing thereof to the owner, agent, or manager, of the mine : and HE shall state in the notice the particulars in which he considers the mine or any part thereof, or any matter, thing, or practice, to be dangerous or defective ; and SHALL require the same to be remedied ; and HE shall, unless the same be forthwith remedied, report the same to the Minister.

SUGGESTION No. 38.

SUGGESTION No. 38.

158. The Commission recommend that section 25 of the Act be amended as follows, in order to provide for the representation of miners at arbitrations under the Act :—

Section 25 :—With respect to arbitration under this Act, the following provisions shall have effect, and, except where they are inconsistent with the provisions of this Act, the provisions of the Arbitration Act, 1902, shall apply to arbitrations under this Act :—

- (a) the parties to the arbitration are in this section deemed to be the owner, agent, or manager, of the mine, on the one hand, and the Inspector of Mines (on behalf of the Minister) on the other :

PROVIDED THAT THE PERSONS EMPLOYED IN OR ABOUT THE MINE MAY ALSO BE PARTIES TO ANY SUCH ARBITRATION : AND THAT, IF SUCH PERSONS EMPLOYED IN OR ABOUT THE MINE MAKE APPLICATION TO THAT EFFECT, THE MINISTER SHALL APPOINT A DISTRICT COURT JUDGE TO BE A SINGLE ARBITRATOR IN LIEU OF THE BOARD OF ARBITRATORS AFORESAID : AND SUCH SINGLE ARBITRATOR SHALL BE ASSISTED BY THE ARBITRATOR APPOINTED BY THE MANAGEMENT, AS ASSESSOR, AND BY ANOTHER ASSESSOR TO BE APPOINTED BY THE WORKMEN SO MAKING APPLICATION.

(The rest of the section to stand as in Act.)

SUGGESTION No. 39.

159. In order to make provision for the representation of miners at Inquests on the victims of colliery accidents, the Commission recommend that section 26 of Act, subsection (h), be amended by adding words as shown hereunder :—

(h) any relative of any person whose death may have been caused by the explosion or accident with respect to which the inquest is being held, and the owner, agent, or manager, of the mine in which the explosion or accident occurred ; and any EXECUTIVE OFFICER OF ANY UNION OF WORKMEN, OR ANY person appointed by the order in writing of the majority of the workmen employed at the said mine ANY MINE WHERE THERE IS NO UNION OF WORKMEN, shall be at liberty to attend and examine any witness, either in person or by his counsel, solicitor, or agent.

SUGGESTION No. 40.

160. The Commission recommend that section 28, subsection (2), of Act be amended as under :—

(2) The owner, agent, or manager, of the mine shall, on request at any time of an inspector under this Act, produce to him, IN CONFIDENCE, at the office of the mine, such plan and section, and shall also on the like request mark WITHIN A REASONABLE TIME on such plan and section the then state of the workings of the mine ; and the inspector shall be entitled to examine the plan and section, and for official purposes AND IN CONFIDENCE only to make a copy of any part thereof respectively, AND SHALL NOT ALLOW ANY SUCH PLAN OR TRACING OR COPY THEREOF TO LEAVE HIS CUSTODY, OR TO BE COPIED OR USED FOR ANY PURPOSE OTHER THAN SUCH AS ARE PROVIDED FOR IN THIS ACT.

SUGGESTION No. 41.

161. The Commission recommend that the following provision be inserted in the Act :—

On application made to a Supreme or District Court Judge, by any person who has been injured in any mine, or who is the legal personal representative of any deceased person whose death was caused by injuries received in any mine, after notice to the management (the sufficiency of such notice to be in the discretion of the Judge), whether any action has been commenced or not, such Judge shall have power to make an order for the inspection (in confidence) of the mine plan by such person or his legal adviser on such terms and conditions as he (the Judge) may think fit : provided that the proprietors of the mine shall have the right to be represented at such inspection of the plan by any person whom they may appoint.

162. The Commission consider that, if this recommendation be carried out, it may prevent, in some cases, useless suits for damages being begun.

SUGGESTION No. 42.

163. The Commission recommend that section 47, General Rule 21 (page 35 of Act), be amended as under :—

Rule 21.—Where the natural strata are not safe, every working or pumping shaft shall be securely cased, lined, or otherwise made secure. Every shaft in course of sinking shall be kept clear of all noxious AND INFLAMMABLE gases by a fan or some other appliance.

SUGGESTION No. 43.

SUGGESTION No. 43.

164. The Commission recommend that General Rule 24 be struck out and a new rule be inserted, as follows :—

~~Where there is a downcast and furnace shaft to the same seam, and both such shafts are provided with apparatus in use for raising and lowering persons, every person employed in the mine shall, on giving reasonable notice, have the option of using the downcast shaft.~~

New Rule 24 :—

NO SHAFT IN WHICH PERSONS ARE LOWERED FROM AND RAISED TO THE SURFACE OF ANY MINE IN CONNECTION WITH THE ORDINARY WORKING OF SUCH MINE SHALL BE USED TO CONDUCT FROM ANY FURNACE TO THE SURFACE THE FUMES, SMOKE, HEATED AIR, OR GASES RESULTING FROM COMBUSTION :

PROVIDED THAT NOTHING IN THIS RULE SHALL BE CONSTRUED TO PREVENT WORKMEN BEING RAISED OR LOWERED IN A SHAFT WHICH IS SO USED, IF SUCH WORKMEN ARE ENGAGED IN THE INSPECTION OR REPAIRING OF SUCH SHAFT.

SUGGESTION No. 44.

165. The Commission recommend that General Rule 26 (page 36 of Act) be amended by striking out words as shown hereunder :—

Every working shaft used for the purpose of drawing minerals or for the lowering or raising of persons shall ~~-(if exceeding fifty yards in depth)-~~ and not exempted in writing by the Inspector of the district, be provided with guides and some proper means of communicating distinct and definite signals from the bottom of the shaft, and from every entrance for the time being in use between the surface and the bottom of the shaft, to the surface, and from the surface to the bottom of the shaft, and to every entrance for the time being in use between the surface and the bottom of the shaft.

SUGGESTION No. 45.

166. As the Act stands at present, though miners have the right to object to any proposed Special Rules, they have no statutory power to propose amendments of Rules which have once been put in force. In order to grant them this privilege, the Commission recommend that the following new sub-section be added to section 53 of the Act :—

(3) After special rules are established in any mine, any modification of them, by way either of omission, alteration, substitution, or addition, may be proposed, in writing, to the Inspector of the District, for the approval of the Minister, by any number of persons, employed in or about the mine, being not less than one-fourth of those who are directly affected by the rule or rules so proposed to be modified ; and such proposed modifications shall be dealt with in like manner as is provided for dealing with amendments proposed by the owner, manager, or agent, of the mine under sub-section (1) of this clause :

Provided that the person or persons so proposing amendment of the special rules shall forward at the same time to the owner, manager, or agent, of the mine a true copy of the letter to the Inspector in which such amendment is proposed.

SUGGESTION No. 46.

167. The Commission recommend that a new section be inserted in the Act as follows :—

Should any workman become aware of any defect or defects in the condition of the mine or of the machinery or appliances connected therewith, or suspect danger from any cause whatever, he shall at once report the circumstance to an official of the mine ; but he shall, if it comes within the scope of his duties, and if he is able to do so, remedy such defect or defects ; and, in every case, he shall, if it appears to him to be necessary, take such steps as he may deem possible and advisable to prevent danger to life or injury to property. He shall not use any machinery or other appliance that seems to him to be unsafe, unless impelled to do so by the urgency of avoiding imminent danger to life.

Whenever any danger or defect or supposed danger or defect is reported to an official, such official shall, in addition to remedying it, make a memorandum in writing of such report in a book to be kept at the colliery for the purpose.

SUGGESTION No. 47.

168. The provision inserted in the suggested alteration of Rule 12 that, when explosive charges are to be fired, the bark shall be stripped from all timber within a radius of 20 yards, has suggested to the Commission a matter which appears to have some considerable importance in relation to the safety of mines from fire ; and they therefore recommend that, in future, no timber shall be taken into any mine unless the bark is first stripped from it.

There are three important reasons for adopting this course, (1st) the danger of fire being caused by the leaving of the dry bark on props used or to be used in a mine; (2nd) the similar danger of fire caused by leaving timber in that condition in stacks above-ground; and (3rd) the Commission have good reason to believe that where such timber as is cut for use as props is kept, after being cut, for some time before being used in the mine, its strength and durability are very prejudicially affected by the bark being left on it.

SUGGESTION No. 48.

169. The Commission recommend that in Rule 10 the following amendments be made:—

10. In any mine or ~~part of a mine~~ in which safety-lamps are required by this Act, or by the Special Rules made in pursuance of this Act, to be used,—

(a) To stand as in Act.

(b) To stand as in Act.

(c) To stand as in Act.

(d) A person shall not have in his possession any lucifer match or apparatus of any kind for striking a light OR ANY DESCRIPTION OF CIGARETTE, CIGAR, OR TOBACCO-PIPE. ~~except within a completely closed chamber attached to the face of the shot.~~

170. In making these recommendations, the Commission, having no knowledge whether, if effect were given to the recommendations, the present Act would be amended, or an entirely new Act drafted, have merely recommended that alteration be made "in the Act."

Conclusion.

We have now completed the arduous and responsible duty which Your Excellency has seen fit to entrust to us; to the very best of our ability; with a due sense of the honor which Your Excellency has conferred upon us by this Your Commission; and in the earnest hope that the result of our investigations may prove of substantial benefit to all concerned in the coal-mining industry of this State and to the public generally, and that the avoidance of such disasters as that which has led to the holding of this Inquiry may be a result of our endeavours. But, before closing our report, we beg leave to bring under Your Excellency's notice a few matters connected with the conduct of this Inquiry. First, when we undertook it, we were led to expect—and we feel that the general public also understood—that it was likely to be completed within a few weeks from the time of our beginning the investigation. It is now over six months since Your Excellency's Commission was issued, and five months since we first visited the mine, before taking evidence at Wollongong. Yet Your Excellency may rest assured that from the first we have used our very best endeavours to complete the matter within the earliest possible date, and that it was, in the beginning, due to certain unavoidable circumstances beyond our control, and has been, since we began our investigation, owing to the great extent and complexity of the subjects to be dealt with by us, that the Inquiry has been, necessarily, prolonged; and we assure Your Excellency that we look forward to its close with a great sense of relief. Though meeting, as Commissioners, at certain times which appear on the minutes, as frequently as was possible, consistently with our own other unavoidable duties and the ability of our staff to keep the work from overrunning their most zealous endeavours to cope with it, we may be permitted to inform Your Excellency that the hours, by day and night, also devoted by us to work connected with the Inquiry bear a very large proportion to the time which the minutes disclose as having nominally been consumed by us on the duties incident to the Inquiry. And these remarks naturally lead us to a mention of the ability, industry, and zeal, displayed by the staff employed in the secretarial, reporting, and general work of the Commission; which we are very pleased to have this opportunity of acknowledging. And, especially, we desire to express our indebtedness to Mr. John Garlick, the Secretary and principal Shorthand-writer, for the very remarkable ability, the unremitting attention and zeal, the cheerfulness and tact, and the extraordinary industry, which he has displayed throughout, and which have been of quite invaluable assistance to us,

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from the very first moment of his appointment to the completion of the report, in the framing of which his powers of orderly arrangement and of composition, his industry, and his understanding and recollection of the evidence, were of such service to us that we feel convinced that without his valuable aid we should have taken a very much longer time, and should have had incalculably more labour and difficulty, in completing our work. We most strongly recommend Mr. Garlick to Your Excellency's notice, both as an officer especially entitled to consideration on account of merit and ability, and as one who, in this particular instance, deserves a very substantial recognition of his services, which we can safely say have saved much expense to the State; while we are aware that, in the course of the performance of his duties, continuing for months, he uncomplainingly devoted extraordinarily long hours to very fatiguing work. We have also to thank the various permanent Heads of Departments, and the members of their staff, with whom we have come in contact, and especially the Chief Inspector of Coal Mines, for the valuable assistance, the courtesy and consideration, which they have extended to us, thereby very effectively assisting us in various ways in the course of our Inquiry.

We have the honor to be,

Your Excellency's most obedient Servants,

(Sd.) C. E. R. MURRAY,
President.

(Sd.) D. A. W. ROBERTSON,
Commissioner.

(Sd.) DAVID RITCHIE,
Commissioner.

Sydney, May 20, 1903.

**ROYAL COMMISSION OF INQUIRY RESPECTING THE MOUNT KEMBLA
COLLIERY DISASTER.**

MINUTES OF MEETING.

FRIDAY, 5TH DECEMBER, 1902.

[District Court Offices, Sydney.]

Present :—His Honor Mr. District Court Judge Murray (President); D. A. W. Robertson, Esq.;
D. Ritchie, Esq.

Mr. J. Garlick, Principal Short-handwriter to the Public Service Board, attended the meeting as Secretary to the Commission.

By direction of the President the Secretary read the Commission, which was found to be dated 5th November, 1902, and to have currency for one month.

The President moved, and it was resolved,—“That the Secretary be instructed to write to the Principal Under Secretary, asking that the currency of the Commission be extended for one month.”

A letter from the Secretary to the Public Service Board to the President, dated 3rd December, 1902, notifying the appointment of Mr. J. Garlick as Secretary and Shorthand-writer to the Commission was read and received.

It was resolved, after discussion, that the Commission should visit Mount Kembla Mine on Tuesday and Wednesday, the 9th and 10th December, 1902; and that the first sittings for the taking of evidence should be held at the Court house, Wollongong, on Tuesday, the 16th December, at 11.30 a.m.

As the Commission desired to sit from day to day continuously, the Secretary was directed to write to the Under Secretary, Department of Mines, asking for the necessary assistance. A letter in accordance with this resolution was submitted and approved.

The Secretary reported that, by direction of the President, he had written the following letters, which were read and approved :—

1. Dated 4/12/02, to Mr. Barry, solicitor, as to date of meeting.
2. Dated 4/12/02, to Under Secretary for Mines, asking for advance of £50 for expenses.
3. Dated 4/12/02, to Under Secretary for Mines, asking for railway ticket order book.
4. Dated 4/12/02, to Under Secretary for Mines, asking for authority to obtain stationery, &c.
5. Dated 4/12/02, to Secretary Public Service Board, asking for assistance of shorthand-writer and two typists.
6. Dated 4/12/02, to Under Secretary for Mines, asking for assistance of shorthand-writer and two typists.
7. Dated 4/12/02, to A. A. Lysaght, Esq., solicitor, as to date of meeting and proposed procedure.
8. Dated 5/12/02 do

The Secretary submitted a draft of an advertisement to be inserted in each of the Sydney and Wollongong papers. The draft was approved.

The Secretary reported that he had made personal application to the Department of Justice for the use of the Court House, Wollongong, for the sittings of the Commission; but it had been found that the Court House could not be spared on Mondays and Thursdays, and the Justice Department suggested that the Town Hall should be secured.

The Commissioners then waited personally upon the Under-Secretary, Department of Justice, who promised to arrange for the use of the Court House to be granted, as the Commissioners considered the Town Hall to be unsuitable.

Mr. Barry (Curtiss and Barry, Solicitors), representing the Mount Kembla Coal and Oil Company, then waited on the Commission, and suggested that the investigations of the Commission should be conducted without allowing legal assistance to any of the parties, who should furnish the Commission with the names of their witnesses, but leave the questioning of those witnesses, the eliciting of evidence, to the Commission. By this plan, he said, all feeling would be eliminated from the proceedings, and the parties would be saved much expense.

The President, after consulting his colleagues, informed Mr. Barry that the Crown proposed to be represented by Counsel, and if other parties desired to be represented the Commission could not see their way to refuse. Apart from that the presence of legal gentlemen would be a help to the Commissioners, upon whom much work would devolve if they had to elicit the evidence themselves.

Mr. Barry was informed that the Commission intended to visit the mine on Tuesday and Wednesday. He then withdrew.

The meeting then adjourned.

J. GARLICK, Secretary, 5th December, 1902.

Minutes read and confirmed at meeting on 22nd December, 1902.—C. E. R. MURRAY, President.
December 22, 1902.

MINUTES OF MEETING.

TUESDAY, 16TH DECEMBER, 1902.

[The Commission met at 10.50 a.m. at the Railway Station, Wollongong.]

Present :—His Honor Mr. District Court Judge Murray (President); D. A. W. Robertson, Esq.;
D. Ritchie, Esq.

The Commission drove to Mount Kembla Mine, which they entered by the Main Tunnel, turning off along the No. 1 Right engine road. The roads leading into the 35 acre goaf were inspected, and, after proceeding to the end of the No. 1 Right engine road, the Commission returned by the travelling road parallel to it.

Mr. W. Rogers, Mine Manager, Mr. Hotchkis, Under Manager, and Mr. Morrison, Fireman, accompanied the Commission on this inspection.

The Commission then adjourned until next day.

J. GARLICK, Secretary, December 16th, 1902.

Confirmed.—C. E. R. MURRAY, President,
December 22, 1902.

MINUTES OF MEETING.

WEDNESDAY, 17TH DECEMBER, 1902.

[The Commission met at Wollongong.]

Present :—His Honor Mr. District Court Judge Murray (President), D. A. W. Robertson, Esq.,
D. Ritchie, Esq.

The Commission drove to Mount Kembla Mine, which they entered by the Main Tunnel, accompanied by Mr. W. Rogers, Mine Manager, Mr. Hotchkis, Under-Manager, and Mr. Morrison, fireman. They proceeded along the Main Tunnel as far as the ventilating shaft and furnace, examining, on the way, portions of the No. 3 Right, No. 4 Right, and No. 5 Right roads. After inspecting the furnace the Commission traversed No. 6 Right rope road, and proceeded through the workings to Powell's flat, Price's flat, Stafford's bord, thence to the $\frac{3}{4}$ -acre goaf and through the workings to the back heading of No. 1 Right rope road. There, what were taken to be indications of fire at the time of the explosion were seen, and samples of apparently coked coal-dust were taken for purposes of analysis. The Commission then inspected bord No. 87, and in the first line of cuts-through off this bord other indications of fire were found. Specimens of coal-dust were taken from a prop in this portion of the mine for analysis also. The Commission returned by way of No. 1 Right engine road.

The Commission then adjourned until Monday, 22nd December, at their Room, 72a Phillip-street Sydney.

J. GARLICK, Secretary, December 17, 1902.

Confirmed.—C. E. R. MURRAY, President,
December 22, 1902.

MINUTES OF MEETING.

MONDAY, 22ND DECEMBER, 1902.

[The Commission met at the Board Room, No. 72a Phillip-street, Sydney, at 11 a.m.]

Present :—His Honor Mr. District Court Judge Murray (President); D. A. W. Robertson, Esq.;
D. Ritchie, Esq.

The minutes of the three preceding meetings were read and confirmed.

It was resolved that the Commission should sit at Wollongong on Tuesday, 6th January, 1903, and following days for the purpose of taking evidence. The Secretary was instructed to so notify all persons concerned.

The Secretary reported having written to the Principal Under-Secretary asking for the extension of the Commission for one month as resolved at the meeting on the 5th instant. The reply of the Principal Under-Secretary (dated 10th December, 1902), was read and received. The Secretary was instructed to acknowledge the receipt of the Governor's minute extending the Commission, and to ask for a further extension of one month.

A letter from the Secretary to the Mount Kembla Coal and Oil Company, containing a list of witnesses whom the Company desire the Commission to examine, was received, and the Secretary was instructed to inform the Company that their request would be acceded to. (Dated 18th December, 1902).

A letter from the Secretary to the Mount Kembla Coal and Oil Company (dated 18th December, 1902), asking that, in the event of certain witnesses being called, they might be examined in Sydney, was received. Instructions were given to reply that the request would be granted.

A letter from George Lyell, miner, Nymagee, offering to give evidence, was received, and the Secretary reported having written to Mr. Lyell asking what was the nature of the evidence he could give. The Secretary's action was endorsed.

A letter from Mr. Lysaght, solicitor, dated 8th December, 1902, stating that he had been instructed to appear before the Commissioner on behalf of (a) representatives of deceased miners, wheelers, &c. (victims of the explosion); (b) employees of Mount Kembla Colliery; and (c) the Illawarra Colliery Employees' Association, was received. The Secretary was instructed to ask Mr. Lysaght for a list of the witnesses whom he proposed to call, with an estimate of the time their examination would occupy.

A letter from the Honorable the Minister for Mines was received (dated 11th December, 1902) appointing Mr. W. R. Pratt to be Assistant Shorthand-writer to the Commission.

A letter dated 8th December, 1902, was received from Mr. A. A. Atkinson, Chief Inspector of Coal-mines, forwarding a lithograph plan of Mount Kembla Mine, with particulars noted thereon from the evidence given by the witnesses at the Coroner's Inquest respecting the explosion.

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The Secretary submitted an amended draft advertisement for insertion in the newspapers in mining districts, together with a paragraph to be supplied to the papers inviting persons possessed of information respecting the questions to be inquired into by the Commission to communicate with the Secretary. The advertisement and paragraph were approved.

After discussion, it was resolved that for miners from the Illawarra District attending to give evidence the Commission should pay 10s. per day, together with the necessary coach and train fares: for other witnesses it was resolved to adopt the District Court scale of fees.

It was further resolved that, in order to facilitate the keeping of a proper check, witnesses should be required to sign an Attendance Book each day they were necessarily in attendance upon the Court on subpoena, and that they should only be paid for the days on which their attendance could be authenticated by their signatures in that Book.

The Commission then proceeded to consider the evidence taken at the Coroner's Inquest, in conjunction with the plan of the mine.

At 1.15 the Commission adjourned for lunch, resuming at 2.30 p.m.

The Commission further considered the evidence.

The Secretary was instructed to write to the Mines Department for a copy of the Mining Act of 1876; and to ask if there was any record in the Department of any persons having been burnt in Mount Kembla Mine prior to 31st July, 1902.

A quantity of formal correspondence respecting the supply of a Railway Ticket Order Book, the Royal Commissions Act No. 23-1901, the Depositions at the Inquest, the furnishing of the Board Room, the arrangements to inspect the mine, &c., &c., was read and received.

At 4.45 the Commission adjourned until next day.

J. GARLICK, Secretary, December 22nd, 1902.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 23RD DECEMBER, 1902.

[The Commission met at 10 a.m. on Tuesday, 23rd December, 1902, at the Board Room, No. 72A, Phillip-street, City.]

Present:—His Honor Mr. District Court Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of last meeting were read and confirmed.

The Secretary reported that he had written a number of letters as directed by the Commission on the previous day. The letters were read and approved.

The Secretary reported that he had written to the Government Analyst asking that officer to make microscopical and analytical tests of the specimens of coal-dust taken at the inspection of the Mount Kembla Coal Mine.

The Commission instructed the Secretary to obtain for them a copy of Dr. Haldane's report on colliery explosions.

The Secretary submitted particulars of the cash expended to date, amounting to £7 5s. 3d. The expenditure was approved.

The Commission then adjourned until Tuesday, 30th instant.

J. GARLICK, Secretary, December 23rd, 1902.

Confirmed.—C. E. R. MURRAY, President,
December 30th, 1902.

MINUTES OF MEETING.

TUESDAY, 30TH DECEMBER, 1902.

[The Commission met at the Board Room, 72A, Phillip-street, Sydney, at 10 a.m.]

Present:—His Honor Mr. District Court Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Minutes of the previous Meeting were read and confirmed.

A letter from Mr. George Lyell, senr., miner of Nymagee, giving particulars of the nature of the evidence he desired to give before the Commission, was read; and the Secretary was directed to inform Mr. Lyell that the Commission, while thanking him for his offer to give evidence, did not think it would be necessary to put him to the trouble of attending for that purpose.

The Secretary was directed to remind Mr. Lysaght and the Secretary of the Mount Kembla Company respecting the list of witnesses asked for.

The Commission then proceeded with their reading of the depositions taken at the Coroner's Inquest.

At 1.5 p.m. the Commission adjourned for luncheon, resuming at 2.15 p.m.

After the adjournment the Commission continued their reading and consideration of the depositions taken at the Coroner's Inquest.

At 4 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, December 30th, 1902.

Confirmed.—C. E. R. MURRAY, President,
January 7th, 1903.

MINUTES OF MEETING.

WEDNESDAY, 31ST DECEMBER, 1902.

[The Commission met at the Board Room, No. 72A, Phillip-street, Sydney, at 9.30 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

A letter from Mr. A. Stevenson, of Beechwood, formerly a miner at Mount Kembla, in which he offered to attend as a witness, was received. The Secretary was instructed to obtain further information from Mr. Stevenson as to the nature of the evidence he could give.

The Commission then proceeded with the further consideration of the evidence taken at the inquest. At 12.30 p.m. the Commission adjourned until Tuesday, the 6th of January, at Wollongong.

J. GARLICK, Secretary, December 31st, 1902.

Confirmed.—C. E. R. MURRAY, President,
January 7th, 1903.

MINUTES OF MEETING.

TUESDAY, 6TH JANUARY, 1903.

[The Commission met at the Court-house, Wollongong, at 11.15 a.m. in the Judge's Room.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

Letters from Messrs. J. W. Bailey, Johnathan May, Silcock, and Mrs. A. Nixon were read, and the Secretary was instructed as to the replies to be sent.

The Commission then adjourned to the Court-room. Mr. Wade, on behalf of the Mount Kembla Coal Company, objected to Mr. Ritchie's sitting as a member of the Commission, in view of certain statements made by Mr. Ritchie when giving evidence at the Coroner's Inquest. Mr. Wade appealed to Mr. Ritchie to withdraw.

The President expressed every confidence in Mr. Ritchie as a perfectly fair, independent, unbiassed, unprejudiced and honorable member of the Commission.

Mr. Ritchie said his conclusions would be based entirely on the evidence brought before the Commission, apart altogether from any opinion he may have previously formed.

Mr. Wade expressed himself as perfectly satisfied to go on after what His Honor and Mr. Ritchie has said.

Mr. Lysaght submitted a number of recommendations from the Miners' Union Delegate Board, and from the Mount Kembla Branch of the Union.

Mr. Lysaght then called Mr. T. R. Morgan, whose evidence was taken.

At 1 p.m. the Commission adjourned until 2 p.m.

At 2 p.m. the examination of Mr. Morgan was continued; and he was cross examined by Messrs. Wade and Bruce Smith.

The Commission decided to sit each week on Tuesdays, Wednesdays, and Thursdays, while taking evidence of local witnesses in Wollongong.

At 5.15 p.m. the Commission adjourned till 9.30 a.m. next day.

J. GARLICK, Secretary, January 6th, 1903.

Confirmed.—C. E. R. MURRAY, President,
January 7th, 1903.

MINUTES OF MEETING.

WEDNESDAY, 7TH JANUARY, 1903.

[The Commission met at 9.30 a.m. in the Judge's Room, Court-house, Wollongong.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Minutes of the meetings held on 30th December, 1902, 31st December, 1902, and 6th January, 1903, were read and confirmed.

It was resolved that the depositions and exhibits put in at the Coroner's Inquest be put in as evidence before the Commission.

At 10 a.m. the Commission adjourned to the Court-room, sitting until 1 p.m., and from 2 p.m. to 4.40 p.m.

The evidence of the following witnesses was taken:—Biggers, E.; Maguire, J.; O'Sullivan, E.; Quinn, M.

At 4.40 p.m. the Commission adjourned until 9.15 a.m. next day.

J. GARLICK, Secretary, January 7th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 8TH JANUARY, 1903.

[The Commission met at 9.15 a.m. in the Judge's Room, Court-house, Wollongong.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Minutes of the previous meeting were read and confirmed.

A letter from Mr. J. Ryan, offering to give evidence, was received, and the Secretary was directed to inform Mr. Ryan that he would be summoned on some convenient day.

The Secretary was directed to ask the Mines Department for a copy of the report of an accident which occurred through a fall of the roof of a colliery in South Wales.

At

At 9:30 the Commission adjourned to the Court-room, for the purpose of taking evidence. They sat from 9:30 till 1, and from 2 till 3 p.m.

The following witnesses were examined:—Mr. C. Smith, Mr. F. McDonald.

At 3 p.m. the Commission adjourned till 11:30 a.m. next Tuesday.

J. GARLICK, January 8th, 1903.

Confirmed.—C. E. R. MURRAY, President,
January 13th, 1903.

MINUTES OF MEETING.

TUESDAY, 13TH JANUARY, 1903.

[The Commission met in the Judge's Room, Wollongong Court-house, at 11 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the previous meeting were read and confirmed.

The accounts for the period between December 30th and January 12th, amounting to £17 17s. 7d., were read in detail and approved by the Commission. The Secretary was instructed to ask the Under Secretary for Mines to take the necessary steps to replenish the Commission's advance by the amount expended to date £24 12s. 10d.

Formal correspondence was submitted and approved as written.

The Commission adjourned to the Court-room at 11:30 a.m., sitting till 1 p.m., and from 2 p.m. till 4:10 p.m.

The following witnesses were examined:—Mr. J. Silcock, Mr. J. May.

At 4:10 p.m. the Commission adjourned till 9:30 a.m. next day.

J. GARLICK, Secretary.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 14TH JANUARY, 1903.

[The Commission met in the Judge's Room, Wollongong Court-house, at 9:30 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the previous meeting were read and confirmed.

It was resolved that maps used to illustrate the evidence of witnesses at the Coroner's Inquest, but not put in as exhibits, at that inquest, should be put in as exhibits before the Commission.

At 10 a.m. the Commission adjourned to the Court-room, sitting till 1 p.m., and from 2 till 4:50 p.m.

The following witnesses were examined:—Mr. J. May, Mr. A. Hicks.

At 4:50 p.m. the Commission adjourned till 9:30 a.m. next day.

J. GARLICK, Secretary, January 14th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 15TH JANUARY, 1903.

[The Commission met at 9:30 a.m. in the Judge's Room, Court-house, Wollongong.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the previous meeting were read and confirmed.

Letters were received from Mr. Stevenson, Hastings River; and Mr. Dawson, Moss Vale; which the Secretary was instructed to acknowledge.

Formal correspondence with the Under Secretary, Department of Mines, was submitted and approved.

At 10 a.m. the Commission adjourned to the Court-room, sitting till 1 p.m., and from 2 to 3 p.m.

The following witnesses were examined:—J. Sweeney, J. Sells.

At 3 p.m. the Commission adjourned till 9:30 a.m. on Tuesday next.

J. GARLICK, Secretary, January 15th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY 20TH JANUARY, 1903.

The Commission met in the Judge's Room, Court-house, Wollongong, at 9:30 a.m.

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the previous meeting were read and confirmed.

The Secretary submitted details of the expenditure between 13th and 19th instant, amounting to £16 19s., which was passed by the Commission; and the Secretary directed to ask for the advance to be replenished by that sum.

A letter from Mr. J. W. Bailey, as to evidence which he desires to give before the Commission, was received, and the Secretary was instructed to inform him that he would be called later on.

The Secretary was directed to write to the Principal Under Secretary, asking for the extension of the Commission by one month.

Letters

Letters were received from the Under Secretary for Mines and Agriculture regarding expenses of staff, and report of accident in South Wales.

A letter was received from the Institution of Surveyors, N.S.W., asking the Commission to investigate the necessity for requiring mining surveyors to pass a qualifying examination. The Secretary was instructed to reply that the matter would receive consideration.

The Secretary submitted a letter which he had written to the Under Secretary for Mines and Agriculture respecting the payment of Mr. Pratt, the assistant shorthand-writer. The letter was approved.

At 10 a.m. the Commission adjourned to the Court-room, sitting till 1 p.m., and from 2.15 till 4.10 p.m.

The following witnesses were examined :—Mr. J. Sells, Mr. W. Marshall, Mr. R. Scott.

At 4.10 p.m. the Commission adjourned until next day at 9.30 a.m.

J. GARLICK, Secretary, January 20th, 1903.

Confirmed.—C. E. R. MURRAY, President.
January 21st, 1903.

MINUTES OF MEETING.

WEDNESDAY, 21ST JANUARY, 1903.

The Commission met in the Judge's Room, Court-house, Wollongong.

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The minutes of the last meeting were read and confirmed.

A letter from the Under Secretary for Mines was read, stating that Mr. Pratt is to be paid only for time employed.

A letter from the Government Analyst, giving the results of his tests of two samples of coal-dust from Mount Kembla, was read. The Secretary was instructed to obtain for him samples of the coal in the rib of the back heading where the dust was taken from the wall of coal.

The Secretary was further directed to obtain samples of dust from the roadway in No. 1 Main Level between the 4th Right and the 4th Left.

At 10 a.m. the Commission adjourned to the Court-room, sitting till 1 p.m., and from 2.15 till 3.20 p.m.

The following witnesses were examined :—P. Gleeson, M. A. Gleeson, C. Hammon, W. Harley.

At 3.20 p.m. the Commission adjourned until 9.30 next day.

J. GARLICK, Secretary, January 21st, 1903.

Confirmed.—C. E. R. MURRAY, President.
January 22nd, 1903.

MINUTES OF MEETING.

THURSDAY, 22ND JANUARY, 1903.

[The Commission met in the Judge's Room, Court-house, Wollongong, at 9.30 a.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The minutes of last meeting were read and confirmed.

The Secretary was instructed to write to the Sheriff and ascertain whether the use of a Court at Darlinghurst could be granted to the Commission for use after the taking of evidence at Wollongong shall have been completed ; also to arrange for offices for the Staff, as the lease of the office at present in use will expire on 31st instant.

A letter was received from the Under Secretary for Mines and Agriculture stating that the Government Printer would prefer the evidence to be printed on completion, not as the inquiry proceeded.

At 10.15 a.m. the Commission adjourned to the Court, sitting till 1 p.m., and from 2 to 3 p.m.

The evidence of the following witnesses were taken :—J. McLeod, S. Midgley, J. Raynor, C. Josland.

At 3 p.m. the Commission adjourned until 11.30 a.m., Tuesday next.

J. GARLICK, Secretary, 22nd January, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 27TH JANUARY, 1903.

[The Commission met in the Judge's Room, Court-house, Wollongong, at 11.15 a.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The Secretary submitted particulars of the amount expended during the period between the 19th and 26th instant, £20 15s. 8d., and was directed to ask the Under Secretary for Mines to replenish the Commission's Advance Account by that sum.

A letter was received from the Sheriff, stating that the Commission might have the use of the Land Appeal Court for its sittings in Sydney.

A letter was received from Mr. Coulson, of Helensburgh, offering to give evidence. The Secretary was instructed to ask Mr. Coulson for particulars of the evidence he desires to place before the Commission.

At 11.35 the Commission adjourned to the Court Room, sitting till 1 p.m., and from 2 till 4.

The following witnesses were examined :—Mr. J. Wynn, Mr. J. Morrison.

At 4 p.m. the Commission adjourned until 9.30 a.m. next day.

J. GARLICK, Secretary, 27th January, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 28TH JANUARY, 1903.

[The Commission met at the Judge's Room, Wollongong Court-house, at 9.30 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the last two meetings were read and confirmed.

A letter was received from the Under Secretary for Mines and Agriculture, asking that a copy of Mr. Jonathan May's statement, which the Commission declined to accept in evidence on the 14th instant, be supplied to the Department. The Commission decided that, as the statement was not admitted in evidence, they could not comply with the Under Secretary's request.

A letter was received from the Under Secretary for Mines and Agriculture, with further reference to the method of payment of Mr. Pratt, Assistant Shorthand-writer.

At 10 a.m. the Commission adjourned to the Court Room, sitting from 10 till 12.55, and from 2 till 4 p.m.

The following witnesses were examined:—Henry Jubb, W. Livingstone, Alexander McDonald.

At 4 p.m. the Commission adjourned until 9.30 a.m. next day.

J. GARLICK, Secretary, 28th January, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 29TH JANUARY, 1903.

[The Commission met at 9.30 a.m. in the Judge's Room, Wollongong Court-house.]

Present:—His Honor Judge Murray, (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the last meeting were read and confirmed.

After formal correspondence had been submitted, the Commission adjourned to the Court Room, sitting from 10 a.m. till 1 p.m., and from 2 to 2.30 p.m.

The following witnesses were examined:—A. McDonald, Thos. Muir, Thos. Johnson.

At 2.30 p.m. the Commission adjourned until 2 p.m. on Monday, 2nd February.

J. GARLICK, Secretary, 2nd February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 2ND FEBRUARY, 1903.

[The Commission met at the Land Appeal Court, Darlinghurst, at 2 p.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witness was examined:—John Morrison.

At 5 p.m. the Commission adjourned until 9.30 a.m. next day.

J. GARLICK, Secretary, 2nd February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 3RD FEBRUARY, 1903.

[The Commission met at 9.30 a.m. in Mr. Houston's Room, at the Land Appeal Court.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the previous meeting were read and confirmed.

Formal correspondence was read and received.

A letter was received from the Under Secretary Department of Mines and Agriculture, asking for an estimate of the probable cost of the Commission. The Secretary was instructed to prepare one on the supposition that the Commission will conclude its work in two months' time; but to inform the Department, when forwarding the estimate, that it can only be regarded as a rough approximation.

It was resolved that the Commission should meet for the transaction of business on Mondays at 10.30 a.m.; other meetings to be for the taking of evidence only.

It was decided to recommend the Under Secretary for Mines and Agriculture to grant £5 to the Sheriff's Officer, and Court Keeper, Wollongong, for extra services rendered to the Commission while taking evidence there during January.

At 10.15 a.m. the Commission adjourned to the Land Appeal Court, sitting till 1 p.m., and from 2 till 3.30 p.m.

The evidence of the following witnesses was taken:—Mr. J. Morrison, Mr. J. Heron, Mr. Biggers.

At 3.30 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, 3rd February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 4TH FEBRUARY, 1903.

[The Commission met at the Land Appeal Court, Darlinghurst, at 10 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witness was examined:—A. A. Atkinson, Esq., Chief Inspector of Coal Mines.

At 4 p.m. the Commission adjourned.

J. GARLICK, Secretary, 4th February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 5TH FEBRUARY, 1903.

[The Commission met at the Land Appeal Court, Darlington, at 10 a.m.]

Present: His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The evidence of the following witness was taken:—A. A. Atkinson, Esq., Chief-Inspector of Coal-mines.

At 4 p.m. the Commission adjourned.

J. GARLICK, Secretary, 5th February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 9TH FEBRUARY, 1903.

[The Commission met at Darlington Court-house at 2 p.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Minutes of the meetings held on January 29, and on February 2nd, 3rd, 4th, and 5th were read and confirmed.

The Secretary submitted particulars of the expenditure of the Commission for the weeks ended January 31st, and February 7th, amounting to £17 7s. 6d. and £5 17s. 7d. respectively, and was instructed to apply to the Under Secretary for Mines and Agriculture for the advance account to be replenished to the extent of the amount expended.

An anonymous letter signed "Bulli Miner" was received.

The Secretary submitted an estimate of the probable cost of the Commission, based on the past expenditure, and on the assumption that the Commission would last another eight weeks. Directions were given that the Under Secretary for Mines be informed of the amount of the estimate, roughly £1,200.

At 2.15 the Commission adjourned to the Land Appeal Court, sitting till 4 p.m.

The following witness was examined:—Mr. A. A. Atkinson, Chief Inspector of Coal-mines.

At 4 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, 9th February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 10TH FEBRUARY, 1903.

[The Commission met at the Land Appeal Court, Darlington, at 10 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq., D. Ritchie, Esq.

The following witness was examined:—Mr. A. A. Atkinson.

The Commission adjourned from 1 till 2 p.m., when the examination of Mr. Atkinson was continued.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, February 10th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 11TH FEBRUARY, 1903.

[The Commission met at the Land Appeal Court, Darlington, at 10 a.m., and sat till 1 p.m. and from 2 p.m. till 4 p.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witness was examined:—Mr. A. A. Atkinson, Chief Inspector of Coal-mines.

At 4 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, February 11th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 12TH FEBRUARY, 1903.

The Commission met at the Land Appeal Court, Darlington, at 10 a.m., and sat from 10 till 1, and from 2 till 2.45 p.m.

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witnesses were examined:—Mr. A. A. Atkinson, Chief Inspector of Coal-mines; and Mr. R. H. Cambage.

At 2.45 p.m. the Commission adjourned, as counsel were not prepared to continue the further examination of Mr. Atkinson until they had read through the remainder of his evidence, given by him this morning.

J. GARLICK, Secretary, February 12th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 16TH FEBRUARY, 1903.

The Commission met in Mr. Houston's room at the Court-house, Darlinghurst, at 10.30 a.m.

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the meetings held on 9th, 10th, 11th, and 12th February were read and confirmed. Formal correspondence was dealt with.

At 11 a.m. the Commission met in the Land Appeal Court, rising at 1 p.m. They sat again from 2 till 4 p.m.

The following witness was further examined:—A. A. Atkinson, Esq., Chief Inspector of Coal-mines.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, February 16th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 17TH FEBRUARY, 1903.

The Commission met at 10 a.m. at the Land Appeal Court, Darlinghurst.

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission sat from 10 a.m. to 1 p.m., and from 2 p.m. to 4 p.m.

The following witnesses were examined:—J. W. Bailey, T. Coulson, A. A. Atkinson, Chief Inspector of Coal-mines.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, February 17th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 18TH FEBRUARY, 1903.

The Commission met at the Land Appeal Court, Darlinghurst, at 11.45 a.m., and sat till 1 p.m., resuming again at 2 p.m. and sitting till 4.15 p.m.

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witness was examined:—W. Bower, Check Inspector, Newcastle.

At 4.15 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, February 18th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 19TH FEBRUARY, 1903.

[The Commission met at the Land Appeal Court, Darlinghurst, at 10 a.m., sitting till 1 p.m. and from 2 p.m. till 4.10 p.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witnesses were examined:—W. Bower, M. Gray, J. Patterson.

At 4.10 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, February 19th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 23RD FEBRUARY, 1903.

[The Commission sat at the Treasury, Macquarie-street, Sydney, from 11 a.m. till 1 p.m., and from 2 p.m. till 4.25 p.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witness was examined:—Mr. A. E. O. Sellers, Manager, South Bulli and Bellambi Coal-mines.

At 4.25 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, 23rd February, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MINUTES.

TUESDAY, 24TH FEBRUARY, 1903.

[The Commission sat at the Supreme Court, Sydney, from 10 a.m. till 1 p.m., and from 2 p.m. till 4.10 p.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witness was examined:—Mr. A. E. O. Sellers, Manager, South Bulli and Bellambi Collieries.

At 4.10 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, February 24th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 25TH FEBRUARY, 1903.

[The Commission sat at the Supreme Court from 2 p.m. till 4.40 p.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The following witness was examined :—Mr. D. McGeachie, Manager, West Wallsend Colliery.

At 4.40 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, February 25th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 26TH FEBRUARY, 1903.

[The Commission met at 9.30 a.m. at the Supreme Court, King-street, Sydney.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The minutes of meetings held on 16th, 17th, 18th, and 19th instant were read and confirmed.

A letter dated 16th instant was received from Mr. Jonathan May asking for copies of plans prepared by Mr. Cambage, or to be allowed to see them. Secretary's reply was read, informing Mr. May that he might see the plans at the office of the Commission.

A letter dated 17th instant was received from the Under Secretary for Mines, forwarding a letter dated 11th idem, sent by Mr. Ebenezer Vickery to the Premier, suggesting that certain gentlemen be called as witnesses. It was decided to place the letter before Mr. Wade, counsel for the Mount Kembla Company.

Letters were received from Messrs. Bower, Gray, and Paterson, witnesses, asking for further payment for expenses. The Commission decided to grant Mr. Bower an additional day's fee, 10s., and expenses, 7s. 6d. ; Mr. Bailey, the same ; Gray, 10s. fees ; and Paterson, 10s. fees, and 7s. 6d. expenses.

A letter was received from the Government Analyst, dated 16th instant, giving the results of his analysis of the coal from the face of No. 1 main back heading.

The Secretary was instructed to write to the Principal Under Secretary asking for the extension of the Commission for one month.

A letter dated 21st February, 1903, was received from Mr. W. Bower, Check Inspector, Northern District, forwarding two documents referred to in his evidence.

The Secretary submitted details of the accounts for the period between 9th and 21st February, totalling £9 17s. 1d. The expenditure was approved ; and the Secretary was instructed to apply for the advance account to be reimbursed by that sum.

Accounts from various newspaper proprietors, received through the Government Printer, for £7 4s., were passed for payment.

At 10 a.m. the Commission sat for the taking of evidence, continuing till 1 p.m. and from 2 p.m. till 3.45 p.m.

The following witnesses were examined :—Mr. S. H. Warburton, Surveyor, Mount Kembla Mine, Mr. A. E. O. Sellers, Manager, South Bulli and Bellambi Collieries.

At 3.45 p.m. the Commission adjourned till Monday, 2nd March, at 2 p.m.

J. GARLICK, Secretary, February 26th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 2ND MARCH, 1903.

[The Commission met at 2 p.m. at the Supreme Court, Sydney.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The following witnesses were examined :—W. Hay, J. Barr.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 2nd., 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 3rd MARCH, 1903.

[The Commission met at 9.30 a.m. at the Supreme Court, Sydney.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The minutes of the meetings held on 23rd, 24th, 25th, and 26th February, and on 2nd March, were read and confirmed.

The Secretary submitted a statement of the cash expended between 23rd and 28th February, 1903, £8 12s. 8d., which was approved, and the Secretary was instructed to apply to the Under Secretary for Mines with a view to replenish the advance account by that sum.

A letter was received from the Police Department reporting on the claim of Mr. John Heron, a witness, for payment of further fees and expenses. The Commission approved of the payment of an additional day's fee, 10s., and coach fare, 3s., directing that the latter be sent to the coach proprietor direct, and that 2s. be deducted from the former on account of payment of coach fare already made to Mr. Heron, but not paid by him to the coach proprietor.

A letter was received from Mr. J. Goodwin stating his desire to give evidence before the Commission.

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A letter was received from the Under Secretary for Mines conveying the Minister's approval to payment of a bonus of £5, to Sheriff's Officer Boys of Wollongong, as recommended by the Commission.

At 10 a.m. the Commission adjourned to the Court Room, sitting till 12.45, and from 1.45 till 4.20 p.m.

The following witnesses were examined :—Mr. J. Barr, Mr. G. Leitch.

At 4.20 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 3rd, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 4TH MARCH, 1903.

[The Commission met at 10 a.m. at the Supreme Court, Sydney, sitting till 12.45 p.m., and from 1.45 p.m. till 4 p.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The following witnesses were examined :—Mr. J. C. Jones, Dr. J. R. M. Robertson.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 4th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 5TH MARCH, 1903.

[The Commission met at the Supreme Court, Sydney, at 10 a.m., sitting till 12.45 p.m., and from 1.45 p.m. till 4 p.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The following witness was examined :—Dr. J. R. M. Robertson.

At 4 p.m. the Commission adjourned until Monday next.

J. GARLICK, Secretary, March 5th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 9TH MARCH, 1903.

[The Commission met at the Supreme Court at 12 noon, sitting till 1 p.m., and from 2 p.m. till 4 p.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The following witness was examined :—Dr. J. R. M. Robertson.

At 4 p.m. the Commission adjourned until next day.

J. GARLICK, Secretary, March 9th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 10TH MARCH, 1903.

[The Commission met at the Supreme Court at 9.30 a.m.]

Present :—His Honor Judge Murray (President) ; D. A. W. Robertson, Esq. ; D. Ritchie, Esq.

The minutes of the meetings held on the 3rd, 4th, 5th, and 9th March, were read and confirmed.

Letters were read as follow :—

- (1) From Principal Under Secretary, 5/3/03, forwarding extension of Commission for one month.
- (2) From Mr. J. Jeffries, Manager, Metropolitan Mine, offering to give evidence (5/3/03) ; and reply asking him to hold himself in readiness to come on receipt of notice.
- (3) From Mr. Jonathan May, *re* black-listing—submitted to counsel appearing before Commission, who intimated that they had no desire to supplement their cases by calling Mr. May on this point.
- (4) To Mr. John Heron, *re* expenses.

The Secretary submitted the accounts of the cash expended (12/2/10) between 13th February and 7th March, which were approved by the Commission.

An account from Stott and Hoare for the hire of a typewriter and table for two months at £1 2s. 6d. per month was passed for payment.

At 10 a.m., the Commission adjourned to the Court Room, sitting till 12.45 p.m., and from 1.45 till 4 p.m.

The following witnesses were examined :—Dr. J. R. M. Robertson, Mr. W. Rogers.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 10th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 11TH MARCH, 1903.

[The Commission met at the Supreme Court at 10 a.m., sitting till 12.45 p.m., and from 1.45 till 4 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witnesses were examined :—Mr. W. Rogers, Mr. J. C. H. Mingaye.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 11th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 12TH MARCH, 1903.

[The Commission met at 10 a.m., sitting till 12.30 p.m., and from 2 p.m. till 4 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witnesses were examined :—Mr. W. Humble, Mr. J. Jeffries.

At 4 p.m. the Commission adjourned till Tuesday next, 17th March, 1903.

J. GARLICK, Secretary, March 12th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY 17TH MARCH, 1903.

[The Commission met at the District Court (No. 2), King-street, at 10 a.m., and sat for the taking of evidence till 1 p.m., and from 2 p.m. till 4.10 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witnesses were examined :—Mr. W. Humble, Inspector of Mines, Newcastle; Mr. J. Jeffries, Manager, Metropolitan Mine, Helensburgh.

At 4.10 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 17th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 18TH MARCH, 1903.

[The Commission met at No. 2 District Court at 10 a.m., and sat till 1 p.m. for the taking of evidence, and from 2 till 4.15 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The evidence of the following witnesses was taken :—J. C. H. Mingaye, Esq., Analyst and Assayer, Mines Department; Mr. J. Goodwin, Municipal Engineer, Ashfield; T. Parton, Esq., Consulting Mining Engineer, Sydney; Mr. D. McGeachie, Colliery Manager, West Wallsend.

At 4.15 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 18th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 19TH MARCH, 1903.

[The Commission met at the No. 2 District Court at 10 a.m., and sat for the taking of evidence till 1 p.m., and from 2 till 4.15 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The following witnesses were examined :—P. J. Brownlee, W. Stafford, senior, H. Ramsay, and A. A. Atkinson, Esq., Chief Inspector of Coal-mines.

At 4.15 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, March 19th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

FRIDAY, 20TH MARCH, 1903.

[The Commission met at 10 a.m. at No. 2 District Court, Sydney, and sat till 12 noon.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The examination of Mr. A. A. Atkinson, Chief Inspector of Coal-mines, was concluded.

The Commission adjourned *sine die*.

J. GARLICK, Secretary, March 20th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 24TH MARCH, 1903.

[The Commission met at Wollongong at 8.30 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission drove to Mount Kembla, where they spent the day inspecting various portions of the workings; and made a number of tests for gas with the hydrogen flame. Full notes of the day's proceedings are incorporated with the Minutes of Evidence.

Mr. D. Hotchkis, Under Manager, Mount Kembla, was examined at bord No. 87 regarding the finding of a pipe.

About 5 p.m. the Commission left Mount Kembla and proceeded by train the same night to Helensburgh.

J. GARLICK, Secretary, March 24th, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 25TH MARCH, 1903.

[The Commission met at the Metropolitan Coal Company's Mine, Helensburgh, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission inspected the surface works and a portion of the underground workings, and then adjourned from 5 to 7 o'clock p.m., at which time they again met at the mine, and some experiments were made to test the inflammability of Mount Kembla and Metropolitan coal-dust, when suspended in the atmosphere in which an explosive is fired. Full particulars of these experiments are embodied in the Minutes of Evidence.

At 9 p.m. the Commission adjourned.

J. GARLICK, Secretary, March 25, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 26TH MARCH, 1903.

[The Commission met at No. 54 Young-street, Sydney, at 10 a.m., sitting till 12.45 p.m., and from 2 till 4 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission discussed the evidence and deliberated upon their report.

At 4 p.m. the Commission adjourned.

J. GARLICK, Secretary, March 26, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 1ST APRIL, 1903.

[The Commission met at No. 54 Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the meetings held on 10th, 11th, 12th, 17th, 18th, 19th, 20th, 24th, 25th, and 26th March, were read and confirmed.

Particulars of the petty cash expended between March 11th and 24th (£17 13s. 8d.) were submitted and the expenditure was approved.

A verbal application made by Mr. John Morrison, deputy, Mount Kembla, for a further allowance of expenses for attending as a witness was considered, and it was decided to grant him £1 in addition to the sum already allowed.

Letters were read and received as follow :—

- (1) From Under Secretary for Mines and Agriculture regarding the printing of the evidence (30/3/03):
- (2) From Under Secretary for Mines and Agriculture regarding appointment of Mr. A. H. Gelding as junior clerk:
- (3) To Mr. W. Rogers, Mount Kembla, asking for information as to ventilation of 4th Right (27/3/03):
- (4) From Mr. W. Rogers in reply to above (31/3/03):
- (5) To Mr. G. Leitch, late Under-Manager, Mount Kembla, asking for information as to ventilation of 4th Right (27/3/03):
- (6) To Mr. James Barr, asking him to return evidence sent to him for revision (28/3/03):
- (7) To Mr. D. McGeachie, *re* same:
- (8) To Mr. J. C. H. Mingaye, *re* same:
- (9) To Mr. W. Humble, *re* same:
- (10) To Dr. J. R. M. Robertson, *re* same:
- (11) From Dr. J. R. M. Robertson, reply to above, and also drawing attention to a paper by Dr. Bedson recently published (Vol. xxix, page 26, "Transactions of Federated Institute of Mining Engineers") (31/3/03):
- (12) To J. Ashworth, Esq., M.E., Derby, thanking him for papers forwarded:
- (13) To Mr. A. Stevenson, Hastings River, informing him that Commission did not think it necessary to call him.

The Secretary was instructed to write to the Principal Under Secretary asking for further extension of the Commission.

The

The Secretary was also instructed to send telegrams to Mr. Rogers and Mr. Leitch asking them to describe method by which 4th Right pillars were ventilated up to and at the time when the extraction of pillars was completed.

The minutes of the inspections by the Commission of Mount Kembla and Metropolitan mines on 24th and 25th March were read and passed; and directions were given to incorporate them with the evidence.

The Commission then proceeded with the consideration of the evidence, sitting till 1 p.m., and from 2.15 till 4.10 p.m.

Recommendations Nos. 1 to 7 were dealt with.

At 4.10 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, April 1, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 2ND APRIL, 1903.

[The Commission met at No. 54 Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Minutes of last Meeting were read and confirmed.

Letters to Mr. J. Morrison, the Principal Under Secretary, and Dr. Robertson, were read and approved.

A memorandum received from Dr. Robertson containing a quotation from a paper by Dr. Brookman, published in the "Transactions of the Federated Institute of Mining Engineers," Vol. 24, p. 26, was read and received.

The Commission then proceeded to further deliberate upon their report, sitting till 12.15 p.m., and from 2 till 4.15 p.m.

Recommendations 8, 9, 10, 11, and 12 were dealt with.

At 4.15 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary, 2nd April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

FRIDAY, 3RD APRIL, 1903.

[The Commission met at No. 54 Young-street, and sat from 10 a.m. till 1, and from 2 p.m. till 4.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission further discussed their report, dealing with Recommendations Nos. 12 to 22.

At 4 p.m. the Commission adjourned till next day.

J. GARLICK, Secretary.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 6TH APRIL, 1903.

[The Commission met at No. 54 Young-street, and sat from 10 a.m. till 1 p.m.]

Present :—D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission proceeded to further consider their report, Recommendations Nos. 23 to 36 being dealt with.

At 1 p.m. the meeting adjourned till next day, but Mr. Robertson attended the office from 2.45 till 4 p.m., and drafted a number of suggestions for next meeting.

J. GARLICK, Secretary.

Confirmed.—C. E. R. MURRAY, Commissioner.

MINUTES OF MEETING.

TUESDAY, 7th APRIL, 1903.

Mr. Ritchie attended at No. 54 Young-street, at 10 a.m., and from 10 to 12 prepared a number of suggestions for the Report.

[The Commission met at 12 noon, sitting till 1 p.m., and from 2 till 4 p.m.]

Present :—D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The preparation of the draft of the report was proceeded with.

At 4 p.m. the Commission adjourned.

J. GARLICK, Secretary.

Confirmed.—C. E. R. MURRAY, Commissioner.

MINUTES OF MEETING.

TUESDAY, 14TH APRIL, 1903.

[The Commission met at 54, Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of the meetings held on the 2nd, 3rd, 6th, and 7th instant were read and confirmed.

A letter dated 8th instant was received from the Under Secretary for Mines respecting the printing of the evidence, and another, dated 6th idem, forwarding a list of persons killed or injured in the disaster.

An account for £1 2s. 6d., for the hire of a typewriter and table for one month, was submitted and approved.

The Commission then proceeded with the preparation of their report, rising from 12.50 till 2.15 for lunch, and adjourned at 4 p.m.

J. GARLICK, Secretary, 14th April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 15TH APRIL, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

A letter dated 14th April, 1903, was received from the Mount Kembla Coal Company, forwarding a memorandum in Inspector Humble's writing, received by the Company from Mr. McGeachie, and containing notes of the inspection made by Messrs. McGeachie and Humble jointly in Mount Kembla Mine, on the 4th August, 1902. The report was forwarded as bearing on Mr. Humble's evidence respecting the inspection, he having stated that Mr. McGeachie found gas in the 4th Right, whereas the notes forwarded, written by him, contained no mention of this fact.

The Secretary was directed to write to Mr. Humble, asking if he could explain the discrepancy between his evidence and this memorandum.

The Commission then proceeded with the preparation of their report, sitting till 12.45, and from 2 till 3 p.m., when they adjourned till the 17th.

J. GARLICK, Secretary, 15th April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

FRIDAY, 17TH APRIL, 1903.

[The Commission met at No. 54, Young street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Secretary read the letter which he had written to Mr. Humble, as directed at last meeting, and it was approved.

The Secretary reported that the work for which Miss Blackwell, typist, had been engaged was completed. It was decided that she be instructed to report herself to the Public Service Board; and that the Under Secretary for Mines and Agriculture be so informed. The Secretary was directed to state, at the same time, that Miss Blackwell had given the utmost satisfaction in the performance of her duties; and to recommend that she be paid for the overtime she had worked.

A letter was received from the Principal Under Secretary forwarding an extension of the Commission for one month from 6th instant.

The Commission proceeded with the consideration of their report, sitting till 12.45 p.m., and from 2 till 4, when they adjourned.

J. GARLICK, Secretary, 17th April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 21ST APRIL, 1903.

[The Commission met at No. 54, Young street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

A letter, dated 17th April, 1903, was received from the Under Secretary for Mines and Agriculture, forwarding two copies of the "Colliery Guardian," brought under the notice of the Agent General in London by Mr. James Ashworth, mining engineer, Chaddesen, who directed attention to correspondence in the journal regarding the recent explosion at the McLaren Pit, Abertysswg.

A letter was also received from Inspector Humble explaining the discrepancy between his evidence and the notes he gave to Mr. McGeachie, as referred to in the minutes of 15th instant.

The Commission sat until 12.45, and from 2 till 4 p.m., preparing their report. At 4 p.m. they adjourned.

J. GARLICK, Secretary, 21st April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 23RD APRIL, 1903.

[The Commission met at No. 54, Young street, Sydney, at 10 a.m.]

Present.—His Honor Judge Murray (President); D. A. W. Robertson, Esq.

The Commission sat from 10 a.m. till 12.45 p.m., and from 2 till 4 p.m., considering the evidence and preparing their Report.

At 4 p.m. the Commission adjourned.

J. GARLICK, Secretary, 23rd April, 1903.

Confirmed—C. E. R. MURRAY, President.

MINUTES OF MEETING.

FRIDAY, 24TH APRIL, 1903.

[The Commission met at No. 54, Young street, Sydney, at 10 a.m.]

Present.—His Honor Judge Murray (President); D. Ritchie, Esq.

The preparation of the Report was proceeded with, the Commission sitting from 10 till 12.45, and from 2 till 4 p.m., when they adjourned.

J. GARLICK, Secretary, 24th April, 1903.

Confirmed—C. E. R. MURRAY, President.

MINUTES OF MEETING.

SATURDAY, 25TH APRIL, 1903.

[The Commission met at 54, Young-street, Sydney, at 10 a.m.]

Present.—His Honor Judge Murray (President); D. Ritchie, Esq.

The preparation of the Report was proceeded with from 10 a.m. till 12 noon, when the Commission adjourned.

J. GARLICK, Secretary, 25th April, 1903.

Confirmed—C. E. R. MURRAY, President.

MINUTES OF MEETING.

MONDAY, 27TH APRIL, 1903.

[The Commission met at 54, Young-street, Sydney, at 10 a.m.]

Present.—His Honor Judge Murray (President); D. A. W. Robertson, Esq.

The Commission proceeded with the consideration of their Report until 12.45 p.m.

On resuming at 2 p.m. Mr. Ritchie also attended, when the preparation of the Report was further proceeded with.

The Commission adjourned at 4 p.m., but Mr. Ritchie remained until 5 p.m. in connection with the Report.

J. GARLICK, Secretary, 27th April, 1903.

Confirmed—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 28TH APRIL, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 10 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission sat from 10 till 12.45, and from 2 till 4 p.m. considering their report.

The minutes of meetings held on 14th, 15th, 17th, 21st, 23rd, 24th, 25th, and 27th April were read and confirmed.

The Secretary submitted details of the cash expenditure between 14th March and 28th April amounting to £16 19s. 6d., which was approved.

At 4.25 p.m. the Commission adjourned.

J. GARLICK, Secretary, 28th April, 1903.

Confirmed—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 29TH APRIL, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 10 a.m.]

Present:—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission sat from 10 to 12.45 and 2 to 4.5 p.m., in the preparation of their report.

J. GARLICK, Secretary, 29th April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

THURSDAY, 30TH APRIL, 1903.

[The Commission met at 54, Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.The Commission sat from 10 to 12.45, and from 2 to 4.20 p.m. in the preparation of their report.
At 4.20 p.m. the Commission adjourned.

J. GARLICK, Secretary, 30th April, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

FRIDAY, 1ST MAY, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.The Commission sat from 10 to 12.45 and 2 to 4 p.m. in the preparation of their report.
At 4 p.m. the Commission adjourned.

J. GARLICK, Secretary, 1st May, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

SATURDAY, 2ND MAY, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 9.30 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.The Commission sat from 9.30 to 12.30 in the preparation of their report.
At 12.30 p.m. the Commission adjourned.

J. GARLICK, Secretary, 2nd May, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

SATURDAY, 9TH MAY, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 10 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

A letter dated 4th of May, from Under Secretary of Mines and Agriculture, was received, forwarding reprint of communication to "Colliery Guardian," from Mr. James Ashworth, Mining Engineer.

A letter was received from the Principal Under-Secretary forwarding an extension of the Commission for two weeks from 6th May, 1903.

The Commission then proceeded with the consideration of their report, and adjourned at 12.50 p.m.

J. GARLICK, Secretary, 9th May, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

TUESDAY, 12TH MAY, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 9.30 a.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The Commission sat from 9.30 to 12.20 in the preparation of their Report.

At 12.20 the Commission adjourned.

J. GARLICK, Secretary, 12th May, 1903.

Confirmed.—C. E. R. MURRAY, President.

MINUTES OF MEETING.

WEDNESDAY, 20TH MAY, 1903.

[The Commission met at No. 54, Young-street, Sydney, at 2 p.m.]

Present :—His Honor Judge Murray (President); D. A. W. Robertson, Esq.; D. Ritchie, Esq.

The minutes of meetings held on the 28th, 29th, and 30th April, and 1st, 2nd, 9th and 12th May were read and confirmed.

The Commission then read and signed their report.

The Commission adjourned at 3.30 p.m.

J. GARLICK, Secretary.

Confirmed.—C. E. R. MURRAY, President.

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Depositions and Exhibits in connection with the Mount Kembla Colliery Disaster Inquest.

New South Wales, }
to wit. }

INQUISITION held at the Court-house at Wollongong, in the State of New South Wales, commencing on the 1st day of August, one thousand nine hundred and two, and concluded on the 12th day of September, one thousand nine hundred and two, before me, Charles Coffey Russell, one of the Coroners of our Sovereign Lord the King, for the State aforesaid, on view of the bodies of William Meurant, Henry Meurant, and William Nelson, at the Morgue, at the Mount Kembla Colliery, then and there lying dead. Upon the oaths of James Kirby, James Dean, Arthur Willoughby Vining, George Cochrane, Arthur John Holland, Richard Fairweather, William John Poulter, John Shapley Jarman, Joseph Henry White, William Osborne, George Madden, William Henry Rickard, good and lawful men of Wollongong aforesaid; who, having been sworn and charged to inquire (on the part of our said Lord the King) when, where, how, and by what means the said William Meurant, Henry Meurant, and William Nelson came to their death, do, upon their oaths, say that the deceased William Meurant, Henry Meurant, and William Nelson died at Mount Kembla Mine, in the county of Camden, and State of New South Wales, on the 31st day of July last, from carbon monoxide poisoning produced by an explosion of fire-damp ignited by the naked lights in use in the mine, and accelerated by a series of coal-dust explosions starting at a point in or about the number one main level back headings, and extending in a westerly direction to the small goaf, marked 11 perches on the mine plan.

In witness whereof, as well the said Coroner as the Jurors aforesaid, have to this inquisition set their hands and seals, this day and year aforesaid.

CHARLES COFFEY RUSSELL, Coroner. JAMES KIRBY, Foreman. ARTHUR WILLOUGHBY VINING, ARTHUR JOHN HOLLAND, WILLIAM J. POULTER, JOSEPH HENRY WHITE, GEORGE ARTHUR MADDEN, JAMES DEAN, GEORGE COCHRANE, RICHARD FAIRWEATHER, JOHN SHAPLEY JARMAN, WILLIAM OSBORNE, WILLIAM HENRY RICKARD,	} Jurors.
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New South Wales.

INFORMATION and depositions of witnesses, taken on oath before me, Charles Coffey Russell, one of the Coroners of Our Sovereign Lord the King, for the State of New South Wales, this 1st day of August, 1902, at the Court-house of Wollongong, in the said State, on view of the bodies of William Meurant and Henry Meurant, lying dead at the Mount Kembla Mine.

Thomas Meurant, having been sworn, states: I am a miner, and reside at Mount Kembla; the bodies now pointed out to the jury by me are the bodies of my brothers—William Meurant and Henry Meurant.

Sworn and made, at Mount Kembla, this 1st day of } THOMAS MEURANT.
August, 1902, before me,—

CHAS. C. RUSSELL, Coroner.

William Rogers, on oath, states: I am the manager of Mount Kembla Mine; the body now pointed out to the jury by me is that of William Nelson, who was the underground manager of this mine.

Sworn and made, at Mount Kembla, this 1st day } WILLIAM ROGERS.
of August, 1902, before me,—

CHAS. C. RUSSELL, Coroner.

Inquest adjourned, for the purpose of obtaining further evidence, until 11 o'clock on Monday, the 11th day of August, 1902, at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner.

Inquest resumed, in pursuance of adjournment, at 11:30 a.m., on the 11th day of August, 1902, at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner.

Mr. Bruce Smith, instructed by the Crown Solicitor, appears for the Crown.
Mr. G. J. Barry appears for the proprietors of the Mount Kembla Mine.

Examined by Senior-sergeant Banks :—Ada Frances Meurant, sworn, states: I am the wife of William Meurant; I reside with him at Mount Kembla; Henry Meurant resided with me and my husband; he was a brother of William Meurant; I recollect Thursday, the 31st July last; my husband was on that date employed as a miner at the Mount Kembla Colliery; he left home that morning at ten past 5 to go to work; he was employed on the front shift; I have not seen him alive since; I have seen his dead body since at the colliery, in a shop there; Henry Meurant was also on the 31st July employed as a miner in the colliery; he left home that morning to go to work at 7 o'clock; I have not seen him alive since; I have seen his dead body since with that of my husband at the engine-house; I saw the bodies on the 1st August (Friday); Henry Meurant was employed on the back shift; I do not know how they met their deaths. [No questions.]

Sworn and made, at the Court-house, Wollongong, }
on the 11th day of August, A.D. 1902,— }

ADA F. MEURANT.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks :—Edward Meurant, sworn, states: I am a coal-miner; I reside at Kembla Heights; I am employed at the Mount Kembla Colliery as a miner; Henry and William Meurant were brothers of mine; I recollect the 31st July last (Thursday); I arrived at the face that morning about half-past 8; I was working in the district known as No. 6 left; it was No. 19 bord; I was working with Francis Stewart; Stewart left me at ten minutes past 2 that day; I continued working on; I was with George Walker; we worked on till about 4 o'clock; Walker was working close to me; Stewart and I were working in what is known as a cut-through, and Walker and a man named Woodruff were working in what is known as a bord; up till the time that Walker and I knocked off work, about 4 o'clock, we were not aware that anything unusual had happened; there was nothing unusual about the air at the particular place we were working at; Walker and I got out our clothes and put them on, and got our tools; we followed the usual road known as the wheeling-road out to the flat; I know where the main heading is; we went towards that; when we were about 40 or 50 yards from the main heading I noticed a smell like boiling tar; Walker remarked that it was new canvas; the canvas is known as brattice-cloth; I said, "I believe the pit's on fire"; I said that in a half joke; we continued on to the main heading; we went there to see if the wheelers had gone home; when we got there we found the tins and bottles of the wheelers; we did not see any harness; I still smelt the smell that I had noticed lower down, only it was stronger; we still continued along to the main heading on the engine road; about that locality there is a canvas right across the road; when we got through the canvas we saw the body of Hugh McLister; his body was at the side of the rib; I put my hand inside his shirt; he was dead as far as I can say; we left McLister there and proceeded towards the furnace; that was still going towards the mouth of the tunnel; we continued on to Jenkin's Flat; there we found a horse lying dead; I then placed my lamp down towards the floor to try the air; that was to see if there was any black-damp; the lamp burned, and I knew there was no black-damp; Walker and I then threw away our tools and tins; we still continued to go towards the furnace; we had then to go about 350 or 400 yards to reach the flat; in that 300 or 400 yards we passed several men and horses lying on the road; I did not count them, but there were several; I know a man named Meredith; we passed him; he was sitting against the rib; he was alive; he had a lamp burning; it was a naked lamp; I said to him, "Come on, Joe"; he had his senses, but he seemed like a man intoxicated; he said, "Come and have a smoke"; he had no other conversation with us; Walker and I went on; before we left Meredith he made no complaint of any kind; he did not say anything about an accident having happened; Meredith was after that brought out alive; after we left Meredith, Walker and I met Henry Kelly and Ernest Allen; we met them on the flat; they had safety-lamps; they were trying to keep the men who were there prone (some of them were trying to roam about); Kelly said there was an explosion in No. 1, but that the air was good where he was then; I said to Walker, "You had better go out, George, you are an old man"; Walker then left me to go out and I went to the Little Flat section; I carried three bodies from the Little Flat with the assistance of others; one of the bodies was a dead body (that of John Ryan), the other two were alive; the two latter were Hartley Olsen and a man whose name I do not know; I then went towards the sixth right section; there were several men lying about there; I cannot say whether they were dead or alive; at the sixth right section I met Matthew and Adam Frost, before that we left the bodies at Mat Frost's flat, and we (myself, Price, and Kelly) went to the sixth right section; we left two live bodies at Mat Frost's flat because the air was good there; when we met the two Frosts I said to Mat, "Did you see Will" (meaning my brother); he said, "You're Will's alive"; Mat Frost then held the lamp round and I saw my brother lying with his shoulder up against the rib; Mat Frost said, "I've just raised him up"; my brother was alive, I could hear him breathing; my brother Henry was lying alongside my brother William; he was lying mor: on his shoulder; I could not say whether he was on the floor or against the rib; I cannot say whether he was alive; I did not examine him to see; I thought both were alive; I said to Mat Frost, "I'll go out and tell the women"; the air at that particular spot was not quite so bad as what we had come through, but it was worse than what it was on Mat's flat; Price, Kelly, and I then carried a man to Mat's flat; I cannot say whether he was alive or dead; that was back to Mat's flat towards the entrance; I was very nearly exhausted from the nature of the air; Kelly and Price said they were right; Adam and Mat Frost remained where I left my brothers; I met Meredith and Sullivan at Mat's flat, and they and I went towards the entrance down the main road; we went along the engine road to No. 5 and thence into the travelling road; we then went right out of the mine; I did not go back to that section of the mine that day, and I did not see my brothers again till I saw their dead bodies next day in the engine-house; I do not know what caused their death.

Cross-examined by Mr. Bruce Smith: The place where I was working was about 1,600 yards from the entrance to the mine; when I knocked off the air was in its normal condition; we had gone about 300 yards from the face when we met the first body; I did not try the air there, but I could notice the smell all the time; we did not move that body; we did not attempt to carry it to the part in which we found
the

the air good ; we did not ask Meredith any questions ; we knew something must have happened, but we did not ask him ; we were near ready to drop then ; we did not ask him if he was ill ; we were expecting to fall every minute ourselves ; we did not go towards the place where the air was good, because we knew that the bad air was travelling towards that place and we tried to get out of it ; we concluded that we could not carry the body with us ; we did not speak to Meredith about what had happened because we took it that there must have been something wrong ; we were going towards the outlet but were doing what we could to help the others by the way ; when we came to where my brothers were, I don't think that we could have done any good by lifting them up ; before I got to Mat Frost's flat I was very much scared ; I was not collected ; I took it that when Mat Frost said one of my brothers was alive that the other was also ; all this time I was in a very scared excited condition ; the first feeling I felt after leaving the face was that I had walked a long distance and wanted to lie down ; I had no shortness of breath, or anything of that sort ; I felt as if I could not lift my feet ; it was not a weakness in the joints but a weariness in lifting my feet ; I look at the map marked A [Map put in and marked A] ; the point marked with a X No. 1 is the place where we found the first body (McLister) ; the position marked X 2 H is the point where we met with a dead horse ; we met several bodies between the points indicated by the marks X 3 and X 4 ; I could not say how far the bodies were apart ; Meredith was lying somewhere about the position of the mark X 4 ; the point at which we met Kelly and Allen helping others is indicated by the mark X 5 ; the point at which we found John Ryan is indicated by the mark X 6 ; the point in the sixth right section at which we found Mathew and Adam Frost is marked X 7 ; my brothers were there at that point (marked X 7) also ; the first sensation I felt was a heaviness about the legs, as if I could not stand on my feet and wanted to fall down ; the heaviness in the legs kept on till I got on to the flat and sat down ; I did not suffer from any dizziness till I got out into the open air ; I did not suffer from dimness of sight at all ; I did not suffer from palpitation ; none of the men who afterwards died described their symptoms to me ; the sensation was increasing in my case and if it had gone any further I should have fallen.

To a Juror. I have been working in the mine for one year and nine months ; I never noticed anything that would lead me to suspect that an accident of this kind might occur.

To Mr. Bruce Smith : During the year and nine months I have been there I have never seen any result from gas but I have heard blowers but I have never been able to locate them with my lamp ; I cannot mention any particular place where I have heard blowers ; I have only worked in two sections—one is called the fourth left and the other is the furnace road in the shaft ; I never reported having heard the blowers to anybody.

To the Coroner : My experience as to blowers only refers to the two parts of the mine in which I have worked ; I have heard blowers at No. 85 fourth left section that was in a bord ; I also heard blowers in another bord : the only experience of blowers was in two bords ; I know nothing about all the rest of the workings ; on the day of the disaster I was working in a cut-through, which is not shown on the map marked A ; I could not say where the air was coming from to us, it was being carried to us by canvas ; I cannot say whether the air was coming down through the furnace or through the ordinary entrance ; I do not think that there is any intake from behind the furnace ; if there is no means of getting air from the back of the furnace, I expect you would be dependent on getting air from the front ; there was nothing unusual in our bord up to the time we knocked off work ; when we left our cut-through we came on to the wheeling road leading to the main heading ; there was only one canvas in the wheeling road, and that was near the flat, and that I expect was erected to prevent air coming down the wheeling road and to divert it into some other channel ; when we left the cut-through we came with the air and not against it ; we did not remove the brattice, we just lifted it and walked under it ; by doing that we did not do anything by which we would interfere with the circulation of air in any other portion of the mine ; beyond the smell of boiling tar I did not notice anything else up to the time we got to the brattice with the exception of a mistiness in the air ; the brattice was all right ; I did not feel the mistiness in my eyes or throat ; there was no smell beyond the tar ; after we got through the brattice I found the air worse than on the far side ; the reason of that was that we were in the air before we came through the brattice ; I could not say whether we could have reached the entrance by going against the air ; if we had gone against the air from the time we left the cut-through we would have reached the entrance ; we were making for the furnace ; when I saw McLister's body I did not know what had happened ; the first thing that occurred to me was to take the shortest way out, notwithstanding the danger ; no brattice cloth was burnt ; new brattice cloth without being burnt produces the smell of boiling tar ; I made the divergence from Mat's flat to No. 6 right in order to look for my brother ; when I had found him I returned and came out by the route I intended to get out by in the first instance ; Kelly and Allen are men who work in the mine ; they do not work with safety lamps ; we met Kelly and Allen about twenty minutes past four ; I have been talking about George Walker, senior, all the time ; there are two Walkers working in the mine—George Walker, senior, and George Walker, junior ; all through the mine we were working with naked tallow lights fixed in caps as far as I know ; some of the lamps are oil lamps but they are all naked lights.

To Mr. Barry : I know that the two Deputies use safety-lamps on their morning and other rounds.

Sworn and made, at the Court-house, Wollongong, }
this 11th day of August, A.D. 1902, before me, — }

EDWARD MEURANT.

CHAS. C. RUSSELL, Coroner.

*Examined by Senior-sergeant Banks :—*Agnes Nelson, sworn, states : I am the wife of William Nelson ; my late husband was the under-manager at the Mount Kembla Colliery ; I recollect Thursday, the 31st July last ; my husband left home that morning to go to work about a quarter to 7 ; he was then quite well, in his usual health ; I did not see him alive after that ; his dead body was brought home to the house ; that was early on the morning of the 1st August ; I have no knowledge as to what caused his death ; my husband had been working for twelve years in the mine, the last two months as under-manager. [No questions.]

Made and sworn at the Court-house, Wollongong, this }
11th day of August, A.D. 1902, before me, — }

AGNES NELSON.

CHAS. C. RUSSELL, Coroner.

Examined

Examined by Senior-sergeant Banks:—John Laidlaw, sworn, states: I am a miner; I reside at Mount Kembla; I was employed in the Mount Kembla Colliery as a miner; I have been employed there as a miner for somewhere about two and a half years; before that I was employed there as a wheeler for about nine years; I recollect Thursday, the 31st July; I was at work in the mine on that day; I went to work that morning about ten minutes to 6; I was working in the fifth right bord 90; I was working with Charles McKinley as a mate; we continued to work up till 2 o'clock that day; I know Mr. Bates, the Mining Inspector by sight; Mr. Bates and Mr. Nelson (the deceased) came to the portion of the mine where I was working about a quarter to 2; they inspected the place where we were working; they asked me how I was getting on, and I said "All right"; the wheeler Harry Kelly came up then; Nelson said, "Stop, Jack, a minute, I want to see how this chain works with the two skips"; Mr. Bates and Mr. Nelson saw the skips run; they then left; after they left we went on with our work; that was about a quarter to 2; I filled a skip; that took two or three minutes; I then sat down to have some lunch; while we were at lunch it went off; I heard a terrible noise; McKinley said to me, "What is that?" I said, "I think that is the next place fell in" (meaning the next bord); I then went down the bord to get some powder; when I got the powder I went up to put it in the hole I had made; when I was putting it in the hole I heard a noise away down the road; I said to McKinley, "That is the wheeler singing out, there is something wrong" (the noise I heard was the sound of a voice); I then went down to the wheeler, Clifford Hammonds; I said, "What is the matter?" he said, "I do not know, come down here, my horse is dead, I think"; I went down a few yards and I smelt some nasty smell coming towards me; I said, "You had better make back, there is something wrong"; I went back and got my tucker tins, and then we came back and went out to what we call the daylight heading; I got out there very near the daylight heading and I met Adam Frost, and I said, "What is the matter?" he said, "I do not know, I have tried to get down the second right and I cannot"; we then both came out of the mine together by the daylight heading; McKinley, Frost, and I came out together; I saw a number of the employees of the mine there; there was a little confusion, but not much; I never saw Nelson or Bates after they left me at the bord; my bord was the last they would inspect, I think.

Sworn and made, at the Court house, Wollongong, this
11th day of August, A.D. 1902, after being read to
witness and he appearing to understand same,
before me,—

his
JOHN x LAIDLAW.
mark.
Witness to mark—CHARLES NOBLE,
Senior-constable.

CHAS. C. RUSSELL, Coroner.

It is agreed that that part of the mine be left undisturbed which lies to the inbye side of the second left rope road and the second right rope road until Monday next, 18th August, 1902.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 11th August, 1902.

Inquest adjourned, for the purpose of obtaining further evidence, until 11 o'clock a.m. on Monday, the 18th day of August, A.D. 1902, at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 11th August, 1902.

Inquest resumed, in pursuance of adjournment, at 11:30 a.m., on the 18th day of August, 1902, at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner.

Mr. C. G. Wade, instructed by Mr. G. J. Barry, now appears for the proprietors of the Mount Kembla Colliery.

Mr. Lysaght appears, with Mr. Ritchie, for the employees of the Mount Kembla Mine, and also for Thomas Harold Meurant and John Ryall, relatives of the deceased, William Meurant and Henry Meurant.

Cross-examined by Mr. Bruce Smith:—John Laidlaw, recalled, states: I have been a miner for about two and a half or three years; the noise I heard was just like a crash of thunder; it was a single noise; I could hear it going for a good bit; it seemed to go just like thunder; it was a series of noises which seemed to get farther away; apart from the noise, I did not notice any smell not till I went down the bord; I began to move [Plan put in and marked "B"] a few minutes after I heard the noise; I was working at 90 fifth-right; I was there at the time I heard the report I have mentioned; it was about twenty minutes or a quarter to 2 when I heard the report; I went to get some powder when I heard the report; I went down the bord to get the powder; I had it lying in a tin; the noise affected my ears very much; when I got the powder I went to put in the hole; I heard another noise then; I only heard one explosion; I went on with my work as if nothing had happened; I had heard noises something similar to this in the mine before that more than once; I have heard noises like that many a time; I have heard noises like that when I was drawing timber in the same mine; it was an uncommon noise; the other noises I had heard were not so loud; it was the drawing of timber that caused the other noises, the roof falling after timber had been drawn; this noise was something like that; I worked on for about twenty minutes: that brought me up till about five past 2; I then started to go down to the wheeler who was singing out; I do not know what he was singing out; I went down to him; I saw him; he was all black; he was coming towards me; his face was blacker than usual; he was walking; I asked him what was the matter, and he said he did not know; he was working about 210 yards from where I was working; he was working straight in; the wheeler was working at the end of the bord on the rope-road where the mark X 2 is; his name is Clifford Hammond; he said, "Come down to my horse, because he is killed, I think"; I went down part of the way to the horse; I was stopped by a bad smell, like the smell of a new canvas; I had no conversation with him as to his being black; I said to him, "What is up?" he said, "I do not know"; when I smelt the smell, I said to him, "Get away out"; I said that because I thought there was something up; I could not tell what it was that was up; I came up the daylight road and showed Hammond the way out; Hammond is alive now; McKinley, my mate, also got out; McKinley was with me when I went to meet Hammond; the three of us did not go out together; I put Hammond on the road, and then went back to the bord to get my tucker tins; McKinley was with me; I was not in a great hurry to get out; I went out down the rope-road by the daylight heading against the air; I took that road because I knew

knew it was against the air and was the best; on the way I met Adam Frost; he is alive now; he was standing at the mouth of the daylight heading; he was all right; I met a lot of others; I cannot tell you their names; there might have been about ten or twelve; they were walking out by the same way; I overtook them; I think they are all alive now; I did not notice the smell as I went along; I did not see anything unusual at all in going out; Charles Smith was one of the men; Thomas Johnson was another; and John Russell was another; that is all I can remember; I came out; I put shots in sometimes once and sometimes twice a day; I always tamped with coal-dust; I did not go up to see the horse; I tamped with dry coal-dust; it was a little damp sometimes, if I can get anything to damp it with, I damp it; if I cannot, I do not; I do not put any spray about the bord when I am doing so.

Cross-examined by Mr. Lysaght: The sound I heard came in the same direction as the air that was coming up to my bord; I thought the noise came from the next bord on the left where the wheeler was, from the direction of the main travelling road; I thought the noise came from No. 89 bord; I heard a noise like that some months ago when I was working a pillar in the shaft section; I could see what caused that; it was the fall of the roof; I myself had taken out the timber; I do not think I ever heard a noise like this before arising from any other cause than the taking out of timber; the falling of a roof will resound, but perhaps not as loud as the noise on this occasion; I went down about 10 yards from where I met Hammond till I met the bad smell; I was still in the bord when I smelt the smell; the bad smell was travelling against the air; I brought Hammond back up to my bord; McKinley asked me what the noise was; he did not say what he thought it was.

Cross-examined by Mr. Wade: During the two years and a half I have been a miner my work has been in bords, and bords and pillars; in the course of mining we very often break off at right angles into bords; the bords are 8 yards wide; we drive them 35 yards; on either side there is a pillar of solid coal; the pillars are 16 yards wide; there was a bord to the right of the one I was working in, and the space between them was solid coal, called a pillar; it is shown on the plan by the shaded mark; when we are working a bord it is timbered with props; when we have finished a bord the props are drawn; we work the bord and leave the timber standing, and then we work the pillar, and then the timber is drawn from the pillar and the bord; the timber is drawn to allow the roof to fall; that is the regular system of working; that is done to ease the pressure, and to make things safer; that is the practice I have been used to at Kembla; I have not had experience of it anywhere else; I have worked at Newcastle, but not as a miner; a great number of pillars have been worked at Mount Kembla; I have heard the sound of the roof falling pretty often during the two years and a half, and it is a sound I am pretty well used to; the only difference between those sounds and the sound I heard on the 31st July was that the sound I heard on the 31st July was a good deal louder; I put it down to being a fall of the roof, and went on with my work; I was a little alarmed; I do not remember whether I had fired a shot in my working-place that day; I have heard the sound of shot-firing; it is different to what I heard on the 31st July; I have fired many shots myself without any trouble or accident; I have always used coal-dust (damp slack); I get that from the working-place; it is about 210 yards from the place where I was working to the turn of the rope; when I speak of the rope I refer to the endless rope to which the skips are fastened; I heard the sound first on my left ear; the noise was to the left side of the bord; when I say that the sound came from the heading on my left, that is speaking quite generally; when I heard the noise my mate was filling the skip about 20 yards away behind me on the right-hand side of the bord looking towards the face; I did not go into No. 1 right headings at all; the nearest point I got to them was about 20 yards from the turn inbye towards my working face; when I noticed the peculiar smell I did not see anything else in the air; I saw nothing unusual; the wheeler's light was not burning when I saw him; my light was burning all the time till I got out; the lights of the other men that I passed were all burning; Russell and Johnson were working higher up than me in the hundreds; Johnson was working to the right of my working-place in No. 91; I overtook a few of the men that were working in that district a good distance from where I was working.

To the Coroner: I left the mine at the point shown on the plan just above the word "Plan"; I was affected; I got a terrible headache through the shock; when I got outside I was not affected in any way; the only thing that affected me was the shock; I came against the air the whole way.

To the Foreman: The next working to my working was not an abandoned working; I never fired the shot that I had made preparations for.

To the Coroner: I take the precautions which the Act provides when firing a shot.

To a Juror: The working that I thought had fallen in is situate next to where I was; it is to the left of where I was working.

To Mr. Bruce Smith: I thought that the roof of the heading had fallen in.

Sworn and made, at the Court-house, Wollongong,
this 18th day of August, A.D. 1902, after being
read to witness, and he appearing to understand
same, before me,—

his
JOHN x LAIDLAW.
mark.

Witness to mark,—

CHARLES NOBLE, Senior-constable.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—*William Broadhead*, sworn, states: I am a miner, and reside at Mount Kembla; I have been working in the Mount Kembla Mine for about ten and half years; I remember the 31st July last (Thursday); I was at work in the colliery on that day; I was at work on coal, with Thomas Smith as a mate; I was working in fifth right, No. 1 section, second siding, bord No. 98; Smith worked on the front shift; he went in about 6 or half-past 6; I was working on the back shift; I went in to work at half-past 8, and reached the place by 9; I found Smith at work when I went in; he and I worked together till he left me and went out at half-past 1; shortly before Smith left me Mr. Bates and Nelson came to where I was working; that was about half-past 12; they had a conversation with me about the quality of the coal, and then they went out; after Smith left I filled two skips of coal; after that I went back in my bord about 20 yards to fill my lamp and have some lunch; when I was about to get my lunch I heard a noise like distant thunder; I thought it was the effects of a heavy shot at a distance; I did not take any notice of it; after I had had lunch I went back to finish my work up before I left; I cleaned up my place, and prepared to leave; I left my face between a quarter past and half-past 2; when I left my face I started away out and put my clothes on to go home as if nothing had occurred;

occurred ; I went down my bord towards the rope road the way I came ; when I reached the rope road I found everything blown to pieces, all disorder like a wreck ; that was the first time I found that anything had gone wrong ; I was very anxious to know whether I could breathe ; the air was moderate, a little warm, but good ; I went with it for a distance of two sidings, when I would turn into the main travelling road ; I went along the main travelling road for a distance of 400 or 500 yards ; there were some slight falls, but not heavy ; when I got about 600 yards I met a heavy fall, which I could not get through ; I returned then along the travelling road to the first cut-through, and on to the rope road ; that is known as No. 1 main rope road ; I went along that as far as I could get—about 100 yards ; I then met a tremendous heavy fall 5 or 6 yards high ; I was unable to get over that fall ; I stood and gazed at it for a while, and then turned back to another cut-through, and through that on to the travelling road again ; I then continued on towards the tunnel mouth ; I was blocked again about twice by falls ; I then returned by a cut-through on to the rope road again ; up to that point I had not seen or heard anyone at all ; I went along that rope road till I came to another obstruction, and then I went through a cut-through on to the travelling road ; I went along that for 300 or 400 yards and did not meet with any big falls—just some loose timber and a few rocks here and there ; I then came across two men ; I walked right in between them ; I cannot say on the plan where it was I found them ; it was about half a mile from the tunnel mouth or a little over, and it was in the main travelling road ; I could not tell who the men were ; I looked at one of them ; he was alive ; he was lying on his side, and his safety-lamp was down by his legs ; it was not burning ; he was breathing, but it was very weak and slow ; I said to him, “ Would you like to come out ? ” ; I got no answer from him ; he seemed to be unconscious ; I thought that it looked very much like Mr. Bates, but his face was so black ; when I got hold of him to lift him I thought it was not an ordinary miner's dress ; the second man was only about 2 feet away ; he was lying face downwards on the road ; there was no movement in him at all ; he was, as far as I could judge, quite dead, but I did not look ; I know Mr. Nelson ; I left the two men there and went on towards the tunnel mouth ; I saw some lights ; the lights were 40 or 50 yards away ; I called out for them to go outside and fetch six men in to bring two men out who could not get out ; I remained where I was ; I said I would remain where I was till assistance came ; after that Mr. Ritchie and a party came in and met me ; I directed Mr. Ritchie and the party to where the bodies were lying ; ultimately the bodies were got out.

Cross-examined by Mr. Bruce Smith : I did not smell anything after I left the face at any time ; the noise I heard was a rumble like distant thunder ; I had never heard a noise like it before ; it was too long a noise ; it was a running noise ; it was something like the noise of artillery ; there was no loud report ; the noise got less and less ; I did not smell anything till I got to the neighbourhood where there was disorder, and then I smelt a smell like sulphur ; I have often heard the noise of a roof falling in ; the noise I heard on this occasion was not a noise like that ; I never suffered in any way from this ; the first thing I noticed was the brattice blown down ; the door of the bottom siding had disappeared altogether ; I have found gas in that mine many times, when I have fired shots ; it was down in No. 1 and the shaft also ; I did not say anything, only to my mate ; I did not say anything because we saw it often ; I know the rules ; I know that it is my duty to inform someone over me when I see gas ; my reason for not reporting was that there was not sufficient quantity to be worth talking about ; I know that I ought to report any appearance of gas ; it occurs so often that I did not report ; there is no alteration whether you report it or not ; I have not seen any gas for two or three months ; I have not seen anyone singed in that mine ; I have known a man singed in that mine ; his name was Edward Gallagher ; he was singed by gas ; that was about ten years ago ; Gallagher is dead now ; I cannot say whether that case was reported ; it was well known at the time ; Gallagher was off a long time ; I cannot say that since then I have known of any burning ; when an extensive fall takes place it sounds like thunder frequently when you are at a distance.

Made and sworn, at the Court-house, Wollongong, }
 this 18th day of August, A.D. 1902, before me,— }
 CHAS. C. RUSSELL, Coroner.

WILLIAM BROADHEAD.

It is agreed that that portion of the mine inbye of No. 2 Left be left undisturbed for the present, or until the further order of this Court.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 18th August, 1902.

Inquest adjourned, for further evidence, until 10 o'clock a.m., on Tuesday, the 19th day of August, A.D. 1902, at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 18th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 19th day of August, A.D. 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

*Cross-examined by Mr. Bruce Smith :—*William Broadhead, recalled, states : My copy of the rules is at home ; it is on the shelf over my head ; I read it sometimes ; I know of the rule you referred me to yesterday ; the known presence of gas in a mine makes a difference in the management of the mine ; the difference is to bring the brattice closer to the face ; I know also that the known presence of gas might lead to the prevention of the use of naked lights ; I know that the lives of the miners are endangered by the use of naked lights where there is gas ; I can see that neglect to report gas may lead to the loss of the lives of the miners ; I have reported the presence of gas when I saw it was severe, when I saw it was requisite ; if I told you yesterday that I did not report it to an official I made a mistake ; what I said yesterday is not true ; I reported to Mr. David Evans last quarter when I was in the shaft ; Mr. David Evans is the head fireman in the district of the shaft ; that is not the only occasion on which I have reported gas ; I cannot distinctly appoint any other time I have reported ; I have reported every time I have noticed gas severe at all ; I have never reported gas more than the air would put out ; I never saw more ; the gas I reported to Evans was mostly in the shaft ; I told him that there was a good deal of gas in that part of the pit, and to keep the canvas forward ; there was slightly more than usual when I reported to Evans on the occasion I have mentioned ; there was a good deal on that occasion.

Cross-examined

Cross-examined by Mr. Lysaght: I told the Coroner yesterday the fireman knows there was gas, and I might speak to the fireman; when I did report to the fireman he did not do anything to prevent the gas; when I reported the gas to Mr. David Evans, he said, "Oh, you saw some gas when you fired the shot," nothing more; I have had a conversation with Nelson and Dungey during the last twelve months; the quarter before last Dungey was our fireman, and I told him that the gas was rather strong; I spoke to him when I was in the left hand No. 1 in Powell's Flat; I told him the gas was in Powell's Flat; when I told him that, he said, "We cannot do anything, only keep the canvas forward, Broadhead"; he sent in more canvas on that occasion; the gas had exploded when the canvas was sent in; it exploded when the shot went off; I also spoke to Dungey about gas higher up than Powell's Flat; it was not to Dungey I spoke then, it was to Nelson; I told him that the gas was pretty strong, that it showed itself when you fired a shot, prominent; Nelson said, "We will have to get the canvas a bit farther forward, I will send in some canvas, and get it put up"; he sent in more canvas on that occasion; William Portus was working with me when I reported the gas to Nelson; Portus is alive now; when I reported the gas to Dungey, William Hopkins was my mate; it is about nine months ago that I had the conversation about the gas with Nelson; I cannot remember any other occasion on which I have reported gas, either to Nelson or Dungey, or anyone else; it is too long ago, but there has been times; I know of an occasion when the fireman has done something to prevent gas before I knew of the presence of gas; Evans was the fireman; he is living now; he picked up a board, or a shovel, or a slab (it was the shovel); he wrote on the shovel, "Fire! do not go past this; put your light out; take your coat and go in and fan the place well out"; it was written on the shovel with chalk; it is too far back to say who I was working with at that time, but I was working behind the furnace in the shaft; that took place about three years ago; on that occasion I did as I was directed; when I fanned the gas out to the canvas the air carried it away; I cannot remember any other time when I had to fan the gas out like that; about four months ago when I was working in the place I came to before last the air was a bit dull and gassy and the seam low, 4 feet 6; I asked Mr. Rogers to be shifted; I said the place was too hard and was very gasified, and was too badly ventilated; Mr. Rogers ordered the fireman to shift us about half a mile down the rope road; I did not see Mr. Rogers look at my place; Mr. Leitch came and looked at the place before I was shifted; I told Mr. Leitch that it was a poor place to earn a living; I say that place was dangerous; that place was marked by the fireman with the date in the usual way; Evans was the fireman who marked that place with the date; there is no other occasion during the last twelve months when I have observed an extra quantity of gas; the map produced is imperfect; I could not see a particle of the door I spoke of yesterday; it was there in the morning; the brattice was blown up against the air, I think; I formed the opinion that the explosion had started a considerable distance to the left, but I could not tell to hundreds of yards; I was too far away; I have no idea where the explosion started; I have never been in a mine when an explosion has taken place before; I did not notice any marks of burning, much, as I came out; I saw nothing that had been burnt much or charred; the canvas was burnt where it was broken; there was nothing else burnt besides the canvas; I came about 5 or 6 yards down the rope road when I saw the brattice burnt; all the canvas was burnt as I proceeded; there were more marks of burning as I went further down; I saw a skip with the top blown off right opposite where I came on to the rope road; it was an iron skip; I noticed the gas more in the solid workings than in the side workings; both sides of bord 98 are new workings; no ventilation is forced into the waste workings; the roof often hangs for acres and acres, and it may hang for years; yards of gas gather in the waste headings; there is no ventilation put on to remove that gas.

Cross-examined by Mr. Wade: I know that the Government Inspectors come round the mines pretty often in the year; Mr. Atkinson is an experienced and capable man; he has been to Kembla several times; he must have seen the waste workings; I have never been through the waste workings; I mean by "waste workings" places that have been worked, and then left; I know that the ordinary miner is not allowed in the waste workings; I never examined the edge of the waste workings; I have seen Mr. Rowan in the mine several times; I never told the sergeant about the conversation with Dungey and Nelson, because he did not ask me; he may have asked me a little about gas; I have forgotten; I do not think he did; to the best of my recollection, I do not think he did; I am pretty well positive; I do not remember his asking me about gas last Saturday; I do not remember saying yesterday that I did not report the gas because it was not worth while; I thought of the conversation with Dungey and Nelson this morning; I could not be sure, now, whether I had a conversation with the sergeant on Saturday last about gas; I remember to-day, because the questions were pressed upon me; I went home last night as soon as the Court dismissed; I got home about dusk; I got into town this morning about 9 o'clock; I was nearly all the time in the street; I went and got my breakfast at half-past 9; I did not tell Mr. Lysaght or Mr. Ritchie about these conversations; I saw the gas when firing shots; I saw a flash-off, like of gas; I saw the red flame; the flame came from near the shot; it came from where the shot went off, and back again to the same place; I just saw the one flash, and it was gone; the quantity of powder used varies; a pound of powder is used sometimes—average, half a pound; sometimes the hole is made at the top, sometimes in the middle, and sometimes at the bottom, and I have seen the flash from each of those places; it was always the same kind of flash; the powder used was the plug powder; for the first four or five years I did not notice the red flash so much; I have seen it for the last five or six years; I never looked for gas in the roof; I have never tested in the roof with my lamp for fire-damp; when I went to work in the morning I always found a chalk-mark on the working face; I knew by that that it was safe, and I could go to work; the colour of the flame of fire-damp is the colour of the rainbow—that is, all colours and all shades; there is only one shade at Kembla; I have seen a shot fired at a quarry in open daylight; I cannot say I have ever seen a flash from one; I know that men sometimes overcharge, and sometimes the shot blows out; the reason the shot blows out is because it is not properly tamped; I know that I am liable to instant dismissal for breaking the rules; I had the rule in my book about reporting any appearance of fire-damp; I did not think the place was dangerous when I saw the red flashes I have spoken of—it was only ordinary; I know that if the manager finds that a place is dangerous, the men are removed; there must be strict regulations for the safety of the men; I know that if the manager refuses to carry out the Coal Mines Regulation Act he can be punished; I never went to Mr. Rogers himself and complained about the presence of gas; I know that Nelson is dead, and also Dungey; I was working with Thomas Smith, last quarter, also; it was last quarter I spoke to Dungey, I think; I do not think that Smith was present when I spoke to Dungey; I spoke to Nelson the quarter before last; William Portus was my mate then; I think he was present when I spoke to Nelson; canvas is sent in about once a week; the brattice is supposed to be about 4 yards from the coal; Evans wrote on the front of the shovel; I did not see Evans write on the shovel;

shovel; on the occasion I got moved out of my place I had been at work for about six weeks; I noticed gas there for about two weeks; we could hear it springing out near the floor 1 foot or 18 inches above the floor; our lights used to burn there all right; the ventilation was not sufficient; that state of things existed for two or three weeks before we were shifted; it went on all the time; my chief trouble was that I was not earning enough money combined with gas and bad air; I found out I was not making enough wages before I heard the gas there; I spoke about being moved about a fortnight after I found that I was not making wages; it was two or three weeks after I noticed the gas that I asked to be moved; I only asked to be moved once; that place was down the rope road from the shaft on the left-hand side in the shaft district; it was in No. 2 right in the rope road No. 29; there is no water about the place where I was working on the 29th July; the floor is damp; that is in No. 5 right; when I go in of a morning I go in 50 yards to the left of the main tunnel, after a bit I strike the No. 1 travelling road and walk along that till I pass the telephone cabin, and then I go on for about 500 yards till I come to a turning where I strike the rope road that comes to my district; I turn to the right, and at the second siding I turn to my left and get to my place; when I finished my work on the 31st July I started to go out by the same way as I came in; I remember getting to that point where the rope road for my district joins the main rope road; from that point, roughly speaking, 400 or 500 yards towards the tunnel mouth was where I found the heat worst; I could only just stand it; the door was on the rope road about 4 yards from where I got on to the travelling road; when I went in in the morning I saw the door; when I came out afterwards I did not see the door; what concerned me most was whether I could breathe the air as I went along; I was not thinking much of the signs of the damage done; I could breathe the air, but it was very warm; I never had to stop; for 500 yards it was a struggle; I did not see anyone at all in the part of the tunnel I say was hot; Nelson was a very old official in the mine; Nelson was always a very strict and careful man; he always gave special attention to the safety of the miners; Dungey was an old official; the miners could trust him to look after their interests; Mr. Rogers is a man who shows every care for the safety of the miners; he is always attentive and does all he can; the only alteration there is if gas is reported is to bring the brattice forward; there is some alteration when gas is reported; I meant by saying that there was no alteration whether gas was reported or not that the men would not be withdrawn from working the place any longer; I do not suggest that Dungey and Nelson did not make the place safe as far as they could.

To Mr. Bruce Smith: I had not been in the part of the mine where I was on the 29th very long; I did not know the daylight road; I had neglected to go out that way; I could have got out by that way very easily; I knew men were working at 100 (two bords away); I had never taken the trouble to inform myself that I could get out by the daylight in ten minutes; I was at liberty to go out by that road every day had I liked; it was through negligence on my part that I did not know that way out; I would not have lost any time if I had been stopped working at any place; I would not have lost a shift; the skips hold from 11 cwt. to a ton; the iron skips would hold 11 cwt., and the wooden ones from 18 to 20 cwt.; I would load the skips from 18 to 20 inches over the top sometimes; the reason for loading so high might be that we were short of skips; coal tumbled off sometimes when not put on properly; it was not always put on properly; if the coal fell off the skip it would be a loss to the miners; I tamped my shots with damp slack; it was always damp, as much damp as we could get; I did not speak to Mr. Rogers myself personally about being shifted; I did not hear the fireman communicate my message to Mr. Rogers; I believe that my message reached Mr. Rogers, because I was shifted; that is my only reason for so believing.

To the Coroner: I mean by the top of the skip being blown off, the coal above the rim of the skip; I know that a withdrawal of the men must follow a report that the mine is dangerous; I knew that one particular part of the mine was dangerous, and I made a report of it to Mr. Evans; the place was stopped after I reported to Mr. Evans; that was the place where the writing was on the shovel; it was stopped a few days after the writing was on the shovel; in my experience, when I reported, they always took the necessary precaution, and always did sufficient to satisfy me; Smith was my mate when I spoke to Dungey, I think, that is as far as I can recollect; it is such a long time ago I cannot say.

To the Foreman: I do not think that the waste workings are properly sealed up when they are abandoned; I cannot say.

To the Coroner: The waste places I have mentioned are not in actual use now for the purpose of getting coal or for the purpose of extending the mine; those places are not fenced; there is no fence across them; I know rule 41, which says that any employee must report any appearance of fire-damp; I know that every person employed in the mine "shall make himself thoroughly acquainted with the provisions of the Coal Mines Regulation Act, and the special rules so far as they relate to his employment and duty, and shall strictly observe the same"; I know there is such a rule; also that "any person employed in or about the mine who shall violate or infringe any of the rules shall be liable to instant dismissal"; I received a copy of the special rules from the management; I think I could go into the waste workings without climbing over anything.

Made and sworn, at the Court-house, Wollongong, }
this 19th day of August, A.D. 1902, before me,— }

WILLIAM BROADHEAD.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—Mathew Frost, sworn, states: I am overman over the wheelers and shiftmen at the Mount Kembla Colliery; I live at Mount Kembla; I have been employed in the colliery for as near as I can say twelve years; I was employed wheeling in the earlier part of my time there; I remember the 31st July last; I was in the mine on that date; between 1 and 2 that day I was in the seventh right in the shaft section; I was working at the point marked on the map X 1; while I was there I felt a great pressure of wind coming round the rope road and also at the back heading; it was sudden; the wind was coming against the air; the wind was coming up the back and front headings; I heard no noise at all; as near as I can say that was about 2 o'clock in the afternoon; shortly prior to that I had met Mr. David Evans, the fireman; that was about ten minutes or a quarter of an hour before; when I felt the air I made my way to find the company's deputy; I went round the rope road into the pillars between No. 6 right and No. 7 right; the track I took is shown by the pencil mark on the map; I thought there might have been a fall at the pillars; I did not find Evans there then; I did not see any fall; I then went to No. 6 right; when I got there I saw Jack Sells and Allen; I spoke to them; they are both living now; I asked them if they had had a fall in their place, and they said "No, that they had been

been drawing the timber, but it had not fell"; I then went back into the pillars again; I then found David Evans, the fireman, there; before I went back I saw Dunning and his son, and Walker, and Dixon; Dunning passed the remark that there was a fire; he said he thought there was a fire; he was in an excited state; I told him to wait there, and I thought I could find Evans very quickly; it was then I returned to the pillars and saw Evans; Dunning and his son and Dixon are dead, and Walker is alive in the hospital; I told Evans what the men had said, and that he had better come out to consult straight away with the miners that had come from that part; he did not appear to know what had happened; he (Evans) returned with me to No. 6 right; the men were there when we got back; Evans told Dunning to keep cool and stay there till such time as we returned back to them; Evans tried to get along No. 6 right towards Powell's Flat to see the return; I went with Evans as far as we could get, and that was about six bords down; we were stopped by smoke and dust; we were unable to go further; Evans said, "We will get back to the men"; we returned to where we had left the men, but they were not there; Evans and I went from there up towards the furnace; when we got between No. 6 right and the furnace we were overtaken by seventeen or eighteen men; Oakes, Ridley, Hunt, Dixon, Sells, Allen were some of the men; they are all alive; there were others; when we got to No. 6 right Evans suggested to open the doors at the point marked on the map in pencil with two small circles; they are wooden doors; the foul air was coming in the intake way, the main road to No. 6 right; we opened the doors, and that had the effect of turning the air back to the upcast shaft; up till the time the doors were open the men were very excited, and they were afterwards also; they wanted to get out very bad; one of the men said to try old No. 2; that is on the left-hand side of the main tunnel, round the outside of the 92-acre goaf; Evans said, "That is the way we will go"; Evans left then, with all the men I have mentioned; I remained there with Ridley; Evans said to me, "There is only me and you that knows the road out by No. 2, and one had better stay behind in case any more men should come"; I was to stop any men from passing that point; Ridley and I remained there may be for forty minutes; Ridley remained with me for company; we noticed very little, except that the doors being open was keeping the after-damp from coming to us; Evans told me to wait as long as I thought any men were likely to come that way; Ridley and I stayed at the doors; the doors being open short-circuited the air; while Ridley and I were there no more men came up; he and I then went to the upcast shaft; we there met the relief party coming in; from the time Evans left us till we got to the upcast shaft it was between half an hour and forty minutes; before that I saw Richard Walker lying in No. 6 right; Ridley was with me at the time; while I was standing with Ridley I saw a light burning about 40 or 50 yards down in No. 6 right; I went down to the light; Walker was there, and he was unconscious; he is dead now; his light was alongside of him on the floor, burning; Ridley and I carried Walker, and laid him on the inbye side of the doors; that was to get him out of the foul air; at that time I did not notice anyone else there; there was another light burning lower down than Walker's, a few yards lower down; after we had taken Walker to the doors, I said to Ridley, "We will stay here for a few minutes and get a breath of air, and then we will go back and get his mate"; we went back; we did not get his mate; I saw twelve or thirteen men in a heap together, all unconscious; they were groaning, most of them; that was at the place where I had seen the light burning lower down than Walker's; George Dixon, Daniel Healey, Henry and William Meurant, Dunning and his son, Filby, Peter Muir, and Michael Gallagher; that is about all I can remember; they are all dead; they were alive when I saw them, and were groaning; the two Meurants were close together, sitting on the left-hand side of the road, side by side; I looked at all the men I have mentioned; the two Meurants were alive; I have put three crosses (XXX) to indicate where these twelve or thirteen men were lying; they were 130 or 140 yards down No. 6 right rope road from Mat's Flat; I have put a mark on the top to indicate Mat's Flat; I have put a circle round it; I said to Ridley, when I saw the twelve or thirteen men, "We will try to make outside for a relief party"; the air was then a little sultry, but the air was taking its natural course; the air had not been improved where the men were lying by opening the doors; the opening of the doors did not bring the men within the short-circuit; it made no difference to them; the men that were in the heap were the same men that were with Dunning when we had told him to stay where he was; if they had stayed they would have been all right; Ridley and I tried to get out for relief, and we met the first relief party there at Mat's Flat; Adam Frost was one of the party; Crowther and Biggers and Morrison were others; I took the party down No. 6 right to where we had left the men lying; we put all the men up in a sitting position; I think they were then all alive; we then commenced to carry them out to Mat's Flat; Walker was the first that was carried out; when we carried Walker out I saw Edward Meurant; he was at my flat; he asked me if his brothers were alive, and I told him they were; I found a boy named Olsen on my flat; he was not exactly unconscious, but seemed very muddled in the head; he is alive now; I took him out by the main hauling road till I got to the main travelling road, about 200 yards from the outside; I went that way because it was much shorter to go that way, and by that time the air had become much clearer; Kelly was with me when I took Olsen out; I was out for, it may have been, twenty minutes, and then back again to No. 6 right; there were others there then assisting to get men out; I went in again by the main travelling road right through No. 6 right; I noticed when I got back the two Meurants were dead, and also several others, I saw several of the bodies brought out on skips to my flat; Gallagher was brought out to the shaft flat alive, so was Peter Muir; they died two days after; I went out of the mine with bodies the second time; later on I went in with Mr. Johnson, the manager of Bulli, and a party; I was with Dr. Robertson's party in the mine; Dr. Robertson and Evans and I went in, and we met Johnson's party inside; I went into the mine on the next day (Friday, the 1st August), with Mr. Cook's party; we went in the daylight tunnel way; we did not find any bodies in the tunnel; we followed the intake; we found a body in the main heading, where I have put an X; it was in No. 1 main heading; they said it was Dungey's body, but I could not recognise it; it was about 100 yards from the fifth right rope road inbye where his body was found; his body was very much mutilated; the head was not on the body; his arm was not on the body; I do not think the body was greatly torn about in other respects; after finding Dungey's body we continued on; we went up along No. 1 main heading to the left hand of No. 1 main heading to the bords.

Made and sworn, at the Court-house, Wollongong, this }
19th day of August, A.D. 1902, before,— }

M. FROST.

CHAS. C. RUSSELL, Coroner.

Inquest adjourned, for further evidence, till Wednesday, the 20th day of August, A.D. 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 19th August, 1902.

Inquest

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 20th day of August, A.D. 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

*Examined by Senior-sergeant Banks :—*Mathew Frost, recalled, states: Aiken was found in one of the bords off No. 1 main heading; we continued down the line of bords; we found seven bodies in different bords on the left hand of No. 1 main heading; I have marked the place on the map with three crosses (XXX); the bodies were found 20 or 30 yards from the face; none of the bodies were found close to the face; the bodies were Ansley, James, Wilkinson, Howell, S. McLister, Egan; that is all I can remember; we carried the bodies out with stretcher parties towards daylight; the body of John Purcell was also found in one of those bords; after carrying the bodies out I returned to the fifth right rope road, to the spot marked "O"; I found bodies there that had been brought there by a party that were further in the mine; I assisted to carry those bodies out also; I continued to go in and out to the rope road to assist to carry out the bodies that the parties on the inbye side brought there; I was in several times during the day to that point only; I was with Mr. Cook's party up to the time I found the seven bodies together; at that time there were two other parties who joined ours, Mr. Johnson's, and my brother Adam's party; of the seven bodies only that of the young Aiken seemed to be affected; it seemed to be singed a little about the bare arms; there was very little wrong with the other bodies; I do not think Aiken was scorched about the face or hair.

Cross-examined by Mr. Bruce Smith : I am in the employ of the company; I receive my salary from my father; I am contractor's foreman; I receive my pay from my father as contractor; I used the word overman in the sense of being a foreman in control of the men engaged by my father; I do not receive any regular pay from the company apart from the wages I get from my father; I have no duties towards the company apart from my father's employment; my father has no official position in the mine; he simply contracts to shift coal at so much a ton to the outside; I have always been in my father's employ; I have no official position in the mine; I have been working in the mine for, as near as I can say, twelve years; I know the geography of the shaft section of the mine only; the shaft section includes the seventh right rope road and all the workings about it, the sixth right rope road and all the workings about it, and the bords on the left-hand side of the shaft main heading; that is all that is included in the shaft section; that is the only part of the mine that I understand and know the run of thoroughly; I do not know No. 1 section so well; I only go there when my brother is not there; the plan shows all the shaft section thoroughly; I went into the mine on the 31st at a quarter to 7 and came out, as near as I can say, between 4 and 5; that was when I first came out; I came out the second time about 6 o'clock or after; I went in again about twenty minutes after and came out again at, as near as I can say, 1 or 2 in the morning; after I came out finally I felt a little dizzy, but I was quite sensible enough, but I felt a little weary in the legs; I am of opinion that the cause of the accident occurred in No. 1 section; that is the result of my observation from the time I was in the mine from 7 o'clock on the morning of the 31st till 1 or 2 next morning; I am of the same opinion now; I have formed the opinion that the cause of the accident was within that part of the mine shown on the map by the red line; I could not say in what part of that area the seat of the explosion was; my observations do not enable me to say that; I say that the explosion occurred in that area because it was in that part of the mine that I saw things upset from their usual condition, skips upset, timber blown out of place, horses and men dead, tools lying alongside dead men, doors blown out, canvasses disarranged, falls in the roof, stoppings blown out; I cannot think of any other indications that I noticed of an explosion having taken place; I did not see any charring in that area; I saw indications of men having been singed; I did not see any charring on any subsequent visit; apart from the singeing of Aiken I saw no indication of charring up till now; I saw one body with the head and one arm off; that is the worst mutilation of all that I saw; the body of the boy Walker was also mutilated; part of his head was smashed in at the back; I have marked on the map the places where the bodies were found in red as follows:—No. 1, Dungey; 2, Purcell; 3 Aiken; 4, Ansley; 5, Egan; 6, McLister; 7, Wilkinson; 8, Howell; 9, Walker; 10, Stafford; 11, Leice; of those there was only one, that of the boy Walker (No. 9), found near where he was working; I think Purcell was very close to his work; the men (Nos. 2 to 8 and 10 and 11) had been working within 50 yards of the places at which they were found; they had not got farther away from their work; the bodies that were found outside the area marked with the red pencil were not knocked about at all; I do not know where those men—there were seventeen of them—had been working; but where they died was no indication of where they had been working; the only dead horse I saw in the area enclosed with red was where I have marked "O" in No. 1 main road; there were nine or ten or more horses working in the area enclosed with the red line on the day of the explosion; the horses belonged to my father; the horse that was found dead marked "O" was working between the point at which he was found and the places where the dead men (Nos. 1 to 9) were found; nine other horses were killed in that section; four of the horses working on the fifth right off No. 1 main heading were got out alive; the four marks with a circle with a line drawn through the centre indicate where the horses were working; they were working between the bords and the fifth right rope road; the other five or seven horses were found dead, one close to Howell (No. 8); the position of that horse is marked with a circle; three dead horses were found at Powell's Flat; they had been working in bords close by where they were found; one dead horse was found at Stafford's Flat, indicated by a circle on the map; two dead horses were found at Price's Flat, indicated on the map by two circles; the horses were harnessed for working when found; they were hitched on to the skips some of them, one or two one at Price's Flat and one at Powell's Flat; the others were waiting and were not attached to skips; I cannot say whether those horses moved about at all before they fell; I saw eight or ten skips empty disturbed at Price's Flat; they were thrown off the rails; I cannot say whether they had been thrown on the inbye side or the outbye side; I did not make a close inspection to find out at the time; the whole of the skips at that point had been standing there waiting for the wheeler to work them; two of them were on their sides and one on its end when I saw them; I have marked the position of the skips on the map with red squares; the skip that was on its end was the one nearest to Stafford's Flat; there were no other trucks displaced besides those I have mentioned; I saw no other skips disarranged that day; I saw timber blown out of place close to where Dungey's body was found in No. 1 main heading; it was also close to where the dead horse was found; I cannot say which way the timber had been thrown; I did not see any other timbers in No. 1 section out of place; the door was blown out close to the dead horse (marked O); I cannot tell what direction it was in which the door had been thrown; I do not profess

profess to know where all the falls were in that area; as far as I know Dungey's body had not been moved when I first saw it; I cannot remember the position in which the body (Dungey's) was lying; the head was about 30 or 40 yards from the body; the arm was a less distance from the body than the head, between the head and the body; the head and the arm were lying towards the centre of the area (No. 1 section) from the body; the body and the head and the arm were lying in No. 1 main heading (No. 1 main level on the map); Walker's body was lying on top of a full skip with the face down; the head was lying in the same direction as the head of Dungey was lying; there were other skips behind him; I cannot say whether he was on the first or second skip he could have got up on the skip if he had wished to do so; there was a fall of stone just there and some of the stone was on him; it was on him in large quantities; he was so covered with stone that at first he was overlooked; I am familiar with the sound of a fall of stone in the mine; when you are close to it it sounds like a rumbling of thunder; that is a large fall when you are drawing timber; I heard no sound at all on the 31st at any time; it was the wind that attracted by attention; it was coming in the opposite direction; a fall when they are drawing timber in the pillars might have caused the change in the direction of the air.

Cross-examined by Mr. Lysaght: The wind came against the air; I did not detect any bad smell at the time I first noticed the air; it was detected by me (the bad smell) about a quarter of an hour after; I had not got the bad smell when I met Mr. Evans, I detected the smell in No. 6 right, about six bords down, towards Powell's Flat; I knew that that smell was the after-damp; it was pretty strong there; I turned back; we thought we had gone quite far enough that way; I was going with the air on the way to Powell's Flat; the air would meet the dust and smoke, and clash; they did meet half-way down towards Powell's Flat; I had an idea then that there was something wrong, but I did not know what it was; Dunning told me that his place was very hot, or something to that effect; I cannot say that he said his place was on fire, but he said it was very hot; Dixon said nothing about his place; young Walker was very excited, and wanted to get out; he did not say anything more than that he wanted to get out; other men said that No. 1 was on fire, but I do not know what men said that; the conclusion I came to was that, if No. 1 was on fire, the sooner the men were got out the better; I thought it was an explosion of gas fire-damp; I did not know before the explosion that there was fire-damp about Powell's Flat; I do not know now that there was fire-damp about there before the explosion; I have been to Powell's Flat since; I am now satisfied that there was an explosion in No. 1 from fire-damp; I do not know what Evans was convinced about when he said he was convinced; Allen and Sells told me that they had felt a change in the air the same as I did; they thought there had been a fall; they did not tell me that they had heard any noise; the suggestion that we should go and look at the return air-way was Evans'; we went to Powell's Flat to see if the air was right; if the return was not all right, the air would have come past to where we had left the men, and would very likely have killed them; from the time I and Evans left the men, and told them to wait there till we came back, and the time we returned to where we left them, I had a conversation with Evans; he only said, "I am satisfied"; he did not say what he was satisfied with; there was some after-damp coming up the main tunnel; that was about half an hour or twenty minutes after I felt the wind; I had not been standing at the upcast shaft for any time before I felt the after-damp coming up the main tunnel, I was standing 200 yards from it; I could there detect after-damp coming in the main tunnel; I had never heard of fire-damp being in the Kembla Mine before; I had never heard of it in any proportion at all; I will swear that I never knew of any fire-damp; I just recollect a man named Gallagher being burnt; that was many years ago; it was in my time that he was burnt; I do not remember the occurrence; I think I would be wheeling at that time; I do not know perfectly well that he was burnt with fire-damp; I heard that Gallagher was burnt; I never asked what with; I do not recollect that a man named Howie was burnt with fire-damp; I do not recollect anything of that at all; I do not know that a man named Waples was burnt with fire-damp; the door I have spoken of was a wooden door; I saw it before the explosion; it may be three months before; I cannot remember the occasion I saw it; I have not seen the door since the explosion; I did not say the door was blown off; it may not have been blown off; I did not carefully examine Dungey's body or any of the clothing; his clothing was not burnt that I can say; I will not swear that his clothing was not burnt; I cannot swear that he was or was not burnt in any way; I did not make any examination; I did not make any examination of Purcell's body either; I did not notice whether any of his clothing was burnt; I did not notice whether the brattice cloth was burnt; there was no other door except that one near the dead horse; I do not know that blown-out shots are a frequent occurrence in Kembla; I may have heard men say they have had blown-out shots; I water the haulage road; the road is watered whenever the manager thinks it is required; I cannot say the number of times the road has been watered since the 1st of January; it has been watered often and whenever the manager said it was to be watered; it may be watered on an average every fortnight; at places the road is naturally wet and at others it is dry, but not very dry, and very little dust accumulates in the main hauling road; I do not know anything about the watering of No. 1 section; the under-manager and the deputy would give orders for the watering of the road; those orders would be given to me in my section; I was not paid extra for watering; I had to do that under the contract; the object of watering is to lay the dust so that it would not ignite; there is considerable danger of dust igniting if it is not watered; the system of watering in Kembla mine was water tanks, with plug-hole in the bottom; the watering is supervised to see that there is not too much put in one place; I have four water tanks in my section (the shaft section); the tanks are shifted about; I do not know how many tanks are in the mine; the tanks would hold a few hundred gallons; I should think the large one would hold 300 or 400 gallons; there is no particular place for the tanks to stop or to go to, but they are always sent to the places we get orders for them to go to; they go off the rope roads; they go into the bords right up to the face when required; I have known that to be done; I know the tank travelled up to working places in No. 6 right, with water; No. 6 right main heading makes a little water; the water would be got from there, and in six or seven different places; in several bords in No. 6 right; I myself have had water brought to No. 6 right, heading to the straight-in bord in that heading, in tanks, to water; I have known water to be taken into Richard Walker's place to wet it; one of the Peaces was his mate; it may have been a few days before the explosion; I gave orders for Walker's place to be watered; I think Mr. Nelson gave me instructions to have Walker's place watered the last time it was watered before the explosion; Nelson told me that Walker's place wanted water; he did not tell me any more; at the time he told me that he did not tell me any other man's place wanted water; I know of no other working places besides Richard Walker's
that

that were watered during the month before the explosion; there were no very peculiar conditions about Walker's place that necessitated its being watered; it is naturally a wet place; Walker's place did not need watering; we used to take water from it; where Nelson wanted it watered was a hundred yards distant from the face; it was not extra bad there a hundred yards from the face; there was dust there, but it was not very dusty; it was more so than at any other place I can think of at the time; Walker's place was in No. 6 right heading; I cannot think of any place other than the travelling roads that was watered during the month before the explosion; I do not know whether Nelson got any instructions from the manager to have Walker's place watered; Nelson was under-manager at the time; all the water that was used for watering was got from inside the mine; the left hand of No. 1 main heading was not very dusty when I was there about a month before the explosion; there was natural damp at Price's Flat and Stafford's Flat; with the exception of those two flats the other parts were a little dusty; water, to water that section, could be got either from Price's Flat or Stafford's Flat; I do not know whether any watering was done there at any time; there may have been a place or two in the travelling road where there was a little dust; it was a little more than on the main haulage road; the travelling roads are not as a custom watered; water is let on to them; water has been let on at No. 5; I mean by "let on" that the water was let on to the road by drains; that is the only water the travelling road gets, therefore any rise in the travelling road gets no water at all; from the main tunnel to the telephone cabin is descending, and from there to the top of the No. 1 main level, and right up to the top of the main workings, it is ascending; I cannot explain whether any water is being made in the No. 1 main heading; there is an accumulation of dust on the floor of the travelling road from the telephone cabin up; there may be an inch or so on the floor; your feet do not sink into it; there may be a little dust on the sides and on the roof, but the roof is clean; that state of things would apply to the place where the dead bodies were found—that is, the seven dead bodies; I do not consider myself competent to give an opinion on scientific questions; I do not know whether anything was done to remove the dusty conditions, because that was not my section; when my brother was away I was in that section for perhaps an hour in the day; that was for about two days about a month ago; I have been in No. 1 several times in the last three months; that was for about one day a fortnight for an hour a day; while I was there I did not do anything to remove those dusty conditions; there is very little dust in the shaft section; there is no considerable accumulation of dust on the roads in the shaft section; there is very little dust in both sections; I have spoken to Mr. Atkinson when he has been at the mine; I was speaking to Mr. Atkinson four or five months before the explosion; he never gave me any instructions about watering, neither did any other inspector; I have never had any directions from an inspector to water; it was just by accident that I saw Mr. Atkinson; I only passed the time of day to Mr. Atkinson; I do not know when the inspectors are coming; I cannot indicate any particular portion of the section which I thought the worst part of the explosion came from; when I saw the dead horse I could not swear whether he was or was not singed; I did not notice whether the horse had been burnt; I did not notice whether any of the horses had been burnt; I did not notice whether any of the timber was broken; I could not say that all the timber I saw thrown out on No. 1 main road was charred; it was very black; I did not examine it at all.

Cross-examined by Mr. Wade: Timber is often brought into the mine which is burnt, and it is used in the mine; I do not know the travelling road in No. 1 section as well as I know that in the shaft district; when I took my brother's place I used to cut across through No. 6 right from my own section; I would have no occasion to be on either the main travelling or haulage road to get there; unless I wanted to go to the telephone cabin I had no business in the main road; it was a frequent occurrence for me to go to the telephone cabin when I was in No. 1 section; when I had finished my work in No. 1, I might go by the main road; my knowledge of the travelling roads in No. 1 is good; I have been on the main road to the telephone perhaps twelve times in the last six months; I would travel the road for no other purpose than to see that things were kept right; while I was in No. 1 section I took steps to see that the road from the telephone cabin outbye was kept in good order; I have also taken steps when there, if I saw anything wanting, to clean the road up from the telephone cabin inbye to No. 5 right; on one occasion I saw something that wanted cleaning up, and I had it done on that part; I know an opening from the right of No. 1 main travelling road into goaf of 35 acres, which is known as No. 4 right; I do not remember whether there was any dampness in the locality of No. 4 right; there was no pump at No. 4; old No. 3 right is between No. 4 and the telephone cabin; there is a pump at No. 3 right; the water accumulates between 3 and 4; I do not know where the water drains from; as near as I can say the trucks travel on the endless rope $2\frac{1}{2}$ or 3 miles an hour; the main and tail road haulage travels much faster than the endless-rope haulage; it goes 7 and 8 miles an hour; there is a good deal more dust then when the skips go fast; I have marked a "W" where Richard Walker was working, it was at No. 6 right straight heading; from the end of the heading to the junction of the main tunnel would be about 500 yards; we used to get the water out from Walker's place and take it along the heading, not because the place was dusty, but to save the trouble of pumping; Aiken's body (young Aiken) I do not know where he was found; I saw the scales of flesh hanging off his arm from the elbow down, where he had been singed; his arms were black; his face was burnt a little; I could see the scales of flesh on his face too; the flesh was loosened from the face and the arms; the hair was singed a little on the back of the head, like a barber singes one; he had some clothes on; I do not know whether he had his coat on or not; Purcell was at his place a few yards from the face when I saw him; Purcell did not seem to be burnt at all; there was no mark of injury on his body; Purcell was in one of the bords at the extreme end; I first saw Aiken on the heading; Purcell was not dressed; he was not dressed for coming out; his arms were bare; I have known Mr. Rogers, the manager, for a number of years—ten years; I have found him to be a man who is very careful about the safety of the mine; he is strict in the observance of the special rules; I can say the same about Nelson and Dungey; they were careful of the safety of the miners; I only have to do simply with the getting out of the coal and keeping the mine in repair; I have studied a little about coal explosions; after I smelt the after-damp I came to the conclusion there must have been an explosion of fire-damp; that was the only cause I could think of; gas is the only substance I know of to cause explosions; I have travelled by the travelling road from the telephone cabin to No. 5 right since the explosion, but I have not travelled by the haulage road; I have not examined either of the roads.

To Mr. Bruce Smith: I have read a little for my own safety; I was under the impression that a percentage of gas was essential to an explosion, and that is why I formed the opinion that there had been an explosion of fire-damp; I have not read that explosions take place without the presence of any gas and merely

merely from dust and the flame from a shot ; I give the answer that I am now satisfied that there was an explosion in No. 1 from fire-damp, because I know of no other cause for an explosion but fire-damp ; my father has a contract in writing with the Company ; I cannot say whether there is a provision in that contract that my father is to undertake the watering of the mine ; the tanks I have spoken of are the ordinary malt tanks, 200 and 400 gallons, I have seen four of them at one time in the shaft section ; I do not know of any more than those four tanks ; the water comes from a hole right in the bottom ; the hole is 2 or 3 inches in diameter ; it is a round hole stopped with a wooden plug ; there is not any other apparatus in the mine for watering that I know of, there is no water supply at the mine other than that in the mine ; water has never been carried down from the entrance for use in the mine ; all the water that finds its way on to the roadway comes from one or other of the natural springs in the mine ; when the tanks are not in use they are placed in the most suitable place where it is thought they will next be needed to bale water where it has accumulated ; the water is collected with buckets and put into the tanks, and then they are taken away ; if the water does not accumulate, the tanks are very seldom used for carrying water along the roads, the primary use of the tanks is to carry water away so as to get on with the working ; the water is always taken to the watercourse that runs out of a mine, or to a pump to pump it out ; it is taken to the most convenient place to get rid of it ; when a plug is taken out of a tank the tank takes two or three minutes to empty ; the trolley is stopped, the plug is taken out, and we stay there till it is empty ; when any water is taken along the road for watering, the water is distributed when necessary ; the emptying can be made to extend for about a quarter of an hour, a tank of water would go a long way ; one man working a whole shift might have used fourteen or fifteen tanks of water in watering twelve months ago ; since then there has not been anything like that quantity used on any road, but other parts of the mine have been watered ; in wet weather there is an unlimited supply of water in the mine ; even in this dry season there are thousands of tanks full of water come into the mine and go out in a week ; there is no stint of water in the mine ; a very small portion of that water has been used in watering the roads ; the water runs between the rails ; it can also run underneath the rails and on to the side ; if the water was coming out in small quantities the water would not go under the rails ; 2 feet is the maximum width watered unless the plug is pulled right out ; at the ordinary pace, with the plug pulled right out, one tank would water 30 or 40 yards ; even in No. 6 right the water would not be put on the roads for the purpose of watering, but for the purpose of bailing ; so far as my district is concerned and my brother's, when I have had charge of it, no water has been put on for weeks ; I have never seen any but the four tanks I have mentioned in the mine, I know all those four tanks ; we always use the same four tanks ; since I have been in the mine I have never known anything to be done to spray or water the sides of the roads ; the main road is 14 feet wide, the two lines of rails occupy 4 feet to each ; there is 2 or 3 feet between the sets of rails ; that leaves about 3 feet 6 inches on either side of the rails ; I have only known the plug to be pulled right out to water the spaces on either sides of the rails ; that has only been done at very short distances where the tanks have been wanted to be emptied ; Nelson instructed me to use the water to water Walker's heading at a point 100 yards from the face ; when I took my brother's place I had charge of the whole of the main road ; my duty was to see that the road was right, tidy, and clean ; that consisted in filling the skips and picking up any timber that may have fallen or anything else ; but I did not do any watering ; our system of haulage is the endless rope.

To the Coroner : If there is any quantity of stuff besides dust, it is filled and taken out ; the dust is only watered ; it always depends on the nature of the floor whether it requires watering again ; if the floor is not of a damp nature the slack is gathered up and sent out, stuff that would be dust if it were allowed to remain there ; I could not say about the skips whether they were uncoupled or not, but they must have been, for they were further than the distance of the coupling ; there was nothing in the position of any of the bodies that led me to form any conclusion ; there were no tools lying beside them ; most of the men where I have marked on the map had evidently retired from the face.

To Mr. Bruce Smith : I have never cleaned up dust from the travelling road ; there is always a good stream of water in the drain 6 inches deep may be, and 2 feet wide, and that is running all day.

Made and sworn, at the Court-house, Wollongong, this } M. FROST.
20th day of August, A.D. 1902, before me, — }

CHAS. C. RUSSELL, Coroner.

[Special Rules of Mount Kembla Colliery are now put in (marked D).]

Inquest adjourned, for the purpose of further evidence, till the 21st day of August, A.D. 1902, at 10 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 20th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 21st day of August, A.D. 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks :—John Morrison, sworn, states : I reside at Mount Kembla ; I am the deputy of No. 1 right district at the Mount Kembla Colliery ; I have been employed in the colliery altogether for fifteen years, and for about nine weeks as deputy ; I have marked the plan with a blue pencil showing what portion of the colliery my district embraces ; I commence duty at 9 o'clock at night ; I commenced at that hour on the night of the 30th July last (Wednesday) ; during that night I went in and examined for the stonemen ; I have no recollection of all the various places I went to ; I examined all those places where the stonemen were going to work ; I examined the working-places for the miners coming on in the morning ; all those in my district I examined ; I examined the rope roads in that portion of the mine ; I found nothing unusual in my portion of the mine that night ; I continued on with my work during the night, and returned to the cabin, which I have marked on the plan with a cross (X), about ten minutes to 6 ; that is on the main travelling road near the entrance ; I met McMurray, a deputy, there ; he is the night deputy for the shaft district, when I met McMurray I started to give out the tokens to the men going in to work ; those were to the men on the front shift in my own and McMurray's district ; I myself did not give out all the tokens ; McMurray started to write out the report, every man

I handed the token to in my district I said "All right" to; McMurray called out "All right" for his men; when I called out "All right" to the men, I meant that their working places were all right; I had no occasion to stop any of them from going into my district that morning; everything was all correct at the various working-places in my district; neither William nor Henry Meurant worked in my district; they were working in McMurray's district; if either William or Henry Meurant went in that morning he would pass the cabin I have mentioned and would get his token; I cannot recollect whether either of the Meurants did go in that morning; after passing the men in on the front shift, McMurray and I left the cabin about five or seven minutes after; I think there were three men who did not go into my district that morning; their tokens were left hanging on a board in the cabin; I cannot say what three men they were; I could not say whether any of McMurray's men did not go in; after leaving the cabin I saw the under-manager, Mr. Nelson; I gave him a written report; the report was in a book; the book is known as the "Report-book"; I produce that book [Page put in and marked Exhibit C]; Mr. Nelson took the duplicate reports from the book; after I handed the reports to Mr. Nelson the whole of my duty for that day was finished; I also made another report to Mr. Nelson, and produce it [Page put in and marked Exhibit E]; both the reports were made at 6 a.m. on the 31st; I left the colliery after making the reports, and went home; I went to bed; between 1 and 2 in the afternoon I was awakened by some noise; I asked my family what it was; Mr. McMurray, who resides with me, called out that he thought it was a boiler had burst; McMurray went home with me in the morning from the colliery; when McMurray said that, I rose and put on my clothes; McMurray had his on; I said there might be something wrong with the mouth of the tunnel, and I would take a safety-lamp in my hand; I did so; I ran down to the tunnel mouth with McMurray; when I got to the tunnel mouth everything was smashed up, and you would have thought the tunnel was closed up altogether; I could see that a very serious accident had occurred; I lighted my safety-lamp, and went up to the mouth of the tunnel; McMurray was with me; McMurray and I both went in to the mouth of the tunnel with the one safety-lamp; McMurray said we would never get in with that lamp, and he went down to the engineers' shop and got a big flare lamp; I waited till he returned, in a minute or two; we then went in to the main tunnel, and when about 50 yards in we met James Powell; he was either in his stocking soles or bare feet; he was running; I asked him if he saw anyone on the road, and he said, "There is any amount of dead ones"; I said, "Are you going straight out?"; he said he thought he had done enough; he then passed on; McMurray then went on, and went through the cut-through at No. 1 right; I mark that place now on the plan X 2; I found a big fall there in the travelling road; at the back of the fall Adam Frost, sen., and Charlie Biggers were standing; I saw them; I did not go over that fall; McMurray said he would go back and get his safety-lamp, and he left me; Charlie Biggers then went with me; he came over the fall to me; we went in the main tunnel; we went right to the shaft—to No. 6 right, where the ventilating shaft is; I have marked that point on the plan X 3; before we got to the shaft we found three bodies, at the point marked on the plan X 4; the bodies were those of Jael Hitchings, Edward Gallagher, and Blackett (I do not know Blackett's Christian name); I think it was the elder of the two Blacketts; I lifted Hitchings and Gallagher up into a sitting position; about 10 or 15 yards inbye I met Tom Muir, Jimmy Muir, and William Muir; I have marked the place where we found the three Muirs X 5; those three Muirs are still alive; it was after that Biggers and I went right in to No. 6 right; I there saw a man named Maunders just at the shaft sitting picking his jacket; he appeared to have lost his head; next to Maunders there was Dicky Lane and his son, Walter Olsen, and others whose names I do not know; we sat them all up; I have marked on the plan where we found these men X 6; Matthew Frost then came out of the sixth right with Ridley, and Frost, Ridley, Biggers, and I then went into No. 6 right; there were a lot of men, and bodies were lying in No. 6 right; those that were alive were unconscious; those men and bodies were lying somewhere about 200 yards from the shaft; we sat them all up; I have marked on the plan where the men were X 7; I am not well acquainted with that district; after we had sat the men all up we went along to James' heading; Richard Walker was lying further in than the other men—somewhere about James' heading; I think Mat. Frost then told me that Davey Evans had all the men the other way; I returned with others to the shaft; there was one stretcher there then, there were others there after; we returned to the shaft to clear the road, so as to get the men out in skips; while we were clearing the road Andrew Patterson called to me to come, that there were men lying in No. 6 left; I went away with him into No. 6 left; I found two men at the point marked on the plan X 8; one of them was my son—he is still alive—and the other was Jack Ryan—he is dead; he was alive when I found him; four men took my son and Ryan away; Erny Allen then joined me, Patterson having been one of the four who took my son and Ryan away; Allen and I then went up to the pillars on the outside of the long wall, we did not find any bodies there; we found nothing at all; we returned then, and went right through into the main tunnel; about 10 yards in the main tunnel I saw a man; he was alive, and is still; his name is Tom Evans; the place where I saw him I have marked on the plan X 9; we just sat him up, and Erny Allen went down and cried out to the men that there was another up there; he was carried away in the direction of the shaft in a skip; Allen and I went on, and about 30 yards inbye right we found two other men—one was Daniel Gallagher, the other I do not know; I have marked the place X 10; they were both dead; Allen and I went on; we went on to a flat about 30 yards from the seventh right marked X 11; we then returned by the main tunnel to No. 6 right, and started to help to carry the men out; the first man I helped to carry out was alive; he was Alexander White; I helped carry him to old No. 5; Patterson was there with others, and Patterson said they could not find William Clinton, and I went back with Patterson to look for him to the shaft; we handed White over to others; I went into the main heading with Patterson; we went through a cut-through; we heard Clinton had gone out another way; we started then to carry out Dicky Lane (the old man); I assisted to carry him out by the travelling road right outside; it was then between 8 and 9 o'clock, I think; I went in again, about half an hour after it may be; I then went No. 1 section; ten besides me went into No. 1; we went in the travelling road; we went to the main heading to the cabin (telephone), and we found three bodies at the point marked on the plan X 12; I could not say whose bodies they were; I think one was Purcell; we then went to the fourth right; we went in through the cut-through into the back heading; we then went right along the travelling road, and through a cut-through at the fifth right; I think there was a dead horse about the spot marked on the plan "O"; from there we went right up along No. 1 main-level about 250 yards past the fifth right; about there we came on the body of Frank Dungey; I did not know then that it was his body, but it turned out to be his; it is about 66 yards from No. 5 right, and not 250 as I said just now; I have marked

marked the place where Dungey's body was X 13 ; Dungey's body was lying on the back ; his inside was hanging out ; the head was off the body ; I could not particularly say where his head was ; the head was beyond the body inbye ; everything was beyond the body inbye ; they were gathering bits of the body up ; we did not find any other bodies with Dungey's ; our party went on then right up into No. 89 heading ; we found nothing there ; we then went into No. 105 bord ; Morris and son were working in No. 89 heading ; at 105 bord we found John Purcell, that is the first bord next to the back heading ; I have marked the spot where we found Purcell X 14 ; he was dead, and was lying on his face about 3 yards from the face ; his body was neither knocked about nor burned ; we left his body and went on ; we went into bord 88 ; we there found Tom Tost lying out of the bord in the heading ; his body was not mutilated ; I have marked the place where his body was found X 15 ; we went down the bord opposite old 88, and from there through a cut-through into 87 bord ; there we found the bodies of Johns and Thomas ; I have marked the spot where their bodies was found X 16 ; Adam Frost, junior, was one of the party ; the two bodies were lying about 7 or 8 yards from the face in front of a full skip ; they were lying close together ; they had come out from the face and were lying in the roadway ; their bodies were not mutilated nor burnt ; from 87 bord we went through a cut-through and an old bord to bord 86 ; we there found the body of Aiken and that of his son ; I have marked the spot X 17 ; they were lying about 10 yards from the face ; both those bodies were a little burnt ; from 86 we went into bord 85 ; we there found the bodies of Ansley and James ; I have marked that spot X 18 ; 85 and 86 are both pillars ; they were both lying out in front of a skip that was standing out about 15 yards from the face ; those bodies were not mutilated or knocked about at all nor burnt ; from there we went, *via* Gill's gannon bord, to Nos. 82 and 83 ; we found Slim McLister before reaching No. 83 ; that was in Gill's gannon bord, at the point marked on the map X 19 ; the body was 40 or 50 yards from the face ; he was a wheeler ; his horse and skips were close by ; the horse was dead also ; McLister's body had nothing wrong with it ; it was not burnt ; we did not go into 83 ; we returned by Gill's gannon bord to the fourth left back heading to Stafford's gannon bord ; we there found Reynold Hume lying in the mouth of that bord ; Jim Head and Best were also there, also Hewlett and Russell (George Russell) ; Head, Best, Hewlett, and Hume were together at the point marked X 20 ; Russell's body was at the point marked X 21 ; the five bodies were all right, not mutilated or burnt ; we went from there to No. 81 pillar off Stafford's gannon bord ; we there found the bodies of Rich and Son ; they were at the point marked X 22 ; there was nothing wrong with their bodies ; the bodies were 35 or 40 yards from the face ; we then went up into No. 79 heading ; we did not find anything there ; from there we went down Stafford's gannon bord to the fourth left rope road, and along that road to Price's Flat ; the first one we found at Price's Flat was Kembla Stafford, then Patrick McCann, Jack Murphy, Gleeson, Brazier, and Doherty ; I think Youngman was got there too, but I am not certain ; they were all dead ; Stafford was burned a little, but none of the other bodies were burned ; Stafford's body was a little away from the others nearer his working place ; I think he had been knocked there ; his horse was found also attached to the skips ; Stafford was a wheeler ; 3 or 4 yards off that little crowd we found a man named Scott ; his body was not burnt nor mutilated at all ; we then left that place (the whole party of us) and went to bord 74 ; that is where the two Egans had been working ; we found no one there ; we then went to bord 73 ; we found no body there ; Hunt and son had been working there ; from there we went into bord 72 : we found no one there ; Jim Head worked there ; that is the same Head whose body we had found on Stafford's gannon road ; we then went straight down to 74 through the cut-through and then on to 69 bord ; we had seen all the men who had been working in 69 to 65 inclusive in the shaft district or knew that they were out ; in 69, Dunning and son had been working, and they are now dead ; in 68, Williams and Benjamin had been working, they are both alive ; in 67, Cook brothers had been working, they are both alive ; in 66, Fitzgerald and son had been working, they are alive ; in 65, Price and Brazier had been working, they are both alive ; we did not go into any of those bords ; we went to 64, where Bryson and Gill had been working ; we found no one there ; Bryson and Gill are dead ; we went into the face of No. 63 and saw no one ; I saw the two men who had been working there (Muir and son) in the shaft district, they are dead ; from there we went right out to Powell's heading through bord 69 ; when we had got that far we found we had got too far ; I mean by "too far," that we had gone too far for our own safety, we could hardly walk ; we then went into 70 old bord through the cut-through and up through on to the heading coming off Price's Flat, and from there on to Price's flat ; up to that point we had not seen any further bodies ; from Price's Flat we went up the second left, and on to the fourth left and straight out the fourth left travelling road ; from there we went on to the No. 1 right travelling road ; we then went into the fifth right ; we just had a lie down there ; we found nothing there ; we then went right up the fifth right to the top ; then we came back a crosscut to the daylight heading ; it was between 3 and 4 o'clock when we came out ; I then went home.

Cross-examined by Mr. Lysaght : I have seen the plan many a time before coming into Court to-day— one just like that ; I saw it last night in my own house ; I got it last night ; Mr. Rogers gave it to me ; it was in the sulky, and I asked to take it ; Mr. Rogers was not with me at my house looking over the plan ; George Russell and a man named Joseph Anderson was there also ; everything I have said is what I know myself ; I could take you into the place and show you every corner ; it might be thirty or forty minutes after going in the first time that I came across Dungey's head ; I examined some of the waste workings on the 30th and 31st ; I examined 15½ acres and the 35 acres on the other side ; I cannot tell you exactly how long I took to examine the 15-acre waste ; the waste was examined before 3 in the morning ; I cannot give any idea how long I spent in the examination of the waste workings : the 15-acre waste is all fenced off ; it had all fallen ; I do not know whether all of it had fallen in ; I know that some part of it had fallen ; I say now that it had all fallen in ; you could get into that waste from the side near No. 1 right ; I could get into it on the left rope road side ; you could not get into it on the side nearest the fourth left ; the two places I have mentioned are the only two places you could get into it, but of course both those places were fenced off ; they were fenced off with timber ; I did not get into that waste by either of those ways that night ; I went into the fence ; with the exception of going to the fence I did not go into any of the waste that night—I never do go in ; I went to the fence to inspect ; I just go and see that the stoppings are all right and that the roof is all right ; it is not my duty to go right into the centre of the waste ; I saw no gas ; I do not know whether gas could accumulate inside those waste workings where I never got ; I never did anything to see whether gas had accumulated in that waste ; I never went into the waste in my life ; as to the 35-acre waste, I went to the third right, where there are pipes, and I examined there ;

there ; I went there to see that the pipes were all in order ; I examined the place right up ; that was done before 3 in the morning ; that is what I call the examination of that waste ; that is all I want to show about the examination of the waste ; I did not go into the waste to examine it ; I went into the fence on the fourth right ; it was open beyond that fence ; I have been beyond that fence but I was not on the 31st ; about seven days before I had been beyond that fence to see if it had fallen ; the men had been drawn out of that place seven days before the 31st and the timber was drawn , I went in the night after to see it and the roof had fallen light ; the fall was about two feet and a half thick ; seven days before the 31st there was a big opening above that ; I did not go in on the top of the fall at all ; I saw some black-damp 4 or 5 yards before I got to the fall ; that was seven days before the 31st ; it did not put my light out ; I never went inside the fence after that up to the time of the accident ; I have been inside the fence since ; when I made that examination of that waste I made a report in writing ; I did not make a report in writing of the examination of the waste seven days before the disaster ; I made no report ; I made no report of the black-damp ; I was not supposed to go inside the place, but I did so to see how the roof fell ; my duties do not at any time take me beyond any fence of a waste ; Mr. Nelson took me round once and Mr. Dungey took me round once ; when I got the job Mr. Rogers told me that any time not to allow the brattice work to fall behind, and if we were not fit to do it he would send someone for to assist us ; also that if I found any gas or anything I was to report to him at once ; there were no other instructions ; I do not remember all that Mr. Rogers said to me ; wherever there has been an inlet into the waste if there is not a stopping put in there is a fence put in ; that is done (the fence or stopping) whether the waste has fallen or not ; I know gas when I see it ; I have studied works on gas in coal-mines ; I have read Hughes ; I knew of the existence of the following rule (No. 10)—“That the deputy shall, at least once in every week, examine, so far as is practicable, the state of the waste workings and main air-ways and make and sign a true report of the state thereof in a book kept at the office for that purpose” ; the book produced contains the reports made as required by Rule 10 of the waste and working-places in No. 1 section ; there is no book kept at the office, as far as I know, for a weekly report under Rule 10 ; I made the report in the book produced on the 19th concerning the waste workings (it is marked Exhibit F), there is no report about the waste workings in that book since that one (Exhibit F) ; the report is made every month ; when I made my report on the 19th I had a naked light and no safety-lamp ; McMurray had not a safety-lamp ; on the 19th I went through the fences of the waste workings.

Made and sworn at the Court-house, Wollongong, this }
21st day of August, A.D. 1902, before me,—

JOHN MORRISON.

CHAS. C. RUSSELL, Coroner.

Inquest adjourned, for further evidence, till the 22nd day of August, A.D. 1902, at the Court-house, Wollongong, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 21st August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 22nd day of August, A.D. 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr. Lysajht:—John Morrison, recalled, states : I have read Rule No. 4 ; I have heard you read part of that rule ; I have never reported the finding of noxious or inflammable gas in Kembla mine ; with the exception of the black-damp that I discovered seven days before the disaster I never discovered black-damp at any other time ; the safest way to detect inflammable gas is with a safety-lamp—that is the proper way ; I have never found any inflammable gas in the mine ; I did not look for inflammable gas when I made the inspection on the 19th July ; if you go in there with a naked light, any man that knows his business will find it ; we examined with a naked light ; with such an inspection as we gave it we would have discovered gas if there had been any there ; it is possible for gas to be in some places in the roof of the mine and not be detected with a naked lamp carried in the usual way (in the hand) ; I always carry a naked light on my head ; I did so on the 19th ; to my knowledge I did not take that naked light from my head at all ; I could not say exactly ; it is not possible for inflammable gas to be in corners and remote places of a heading and not to be detected with a naked light, if a person were in the vicinity ; I cannot say how far the inflammable gas would have to be from a naked light before the gas would be detected ; I cannot give any measurement because I never tried it ; if a man goes in with a naked light, he finds the gas quick enough if it is there ; I cannot give you any idea how far a naked light would have to be from inflammable gas before it would ignite it ; the only way that you would ignite inflammable gas with a naked light would be in a way that you could not report it if there was sufficient quantity ; inspection for inflammable gas with a naked light is practically worthless ; the places we inspected on the 19th were two headings where the fresh air came straight in from the travelling road ; we inspected just air-courses on that date ; we did not inspect any of the working-places on that date ; the two headings I have mentioned are not the only places we inspected on the 19th ; we inspected another watercourse, between No. 1 main tunnel and the straight ; we examined the return air-way from the back heading to the shaft ; we came back the other heading, and went out No. 5 way, and went right up to old No. 2 ; we went into No. 2 (old) ; I have finished with the right section ; when we went in we went up the first right, and took a heading each, and we went right up to the top of the headings and went out the daylight ; then went right back to the second right heading ; we went down the second back heading to the travelling road, and then McMurray went to the water-level, and I went the return air-way to the shaft ; then we went out to old No. 2 ; as we were going along we were examining all the places ; we examined all old No. 2 right round to the shaft ; then we came back the back heading of the main tunnel to the oil-pump, and then we went out to old No. 1, and examined that to the daylight heading at Mr. Rogers' ; that is the lot ; I could not say roughly how long McMurray was away from me at any time during the inspection on the 19th ; I believe I came out a little before him ; I do not think he was away an hour at a stretch ; he might have been away half an hour at a time ; he was away from me twice that day ; when I signed the report on the 19th, there were two places I had not travelled ; one was the water-level between No. 1 level and the main tunnel ; I am not certain which of the levels I examined ;

examined; I did not travel one of the headings in No. 1 right and the water-level I have mentioned; McMurray travelled one of the levels, and I the other; the heading I did not travel is not in my district; I do not know whose district it is in; it is not in my district for examining; the heading I did not travel is known as old No. 1 right; I examined no working bords in the heading I went into; I never examined any working bords; on the 19th I cannot remember any bords in wastes that were standing; I cannot remember whether I went into any bords that are standing in any waste; we did not expect to get any gas in the examination on the 19th; the examination was chiefly for the roof and sides; we would have found gas if there had been any there; we did not expect to get any gas, otherwise we would not have gone there with naked lights; we looked for gas on the 19th; I will say that to please you; we would have found it if there had been any there; there was no gas present; on the 19th I did not go to look for gas; I did not make an examination on the night of the 19th; I think the 19th was a Saturday; I think McMurray and I left the tunnel mouth about ten minutes to 7 on the morning of the 19th to inspect; we came out at 2 o'clock in the afternoon; from the time that we went in till we came out, we were in the pit examining; we do not generally carry the Report Book on inspections such as that made on the 19th; I never carry that book; we did not carry it on the 19th; I have only made two monthly inspections—one report I put in this book, and one in another; that is since I have held my present position; on one of those inspections I made an inspection of the main tunnel, and on that occasion McMurray carried the Report Book; I did carry the book with McMurray into the mine on the 19th July; William McMurray wrote out the second report on the 19th July; I saw McMurray sign the report; we were both together; we signed it at the cabin; I signed the report after he did; to tell you the truth, I have very little recollection of what occurred on the 19th; I cannot swear whether I signed the report on the 19th or some day after; I have very little recollection of the 19th; I cannot recollect whether I mentioned to McMurray about having seen the black-damp; I do not recollect whether I mentioned it to Nelson; on the 30th July the inspection for the stonemen would continue on till about 2 o'clock in the morning; I assist with the brattice work; any bratticing I do is done between 9 and 2; I cannot say how long I am occupied each night with bratticing work; sometimes I do not do any at all; there is nothing more certain than that I did some bratticing the week before the disaster; I might go into a place, and do some for about ten minutes, but I have no idea of the time; I have no idea of the distance I would travel from the time I go in till I come out; the places I had to go to were from bords 56 to 106 inclusive; there would be fifty places I had to go into; I started about 3 o'clock in the morning to inspect the places, and was out at the cabin about ten minutes to 6; I do not know the distance from the cabin to the places; I cannot tell you how much time I occupied over each place, but from 3 till 6 I examined fifty places; I have drawn the route on the map as near as I can, but it is not the true route; on the morning of the 31st I went into every working place—the whole fifty; I had a locked safety-lamp with me; I tried the roof of each of those working places for gas on the morning of the 31st July; I would go to one corner and examine it, and then to the other corner; I examined the highest part of place on each side; I was not looking for anything else but gas; I did not find the slightest trace of inflammable gas in any one of those places; I examined the headings in the same way; from the 19th to the 31st, I put the lamp into the waste to look for gas; I did that on the rope roads where the waste approaches them; I examined each waste from the travelling road and the rope road both from the 19th to 30th July; Mr. Lysaght asked me yesterday who instructed me in my duties, and I told him something; it was William Nelson who instructed me in my duties; he showed me the work to do; when it was the day to make the monthly report, Nelson would tell us; from the 19th to the 31st July, I did not take my safety-lamp through the fences into the waste workings; I never crossed the fences to the waste workings to look for gas at any time with my safety-lamp; I did go into the waste seven days before the disaster to see if the roof had fallen for my own satisfaction with a safety-lamp; as far as I know there was no inflammable gas in any part of my section up to the 31st July, I have no theory as to what caused the disaster; my opinion is this—to make it short—that there was a big fall in the fourth right pillars; that is a waste area; if there was a big fall there, there would be a great rush of air into the road; I go by the way the force went; the air was forced both ways; I do not think I am competent to form an opinion as to what caused the disaster.

Made and sworn at the Court-house, Wollongong, }
 this 22nd day of August, A.D. 1902, before me,— }

JOHN MORRISON.

CHAS. C. RUSSELL, Coroner.

Inquest adjourned till the 25th day of August, A.D. 1902, at 11 o'clock a.m., at the Court-house, Wollongong, for further evidence.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 22nd August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court house, Wollongong, on the 25th day of August, A.D. 1902, at 11 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr. Lysaght:—John Morrison, recalled, states: I have heard you read part of rule 9 of the special rules of the mine; I was aware of the existence of that rule; the different reports that I made for the week before the disaster were left in the butts; the underground manager got the others; the reports are in the book containing exhibits "C," "E," and "F"; I look at the report on the 30th July, and also that on the 31st; the words, "The state of the mine, roads, doors, stoppings, brattice faces, and ventilating appliances," do not appear in these reports; if, when I am examining, I find anything wrong with the brattice I fix it up before I make the report; I do the same if I see anything wrong with the roads or anything else; after I put the things right I do not report what was wrong with them; there is no other report (written) made by me concerning the mine, roads, doors, stoppings, brattice faces, and ventilating appliances except those in that book; I got 9s. 6d. a day wages as deputy; I have no certificate of competency in connection with coal-mining; I never underwent any examination before a Board of Examiners; I have heard you read part of rule No. 3 of the special rules; I have read all those rules; I am not the overman, the overman is above me; the day deputy is between me and the overman; I am the subordinate to the overman; I do not know of anybody else over me but the overman and the manager;

William Nelson was under-manager at Mount Kembla ; I know that fire-damp will put out a light ; I know that it was black-damp that I saw a week before the disaster and not fire-damp, because black-damp takes the light clean away and fire-damp raises the light up in the lamp and leaves a blue cap on the top of it ; fire-damp is almost invisible without a safety-lamp ; I was in the mine with a safety-lamp seven days before the disaster ; I did not say it was with anything else ; the black-damp did not put my light out and leave a black wick, when I found the trace of it seven days before the disaster ; anybody that has had any practice at all can see black-damp without going into it ; I saw it and went back ; if you go into plenty of it black-damp will put the light out ; I just went to the edge ; I took my safety-lamp with me on the 31st when I went to the mine in the afternoon ; I did not fear that there was any gas in there ; I believed that the mine was one of the safest in the Colony ; I have heard of a man named Gallagher being injured in the mine ; I suppose he got burnt with gas ; I was not there ; I was working there at the time ; the reason I did not go to my own section was because I went on to look after the members of my own family ; I went to the shaft district where they were working ; the waste stoppings were into the travelling road in No. 1 section ; the stoppings were lying from just past the old furnace heading to the cut-through just outside the shunt near the fourth right ; none of stoppings were in their ordinary places after the disaster ; I cannot tell you where the stoppings of the 15-acre waste were lying simply because I never went to see ; I am not certain where the stoppings of the 35-acre waste were ; I am only speaking of the stoppings between the main heading and the travelling road.

Cross-examined by Mr. Ritchie : The red marks on the plan do not indicate the route of my daily visit ; I examine the roads and flats, &c., from 9 o'clock till 2 ; any little brattice that wants doing I do as I go along ; some of the roads may be examined from 10 o'clock ; I have heard you read part of Rule 8 of the special rules ; I have read that rule ; I do not go into the face of every working place twice ; but I am in the places more than once ; the cut-throughs to the working places are generally hauling roads ; I believe the cut-through in No. 1 section is in every case the place where the coals come through ; on the 19th July I penetrated into the old goafs as far as was practicable ; as far as was safe to go ; that is what I mean by practicable ; loose stones are hanging in those places and that is what stopped me, in some places, in other places the goaf is like a stone wall and you could not go in ; I did not examine the 35-acre goaf on the 19th July ; I did not examine the fourth right pillars on the 19th ; I examine the fence of the fourth right every shift ; I was only once in the fence of the 35-acre goaf for my own satisfaction since the men were withdrawn ; that was about seven or nine days before the 31st ; it had fell lightly ; I went right up to the fall before I met the black-damp ; there were very slight traces of black-damp ; I believe the pillars in the fourth right were working pillars at the time I made my inspection on the 19th ; my books would not show whether they were working or not ; I have no record of the places that working ; I do not keep a record written by me of them ; I go beyond the fences when I am making my examination of waste workings ; I have no idea of the distance we go ; if the timber is drawn I do not go in ; the fourth right 35-acre area was the only place I knew that had not fallen ; the area in that space that had not fallen was about two chains square ; when I was in there the roof was perfectly quiet ; the waste workings which I did not or could not travel were not ventilated when no one was working there ; these workings were closed either by stoppings or fencings ; they were not all sealed off ; some of the places were built up and some were fenced ; the section of which I was deputy was not a dusty section it was rather inclined to be damp ; the fourth left was the only part of it I think that was at all dry ; I would regard the fourth left as dusty ; the main hauling road was always inclined to be damp ; I cannot say there would not be any dust there ; there might be some dust on it ; there was no great accumulation of dust on the road ; I could not say whether the dust was dangerous ; I can give no idea of the amount of dust there was there ; in general the place was always inclined to be damp ; with regard to the fourth left I think I am safe in saying that it was watered every night ; Paul Donovan did the watering ; the roads were 12 feet wide ; the watering is done with a tank with a hole in the bottom ; I cannot say whether the watering was done for the purpose of getting rid of the water or for watering, but it was done regularly, that is all I know ; after the watering, the muck had always to be cleaned off ; if that part of the road was never watered it would be dusty ; I travelled that road every day ; the watering was always done at night but at no special time ; the watering was done nearly every night ; they had to draw that water to keep the place dry and they put it on the road ; I could not say whether a great rush of air coming out of the fourth right pillars would create a great cloud of dust, or not ; I went into the waste the night after the men was withdrawn and then I saw it had fallen light ; I went up to the barrier and looked in ; it was then I saw the slight trace of black-damp ; it was not for fright of the black-damp that I did not go into the waste but no practical miner would go in there ; I have never seen any accumulation of black-damp in Kembla mine ; what I would call an accumulation is where men could not go ; I have had practical experience of gas in the old country ; I have never had any experience of it here because I have never found any ; the door about sixty yard on the inbye side of the second right heading had been driven outwards ; there are two wooden doors on the second left ; there was a big fall on the top of those two doors, and we did not see them ; there is a door on the cut-through opposite the fourth left back-heading ; that door has been driven to the No. 1 travelling road on the right ; there is another door on the fifth right ; that door was intact, but the stoppings were driven in the same direction as the previous door I spoke of, that is to the right ; there was another door on the main No. 1 level travelling road inside the fifth right ; that door also was intact, but the buildings alongside of the door were driven back into the fifth right ; there are two canvas doors on the fourth right and fourth shunt ; one was driven 30 or 40 yards on the outbye side, the other was 4 or 5 yards inbye ; I cannot give you any date on which I noticed the position of these doors ; I could not say whether any of the men at the telephone tunnel were burnt ; I do not know the position of those bodies either.

Cross-examined by Mr. Wade : The two C's on the plan, opposite No. 4 right, are the two canvas doors I was speaking about ; they were both found in No. 1 main haulage road ; one was on the cabin side of No. 4 right, and the other was 4 or 5 yards the other side of No. 4 right ; I mark with blue pencil outbye of No. 5 right, the direction that door was blown ; I mark with a blue arrow the direction the door was blown, which is opposite No. 5 right ; the stoppings of the last door inbye had been blown towards the mouth of the tunnel ; I noticed some skips near No. 5 right in the main haulage road ; I saw five ; they were full ; from No. 5 right to the end of the heading is a rise ; the skips would come downhill to the point where I saw them ; the skips came from bords 87, 88, 105, and 89 ; the tokens were on the skips ;
three

three of the bords I have mentioned were to the left of the main heading, and the other, Morris and sons, was to the right of the cut-through off the main heading; the five skips were in between the fifth right and fourth left; I think all the skips were all off the road; they were separated, and the first skip on the outside was turned sideways round to the right; I mark with an arrow the direction the front skip was lying; the skip was turned to the left coming from the tunnel; I saw a dead horse lying on the opposite side to the skip, on the side towards the fifth right; the last two skips were separated from the other three, and seemed to be knocked back from the other three; I saw four skips about 35 yards out past the fourth right shunt on the telephone cabin side towards the tunnel mouth; there was a clip on the first skip fastened to the rope; the second skip was standing right on its end with the wheels facing out towards the mouth of the tunnel; the other two skips were knocked in hard to the other two; these skips were full skips, the four of them; I noticed one chock in the mouth of the third left; there used to be a chock there that was found on the outbye side 5 or 6 yards; I noticed something about the coal in the skips on the outbye side of No. 4; I noticed that the coal on the top of them had been knocked off towards the tunnel; I have worked on the coal as a miner at Kembla; off and on I have so worked for five or six years; I worked in different parts of the pit pretty well all over the mine; I first began to work as a miner at Kembla fifteen years ago; I always worked with a naked light; I never came across gas at any time in Kembla, neither on the coal or otherwise; I used to do contract work in the mine also, such as laying out the roads, and raising the roof, and so on; during the whole fifteen years I have worked there it has either been on the coal or doing contract work until I became deputy; I worked with a safety-lamp in the old country, where I have had experience of gas; I understood the use of the lamp (safety) before ever I saw Kembla; the working faces to the right and left of the main No. 1 heading were the highest part of mine; Broadhead was working in bord 98, one of the highest parts; fire damp makes for the highest part; before the explosion the brattice was carried up to all those places; that helps to keep the current going; if some brattice is torn down that stops the air current; after the explosion I examined the brattice in the part where Broadhead had been working, and it was standing ail right as it had been before the 31st; I did not find the brattice down to the right of the main heading; the brattice was down in 89 and 105, where Morris and son, and Purcell respectively had been working; the brattice in 87 and 88 was knocked away; I noticed that the brattices were disturbed on the night of the disaster; if there is gas in the mine, and the brattice is down that would tend to collect it in the higher parts of the mine; since the explosion I have examined for gas in 87, 88, 89, and 105 with an ordinary safety-lamp; I cannot say exactly the date; I have been in every day since, nearly; I think I was in the Monday following, Mr. Atkinson was with me; I found no gas on any of the dates I have been in since the explosion; I have examined those places three or four times since the beginning of August; the last time I was there with Mr. Ritchie; I have not found gas at any time since the disaster; I have been to No. 4 right where the goaf is since the date of the disaster (the 35-acre goaf); I have been right up as far as you can get; the roof has fallen and come out 5 or 6 yards past the pillar; the space between the left-hand side of the goaf and the right-hand side of the travelling road is solid coal; it is about 30 yards thick; it is about 45 yards from the edge of the haulage road to the edge of the goaf; at the entry it is 4 yards, but higher up it was wider; the roof is somewhere about 5 feet; it is a kind of tunnel from the edge of the haulage road to the goaf; I have tested for gas (fire-damp) in that tunnel at the edge of the goaf since the explosion three or four times; I tested with an ordinary safety-lamp; I have seen no signs of gas there since the disaster; Frank Dungey would be in charge of No. 1 section in the daytime before the disaster; Nelson would be wherever he was wanted; he had charge of the whole underground work and had no particular district; William Nelson was the first to go round with me to show me what to do; Nelson went right round about with me, through the whole of No. 1 section; he showed me as we went on how to go round and examine, all the different roads to go, and so on; that was before I started the work as deputy; Dungey also went round and examined the places and I along with him before ever I started; he examined the places and signed for them, and I looked on; Dungey did not do more than Nelson to show me what to do; when I went round with Nelson it was in the daytime and we had naked lights; Dungey carried a safety-lamp at night; I saw the way that Dungey did the work; I took Dungey's place as night fireman; Nelson and I went over the main roads and examined all the wastes in connection with the main roads; three or four pairs of men were working in the place which is now the 35-acre goaf when I first began as night fireman; those men went on working there for six or seven weeks after I started; I made an examination of their working places; I went in with a safety-lamp and examined in the edges and the corners; that would be in the morning before the men came to work; the waste would be close by their working places then; there would be a slice taken off the pillar, and the solid coal to your face, and the other side would be waste; I went on examining these pillars till the time the men were withdrawn; I never found fire-damp at any time during that period in any of those places; I have found a little gas in the mine since the explosion; Mr. Atkinson and I were in 83 and 84 since the disaster and we found a little fire-damp; I could not exactly say on what date that was; I did not exactly find it; I lost my light with it; that was a safety-lamp; I got on a stone and pushed the light up, and it went out.

Made and sworn, at the Court-house, Wollongong, }
 this 25th day of August, 1902, before me, — }
 CHAS. C. RUSSELL, Coroner.

JOHN MORRISON.

Inquest adjourned, for the purpose of further evidence, till the 26th day of August, 1902, at 10 o'clock, in the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 25th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 26th day of August, 1902, at 10 o'clock, a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr. Wade:—John Morrison, recalled, states: When I lost my light we came straight out of the heading, which was No. 83; I could not give you the date of that; Mr. Atkinson was with me; I have never been there since; Nos. 83 and 84 are two headings at the top of Gill's gannon bord;

bord; the brattice in those headings was all knocked down; the light went out 3 or 4 yards from the working face; I have not found fire-damp in any place in the pit since the explosion; I had not been in Nos. 83 or 84 since the explosion until I went with Mr. Atkinson; it was the following Tuesday or Wednesday after the 31st that I was there with Mr. Atkinson, I think; with the exception of the openings at No. 3 right and No. 4 right, the whole of the western side of the 35-acre goaf was a solid pillar of coal; I think there were two or three openings on the south side; there were one or two openings on the east side, and on the north side there are five or six openings; all those openings were either fenced off or stopped; when I was examining the waste I went right along the rope roads, and where there was an opening into the waste, I would go into the opening and examine it; that was my usual course of examining the wastes; I looked at the stoppings to see if the top was off them, or anything wrong with them; I used also to examine the front of the stopping with a lamp; that was to see if there was any gas; I never found anything; I never found any indication of fire-damp at any of the stoppings; Frank Dungey put the fence up in No. 4 right after the men had been withdrawn; I mark an oblong on the map, which is the site of the last piece of the pillars that was taken out; after the fence was put up no man worked in there as far as I know; I know the rule which says that a workman shall not go inside a fence without permission; that is in rules 15 and 37 of the special rules; there is a canvas door between the two headings at No. 4 right; if air or gas were to come out of No. 4 right it would go into the back heading of No. 1, and then outbye till it came to the air crossing near the telephone cabin, and out some of the roads by the upcast shaft; that is the ordinary exudation of air; so far as I know, there was no work being done in that back heading on the 31st July; I know the part of rule 15 of the special rules you now read to me with respect to the duties of the miners; the canvas between the two headings at No. 4 right is meant to keep the air from the back heading into the front, up to the strength of the canvas; I have had practical experience of breathing black-damp; that was when I was a boy in Scotland; I was always told that whenever the light went out to run; black-damp does not explode like fire-damp; it affects the light and your breathing if you go into enough of it; whenever the light goes out I do not remain there any time; the book now shown to me is the book in which I made the report of my nightly examinations [Book put in and marked Exhibit G]; a large part of the book is printed, and that is always the kind of book I have been accustomed to use; Mr. Rogers and the overman initial the leaflets; we give them from the book in the morning; I look at a page on the 17th July; it bears the initials T.L.B.; I do not know who put them there; when I was awakened by the noise on the 31st, I put on my clothes, and as McMurray was going out of the door I said, "For fear that there is anything wrong with the tunnel mouth, I will take my safety-lamp"; McMurray said, "Yes, bring it" (I think that is what he said); when we got to the tunnel mouth the air was rushing in, and McMurray said he would go and get a flare-lamp; I do not know of any conversation I had with McMurray about the lamp, except what I have stated in Court; when I had finished my inspection I would see Mr. Nelson at the cabin outside the mine, and almost every morning Mr. Rogers; Nelson was there every morning, and Mr. Rogers nearly every morning; anything that I found wrong in No. 1 section I would report to Nelson or Rogers; that is part of my duty to report either to the under-manager or the manager; the miners were not allowed to go past the cabin before I came back from my inspection; if I found anything wrong with the roof of a working place I never allowed any man to go and work there before it was made secure; if there was anything wrong with any of the places I would send the men to put it right before the miners went in; that was a special gang of men waiting on me to do that; those men worked around with me, and in any case I thought necessary I would send them on to do what was required; if bratticing had to be done during the night I would do it myself; I never heard of its being necessary to have a certificate for a deputy's work; I have been under Mr. Rogers for about thirteen years; the four skips found on the outbye side of No. 4 right shunt appeared to have been travelling on the rope at the time of the disaster; the clip is still on the front skip; Stafford's horse was on the No. 4 left rope road and just inbye of the cut-through leading into Stafford's gannon bord; Stafford was found on Price's flat, Stafford's work would not take him to the spot where his body was found; it would be the other way; the full skips would come down Stafford's gannon bord and on to the fourth left rope road, then around the curve on to the second left, and would come out at the telephone cabin; Stafford's horse was fastened to the skip.

Made and sworn, at the Court-house, Wollongong, }
 this 26th day of August, 1902, before me,—

JOHN MORRISON.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—John Brady Nash, sworn, states: I am a legally-qualified medical practitioner, residing and practising at Macquarie-street, Sydney; I am a Member of the Legislative Council; I am an M.D. of the University of Edinburgh, and a member of the Royal College of Surgeons, England; I have been practising for nineteen years; on the 31st July last I proceeded to Mount Kembla in company with Dr. Paton; I remained at the colliery during Friday morning, Friday, Friday night, and Saturday morning; during that time I inspected sixty bodies which had been removed from the Mount Kembla mine; I have since prepared a joint report with Dr. Paton on the matter; that report is signed by Dr. Paton and myself; I produce that report; that report is the whole of the evidence I can give on the matter; that report is true [Report here read by witness, and handed in and marked H.]

Cross-examined by Mr. Bruce Smith: I am not prepared to speak specially with regard to the three bodies of the two Meurants and Nelson; I have no personal knowledge beyond what is stated in the report I have just read; I cannot identify any of the signs or symptoms with any of the bodies more than has been done in the report; death from carbon monoxide gas is a well-known result from the incomplete combustion of carbon, and generally occurs where there has been a flame; an explosion in a mine, if there be a flame with it, is the most common cause; there is a good deal of medical and scientific literature during the last twenty years in connection with mining explosions; Dr. Haldane's report is the principal treatise; that is a report which is looked upon professionally as the most authoritative treatise on the subject; I know of some articles on colliery explosions by W. N. and J. B. Atkinson; we have only mentioned the prominent symptoms of after-damp in the report; I assent to what you have just read from Dr. Haldane as a fair description of the symptoms of after-damp with which carbon monoxide is connected; I say that from my experience and reading the part of the report I refer to is as follows:—Speaking of the

the symptoms produced in rescuers by after-damp Dr. Haldane says, "Mr. Thomas told me that just before he fell he was under the impression that he was getting into fresher air on getting into the after-damp, he had felt smarting of the eyes, but the first definite symptom was loss of power over the legs; he and his companions sank helpless to the ground with very little previous warning; they were brought back to the shaft lying unconscious on trucks; on recovering consciousness those affected had severe headaches and nausea, or vomiting accompanied by shivering; a member of the party who was not so seriously affected told me that when he got into the after-damp he felt smarting of the eyes and dryness of the throat, though these symptoms caused no serious inconvenience, at the same time he felt his legs becoming more and more unsteady, and he could make no extra exertion," that commends itself to me as a medical and scientific man as a fair account of the symptoms of after-damp; the affection by carbon monoxide, of which I reported that these men died, is connected with after-damp, of which those are the symptoms; I would expect any miners who had been in the explosion and who had been rescued to have suffered from those symptoms if they had been in the after-damp; I now listen to you reading from notes of the effects of after-damp at the Albion Colliery explosion, by J. Shaw Lyttle, M.D., as follows:—"I saw some men lying on the ground who had the appearance of being in an ordinary epileptic attack, frothing at the mouth"; that would correspond fairly well with the condition of the one man referred to in our report, except that one was alive and the other dead; carbon monoxide would not cause men suffering from it to groan, but some of the other elements of after-damp might do so; I have no reasonable doubt that the majority of the bodies I saw had died from after-damp; in attributing the death of the majority of these people to carbon monoxide, I treat it as a constituent of after-damp, from which I believe they met their death, groans may be a sign of after-damp; I will not say that groaning is a sign that men are suffering from after-damp; under the heading of "Men killed by after-damp," in Haldane's report, the following occurs:—"In nearly every case of death from after-damp the parts of the skin or mucous membrane through which the colour of the blood could be observed, had a red or pink colour, instead of being leaden, blue, or pale, as is the case from death from any other causes; this reddening, as seen in the face, hands, &c., often gave the bodies an extraordinary appearance of life . . . on the lips the pink or carmine was usually well marked, though sometimes they also were pale; there seemed to be only one cause which could account for the carmine red colour of the blood—namely, the presence of carbon monoxide"; that account of the appearance of the bodies after death corresponds with the appearance of the bodies I saw at Kembla; I hear you read from Haldane under the heading of "Carbon monoxide" on the subject of after-damp: "If there is less than 1 per cent. of carbon monoxide death is very gradual and peaceful"; that corresponds with what I state in the report with reference to some of the bodies at Kembla; also, "After paralysis of the limbs the senses are more and more benumbed as by a gentle anæsthetic"; I believe that to be correct; I mean by what I say in the report as to Mr. Bates that he appeared to me to be like a man who had received a very severe shock to the nervous system; Mr. Bates had a slight swelling on his left temple; he was not absolutely conscious when I examined him, not sufficiently to answer questions; I saw no evidence in Mr. Bates that would point to me that he was suffering from the effects of after-damp; I was not able to identify a Mr. Nelson among the sixty bodies seen by me; I do not know that Mr. Bates and Mr. Nelson were walking through the mine together and were found lying within three or four feet of one another; I did not see Mr. Bates till after midnight, ten hours after the disaster; the period named by Dr. Haldane as the time after the exposure to carbon monoxide when it might be possible to discover carbon monoxide in the blood is limited by six hours in the case of a man, I would expect the effects of carbon monoxide to disappear as soon as the carbon monoxide; if unconsciousness were occasioned by carbon monoxide, I would expect it to disappear as soon as the carbon monoxide; I do not believe that those men who were unconscious for ten or twelve days were rendered unconscious by carbon monoxide; the partial absence of oxygen might produce temporary unconsciousness apart from carbon monoxide; if a man were unconscious for ten or twelve days, I would attribute it to some other cause than carbon monoxide; the cause, then, in my opinion, is the shock to his nervous system—nothing to do with the absence of oxygen or the presence of carbon monoxide; in my opinion, it would be perfectly useless to try and bring a man back to consciousness after six hours by pumping oxygen into him; I did not try it; some cylinders of oxygen were brought down from Sydney on the Friday; I did not examine any of the living men except Mr. Bates; I spoke to several of the men who formed the rescue party; they described their symptoms to me; I believe they had been affected with after-damp; I state that in my report.

Cross-examined by Mr. Lysaght: The smarting of the eyes might arise from some compound of sulphur; I would not expect that symptom from a compound of carbon and hydrogen; the burns I saw on the bodies indicated to me that some flame of very high temperature had rapidly passed over the skin; I could not express an opinion as to whether the burns caused by the ignition of coal-dust alone would or would not be sufficient to cause the burns I saw; I did not observe burns where there was no indication of coal-dust; I would not say that in every case the skin was peppered with partially-burnt coal-dust, but it was in the majority of cases; every body that I saw was black from coal-dust; all the burns that I saw were produced by some flame of a very high temperature passing across the body rapidly.

Cross-examined by Mr. Wade: I say that wherever you have carbon monoxide you must have fire; I do not say flame in the ordinary acceptance of that word; there must be intense heat, but there need not be a flame as we know it; I have heard of gob fires; I do not know how gob fires are started; gob fires are coal burning in an abandoned part of the pit; I do not believe in spontaneous combustion; I will not say that there are fires which break out in coal mines which cannot be traced to human agency; I do not know anything about it; I do not know that if you subject coal to intense heat it will give off oxygen; if you leave oxygen alone it will not produce heat; oxygen of itself does not produce heat in the body; I do not know that oxygen will produce oxidization of coal; I still say that I am not prepared to give an opinion upon spontaneous combustion; I cannot say that I have seen tinder in an air cylinder ignited simply by the compression of air; the compression of air produces heat; I am not an expert in chemistry; I am not prepared to express an opinion whether heat engendered by compression of air produces oxidation of coal-dust; I am not prepared to say that the action of the oxygen of the atmosphere of ordinary temperature, and under ordinary pressure upon coal in a mine, tends to produce heat by oxidation, and if that heat so engendered is not carried away that there is a further increase of heat; I hear you read from page 65 of the appendix to the report of the Royal Commission, appointed in July, 1896, to inquire into the dangers to vessels carrying coal; I cannot express an opinion on the subject referred

referred to by you ; I saw two particularly marked cases of burning amongst the dead men ; they looked like boys, they were small ; from their size I should say they were not men ; there may have been five or six others on which I saw burning besides the two ; the outer skin was loosened or off ; I saw no lymph at all ; I did not see any lymph in the case of the two youngsters ; I would not have expected to find lymph at the stage I saw the bodies at ; it would have been all dried up ; the skin was either loosened or curled up ; I could see no lymph ; whether the action of flame produces lymph or not depends on the temperature ; with a very high temperature that would not be so ; a comparatively low temperature produces ordinary blistering ; if there is an explosion in a coal-mine the temperature would be high, I believe ; the skin was all completely charred and curled up ; some was off and some was not ; the driving of coal-dust against the skin with great heat might produce a loosening of the skin, but not such loosening as I saw : I did not remove the coal-dust off the loosened skin ; I judged that the skin was charred because it was black and wrinkled ; I do not think one is apt to believe from the loosening of the skin and wrinkling of it, and the presence of coal-dust, that there has been charring when there really has not been ; I judged that the bodies I saw had been burnt, because of the charred and detached skin ; I got the indication of charring from the coal-dust on the skin, and the curling up and wrinkling of the skin ; the superficial skin on the hands and legs, and in some cases, the trunk, was black and curled up ; I judged that the men had been burnt by the appearance of the loosened skin ; the appearance referred to was black, loosened, and curled up ; both sides of the loosened skin were black ; that was so wherever the skin was curled up ; the proof of the charring was the blackened and curled up condition of the skin ; I hear you read from page 3 of Haldane's report ; I think that is correct ; I hear you read from page 25 of Haldane's report ; I agree with what you read there ; I am not competent to say whether, in an explosion, the flame is first and then the dust ; I suppose the flame would come first, and after that there may be coal-dust ; the burns on the two youngsters were extensive, they were on the limbs and trunks ; I cannot say whether there was any burning of the back ; the boy Stanley Richards was burnt on the face, hands, hair, and arms ; I do not know whether there was any scalding about him ; he might have been scalded ; the condition of his hair was not consistent with scalding ; that was not due to scalding ; the hair was severely singed ; it was not burnt very close to the head, I think the two men mentioned in my report with pale faces died from absence of oxygen in the air ; the insides of their lips were blue ; I did not examine inside their mouths ; the clothes were burnt on the two small bodies ; I cannot say that those were the only two small bodies among the sixty, but I can say that they were the only two small bodies that had their clothes, the greater portion of them, off, and that were burnt, practically they were naked ; the clothes had all been burnt off except underneath the strap round the waist ; the swelling on Mr. Bates' temple was not, in my opinion, sufficient to indicate any concussion of the brain.

To Mr. Bruce Smith : In the cases which came under my notice the outer skin was broken and curled up, indicating burning, and with that condition present I could not mistake coal-dust adhering to the skin for charring ; if a man died immediately—that is, within a minute—there might be a slight appearance of lymph ; there would be no question of seeing lymph in cases like those of the two small bodies I have referred to ; the absence of lymph is no guide as to the body having been severely burnt.

To Mr. Wade : None of the men that I saw burnt other than the two small bodies would have died, in my opinion, from burning ; those men may have lived if they had been got out ; there was nothing to show me that they did not live for half an hour after they were burnt ; if the burn was not sufficiently severe, and a man lived for half an hour after being burnt, there would be ample time for lymph to collect ; where the burning is very severe there is no lymph.

To the Coroner . I have practised in a coal mining district for about seventeen years ; I have had practical experience with regard to burning and the effects of carbon monoxide ; putting aside the men who were burnt, the skin of the others—those who died from carbon monoxide—was in no way raised or separated ; poisoning by carbon monoxide does not produce the separation of the superficial from the deep skin ; where I did find a loosening of the skin it was only on the exposed parts of the body ; I can say that the two small bodies died from inhalations of carbon monoxide, and not from the burning.

To Mr. Bruce Smith : When I say "peppered" in the report I could not say whether the dust had been on the face and been driven in by the flame or whether burning dust had been precipitated on to the skin ; I did not submit any of the coal-dust found on the skin to a microscopic examination ; I did not examine the blood in any case with a spectroscope.

To Mr. Wade : The burns were not sufficient to cause death in any case other than the two small bodies ; in those two cases the burns might have been sufficient to cause death.

Made and sworn, at the Court-house, Wollongong, }
this 26th day of August, 1902, before me,— }

JOHN B. NASII, M.D.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks :—Robert Thomson Paton, sworn, states : I am a legally qualified medical practitioner ; I am Government Medical Officer for Sydney ; I am a Fellow of the Royal College of Surgeons, Edinburgh, and a doctor of Medicine of the University of Brussels ; I have been practising for about seventeen years ; on the 31st July last I went to the Mount Kembla Colliery with Dr. Nash ; we arrived at Mount Kembla between 10 and 11 o'clock at night, I think ; I remained at the colliery during the night ; I was there on Friday morning, Friday night, and Saturday morning ; during that time I inspected a number of bodies that were brought into the engine-shed ; personally I examined fifty-eight ; those bodies had been removed from the mine ; I have since prepared a joint report with Dr. Nash upon the matter ; that report is signed by me ; that report is true ; that report embodies the whole of the evidence which I can give on the matter ; the report produced by Dr. Nash [marked H] is the report I refer to.

Cross-examined by Mr. Bruce Smith : I heard the evidence given by Dr. Nash ; I agree substantially with the answers he gave in cross-examination ; I can think of no question that was put to Dr. Nash that I would answer otherwise than he did ; Mr. Bates was suffering from shock at the time we saw him after 12 o'clock at night ; he might have suffered from after-damp before we saw him ; I have no doubt that the two small bodies had been subjected to flame ; I am inclined to think it was flame as distinguished from fire ; with reference to the word "peppered," used in the report, I am unable to say whether there had been coal-dust on the skin and that it was driven in by the flame or whether burning coal-dust had been driven against the skin.

Cross-examined

Cross-examined by Mr. Wade: I do not agree with Dr. Nash as to there being no such thing as spontaneous combustion; I have read that combustion can take place spontaneously, and I believe that it can; I have read of it happening in coal cargoes on board ship; I have heard of fires that have not been accounted for in coal-mines; I hear you read from the report of the Royal Commission on the cause of the dangers to ships carrying coal as follows, "Coal naturally absorbs oxygen from the air, and undergoes a process of slow combustion; as this process goes on heat is developed and the temperature of the coal tends to rise; the activity with which oxygen is absorbed increases as the temperature rises"; I agree with that; I believe it to be correct; I do not know what the igniting point of coal is spontaneously; I know there can be very great heat without any flame in a coal-mine; intense heat without flame would not produce the same effect as a flame; if a feather were put into heat of 300 or 400 degrees without a flame I believe it would burn and shrivel up; if coal-dust, in the presence of intense heat, were driven against the outer skin it would tend to separate the outer skin from the inner; the separation of the skin was not the only evidence of burning; there was also the singeing of the hair; the hair had actually burnt, and I am inclined to think that it was caused by flame, because if the heat had been so intense as to cause the hair to burn otherwise I would have expected very much more destruction of the body; I place more reliance on the condition of the hair than the skin to prove a flame; if a flame passed very rapidly over a body I would only expect the exposed parts to be injured; if there was any inflammable material in the working place of a man whose hair was so burnt I would expect to find it burnt also, that is if he was burnt there; I should say that a man might go some distance after being burnt as the two small bodies were burnt; it must have been rather a hot flame to cause the condition of the skin I saw; I should say that it was a very much hotter flame than an ordinary gas stove; I know that intense heat will cause a distillation of the coal; I think that the length of time the heat is applied has to do a good deal with distillation; I know that the flame of an explosion travels at an incredibly fast pace; I do not know that the flame as it passes over the coal distils it; I have had no experience in the matter; I saw one head off a body; I cannot say whether it was burnt or not; it was considerably mutilated; I have no recollection of seeing any burning on that head; I saw a body away from a head; that was in the morgue with the head; I have no recollection of seeing signs of burning about that body; when I referred to the six or eight bodies that were burnt in my report I did not include that body; that body comes under the heading of mutilation; under ordinary circumstances the skin has no natural inclination to curl up; it is the force that causes it to curl; heat or flame would cause it to curl; the loosened skin appeared to be blackened on both sides when we saw them; I could not form an opinion whether the skin had been burned by flame or by heat from the condition of the skin alone; the only real evidence of flame was the hair, and in some cases the clothing; there may have been eight men out of the fifty-eight upon whom there were evidences of burning; in my opinion the two small bodies had been burned by flame.

To Mr. Bruce Smith: Apart from the niceties of cross-examination I have no doubt that some of the bodies I saw had been exposed to actual flame; the fact that there were, say, fifty bodies without any evidence of flame does not influence me in that opinion; I believe that in the case of the feather put by Mr. Wade, that if the temperature were high enough the feather would burst into flame; with reference to the head I saw I could not tell by what force it had been severed from the body; the body was clothed but appeared to be mutilated; assuming that there was no flame to break the skin, hot air would not cause the skin to curl up unless the heat were very great.

To Mr. Lysaght: The condition of the bodies that I saw was consistent with an explosion of fire-damp; it may have been an explosion of a hundred other things, such as a dust explosion; I have read Dr. Haldane's report; I am not an authority on explosions of any kind.

To Mr. Wade: Carbon monoxide can be given off where there is heat and no flame, but under those circumstances I would expect it to be in very minute quantities; if the air supply is limited I would expect to find a percentage of carbon monoxide, even though there were no flame.

To a Juror: I saw no body identified as that of William Nelson.

Made and sworn, at the Court-house, Wollongong, }
this 26th day of August, 1902, before me,— }

R. T. PATON.

CHAS. C. RUSSELL, Coroner.

The inquest is adjourned for the purpose of further evidence, till 10 o'clock, a.m., on the 27th day of August, 1902, at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner, Court-house, Wollongong, 26th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 27th day of August, 1902, at 10 o'clock, a.m.—CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—Thomas Fowler Wade, sworn, states: I am a legally qualified medical practitioner at Wollongong; I am a member of the Royal College of Physicians and Surgeons, Ireland, and a licentiate of the Rotunda Lying-in Hospital; on the 31st July last I went to the Mount Kembla Mine, shortly after 2 o'clock p.m.; I remained there until about 8 or 9 o'clock; I saw a number of bodies brought out of the mine; I was there again on the 1st August, about 9 a.m.; I was present when the Coroner and jury viewed the bodies of Henry and William Meurant and William Nelson; I looked at those bodies in a cursory way; I saw they were dead; they were lying in the engine-shed; the cause of death was carbon monoxide poisoning; I do not remember any marks of violence being on those three bodies; I remained there at the mine during the whole of that day (Friday), and saw a large number of bodies brought into the shed during the day; the cause of death of the others, speaking generally, was carbon monoxide poisoning; generally speaking, I did not see any other bodies that died from anything else but carbon monoxide poisoning; I saw some bodies with signs of violence on them; I attended a man named George Hartley, who subsequently died; he had a fracture of the frontal bone, and nearly all the back of his scalp was torn off; I had him removed to a hut near by, and with Dr. Reid I dressed the wounds temporarily to prevent further injury, and afterwards had him sent to the Wollongong Hospital, where he died; I noticed signs of burning on some of the bodies, but I do not know

know whose bodies they were; I could not tell the number; I would not call them badly burnt; nothing like sufficient to cause death; I went into the mine with Mr. MacCabe about 4 o'clock on the 31st July; while I was in there I saw a number of men, some were alive and some dead; one of the Gallaghers, I think Edward—he died afterwards—was suffering from severe shock; he was found at Mat's Flat; there were three or four dead bodies there too, besides several who were not dead; those who were not dead were apparently suffering from carbon monoxide poisoning; some who were there were afterwards removed to the hospital, and are still there suffering from carbon monoxide poisoning; Mr. Thomas Cook, manager of the Mount Pleasant Mine was a typical case.

Cross-examined by Mr. Bruce Smith: I heard the evidence of Drs. Paton and Nash here yesterday; I agree substantially with what they said; there is no comment I would like to make on the question of carbon monoxide poisoning; I am of opinion that some of the bodies I saw were unmistakably burnt by flame as distinguished from great heat; my principal reason for thinking so was the burnt hair and the curling up of the outer skin, especially about the exposed parts; the hair was actually shrivelled and not only curled; it had all the appearance of being singed and had bulbous ends; none of the bone was broken on the back of Hartley's head; I should say that violence of some kind caused the injury, some severe blow; there were signs of burning on Hartley, too, about the head; I will not swear positively to that, but I believe it was so; it did not occur to me to take a note of the names of the bodies I looked at; I was more concerned with the living than the dead; I took no notes whatever; I did not see a body from which the head had been severed.

Cross-examined by Mr. Lysaght: I observed the condition of the mine to an extent when I went in; it was strange to me going in there; I noticed some of the timber in the travelling road was lying about; I went in as far as Mat's Flat; as we penetrated we met a number of men coming out; I do not know the men's names; I could not swear whether Hartley's hair was singed all over; to the best of my recollection some of Hartley's clothing was burnt or scorched; there was blood and coal-dust on his face; I believe his face was burnt too; that is by a flame as distinct from intense heat; I was the first medical man to render assistance; the first man I attended to was John Clark; that was about 3 o'clock; he was badly burnt; his head, ears, face, arms, and hands were burnt; he is living still; the front of his chest was slightly burnt; he was suffering from shock; I did not know about carbon monoxide then; I had forgotten it at that time, but I have read it up since; I would not expect to find any signs of carbon monoxide about him, as he was outside the mine in a shed; his burns were burns from a flame; I was not travelling through smoke with Major MacCabe in the mine; what did strike me was that the air in the travelling road was as good as it was; when I got to Mat's Flat the first thing that occurred to me was that I was out in the open air.

Cross-examined by Mr. Wade: When I first saw Clark he was on a couch; he had his working clothes on; there were signs of his clothes being singed, I could not swear positively that his clothes were singed, but I believe they were; I could not swear whether his clothes were or were not singed—to the best of my belief they were; I could not tell you whether there was any sign of burning on Clark's back—I do not believe there were—no, I think the hair was burnt all over, and his ears were badly burnt, particularly the right ear; I cannot swear that the hair at the back of his head was burnt, but I believe it was; it was singed very much more than hair singed by a barber; I am speaking now particularly of the right side of his head; there was hair left on his head; there were a number of blisters on his hands, with lymph inside them; some of them were large; that was the general nature of the injuries on his face; you could get that condition from steam; my memory is clear as to the blisters on the arms and back of the ears particularly; I do not think that the condition of the hair could have been brought about by steam; I will not swear whether the condition of Clark's hair when I saw it could or could not have been brought about by steam; I should not be surprised if Clark had no scars on him now, because I took some trouble with him; if he has scars now that would not help me to decide whether the injury was caused by flame or scalds; the injury to Hartley's head could have been caused by a sliding blow from timber; if the blow were sufficient to knock him down, he might have got the fracture of the frontal bone by falling on some sharp substance; he might also have been hit in front at first, and knocked back against some rough substance, which would tear the scalp off; the piece of the scalp was hanging on at the back of the neck; it had become detached higher up; my memory does not enable me to swear positively whether Clark's hair was singed; I took no notes of the case; I cannot be positive that his clothes were burnt; I actually went into the pit about 4 o'clock; when I was facing the opening of the mine the air was blowing into the tunnel; it was about 7 or 8 o'clock, I should say, when I got out; I was attending to men who wanted attention while I was inside; Dr. Reid and Dr. Lee were outside of the mine while I was in there; Dr. Lee is the mine doctor, and he would probably know the men; I only recognised the men belonging to the Mount Pleasant Mine, Mr. Rogers, and Sergeant Banks, in the mine; I saw one man as I was going into the travelling road; he appeared to be delirious; he was struggling violently; I do not know who the man was; I believe there were some of the other men that we met on the stretchers coming out that were both struggling and delirious; I did not examine the skin of any man in the mine; outside, before I went in, I saw a man named Tom Smith and a boy named Stone and another man; Smith and Stone were burnt; Smith's hair was burnt, and particles of coal were ground into him like; I had difficulty in picking them off; his neck and face and hands were burnt, and there was an injury to his leg; I cannot say what; they were of the same kind as Clark's water blisters, but not so severe; they were trivial compared with Clark's; the boy Stone was lying in bed wrapped up; he had been dressed; I examined him cursorily and went on; I think the injuries on Smith and Stone were caused by burns.

To Mr. Bruce Smith: I do not know how many stretchers there were in the mine; they wanted more than were there; I still say that the rest of the men referred to by me in answer to you were burnt by flame; I am distinctly of opinion that there had been flame at work in causing injury to some of the men; I cannot say whether the coal-dust had been on the man's face and then a flame driven on to it, or whether hot coal-dust had been precipitated against his skin; I know the man Smith I have been speaking of as "Tommy Smith"; the particles of coal I have referred to were imbedded in burnt parts of the skin.

To the Foreman: Paddy Purcell was one of the men who had the coal-dust embedded in the skin, and Tommy Smith was the other.

To Mr. Wade: I picked the coal-dust out with my nail; the condition of the skin about that place was not blistered; the skin was blistered in adjacent parts; I did not pick coal-dust from the parts that

that were blistered; the skin where I picked the coal-dust out presented the appearance of having been scorched; the skin was, comparatively speaking, sound; it was not detached from the underskin where I picked the coal-dust out.

To Mr. Bruce Smith: The coal-dust or minute particles of coal appeared to have been forced into the skin; it required more to remove than mere brushing.

To the Coroner: I would like to say with regard to Clark that my not being able to say whether he was burnt or not now is due to the fact that he was in the engine-shed, and those injuries might have been caused by scalding; I differentiate between Clark and Smith because Clark was near the boiler; I have seen Dr. Haldane's book; I hear you read from page 1 of Haldane; I consider that what you have read is a fair description of the condition of the bodies of men killed by after-damp; I hear you read from page 10 of Haldane; I am not competent to give an opinion on whether you have read is correct; I am not competent to give an opinion as to the quantity of carbon monoxide that will kill.

Made and sworn, at the Court-house, Wollongong, }
 this 27th day of August, 1902, before me, — }
 THOMAS FOWLER WADE.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—Timothy Wood Lee, sworn, states: I am a legally-qualified medical practitioner, at Wollongong; I am Government Medical Officer for the district; I am a member of the Royal College of Surgeons, England, and a licentiate of the Society of Apothecaries, London; on the 31st July last I went to the Mount Kembla Mine; I started at 2 o'clock; I saw some of the injured men on the road; the first man was Gillespie; I do not know his Christian name; I dressed his burns; after Gillespie, the next patient I had was a boy named Stone; Stone had been burnt, too; after Stone, the next patient was Richards; he also was burnt; the next was a man named Hartley; I saw him in his hut; Hartley (I was told that was his name) was suffering from injuries to his head; they had been dressed, and I did not touch them; I saw a man named Purcell (Paddy Purcell) about the same time; he was burnt; I then went on to the mine; I went on to the engine-shed; I arranged it for the miners as they were brought in; when I got there there were no bodies there; later on, during the evening, I saw a number of miners there; they were not all dead; Gallagher (Michael), Woodruff, two or three men, named Peace, Muir, Walker (Dick), were alive; I do not call to mind any others; they were all suffering from something; I saw a number of bodies there then; some of them I knew the names of; they were the two Richs (father and son), Ed. Gallagher; I saw the body of Nelson, the under-manager; I saw two bodies whom I heard called Meurants; I made no close examination of Nelson's body; I can form no opinion as to the cause of his death; I did not see the bodies of the Meurants more closely than Nelson's; I cannot say what caused their death; I went up to the mine later on on the 1st; I had remained there the first time till about 4 o'clock, and was there again about 11; I then saw a further number of bodies in the engine-house; I cannot form any opinion as to the cause of their death; I can form an opinion, but I cannot state what the cause of death was.

Cross-examined by Mr. Bruce Smith: I am the doctor of the Mount Kembla Mine; I am the lodge doctor; I have no professional connection with the proprietors of the mine; I went out on the 31st July in my capacity as lodge doctor; I was on my way to the mine when I got the message; I do not think I was there when the Coroner and jury arrived there; I did not give much attention to the dead bodies, simply to ascertain that there was no life in them; that is all; I did not make any observation of those bodies which would enable me to express an opinion as to the cause of their death; in some cases my observation was sufficiently close to enable me to state what their general appearance was; I noticed some bodies which presented the appearance of having been burnt in some way; I recognised some of the bodies which presented that appearance; they were Thomas Purcell and Edward Gallagher; I do not remember any others; Purcell had some clothing on; the face and upper part of the neck were exposed; the skin was peeled and curled up, and black from coal-dust; I would not commit myself to saying that the skin was charred; I say that the skin had been burnt, because it looked as if it had been blistered; my own opinion is that the burning had been done by flame; very great heat would loosen the upper skin, but it would not crack it and curl it as I saw it; Purcell's hair was singed; I think that was flame; possibly great heat might do that—I do not know; I could not say that the hair itself indicated burning by flame; the effect of burning with a flame is to make bulbous ends on the hair; my impression is that the hair was burnt by flame; I do not remember whether Purcell's clothes were singed or not; there were precisely the same indications of burning about Gallagher as about Purcell; his arms and chest were severely burnt, so severe that I did not notice his hair; I cannot speak as to his clothes; the Richs were not burnt that I know of; there was no appearance of burning that I saw about them; there were no indications about the Richs' bodies to show me at once what had caused their death; I have no personal experience of the appearance of bodies of persons who die from carbon monoxide poisoning; apart from my knowledge of what had taken place in the mine, there was nothing to show me what had caused their deaths; Gillespie was in bed and was suffering from what appeared to me to be burns about the face, neck, and arms; he was not covered with coal-dust like the others; I believe that Gillespie's burns were from flame; that was all I found the matter with him; I had no conversation with him as to the cause of his burns; I did not ask him, and he did not tell me; I saw Stone at his own house; he was suffering from burns of the face, arms, and leg; I had no doubt that the burns were caused by flame; he had a small wound on his forehead where the hair meets the skin; I stitched that up; I did not ask him, and he did not give me any information how he came by his injuries; the wound on the forehead was a cut; Stanley Richards was burnt on the arms, face, and chest very severely; I do not think any of the men were burnt on the back; Richards appeared to be burnt by flame except one place under the arm which might have been burnt by his clothes burning; he did not tell me how he was burnt; I saw Hartley in his hut; he had been put to bed, and I did not see his wounds, and cannot express any opinion about them; Purcell was burnt, his face and his arms up to the elbow; I only dressed him on the face and arms; he was employed outside the mine, so I am told; he also presented the appearance of having been burnt with flame; he has told me since that he was burnt and not scalded; he says he was never in the steam; he said that he was standing at his engine and found that something had gone wrong and would not work, and he stepped on one side and the explosion, or whatever it was, carried away the engine, and he slipped through the floor into another place, he does not know where; that was last Monday he told me that; I saw Ed. Gallagher in

the shed; I did not go into the mine; I saw some of the people who were rescued; they were Michael Gallagher; he was in the shed unconscious; he was partially clothed; I think he had a flannel shirt on; he showed symptoms of burning—that is to say, his hair was singed; I took it in my hand and it crumbled; if hair had been subjected to very severe heat, and then taken between the fingers, it would crumble, I think; I was satisfied that his hair had been burnt by a flame; Woodruff was unconscious to a certain extent, but there were no marks of injury to account for that; he had pit clothes on; I saw no indications of burning about him; I saw Jonathan, Isaac, and Nathaniel Peace; Jonathan had no signs of burning about him; there was nothing about Isaac except unconsciousness, nor was there anything more than that about Nathaniel; there was nothing to guide me as to the cause of their condition; Muir was absolutely unconscious, nothing more; R. Walker was unconscious, that is all; those are all the people whom I saw at the mine that I can remember; I was satisfied that Ed. Gallagher was burnt after I had referred to a man there, who said, "Oh, yes, he is burnt"; I did not observe anything uncommon about the coal-dust on the skin; I did not observe that the coal-dust had been driven into the skin.

Cross-examined by Mr. Lysaght: I remember attending one of the Gallagher's about ten years ago; he was then suffering from burns; they were extensive burns; the same kind of burns as those on the bodies in this case, as far as I can remember; I do not remember attending a man named Jubb at Kembla more recently for burns; I do not know the name; I have been the doctor for the Kembla Lodge for about nineteen years; I cannot give you a rough estimate of the number of persons I have attended to at Kembla for burns similar to those I saw the other day; I cannot remember attending any men during the last nineteen years who have received burns in the pit; I have attended men who have received injuries in the pit; I do not keep a record of any of these things in writing; I have never been called to attend men at Kembla who, apparently, were suffering from gas, before this disaster; I have had no experience as to the effect of gas at all; none of the men who were burnt and living told me anything as to how they got the burns.

Cross-examined by Mr. Wade: I have heard that Gillespie, Stone, Richards, and Purcell were all working outside near the boiler; I have heard that the steam-pipes were broken; I do not know it; I did not look for the steam-pipes; I should fancy that there would be a considerable volume of steam from a 7-inch pipe fed by three boilers; there were burns on the upper part of the chest in the cases of Gillespie, Stone, Richard, and Purcell; I may have seen the clothes they were wearing, but I did not notice them; Stone had had blisters on him, or, rather, the skin had been raised, and the skin was raw; the appearances I saw were quite consistent with water blisters having been there before I saw him; I should not like to say, with regard to those four (Gillespie, Stone, Richards, and Purcell), that the burns on the skin could not have been caused by steam; I saw signs of burning on Stone's and Purcell's hair; Purcell had a large moustache originally, but he has next to none now; Stone's was certainly burnt, very considerably singed; I am speaking of Purcell, the engine-man (Paddy); I forget whether Tom Purcell's moustache was singed or not; I do not know that he had a moustache; I judged that his hair was singed by the feel of it; I could see to a certain extent, his hair was full of dust, that would give it a brittle feeling, but not to the same extent as if it had been burnt; he seemed to have the ordinary crop of hair on, but it was singed; I do not remember what part of his face had the skin off; most of the dead bodies that I saw had a very peaceful, quiet, expression; when a person dies in convulsions you have the clenched fist; the statement that the singeing of the hair might be due to great heat without flame might also apply to Edward Gallagher; I have heard of great heat existing in coal-mines, and no actual flame; I have heard the same with regard to hay ricks; I believe in the case of hay ricks that the heat gets greater and greater till the hay bursts into flame; my knowledge of chemistry does not lead me as far as to say that you can get spontaneous combustion; my knowledge of chemistry is not recent.

To Mr. Bruce Smith: Some of the dead bodies appeared to me to have been burnt by flame; I am giving my opinion, that is all; I am clearly of the opinion that the burns I have mentioned were caused by flame—that is, some of them; I have attended men at Kembla for burns, but I cannot say where they were received; Gillespie, Stone, Richards, and Purcell were certainly burnt with flame, although they may have been scalded.

To the Foreman: If at any time I had been called in to attend any man who was suffering from the effects of gas, I should have been able to detect it, or at any rate I should have known that there was something extraordinary the matter with him; I do not think that there are sufficient ambulances kept at the mine to meet the death of ninety men, there are sufficient for ordinary purposes.

To Mr. Wade: I can only speak definitely as to the hair of Stone and Paddy Purcell.

Made and sworn, at the Court-house, Wollongong, }
this 27th day of August, 1902, before me,— }

TIMOTHY W. LEE.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—William Bryce Kerr, sworn, states: I am a legally-qualified medical practitioner at Wollongong; I am a Bachelor of Medicine and a Bachelor of Surgery, Glasgow; I arrived at Mount Kembla Mine on the 31st July last about 3 o'clock p.m.; I saw some men come out; the first man was George Hartley; he was suffering from fracture of the skull; he had no other injury; I saw other men who walked or were assisted out of the mine; none of those appeared to be injured; some of them were delirious; I noticed the body of a young man lying in the blacksmith's shop; I was told it was a body; it was covered up, and I did not see it; later on I went into the mine; we went in the travelling-road down to No. 6 right rope road, to where James' heading rope road leaves the No. 6 right rope road; I saw a number of bodies between where the No. 6 right rope road leaves the travelling-road and James' heading rope road; some were dead and some were living; I should think there were about a dozen alive; they were affected; some appeared to be unconscious; I believe they were all unconscious; I saw no marks of injury on any of them; I saw all those that were alive removed from that portion in stretchers and skips; those that were dead did not appear to have suffered any violence; the bodies looked exceedingly peaceful; had assumed positions as if they had just sat down; others appeared to have stretched themselves out as if asleep; one or two bodies had fallen, or were lying on their face; there were no signs of any struggle in any case; there were about twenty dead there altogether; my attention was not drawn to the two Meurants; I could not say whether they were amongst the twenty

or

or not; I looked at all the dead bodies in that part with a light as we passed; after that we came out by a different road than that by which I had entered; I saw about a dozen bodies that had been brought out in the engineer's shed; the air inside was good; I started to go in about half-past 3, and arrived there between 4 and 5.

Cross-examined by Mr. Bruce Smith: I have no special knowledge upon the subject of explosions in mines; I have had no occasion to make a special study of the symptoms of persons poisoned by carbon monoxide; I did not meet any men all along the travelling-road up to the point I have mentioned who appeared to have been burnt; I went into the mine soon after the explosion, almost as soon as anybody; I did not examine all the bodies we met on the way; there may have been men with burns that I did not see; I examined all those bodies that were lying down after we left the main travelling road; I have seen four bodies in connection with this disaster who were burnt; they are Stone, Richard Gillespie, and Purcell in the hospital; I believe they had been burned from flame; they may have been burned from steam; the hair was singed; I believe the cause of the hair being singed was flame; I felt the hair; it was gritty; it was like the end of a hair when put in a candle; it was not closely curled up; I did not see signs of burning on any other than those bodies.

Cross-examined by Mr. Lysaght: The air which I say was good did not strike me as being particularly warm; I did not feel cold; I am not prepared to say that it was considerably warmer than the air outside the mine; I noticed no white smoke nor black dust floating in the atmosphere; I did not notice any coal-dust floating about; I remember seeing a horse near James' heading; I did not examine that horse; I did not notice that the horse appeared to have been singed; I did not notice anything about the part of the mine that I was in to indicate that there had been a fire there.

Cross-examined by Mr. Wade: The last time I saw bodies in the shed was on the night of the 31st July.

Made and sworn, at the Court-house, Wollongong, }
this 27th day of August, A.D. 1902, before me,— }

WM. B. KERR.

CHAS. C. RUSSELL, Coroner.

To Mr. Bruce Smith:—John Morrison, recalled, states: I was one of the two firemen and deputies in the Mount Kembla Mine, I was the night deputy; there are four deputies and firemen; a fireman has nothing to do with the fire in the shaft; they are called firemen or deputies; there are two night deputies and two day deputies; I am one of the night deputies, and McMurray was the other; Frank Dungey and Evans were the two day deputies; I recognise, and always did, that my position was a responsible one; I knew what was the object of my being compelled to report on the condition of the workings, and put my report in writing; I knew that there was a great difference between saying to a number of men, "It's all right," and putting a thing down in a book in writing, which I might be confronted with at any time; I know that I am required to record my reports in a book; during the seven weeks I have been deputy I have been in the habit of writing in one book only; that is the book [Exhibit G]; there may have been another book before that; I was deputy before the 24th June last; I would report in a book before the 24th June; therefore, if the first entry in the book [Exhibit G] is on the 24th June, I must have made a report in a book before that; I only had one book at a time; I never had any other book but one like that [Exhibit G]; I used to tear the duplicate out and give it to the under-manager; a duplicate is kept of everything that is set out in the butts of that book; that book was kept in the cabin outside the mine; the book was carried in with us at night and written in the cabin inside; the men could have looked at my report in that book before going in if they wished; I do not think that a miner ever looked at the book during the seven weeks I was there; I have sometimes given tokens before the report was completed; some of the men may have gone in and looked at the book, but a great many of them went to work on the "All right" assurance before the report was completed; I always knew the rules, and did not make any extra study of them when I was appointed deputy; I knew the special rules and the general rules under the Act.

Sworn and made, at the Court-house, Wollongong, }
this 27th day of August, 1902, before me,— }

JOHN MORRISON.

CHAS. C. RUSSELL, Coroner.

Inquest adjourned for the purpose of further evidence till the 28th day of August, 1902, at the Court-house, Wollongong, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 27th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 28th day of August, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

To Mr. Bruce Smith:—John Morrison, recalled, states: I do not know anything about the two leaves which are missing from the front of the book [Exhibit G]; I would not write a report for, say, the 23rd of the month till 6 o'clock the next morning; I did not write my report of 9 p.m. on the 23rd till 6 a.m. on the 24th; no men would have gone in to work between 9 p.m. on the 23rd and 3 a.m. on the 24th; I produce the book previous to Exhibit G [Book put in and marked Exhibit I]; one of the rules relates to ventilation; I believe you will find that the special rules in reference to my duties commence about Rule 6; I knew what you have just read from Rule 7, viz.: "He shall report to the Manager, Under-Manager, or Overman any danger that may from time to time arise from any cause, and in their absence he shall take such steps as he may think most desirable for the security of the workman and of the mine, and of removing the danger"; I cannot recollect reporting to the Manager when I found the black-damp; I do not recollect reporting it to the under-manager; I did not take any steps that I would not have taken had I not found it, because it was not dangerous; I knew of the existence of Rule 8; I knew of Rule 10 as follows:—"He shall at least once in every week examine, so far as is practicable, the state of the waste workings and main air ways, and make and sign a true report of the state thereof in a book

book kept at the office for the purpose"; any report which I made with regard to the waste was put into the same book as that in which I put my daily reports; I examined waste workings on the rope roads once every night; my nightly examination of the waste workings was limited to the main roads; there are seven goafs in my district; about that, I think; every night I went round the 35-acre and 15-acre goafs to examine the waste; I did not go round any of the other goafs in my district every night; I did not go round any of the other goafs once a week; I did not report once a week my examination of the waste; I reported once every month of my examination of the waste workings; in addition to going round the 35-acre and 15-acre goafs every night, I examined the left rope road side of the 4½-acre goaf, and also the left side of portion of the 13-acre goaf, and also the right-hand side of the second right rope road of the 9-acre goaf; no miner ever reported to me that he had seen gas in the mine; I know rule 4 under the Act which requires me to report in writing every day of my inspection of the places where the men are going to work; I know that it says: "And such report shall be signed by and so far as the same does not consist of printed matter shall be in the handwriting of the person who made the inspection"; the report on the 15th June last is in McMurray's writing signed by me; there is another on the 17th June, written by McMurray, and signed by me; I do not doubt that there are more reports like that; there is a report on the 18th June, not signed by me; it is in my writing; I will not say that the watering of the roads was only done to get rid of the water; to my knowledge we never put any water out on any of those roads except to get rid of the water where it was accumulating; we had an unlimited supply of water in that section; I could not say that it was in that section that we had one of the dustiest roads in the mine, I told Mr. Lysaght that it was more inclined to be dusty than any other road in that section of the mine, that is so; it is the fourth left rope road; I cannot name any other road in the mine which had more dust on it than that; I do not pay any attention to the roads in any other parts of the mine; the water was put out on the roads from iron square tanks; they were the same tanks that Frost had to deal with; the tanks were filled with water and taken on to the road, and then the plug pulled out; I did not know when shots were to be fired when I was on duty; it was not part of the men's duty to tell me when they were going to fire shots, so far as I know shots were not being fired in No 4 left, I never saw indications of shots having been fired near No 4 left; I cannot say whether shots were fired; to my knowledge shots were not fired from No. 1 right up to the second left; to the best of my knowledge there was never a shot fired on the haulage road since I have been deputy; I cannot say whether the stonemen did or did not fire shots since I have been deputy; it is only in very big stones that they put shots in; since the disaster I have seen evidence of one shot having blown out; that was at No. 72 heading, where I have marked a X in blue pencil; that is the only indication I have seen of a shot having blown out; I cannot say when that shot was fired; Jim Heads was working there alone on the 31st; he was found lying in Stafford's gannon bord, where I have marked a circle in blue; he was dead; Hunt and Son worked in 73, where there is a blue square marked; they were found dead, I think, in Powell's Flat; Egan Brothers worked in the next bord to that, where there is an oval in blue; they are both dead; I think they were found in Powell's Flat too; Dunning and Son worked at 69, where I have marked a circle with a stroke through the middle in blue; Dunning was found at No 6 right at the shaft; I have formed an opinion as to the part of the mine where the disaster originated; where I have drawn the circle in blue with the cross in it is where I think the disaster originated, in the 35-acre goaf; that part of the goaf had slightly fallen before, but now it is down altogether; I could not fix at what hour it fell, I had not seen it for seven days before the disaster; I examined that place about two days after the disaster as near as I can remember; my reason for connecting that place with the disaster was that I knew there was going to be a fall there; there are also indications of force from that point both ways from the fourth right inbye and the shunt outbye; there are other facts concerning the indications of force besides what I told Mr Wade the other day; I gave Mr. Wade all the indications outbye, except the iron bars, which had originally been across the rope road sunk in one side and supported by a prop on the other; some of them are in their place yet, but they are bent on to the outbye side of the shunt; there is a wheel of a skip lying 170 yards from the fourth right inbye lying at an angle; 16 yards further in there is a wheel and axle; 10 yards further inbye there is skip standing up against the rib, bottom up; the skip is empty now, and there are no wheels on it; one pair of wheels is lying underneath it; I cannot say whether that other wheel and axle belong to that skip; that is the only skip that is there with the wheels off; the side is out of the skip, which is standing on its end; 8 or 10 yards further inbye than the pair of wheels there is a skip lying across the rails; it is whole, except a piece broken off one end of it; that skip also is empty; there is nothing to show whether they were blown full or empty; I think they were blown empty; 3 yards further inside of that skip there is the side of a skip; about 10 yards further on there are four or five skips; I am of opinion that they have been forced inbye from No. 4 right; between there and where there is a horse there are other skips, some broken and some not; I form the opinion that they also have been forced inbye from No. 4 right; full trucks were coming out of the heading from the places; I do not believe that the empty trucks were up there; I believe they were blown there.

To Mr. Wade: Whether the report was finished or not, when the men were going in in the morning I always gave them the word, none of them ever made a complaint to me; I made an examination of the places where the men were going to work who went in at 9 o'clock; after they had gone to work I had other work to do, which I finished about 2 o'clock in the morning; there is an entry in the book Exhibit J [Deputy's Report Book from 2nd June, 1901, to 3rd September, 1901, put in, marked Exhibit J]; on the 20th July a joint report, signed by Dungey and McMurray, of an examination of the intake return air-ways and waste workings of No. 1 right, No. 5 right, No. 6 right, No. 6 left, Nos. 1 and 2 left; the report says all these places were found in good order; the next entry in that book on waste workings is 17th August; the inspection of the waste workings in the book marked Exhibit K [Report Book from 3rd September, 1901, to 6th December, 1901, put in, and marked Exhibit K] is reported, on 14th September, 12th October, and 9th November; inspections of waste workings in the book Exhibit L [Report Book from 7th December, 1901, to 19th March, 1902 put in, and marked Exhibit L] are reported on the 7th December, 1901, 4th January, 1902, 1st February, and 1st March; inspections of waste workings are reported in the book [Exhibit I] on the 26th April, 24th May, 21st June, and 29th March; the morning of the 31st July is the last time I was at the fence of the waste in No. 4 right; as far as I went then the waste was all right, free of gas, and everything.

To Mr. Lysaght: I remember when I lost my light with Mr. Atkinson; I would not have passed by if Mr. Atkinson had not told me to look up; my light went out in the main tunnel on Saturday last; I went on to the point of a stone and fell; I do not say that my light went out on either occasion from gas; when I was with Mr. Atkinson I slipped and fell on my knee; that was in 83; I do not think I had actually started work when Mr. Rogers told me to be sure and report gas if I found it; I believe he told me that in the colliery office; he did not tell me to be particular at all about any special place in my section; the canvas doors leak more or less, some of them; it was not reasonably practicable to examine the waste workings round the rope roads every week; that is my opinion; I examined the waste workings round the rope roads to the fence every night; I do not think it necessary to examine the waste workings every week; I cannot say who fixed a month as the time between which the waste workings were to be examined; Mr. Nelson told me when to inspect; I only inspected twice altogether; Nelson was my superior officer, and if he had told me to inspect at any time I would have done it; if Nelson had told me to go and examine the waste workings any day, there was nothing to prevent me doing it; with all the work I had to do, I could not have examined the waste workings every week without some one being put on to do my other work; I had plenty of time to do my own work properly.

To Mr. Wade: The monthly inspection used to occupy seven hours; it was always made in the day-time; I would not have time to do the waste workings and do my own work too at night, for in the day-time I am supposed to be at home asleep.

To the Foreman: With reference to rule 15 of the special rules, I have never known a workman to go into the waste workings.

To a Juror: The monthly inspection was always done on a pay Saturday; the nightly inspection was done on the Sunday night for the men coming in on the Monday morning as usual.

To the Coroner: I cannot tell you the date I was appointed deputy; it was about the 7th or 8th June, but I could not say exactly; I had seen the men working at the coal in the 35-acre goaf before they were withdrawn; I cannot tell you the date the men were withdrawn; it was about eight days before the disaster; the men were removed, and not allowed to go there, and a fence was put up; I went there and had a look at the goaf the next night; I was then expecting the roof to fall; I did not receive any special instructions concerning anything that might happen following on that fall; falls are sometimes connected with danger to the mine; it has never been so to my knowledge, but I believe if they were big enough they would; there are falls every week at Mount Kembla like that which I expected at that time; the practice at Mount Kembla is to draw the timbers, and leave it; there has never been any harm before; the token is a square piece of zinc; each tablet is numbered; each man always gets the same number as long as he is in that place; when there is nobody inside, the token should be hanging on a board in the cabin; the custom of the mine is that when that token is given to a man, that is a certificate that everything is safe; I do not know whether my light went out from gas or the fall when I was with Mr. Atkinson; at the mouth of the tunnel I noticed most wreckage; when that goaf fell there was 2½ feet of roof fell; the top of the roof then would be 2½ feet higher than the ordinary bords; if there is a discharge of fire-damp at any place it will take the highest place; the cavity in the roof of the goaf would not be the highest place in that district; when I said that the "roof had fallen lightly," I meant that it had fallen about 2 feet or 2½ feet—that is, there was not a great quantity; in my nightly inspections it was my duty to go to the fence at the goaf; on my monthly inspection I went into the goaf and through the roadways in it; there are no sanitary arrangements in the pit that I am aware of for the men; the men go to the roadsides, I believe, when they want to alleviate the calls of nature; they go to the roadside, and dig a hole, and bury it.

To Mr. Wade: The height of the roof outside the area of 2 chains in the 35-acre goaf where the pillars were was about 4 feet 8 inches; there might be a fall of 8 or 9 feet and a fall of 4 feet; on the 24th, as far as I know, about 2 feet or 2½ feet had fallen in the area of 2 chains; there were higher points inside the waste than that; the system that is in force at Mount Kembla is the system that I have always known for working pillars; it has been going on at Mount Kembla for about fifteen years.

To Mr. Bruce Smith: After a first fall, then, the cavities in the roof would be higher than the roof of the adjoining place—that is, if you start with a level roof; and with a second fall there might be cavities extending 9 or 12 feet higher than the adjoining roof; if any gas escaped in the fall in the goaf area it would accumulate in the top of these cavities, and a further fall might drive that out; gas is never produced by a fall in Kembla.

To the Coroner: The nearest legitimate light to the 35-acre goaf would be on the main travelling road opposite No. 4 right, on the day of the disaster—that is, if any one were passing by.

Made and sworn, at the Court-house, Wollongong, }
this 28th day of August, 1902, before me, — }

JOHN MORRISON.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—*David Evans*, sworn, states: I am a deputy at the Mount Kembla Mine in the shaft district; I live at Mount Kembla; I have been employed at Mount Kembla Colliery for sixteen or seventeen years; I have been nearly sixteen years a deputy at Mount Kembla; I recollect the 31st July last, the day of the disaster; I commenced duty that morning between 8 and half-past 8; I was the day deputy; the first thing I did was to go into the fireman's cabin; I went in there to see if the front shift tokens had gone off the board; I found the tokens gone; some of the back shift men were coming in; Henry Meurant and William Meurant worked in the shaft section in 48 or 49 bord in that shift; that day, between half-past 1 and 2, I was in the pillars on the left of No. 6 in the rope road—that is, up beside James' heading, where I have marked on the plan X1; about that time my attention was drawn to something by Sammy Beck; it was something that put his light out; he said to me, "Did you see or hear that, Davey?" I said, "Hear what?" he said, "Something that put out our lights"; I did not feel or hear anything; the next thing I heard was Mat. Frost shouting; he was asking the men if I was there; I went to him; I had a flare lamp; I asked Frost what was the matter; he said, "Something wrong in No. 1"; I then made towards No. 1 as quick as I could; I reached the return coming from No. 1; I have marked on the map the course I took from the time I met Frost till I got to the return air-way in No. 1; when I got there I found smoke coming away from No. 1; I returned back

back completely then towards the ventilating shaft; I reached the second doors of the ventilating shaft; I opened those doors; I met the same stuff there as I met in No. 1—that is, the smoke; that is the reason I opened them; I then returned back and sat down for a while; I have now drawn on the map my course from the air-way to the doors of the ventilating shaft; I opened the doors for the purpose of cutting off the smoke; I sat down a good bit and gathered as many men as I could; I saw a number of miners there; they were in a pretty good state; they were coming straight from their places; they were all right, but they were getting very excited; they were in a great hurry to go; I sat down inside the doors of the ventilating shaft and told them to sit down a bit; the men were forcing me to go by saying, "Go, Davey, Go, Davey"; I then left to go out; I have marked on the map about the course I took coming out; there was a great number of men who came out with me; I believe some men remained behind at the shaft—I do not know; after taking that lot of men out I went into the mine back to No. 6 right just the same place as I was before; I went back by the main travelling road; when I was going back to the shaft I saw a number of bodies in the main road on my way back; I think they were dead; I did not see either of the Meurants there; when I got back to the ventilating shaft the second time I did not see any signs of smoke; the air was pretty good; I went up as far as the top end of No. 6 right; I did not see any dead bodies there nor persons alive; we were there a bit and then returned back to the shaft; Dr. Robertson and Daniel Robertson, Johnson, Clanning, Mat. Frost were with me; I could not tell what time it was then; we then helped to carry some bodies which were lying between the shaft and old No. 4; I did not return to the mine that night; when I went out that time it was between 1 and 2 o'clock in the morning; I went into the mine the next day; I went into No. 1 section—that is, Morrison and Dungey's district; I then saw a number of bodies in that district dead; they were in different parts of that district; I have been in that district since.

Cross-examined by Mr. Bruce Smith: I have got about fifty-two years' experience in mines—that is, in South Wales and Mount Kembla; Mount Kembla is the only mine I have been in in Australia; I have not formed an opinion as to where this disaster originated; I cannot make it out; you can say in what district it was in by the direction of the blast; it occurred somewhere about the fourth right pillars; I examined the rope road and all the things in it; I have formed the opinion that the disaster occurred within the area marked "A" circle; I do not think it had anything to do with the 9-acre goaf on the right of the second right rope road; I can say that I think it occurred within the circle B; I do not think it had anything to do with the 15½-acre goaf, and I can say that I think it occurred within circle C; I say that if it took place in the 35-acre goaf, I think it was on the side marked D; I think it took place within the area marked like an envelope marked E; I say that because the blast seems to have blown outwards and inwards from that area; the indications point to the force having come out of No. 4 right, and having gone inbye and outbye on the road; there are two cut-throughs right opposite the No. 4 right on the main level rope road, and the canvasses in those cut-throughs had been blown in different directions; the inbye one had been blown inbye, and the outbye one had been blown outbye; you could also see signs of the force in the coal, and the skips tumbled about; some of the skips were full and some empty; the skips inside of No. 4 right had been blown inwards as far as I could see and outside outwards; it looks as if the force had come out of No. 4 in a sort of funnel, and then branched along the road inbye and outbye; I noticed other things on the road which had been forced in the same direction as I have stated; it was not my business to know of any previous fall in that district; I was not acquainted with that district at all; I have never seen a disaster like this before; I am not a reader on mining; I recognise that there had been some great force at work; what that force was I cannot tell you; during my fifty years' experience I have never noticed or heard of anything which would produce explosions but gas.

Cross-examined by Mr. Lysaght: I do not remember hearing any of the men saying that No. 1 was on fire; we were making towards Powell's Flat, and as we got down there the smoke and stuff stopped us; it was white smoke, not very white, but it was of a whitish colour; I smelt the after-damp; there was no coal-dust flying about as I went down towards Powell's Flat; I could not say whether I said "I'm satisfied"; I do not remember a word that passed between me and Frost as we went along; I smelt something which was not very nice, but I cannot say that it was after-damp; I do not want to say anything on the point as to whether I do or do not know the smell of after-damp—you cannot be sure of it; I think now that the smoke I saw came from some blast of some kind or another; I do not think it was a blast of gunpowder; I do not know what kind of blast it was—I have no thought about it; it could not be a blow down the ventilation shaft; it could not come from the outside—it came from the inside; I think the blast came from the area marked on the map like an envelope; I cannot say what it was in that area to cause the force; I was making for Powell's Flat to see the return, and try to see what was wrong in No. 1.

Sworn and made, at the Court-house, Wollongong, }
 this 28th day of August, 1902, before me, — }
 CHAS. C. RUSSELL, Coroner.

DAVID EVANS.

Inquest adjourned, for further evidence, till the 29th day of August, 1902, at the Court-house, Wollongong, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 28th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 29th day of August, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr. Lysaght:—David Evans, recalled, states: My duties as a day deputy would not include looking for gas; Kembla Mine may have been full of gas and yet I not know it; it is not my duty to look for it; it is years and years ago since I was in Morrison's section before the disaster; I knew nothing about it; there was dust in my section; I do not know that the No. 1 section was a good deal more dusty than my section; I do not know anything about it.

Cross-examined by Mr. Wade: I saw a shirt wrapped round a prop in the main heading (the back heading) not far from the face; say 20 or 30 yards from the face; it was inbye of the cut-through where Morris was working; there was a tea-bottle close by the prop with the shirt round it; there was a belt hanging

hanging round a prop which was lying on the floor; there were dozens of props lying down; they were scattered about; the prop with the shirt round it was standing up; I did not see Frank Dungey's body; there were some patches on the road where the props were pretty thick, and at other parts there were none, they were scattered everywhere and seemed to have been blown about; the props are on the average about 6 inches in diameter; they are about 6 feet in length; I know No. 3 left; I saw some timber there too I think; it was down there just the same as in other places; it seemed to have been blown about; Hartley's working place on the 31st was on the left hand of the main tunnel, No. 20; I mark on the map the letter H, where Hartley Brothers were working; Edward Gallagher was working in No. 10; he was working in some pillars; it was somewhere off the road leading to the old long wall faces; I know William Broadhead; he did not report gas to me last quarter as stated by him on page 28 of the depositions; he did not tell me that there was a good deal of gas in that part of the pit, and to keep the canvas forward as he states on page 29 of the depositions; it is not true, as he states on page 30 of the depositions, that I took a shovel and wrote on it the words 'Fire; do not go past this; put your light out; take your coat; go in and fan the place well out'; I never said such a thing to him as that; I remember Broadhead changing his place about four months ago; McMurray used to examine that place before Broadhead went to work; I have not examined any place for the last four or five years; it is not true what Broadhead states on page 31, that I was the man who marked that place with the date; there was nothing dangerous about Broadhead's place at all; he was not shifted because it was dangerous; it was because it was going down the hill, and it was a heavy pull for the horse up the hill; he did not ask to be shifted; I shifted him on my own motion; he was working down the hill, and we had bords coming up the hill to meet him; we stopped three bords that day altogether that were working down hill; we got the coal from the other end from the bords that were coming to meet them; the two bords to the right of the one marked H and Hartley's were the three bords I refer to; the two to the right of Hartley have since met, but Hartley's has not; I have marked the letter B on the plan where Broadhead was working; Broadhead did not report any place to me as being dangerous; it is not true what he states on page 36 of the depositions that he did; I look at the book [Exhibit L]; I look at an entry on the 7th December, 1901; the report is signed by me; the 7th December, 1901, was a pay Saturday; I look at a report in the same book on the 4th January; we inspected the long wall on that date; there was no one working in the long wall that day, which was a pay Saturday; the examination was made in the day-time; I never examined as an ordinary fireman, but I sometimes examined on pay Saturdays; I am positive sure that there has never been no report of gas, not this four or five years; I have come across gas; that was eleven or twelve years ago, perhaps thirteen; the furnace then was in the tunnel mouth; they were then sinking the upcast shaft, but it was not in use, the stack of the old furnace is there now at the tunnel mouth; the old furnace was not very big; there was no upcast shaft in those days, which were before the present Coal Mines Act came into force; I know now that we have to keep the brattice well up to the face under the Act; I did not see Sammy Beck's light out on the 31st; it had been re-lit again; he was at the pillars, near James' heading; that is where he was working; when I first saw the men in No. 6 right they had all got their lights; I found that my light burnt all right as I was going through the place; I always found Mr. Rogers a very strict boss; he always wanted us to be careful.

To Mr. Bruce Smith: I have not too good a memory; it fails me sometimes; I never examined for the miners; I examined on the pay Saturdays, when the fireman was not able to do it; I never examined on a holiday; in the entries mentioned in the book [Exhibit L] the places referred to were the places where the shiftmen were going to work, I examined then for everything; I was on the look-out for gas, among other things; I did not remember the pay Saturdays, and when I said just now that I had not made any examination for five years I forgot the pay Saturdays; I look at the entries on the 7th and 9th June last in the book [Exhibit I]; I have no recollection about those examinations; I know that a place is safe by taking the fireman's report; I would not know of my own knowledge that a place was safe unless I examined it; I examined Broadhead's place every day; an examination twelve hours before the men went to work would be no use, because the gas might accumulate; I never examined Broadhead's place for gas; I think I am able to say that his place was safe, because I was there; I will admit that it is not safe for a workman to work in a place unless it has been examined less than twelve hours before he commences work; when I said that Broadhead's place was not dangerous, that was not because I had examined it for gas just before he went in; it is about five years since I started on the day shift, and since then there has been no report of gas to me; I have found gas in several places before the five years; since the shaft was made we have not been troubled with gas in the shaft district—not much since; I cannot tell you how long ago it is since I knew of gas being in the mine; it is more than five years ago; I cannot remember seeing any gas since the shaft was put down; Broadhead's statement is not true; there is not a word of truth in it; I never wrote anything on a shovel.

To Mr. Lysaght: I have known Broadhead since he has been at Kembla—that is, about nine or ten years; as far as I know, he is a respectable man, of good character; I remember telling you yesterday that I had never thought of what had caused the disaster; it is not a common thing to indicate, when there is anything wrong, on a shovel or on the sides of the wall; it is common to put the date on the face to show the place is safe; when there is anything wrong, there is a signal put across the road to stop the men—a fence; I have never known anything to be written on a shovel to indicate anything to a miner; if Broadhead did discover gas he should have reported to me; no person made any sort of complaint about the place where Broadhead was working four months ago; the underground manager told me to shift Broadhead; Leech was the underground manager; he came and looked at the place; I did not hear what Broadhead said to Leech; I did not know that Leech went to the place for a special purpose; he was going his rounds when he told me to shift Broadhead; the underground manager did not tell me that Broadhead had said that there was gas there; there were not then a number of places on a higher plane where the haulage was more difficult; those places were all coming down the hill; when I found the gas some years ago I reported it to Mr. Rogers, who was then underground manager; I also reported it in a book; at that time we kept at Mount Kembla a special report book for gas; I see the fireman's report immediately he comes out, before I enter; I enter about half-past 8 in the morning; when the men go in at 6 o'clock the firemen then go home, but they have to see the underground manager first; I do not read the report every morning; the report is there for me to read every day, if I want to; I read it on an average twice a week; the overman is my immediate superior officer, and it is his duty to read the report of the firemen; I do not remember whether I looked at the report book for June or July of this year; I have

have looked over the report book many times during the year 1902, but not as an official; I do not remember looking at any special report; it was not my duty to look at the fireman's report every morning; I would know that the places were safe, because the overman was there, and he would know; I get my instructions from the overman every morning, and if there is anything wrong, not only gas, but anything else, he will pick it out, if there is any bad roof or anything; we take everything for safety, only the place the fireman mentions anything wrong; I would take the safety of the mine from the overman's word, I do not think I have seen the book in which I used to report gas for twelve years; it was full of reports; it was some kind of diary book; that book was kept to report any danger we would see; we generally had one of those books for every year; we gave up having those books when the present ones came out, we have books like them now for the dayman's daily report; I mean books for the day deputies to make their reports in; all the reports I have made concerning the Kembla Colliery for the past five years are in those day-books; those books are not printed with duplicates like the firemen's books; it is some kind of a diary book; the books I am speaking about are not those already marked as exhibits; when I make those reports of mine in the books, the books are kept at the office; I sign each daily report; Frank Dungey used to sign the report too; he was the other day deputy; it is not a joint report; we have a book apiece; I had my report book on the morning of the disaster; I left it in the fireman's cabin inside the mine; I do not know where the report book before the last one is; we generally get them every year; I have looked in the cabin since the disaster and cannot find it; I could not name the spot where Price's body was found, but it was somewhere about Powell's Flat, I think [Report book put in and marked Exhibit M], I look at the reports of the 31st July and the 1st August of this year in the book [Exhibit M], and say that the reason the reports appear on those days is that I turned over too many days in mistake; I discovered that I had made the mistake after the reports were written; it was in July I found it out; when I found it out I put the reports in the right place; Nelson found the mistake out; I mark a blue X on the plan, the place where I think Price's body was found; I am not sure that is the place; the body was face downwards when we found it, missed shots are not very common at Kembla, but they happen sometimes; there are many weeks without one; I have seen the reports made by Dungey; I have seen them; a missed shot is one which has not fired at all, and a blown-out shot is one which has blown out and not had the effect it was intended to have; I have not seen any blown-out shots for twelve months in Kembla.

To Mr. Wade: When I went to work in the morning, I would go in between 8 and half-past; if the fireman had reported all safe; I would see the under-manager, first of all; if the fireman had reported that some place was unsafe, the overman would tell us, and then I would go there and see about it; I would go to Broadhead's place and see if the roof was all right, and if the road was all right, and if he was doing his work all right; the fireman's inspection is between 3 and 7 o'clock in the morning; the front shift is at work before I come into the mine at all; I go to every working place in my shift in my section and examine the place; I see if everything is right, and if there is anything wrong, I make them put it right; there is an inspection by the firemen before the men begin work, and my inspection whilst they are at work; I do not remember there ever being any trouble about gas.

To the Foreman: The working place where Hartley Brothers were working is not higher than any other part of the mine; it is lower than other places; I have never had occasion to report about any of the men going to the waste workings; I never heard of any of them going into the waste workings.

To a Juror: The more ventilating shafts you have the better.

To a Juror: Another shaft would be a benefit, but I do not see it is actually needed, as there is no gas.

To a Juror: I do not know the stoppings of the 35-acre goaf in No. 1 section; the stoppings in my district are from 4 to 5 feet thick; sometimes we plaster the outside of the stopping with mortar, I found the stoppings out in some places in the main tunnel in both the shaft and No. 1 sections since the explosion.

To the Coroner: If a man wants to obey a call of nature, he should use his own place; I never found them going into waste workings.

To Mr. Bruce Smith: It is not a fact that I used to write up my reports three or four days ahead; my last entry is under the date of the 7th of August; I never wrote two reports at once; if I made an entry in the book before the proper day, I did it by mistake; after having entered up what I had done, I used sometimes to have to scratch it out and write across it "No work"; the wording of the report is the same all through the book; there is an entry, on the 28th July, which I had to cross out, and write over it "No work"; I found out I had made the mistake in July; the entry which is in the book for the 7th August is meant for another day; the book was kept in the company's office; the underground manager examined the book, and he found the mistake when doing so; when I reported on waste workings I entered them in my book [Exhibit M]; I examined the waste workings every day, but I did not put it in a book; the report of the 22nd June in the book [Exhibit J] does not refer to waste workings; it refers to the roads and to the roof; the report of the 9th June in the book [Exhibit I] does not refer to waste workings; I have never reported on the waste workings in either of the books.

To Mr. Wade: Mc Murray and Dungey used to report on the waste workings some time ago, and recently McMurray and Morrison.

To the Coroner: I put the report of the 28th July in the book at night; that was the day past.

Made and sworn, at the Court-house, Wollongong, }
this 29th day of August, 1902, before me, — }

DAVID EVANS.

CHAS. C. RUSSELL, CORONER.

The inquest is adjourned, for the purpose of further evidence, till the 1st day of September, 1902, at fifteen minutes past the hour of 11 a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner.
Court-house, Wollongong, 29th August, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 1st day of September, 1902, at 11.15 o'clock, a.m.—CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—*Adam Frost*, sworn, states: I reside at Mount Kembla; I am the overseer of wheelers in the No. 1 right district in the Mount Kembla Colliery; I am in the employ of my father, who is a contractor for the company; I was at the mine at work on the 31st July last; that day I met Nelson, the under-manager, and Bates, the Inspector of collieries; I met them about half-past 1 or a quarter to 2, as near as I can say; I met them in the fifth right rope road; they stayed for a few minutes with me, and had some conversation; after they left me I went to the top of the second right Tommy Dodds; there I met a wheeler and a clipper, Parsons and Hunt; while I was talking to them I noticed something unusual; there was a great blast of wind came up the second right while I was there; it blew out my lights; we lit the lamps again, and we tried to make our way to the main hauling road; I was not able to get to the main haulage road, for I met the smoke and dust about 200 yards from there; the air was travelling its proper course, but I found it a little hot; I then returned to the Tommy Dodds; when I got back there I found a number of men; they came from the bords in the fifth right; Hunt and Parsons and I then took a number of men out at Purcell's daylight heading; we then went over to the main entrance of the mine; we then saw the wreckage, and knew that something serious had taken place; when I got over to the main entrance it was nearly 3 o'clock; I went into the mine into the shaft district then; the first man I met was Hartley; I met him just a little in by the fireman's cabin; up to that time I had not seen anybody down or injured in any way; Hartley was lying in the roadway; he was unconscious; we tried to give him water, and two or three in the party stayed with him to try and get him outside; I went on to the shaft; we met a good number of men on the way out between the fireman's cabin and the shaft; there was none injured among the men whom I met between the cabin and the shaft, except that some of them seemed a bit silly; they had not got their proper senses a lot of them; I met my brother Mathew at the shaft next the furnace; me and my brother and several others went back down No. 6 right; I saw a good number of men in the sixth right, and also some in the main road; the most of them, from all appearances, were alive when we went there first; later I saw a number of the same men dead; I assisted to remove the men from that district; all the men were out of No. 6 right before I left the shaft; after those that were alive were brought out, I came out of the mine at the main tunnel; that was as near as I can say about 8 o'clock at night; some time after that the same night I went in with Mr. Crowther and Morrison and others to No. 1 right; I afterwards saw the biggest portion of the bodies that were brought out of that district that night; there were some on Powell's flat we did not see that night; nearly all the bodies that we saw on the Thursday night were brought out on the following day, Friday; some were brought out on Saturday; I did not take particular notice of the condition of the bodies in the No. 1 district on the Thursday night; I knew Henry Meurant and William Meurant; I saw them in No. 6 right on the Thursday night; they were both alive when I saw them; they were both unconscious; later on that night I saw them both dead; they were dead in No. 6 right in the same place as I had seen them alive; I did not see Nelson in the mine after he and Bates left me; the watering of the roads in the No. 1 district is portion of my duty.

Cross-examined by Mr. Bruce Smith: When I water the roads I do it with a water-tank with a hole of 4 or 5 inches in the bottom; the water used is that which accumulates in the mine, and which we want to get rid of; we always have plenty to put on the road which has accumulated; on several occasions we have put water on the road which has not accumulated; we have got water from Stafford's gannon bord; that is a place in which the water accumulates; the water is carried away from that place and emptied on to the road; we have no hose; the tank is a small iron malt tank; it is wheeled out on to the road and the plug taken out, and the water runs away on the road; as soon as the water accumulates again the tank is taken back and filled; that is not the only place, there are several other places that have to be baled, the water is taken away from them in the same way; there is one place which is the swallow between Stafford's and Powell's flats; there is another place, No. 1 wheels, that also has to be baled; there is another place which has to be baled at old No. 5; some of the bords going to the dip also make a drop of water; those are all the places; if there is any place we see wants watering on the road, if it is twice as far to take it, we take it there; the plug is in the centre of the tank, and it runs out into the middle of the road, the water baler empties the tank; if he wants the water all to run out in one place he takes the plug out and stands there, if he does not he follows the horse along; fifteen or twenty tanks a day accumulate in all the places we have to hale in my district, we have plenty of water in the mine, more than we want sometimes; there is a great deal runs away; it is continually running out of the mine in a good stream right through the summer, it runs by gravitation; a tank takes about two or three minutes to empty if you plug the plug right out; if you do not pull the plug right out it takes longer; if we want it to run along a length of road it might be half an hour or an hour to go along 50 yards of the road, that is to run along after it was out of the tank, if the plug is not pulled right out it might take five minutes; during the past summer none of the tanks were emptied because the roads did not need it, we have three water-tanks in my district; they never go out of my district, the shaft district has its own tanks, I do not know how many; I have not been able to form any opinion as to the seat of the accident; not anything to be sure of; I have had eighteen years experience in mining; I have formed no opinion at all as to where it took place.

Cross-examined by Mr. Lysaght: I have thought a good deal as to where it might have happened. I do not think it happened in the shaft district, I have no idea myself as to where it did start; when I said that the men I met looked a bit silly, I meant that they were silly from after-damp or something similar to that; I got a touch of after-damp, or whatever it was in Powell's flat, that was about one or 2 o'clock in the morning of Friday; I did not get any when I went in about 3 o'clock on Thursday the air was travelling its proper course when I went in; I have seen a similar plan to that now in Court before; I first saw it last Friday; I saw it for about two minutes on Friday; it was shown to me by Senior-sergeant Banks; I say that the tanks in my section have never been taken out to the shaft district by my brother to my knowledge; the tanks may have been taken out in my absence by my brother; he has been in my section several times during the last six months; we water the roads where we see it is required; watering was never badly required; it may have been for a yard or two; Gill's gannon bord required watering, and we tipped water there; there were very few places that required watering; I have told you

the place and that is the only one that required watering that I know of; we have tipped the water in a hundred places; there was no dusty place that wanted watering in my section except Gill's gannon bord; I do not say that in every other place, but Gill's gannon bord the plug was pulled right out and water let go; it depends where the dip is as to which way the water would run when the plug was pulled, sometimes it would run in both directions; from the fourth right inbye it is all a rise, up to the headings; I have drawn water up towards those headings whether it was wanted or not; it was never required there; I say that we have drawn water up there when it was not wanted; I do not know that it would give us more labour to take it there than to take it to the place we used to tip it to run away; Gill's was the gannon bord where the coal was brought out of, and that is where the dust was if there was any dust; the fourth left roads are not dusty; the second left is not dusty; the main hauling road in No. 1 is not dusty and never was; the water was run down as far as we liked to take it on that road; the travelling roads do not need watering; I have often heard of travelling roads being watered, but not at Kembla; we have no appliances for watering the sides or the roof; I cannot say why we have not got such appliances; the sides and roof do not require watering because they are not dusty; water comes in from the surface; I saw three or four men who had been burnt; they were Kembla Stafford, Tommy Tost, and Aiken and son; I do not remember a man named Gallagher being burnt at Kembla; I may have heard of it; I do not remember having heard it; I have been at Kembla for about thirteen years; although I have thought very carefully about it; I have no idea as to where the disaster started, or as to what caused it; I did not ask anyone where I was to water; I watered on my own responsibility; it is a common thing for a fireman to chalk his directions where he wants the work done; if the work was on broken props the chalk marks would be on the props, and if it was on bars across the roof it would be on the roof; if it was to clean places he would mark the stuff that wanted shifting; if there was anything else he would write it on the black board at the firemen's cabin; I do not know anything about bratticing; if anything were written on the face it would be for the miner and not for us; if the fireman saw something that wanted doing in his inspection he had no need to go back to the black board; he could see the men on the shift; he would mark it on the place where the work had to be done and tell the men; if there were no place on which to mark it he would have to go and see the men; he knows where the men are working; I have never known in my experience any sign from the fireman or the deputy as to any work to be done to be marked on a skip; the fireman would not mark danger on a shovel, he would stick the danger board up; some of the waste workings are sealed off, they have stoppings, not of bricks and mortar.

Cross-examined by Mr. Wade: I have never heard of a fireman finding gas and telling the workman to move the gas himself next morning; Dungey was the day-deputy in my district, and Morrison at night; instructions as to any place that wanted cleaning would come from the day-deputy; the night shiftmen who are with him do the work that the night-deputy wants done; the blast of air was pretty strong that came on to us at the top of the second right on the 31st—it nearly blew us off our feet, anyway; we were at the angle where the two roads go round the big goaf; I suppose I went down 200 yards before I got the smoke and dust; I have marked that place on the plan X 1; the smoke and dust were going back to the main road when I met it; I was going with the air, not against it; the second right rope road took the air from the daylight heading; that was the nearest point I got to the junction of No. 2 right and No. 1 main rope road; 2 o'clock would be a time when all the miners would be in the mine; outside, the men and boys who were working at the tunnel mouth there were only the blacksmiths shop men, who were working near the tunnel mouth; Mr. Rogers was not at the mine at that time; I met Bates and Nelson just at the corner of the travelling road at the bottom of the fifth right rope road; they were going out towards the mouth when I last saw them; I went up round the fifth right when I left them; the surface water coming from the crop workings runs down sometimes on to the main road and the travelling road; I am speaking of No. 1 travelling road and No. 1 main rope road; the water comes through the old workings through the openings; in time of rain, we got water all along the travelling road—that is, on the floor; the road dips from the telephone cabin, and from the fourth right it dips the other way; in wet weather, the water would run along the floor of the road; I cannot say that the roof and sides were wet, but there was no dust on the roof and sides to speak of; I am speaking of the rope and travelling roads in No. 1; going parallel to the main rope road, the district to the left was on the rise, but going at right angles to the main rope road the district to the left was on the dip; the coal from the first two bords to the left of the main rope road, and that from Merris' bord, came down the main rope road, and all the coal from all those bords to the left again went along the line marked with a blue arrow, and into Gill's gannon bord; there was no traffic in the area between Gill's gannon bord on the left, the fourth left rope road on the next side, No. 1 main rope road on the third side, and the cut-throughs next the faces on the fourth side—that is, coal traffic; there was a swallow in Gill's gannon bord and Stafford's gannon bord; Stafford's gannon bord has been making water during the whole of the last six months, and longer than that; that water comes in from the swallow; we have to take that water away; if there was any place that the under-manager saw wanted watering, and I had not seen it, he might tell us to tip water there; when I say that the main rope road was not a dusty road, I mean that there was no dust there to speak of; we always cleaned up any coal that might have fallen off the skips; when we pull the plug out quick, the water covers all the heading; if it is tipped in anything like a level place, it will spread before it can get away; the biggest tank, I should say, holds 200 gallons of water, the smallest 100 or 120 gallons; the last time I saw Mr. Bates at the mine was with Mr. Leech, a month or five weeks before the disaster; I saw him then in the fourth left rope road at that time; I never had any complaint from him at any time as to the place not being clean or dusty.

To Mr. Bruce Smith: I say that the arrows on the plan are wrong so far as the air is concerned; the air does not travel as shown on the plan; I am speaking of the arrows in the second right rope road; those are the only arrows that are wrong; the smoke and dust were going in the same direction as I was, and I overtook it; wreckage extended from No. 1 right up No. 2 right for 200 yards; wreckage extended up the main road to the fifth right, nearly up to the end of the heading; I did not form any conclusion from that.

To the Coroner: From the outside into the telephone cabin is the worst wreckage; the second worst wreckage is from the telephone cabin round the left-hand branch rope road; I saw the body of Dungey; as near as I can say, it was found about 80 yards inbye from the fifth right tommy dodds; I saw the head; I saw the arm; the head and arm were outbye and the body inbye; I do not know whether the head or the arm was nearer the body; I saw them about half-past 10 or 11 o'clock the same night.

night (Thursday); I do not think they had been moved; there are no gates at the tunnel and other mouths that I know of to keep people out; there is no gate at Purcell's daylight heading; that is the only one that I know of; any person who wished to do mischief there could go in at Purcell's daylight heading if he wished; none of the miners go in that way, but a good few come out that way; I have not seen gates at the pit mouth at night.

Made and sworn, at the Court-house, Wollongong, }
 this 1st day of September, 1902, before me,— }
 CHAS. C. RUSSELL, Coroner.

A. FROST.

*Examined by Senior-sergeant Banks:—*William Rogers, sworn, states: I reside at Mount Kembla; I am the manager of the Mount Kembla Colliery; I have been at Mount Kembla mine for about thirteen years; I was underground manager for about seven years, and have been manager for about six years; Henry and William Meurant were employed at the colliery as miners; I knew them, but not by name; William Nelson was the under-manager at the colliery; on the 31st July last I was absent from the colliery in Wollongong; the first thing I knew of anything having happened at the mine was that day, the 31st, about 2 o'clock p.m.; I went to the mine at once; when I arrived there I found everything outside a wreck; that evening I saw the body of Mr. Nelson, the underground manager, lying in the engineer's shop; I also saw the bodies of the Meurants there; I identified Nelson's body when it was viewed by the jury; I went into the mine on the night of the 31st July; I inspected the place generally.

Cross-examined by Mr. Lysaght: I do not understand what you mean when you ask me whether I have passed any examination for my position as manager of Mount Kembla Colliery; I obtained my certificate as manager of a colliery by service; I was never examined by a Board of Examiners for my certificate of competency; I remember a man named Michael Gallagher being burnt at Mount Kembla; I do not know that he was burnt from an explosion of gas; I do not know how he was burnt; I did not hear how he was burnt; I know he was burnt, and that is all; I was under-manager at the time; I did not inquire as to what caused his burns; for all I know, he may have been burnt with gas; I had no reason for not inquiring; when a man was injured in the colliery when I was under-manager I sometimes inquired; when a man got burnt I did inquire as to what burnt him; I do not know of any one who has been burnt in Kembla Colliery except those who were burnt at the present disaster; if men were burnt in Kembla since I have been manager I expect I would be sure to know it; I expect also that I would be sure to know it if as none were burnt during the time I was under-manager; I do not know that a man named Blackett was burnt at Kembla, and have never heard of it; I do not know that a man named R. Walker was burnt at Mount Kembla, and have never heard of it; I have never heard of a man named Jubb being burnt there; I never knew a man of that name to be working at Kembla; I know that some of the victims of this disaster were burnt; Tom Purcell was burnt a little, and one of the Stafford boys, I do not know his name, John Clark, who was working outside the mine, a boy named Stone, and Stanley Richards, who were also working outside; I do not know that the two Aikens were burnt; I have not inquired as to who was burnt; I saw all the bodies, I think; Clark, Stone, and Richards were working outside, the others inside; I cannot say what burnt Purcell or Stafford; I have no idea what burnt them; I have no idea what caused the disaster; I have no theory; I have no suggestions to make; I have not thought as to what has been the cause of this disaster; I have no reasons for not thinking about it; I have thought a good deal about it, but I cannot make up my mind about what caused it; I have no theory at all; the only thing I have thought about it is what we have heard a good deal about in the last fortnight, that is, that an area of waste fell in in the fourth right, causing a blast, and blowing everything upside down; I cannot say what the blast was; I have no idea; it appears to me that the blast has come from the fourth right pillars; I do not suggest that it was a blast of gunpowder or of dynamite; I do not know what it was; I do not know how the men I have mentioned (Stafford and Purcell) were burnt; my idea is that when the blast came out it blew different ways, some inbye and some outbye; I could not say whether it was ignited or not; I have no idea whether that blast was ever ignited; I have no impression about it; I do not know that there was any after-damp in the pit after the disaster; when I went in I may have got a little; I felt a smarting in the eyes and nose, but I do not know whether it was after-damp; I do not know what after-damp is; I do not know any of its constituents; I know fire-damp when I see it in a lamp; I do not know any of its constituents; I do not know what light carburetted hydrogen is; I do not know what methane is; I have heard of light carburetted hydrogen, but I do not know its composition; I have heard talk of people meeting with it in mines, but I do not know that I have met with it; I do not know whether there are any means of discovering it in mines; I have never tried to discover it; I have never read any scientific works upon it; I do not know whether it is explosive or non-explosive; I do not know whether it is life-supporting or not; I am a practical and not a theoretical man; I do not know that while I was under-manager at Kembla fire-damp used to accumulate in the mine; I do not know that the ventilating shaft we have at the mine now was built as a result of a prosecution; I know that the shaft was built to improve the ventilation; I did not give evidence before the Royal Commission in 1896; I have given evidence on no Royal Commission; I do not know that gas is constantly exuding from the coal in Kembla, even in small quantities; I have not heard of gas of any kind at any time being in Kembla mine; I myself have looked for gas in Kembla mine; that was many years ago—ten years ago; I did not find any gas when I looked for it at that time; I would have known it if I had found it; the firemen use the old "Davy" lamp in their inspection, not the "Marsaut"; there are from nine to a dozen "Davy" lamps at Kembla; the mine was examined every morning with them; they would require a lamp each; the others were in the store, in good order; I always kept them clean and tidy in the store; I do not know that the rescue parties could not get any decent oil at the mine; we keep two or three different kinds of oil at the mine; I was in the mine about a week before the disaster; I always inspect when I am in the mine; I made an inspection of the part of the mine I was in on that occasion; that was the shaft section, not No. 1; it was, perhaps, a fortnight before the disaster that I was in No. 1 section; I do not know what day of the week it was that I was there; I made a rough note of having been in the mine, and what part I had been in, perhaps; the note was made in a diary.

Made and sworn, at the Court-house, Wollongong, }
 this 1st day of September, 1902, before me,— }
 CHAS. C. RUSSELL, Coroner.

WM. ROGERS.

The inquest is adjourned for further evidence till the 2nd day of September, 1902, at 10 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 1st September, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 2nd day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr. Lysaght:—William Rogers, recalled, states: I produce the book I was speaking of last evening [Book put in, and marked Exhibit N]; I made the last entry in that book on the 30th July, I think; after I had made that entry I left the book in a drawer at the office; I next took the book out this morning; the entries were made each day, in the afternoon or evening; on no occasion have I allowed two or three days to pass and then entered the book up for those days; the entries on the 28th, 29th, and 30th July were not written at the same time; I did not do any writing last night or this morning; they were written on the days on which they appear to have been written; I blot every entry as I make it; I cannot say whether I entered in that book my visit to No. 1 section of the mine about a fortnight before the disaster; I often visit the mine and do not enter it in that book; when I made an inspection of the mine there is no other book that I report it in; the amount of ventilation in the mine is recorded in a book kept for the purpose; I have not got that book here; I am not certain when I last saw that book, but it was in the month of July; in my inspection about a fortnight before the disaster I had a flare-lamp; Nelson was with me on that occasion; no one else was with me for the purpose of inspecting; Nelson had a flare-lamp; neither of us had a safety-lamp; we did not go into the 35-acre goaf at all; we went into the mine about 8 or half-past (about that), and came out about 2 o'clock perhaps; I do not remember how many hours I was in the mine; I see the entry in the diary on the 1st July, that is the inspection I have referred to; from then up to the time of the disaster I did not make any special inspection of the mine; I will not swear whether I did or not; there is no book anywhere to show a report of inspection by me, only the diary [Exhibit N]; I did not think it of importance to write down the result of my inspection; I have certainly made what may be fairly called an inspection of the mine; I have often made an inspection; I took the report of the fireman as sufficient for me with my own examination; when I have made inspections during the last ten years I was not looking for gas only along with the other things; I was looking for everything, gas included; I did not look for gas on my inspection of the 1st July even amongst other things; I cannot tell when it was that even amongst other things I was looking for gas; the waste workings were inspected once a month; if I had thought there was any occasion for it, it would have been practicable to have the waste workings inspected once a week; I was aware of rule 10 of the special rules before the disaster; I read the rule like this: "Once a week, or as far as practicable"; I am not now of opinion that there was some occasion to have the waste workings examined once a week; I do not know now that I wrongly interpreted that rule (rule 10 of the special rules); I could not inspect the underground workings every day because I had other duties to do; there was nothing in the mine to prevent me inspecting them every day; when the words "went into the mine this morning" appear in the diary it means that I inspected every part of the mine I went into; I know that part of rule 2 of the special rules which you have just read to me; I never personally took the amount of ventilation passing in the mine at any time; I relied on the surveyor, Mr. Warburton to take the amount of ventilation; Mr. Warburton had to take the air once a month; he had to take it at the beginning of each month; the volume of air going through a mine varies from day to day, one day more and another less; a hot day outside would interfere with the natural ventilation, and a cold day would assist it—there is nothing else to my knowledge that would vary the volume of air in a mine; I have never read any book to show what varies the volume of air in a mine; I do not want to change that answer; I know a little about mine surveying; I conclude that the blast came from the fourth pillars, because of the things I saw blown up and down inbye and outbye; I have not heard that Dr. Robertson has an absolute theory; I cannot say how often within the meaning of rule 2 of the special rules I inspected the underground workings; I know the part of that rule which you have read relating to plans, the plans are regularly plotted every three months; the last plotting was done by Mr. Warburton; I said yesterday that I never knew of the existence of any gas in Kembla; I am speaking of fire-damp; I have seen some black-damp there; I saw some there a week ago last Saturday; before the disaster I remember seeing black-damp in Kembla; that was four or five months before the disaster; there was a little of it in the fourth right; I discovered it by the way the flare-lamp was burning; it was in the fourth right pillars just at the edge of the waste; it did not put my light out; Nelson was with me, I believe, when I found it; I put canvasses across the road to turn the air into it; I believe Nelson put the canvas up himself; having put up the canvas, I went on to another part of the mine; I did not wait there till the canvas was put up, but it was put up, I know, for I saw it afterwards; I did not report the discovery of that black-damp in any book; Nelson might have reported it in a book—I do not know; I did discover black-damp before that; I did not report it; that was six or seven years ago; that was in No. 4 left, off the main tunnel, going to the shaft; from that time up till four or five months ago I did not find or know of any gas in the mine; those are the only two occasions I have known of gas to be in Kembla; I was in Court when David Evans gave his evidence; I did not hear him say that "he had often discovered gas, and had reported it to Mr. Rogers"; I never remember Evans reporting gas to me; I will not swear he did not report it to me; it would be in a report book if he did—in the deputy's report book; I do not remember gas being reported while I was under-manager; I cannot say as manager whether gas has been reported or not; everything dangerous I told them to report it and let me know; if gas were in the mine I would regard it as a matter of serious importance; during the time I have been under-manager and the time I have been manager it has been my honest belief that there was no gas in the mine; I knew that gas was found in the mine years ago; I knew that there was no gas there during the last ten years, because the deputies would have reported it if there had been, and I would have heard about it; I heard Morrison say that a week before the disaster he discovered black-damp and did not report; in my opinion, if the fireman thought black-damp, which he discovered, was dangerous, he should have reported it, and not otherwise; I do not say that Morrison was the sole judge; I was at Kembla, while Mr. Ronaldson was manager, the whole time; I was under-manager; when he left I became manager; I always thought that Mr. Ronaldson was a competent manager; I do not

not know what evidence Mr. Ronaldson gave at the Royal Commission; I do not know of my own knowledge that there is fire-damp in Kembla mine; I will not admit that "in all sections in Kembla mine fire-damp was given off rarely"; I never heard of the Royal Commission in 1895; I never knew that my own manager, Mr. Ronaldson, attended that Commission and gave evidence; I was manager before the Coal Mines Regulations Act, 1896, was passed; I have no recollection of two men having been burnt in Kembla mine from gas while Ronaldson was manager—I never heard of it; I know William Green, who, I believe, was once manager of Kembla; he was not manager in my time; I do not know that I have ever read the report of the Bulli Disaster Royal Commission; I was not in the Colony at that time; I do not know whether we are working the Bulli seam; I have heard that we are; the words, "In the main or Bulli seam," are on the plan of our colliery, but I do not know that we are working that seam, except from what I have heard, I do not know anything at all about Mr. Green's statement, that there was gas in Kembla when he was manager; I was not in the Colony at that time; I will swear that there has been no gas in Kembla to my knowledge during the last five years, that is since we put in the air-shaft; I go by the firemen's reports, I do not know anything about the composition of the Bulli seam so far as its gaseous nature is concerned; I have never made any study of the gaseous properties of that coal; I have no idea how long it would take for, say, 100 cubic feet of gas to accumulate in the Bulli seam; that is in the Kembla mine; I cannot say whether, in eight hours, 1,000 cubic feet of gas could accumulate; I am not prepared to dispute the statement made by Mr. Rowan, that 13,500 cubic feet of inflammable gas accumulated in the same seam that we are working in eight hours under certain conditions in a mine (not Mount Kembla) in this district; in view of that statement I consider that I did my duty in trusting to the reports of Morrison; I know that samples of the coal-dust at Kembla were taken for Mr. Atkinson the Chief Inspector to have analysed twelve months ago; we collected the samples for Mr. Atkinson; the samples were supplied to find out the gases in the coal; I did not make any inquiry as to the result of that analysis; I had no interest in knowing the result of the analysis; I mean that I took no interest in knowing the result; I would like to have known the result of the analysis; I believe a report of the result of the analysis was sent to me; I do not remember what the result was with regard to the samples sent from Mount Kembla; I have not known the air-current in Kembla mine to be reversed by atmospheric conditions; the reversal of the air-current in Kembla depends upon the furnace heat; two men put coal on the furnace fire to keep the heat up; the deputies attend to that too; the underground manager also looks after it; I go and see it myself occasionally; when I go into that district I never pass it; I have given permission to some of the men to go into the mine, into No. 1 section, and remove some of their tools, on and off since the disaster; I have given them permission to go in two or three at a time; the deputies have gone in with the men; either David Evans, or Morrison and Ballantine; it is only the tools that have been removed; I did not think that the order of the Court included tools; I am not sure of the number of danger-boards that were in the mine on the day of the disaster; there used to be two or three dozen; I do not know how many are there now; it is two or three years since we had any danger-boards painted and then we had half a dozen done perhaps; the danger-boards were kept some outside and some inside; I do not know roughly how many were kept inside; some would be kept in the cabin and others lying about in places where the deputies would know where to get them; if a deputy thought a place dangerous he would go and get a danger-board and put it up; he would have to walk to where he had left a board; he would do that in his time of inspection; he had plenty of time to do that during his examination; it would take him, perhaps, five minutes to go and get a board and put it up; the firemen had danger-boards lying ready all over the mine; I have seen them lying about myself; I saw danger-boards lying about the fourth left about two months ago; I cannot say I saw a dozen, the boards were just lying idle, not marking off danger places; I do not remember seeing any boards lying between the fourth and fifth right; if a deputy found a place dangerous, he would withdraw the men from there, and put a board up after; if a deputy found anything wrong with the roof of the travelling road he would fence it off; the practice was not to indicate danger on the nearest thing available; during the whole of my experience I have never known any indication of danger to be given by any chalk-marks; several books were destroyed in the explosion; I cannot give you a rough list of the books that were destroyed; some of them cannot be found; I remember Broadhead speaking to me about his working place being hard; he spoke to me several times; I cannot say when he last spoke to me; I cannot remember any occasion this year when Broadhead spoke to me about his working place; he might have; about three or four months ago I spoke to Broadhead about sending money down to Sydney to his wife, and he said that he was not sending her very much, because the place was hard; he said that if I would shift him into a place where he could get the coal easier and earn more money, he would send more money to his wife; I never shifted him; he might have been shifted without my knowledge; I think it was about that time that he was working in a place going down the hill, and he was shifted to suit our own purposes, not for his convenience; Broadhead was shifted on our motion; I knew before the disaster that coal-dust lying about the roads and sides and roof was dangerous; I agree with what you read from Hughes on coal-mining, page 396, beginning with the words "The importance of adopting," down to the words "exceed 2 per cent.;" the effectual means which we adopted at Kembla for dealing with dust was watering it and clearing it away where there was any; the appliances which we had were water-tanks; we filled water in skips as well as tanks sometimes; I think we had eight tanks in the mine before the disaster; I think there were four in the shaft district, and four in No. 1 section; there were three for No. 1 section and three for the shaft section; the biggest tank would hold about 200 gallons, and the next biggest would hold 120 gallons, I think; no body was employed actually for watering the dust; the real reason for having the tanks there was to bale the water out and to water the roads; the tanks were made for both purposes; most of the places the roof does not need to be watered; I have not seen a place in Kembla where the roof or sides needed watering; we only watered the floor; we never watered the sides or roof, because there was no need for it; the water would not, as a rule, run in a straight line when the plug was pulled out; the baler could regulate the way the water would run by shifting the plug in a certain way; I do not know the names of the men who watered the road, because they were employed by the contractor; one of the men is named O'Donovan; the watering of the mine is not left to the contractor who hauls the coal; the men who do the watering are employed by the contractor, and paid by him; the watering is done by any man the contractor likes to send; the company has control over the man O'Donovan I have mentioned, and can discharge him; the contract includes the haulage of coal, the water-baling, and the repairing of the mine as well; there is not a word in that contract

contract about watering the roads to keep the dust down; the contractor gets an allowance for watering the roads; he has to do that work under the same contract; there is no special charge for watering the roads; I have given orders to the contractor to water some parts of the mine, but not in No. 1, to my knowledge.

Cross-examined by Mr. Bruce Smith I have had about forty-five years' experience in mining; I think the disaster happened in the 35-acre goaf; I mean by the word 'blast,' which I used yesterday, a blast of wind or air; I think a blast of air alone would kill men; I suppose some of the men in this disaster—those who died peacefully—died from after-damp; I cannot come to any other conclusion; I know that after-damp follows on fire; I think there has been an explosion of some kind; the water trickles out of the skip that has the coal in sometimes when the men put water into the skip; you cannot help having some coal-dust about the place.

Made and sworn, at the Court-house, Wollongong, }
this 2nd day of September, 1902, before me,— }

WM. ROGERS.

CHAS. C. RUSSELL, Coroner.

The jury respectfully decline to bring in a verdict on the evidence before them.—JAMES KIRBY, Foreman. Court-house, Wollongong, 2nd September, 1902.

Inquest adjourned for further evidence till the 3rd day of September, 1902, at 10 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 2nd September, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 3rd day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr Wade.—*William Rogers*, recalled, states: I have actually worked as a coal-miner; I worked getting coal as a coal-miner for about fifteen years; that was in North Wales; sometimes I worked with naked lights, and sometimes with safety-lamps; I have had a good experience of working with safety-lamps; there was fire-damp in the mines I was working in in North Wales; it is about thirty-five years since I first began to work as a miner. It is about thirty years since I first came across fire-damp; I left the Old Country about fifteen years ago; I have occupied the position of underground manager; five years I was underground manager in Scotland, and for about ten years I was underground manager in North Wales; for about seven years where I was underground manager in North Wales we worked with safety-lamps; there are government inspectors of coal-mines in England and Scotland, as there are here, they used to come round and see the way I worked the mine; I got a second-class certificate while I was in Scotland, that was the under-manager's certificate; that was gained by service in accordance with the Coal Mines Regulation Act; when I came out here first I was at Greta Colliery; I was there about nineteen months as underground manager; Mr. Daniel Robertson, who is now the manager of Helensburgh, was then the manager of Greta; he was also manager in Scotland and Wales, where I was; I came out here through communication with Mr. Robertson, and I went into his employment direct, as soon as I came out; when I was at Greta, the Government inspectors who used to visit there were Mr. Dickson and Mr. Bates; since I have been at Mount Kembla, the inspectors have been Mr. Rowan and Humble, and Mr. Bates and Mr. Atkinson; I have been round the mine with the Government inspectors frequently; when I was underground manager I always went; I have also been round with them when I have been manager; the underground manager always goes with the inspectors; the Government inspectors come frequently, somewhere about once a month; no one of the inspectors has at any time found fault with me as to the way the mine was managed; they might make suggestions, but they made no complaints; the Government inspectors examine the report-books when they come; they put their initials in the books; I look at the entry in the book [Exhibit G] on the 17th July, 1902; Mr. Bates' initials are on that page; the inspectors used to examine a number of pages; the book was always available for the inspectors; I do not know how much of the books they might look through and initial; the inspectors would take three days to do the whole of the mine; they could not do the whole of it in one day; they would not finish off the whole three days one after the other; they would come at intervals; I had no warning from the inspectors when they were coming; they used to come suddenly; I consider myself a good practical man in coal-mining; I know special rule 2 as to the employment of efficient officers; Mr. Leech was my underground manager in the early part of this year; I appointed him; he was at Kembla for about two years, and left there somewhere about last May; he was, as far as I know, a competent man for the position; he held a first-class certificate; Nelson took Leech's place as underground manager; Nelson had been with me at Kembla for about nine or ten years; first of all, he was shiftman, then fireman and deputy; he held the position of deputy for about six years; Nelson was a competent and efficient officer; he was selected by me as underground manager; so far as I know, he carried out his duties properly; I have known John Morrison for over thirteen years; he is a competent man; I have known Dungey since I have been at Kembla, thirteen years; Dungey was a competent man; I look at the two books [marked Exhibit M]; one is written by Dungey, and the other by Evans; they were kept under my instructions; there is no rule or Act of Parliament that compels us to keep those books; I am not compelled to keep my own diary [Exhibit N]; that is a private diary; the tokens that the men get in the morning are not the same as those on the skips; we were very anxious, and so were the inspectors, to find out when the men would be all out of the mine in the afternoon; I suggested that when the man went in in the morning the deputy should give him a token with a number on it, the same as that on his skips, and that suggestion was adopted; the front shiftman would give the token to the back shiftman, and then the back shiftman would bring it out with him and hang it up on the nail when he came out in the evening; the day deputy would go to the board where the tokens were hanging about 5 or half-past, and if a token were missing he would go into that particular number; the underground manager's duties were as follows—first thing in the morning he would see the night and day deputies, examine the report-books and initial them, and keep the duplicate report; most of the day, his duties would take him inside the

mine; I know section 3 of the Coal Mines Regulation Act as to the supervision to be exercised by the manager; I had duties outside the mine to attend to; those duties would take me, at times, away from Mount Kembla—sometimes to Wollongong and sometimes to Sydney; I know special rule 3 as to the under-manager having charge of the mine in the manager's absence; I never went away from the mine without letting the underground manager know; most of the fortnight before the disaster I had been in Wollongong in connection with the arbitration case; I missed one or two days, I think, that the Arbitration Court was sitting, from attending the Court; I did not see the underground manager or deputy every morning before I came in to Wollongong, but I used to telephone to him and ask the state of the workings, and tell him that I was going away; if I was not taken away from the mine by business I would be about the mine and the property in the village; when I was at the mine, I would be inside it; it would take me three or four days to make a complete inspection; I would go into one place one day, and another place the next; I would go into pillars, or any place I thought I ought to go most; I used to examine the deputies' reports occasionally; sometimes I would put my initials on, and perhaps sometimes I would not; I know special rule 2 as to ventilation; I got the ventilation from Mr. Warburton, the surveyor; I produce the ventilation book [Book put in, and marked Exhibit O]; I look at the July inspection (the 15th July); in different sections there was a current varying from 300 to 389 cubic feet of air for each man, boy, and horse; we have been working pillars at Mount Kembla since I have been there, for thirteen years; I see all the parts on the plan marked "goafs"; pillars have been taken out of all those places: in working pillars, we take the bords up to the distance we want to take them, and then we start working back to the pillars; we take the pillar down in slices; we take out the timber to the point where we have split the pillar; we then go down to another place where we have split the pillar, and start taking out a slice; the roof falls in in the places where we have drawn the pillars; the first fall is from 18 inches to 2 feet thick; that breaks up when it falls; after that there is a second fall, which is sometimes very heavy; sometimes you cannot get in on top of the fall to see what it is like, it fills it up so much; that is the system that has been adopted ever since I have been in Kembla; there has never been an accident like this disaster in my experience at Kembla; I have known that system of working pillars elsewhere, that was in North Wales; I have never been asked by any Government Inspector to alter that system; inspections are also made by the check inspectors who are appointed by the miners; they inspect once in six months, perhaps; they do not go very regular; I produce a book kept by the check inspectors [Book put in and marked Exhibit P]; there is a report in it of the 1st May last; Mr. Bates suggested once that I should divert the water from No. 5 left down the travelling road leading to the shaft inbye, and I did so; Mr. Rowau, the inspector, mentioned to me once that there was too much water on No. 1 right roads, he said that they should not be so muddy; I forgot about it, and on his next visit he mentioned it to me again; Dr. Robertson also told me about it; I have not gone round the mine myself with a safety-lamp in recent years; I used in years far back; since the ventilation shaft has been put up we have had very good ventilation, and I never thought it necessary to take the safety-lamp; when I said yesterday to Mr. Lysaght that "gas was found many years ago" I meant that it was about ten years ago that I saw fire-damp, that was before the present ventilation shaft was put in; I examined the Kembla mine on the night of the 31st July; I was up in the face of the workings; I had a safety-lamp, it was not a hydrogen lamp, the brattice was knocked down in some places; I examined for fire-damp in those places where the brattice was down; I did not find any; I was in the roadway of No. 4 right the night of the disaster about half-past 10 or 11 o'clock; I examined the roadway in No. 4 right two days after, I got right up to the fall; I examined for fire-damp; I did not find any; I have examined since the same place; I have not found any; if there had been an explosion from gas, I would expect that gas to go on making after the explosion, and if the brattice were down I would expect it to increase; I would be surprised if 13,500 cubic feet of gas accumulated in Kembla in eight hours; it is about 150 yards from No. 4 right to the fifth right turn; from the same starting point right up to No. 1 main heading face is about 450 yards; it is about 300 or 400 yards from No. 4 right to the telephone cabin; from the junction near the telephone cabin to the cross-cut heading where Adam Frost said he was is 500 or 600 yards; I heard him say that his light was blown out by air up there; I would expect that the blast of air which I think came out of No. 4 right to blow out the lights; I was in the travelling road both inbye and outbye of No. 4 right the night of the 31st July; there was no sign of a man dead or alive in that travelling road anywhere near there; there was no sign of a lamp or a light lying about; in the inspection I made with Nelson on 1st July was in the daytime, the men were all at work then; the proper remedy when you come across black-damp is to put brattice up so that the air is brought in and it is carried away; the danger boards are kept in different parts of the mine; they are put where the deputies think there is any danger of the roof falling to stop men going in; I think there were about ninety-three or ninety-four men killed in this disaster, a large proportion of them were old hands; Morrison lost two of his family in the explosion and his brother-in-law McMurray; the timber in No. 4 right was lying in all directions, it looked as if it had been blown from No. 4 right into the travelling road.

Cross-examined by Mr. Bruce Smith: The system of tokens was established about two or three months ago; I received the letters which you have just read to me from Mr. Atkinson, Chief Inspector of Mines, dated 14th December, 1901, 15th January, 1902, and 25th February, 1902; we have the same kind of safety-lamp in the mine now, since the disaster, as they have at Helensburgh and South Clifton; before that for examining we had the old Davey lamp; there were others in the store which I do not know the name of; they had never been used; they had been there two or three years; I do not think they were bought in consequence of the letter you have just read to me from Mr. Atkinson, the Chief Inspector, in May, 1898, which I believe I received; Dr. Robertson sent these lamps up unknown to me; I had a conversation with Mr. Atkinson about letting the men go into the mine to the face before a report was entered in the book; I took steps to insist on that being discontinued; I got these report-books, which were taken into the mine every night; I heard Morrison say that the men sometimes went in while McMurray was writing the report, on his saying "All right"; we first began to have the night reports as well as the day a few years ago; I had a conversation with Mr. Atkinson about having day and night reports, and at that time I do not think we had them; before 1898 we used to blast on the haulage roads; I believe my attention was called then to the danger of that practice on account of the dust; I never wrote in answer to that that there was no dust in the mine; I do not think that I ever protested to Mr. Atkinson verbally that there was no dust on the roads; I do not think I wrote to him to that effect either; we supplied samples of coal-dust; they were not out of the mine at all; I had painted

painted on the tin "Sample of dust from the Mount Kembla Colliery"; that was true; that was collected from outside the mine at the tip, and was a fair sample of Mount Kembla coal-dust; I got a letter dated 30th April, 1902, with reference to that coal-dust, which you have just read to me; I received an enclosure which showed Mount Kembla dust to be "violent explosion"; there are four classes—"mild explosion," "explosion," "violent explosion," and "very violent" [copy of letter, copy of circular, copy of enclosure *re* coal-dust, put in and marked Exhibit Q]; I heard Morrison say that the first fall in the 35-acre goaf was fairly light, about 2 or 2½ feet; before the fall the opening to the roof would be from 5 to 6 feet; after the first fall there would be perhaps 2 feet cavity in the roof; that would be 2 feet higher than the road leading into the waste, and the roads all round (about that); if any gas accumulated in that waste it would go to the highest point anywhere in that waste; it is four or five years since we began to work out the pillars in that waste; if gas were to accumulate it would go to the cavities in the roof, and if there were a big fall the gas might be forced out of the sides; since the shaft was put in I did not consider that there was any gas at all in the mine; I knew that it was a seam that produced gas; I relied on there being no gas by reason of the superior ventilation and my not finding any gas at any time; I did not suppose that the character of the seam had changed; they would go as far into the goaf as they could go with safety; they could not go very far; there could be no examination of the cavities in the middle of the goaf; there must have been cavities in that 35-acre waste on the day of the disaster; if gas were produced in the mine, and it found its way into the cavities in the 35-acre goaf, it could remain there in spite of the ventilation in the mine, which could not get at it; we always thought that it would fill itself up; in view of the possibility of there being gas in that 35-acre waste and its being forced out, I did not see the danger of using naked lights in the mine, as we had found no gas; I do not read the reports on different explosions which have taken place in England; I do not read much of anything that happens at other mines; I have seen explosions of coal-dust when I was 16 years of age; I saw a flame cause them; we had not that much coal-dust at Kembla that I thought it was dangerous; I never tried to find out how much coal-dust was dangerous, but I found out how much coal-dust there was in the mine; I knew that there had been instances where coal-dust had exploded without any gas at all; I have heard of it; I have heard of flour-dust explosions in a flour-mill; I have heard that it is possible with only 1½ per cent. of gas for an explosion to take place with a lamp-flame; I never expected such a thing would happen at Kembla; 1½ per cent. of gas is less than can be detected with a safety-lamp; I am not sure of the percentage of gas; I have not read the passage which you have just read from "Abel on Accidents in Mines," page 53, beginning with the words "some varieties," and ending "in suspension"; I have not heard of Abel as an authority; I have not read the passage on page 52, beginning with the words, "It has been pointed out," down to the words "2 per cent. of fire-damp," which you have just read; but I do not dissent from it; there is no dust on the roof or sides, but there is a little on the floor; there was very little dust on the roof and sides before the disaster, but there is much more now; we have no apparatus at all for watering the roof, sides, and timbers, and we never have watered them; we have not fired shots in the roads for a considerable time; for nine or ten months, to the best of my memory, we have never watered in the immediate neighbourhood of a shot; we have no apparatus for doing that, and it has never been done; if all the dust were gathered up on the roads, I suppose there would be a few ounces to every foot of the road; I think that is as much as there would be; I do not think there is any except on the floor; there may be a very, very little on the roof and sides; I do not know what quantity of dust would be considered dangerous; our mine is considered to be a damp mine; the sides and the roof are damp; I am not aware that 6 ounces of dust per foot of our roadway would be dangerous; I am not aware that 1 lb. of dust to 160 cubic feet is dangerous; our road is 12 feet wide by 5½ or 6 feet; I have heard Morrison say that No. 4 left was more dusty than any other part of the mine; Morrison inspected up to the fence at the very end of No. 1 right; no one would examine the two faces right up to the end of No. 1 right on the morning of the 31st July; the fence is about 30 or 40 yards from the extreme face; that 30 or 40 yards would not be inspected on the morning of the 31st July by anyone; I do not say that that part of the mine is the highest in the mine; from No. 5 right up to the second cut-through would be a rise of about 1 in 25; the very end of No. 1 right would be 30 or 35 feet higher than the point at No. 5 right; I believe that the highest point in the mine is bord 105; I think Gill's gannon bord is higher than the other two, that is, the face of it; those three places are the highest points in the mine, but I am not sure which is the highest; there was no reason for not inspecting the 30 or 40 yards beyond the fence at the top of No. 1 right, except that there were no men working there; there were no shots fired on the main haulage road No. 1 right on the 31st July; I have not heard of any shots having been fired in that district on that day; I have not been able to connect the disaster with the firing of any shot; so far as I know, there was no other source of ignition in that district on the 31st July, except naked lights; I saw what appeared to me to be a blown out shot to the left of No. 1 right down the second left; I do not think that had anything to do with the disaster; I cannot mention any other cause for the explosion, except gas and coal-dust, or gas or coal-dust; I know that gas would cause such an explosion, or that dust would.

To Mr. Lysaght: The book [Exhibit O] is the only book I have for recording the ventilation in; I do not know whether there is any other book regarding ventilation; I believe there was another book kept before that; when the Coal Mines Regulation Act was passed we got the book [Exhibit O]; the ventilation may have been recorded sometimes on sheets of paper; I do not know where the reports are from 12th October, 1896, to 8th August, 1899; those reports do not appear in the book [Exhibit O]; I see an entry on 1st January, 1901; after that I see that there is a whole sheet left blank; I cannot tell you why it was left blank, I cannot tell you why there is no report for February at all; I looked at the ventilation book every time after the ventilation was taken.

To Mr. Wade: I do not believe that I answered the letters that Mr. Bruce Smith referred to this morning; during the time that I received those letters from Mr. Atkinson, the District Inspectors would visit the mine (Mr. Rowan and Mr. Bates), and I mentioned the matters referred to in the letters to them; I used to tell them that I had got the letters from Mr. Atkinson, and they used to ask me what I proposed to do, and I would tell them, and they would say: "Well, if you do that, I will be only too pleased to mention it to Mr. Atkinson"; I therefore took it for granted that as they said they would do that that I had no need to write; it was not done out of any disrespect; inflammable gas had not been found in Kembla for twelve months previous to 1898; I know general rule 4 respecting the inspection with locked safety-lamps; the seam of the coal where the 35-acre goaf is now used to rise to the east; I know the patch of 2 chains that was finished about a fortnight before the disaster; the roof of that waste

all round that had fallen, and there would be cavities much higher up than the roof of the place where they were working; any gas that had accumulated would go to higher parts of the mine; it would take about a month or six weeks to work the area of 2 chains; the nearest point of the pillar in the area of 2 chains was 20 or 30 yards from the travelling road; the stratum above the coal is sandstone; the upper part of the coal is called spar, that is the upper layer between the coal and the sandstone; it is more coal than sandstone; the first fall consists sometimes of blacks and sometimes of sandstone; blacks are the same as spar; there were faulty places in the seam ten or twelve years ago, before we got the ventilation shaft; we were then working in the pillars to the west of the longwall face; the fence at the top of No. 1 right was put there because there was no one working up there; the bratticing was up to the face of that place; I saw it there myself some weeks before the disaster; the air would go from where Morris was working up into the cut-through, and to the place where Purcell was working; No. 1 heading had been standing for six or eight months, because it was far enough for the cut-throughs from Gill's gannon bord and Stafford's gannon bord to go into it.

To the Coroner: I do not keep any record of the times that various things in the mine take to do; I cannot tell you when the pillars in the 35-acre goaf were taken out, but I could tell you from the measurement book and pay sheets; it depends what the workmen have been accustomed to whether they prefer to use safety-lamps or flare-lamps; I have seen men who were accustomed to using safety-lamps say that they preferred safety-lamps to flare-lamps; I think the men at Kembla would prefer flare-lamps, because they are accustomed to them; it depends on what sort of lights they have as to which gives the better light; I do not think the employers care which kind of lamps the men use; there is a difference in the cost of a safety-lamp and a flare-lamp: a safety-lamp would cost about 10s., and a flare-lamp 1s.; I suppose if safety-lamps were used the expense would fall on the Company; the Company supplied the dozen or eighteen safety-lamps which we had before the disaster; they had not been used; they were sent up by Dr. Robertson, and I was surprised to see them, because we did not require them; I could not say whether fire-damp comes from blacks; I would not like to say that there is no fire-damp in blacks; I have never inquired whether blacks distil gas; I have never been warned by any person in authority over me to look out for blacks or gas after a fall; sometimes as soon as the props are taken out the roof falls; sometimes it takes a week or ten days; the second fall comes about a week after the first; if there was any gas in the goaf it would be more dangerous at the second fall than at the first; I do not know that there was a fall on the day of the disaster; I took steps to examine between the first fall of the roof in the goaf and the second fall whether there was any gas; the steps were that Morrison went and examined; I do not know how far Morrison went into the waste to look; Morrison took those steps as part of his duty, just to see how the place was, not under directions from me; the check inspectors come when they like; they are welcome whenever they come; I have seen them at the same time with a safety-lamp and a flare-lamp going into the mine; I did not think it advisable to go in too far in No. 4 right on the night of the 31st, because I felt a kind of a heat; that was just at the mouth of the 35-acre goaf; I did not notice anything wrong with my lamp just there; the entrance to the mine is not protected in any way to keep people out; when Dr. Robertson spoke to me about the state of the roads (that they were muddy) he told me that Mr. Rowan, the inspector, had spoken to him about them.

Made and sworn at the Court-house, Wollongong, }
this 3rd day of September, 1902, before me,— }

WM. ROGERS.

CHAS. C. RUSSELL, Coroner.

William Ewart Jones, sworn, states: I reside at Cross Roads, Wollongong; I am the Mining Surveyor for the Mount Keira Colliery; on the 31st July last I went to the Mount Kembla Colliery; I arrived there between 4 and 5 in the afternoon; I went into the mine with Mr. Warburton, the surveyor at the Mount Kembla Mine; we took a stretcher; we went into the travelling road to what they call No. 1 right; we found the body of Mr. Nelson in the travelling road, opposite the 2½-acre goaf; we put the body in a stretcher and took it out to the engine-shed.

To Mr. Bruce Smith: The face of the body had a very composed look, and I saw no signs of burning.

Made and sworn, at the Court-house, Wollongong, }
on this 3rd day of September, 1902, before me,— }

W. E. JONES.

CHAS. C. RUSSELL, Coroner.

Inquest adjourned for further evidence till the 4th day of September, 1902, at the Court-house, Wollongong, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 3rd September, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 4th day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

William Rogers, recalled, states (*to the Coroner*): The pillars at the mouth of the 35-acre goaf in No. 4 right were finished on the 20th July last, and on that date the men were withdrawn; I cannot say on what date the first fall took place; I did not hear of any rumbling of the earth previous to the fall, nor did I hear it; Dr. Robertson is my viewer; he is immediately over me; there is no fluess apparatus at the mine; there was no difficulty to my knowledge on the day of the disaster of rescuers getting lamps; I heard of no delay being caused to anyone who wished to be a rescuer; I believe there was fluess apparatus brought down by Mr. Atkinson, the Chief Inspector of Mines; I believe it was brought; I do not know whether any person attempted to use it.

To Mr. Bruce Smith: I can act at all times for the safety of the mine without consulting Dr. Robertson; I always consult Dr. Robertson before I purchase anything required at the mine; he makes suggestions to me as a viewer.

To Mr. Wade: I have always found Dr. Robertson perfectly willing to help me in anything for the safety of the mine; on the day of the disaster a number of safety-lamps arrived at the mine from South Bulli; other people brought lamps there too, and there were a number of lamps there that evening; I saw that men of experience only were allowed into the mine—men we thought were capable men; at the time of the disaster I was in Wollongong, and it was at a part of the day when all the men would be in the mine.

To Mr. Lysaght: To the best of my memory the men withdrawn from the pillars on the 20th July were Henry Philby, Heffernan, Thomas Muir, and Michael Quinn; I believe Heffernan and Philby were the last two who were there; all those men are alive; I cannot say of my own knowledge whether Dr. Robertson has personally inspected Mount Kembla Mine for gas, or not.

To the Coroner: The viewer is my superior officer.

To Mr. Lysaght: I do not know who is the agent for the Mount Kembla Colliery; I believe there is an agent; I have never heard who the agent is; I have never inquired; if I wanted to know whether I could incur certain expenditure I would communicate first of all with Dr. Robertson, and then to the Directors; I do not know that any section of the Coal Mines Regulation Act defines what an agent is; Dr. Robertson is not my only superior officer at the mine; there are the Directors; Dr. Robertson has attended at the mine on an average about once a month for the last five years; I say about that; sometimes he would go into the mine, not always; he would go into the mine perhaps once every six months; before the disaster I cannot say when it was that Dr. Robertson was last in the mine; I think he was in No. 1 section once this year; I cannot tell you when that was; Dr. Robertson has never given me directions to water the roads because they were dusty; Dr. Robertson has never pointed out to me any danger from the dusty conditions of the mine; he has never referred to it in any way; I never told Dr. Robertson of the result of the experiments with the sample of coal-dust; I do not remember having any conversation with Dr. Robertson after I knew the result.

To a Juror: Dr. Robertson is, I believe, Managing Director of the Company.

To Mr. Bruce Smith: I remember Mr. Lysaght pointing out certain omissions to me yesterday in the ventilation book [Exhibit O]; those omissions are supplied in the book I now produce [Ventilation Book put in and marked Exhibit R]; the reason that the omissions appear in the first book is that there was no room in it for certain particulars that were required, and I gave instructions that they were to be supplied on certain forms, and then the old book [Exhibit O] to be returned to; the two books together make a complete record.

To Mr. Lysaght: I saw Mr. Warburton this morning; he did not furnish that explanation to me; I thought of it myself.

To the Coroner: Sometimes there are boys employed in a certain part of the mine who are at other times employed in other parts of the mine.

Made and sworn, at the Court-house, Wollongong, }
on this 4th day of September, 1902, before me,— }

WM. ROGERS.

CHAS. C. RUSSELL, Coroner.

Jonathan May, sworn, states. I reside at Wollongong; I am a mining engineer; at present my position is lecturer on mining and geology under the Education Department at Wollongong; on the 31st July last I went to the Mount Kembla Colliery; I got there about a quarter to four in the afternoon; I went into the mine directly I got there (within five minutes); I went into the shaft section by the travelling road; Mr. Ritchie and several miners were with me; we went to the intersection of the No. 6 right rope road, where there was a kerosene lamp burning; I have marked the place X 1 on the plan; when passing the No. 1 right we found the air rather bad, but at the place where I have marked the air was passable—that is, passable after an explosion; the roof of the travelling road towards the shaft was broken down in some places, and the timber was down (the props and cross trees); I saw nothing else particular—nothing which I would call extraordinary, just the usual conditions; where I have marked there were some fifteen men collected; senior-sergeant Banks and several men were there, and they were putting the bodies in trucks to have them sent out of the mine; we passed that mark (X 1) a distance of thirty or forty yards down No. 6 right, and there we met Adam Frost and Mat Frost and the deputy, Evans; while Mr. Ritchie was speaking to some of the miners I spoke to Adam Frost, junior, and the deputy to just give me an outline of the position; they told me something; having found that the after-damp was too strong down the No. 6 right rope road, and realising that by going down that road we would very soon be facing the return air, I at once saw the force of their suggestion that we should go out of the mine over the mountain and in at the daylight tunnel, because the ventilation was very much better that way, and we could go in with the air; we went out of the mine and met Mr. MacCabe coming in; I told Mr. MacCabe that I had left Evans at the point marked on the plan, and had suggested to Evans not to allow any men to go down No. 6 right rope road, and to supervise getting the bodies out; we had some bodies with us in skips then and brought them out in the skips till we came to a fall, and then we went into the travelling road, carrying the bodies, and right out of the mine; the following day I went to the mine, but I did not go in; I offered my services to Dr. Robertson, but I did not go in; on the 9th of August I made an inspection of the mine with Mr. Ritchie, Mr. Bigger, Mr. Maguire, Mr. Morgan; we went in to inspect No. 1 right section; we went in by the travelling road and followed that road to where I think there is a jig-wheel; I have drawn the course we took on the plan; from there we went to the point which I have marked on the plan X 2; we had a look at that small goaf there; we did not find any fire-damp at that point; I had no plan with me, and I realised it was no use inspecting without one; after that we went down to the 15-acre goaf; we just examined the edge of that goaf; we found no gas; I would not call it a thorough examination; from that goaf we returned to the point marked X 2 on the plan; a man and his son had just started a pillar; I found a skip upset there; it was just tipped over to one side, and was merely an evidence of force; from the point marked X 2 we went to the back heading at the top of No. 1 main level rope road; I think there was another heading up there besides that shown on the plan; I may be wrong; we found fire-damp there; it was a very minute trace—about one quarter per cent.; I had a hydrogen lamp; from that point I think we had terminated our inspection, if it can be called an inspection; coming out by we examined one of the goafs, I think the

35-acre

35-acre one, on the side next to No. 1 travelling road; it was one of the three goafs to the left of No. 1 right coming out; we found some gas there; I do not know what sort of gas it was; that was in the goaf; we went right up to the edge; our lights were very nearly being extinguished by the gas, and we withdrew; we walked straight along the travelling road to the surface; I regarded any examination without a plan as very inefficient; the condition of the travelling road was not so bad as that of the main haulage road; the main haulage road was very much broken up with falls; we went over the falls going in; I arrived at the conclusion from my examination of the mine that the disaster had been caused by an explosion of fire-damp; I thought from my examination that the conditions were such as to point to an explosion; I would not attempt to fix any particular spot where it was likely to have originated; all the conditions were at three or four places; for instance, the four goafs, more particularly the 35 and 15-acre goafs; another place where the conditions were was at the spot marked on the plan X 3; the conditions at that point were that bords were of extreme length without a cut-through; I should say they were about a hundred yards in length; conditions like that would be liable to lead to an explosion, for the following reasons: that in the event of you cutting a blower at the face, a very small quantity of additional gas would lead to an explosion, because there could be 2 per cent. of fire-damp there, and that could not be detected by the method of examination; 1 per cent. of gas would be dangerous under those conditions, with a blown-out shot, considering that the bords were driven that distance without a cut-through; the ventilation of the mine would be very liable to fluctuations; its liability to fluctuation would be from the following reason: that having a furnace in the mountain at or about midday, from 12 to 2 o'clock, the sun would be shining on the mouth of the tunnel (the adit) and on very warm days the quantity of air circulating would perhaps vary by thousands of feet; this particular condition is a very serious one; the conditions were serious at the 35-acre and 15-acre goafs.

Cross-examined by Mr. Bruce Smith: I am an Englishman and have been out here for about fifteen years, principally in this colony; I have had about forty years of practical experience in mines; I have worked in a mine; I have worked in a mine in Durham, England; I have worked in every official capacity in the mine; I have worked in a mine as a miner, and got coal; I worked as a miner for about three years; I was 17 years of age when I began; after being a miner three years I became a deputy or foreman; that was at the South Durham Eldon Colliery; I was a deputy for about four years; then I became overman and surveyor and under-manager; I was overman simply for about four years; after the four years I did the surveys of the colliery and kept the plans of the colliery; I did that for about six years, and then came out here; I began to work in a mine at the age of 10 years; from 17 to 20 I was getting coal, besides that I was apprenticed as a mining engineer; before I came out here I occupied the position of under-manager at the Woodland Colliery, Durham; when I came out here I was engaged as surveyor at the Brunner Mine, New Zealand; I was there for six or seven months; after that I came to the neighbourhood of Broken Hill; I was sinking a shaft there as a miner; I had twelve months there at actual practical mining; I was working at the Euriewrie Tin-mines; after that I took charge of the Mittagong Coal-mine, as manager; I occupied that position for about three years, when the mine was abandoned; that brings me up to about ten years ago; no one took the position at the Mittagong Mine after I left—we abandoned it; I then went over to manage a mine in Victoria for the same company; I remained there for about seven months, and then I opened up a mine at Dapto; then I became lecturer, and have been lecturer ever since; with all that practical and theoretical experience that is the best explanation of the disaster I can give after two incomplete inspections; the first and most important thing to find out when there is a disaster is how the air travelled before the disaster; that is the first thing to ascertain where the disaster took place; the direction of the air is frequently shown on the map by arrows; I look at the $\frac{3}{4}$ -acre goaf on the plan; from the south-east corner of that goaf the air goes south about 100 yards, west about 20 yards, north about 120 yards on to the edge of the goaf; from the edge of that goaf the air is taken to the face, and to the face of winning headings too, and you do not usually take air off the edge of a goaf on to naked lights; it is not good mining practice; that is just an illustration of what I mean; that is one of the dangerous conditions; that does not enable me to say where the disaster took place; that does not enable one to determine what was the cause of the disaster; it does not enable one to determine either what caused the disaster or where it took place; driving the bords such a great distance with brattice all bears on ventilation; after looking at the ventilation I would go and examine the condition of the goafs; I would want to know where every door in the pit was; I would want to know if there were any single doors in the current of air; I would want to know the usual condition of all the canvas doors before the accident; in addition I would require to know the conditions of the stoppings as they existed before the accident; I would want to know whether the stoppings were built of small coal; then I would want the quantity of air in each split; I would require the quantity of air not entering, but the quantity of air that was leaving the last man in that split; all that is to find out the condition of the air before the explosion; I would want to know all about the condition of doors, single doors, ventilation, brattice, stoppings, brattice stoppings, and brick stoppings, and air-crossings; I understand the plan of a mine; if it is correctly recorded it will show all the things I have mentioned; I should ascertain what were the instructions to the deputy, and at what time he examined each place before the disaster; if the deputy did not examine within an hour before the men coming to work I should consider the examination useless; assuming the plan to be correct all the things I have mentioned are shown on it except the instructions to the deputy and the time he examined the places; I would also want to know whether there had been any sudden rise in the temperature outside the mine; I have only so far given what I would require as regards ventilation; if I were appointed a Royal Commission I would require to know every man's name who was in the mine where he was working, where he was found, and whether he was burnt or not, which of the men got out of the mine, and by what way they got out of the mine; I would call all the officials of the mine; I should require every workman who escaped, between No. 1 heading and No. 6 right; I should require the assistance of a practical miner and a manager to help me with the Commission; unless all these conditions were complied with I would not be able to arrive at a conclusion which would be of any value; I have formed a conclusion as to the cause of this disaster; I have not formed a conclusion as to where it took place; in forming my conclusion I have not obtained the whole of the data I have mentioned; I formed my conclusion after I had been in the mine; I saw a plan at the mine; apart from the map I do not know how the ventilation goes in the mine; the cause, in my opinion, of the disaster was an explosion of fire-damp; I found fire-damp at the top of No. 1 right at the back heading; that is the only place I found fire-damp; I found it once in two visits; I have formed the conclusion that the disaster occurred between No. 1 right

right and No. 6 shaft heading; I think the disaster did not occur on any part of the map where I have marked red crosses; a blown-out shot with 1 per cent. of gas could produce an explosion; if I heard that there had been no blown-out shot on the day of the disaster I would say that it was not caused by a blown-out shot; the fire-damp which I think caused the disaster could be ignited with a naked light; a fall of very hard stone has been suspected of lighting gas before to-day; it would not ignite dust alone; it would require 5 to 13 per cent. of gas to produce the explosion; I will give you half a dozen authorities to show that a fall of very hard stone has been suspected of igniting gas, without the intervention of any light; I do not at present commit myself to that view; Buddle is my authority; I will bring you the book "Buddle" to-morrow; I know Hughes on coal-mining; the difference between fire-damp and black-damp is that fire-damp extinguishes your light and black-damp puts it out; with fire-damp you lose your light, with black-damp it goes out; in one case you have not a light; I can tell the direction in which the skip I have mentioned was blown; the skip was blown in the direction of the arrow marked on the plan; I observed the direction in which things had been blown in No. 1 right; I would probably take a fortnight to mention all the things I saw.

Cross-examined by Mr. Wade: I have seen a plan like that now in the Court—a copy of it; I saw it in Mr. Lysaght's office; that was a week ago; twice, I think—no, once; within the last ten days I have not been at Mr. Lysaght's office more than twice; my errand there was to inquire when I was to be called, and the plan was lying on the table; I did not discuss the question with Mr. Lysaght as to the cause of the disaster; I did not believe I was going to be called; I did not tell Mr. Lysaght the conclusions I had come to about the matter, never in my life; I never told Mr. Ritchie the conclusions I had arrived at over the matter, nor Silcox, or Maguire, or Bigger; I never told anybody of the party who went into the mine with me on the 9th August; I say that solemnly; I did not discuss the question with them in any shape or form, that is the solemn truth; none of those men discussed with me the cause of this disaster at any time; Mr. Ritchie asked me to go into the mine; I did not know I was to go in and try to ascertain the cause of this disaster; all I knew was that I was invited to go into the mine; I did not know, on August the 9th, when I arrived at the mine that I was wanted to go into the mine and try and discover the cause of the disaster; I do not know now why Ritchie asked me to go to the mine; I was very glad to go into the mine to see the results of an explosion and the effects; I meant myself to try and ascertain the cause; I am a man of very large experience; I do not admit that this case baffled me; I cannot go much nearer to the locality of the disaster than that it was in the mine; there are half a dozen places where it may have started; there are twenty places where it may have taken place in the area of the mine, a thousand acres; I examined for fire-damp on the 9th; I examined in places where I thought it likely that fire-damp might accumulate; I had a hydrogen flame; a hydrogen lamp will find a quarter per cent. of gas, that is ten times better than the ordinary lamp used for inspections; I did not see fire-damp found anywhere except in the one place; the brattice was not down up there; I took the lamp in with me to show me in and out; that was an ordinary safety-lamp; I did not discuss the question of the disaster with the party on the day I was in; we talked not about the disaster; the men did not discuss the cause of the disaster with me at all; I would not talk about it with them; we were all together; I do not think we went and examined the various things together; I do not remember at present what the other men were there for; I do not remember whether they were there to discover the cause or not; I attribute my ineffective examination to the want of a plan and the want of time; the plan I saw was the colliery plan; I was not cut short in my examination of the plan; I had a long examination of the plan on the night of the 31st; I had a long inspection of No. 1 section on the plan; I could not see the direction of the ventilation in two minutes; I had not time to look at the doors; when I got to the mine on the 9th I did not know all about the doors; I heard that there was a travelling road and a rope road; I went into the mine on the 9th about half-past 10 and came out about half-past 4; I think it was 11 o'clock when we reached the mine when I come to think of it; it struck me that there had been force coming down No. 1 main rope road and going up No. 1 main rope road; I could not tell you where the force diverted; I found evidence of force in different directions in more places than one; I took no notes of what I saw; I can give you no idea in how many places I saw evidence of force in different directions; that is one of the very first tests that we apply; I did not take any note of it, although I knew that was one of the most crucial tests to apply after an explosion; I do not know the Coal Mines Act very well; I know its principal provisions; it is against the spirit of the Coal Mines Regulation Act to have a bord over 100 yards in length without a cut-through; I say that it is against the spirit of the Act to drive a bord for more than 35 yards, even with bratticeing-up, without a cut-through; it was against the spirit of the old Act, but not against the words; it is a dangerous thing to have brattice for 70 or 80 yards with only an apology of a door at the end; it was against the spirit of the Act, although the words are expressly in favour of it; the long bords I speak of had been worked before the cut-through had been put in; those three bords that I have mentioned over 100 yards long had been idle for about three months, I should think; I would expect to find naked lights in a bord that had not been worked for over three months; I could not say that I would expect to find any men there in those three bords on the 31st July; I did not see any signs of explosion in those three bords; I mentioned those three bords because the conditions under which those three bords were driven are now in existence at the mine; I have been at Mount Kembla Mine twice—on the 31st July and 9th August; the sun shining on the drift-mouth would tend to equalise the temperature at that point with the temperature at the upcast shaft; there are numbers of mines which are worked by means of a tunnel; if there were a long gallery put up in front of the tunnel that would not affect the dangerous conditions I have mentioned; there are mechanical means of obviating the danger while the shaft remains there; if you abolish the furnace and put on a fan, then you will remove the danger; I cannot say positively whether the brattice-up at the heading at the top of No. 1 was up or deranged on the 9th, when we were there; I think one of the men mentioned something about the brattice; I know that whether the brattice is up or down is most important after an explosion; I would be sure to look at it, and if it had been deranged I would have noticed it; the brattice was up, but it might have been slightly deranged at the bottom at one corner; you might say that brattice was continuous.

Made and sworn, at the Court-house, Wollongong, }
 this 4th day of September, 1902, before me,— }

CHAS. C. RUSSELL, Coroner.

JON. MAY.

The

The inquest is adjourned, for further evidence, till the 5th day of September, 1902, at the Court-house, Wollongong, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 4th September, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 5th day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Thomas Fowler Wade, recalled, states (*to Mr. Bruce Smith*): I have seen Purcell's body since my last examination; from what I have seen of him I wish now to say that the injuries which he received were due to burning by flame, and not by steam; I was not sure the other day, but I am now.

To Mr. Wade: I am speaking of all Purcell's injuries; he had extensive blistering, and those blisters were due to burns; his hair was very much burnt; it is possible to take all the hair off a man's head with a flame; I should think that it was a severe flame that caused the injuries to his body; a flame that would take all the hair off would probably burn the scalp; as a matter of fact his scalp was burnt; his hair was not burnt right off.

To the Coroner: I examined the bodies of the Meurants and Nelson sufficiently to say that poisoning by carbon monoxide was the cause of death.

Made and sworn, at the Court-house, Wollongong, }
on the 5th day of September, 1902, before me,— }

T F. WADE.

CHAS. C. RUSSELL, Coroner.

William Rogers, recalled, states (*to the Coroner*): I say now that the pillars were taken out of the 35-acre goaf and the men withdrawn, and the place fenced on the 18th July last.

Made and sworn, at the Court-house, Wollongong, }
on the 5th day of September, 1902, before me,— }

WM. ROGERS.

CHAS. C. RUSSELL, Coroner.

Silvester Henry Warburton, sworn, states: I reside at Mount Kembla; I am a mining surveyor.

To the Coroner: It is one of my duties as mining surveyor to take the ventilation of the mine; I take the ventilation every month regularly somewhere about the same day; I take that ventilation scientifically and accurately, and in compliance with the Act; I record the result of my examination in a book which is kept at the mine for that purpose; the Act says that 100 cubic feet of air must be supplied for each man, boy, and horse; the books [Exhibits O and R] are the books in which I make the records; the figures on the back of the page in the book [Exhibit O] are the details of the amount of air; the system of recording is different in the two books [Exhibits O and R]; in some cases in the book [Exhibit O] I put the men and boys together, but the Inspector desired that the boys should be separated from the men and I did as he wished; that explains the difference in the entries; the first report made by me in the book [Exhibit O] is the 8th August, 1899; there may be blank pages in the book [Exhibit O] but the reason was that when the book was made the ruling did not suit the method we had of recording the ventilation, and I fixed the book up so that it would suit, and we can trace the ventilation month by month.

To the Foreman: I did not leave the book [Exhibit O] from the time I commenced it and make entries in the book [Exhibit R]; the last date in the book [Exhibit R] is 7th July, 1899, and the first entry in the book [Exhibit O] is 8th August, 1899.

To a Juror: A very hot day outside would make a little difference, but not much; the temperature in the airway leading to the furnace does not vary very much; it is always about 65; I always found the air in excess of the 100 cubic feet for each man, boy, and horse; I have tried the ventilation in between the monthly examinations, and never found it vary very much, and there was always the excess.

To Mr. Wade: I have been round with the Government Inspector; I have seen Mr. Rowan measure the air; I have compared his readings with mine; he could always get more air than I could—perhaps because he had a more up-to-date anemometer; I have seen Mr. Humble, I think, put his initials in the book [Exhibit R]; Mr. Rowan's initials are also in that book; the measurements in the book had been taken before the inspectors looked at the book; the inspectors made measurements on their own account; as the mouth of the tunnel is now, there is just the bare wall; before the disaster, we had a roof built over the mouth of the tunnel; the effect of that was to shut off the sun from the mouth of the tunnel; the roof extended for a distance of about 30 yards; I know where the screens are now; I know where the tipper is; the roof is also over the tip; the total length of the roof is about 40 yards.

To the Foreman: The inspectors initialled the book merely to show they had seen it.

To a Juror: The shed is meant as a protection to the engine as well as to cool the air about the mouth of the tunnel; I have never gone into the question as to whether the heat from the boiler would or would not produce as much heat about the tunnel mouth as the roof was intended to prevent; the boilers are outside the line of the tunnel.

To a Juror: I have only been once in with Mr. Bates; I never saw him take the air; I cannot say whether he has taken the air or not.

Made and sworn, at the Court-house, Wollongong, }
this 5th day of September, 1902, before me,— }

S. H. WARBURTON.

CHAS. C. RUSSELL, Coroner.

To Mr. Wade:—*Jonathan May*, recalled, states: Since August the 9th I have been to Mr. Lysaght's office either once or twice; those are the only occasions on which I have spoken to him; he has not been to my house; most certainly I had no discussion with Mr. Lysaght between the 31st July and the 9th August; between those dates I spoke to him, but not about the disaster; he made some reference

reference about the disaster to me between those dates; I cannot tell you what he said; the only idea that I had that I would be called was that I saw in the papers that you said you would call me; that was the only idea I had; I was in Court when the inquest started; that was at least a week before the report I refer to was published; I heard then, when I was in Court, the Coroner say that I would be called as a witness; I then asked Senior-sergeant Banks on what side I would be called; I said, "Which side is going to call me?"; the senior-sergeant replied that there were no sides in the matter; so far as I knew, Mr. Lysaght had nothing to do with it; I went to the Coroner's office, and then went direct to Mr. Lysaght's office, to see if I was to be called as a witness; to my recollection, I have not had a conversation with Mr. Ritchie as to giving evidence at this inquest; I will not say I have not; I never had a conversation with Mr. Ritchie about being required as a witness on the Royal Commission; I will not swear that I had no conversation with Mr. Ritchie about a Royal Commission; I do not remember; I had seen in the papers a reference to the appointment of a lawyer as a Royal Commission, and this I always regarded as absurd; it was just a passing reference; I cannot remember whether I made any other remark to Ritchie; I did not write a letter to the papers about the Royal Commission; I said to a reporter that they might as well appoint a layman to compile statutes as to appoint a lawyer as a Royal Commission; that was on the day following the explosion; that is the only conversation I had with reference to the Royal Commission; I never knew from Mr. Ritchie that I would be required as a witness on this matter; there was not a word about my being on the commission myself, not a word; Mr. Ritchie never told me verbally, or in writing that I would be required as a witness; I have no idea what it was that moved Ritchie to send me a telegram to attend; I knew it was the directors and the company that owned the mine; it did not strike me as being strange for Mr. Ritchie to ask me to go to someone else's mine; it never occurred to me to ask Mr. Ritchie why it was that he had asked me to go to Mount Kembla mine; I am a scientific man and a practical man; as a scientific man I collect information as to explosions in mines; I take care that the information I collect is as correct as possible; it is very important to discover the exact condition of everything one sees in the mine; I would trust very largely to memory at a preliminary visit; I did not make any note on any paper, or in a book, or on my shirt cuff that day; I made certain notes when I got home; I think those notes were destroyed or lost; I have the information now in my head; I said yesterday that I could not speak positively as to any derangement of the brattice; I made the notes I have mentioned on the following Sunday about church time; I could not find the notes and they must have been destroyed, must have got into the waste paper basket; all I can say is that I lost them; I do not mean to say that I put down in the notes I have mentioned enough that would take me a fortnight to reproduce; I made the notes I have mentioned on a rough sketch of the Mount Kembla mine printed in one of the newspapers; I did not mean to keep those notes, or to reproduce them at any time; I get reports of explosions and make notes in the margins; sometimes I keep newspaper reports which are fairly good; I did not think the plan on which I made the notes in this instance was valuable; I mentioned Buddell on mining yesterday; I had not looked up the matter before yesterday; I have looked up Dunn and Abel since the disaster; I looked them up this morning; I did not see my way clear to explain the cause or the spot of the disaster after my visit to the mine on the 9th of August, not the exact cause; there were so many contributory causes; I did not consult any text books, but left my mind in the same state.

To Mr. Bruce Smith: When I said "Buddell" yesterday I should have said "Dunn"; I have Dunn here this morning; I know the literature on explosions fairly well; that is not the only authority I can give you that a fall of stone has been suspected of producing an explosion of gas; there is "Abel" also; there are other authorities; I cannot at present tell you the name of any other authority; I looked up Abel this morning; I have not looked at Buddell since yesterday; I have some detached writings of his, I believe; I looked up two books which I did not mention yesterday and omitted to look up Buddell, which I did mention; I had not time to look up Buddell; "Dunn" was published in 1852; the part of "Dunn" which you have just read to me from page 154 is one of the authorities I have been referring to in support of my statement that a fall of stone has been suspected of producing explosions of gas; the other authority I have is from "Abel," page 142, which you have just read, which is part of a discussion, and is an opinion by Sir Warrington Smythe; I know "Hughes' Text Book" which you mentioned to me yesterday; I know Bulmar; I know Lupton; I know Galloway; I have these books here in Wollongong; I know the "Federated Mining Transactions" but have no copies of them; I know the Home Office Reports; I get some of the important ones; I know of two or three collieries in which it has been alleged that there have been explosions of coal-dust; Seaham, Thornley, West Stanley, Trindon Grange, Albion are some of those I refer to; they are from the reports of the home office; there are probably twenty more, but that is all I can recollect at present; I do not accept the possibility of explosions of coal-dust except very rarely; I did write a letter to the papers about the dismissal of a deputy; I signed that letter with my own name "Jno. May"; that letter was published in the *Newcastle Herald* and other papers about four days before the disaster at Kembla; I do not know the date; I have published no other letters on that subject to my recollection; I published another letter over the title "Common Sense"; that letter is on a mining subject; I do not remember writing any other letters to the papers under any other names, at present.

To a Juror: From the face of No. 1 heading towards the tunnel mouth I observed the position of the timbers; they were blown in different directions; that is sometimes the indication of force pointed in over and sometimes outby; I cannot indicate the force between No. 5 rope road and No. 3 left, because I had not a plan; as we travelled inbye, some of the stoppings had been blown from the 35-acre goaf; I did not observe any stoppings blown into No. 1 from the 15-acre goaf; I cannot say they were intact; I did not examine them; from the telephone cabin to the junction of the No. 1 right with the main tunnel I noticed the same conditions as to the timber, some blown inbye and some outbye, and they were some large falls; the larger falls were outbye of No. 4 right; I did not observe the stoppings in the 9-acre goaf; I only observed the usual condition of an explosion about the 35-acre goaf.

To the Coroner: Fire-damp is a mixture of methane and air; methane is a mixture of carbon and hydrogen; I call fire-damp CH₄ and air; if you have one part of fire-damp to three and a half of air you will have a feebly explosive compound; one part of CH₄ to nine and a half of air is the most violent explosive; if there is more than that it becomes more feeble; the point at which it ceases to become explosive and extinguishes naked lights is one part of CH₄ to sixteen or seventeen of air; fire-damp comes from the decomposition of vegetable matter; it is possible that fire-damp may accumulate
in

in little pockets behind the face; it is possible that with a pick or a bore you may come on such a pocket; that is very unusual; it is quite possible that a mine which hitherto has had a good name for being free from gas may be ruined by so coming on a chance pocket of gas like that; the best precaution to prevent that is ventilation, to have the ventilation up to date, and to see that the ventilating current shall not fluctuate; the stratum over the seam in the goafs may be of sandstone; I believe it is sandstone at Kembla, mixed with shale; spar is quartz principally, a large percentage of quartz; fire-damp does not come off spar; there is no coal or coal-dust in the goafs; if the roof of the goaf were to fall in there would be no dust coming out of the goaf in any quantity; all dust (carbonaceous dust) is more or less inflammable; the dust coming out of a goaf with a stone or spar roof would not be inflammable; having regard to the safety of the men, the preferable way is to keep the air circulating; I had not an opportunity of forming an opinion whether the Kembla mine is a wet or a dry mine; I would not venture to say that coal-dust is inflammable with a naked light without any gas; one per cent. of gas in a dry and dusty mine is enough to make the conditions dangerous, but not with a naked light; a disturbed atmosphere would increase the liability to explosion with a mixture of fire-damp and coal-dust, but not with a naked light; a disturbed condition of the atmosphere with coal-dust and any percentage of fire-damp will not ignite with a naked lamp; a naked light would be extinguished by a rush of air and coal-dust; with a still atmosphere $9\frac{1}{2}$ per cent. of fire-damp and a shot tamped under the most dangerous conditions—that would produce an explosion; the minimum amount of fire-damp under those conditions which would produce an explosion is one per cent. with coal-dust; a blown-out shot pure and simple is where a shot simply blows the stemming or tamping out and comes out like a shot from a gun-barrel; there is not the same danger in firing a shot which does its duty, although there is often danger; supposing that the disaster occurred at some point at No. 4 right, it could do a lot of the damage that was done in the mine without having been increased in any way in any other part of the mine; if I saw a burnt body near a certain point which I would take as the point of origin, and a number of bodies not far away not burnt, and then another body burnt at another point at a distance from the point of origin, I would suspect fire-damp at other portions of the mine than that at which the explosion started; the temperature at which fire-damp explodes is about 1200, perhaps; a mixture of CH 4 and air in the proportion of $9\frac{1}{2}$ to 1 would explode at that temperature; if the combustion is perfect you would have CO 2, nitrogen and steam, then the steam would condense, leaving CO 2 and nitrogen; if the combustion is imperfect you have carbon monoxide; .05 is the minimum known quantity of carbon monoxide to be painful in half-an-hour; .1 will kill in half-an-hour; it is a very strong poison; black-damp is a mixture of CO 2 and nitrogen—86 per cent. of nitrogen and 14 per cent. of CO 2; about 15 per cent. of that black-damp will extinguish lights; coal in the open air exudes certain gases; those gases are COCO 2, CH 4; of course it exudes those gases in very small quantities; the conditions in a mine may be good to-day and very dangerous to-morrow; conditions might arise which a man would not anticipate; in all mines one anticipates fire-damp, more or less; in all mines you anticipate that miners may enter an old goaf; the furnace is very defective for keeping up a continuous current of air, and especially under conditions like those at Kembla; I say Kembla because the quantity of air circulating in the mine depends upon the difference of temperature between the upcast shaft and the atmospheric temperature outside; any sudden increase of atmospheric temperature would reduce the quantity of air circulating.

To Mr. Wade: I will qualify the statement "that fire-damp should be anticipated in every mine"; I have known of mines in England which have been worked for hundreds of years in which fire-damp has never been found.

To the Coroner: What I said to Mr. Lysaght when he made the reference to the disaster was, "not to mention the disaster because Mr. Wade had said he intended to place me in the witness box and he would be sure to ask me what had taken place"; carbon monoxide follows on an explosion of fire-damp; carbon monoxide also follows on an explosion of coal-dust; so that in this disaster it does not matter whether the carbon monoxide, of which the doctors have spoken, was produced by an explosion of fire-damp or an explosion of coal-dust.

Made and sworn, at the Court-house, Wollongong, }
this 5th day of September, 1902, before me,— }

JON. MAX.

CHAS. C. RUSSELL, Coroner.

William Moran, sworn, states: I am a miner; I reside at Kembla Heights; I have been employed at the Kembla mine with the exception of eight or nine months for about sixteen years, up to the time of the disaster; I was there when Mr. Ronaldson was manager; Mr. Rogers, who is now manager, was then the under-manager; when Mr. Ronaldson was manager there, and while I was working in the cinder heading with James Purcell as a mate, I can fix no date whatever, I went in to work as usual on the front shift; I had a flare-light on my cap; when I walked in just close on the face the flare went away, it took on fire, it must have been gas; there was a flame rolled out and rolled round and round between 15 and 20 yards out of the heading and then back again; I dropped down to save myself from getting burnt; the flame went out of itself; after that I left my place and went and told the fireman, David Evans; I met David Evans on the road, close to the shaft; I told Evans what had happened and went back with Evans to the place I had been working at; Evans examined the place; when I told him, he said that he had examined the place that morning and it was all right; when I went back with him he examined the place and told me to go home and the place would be bratticed up; I returned to work again the following morning; I went to the same place; I found the place was bratticed up then; I continued to work on in that place for a certain time; I have continued to work on in the mine since then; the cinder heading referred to by me was close to where the shaft flat had been (to the left of it); that flat is not there now; it is altogether different to what it was then; there was no endless rope then; since then I have not seen anything like what I saw on that occasion.

Cross-examined by Mr. Wade: I have no idea as to the date whatever; it is a long while ago; Mr. Ronaldson must have been gone close on seven or eight years; I could not say; I have heard of the new Coal Mines Act; in the days I am speaking of the brattice was not kept up close. I know that has to be done now; at the time I have mentioned I was working at two headings in the cinder coal; I cannot tell you how far the place was bratticed up before it was shifted further up. The coal was all faults through

To

To the Coroner: It was after the erection of the present ventilating shaft.

To the Foreman: I have worked in No. 1 section, but not for two or three years; it is a long while ago, but I cannot say when it was; when I was working in No. 1 section I never saw any fire-damp to speak of; you would perhaps meet a blower at times; I have not worked in the fourth right that I am aware of.

To Mr. Wade: At times the part of No. 1 right where I saw blowers there would be some water; the water would come out of the face; I go by the noise I heard when I say it was blowers; I have said to the deputy that there was a bit of gas; that has not occurred within the last twelve months; it is over two years ago; I never had any lighting-up like I had on the occasion I have mentioned. I would not be sure of the name of the deputy I told about the blowers I had heard in No. 1; I am certain I told him; I think it was William Nelson.

To Mr. Bruce Smith: It did not go off in a flame in No. 1 section; it just burnt like a candle; in the big one I got my hair burnt a bit; after I was singled on that occasion safety-lamps were not used; I went on the same way.

To the Foreman: I have not heard of anyone having been burnt in the last two years at Mount Kembla; I am quite sure of that.

Made and sworn, at the Court-house, Wollongong, }
this 5th day of September, 1902, before me,— }

WILLIAM MORAN.

CHAS. C. RUSSELL, Coroner.

The inquest is adjourned till the 8th day of September, 1902, at a quarter to 9 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 5th September, 1902.

Inquest resumed, in pursuance of adjournment, on the 8th day of September, 1902, at a quarter to 9 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner.

Inquest adjourned, for further evidence, till the 9th day of September, 1902, at 11:30 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 8th September, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 9th day of September, 1902, at 11:30 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

To Mr. Wade:—*Jonathan May*, recalled, states: I produce the telegram [telegram put in and marked Exhibit S], which I received from Mr. Ritchie; I made no inquiries on receiving that wire.

Sworn and made, at the Court-house, Wollongong, this }
9th day of September, 1902, before me,— }

JON. MAY.

CHAS. C. RUSSELL, Coroner.

Harrie Stuart Banks, sworn, states: I am a senior-sergeant of police, stationed at Wollongong; on the 31st July last, in company with Messrs. Sellars, Cook, and Johnson, I proceeded to the Mount Kembla Colliery, and arrived there about 3:15 p.m.; on arrival I saw the body of a youth, named Jacob Nelson, lying in the blacksmith's forge, to where it had been removed; the machinery and engines outside the pit were wrecked; amongst the debris I found the right leg of a boy; it was torn off at the knee, and was subsequently identified as that of a boy named Alexander Morrison; I afterwards, with several others, proceeded into the mine; we went into the shaft district; in the No. 6 right rope road we found a number of men lying dead, amongst which were the two Meurants, Henry and William; there were also several miners there in an unconscious condition; with others who were in there at the time, I assisted in removing those who were alive to the outside of the mine, and afterwards, with two men named Bunn and Hefferman, we cleared the trucks off the No. 6 right rope road, and took three trucks in that road; we gathered up fifteen bodies in all into the three trucks; I found the bodies of Henry and William Meurant lying on the right-hand side of the road side by side; we brought the bodies up to Mat's Flat, and then with Mr. MacCabe, and J. C. Jones and others, I proceeded along the Engine-road; at Mat's Flat we found two more bodies, and on the way up the main hauling road, near No. 5, we found the bodies of Blackett and Edward Gallagher; we put those into the trucks with the others, and on arriving at No. 4, I sent out for stretcher parties; the whole of the bodies were then carried out into the main travelling road, and thence out of the mine; Mr. J. C. Jones and myself carried the last one out; all the bodies were taken to the carpenter's shop, which was used as a morgue, and there Meurants' bodies were viewed on the following day by the jury.

To the Coroner: There was a fire in the Corrimal Colliery on the 14th July, 1901; there was also a fire in the South Bulli Colliery on the 7th June this year; the fire in the Corrimal Colliery was about three-quarters of a mile in the mine, at a working place at the face; it was within a foot or 18 inches of the face; that is a most unusual place to light a fire; the fire had been on the top of a lot of coal that had just been hewn down; I did not find out how that fire originated; the fire in the South Bulli Colliery was in a lamp cabin about 150 yards from the entrance, inside the mine; it was between 1 and 2 o'clock in the day, just after the men had knocked off work; in that case there was an inquest held and an open verdict returned.

To Mr. Ritchie: None of the bodies—there were nineteen—which I brought out of No. 6 right showed signs of being burnt; I saw some bodies brought out to the morgue by others, and noticed their condition; some of them appeared to me to have been burnt or singed; I judge that by the hair; I did not notice Jacob Nelson's hair; I cannot say anything about him; Aitken and son were burnt, I judged that by their hair being singed; Silcox was burnt; he was a boy; Tost's hair was singed; Thomas Purcell's hair

hair was singed; Walter and Thomas Morris (father and son) appeared to be singed also; Kembla Stafford was another one, his hair appeared to be singed; the skin was peeled off Purcell's neck and arms; that is all I can remember the names of; I cannot say the number of men that were singed; there may have been a few others than those I have mentioned; I do not know myself where the men were picked up; the subpoena I served on you was issued in blank by the Coroner, and filled up at the instigation of Mr. Barry.

To Mr. Wade: I filled up subpoenas in the same way for other witnesses; I issued five at the request of Mr. Lysaght; I saw several men whose skin appeared to be peeled on the parts of the body that were bare; Silcox had no clothes at all on with the exception of one boot on the right foot when he was brought into the morgue; I did not notice any man with just a belt and a piece of clothing under the belt.

To the Foreman: I saw no indications in the mine, outside the singeing of the bodies that I have spoken of on the night of the 31st July, that would lead me to believe there had been a flame in the mine; yesterday, in the mine, Inspector Watson pointed out to me a place which he said had been burned; he had an electric light, and he turned it on to the rib at this place, and drew the attention of the jury to it, and said he had no doubt that it was burned with a flame; that was the only place which I observed any indication of flame; I do not know that I could locate the spot pointed out by Mr. Watson on a plan; I saw no timber charred.

To a Juror: I was at the mine when Walter Morris and his son were brought out; their hair appeared to be singed, and the skin peeled from their necks.

Made and sworn, at the Court-house, Wollongong, on }
the 9th day of September, 1902, before me,— }

HARRIE S. BANKS.

CHAS. C. RUSSELL, Coroner.

David Ritchie, sworn, states: I reside at Bulli; I am Miners' General Secretary; I have had off and on about twenty-five years' experience in mining; I went to the Mount Kembla Colliery on the 31st July last; we got there rather before 4 o'clock in the afternoon; on arrival there, on discovering what had happened, I changed my clothes and got a safety-lamp as quick as possible and, in company with Mr. Daniel Robertson, Manager of the Metropolitan Mine, Mr. Johnson, Manager of Bulli Mine, and several others, made up a party and went into the mine at once through the travelling road; we went into the No. 1 district by the No. 1 travelling road; we were the first who had gone down that district after the disaster; in going down No. 1 travelling road we met William Broadhead; he was coming from his working face, making towards the outside; after inquiring where he had come from we asked him had he seen any other men on the way; he said, "Yes, there are two men lying in the road there apiece"; Mr. Robertson and myself then got away from the others in order to reach those people at the earliest moment; the first we met was William Nelson; he was alive then; he was lying with his head towards the outside, up against the right hand rib, on the road up; whilst endeavouring to keep him alive by keeping his lungs open the other members of the party came up, and Nelson, I believe, died in our hands; his limbs and his body were quite stiff when we got to him first; after he died his limbs got quite limp; we left the other members of the party with him, and Mr. Robertson and myself again went ahead and came across Mr. Bates; he was evidently in the same state of collapse as Mr. Nelson was when we found him; he was about 10 or 12 yards on the inbye side of Nelson, with his head lying inbye; we used the same efforts on him as we had used on Mr. Nelson, in order to endeavour to keep him alive; he also was lying with his arms stiff and his teeth firmly clenched; in the fall his false teeth had evidently fallen back into his throat, and I picked them out with a knife; in consequence of the ventilation getting somewhat thick and hot about that part we got Mr. Bates carried out towards the tunnel mouth for about 20 yards and then sent out for a stretcher party, which afterwards came in and took him out; at that time the lamps of the party were burning very bad in consequence of the unsuitable oil and bad wicks; they were safety-lamps, and were not in very good order; the primary cause of the lamps burning badly was the oil and the wicks, which were unsuitable; the atmosphere may have had something to do with it also; after going in some distance further, and the lamps still failing us, we went out; after having the lamps attended to I, in company with a number of others, went into the shaft district; where I was told there was a number of men in need of assistance; we arrived on the shaft flat, and found that a number of bodies had been collected there, and in company with a number of others I did what was possible to have the bodies taken out; sufficient parties had been down in that district to assist the living people before I got down there; I injured my leg when I went in first, and retired about 12 o'clock that night; I did what was possible to assist the people in the mine, but I made no inspection that night; all the live people had been got out hours before I retired; on the 9th August (Saturday) I was one of a party who made an inspection of the mine; the members of the party were Jonathan May, James Maguire, Thomas Morgan, Charles Biggers, James Silcox, and myself. Inspector Watson, John Morrison, Adam Frost, junior, and William Hay accompanied us into the mine; we made an inspection of No. 1 district only; we went right down the main hauling road in that section; our inspection was limited practically to the route which I have indicated on the plan by a blue line.

Cross-examined by Mr. Bruce Smith: What we saw to begin with was evidence of very great force in the main haulage road outbye; I might say that I did not arrive at any definite conclusion as to where the force originated; all evidence of force from the telephone cabin appeared to be outwards; the indications of force inbye of the telephone cabin appeared to be more mixed; I am aware of the theory that when an explosion of coal-dust takes place it is followed by a series of explosions of dust; such a state of things would cause confusion in arriving at a conclusion as to the direction of the force; a series of explosions from any cause would have the like effect; there might possibly be a series of explosions of gas; it would be possible for gas to be driven from different directions by some force and so produce a series of explosions; I found things in front of the 35-acre goaf in such a state that I could not form a conclusion as to the origin of the force; there was evidence of force having gone in an outward direction from the very top of the heading; there was force also at right angles to No. 1 right along the hauling road where the Aiken's were working (that is the uppermost hauling road); that is about two bords from the main heading; we found there evidence of flame on the timbers, there were charred timbers; I minutely examined the timber, and to the best of my belief it had been caused through flame in the mine, and recently; the charring could not be detected on the whole of the props because of the dust that had been blown against them, but the charring was not confined to one prop; the timber had a charred

charred appearance showing through the dust that had accumulated about it; the dust appeared to have been thrown against the props with very great force; the dust was on one side; that is the east side of the posts in the rope load leading into the main heading; two skips which had evidently been filled from the pillar which Aiken and son were said to have worked were driven from the end of the main heading west with great force; I say that from the position of the skips, one was tipped over on its side and the other was driven apparently with great force into it; we traversed No. 4 left more than once; there appeared to be a fairly large accumulation of dust about the fourth left section; judging by the appearance of the dust it had evidently gained very little from the force of the explosion; I could tell that from impressions in the dust which were evidently of long standing, I mean indentations; there was dust on the walls, but in no very great quantity as far as I could say; I did take notes of the inspection, but as I did not know I was to be called I have not got them here; I should say, as a matter of opinion, that there would be nearer 6 lb. than 6 oz. of dust to the foot of the road; that was the dustiest part I saw; Inspector Watson made a test with a hydrogen lamp, and found a trace of gas in the small goaf near Aiken's pillar; in coming back outwards again in No. 1, a test was made in No. 1 at one of the goafs, and the gas was so thick that it put out the hydrogen lamp; I think it was black-damp; I took notes of the directions of force; I have not got them here; I think I can get them; my inspection was not as complete on that day as I desired it should be in order to enable me to connect the facts which I gathered on that occasion; the want of a plan was one of the serious drawbacks that I suffered from, and, not having had the plan, I determined to make application to the Department for a copy of the plan; I had seen a plan before that, but only for a few seconds; that copy of the plan which I asked for was not supplied; I have not formed any conclusion as to the seat of the explosion; I am of opinion that the seat of the explosion is within the area which I have enclosed with a blue line, with the 35-acre waste added; I am satisfied that it was an explosion of coal-gas in the first instance, added to by an explosion of coal-dust; my impression is that it was due to a combination of coal-gas and coal-dust; I think that it occurred by coal-gas coming in contact with a light, and that it exploded and caused coal-dust to rise, when there were further explosions.

Cross-examined by Mr. Wade: I told Mr. Lysaght that I was summoned here; I told him that this morning; I saw him in the main street of Wollongong; I have not discussed with Mr. Lysaght the matter of the disaster; I have not discussed with him the facts either; I did not tell him what I had seen in the mine on the 9th; I do not think Mr. Lysaght asked me what I had seen on the 9th; I have no recollection of his asking me; to the best of my belief he did not ask me; the two Meurants were members of the Union, and Mr. Lysaght has been appearing for them; I have been appearing for the employees of the Mount Kembla Colliery; I have not discussed in any shape or form with Mr. Lysaght the cause of the disaster; Mr. Lysaght has never asked me anything about the cause of the disaster; I have never discussed the cause of the disaster with Mr. May; I do not think I have had a discussion with any of them on the matter—certainly not with Mr. May; no one of the party who were in the mine with me on the 9th discussed the cause of the disaster with me; I did not discuss in the mine that day the locality of the explosion; I have never asked any of that party their opinion as to the locality of the explosion; I went there to make an inspection of the colliery; I had been reading in the daily press from day to day, and the reports in the daily press set forth that Dr. Robertson was taking in parties of managers to make official inspections; in one of those reports I saw that Dr. Robertson had given a definite opinion as to the cause of the disaster; knowing, from my experience, that Dr. Robertson could generally get mine managers to say what he liked, I made the application to take in six practical men, in order that if the parties who had been inspecting on behalf of Dr. Robertson gave evidence which was not in accordance with facts, we should be able to have this party of practical men to give evidence how they found the state of the mine after the disaster; we went in to try and discover the cause of the explosion; we also wanted to ascertain the starting-point of the explosion; we had the six practical men to help on that point; I was unable to fix the locality (that is, the exact spot) where it started; I have no idea whether the other men have formed an idea as to the seat of the disaster; Maguire was one of the party; he is the president of my association; and another was Morgan, the treasurer; I do not remember saying in the mine, on the 9th, to Mr. May, that the disaster took place near the three-quarter acre goaf; I did not say that to Mr. May; it may have started there; I cannot possibly go any nearer than the area I have stated; that is the area marked with blue and the 35-acre goaf; I do not believe that coal-dust alone would cause an explosion; I do not believe in the coal-dust theory to the extent that coal-dust coming in contact with the ordinary lights that are used in a mine would cause an explosion; I do not think that a coal-dust explosion could have been caused in Mount Kembla by a shot, because I believe that in all those explosions you require a certain percentage of gas; I do not believe that any coal-dust explosion would take place without some gas; I was in No. 4 left; I do not know that I did see any evidence of flame there; I have no recollection of having done so; the parts I went through I only saw traces of flame in a very few places; I was in No. 4 left rope road twice during the visit; I was looking for signs of flame, but not minutely, in all parts, because time did not permit it; you might see traces of flame if it were over the whole of the props if you happened to be looking at those props; the indication of flame on the props near Aiken's was on the whole length of the exposed part of the prop; on the other side of the road I think there were props that were free of indications of flame; they would be several yards from the props that had signs of flame on them; I have no recollection of seeing signs of flame nearer Stafford's gannon bord; I mean by flame actual charring of the wood; I saw coal-dust on the props near Aiken's pillar; it was pretty well all round the props, but it appeared to be thicker on the eastern side; I concluded from that that the dust had been deposited as the dust had been blown from east to west; the flame was going from east to west in the locality of Aiken's pillars; from the cabin inbye to the face the indications of force were in different directions; I had time to see that there had been force in two different directions; I had not time to see if it had been in three different directions; I cannot tell you what direction the force was between No. 4 right and the telephone cabin, nor between No. 4 right and No. 5, nor of the indication up towards the face, but I believe that there the indications were inwards; the hill began to rise just inbye of No. 5 right; as far as my knowledge goes, the force of an explosion increases as it gets farther away from the point of starting; I cannot say whether there were greater evidences of force in the timber and skips in the district to the left of No. 1 main rope road or in No. 1 main rope road; we all had safety-lamps; Inspector Watson took the hydrogen lamp in; Mr. May used it once or twice; my impression

impression is that the explosion took place as a result of coal-gas meeting a naked light; if that happened in the main road it would go outwards, I think; I believe that this explosion made for the outside, but all explosions do not do that; if the explosion took place at the junction of the main rope road and No. 4 right I would expect to see evidence of a greater force going in an outward direction; it would be quite possible for the flame of the explosion to course round inbye and lick up any gas in that locality; I do not think you would find much evidence of force inbye, unless there were some gas; I would expect to find evidence of the explosion going inbye; there might have been gas in the main rope road, between No. 4 right and No. 5 right, on the 31st July; under normal conditions it would be unlikely; I noticed the conditions of several of the stoppings in the main rope road, between the travelling road and the rope road, they appeared to have been blown into the travelling road; I saw several skips and a horse near the jig; if the front skip nearest the tunnel mouth had been turned at right angles to the others, it would show that the force had been inwards, although it would be possible to get the same state with the force behind the skips; the indentations I have spoken of in the dust were hollows caused by footsteps or throwing any heavy article on top of the dust; I have seen a plan like that on the board almost every day since I have been at the Court.

Cross-examined by Mr. Lysaght: I should think that to make a complete examination of No. 1 section you would require at least three days considering the state of the roads; I think we were in the mine about seven hours on the 9th August; if I had been permitted to inspect yesterday I think I could have gone very much nearer to locating the spot where the disaster originated; I cannot tell exactly what the quantity of black-damp was that we discovered; the quantity of fire-damp was only a trace; on the night of the 31st I saw quite a number of bodies which appeared to have been burnt; the first body that I saw that was burnt was the body of the boy Jacob Nelson that had been picked up shortly before I got there; Aiken and son were also burnt; Tost, T. Purcell, Morris and son, the boy Kembla Stafford, and I think John Purcell were slightly burnt, although I am not quite clear; there were more bodies that I saw burnt, but just now I do not remember the names; I think I must have seen at least a dozen bodies that were burnt; that, I think, would be up till 12 o'clock on the night of the 31st—no, I think that would include those that I saw next day and the day after also; I had a very decided opinion that they had been burnt by flame; most of those I have named had their hair singed; I found the safety-lamps on the 31st to be in a very bad state, practically not fit for use, the few that were there; the oil was the ordinary China oil, and very bad quality at that; the wicking that we had to use was the ordinary wicking used in flare-lamps, and was quite unsuitable for safety-lamps; I feel quite sure that if we had had proper safety-lamps and oil and things on the spot the lives of more men would have been saved; when I took the persons I have named in, I said to them to use the whole of their opportunities in observing keenly everything that was to be seen as the result of the disaster; I further told them that they were not to express their opinion to any person, and that they were to keep absolutely their own counsel, unless they were called upon to give evidence either before this inquiry or before the Royal Commission; I further said that I should make application to the Mines Department for a copy of the plan, and if it was supplied I should make application for a further inspection in order to complete our inquiries; the names of the party were submitted to Dr. Robertson before they were taken in; I was check-weighman at Mount Kembla for five years and a half within the last eight years; during the time I was check-weighman the miners on many occasions mentioned to me that they had found gas; I frequently put the question to them, "Did you report it"; they always said they had reported it.

To a Juror: I did not handle Mr. Watson's lamp.

To a Juror: If Mr. Watson said yesterday that he did not let his hydrogen lamp out of his hand on the 9th that would be absolutely untrue.

To the Foreman: I noticed a wooden door near the fifth right; I took notice then which way it was blown; but I cannot say now from memory which way that was; the canvas near Aiken's had been blown in a westerly direction; the door at the fifth right was enclosed in a box case; I am not sure from memory which way the door operated.

To a Juror: I did not ask any of the party to write any impression of what they saw, but I told them not to give their opinion to anyone.

To Mr. Wade: I worked as a miner on the coal somewhere about seventeen years; I told the men that I wanted an inspection made by them on behalf of the miners; I believe I told them that, but I may possibly have omitted to tell some of them that; I told them that I wanted them to ascertain the cause of the disaster.

Made and sworn, at the Court-house, Wollongong, }
this 9th day of September, 1902, before me,— }

D. RITCHIE.

CHAS. C. RUSSELL, Coroner.

Examined by Senior-sergeant Banks:—Michael Quinn, sworn, states: I reside at Mount Kembla; I am a miner; up to the 31st July last I was in the employ of the Mount Kembla Company; I have been working in the Mount Kembla colliery for about thirteen years; one day, about eight years ago, when Mr. Rogers was under-manager, when I was working in a heading in No. 1 district, Mr. Rogers came into my working place; I lit a jet of gas in front of him, and he spoke to me and told me not to do that, and he put the jet out with his foot; it was burning in the centre of the coal; when I lit it, Mr. Rogers said, "Do not do that again"; I told Mr. Rogers that it was better for it to burn there than to go away with the air; Mr. Rogers said, "Well, don't set fire to it while I'm here again"; when he left I set fire to it again, and it burned away for a considerable time; it burnt itself out; on several occasions I have lit the gas on my own (when I was by myself); the last time I lit the gas in Mount Kembla Mine was about ten months ago; I drew Mr. Nelson's attention to the gas on these occasions; he was the deputy; I told Mr. Nelson that there was gas in the place, and that the place was very hot, and that we wanted more air; he had canvas put up then to take the air into the face; that was a place on Powell's flat, and I think it was in the seventies; the fact of the matter is, you could see gas in any bord; I saw gas oozing out of the face of the coal into the bord in the fifth right, about seven or eight months ago; I set fire to gas in that bord on several occasions; I drew Dungey's attention to that, and told him we wanted a cut-through; I could find gas there at any time after a shot, where there was a crack along the face, and where the shot had not brought the coal down; you could find it with a naked light; that is the

last

last time I saw gas in the mine; I always adopted the practice of lighting the gas, because I thought it was safer than letting it go into the air; I was working in the mine on the 31st July; I was working in the second right in the No. 1 district; I did not meet any gas at all where I was working that day; I did not light any that day; I know the fourth right pillars in that district; I was working in them before going into the second right; in fact, I was one of those who drew the last props out of there; I did not go in with a party to inspect the mine since the disaster; there was black-damp in the pillars when we drew the props in No. 4 right; sometimes I used to hear the gas, and sometimes I used to see it when looking to see what the shot had done.

Cross-examined by Mr. Bruce Smith: When I thought it was dangerous I used to report it and not otherwise; the last place I was working in, in the fourth right, the black-damp was so bad that I had to send for the fireman, and I did not get in for three days; that was about three weeks before the disaster; I discovered the black-damp, because I could not get my light anywhere near the floor; I could only get it within 2 feet of the floor; I had to go out every now and then to get some fresh air; after the three days I was brought further out, where it was better to work, but it was bad enough there; Dungey was the fireman I sent for.

Cross-examined by Mr. Wade: I was working in the fourth right pillars about three weeks before the disaster; I had been in the fourth right pillars on other occasions before the last cavit; I had been there on one occasion; I do not know how often I had been there, because I do not want to; I am not paid for it; Thomas Muir was my mate in the fourth right pillars in the last cavit; I had never worked in the fourth right pillars before the last cavit with Muir.

Made and sworn, at the Court-house, Wollongong, this } M. QUINN.
9th day of September, 1902, before me,— }
CHAS. C. RUSSELL, Coroner.

Inquest adjourned, for further evidence, till the 10th day of September, 1902, at 10 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner, Court-house, Wollongong, 9th September, 1902.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 10th day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Cross-examined by Mr. Wade:—*Michael Quinn*, recalled, states: I am sure that it was not within the last three months that I found gas in No. 1; it was last quarter, not this; it was three months or over; I told you yesterday that it was seven months ago in one place; I am going according to the cavit; it was two cavits ago; I spoke to Dungey and also to Nelson; I spoke to them, not on the same day, at different times; Dungey was on duty when I spoke to him; Nelson was on duty, too; I spoke to Dungey in the morning, between 6 and 7 o'clock, before I went to work; I did not speak to anybody about it the day I found the gas in the fifth right; I do not know what time of the day it was that I discovered the gas; that I know of, I did not make a report to anybody about it that day; I offered to the sergeant to give evidence here about gas; I was talking to everybody about the gas, it was such a common thing; it was common talk in Mount Kembla; it has been common talk in Mount Kembla for about nine years; a friend of mine was burnt there about that time; his name was Michael Gallagher; it might be over nine years that Gallagher was burnt; I will not swear that it is not twelve years since he was burnt; I did not come to the sergeant, the sergeant came to me; I had spoken to several people about the gas; I did not send Brownleigh to say I would give evidence about gas; I do not know that he brought a message in from me; I had a discussion with Brownleigh about gas amongst other things; I do not know when it was I had the talk with Brownleigh; it was over a week, but I have no idea of the date; I did not consider it was wrong to set fire to gas, like I said I did yesterday; it would be wrong if there was a large quantity there; I heard Mr. Rogers tell me not to do it again, and I lit it as soon as he had gone, and would do it again under the same conditions; I paid no attention to the under-manager's orders.

To a Juror: The under-manager took the necessary precautions when I reported the gas; he put canvas up, except in the case of black-damp.

To Mr. Lysaght: Nothing was done to prevent the black-damp; it was not looked after by ventilation.

To a Juror: I do not think it was a very dangerous thing to do to light the gas as I did; it was safe; if there had been any gas in the roof it would have been dangerous to light it, and I would not have lit it; my experience of twenty-four years led me to know that there could not be a large quantity of gas behind the face, because we were driving in solid coal, and there was no place for it to accumulate.

To a Juror: In working in a solid face I have never come across a cavity.

To the Coroner: I never heard of a spew in a coal-mine; I never heard the word used; I have never heard of a stream of mud coming out of the face in coal-mines; I have been working at Mount Kembla for about thirteen years; I have not heard of a spew at Helensburgh; I never knew of liquid coming through coal; there are two things which I wish to bring before the Court: one is that only miners who know the mine be allowed to take charge of rescue parties, and the other is that safety-lamps be kept in readiness at all mines; there were many there who would light the gas under similar circumstances to that in which I lit it; I never saw any other man do it, but I expect they would do as I did; I cannot say of my own knowledge that there is another man in the mine who would do as I did; I am only speaking on my opinion; I have never seen men do it in other mines; setting fire to it is an idea of my own.

Made and sworn, at the Court-house, Wollongong, on } M. QUINN.
this 10th day of September, 1902, before me,— }
CHAS. C. RUSSELL, Coroner.

Adam Stafford, sworn, states: I live at Mount Kembla; I am a miner; I was employed by the Mount Kembla Company up to the time of the disaster; I have been working in the Mount Kembla Colliery for three years on the coal as a miner; on the 31st July I was working in the No. 1 district, just off Powell's flat, on the right-hand side; I was working with James McDill; I was working in 71; we were working on a pillar; we were just finishing the last skip between 1 and 2 o'clock, and McDill was about to leave me, and I suddenly became deaf; I felt no shock, and I heard no noise at all; I said to McDill, "Come on, Jimmy, she has gone up"; I saw a big white cloud of smoke with a red streak through the middle coming down right through us; it was coming straight through from where Price had been working; it came from the direction of Price's flat; I felt deaf, and then I saw the cloud coming towards me; when I said to McDill, "Jimmy, she has gone up," he said "What do you mean?" I said, "I think she has exploded"; McDill said, "Come on," and we both started away, and we were both knocked up against the rib; we ran straight away from the cloud towards Powell's flat to get away from it and out; we were knocked against the rib on our left sides; I was not hurt; all I felt was my thigh a bit sore, but I took no notice of it; I got up, and so did McDill, and we got out on to Powell's flat; Tom Purcell, James Purcell, Tom Kenrick, and Dick Bellas came running there, too, from their bords; McDill reached Powell's flat with me also; I could just hear McDill speak, but the deafness had not quite left me; Purcell and the others were standing up talking, and there did not seem much the matter with them; McDill and I started to go out, and McDill's light went out; I went back and gave him a light, and then he told me to go straight on, and I went on, straight on, to old No. 5, and I did not look back; I did not look back to see if McDill was following not till I got to No. 5 door; I missed McDill there, and found that he had not followed me; I did not go back; I was in the dark then, I came along with my hands on the rib; I do not know what put my light out, there was only just a red ash on the lamp, no flame at all; I made straight out on to the shaft travelling road then; I caught up to Dan Egan just in the shaft travelling road near an old stone dyke; Egan had a light, and I got a light from him; he is alive now; when I got the light from Egan I went on in front of Egan; I left young Frank Purcell with Egan; I went right out of the mine; that was the third cavel I had worked in that district at different times; I was working in the fourth right pillars, and before Powell's flat was made I was working there; McDill was my mate at the pillars; I found black-damp in the fourth right pillars, we never found any other gas but black-damp in any place; I have worked down in the shaft where the long wall is now; I worked there for one quarter; I worked in the pillars behind the furnace for a quarter, we were also in a bord behind the furnace; Jimmy Ballantine was my mate on those occasions, we never had any trouble there with the ventilation; during the three years I have been there I have not found any gas but black-damp in any part of the mine.

Cross-examined by Mr. Bruce Smith: Whenever I met with black-damp it used to put my light right out; I never met anything that put a blue cap on the lamp; I never had a safety-lamp; I was working when I felt the deafness come on; when we were working we were looking in the direction of the tunnel, the direction in which we would go out; I felt the deafness come over me before I saw anything; I did not say "She's gone up" when I felt deaf, I said that when I saw the cloud; I looked across to the west workings just on our left where we had taken off two lifts (two slices), and we were on the third; it had not fallen; I saw the cloud to our left; I saw the cloud some distance from us coming towards us; I did not feel anything except that we were knocked against the rib; I felt no dust and no heat; I felt heat when I got to Powell's flat; I felt no flame; I did not hide my face at all, we were close to the skips when we were knocked against the rib, I do not know whether we run or fell past them, the skips were not knocked against the ribs, they were not touched at all, the skips were full, with the exception of the last, which was nearly full, we were knocked clean off our legs, we were forced on to the side, the flame was 6 or 8 inches thick, it was coming broadside on, the flame did not come right up to us; I did not form any opinion as to what the cloud was, the flame was just about in the centre of the cloud between the floor and the roof; that was the only way we could get out, the way we came, I was making straight for the way I came in; I did not know where she had gone up, so that I did not chose the way out; I just made for the way I had come in; I do not know where McDill fell; I did not form any opinion as to what put my light out, the light was put out when we got on to Powell's flat, the banging against the rib did not put the light out; at Powell's flat when the light went out I felt hot, and the calves of my legs had gone, and I was struggling along all I knew.

Cross-examined by Mr. Wade: The smoke was not far behind us when McDill and I were knocked against the rib; when we got up I suppose the smoke was following us up; we ran to get away from it; the smoke did not catch us up till we got to Powell's flat, but when we got there we met it coming down in a different direction, from the rope road from out of Frost's flat; the rope road goes from Powell's flat past the telephone cabin; after leaving Powell's flat on my way to old No. 5 right, I travelled 200 yards on the second left rope road and passed through smoke; the smoke was going on pretty quick; I felt it coming straight meeting me; I did not feel air, I felt smoke, it was coming straight to me; the wind that was coming on Powell's flat was not very strong; it was not strong at all on Powell's flat; I had moved about 6 or 7 yards from the time I first saw the smoke till I fell down; I fell on my left side.

Cross-examined by Mr. Ritchie: All the smoke was hot after leaving Powell's flat.

Made and sworn, at the Court-house, Wollongong, }
this 10th day of September, 1902, before me,— }

ADAM STAFFORD.

CHAS. C. RUSSELL, Coroner.

George Ramsey, sworn, states: I live at Mount Kembla; I am a miner; I am now employed by the Southern Coal Company at present; on the 31st July last I was employed by the Mount Kembla Company; I have worked in Mount Kembla Colliery for six or seven years, working on coal as a miner; on the 31st July I was working with Jack Peace on the back rope heading in the section known as Jimmy Russell's flat, in the shaft district; about a quarter to 2 I put my clothes on and came away; I came up the seventh right hand rope road; the blue line on the map indicates the way I went in that morning, and where I was working; when I was coming out I had got about five minutes on my way when I felt the air change; the air got stronger there and I could hardly keep my light in; I fancied the air came the opposite direction for a few minutes, and then returned again on its own course; I thought it was a fall in some old workings and took no notice of it and went on; I met some smoke and dust down about 400 yards inbye of Mat's flat, at the place where I have marked on the plan XI; there seemed to be dust mixed

mixed up with the smoke coming along; I journeyed on then through a door into the travelling road to a place where the right hand travelling road comes and connects with the main travelling road; from there I went to the furnace; I have drawn a line to indicate the course I took; there was about twenty sitting round there at the door, and we heard that the furnace man had left, and three of us went on to the furnace—me, Michael McDunn, and Mark Green—to see if we could be of any assistance there; when we got there the furnace was burning fairly well; we stopped there for eight or ten minutes, and kept on poking the fire up; I then returned about twenty yards from the furnace and sat down to light my lamp, an ordinary flare-lamp; I had all my clothes on then, and I remember nothing more till I found myself half way home with only my shirt and pants on; I do not know how I got out of the mine; Peace, my mate, got out all right; I have been working on and off ever since I went to Kembla in the shaft section; on one occasion the deputy, David Evans, stopped me from going into my place; that was on the left hand of the shaft, between four and five years ago; Evans said the reason why I was not to go in was because there was gas there; I never met with any gas in that district; I have worked in the No. 1 district; I have worked in No. 1 off and on since I started to work at Kembla; about twelve months ago I saw some gas in the fourth left; I was working then with Edward O'Sullivan; I had been working the place with powder, but for a couple of days it seemed to work without powder and I started to do some cutting in the right-hand corner of the bord, and I went back to have my dinner, and afterwards when I went to work I held up my lamp and there was some gas burnt and came out for about a yard from the face and then went out; I continued working there till the deputy came round; William Nelson was the deputy; I told him what had happened; I do not remember what I said to Nelson or what he said to me; the place was dangerous as to the roof, and we had reported every day for about a month and they took no notice of it; we reported to the deputy, Nelson; after I saw the gas I worked on in that place for about three days and was then shifted to another place; the brattice was well up there at any time except when the roof would fall and knock it down; the roof used to fall there once or twice a week; the brattice was put up after being knocked down like that; I never found gas in any other place in the mine; I have been speaking of fire-damp when I speak of gas.

Cross-examined by Mr. Bruce Smith: I was working up near Gill's gannon bord on the occasion I found the gas at the place marked on the plan X2; I had had my dinner and had just gone back to work; I thought I had met a greyback; I told Nelson I had seen gas and that I had lighted it; I do not remember what he said; he seemed to just treat it like as if it was unimportant; Edward O'Sullivan was my mate at that time; he is alive now; Nelson could see where the roof had fallen in the place I have mentioned; it used to come down in pieces; I always managed to get out of the way; the time I have mentioned is the only time I met with gas; I have not worked in other mines.

Cross-examined by Mr. Lysaght: On the day of the disaster the air I met was not hot; it seemed just the same as air rushing away after a big fall; I have seen something the same happen after a fall in the waste workings; the smoke and dust about 400 yards down the road felt a bit warm, nothing hot to speak of; I thought that there had been a fire, from the smoke; I had no other reason for thinking there had been a fire in the pit; Evans went with me and got my tools; when he would not let me go in he told me to leave my lamp behind and took his safety-lamp.

Cross-examined by Mr. Wade: For the whole month before I was shifted, I was not content to work in the place; I thought it was dangerous, on account of the roof; there were pieces of stone that used to fall down and knock the brattice; some of them might be over 1 cwt.; it used to fall and break up sometimes, and at others it would not break; I did not exactly ask for a move, but I asked him to let us drive another cut-through, so that we could get out if it started to work without going under it; I did not ask to be taken away from that place; when I asked him to let us drive the cut-through, he did not allow me; we went on working, and then he shifted us, and put two men on to drive the cut-through; I thought Nelson was not doing his duty by leaving us there; I understood that I had to report all dangers to Nelson, and therefore did not report to anyone else; I knew that I was allowed to complain to the under-manager and to the manager; Mr. Leitch was the under-manager at the time; I did not see him nearly every day; I saw him occasionally; he used to come into my working-place, sometimes; I remember seeing him in the place where I thought it was dangerous once or twice; he used to come in and have a look at the place, and go out again; he used to just ask us how we were getting on; I knew what he meant by that; I thought he just meant how the skips were, and how we was doing; I told Nelson of the danger of the place, in the presence of Leitch, once or twice, and he (Leitch) did not say anything; I did not trouble complaining to Mr. Rogers, because when I growled once to Nelson about some other timber he told me that he was the representative of the manager, and that any complaints I had were to be made to him; I knew I could complain to Mr. Rogers; after I found the gas, I thought the place was dangerous for those three days; at the end of those three days, Nelson told me to go into another place; I had seen no more gas during those three days; the flame of the gas was a pale blue; when the pit was not working, I used to go and help my father with a bit of bush-work, and since the disaster I have been working as a fettler on the Southern Coal Company's line; that is the only way I earn my living.

To a Juror: A flare-lamp was safe enough in Kembla, as far as I know; of course, I am not an old, experienced miner, and I would not like to form an opinion.

Made and sworn, at the Court-house, Wollongong, }
this 10th day of September, 1902, before me,— }

GEORGE RAMSEY.

CHAS. C. RUSSELL, Coroner.

Ernest Stafford, sworn, states: I live at Mount Kembla; I am a miner; I was working at Mount Kembla Colliery up to the 31st July last; between 2 and 3 o'clock on that day I was working in a pillar, No. 55, behind the furnace in the shaft district; I did not notice anything till about 2 o'clock, when I noticed a draft of wind; it was a great breeze; it came from No. 1; I was working where the cross is [X1] on the plan; I had been working there for two months; you could bear the rush of wind coming; Patsey McIntyre, the wheeler, asked me what it was; I said I did not know, but it was something I had not heard before, and that we had better run; I had thought that was the best thing to do; I had never heard anything like it before; Mat Poplin—some name like that—asked me which way the air was travelling; I had lit my lamp then, which had been blown out, and I looked and found the air was travelling

travelling the opposite way; when we found that the air was going in the opposite way Mat Poplin said 'We had better run'; we ran; we travelled up to the No. 6 right rope road, and down that road to Mat's flat; we crossed from Mat's flat on to the travelling road; we got to two doors at the shaft, and sat down there for awhile; there were some men there that were very much excited; George McKinnon and Jim Drysdale and Sandy White were the men; they started going away, and I left, too, at the finish, and got up into an old working where the bords were stopped; I remember seeing Jim Fitzgerald and son up there; I went to the left and got into a stopping against the main air-course; I started to get some of the air through; I got my hand through the top and got some fresh air; the others had left by that time; I came back through a couple of cut-throughs; I do not know how far; it was in the waste workings; we came back by the road we went; there were a lot of men there; we sat down on some stones, and then Davey Evans came up and asked what we were doing there; we said we were trying to find our way out; he said, "Come this way"; we went with him and were brought out safely; we came out round the longwall by old No. 2; I have worked in the No. 1 district; I worked in the third right, and the fourth right, and the fourth left; my brother Albert was working with me in the third right; while we were working there we met with something unusual; that is three years and a half ago; it was at night, and I went to have my lunch at the turn, and when we were going into the face it lit; I do not know what it was, you could not see anything; it must have been gas; it lit from our lamps which we had on our heads; it lit when we were within about 3 yards of the face; when it lit I dropped down on to the floor, when I got up again I could just see a little blue light waving on the face; I said to my mate, "We had better get back to the tunnel," and on the way we met Dungey, the fireman, and we told him what had happened, he came in and had a look and said, "Oh, there is nothing to be afraid of, whenever you are out for awhile you ought to take your shirts and brush the place out"; we did what he said; when we went in we took our shirts and gave the place a brush out; we worked on that night; on the following night we went to work there again, and then we worked on there for about a week; I saw no more gas there during that week; at the end of that week we left the third right; in the fourth right I worked with my brother Albert; we worked in the fourth right for about twelve months in the pillars; I never found gas in any portion of the mine except that which I have mentioned in the third right.

Cross-examined by Mr. Lysaght: The gas travelled when we lit it about 6 yards, I think, just to the turn; the gas seemed to taper from a foot to an inch; I never saw any black-damp in there; I never saw any black-damp in the fourth right; I never saw any black-damp in the mine.

Cross-examined by Mr. Wade: There was no brattice there in the third right; we were working out the pillars; we were 6 yards from the turn--5 or 6 yards; there was no slip or joint in the roof there that I noticed; the fireman told us to hold the lamp low when were brushing it out, and we did; they do not carry brattice up to the face now, not where I have worked in pillars.

Made and sworn, at the Court-house, Wollongong, on }
this 10th day of September, 1902, before me,— }
CHAS. C. RUSSELL, Coroner.

E. STAFFORD.

William Hopkins, sworn, states: I live at Keira; I am a miner; I am employed as a furnaceman at Keira; I have been nearly fifty years a miner; I worked once in the Mount Kembla Colliery; it is somewhere about nine months ago since he left there; I knew a man named William Broadhead at Mount Kembla; I was working with him (Broadhead) in the colliery; we were working down the shaft road in the shaft district; I do not remember the number of the bord; I did not know Dungey, the fireman; I never heard Broadhead make a complaint to Dungey, or any other fireman, about gas being in the mine; I never saw the sign of gas while I was working in the shaft district with Broadhead.

Cross-examined by Mr. Bruce Smith: I worked with Broadhead; I did not work in any other place but the shaft district; I never saw a sign of gas in Kembla Colliery; I only worked there altogether for three months.

Cross-examined by Mr. Lysaght: I was working both on a pillar and a bord while I was at Kembla; I was working with Broadhead on the bord, not on the pillar; I never worked on any pillar with Broadhead; no one told me that I had better say I did not want to answer any questions; I did not tell any person that I could give this evidence; I never spoke to anyone about Mount Kembla Mine since this inquest started, unless I met a mate and had a yarn with him; I was not subpoenaed to give evidence here; I wanted to clear myself, because my name was in the paper; I heard that my name was in the paper a few weeks ago; I heard that Broadhead had said that we had fired shots that exploded; some of the chaps up the mine told me that he had said that; Mr. J. C. Jones did not tell me that; I came here on my own; nobody asked me what evidence I could give; I never saw the sergeant at all till now; I never spoke to Mr. Barry about it; I never spoke to Mr. Rogers or to Mr. Wade; Mr. Barry did not speak to me, nor did I speak to him about the evidence I could give in this matter.

Cross-examined by Mr. Wade: I remember going down to "Galvin's Hotel" last week; I saw you on the verandah at Galvin's last week; I saw a gentleman at the office, he wrote something down; I worked six weeks in a bord in No. 1, that was bord 78; I never worked with Broadhead at all in No. 1; I put a mark to the paper in the office.

Made and sworn, at the Court-house, Wollongong, }
this 10th day of September, 1902, after being }
read to deponent, and he appearing to understand }
same, before me,— }

CHAS. C. RUSSELL, Coroner.

his
WILLIAM x HOPKINS,
mark.

Witness to mark,—

CHARLES NOBLE, Senior-constable.

Alfred Ashley Atkinson, sworn, states: I live at Randwick, I am the Chief Inspector of Coal Mines for the State of New South Wales; I have occupied that position for five years; previous to that I was manager of the Barrow collieries in South Yorkshire; I have had about twenty-seven and a half years' experience in coal-mines; I have made it my business to familiarise myself from time to time with all the literature available on coal-mines; I am familiar with all the reports issued from the Home Office in recent years on explosions in coal-mines; I was at Newcastle on the 31st July last, and left there by
the

the ten past 3 train and learnt of the accident at Kembla on my arrival at Redfern; I had a conversation with the Premier and took the first train to Wollongong at half past 3 a.m. on the 1st of August; I arrived at Wollongong about 6 o'clock and got out to the mine about 8; I there saw Dr. Robertson and had a look at the plan, and arranged to go into the mine; I was accompanied into the mine by David Evans; we went in by the north or daylight tunnel some distance from the main tunnel; we went into the workings on the left-hand side of No. 1 right, along towards Aiken's place; I met a party of rescuers consisting of Mr. Thomas Cook, manager of Mount Pleasant Colliery, Mr. Johnson, Bulli Colliery, Mr. Adam Frost, senior, Mr. Adam Frost, junior, and several others; the blue line indicates the way I went in; I met that party on the left-hand side of No. 1; there were some men removing the body of John Purcell from bord 105, which is the first bord on the left-hand side of the No. 1 main level; Thomas Purcell, I understood, had gone out earlier, and had been found on the travelling-way near No. 2 right; the place on the plan marked X1 is the place where the Aikens were working; the place marked X2 is the position where the fire was reported the day before, after the explosion; I went with Mr. Johnson to the position where he said he had seen smoke the day before, and some distance up the bord, and found that, although there was a smell as though there had been a fire, there was then no smoke, and the fire had evidently been extinguished; several of the party were pretty well exhausted, as they had been working all night; there was a want of more stretchers and fresh hands, so it was decided to go out and get some fresh men; we went out; in the afternoon I went down with Mr. Robertson, of the Metropolitan Colliery, down the No. 1 travelling road; we went in about 3 o'clock by the road which I have indicated on the plan by the line; we went right up No. 1 travelling road, past the telephone cabin, past the 35-acre goaf, and down No. 4 left, to Price's flat; we went through all the workings in Price's flat and in Powell's flat, and during that time the bodies of sixteen or seventeen men were found and were located; all those men, I think, had died from after-damp; I had been making observations all the time, although I did not make many notes; on the 2nd August I made a single line-tracing for my own use from the colliery plan; we went into the mine about 3 in the afternoon; the bodies of the two men Nees and Stafford had not been located, and we went in particularly to ascertain where they were; we found the bodies of Nees and W. Stafford; they were about 95 yards apart, in the back or return heading of Stafford's going bord; the point marked on the plan X3 is where Nees' body was; Nees was found lying on his back dressed; Stafford was found lying on his stomach, also dressed, and with his head inbye; they both appeared to have been retiring from the after-damp, from which they had died; they had been retiring towards the face.

Made and sworn, at the Court-house, Wollongong, on }
the 10th day of September, 1902, before me,— }

A. A. ATKINSON.

CHAS. C. RUSSELL, Coroner.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the 11th day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Alfred Ashley Atkinson, recalled, states: In my inspection, I had an ordinary safety-lamp; Mr. McGeikie, who accompanied me, was carrying a hydrogen lamp; generally speaking, with an ordinary safety-lamp, you cannot detect less than 2 per cent. of fire-damp; with a hydrogen lamp you can detect as low as $\frac{1}{4}$ per cent.; McGeikie and I looked at the results; in the place where Nees and W. Stafford had worked, there was 1 per cent. of fire-damp; in the next place to that a $\frac{1}{2}$ per cent., and in the next, S9 heading, 1 per cent.; I made my next inspection on the 4th August; I was then accompanied by Messrs. Rogers, manager of Kembla, Humble, Inspector of Collieries in the Newcastle district, Mr. Barr, manager of the Co-operative Company, Mr. McGeikie, manager of West Wallsend Colliery, Mr. Littlejohn, who at one time was under-manager of Mount Kembla; we went down the travelling road to the shaft district and up No. 5 right (old No. 5) up near to Forsythe's working place; I have indicated the route we took by a line; there is a door between the intake and the return No. 5; we found the door undisturbed, nothing was disturbed, but the old No. 5 return; near Forsythe's working place there was a dead horse; Forsythe had, I believed, worked alone, and he had got out alone; I mark the place where Forsythe was working X5; we went along the rope road to Price's flat; there were several empty tubs on the flat; they showed distinct evidences of force inbye towards the west; I have marked an arrow on the plan indicating the direction of the force; we went into 72, and there found the remains of a blown-out shot; that shot had been put into the coal 3 feet; the coal was not thrown; I think the shot had been fired probably on the morning of the 31st July, but I think it had nothing to do with the disaster; there was a full tub at the end of the rails; the disturbance in the westerly direction had not affected that tub; I tested for gas there with the ordinary safety-lamp, and found nothing; I did not test there with the hydrogen; we came back from 72 to Price's flat, and then up Stafford's going bord into No. 82 working-place, in the pillar workings; it was a cut-through which was being driven through a pillar; Best and Russell were engaged there; we tested there for gas with the hydrogen lamp, and found $\frac{3}{4}$ per cent.; we did not use the hydrogen lamp at 72, because we had only a limited supply, and had to conserve it; we examined the goaf edge several feet above the top of the seam in amongst the fallen stone; we found $\frac{3}{4}$ per cent. of gas in those cavities with the hydrogen lamp; about 6 feet above the top of the seam I tried for gas with the ordinary safety-lamp and found no gas; our finding none there with the ordinary safety-lamp is compatible with finding $\frac{3}{4}$ per cent. with the hydrogen lamp; we crawled up the fall some feet into the cavity in the goaf; we returned down Stafford's going bord and tested the edge of the 15-acre goaf on the low side of No. 4 left rope road; we found no gas there with the ordinary lamp; we then went on to Stafford's flat; at Stafford's flat the tubs showed indications of force towards the west; I noticed the dust particularly on the outbye end of No. 4 left rope road; there was some quantity of dust, on the floor more particularly; I think that part of the dust I saw had been blown there, but I cannot say what proportion; I took a sample of that dust and had it examined microscopically to see if it had been coke; the Mineralogist of the Mines Department reported to me that there were no signs of coking; I took that dust from the floor; from there we went to within about 4 or 5 yards of the last cut-through in No. 1 main level; there is a jig wheel there which fences the main level off; there is somewhere about 90 yards from the jig wheel to the face; we went beyond the jig wheel; it was not fenced off beyond the jig wheel,
between

between the jig wheel and the face, when I was there; at a point about 4 or 5 yards on the outbye side of the last cut-through we tested for gas with an ordinary safety-lamp; the two levels are driven about 12 yards beyond the last cut-through; they usually fence off such a place as the back level near to the last working-place, which in this case was that of the two Morris'; where we tried for gas there with the ordinary safety-lamp we found gas; the percentage was not recorded, but there was sufficient to be explosive; we went then on to Morris' place, No. 89; we tried there for gas with the hydrogen flame and found $1\frac{1}{2}$ per cent.; there was a slight deposit of coke-dust on the inbye side of the props near to where the two Morris' had been found in the heading, opposite the last cut-through but one; the jig wheel I mentioned just now was not disturbed at all; the dust I last mentioned was sent to the Department and was pronounced to be coked; the jig wheel was fixed by heavy timbers, and it would be no test as to whether had been force up there; I might also say that there was some of the canvas that was burnt near to the place the Morris' were found in the heading; we then went into some of the places on the left-hand side looking inbye of the No. 1 main level and then went to the place where the fire had been which we had seen before; that is bord S7; there was canvas, paper, and the bark of props, and the bottom of a prop, all of which had been burnt; all these things were all pretty well within a radius of 2 or 3 yards; I have no doubt there had been fire there; a few yards below where that fire had been there was what appeared to be a close fall, that is, a fall of the roof which you cannot travel over; I think that would contribute to deadening the fire; we went into S7 bord and tested for gas, but found it clear, we tested there with the ordinary safety-lamp; the door between the No. 1 main level and the back level on the No. 5 right rope road was open, and I understand had been left open by some of the rescue parties, in order to short circuit the air with a view to the more speedy recovery of some of the bodies; that completed my inspection for that day; I did not go in again till the 6th August, and I was then accompanied by Mr. Humble, Mr. Watson, John Morrison, and Adam Frost, junior; we went in by the daylight tunnel, and measured the air near the tunnel mouth, and found 36,000 cubic feet per minute; we then went into the No. 2 right; I understand that all the men in that part of the mine had got out all right; there was nothing unusual to note there; that part had only been working ten days, and the men had come there from the No. 4 right pillars; along the cross-cut heading Mr. Humble tested the goaf edge of the 35-acre goaf both with the ordinary and hydrogen flame, and found no gas; at the second opening down the No. 5 right rope road we tested for fire-damp but found none; we tested there with the hydrogen lamp; in the third opening of the same road Mr. Humble tested with the ordinary safety-lamp 5 or 6 feet above the level of the top of the seam and found no fire-damp; we then went into the twelve working-places I have marked on the plan on the right-hand side of the No. 5 rope road; we found no disturbance there at all and no fire-damp; all the men who had been working in those places got out alive, and, with one exception, by the daylight tunnel; between the two levels on the No. 5 right rope road there is a door built in stone; the stones had been forced east from the No. 1 main level towards the back level, where they stood facing north and south; the door I refer to is the middle one of the three shown on the plan; the door on the back level was set in building stone; that was disturbed and blown in the direction of the No. 5 right rope road; that would indicate that the force had come from the face of the back level, but I cannot draw any hard-and-fast conclusion from that as to the force having originated in the face of the back heading; we then went up the back level and noticed the stoppings; the first and second stoppings were blown with some force towards the main heading; the third one the force was considerably less, and it appeared to have been disturbed only near the top; the stoppings had been there in order to convey the air to the face of the workings; the force was in the direction of the main level going west; in the back heading, just on the inbye side of Morris' place, we found a piece of canvas wrapped round the bottom of a prop, showing a sign of inbye force, the opposite direction to that in which the stonework of the door had been blown; Adam Frost, junior, said that on the day of the explosion he left Frank Dungey, the deputy, in charge of the district in Gill's going bord about 1 o'clock, and the rope had just started after dinner; it was explained that Dungey would go into the working-places Nos. 85 and 86, and from there along the line of cut-throughs towards the No. 1 main level; he would probably have got there if he had taken that course about 2 o'clock; on the inbye side of the last cut-through, we examined portion of a canvas that had been put up for ventilating the place; it was blown apparently slightly inbye; that day we went right up to the face; from all I could ascertain, Aikens and Tost and Purcell had had very little time to move from their working-places; also Thomas and Robert Jones, who were found dead in their own bord (No. S7); Aiken and son were found at the top of the bord, and about 13 yards from where they were working; the fact that the men were found dead so close to their work leads me to the conclusion that they had not time to get away; I observed the tubs in Aiken's place, and saw an indication of force in the direction of the cut-throughs towards the west; in S3 the indications of force were towards the north inbye; there was a dead horse and some tubs there; we then got down to the bottom of Gill's going bord, and noticed, either then or later on, that a three-eighths chain, which had been used for lowering skips, had been stretched out, apparently by the force, and laid round the corner of a pillar in the No. 4 left travelling road, one end being right round the corner of the pillar; we then went along the No. 4 left travelling road, and examined the door opposite, which is fixed between the two headings, and that door showed most distinct force towards the east; there was a drift of coal-dust next the rib of the travelling road opposite to the door, which indicated a force in an easterly direction; that was the end of my inspection on the 6th August; I went in again on the 7th, with Humble, Watson, Morrison, McGeikie, and A. Frost, junior; we went into the main tunnel, and down the No. 1 main haulage road; we found that it had fallen from the tunnel mouth up to the junction of No. 1 with the main tunnel; that had been cleared away before the jury went out; we continued down the No. 1 right main road; there was a very large fall opposite to the headings leading from the old furnace-shaft; the falls only indicate great concussion; all the principal indications of force on the outbye side of No. 2 right were outbye; the stoppings were blown right and left of the main road; there was an old rail-girder, used as a support for the roof, which was bent 12 inches in the centre outbye; it was an ordinary 50 or 60 lb. rail; another rail, which was about the same length, was broken, and showed similar signs of force outbye; J. Walker, a clipper, had been found 12 yards on the outbye side of the No. 2 right empty road, about 25 yards, so I understand, outbye of his usual clipping place; a door below the No. 2 right rope road and in the No. 1 travelling road, showed signs of force outbye; the building stones at the side being forced in that direction; we then went on to No. 3 left; there there was a large heap of coal—about 5 or 6 tons probably; I cannot account for that; there were four tubs

about 38 yards further inbye, but they were full; there had been a wooden chock near to the No. 3 left rope end; it was down, and the timbers had been forced about 5 yards outbye; we found four full tubs on the rope road on the inbye side of No. 3 left; the second one was standing on its end; the wheels facing outbye; the force indicated was outbye; we examined at No. 4 right and found a little black-damp; there had been a canvas door there, but it had been blown out; we found a piece of canvas under the four full tubs mentioned, that is outbye of where the canvas door had been; there was also a piece of canvas found about 17 feet on the inbye side of the No. 4 right road end; both the pieces of canvas were unburnt; the rollers which are used for the ropes to run on inbye of No. 4 contained small collections of stones and rubbish on the outbye ends of the rollers, indicating a force inbye or north from there; No. 4 right appears to be the point at which the forces diverge, one up the other down; if a great rush of air had come out of the goaf at No. 4 right and struck against the rib opposite, that would perhaps account for such indications of force as I saw; if such a rush of air came out at No. 4 right there might, having regard to the lay of the road, be a little greater tendency for the force to go outbye; from a point three chains below No. 4 right to 6 chains below No. 4 right there was a little water on the floor; this showed that it was near the basin, or the lowest point, or perhaps that some of the water sumps had been running over; the right hand stoppings at that point were blown towards the travelling road from the No. 1 main level; that showed that the force which was in the main level was towards the travelling road; at a point 174 yards below No. 4 right there was a broken tub wheel; 18 yards further inbye there was a wheel and an axle, which completed the pair, and 7 yards further inbye was the body and frame of the tub with a pair of wheels underneath; about 40 yards along the No. 4 left rope road was a rail girder supported by a prop at one end, the other prop was blown out inbye, and the unattached end of the girder had been forced 6 feet inbye from its original position; that all showed force inbye; we went on then to Stafford's and Price's flat; the force as shown by the tubs in No. 4 left at the bottom of Gill's going bord and Stafford's going bord was inbye or towards the west; the force seemed to die out between Price's and Powell's flats on the rope road; I then visited the remaining places in No. 1 and found nothing unusual; in Moon and Prior's place there was a shot prepared, but not fired; the number of that place is 58; I have marked the place X 6; that ends the inspection on the 7th; on the 8th I went in again with Messrs. Humble, D. A. W. Robertson, James Watson, McGeikie, and John Morrison; we went the No. 1 travelling road to No. 2 right rope road; there were indications of force in about thirty empty tubs in a north-easterly direction; we went on then to No. 4 right; there was a large stone about 3 ft. x 3 ft. 8 in. lying in No. 4 right road on the inbye side, or between the travelling road and the goaf; I could not place where that stone had come from; I could not trace any cavity near there into which it would fit, and I could not form a conclusion as to where it had come from; the stone appeared to me to have been there either before the explosion or simultaneously with the explosion; I think it had not been there very long as it would have interfered with the traffic; probably it came there as a result of the explosion; there was a prop between the travelling road and the goaf which showed a force in the direction of the goaf; we examined for gas there; we did not find any; we examined there with the hydrogen; I examined the stones at the edge of the goaf and found them quite clean, or not blackened with coal-dust, indicating to me that at least some part of the fall had taken place subsequent to the explosion; that ended the inspection on that day; on the 12th August I went in again with Messrs. Watson and Adam Frost, junior; we went in by No. 1 travelling road; the air crossing below No. 2 right was blown out and indicated a force right and left; we then went into No. 3 right and went 36 yards from the travelling road; we examined the stones at the goaf edge, and in that case they were quite black with coal-dust; we tested for fire-damp there and found none; then we went up to the face of No. 1 right, up to the end; I noticed some more coking on the props on the inbye side; there was none or very little coking on the outbye side of the props; there was also a little of that coking on the rib side; we tried for gas with the ordinary lamp and found none; we listened for singing, or gas issuing from the face, and heard none; I noticed the brattice cloth 14 yards from the back heading, and it was not burned; there was nothing particular about the roof stone in the back heading; the canvas in the front heading was not burned; at the bottom end of the working place No. 105 there is a prop with a slab of timber on it; the prop at the other end of the slab was blown out; the unattached end of the slab had been forced inbye, or to the west, about 4½ feet out of its original position; attached to the slab was a small piece of canvas for driving the air up the bord; we went on near to Aiken's place, and there was a very little sign of coke-dust there; that was the whole of that visit; On the 3rd of September I went in again with Messrs. Humble and Watson, and went down the No. 1 travelling road; there was a little water on the floor in two or three places; down near the No. 4 right, opposite to the shunt and in the travelling road, we found a canvas door and frame next to the coal rib; if that canvas and frame occupied the position of a door in the shunt it indicates to me the presence of a force from No. 1 main level towards the travelling road or goaf; there was an old door frame in the travelling road on the inbye side of No. 4 right, and building stones at the side showed a force inbye or towards the north; at the No. 4 left rope road end is an empty tub turned at right angles to the road; I was not able to form a conclusion as to which way the force had driven it; further in there were three empty tubs turned on their sides; on the tub furthest in the telephone wire was wrapped round the drawbar, and the same wire was underneath one of the boards forming the tub side; I have not been able to form any conclusion of which way the tubs had gone; beyond the empty tubs were two full tubs; the coal from the first one appeared to have been moved inbye; there is very little timber below No. 4 right up to the face which affords any indication of force; in the left-hand cut-through the first on the inbye side of No. 5 right the canvas door had been forced to the west, or inbye; that practically completes the data from which my conclusions have been drawn; I am in doubt, as between two points, as to the locality of the disaster; one is that a fall may have taken place in the No. 4 right, at the edge of the 35-acre goaf, forcing out air possibly mixed with a small percentage of fire-damp, and this would travel along the main road, possibly raising some coal-dust, which would become ignited at the nearest naked light, and from that point the explosion would radiate; the other is near the face of the back heading, where I have put the blue X; with reference to the No. 4 right, from the appearance of the stone at the goaf edge being quite clean it affords proof that the fall had certainly not finished until after the explosion had taken place; the principal difficulty which I have in deciding as between the two points is the contradictory evidences of force on the No. 1 main level between No. 4 right and the face; the other theory is that one of the Morris' ignited a small quantity of fire-damp near the face of the back heading, and this has raised some coal-dust, which has been the means of carrying the explosion along; there does not appear to me to be

any

any sufficient reason for the Morris' leaving their working-place and going up this heading, as there were no rails to be got up there, and I understand that the place had been fenced; the position in which their bodies was found has proved, however, that they had left their working-place and gone up the back heading either before or after the explosion; the inspection on the 4th of August showed that these places do give off some fire-damp—that is, the headings do—although it may be explained that the ventilation had been shut off when we were there for some three days, in consequence of the door having been left open in the No. 5 right rope road; the indications about the stoppings are quite consistent with the view that the explosion started in the back heading—that is, the three stoppings between the two headings on the inbye side of No. 5 right rope road; I have heard it said frequently, during the course of this inquest, that there has never been fire-damp found in Kembla; there is the case of the Camerton mine, England, which had been worked for about 100 years; fire-damp had never been seen in it, and an explosion occurred which killed several men, and the cause was attributed to a shot on a haulage road igniting coal-dust; tests were made, after the explosion, with the hydrogen lamp, and no fire-damp was found; I have the report of that, issued by the Home Department; the report was made by one of her Majesty's Inspectors of Mines—Joseph Martin; the following sentence appears in that report—"Fire-damp is absolutely unknown, as a fact or by rumour, in any of the eight seams forming the Radstock series in any part of the coal-field; it is consequently unnecessary to say that there has never been any seen in this colliery either before or since this explosion"; I know also of a case at the Brancepeth pit, where an explosion of coal-dust took place in a hopper; that is quoted in the Report of the Royal Commission on Coal-dust in 1891, of which Mr. Joseph Chamberlain was chairman; it is universally acknowledged that a very small percentage of gas will be sufficient to cause an explosion in a cloud of coal-dust; Abel says $1\frac{1}{2}$ per cent. of gas with an open light will be sufficient, and Galloway 1 per cent.; explosions have been known in mills from the flour-dust frequently; an ordinary safety lamp is not sufficient test of the quantity of gas which is sufficient to cause an explosion of coal-dust, it is not sufficiently delicate; that is referred to in Abel; Galloway says that 1 lb. of coal-dust to 160 cubic feet of air forms an explosive composition with 1 per cent. of fire-damp; about $7\frac{1}{2}$ ozs. of coal-dust per lineal foot of the roads at Kembla would be sufficient to be dangerous in the presence of 1 per cent. of fire-damp, if raised in a cloud in the presence of a naked light; with a cloud of coal-dust, explosions have resulted from a shot, without the presence of any gas; Camerton Colliery is one case; Altoft's Colliery, in Yorkshire, is another; and there are several others in which juries have found that; the contradictory nature of the evidences of force which I saw at Kembla is very characteristic of coal-dust explosions; from the centre of an explosive area the forces radiate in all directions, and with a repetition of those explosive areas you may have contradictory evidences of force over the same ground; if there were only one big explosion of gas in a mine, all the evidences of force would radiate from the one common centre; gas is frequently given off from the strata above coal seams; gas is frequently found in strata lying over coal seams, more particularly in shales, but sometimes in sandstone, and where the pressure of the gas in some cases tends to break down the roof it has been necessary to put bore-holes in the roof to relieve the pressure.

Cross-examined by Mr. Lysaght: When I was making the tests with the hydrogen lamp I discovered the percentage of gas in a particular place; some of the places were on the goaf edge, and others were in the coal faces; having regard to the law of the diffusion of gases, it is probable that a somewhat similar atmosphere would prevail in the immediate vicinity of where the test was made; the tests were generally near the roof, and in some cases when we were testing the edge of the goaf above the top of the seam; the gas which I found in an explosive quantity with the safety-lamp was about 1 foot or 18 inches from the roof; I had some idea as to how far the face was from the point where we found it; the face was about 20 yards from where we found the gas; I concluded that a mixture of air and gas in some proportion extended right on to the face; the area is about 4 yards wide and about 2 yards high; there were 160 cubic yards in that roadway; assuming that there was 2 per cent. of gas from the point where I made the test to the face, there would be an accumulation of $3\frac{1}{2}$ cubic yards of fire-damp in that area; I recollect that Morrison said that place was fenced off; I remember he said that it was not inspected on the morning of the 31st, and I remember someone saying that the place had not worked for some months; the seam there is in a part of the mine which is on a rise, and perhaps it may be said that if gas is made, it is a likely place for gas to accumulate; you cannot hear gas issuing from the face there; I know where the bodies of the Morris' were found; I was told they were found between 70 and 80 yards from the face; I should say that it is improbable that gas extended 80 yards from the face to the place where their bodies were found; it is not a fair conclusion to say that the gas ignited where their bodies were found, for there are cases in which men have got some distance after being burnt; the nearest body of the Morris' to the fourth right was over 500 yards from it, and the bodies of Nixon and Morrison were about 230 yards from the fourth right; assuming that there was a fall in the fourth right, I should think that coal-dust could be carried 200 or 300 yards by a big wave of air or gas; I could only see the edge of the goaf at No. 4 right, and that gives me no idea of the extent of the fall beyond the edge of the goaf; I think that if the fall took place in No. 4 right, and raised a cloud of dust, that the atmosphere was probably impregnated with a small percentage of fire-damp when it ignited; I do not know whether, if some of the stones were removed at the edge of the goaf, it would be possible to ascertain whether the fall took place before the explosion; it (the fall) might have taken place simultaneously with the explosion; but the evidence is that it was completed afterwards; if the disaster took place in the back heading, I think that it was a small explosion of gas and air; I should say that the explosion, after initiation, wherever it has been, has been carried along entirely by coal-dust; I have heard that Kembla Stafford was burnt near Stafford's gannon bord; I think it very improbable that there would be fire-damp all along the road towards the place where Kembla Stafford was found; there was no evidence of the explosion having travelled far up Stafford's going board; I think that it would be improbable that the flame that Adam Stafford saw was gas; I have seen an official record of the burning of Gallagher by gas; having found gas in the way I have stated, I should say that if the trouble commenced at No. 4 right, I think that the explosion originated from a combination of coal-dust and fire-damp and a naked light; if it started in Morris' place, the initial explosion was fire-damp and air, ignited at a naked light; I have no decided preference for one theory or the other, and I think that no future examination would enable me to decide; the No. 4 right had been a haulage road for those pillars, and there was a certain quantity of dust, although not an abnormally large quantity, in the vicinity of the fourth right; if a shot were fired

fired into it, it might be dangerous, but not under normal conditions; that was not a place where shots were likely to be fired; supposing that the explosion started anywhere there, I think it probable that there was a sufficient quantity of coal-dust in No. 4 right to have carried it some considerable distance; I think that the fourth left rope road was about as dusty a piece of the road as I saw, and once the explosion was initiated, there was, I think, sufficient dust to carry the explosion along for a considerable distance; I think that the proof of the explosion is the best evidence as to whether such conditions were dangerous once an explosion was started; I think that the explosion has been carried on by coal-dust after it was initiated.

Cross-examined by Mr. Wade: We examined the places in the back heading about ninety to ninety-six hours after the disaster; that particular spot is almost the highest point in the mine; the ventilation for the whole of No. 1 section had been deranged for the whole of those four days.

Made and sworn, at the Court-house, Wollongong, }
this 11th day of September, 1902, before me,— }

A. A. ATKINSON.

CHAS. C. RUSSELL, Coroner.

Inquest resumed, in pursuance of adjournment, at the Court-house, Wollongong, on the twelfth day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner.

Alfred Ashley Atkinson, recalled, states: The effect of the door at No. 5 right being open would not be to prevent the air going up to the face of the back heading; the usual course of the air was down No. 1 main level and through the cut-through on the outbye side of Morris' place, and the mere fact of the door alone being open would not prevent the air taking that course; but the explosion deranged the ventilation in other respects, which prevented the air going up to the face of the main headings; I did not take a note of the distance the rubbish could be traced that was heaped against the rollers; I can say that it commenced at No. 4 right and went inbye, but I cannot say the exact distance; there would be a canvas door on the outbye side of the cut-through opposite to Morris' place; I do not remember tracing that door; the contradictory evidences of force in No. 1 level were the contradictory statements with reference to the relative positions in which the body, arm, and head of Dungey had been found, the entanglement of the telephone wire amongst three empty tubs, it being attached to the in-end of one of these tubs, round the drawbar, and threaded underneath one of the boards of the same tub at the out-end, and, generally speaking, the difficulty in ascertaining the direction of force amongst all those tubs between No. 4 left to a point a little beyond No. 5 right, and the general absence of timber supports between No. 4 right and the face to assist in indicating the direction of force; I think that Dungey's head and arm being off could have been caused by flying timber; stones being driven might also do it; if he were in the centre of an explosion that would be a very likely cause of his arm and head being off; I do not think there was much evidence of disturbance just at the point where Dungey's body was found; there were very distinct evidences just a short distance on the outbye side and also on the inbye side of where the body was found; I do not think that it would necessarily be that if he were the centre of an explosion the body would be found in it; in such a case I would expect to find evidences of flame about the body; I think that after the head was detached from the body it would go the greater distance, for it would be lighter than the rest of the body; if the weights of the two bodies were proportionate to their respective surfaces, I should expect the body with the larger surface to be blown farther; the telephone wire was wrapped round the draw-bar of the tub at the end nearest to the face; the wire was embedded into the wood at the out end of the tub; the entangled tub was about 13 yards on the inbye side of No. 4 left; the tubs were off the rails; I think the telephone wire was detached from inbye, but I could not swear to that; the four or five full tubs between the fourth left and fifth right were inbye of the entangled tub; the outbye skip of those skips was turned at right angles to the road; the note I made at the time is as follows:—"At 35 yards, dead horse; at 38 yards, full tub on side cross road; coal thrown inward; swingle tree and tail chain lying on tub but not attached;" the distances mentioned are from No. 4 left; I do not remember which way the wheels of the skip that was lying at right angles were facing, that indicated to me that the force at that particular point had been inbye; in No. 4 right a number of props were lying which I understood had been some distance nearer the goaf, but it is very difficult to say what position that timber occupied before the explosion; had it been timber in position blown out it would have afforded clearer evidence; there were forces in both directions both coming in and going out to No. 4 right; although I was unable to discover the position that the stone I mentioned yesterday had occupied before the explosion, I think it is more likely that it was on the outbye side of the travelling road rather than the inbye side; there was also a prop near to the goaf on the right side which showed a force towards the goaf; the stone, as near as I can remember, was 28 or 29 yards from the goaf edge, in No. 4 right; I could not say that that stone had the appearance of a stone coming from the upper strata above the goaf, this particular stone was dirty I think, the stones at the goaf edge were clean; the brattice at the back heading was deranged, but I could not swear that it was actually torn; if everything was regular the air current would be going up the back heading and then back into No. 105 bord; if Morris went through a fence that would be in violation of the rules; I could not understand any reason quite apart from the rules for his going in there; I think it unlikely from what I saw that the gas was explosive at Morris' cut-through, because Morris' place was the first one on the air current; if there was gas there I do not think it would be more likely that there would be an explosion in No. 105 bord, because the air in No. 105 bord would be increased by any scale which would pass through the canvas door in the No. 1 main level between the cut-through opposite to Morris' place, and the one on the outbye side of it; a considerable quantity of air gets through canvas doors usually, the air from the main intake at that point would be a good many hundred times more than the scale; if a place had been idle for eight months I would not expect all the gas to have drained out; but it would, I think, be getting less as the issue of gas would probably be getting less; I think that if a naked light had come in contact with the gas, if there was gas there, there would have been an explosion; I cannot say that if there had been gas given off from the right headings, and the air current working, that I would have expected an explosion from a naked light before the 31st July; I visited Aiken's place; I made no note of there being paper about there which was unburnt, but there may have been; the nearest prop
which

which was coked to No. 4 right was on the inbye side of the cut-through where Morris and son were found; so far as I remember that was the nearest indication of coke-dust to No. 4 right; I collected the coke-dust from near the top of the prop, but I could not say whether it went right down to the bottom or not; I noticed that near the goaf in No. 4 right it was warmer than on the main haulage road; I noticed moisture on the roof in No. 4 right; I think the warmth is peculiar to pillar workings, especially in such a place as that unless the current of air is directed right on to the goaf edge; if the warmth were due to a sudden and great concussion of air I do not think that it would have remained so long after; I think that a flame has passed either in or out of No. 4 by the evidence of the sample of dust which was collected in No. 4 right, and has been examined under a microscope; the dust was collected about 20 yards on the inbye side of the travelling road in the direction of the goaf; that dust was examined by Mr. Mingaye, the Mineralogist of the Department of Mines; I do not remember any signs of flame on the canvas doors at No. 4 right; I did not find any signs of flame at the junction of the main haulage road; I do not suggest that there had been a naked light between the travelling road and the edge of the goaf at No. 4; I do not suggest that there had been an initiation of the explosion by a naked light between the travelling and the main rope road having regard to the positions in which bodies were found after the explosion; if Morrison were at his usual place of work about 9 chains from No. 4 right inbye, it would probably be the nearest point at which a naked light would be reached by gas, air, and coal-dust coming out of No. 4 right; the conditions that I saw at the goaf edge of No. 4 right suggest that there has been a big fall in the roof; if the roof fell in one solid piece near the edge of the goaf it would drive the air down No. 4 right with some considerable force I should think, but some of the force would be expended in its passage through the travelling road; I could not say that the damage I saw to the chock at No. 3 left was caused by the air blast and nothing else; the force of an explosion would account for the damage to the chock; I think that some force has passed along the main road (passed to No. 3 left); I do not say that it commenced there; as far as the evidence goes the nearest man with a light was near the telephone cabin on the outbye side of No. 4 right; I think that what caused the damage to the chock was an explosion of coal-dust; you do not necessarily want a blown-out shot to cause an explosion of coal-dust; an explosion of coal-dust may be caused after an explosion has been initiated by a mixture of coal-dust, air, and gas at a naked light, or by an explosion initiated by means of fire-damp and air at a naked light, or by an explosion of coal-dust with, or without, gas caused by a shot; I think that the force that displaced the chock at No. 3 left came from inbye, probably inbye of No. 4 right; I think the explosion did not originate either by a naked light, or a blown-out shot in No. 4 right, that is in the case of gas being forced out of No. 4 right; I have no idea of the rate at which air would be forced down No. 4 right if there were a very large fall of roof in the goaf there; I have never seen calculations to guide me in deciding the effects of a large fall forcing air down a gallery 35 feet in length by 4 yards by 2 yards; generally speaking the roof falls in small pieces not covering very large areas; I believe that Broadhead said that he saw a red flame whenever he fired a shot; the red flame is indicative of the powder flame from the firing of the shot and not of gas; I would not, generally speaking, expect to find dust close to the roof in Kembla; if there is a shot fired close to the floor in a working place, and it explodes gas, that would indicate that there is an enormous quantity of gas; if coal-dust were present, and it were conveyed to other parts, there would probably be a tremendous explosion, but if gas only were present there would be a local explosion of considerable force; coal-dust would require to be raised in a cloud to be dangerous with 1 per cent. of fire-damp; some authorities argue that the cloud would have to be so thick that a man could scarcely live in it, but I do not quite agree with that; it, however, assumes a condition that does not ordinarily exist in a mine.

To a Juror: The inspectors send me a report after each inspection of the mines; in those reports for the last six or twelve months gas has not been reported at Kembla.

To a Juror: It is a breach of the rule to try for gas with a naked light, and it is certainly bad discipline to light gas, and it would be dangerous if there were gas there in any quantity, or if it were left burning; it is quite impossible to say what quantity of gas is behind the face when gas is exuding from the face.

To a Juror: You must have combustion of carburetted hydrogen before the carbon monoxide can be produced; with complete combustion of fire-damp, or CH₄ and air, the results are free nitrogen, carbonic acid, or CO₂, and steam; in that case there is no carbon monoxide; it is only when the combustion is incomplete that the carbon monoxide is formed, and in colliery explosions the combustion appears always to be incomplete; with 10 per cent. of air to 1 of fire-damp you get complete combustion, and in that case there would be no CO formed; CO₂ is the result of complete combustion, but there may also be some CO, in addition to the CO₂, with incomplete combustion.

To the Foreman: Having regard to what has happened, I do not consider the naked light to be a safe one to be used at Kembla; the official reports have not disclosed the presence of any fire-damp at Kembla for some years, nor had I detected any fire-damp in my own inspections prior to the explosion, and, therefore, I did not feel justified in suggesting the use of safety-lamps; I think it would be prudent, having regard to the safety of the workmen, to use safety-lamps at Kembla; I think that if there had been no naked lights this explosion would not have happened.

To a Juror: A safety-lamp does not afford quite so much light, but statistics in the old country go to show that the miners can produce as much coal with the safety-lamp as with the naked light, and there is no increase of accidents due to falls of roof where safety-lamps are used; there is also a more general feeling of security in mines where gas is occasionally given off.

To a Juror: When I tested for gas previous to the explosion, I tested with a safety-lamp; I think that the combustion of coal-dust in this disaster was incomplete.

To a Juror: The ordinary coal-gas which is distilled from coal largely consists of CH₄, but there are a number of hydro-carbons produced from coal.

To a Juror: I think that the ventilation at Kembla is sufficient if directed to where it is required; there are two or three inlets for air which is of considerable advantage; it is not desirable to leave old workings unventilated; it is desirable to pass a current of air along the edge of them.

To Mr. Bruce Smith: The Coal-dust Commission of 1891 arrived at the conclusion as follows:— "There appears to be no probability that a dangerous explosion of coal-dust alone could ever be produced in a mine by a naked light or ordinary flame"; I mentioned that in my evidence yesterday when I referred to the Commission (page 299 of the Depositions), but it was omitted.

To the Foreman : It is no part of an inspector's duty to sign the books kept at the mine, but they initial the books to show that they have been there and have seen the book ; it does not indicate that the inspector has checked the ventilation in the book ; they take the ventilation when they are there, and report to me.

To Mr. Lysaght : I think I inspected Kembla myself in March last before the disaster ; on that occasion I was three or four hours inspecting ; I say that the reports of my inspectors before the disaster at Kembla are not incorrect.

To the Coroner : I think that the fire I mentioned yesterday at the position X2 on the plan had been caused by the explosion ; there had been the actual combustion of some things there on the floor ; one was a prop ; that was about 10 chains from where Morris and son had been working ; fires are sometimes caused by explosions at considerable distances from the source of the explosion, in some cases over a mile, and therefore the evidence of this fire could not lead one to fix the seat of the explosion with any certainty ; the 35-acre goaf has a good number of exits ; if a force took place in that goaf near the edge most of the force would come out of the openings at that side ; I do not think there would be a great part of the force lost in the cavity or through the other openings in a goaf of that size (35 acres) ; I did not see any evidence of force issuing from No. 3 right ; that would in no way tend to discredit the goaf as being the origin from whence the force proceeded ; I think that a large flame would have more opportunity of doing damage than as you suggest the flame of a match ; I think that, if a large quantity of inflammatory gas were blown out (say of No. 4 right), that if it came against a naked light (say a match), that although the match might be put out, yet the inflammation would take place simultaneously ; the presence of black-damp does not afford any indication of the presence of fire-damp ; fire-damp diffuses more readily than black-damp ; I do not think there is any sharp line of demarcation either between the fire-damp and the air, or between the black-damp and the air ; next the roof it would be mostly fire-damp and next the floor it would be mostly black-damp, but there would be an admixture of the three throughout ; I do not altogether agree with the passage which you have just read from the report of Dr. Haldane (page 12) on the subject of the line of demarcation of the line of fire-damp ; fire-damp burns a pale blue colour ; I should consider that the red light which Adam Stafford states he saw would be due to the combustion of coal-dust ; I cannot understand that it was not somewhat hot in the circumstances which Adam Stafford has stated ; in explosions which have been attributed to coal-dust, you may have long lengths of ground over which the explosion has passed, with no evidences of flame ; I think that some coal-dusts under some experimental conditions have been ignited at a temperature between 300 and 400 degrees F., which is less than white heat ; I think that the cloud, as described by Adam Stafford, with the flame, would be capable of setting up another explosion of coal-dust under favourable conditions ; what Adam Stafford states he saw only points to the fact that the evidences of force were towards the west at that point, and only agrees with all the evidences of force I saw at that particular place ; I do not feel inclined to differ from the conclusion of the royal commission referred to to-day ; I think that it is unlikely that a mixture of coal-dust and air would be ignited at the light of Morrison, because the conditions existing there are different to those mentioned in the case of the Hopper at Brancespeth ; in the later case dust was being shovelled from a considerable height, and was coming into contact with a naked light.

Made and sworn, at the Court-house, Wollongong, this }
12th day of September, 1902, before me,—

CHAS. C. RUSSELL, Coroner.

A. A. ATKINSON.

Inquest adjourned, for the purpose of further evidence, till the 11th day of September, 1902, at 10 o'clock a.m.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 10th September, 1902.

Inquest adjourned, for further evidence, till the 12th day of September, 1902, at 10 o'clock a.m., at the Court-house, Wollongong.—CHAS. C. RUSSELL, Coroner. Court-house, Wollongong, 11th September, 1902.

Exhibit D.

[I admit this Exhibit as the Special Rules of the Mount Kembla Colliery, *pro tem*, on the undertaking of Mr. Barry to replace it by a certified copy from Mr. Bates, when that gentleman has recovered, or give other proof of their genuineness.—CHAS. C. RUSSELL, Coroner, 20th August, 1902.]

SPECIAL RULES for the conduct and guidance of the persons acting in the management of the Mount Kembla Colliery, and all persons engaged in and around the mines; and abstract of the Coal Mines Regulation Act, 1896.

MOUNT KEMBLA COLLIERY, MOUNT KEMBLA.

Owners—Mount Kembla Coal and Oil Company, Limited; Manager—William Rogers; Inspector—Thomas L. Bates, Coal-fields Office, Wollongong.

The undermentioned Special Rules, to be observed at the Mount Kembla Colliery, in the Illawarra district, are now published in conformity with the provisions of the Coal Mines Regulation Act, 1896, 60 Victoria No. 12

SPECIAL RULES for the guidance of the persons acting in the management of the Mount Kembla Colliery, and of all persons engaged in or about the said colliery, whether employed by the Manager or by contractors under his supervision.

1. Every employee, on obtaining work at the colliery, shall apply for a copy of these Rules and an abstract of the Act, for which he shall give a receipt.

Colliery Manager.

2. The Colliery Manager shall have full charge and control of all persons employed, and of all operations in, at, or about the mine, and shall regulate the work thereof. He shall in all respects comply with the requirements of the Coal Mines Regulation Act, and shall enforce its observance by all employees. He shall, to the best of his ability, employ only efficient officers for positions of responsibility, and competent workmen for carrying on the work of the mine. He shall, as often as practicable, inspect the underground workings, and shall periodically ascertain personally or by deputy the amount of ventilation passing in the mine, and cause the same to be recorded in a book kept at the colliery for the purpose, and signed by the person making the record. He shall see that the colliery plans are regularly plotted, and that they show the salient features of the mine. He shall, when necessary, order locked safety-lamps to be used throughout the mine or any district thereof, or by any individuals therein, and shall appoint a competent person to examine them, who shall in every respect comply with the provisions of the Coal Mines Regulation Act applying thereto. He shall inspect, or appoint some competent party to inspect the machinery, erections, boilers, appliances at, in, or about the mine, and to have the result of such inspection recorded in a book to be kept at the mine.

Under-Manager and Overman.

3. In the absence of the Manager, the Under-Manager or Overman shall have full control and charge of the mine, and of all persons employed in, at, or about the colliery. He shall personally, or by his assistants, give all necessary instructions to the men and boys in the mine respecting their work, and shall be responsible for the due observance of the Rules and Regulations of the colliery and the provisions of the Coal Mines Regulation Act. He shall suspend any person infringing such Rules, Regulations, or provisions, and report to the Manager. He shall see that the air crossings, courses, and stoppings are in good repair, and that an adequate amount of ventilation is constantly supplied; and should it be ascertained that any discharge or accumulation of inflammable or other noxious gas has taken place in any part of the mine to a dangerous extent, he or his subordinate officer shall see that the workmen and horses be withdrawn from such part, and shall adopt such measures as may seem most advisable for the immediate removal of the gas. He shall also cause to be put up on all entrances to such part or parts of the mine a danger signal as far back from the said danger as practicable beyond which no person shall pass without the distinct sanction of the Manager, Under-Manager, Overman, or Fireman, and then only with a locked safety-lamp. He shall as soon as possible report all occurrences to the Manager.

4. He shall see that the air furnaces and all ventilating appliances are kept in good repair, and are carefully attended to. He shall examine daily, or as often as practicable, the state of the refuge holes, the roof in the main roads and working places, and he shall cause any defects to be repaired at once. He shall also see that an adequate supply of timber is sent to the appointed stations within the mine, and that all working places are properly and securely timbered. If, from any cause, the condition of the roof in any place is found dangerous, unless the same can be immediately remedied, the men shall be withdrawn, and he shall cause a danger signal to be placed across the road, beyond which no unauthorised workman must pass, without permission from the Manager, Under-Manager, or Fireman.

5. If at any time it is found necessary to work any bord, stall, heading, or district in the mine with locked safety-lamps, no shot firing shall be allowed before the places are examined by the Under-Manager, Overman, Deputy, or Fireman, or any other person specially appointed by the Manager to do so; and if the place contains inflammable gas in such quantities as to show a blue cap on the safety lamp, no shots shall be fired while the ordinary miners are within the mine, and then only if the gas has been removed. He shall, under direction of the Manager, cause safety-lamps to be used and naked lights to be excluded where required by the Act. In any place worked with safety-lamps the shots shall be prepared and fired in the manner directed by the Manager or Under-Manager only, who will strictly conform to the Regulations laid down in General Rules Nos. 10, 11, and 12. He shall immediately report to the Manager any breach of the provisions of the Coal Mines Regulation Act, or of the Special Rules, by employees, or any accident, danger, or defect in the working places or appliances, and shall record the result of his daily inspection in a book provided for this purpose.

6. The Night Overman shall receive his instructions from the Manager or Under-Manager, and he shall so far as practicable observe the same Rules and Regulations as the Under-Manager and Overman, and he shall have during his shift, or in the absence of the Under-Manager, full control over all persons employed and working in the mine.

Deputy and Fireman.

7. A Deputy, where employed, shall be at all times subject to the Under-Manager and Overman, from whom he shall receive his instructions. He shall see that the men are provided with sufficient timber, and that the wheelers, trappers, and others carry out their duties and strictly obey his lawful instructions, and in the absence of the Under-Manager and Overman he shall have full control over all persons employed in his particular district, and see that the provisions of the Act and Special Rules are complied with. He shall also report to the Manager, Under-Manager, or Overman, any danger that may from time to time arise from any cause, and in their absence he shall take such steps as he may think most desirable for the security of the workmen and of the mine, and of removing the danger. He shall also without fail report any disobedience or violation of Rules, and shall, subject to the instructions of the Under-Manager and Overman, have full and sole control over the men under his supervision. He shall place danger signals or fence off dangerous parts of the mine. He shall in the absence of a special officer appointed for the purpose examine all safety-lamps, and shall have full control over the same, and shall see that the General Rules applying to lamps and shot firing are at all times strictly observed.

8. The Fireman shall, within four hours immediately before the commencement of each shift, carefully examine with a safety-lamp the whole of the workings, faces, and travelling roads. He shall cause to be written with chalk the date in every working face so examined, and if in his opinion any danger is apparent, he shall cause a danger signal to be put up, beyond which no unauthorised person shall on any account pass until the said danger is reported to the Overman, Under-Manager, or Manager, and removed.

9. He shall also make a true report of, and enter and sign *daily*, in a book kept at the appointed office for the purpose, the state of the mine roads, doors, stoppings, brattice, faces, and ventilating appliances. He shall instantly suspend any workman who passes the appointed station without his permission, and if he discovers any danger he shall at once take whatever means he deems necessary to ensure the safety of the workmen, and shall instantly report to the Overman,

Overman, Under-Manager, or Manager. He shall fix danger signals when and where necessary, and shall continually during his shift inspect the working faces, roads, doors, brattice, and ventilating appliances. He shall immediately report to his superior officer any breach of the Act or Special Rules, and of any regulations that may be issued by the Manager. He shall in respect to shot firing, take his orders from the Manager or Under-Manager, but he must in all cases carefully observe the whole of the provisions of the Act dealing with this, and under no circumstances must he fire a shot if he considers it unsafe to do so.

10. He shall at least once in every week examine, so far as is practicable, the state of the waste workings and main airways, and make and sign a true report of the state thereof in a book kept at the office for the purpose.

11. In the Under-Manager's absence, he is empowered to act on his behalf, and shall report any important occurrence, disobedience, or violation of Rules on the part of any employee to the Manager or Overman. In the absence of a Lamp-keeper, he shall see to the condition of any safety-lamp that may be in use in special cases, and in this he shall carry out the instructions of the Manager or Under-Manager.

Surface Men.

12. All the workmen employed on the surface shall be under the direct supervision and control of the Manager or Engineer, or any Fireman that may be appointed, and they shall at all times implicitly conform to all the orders and Rules at the time for the regulation of their work.

Colliers and Workmen.

13. No workman shall on any pretext pass the station appointed for his district until authorised by the Fireman, and any person failing to observe this Rule will be dismissed.

14. No workman shall take any boy into the mine without the consent of the Manager, and having him registered in a book kept for the purpose.

15. No workman shall enter his working place or any other part of the mine if the same be barred with a fence or cross timbers or a danger signal, unless authorised to do so by the officer in charge. On first entering his working place, he shall satisfy himself that it has been examined and found safe. If he does not observe the Fireman's mark on the face he will on no account commence his work, but shall at once return to the station and report the circumstance to the Fireman, Overman, Under-Manager, or Manager, and await instructions before returning to his working place. In addition to the examination by the Fireman or other officials, miners and others are required to satisfy themselves as to the condition of the working places, and if they consider there is any danger, or if they discover any defect, they shall at once discontinue work, and report the danger. No workman, except those in charge of a train, shall under any pretext ride on a skip, or on any incline above or below ground. Every miner must satisfy himself before beginning work that his working place is safe, and at intervals during his shift shall examine the working place, and in case of any danger being observed, shall at once report to the Manager or Under-Manager.

16. Every collier or other person employed in, at, or about the mine shall, in all matters relating to the working of the mine or safety of the workmen, strictly obey the orders of the Manager, Under-Manager, Deputy, or Fireman, or any other person for the time being in charge of the mine or part of the mine. Every collier shall, when leaving his place of work, take care that no candle, lamp, or matches be left in his own place or in any of the workings he may pass through or by, unless it be under the care of some person; nor shall he leave any gunpowder loose or unsecured, or under any pretext enter any part of the mine other than the working place where he is immediately employed, without having first obtained distinct permission to do so from the Manager, Under-Manager, or the Overman.

17. Every collier shall securely uphold the coal whilst holing, and shall prop up and secure the roof and sides of the bord, stall, or heading in which he may be employed, and if he should not be provided with sufficient quantity of timber, he shall cease working and report the deficiency to the Manager, Under-Manager, Overman, or person in charge. It shall be the duty of every workman employed in any part of the mine to inform the person in charge of the workings of the existence of any choke-damp or fire-damp, or of any insecurity of roof, side-shaft, or any other part of the mine, or of any air-door being damaged or left open, immediately on its being observed by him. No miner or workman must incur any risk or danger, but shall instantly withdraw until the defect be remedied.

18. No workman shall injure any air-course, crossing brattice, or stopping, or leave open wholly or partly any door whereby the ventilation of the mine may be affected, or do any other act whereby the lives of the men or the property of the owners may be endangered. Should a miner tap old workings or waste, he shall at once close the opening and inform the Manager or Under-Manager.

19. The seam of coal or other mineral shall at all times be worked strictly in accordance with the directions issued by the Manager or Under-Manager.

20. Where safety-lamps are required, they shall be locked, and every person using them must fully satisfy himself that they are so, and are in good order and condition, and shall instantly report any defect, and obtain another lamp from the official in charge of the same. No unauthorised person shall open any lamp, and any person having in his possession, when using safety-lamps, any matches, tobacco, cigar, cigarette, pipes, or any contrivance whatever by which he could open his safety-lamp, shall be instantly dismissed, and his offence shall be reported to the Crown authorities for punishment. At any time when the safety-lamps require to be relighted, they shall be brought to the nearest lamp station for this purpose. If at any time a lamp is found to be defective, he shall immediately extinguish it by withdrawing the wick, and return with it to the lamp station, where alone the defect shall be remedied, or another be obtained in its place. Safety-lamps must not be placed within 2 feet of the swing of a pick, and the greatest care must be taken to prevent these lamps from being injured.

21. All workmen using safety-lamps will be responsible for their condition, and shall be required to give to the lampman a satisfactory explanation as to the cause of any defect that may be found, and in default he shall be deemed guilty of negligence, and will be liable to dismissal, and will be reported to the Government Inspector of Collieries.

22. No shot that has missed fire shall on any account be untamped, and no fresh hole shall be bored within 6 inches of it, and no person shall approach any working-place where a shot has missed fire until a period of at least eight hours has elapsed from the time it was lighted.

23. No person shall on any account be permitted to take or interfere with the tools of another, and everyone shall refrain from quarrelling, fighting, using obscene or profane language, inciting men or boys to disobedience, impeding work, using any words, or doing any act whereby a breach of the peace may be occasioned. No person shall enter the mine intoxicated, or bring intoxicating drinks to the work, or interfere with the work or discipline of the colliery, or disobey the orders issued by the Manager, Under-Manager, or Overman.

24. Any person interfering in any way with the orders issued by the Manager, Under-Manager, or any other person for the time being duly in charge of the mine, shall be liable to instant dismissal.

Wheelers.

25. The wheelers shall diligently attend to the requirements of the colliers, and carefully attend to their horses, and shall report if the harness be not kept in a good state of repair, and will be answerable for any damage they may cause by their wilful act or negligence to horses or harness whilst under their charge. They shall also prohibit trappers from leaving their doors, and prevent anyone riding upon the skips, and shall immediately report any insecurity of roof or road, or any damage that may have been accidentally caused, or that they may observe to any air crossing, door, or brattice, to the Under-Manager, or person in charge. They shall at once report any appearance of gas in the roadways or working places. They shall not take their horses into any self-acting or engine plane while the machinery is in motion.

Trappers.

26. The trappers shall constantly remain at their respective doors, and see that they are carefully opened and closed as occasion requires. They shall on no account ride upon the skips, leave their posts, or follow the wheelers; they shall report immediately any defects in the doors to the Under-Manager, Overman, or person in charge.

Set Rider.

27. The Set Rider shall carefully attach the ropes to the set, and inspect the connections, &c.; and if any defect is discovered, he shall at once report the same to the Under-Manager, Overman, or person in charge. He shall permit no person to ride on the full or empty sets; and upon any person refusing to comply with his orders in this respect, or in any way violating this Rule, he shall immediately report the circumstance to the Manager, Under-Manager, or Overman.

Furnaceman.

Furnaceman.

28. Any person in charge of a furnace shall see that the fires are always kept in vigorous operation during working hours, and that the bars are cleaned between shifts. He shall not allow any hot ashes to accumulate, and if any stoppage should occur in the ventilation, he shall at once report the circumstance to the Manager, Under-Manager, or Overman. He shall not leave his duties without permission of the Manager.

Engineer.

29. The Engineer, or other person appointed for the purpose, shall at least once in every twenty-four hours, carefully examine all machinery, ropes, drums, pulleys, boilers, indicators, signalling apparatus, and all appliances or erections, and see that they are maintained in a state of efficiency, and shall make a true report, stating the condition thereof daily in a book which must be signed by him, and kept in the office of the mine for that purpose. If he discovers any flaw or derangement he shall at once cause the same to be remedied, and shall personally superintend all alterations or repairs.

30. He shall see that the boilers are regularly blown off, cleaned, and inspected, and that all connections, pumps, safety valves, gauges, &c., are kept in good working order. He shall have control (subject to the Manager) of all the men in his department, who must strictly obey his instructions. He shall see that the indicator be correctly marked, and that a point indicating 20 feet from the pit top be clearly marked thereon, as per General Rule 27. He shall be responsible to the Manager for the due observance of General Rules 26 to 33, or any of them, and that all the requirements are observed.

Engineman.

31. The Engineman (subject to the Engineer) shall have the sole control of the engine entrusted to his care. He shall have control of the stoker, and shall see that steam is constantly kept up, and an adequate supply of water is constantly maintained in the boiler. He shall also inspect daily the engines and boilers, drums, ropes, connections, pulleys, and all machinery under his care, and shall immediately report any defect to the Manager or Engineer. He shall be in constant attendance at his engine during his shifts, and on no account shall he permit any unauthorised person to enter the engine-house, or to touch any part of the machinery. He shall see that all refuse or used waste be daily removed from the engine-house, and that all lamps and oil are kept safe and secure. He shall on no account raise or lower any workmen unless the opposite cage is free and contains no timber, coal skips, or other material. This Rule shall also be obeyed by the Banksman and Onsetter. He shall at all times pay strict attention to the various signals from the mine, and to the proper lubrication of all machinery under his charge. He shall implicitly obey the orders of the Manager or Engineer in respect to lifting, winding, hauling, or landing the load, and see that the men be raised at a speed not exceeding three (3) miles per hour when and after the cage has reached a point 20 feet from the top of the shaft, as required by General Rule 27, and such point shall be marked on the indicator. He shall not alter any valve, gauges, or parts without the consent of the Manager or Engineer.

The Banksman.

32. The Banksman shall be subject to the direction of the Manager, Under-Manager, or Engineer, and shall, first thing every morning, examine the ropes as they pass slowly from the engine, together with the shackles, chains, bolts, and gauges, and he shall not permit anyone to descend until the cages have, for this purpose, been run once up and down the shaft; and shall generally observe these during the day; if any defects are discovered, he shall instantly report them to the Engineer or Manager. He shall not allow any intoxicated person, or any strangers, or persons not employed below ground (unless authorised by the Manager) to descend, nor allow any intoxicant to be taken down the pit. He shall not allow any man to take his tools down with him in the cage, but they shall be sent down separately in a skip. He shall regulate the number of men in the cage, and shall obey the instructions of the Manager as to the number to descend in the cage at one time. He shall report any violation of the Special Rules by any of the men. He shall on no account permit men to be raised or lowered with any rope showing any material defect. He shall have a clear understanding with the Engineman as to the signals. He shall keep the pit-top safe and free from loose coal, stone, or refuse. Any workman refusing to leave the cage when ordered to do so by the Banksman shall be immediately reported to the Manager or Under-Manager, who will deal with the offence.

Onsetter.

33. The Onsetter shall, subject to the direction of the Manager or Under-Manager, have sole control over the pit-bottom and rapper and of signals, and he alone shall signal to the surface. He shall report at once any defect in the appliances he may observe, and shall, as in the case of the Banksman, regulate the number of men to ascend in each cage. He shall remain on duty until the whole of the shift of men ascend. Any workman refusing to leave the cage when required by the Onsetter shall be immediately reported to the Manager or Under-Manager, who will deal with the offence.

Signals for Ordinary Everyday Work.

34. One (1) rap from the bottom when the cage is on the bottom signifies "all clear," or "go on."

Two (2) raps after the "all clear" signal has been given is to let the cage stand.

One (1) rap when the engine is in motion is to "stop"; two (2) raps, "lower the cage when in shaft"; four (4) raps, "lower the cage slowly"; five (5) raps, "raise the cage slowly."

Three (3) raps from bottom, "men to ascend." Before men are allowed to enter the cage, the Onsetter must receive one (1) rap from the Engine-driver, which will mean "all clear," and in no case will the men be allowed to enter the cage until told to do so by the Banksman or Onsetter.

When the cage is on the bottom, two (2) raps from the Engine-driver signifies "send away the empty cage"; and two (2) raps from the Engine-driver while the cage is in motion signifies also "send away the empty cage."

No man shall be raised, except in case of accident, or upon reasonable cause being shown while the work of the Colliery is proceeding, and only when authorised by the Onsetter to do so.

Four (4) raps means "empty cage."

Should the Onsetter hear any unusual noise in the shaft when the cages are in motion, he shall at once rap two (2) for "stop," and the Engineman shall at once stop his engine. The Engineman shall also stop his engine at once without any signal if he sees or hears the slightest movement of the rapper or winding rope of a suspicious nature, or if he feels any impediment to winding; when this occurs he shall instantly report the circumstance to the Engineer or Manager.

Enginemen, Banksmen, and Onsetters are especially required to make themselves thoroughly acquainted with these signals, and to have a perfect understanding with one another with respect to any other signals that may be adopted for minor purposes.

Brakesman.

35. It shall be the duty of the Brakesman, where employed, to see that the drums and all the machinery connected with the incline and lowering gear are kept in good condition. He shall daily examine the ropes, and should he discover any defects in either ropes or machinery, he shall immediately report the circumstance to the Manager or Engineer, with a view to the defect being remedied. He shall not permit any unauthorised person to ride in the waggons or skips up or down the incline.

Locomotive Driver.

36. The Rules applicable to the Engineman shall also apply to the Locomotive Driver. He shall not leave his engine, or delegate his duty to another, or allow any unauthorised person to travel on the engine or train.

Rules for all Persons.

37. Employees are prohibited from entering any part of the mine or works other than that in which they are immediately employed, without the distinct order of the Manager, Under-Manager, or Overman.

38. No unauthorised person shall in any way interfere with any door, brattice, or stopping, or do anything to check the ventilating current.

39. Employees shall travel to and from their work only by the roads prescribed by the Manager, Under-Manager, or Overman.

40. No person shall open any door which should be kept shut, unless it is necessary for him to pass through it (and then he shall immediately close it after him), or by any wilful act or neglect injure any door, brattice, air-course or crossing, stopping, danger signal, caution mark or fence; nor shall he cut or fill any coal from any pillar, nor remove any

timbers which are left for the support of the roof and sides, nor put coals, rubbish, or any obstruction in any roadway, air-course, manhole, or place of refuge, nor break, injure, or put out of repair, order, or gear, any signal wire, machinery, or structure; nor do any other act whereby loss, damage, or inconvenience may be caused to his employers, or the work of the mine impeded, or whereby the lives or safety of the persons at the mine may be imperilled, or the mine be rendered unsafe, or any machinery or structure be made dangerous, defective, or out of order.

41. All employees must report to the Manager or official in charge any defect they may discover in the machinery or appliances, or any appearance of fire-damp, choke-damp, or other noxious gas, or any defect in the roof or sides of the mine, or any other indication of danger from any other cause.

42. No person shall on any account try for fire-damp with a naked light; neither shall he leave an open light or lamp in any part of the mine when quitting his work.

43. No person shall handle explosives, or charge a hole for blasting, with a naked light attached to his cap.

44. A safety-lamp must be frequently examined, and if the lamp shows a cap, the person using it must carefully draw down the wick, leave the place, and report.

45. In all cases safety-lamps should be hung well clear of the swing of the pick.

46. Where safety-lamps are used, no person shall take to his work any naked light, lucifer matches, candles, tobacco, cigar, cigarette, or pipe.

47. No naked light shall be taken beyond any danger signal where gas exists.

48. In the case of a missed shot, the workman shall place a danger signal at the entrance to his working-place, and report.

49. Workmen must, before beginning their work, and throughout their shift, examine their working-place and satisfy themselves as to its security. Should they discover any defect or insecurity they must at once cease work and report.

50. No person shall in any way impede or interfere with the ventilating currents.

51. The Horse-keeper shall see that his horses are in a fit state for work. Each person in charge of a horse shall be responsible for its condition, and shall at once report to the Horse-keeper or Under-Manager any injury that it may have received.

52. Horses shall not be taken on to inclines or engine planes while the machinery is in motion.

53. No person acting in a place of trust shall depute anyone else to perform his duties.

54. No person shall absent himself from work without previously having obtained permission from the Manager, except in cases of sickness or upon reasonable cause being shown.

55. Every person employed at the mine shall make himself thoroughly acquainted with the provisions of the Coal Mines Regulation Act and these Special Rules, so far as they relate to his employment and duty, and shall strictly observe the same.

56. All persons employed in, at, or about the mine shall comply with and observe these Rules, and shall in default be subject to the penalties prescribed by the Coal Mines Regulation Act, 1896. They shall, as far as possible, enforce their observance on others.

57. Any person employed in or about the mine who shall violate or infringe any of the foregoing Rules shall be liable to instant dismissal.

ABSTRACT OF THE COAL MINES REGULATION ACT, 1896. (60 VICTORIA, No. 12.)

Application of Act.

Section 1. (ii) The Act applies to—1. Mines of coal. 2. Mines of shale.

Managers and Under-Managers.

Section 2. (1) Every mine in which more than twenty persons are employed must be under a manager, who shall be responsible for the control, management, and direction of the mine.

(ii) The manager must be the registered holder of a first-class certificate of competency or of service.

(iv) In case of a mine in which not more than twenty persons are employed, it shall be sufficient for a manager to hold a permit from an inspector.

Section 3. In every mine under the control of a certificated manager, daily personal supervision shall be exercised either by a manager or under-manager, nominated in writing by the owner, agent, or manager of the mine. But the nomination of an under-manager shall not affect the personal responsibility of the manager under this Act. The under-manager must be the holder of a 1st or 2nd class certificate.

Section 4. No contractor in any mine, or person employed by such contractor, is eligible for the post of manager or under-manager.

Section 10. The Minister, on the representation of an inspector or otherwise that any certificated manager or under-manager is by reason of incompetency or gross negligence unfit to discharge his duties, or has been convicted of an offence under the Act, may, if he thinks fit, cause an inquiry to be made into the conduct of such manager, or under-manager, by a District Court Judge, Stipendiary Magistrate, or Police Magistrate, and on the report of the Court cancel or suspend the certificate. The Minister has power to renew or restore such certificate.

Inspectors.

Section 17. The Minister may appoint inspectors (under whatever title he may from time to time fix) of mines, and assign them their duties. Inspectors must be the holders of first-class certificates of competency or of service.

Section 18. An inspector may not himself be, or practise, or be the partner of one who is or who practises as land agent or mining engineer, or as a manager, viewer, agent, or valuer of mines, or as arbitrator in mining cases, and may not be otherwise employed in or about any mine, or be a miner's agent, or a mine-owner (whether such mine is one to which the Act applies or not), nor may he be a partner or have any interest, direct or indirect, in any mine in the district under his charge.

Section 19. An inspector has power—

1. To make such examination and inquiry as may be necessary to ascertain whether the provisions of this Act relating to matters above or below ground are complied with.
2. To examine into and make inquiry respecting the state and condition of a mine or any part thereof, and the ventilation of the mine, and the sufficiency of the Special Rules for the time being in force in the mine, and all matters and things connected with or relating to the safety of the persons employed in or about the mine, or any mine contiguous thereto, or the care and treatment of the horses and other animals used in the mine.
3. To enter, inspect, and examine any mine, and every part thereof, at all reasonable times by day and by night, but so as not to impede or obstruct the working of the mine.
4. And to exercise such other powers as may be necessary for carrying the Act into effect.

Every person who wilfully obstructs any inspector in the execution of his duty, and every owner, agent, and manager of a mine who refuses or neglects to furnish the inspector with the necessary means for making an entry, inspection, examination, or inquiry under this Act, in relation to the mine, is guilty of an offence against the Act.

Section 21. Each inspector has to furnish an Annual Report, to be laid before both Houses of Parliament.

Sections 22, 24. Where an explosion or accident has caused loss of life or personal injury, a special report must be made by an inspector if the Minister so directs, and the Minister may publish the same when made.

Sections 23, 24. The Minister may direct a formal investigation of an explosion or accident, and of its cause and circumstances, to be held, and may appoint a competent person and any person or persons possessing legal or special knowledge, to act as assessor or assessors, to hold such investigation. Such person or persons to constitute a Court of Inquiry, and to report to the Minister, who may cause the report to be published.

As to Dangerous Practices not Expressly Prohibited.

Section 20. If in any respect (which is not expressly forbidden by the terms of the Act or by Special Rules) a mine, or any part thereof, or any matter, thing, or practice, is nevertheless found by the inspector to be dangerous or defective, so as in his opinion to threaten or tend to the bodily injury of any person, whether such matter, thing, or practice be in or in connection with the mine or with the control, management, or direction thereof by the manager, the inspector may require the matter to be remedied, and the requisition must be complied with, or the matter referred to arbitration.

Arbitration.

Section 25. The provisions of the Arbitration Act, 1892, are made applicable to arbitrations under this Act where they are not inconsistent with this Act. It also provides for the qualification, appointment, and remuneration of arbitrators and umpires, for the regulation of proceedings where arbitrator fails or refuses to act, for the enforcement of award, &c.

Coroners' Inquests.

Section 26. In the event of a fatal accident occurring at a mine, and an inquest being held, no person who is employed in that mine, or is concerned in its management, or has a personal interest in that mine, is qualified to serve on the jury. But any relative of any person whose death may have been caused by the explosion or accident with respect to which the inquest is being held, and the owner, agent, or manager of the mine, and any person appointed by the order in writing of the majority of the workmen employed at the mine, may attend and examine any witness, either in person or by his counsel, attorney, or agent, subject to the order of the Coroner.

Loss of Life or Serious Personal Injury.

Section 29. (ii) Where loss of life or serious personal injury has immediately resulted from an explosion or accident, the place where the explosion or accident occurred shall be left as it was immediately after the explosion or accident, until the expiration of at least three days after the sending of such notice as aforesaid of such explosion or accident, or until the visit of the place by an inspector, whichever first happens, unless compliance with this enactment would tend to increase or continue a danger, or would impede the working of the mine.

Fencing Abandoned Mines.

Section 31. (i) Where any mine is abandoned or the working thereof discontinued (at whatever time such abandonment or discontinuance occurred) the top of the shaft and every side-entrance from the surface must be kept securely fenced by the owner of the mine or the persons interested in the minerals thereof.

Employment of Boys and Females.

Section 75. Boy means a male under the age of 16 years.

Restrictions as to Employment.

Section 34. No boy under the age of 14 years and no female shall be employed in or about a mine.

No boys between the ages of 14 years and 18 years shall be employed in or allowed to be for the purposes of employment in any mine below ground for more than nine hours on Monday, Tuesday, Wednesday, Thursday, Friday, and six hours on one Saturday, and eight hours on the next Saturday.

Subject to the following regulations:—An interval of twelve hours must be allowed between each period of employment; each such period must be exclusive of one hour for meals.*

Section 34. (iii) The immediate employer of any boy is not to take him below ground until he has reported his intention so to do to the manager, or to some one appointed by the manager.

Temporary Saving.

Section 35. Boys under 14 who were lawfully employed above or below ground before the commencement of the Act, may continue to be so employed.

Competent male persons over 18 years of age who, before the commencement of this Act, were lawfully employed in working the machinery used for lowering or raising persons in a mine, may continue to be so employed.

Register.

Section 34. (ii) The owner, agent, or manager must keep in the office at the mine a register containing particulars of the name, age, residence, and date of first employment of all boys under 18 years of age employed in the mine below ground, or about the mine above ground.

Wages.

Section 37. *Public house.*—Wages are not to be paid on any premises used for the sale of intoxicating liquor, or in any place contiguous to such premises.

Weighing.

Section 38. The standard-weight system is abolished. In any mine, unless expressly exempted (*see below*, section 38, iv), where the amount of wages depends on the amount of mineral gotten, the wages are to be paid according to the actual weight gotten of the mineral contracted to be gotten.

Deductions.—The owner, agent, or manager is not precluded "from agreeing with the persons employed in the mine that deductions shall be made in respect of stones or substances other than the mineral contracted to be gotten, which shall be sent out of the mine with the mineral contracted to be gotten; or in respect of any tubs being improperly filled in those cases where they are filled by the getter of the mineral or his drawer, or by the person immediately employed by him."

Such deductions may be determined in such special mode as may be agreed upon, or by some person appointed by the owner, agent, or manager, or by such person and the check-weigher (if there is one), or in the event of difference by a third person who is to be mutually agreed upon, or in default of agreement to be appointed by a chairman of a Court of General or Quarter Sessions within the jurisdiction of which any shaft of the mine is situated.

The mineral must be weighed at a place as near to the pit mouth as is reasonably practicable.

Section 38 (iv). Exemption.—The Minister may grant an exemption from the weighing provisions in the case of any mine or class of mine employing not more than twenty persons underground where it is proved to his satisfaction that the persons employed therein should be paid by some other method. This power can only be exercised upon the joint representation of employers and employed.

Section 39. Summons for Wages.—Upon a complaint being made that a sum not exceeding £50 is due on account of any kind of labour performed at a coal mine in charge of an owner or agent, a justice or clerk of petty sessions may summons the owner or agent to appear before two justices at the nearest petty sessions, who may make an order for the payment by such owner or agent of any sum not exceeding £50, together with costs incurred and damage sustained by the complainant. The justices may, on the refusal or non-payment of the sum ordered, issue a warrant to levy the same by distress and sale.

Section 40. (vii) If in pursuance of any such order of exemption the persons employed in a mine are paid by the measure or gauge of the material gotten by them, the provisions of this Act are to apply in like manner as if the term "weighing" included measuring and gauging.

Section 42. The weighing apparatus used for determining the wages payable according to the weight of the mineral gotten are subject to the "Weights and Measures Act (16 Vic. No. 34), and any Act relating to weights and measures, and must be examined once at least in every six months by an inspector under Act 16 Vic. No. 34.

Check-weigher.

Section 40. The persons employed in any mine, who are paid according to the weight of mineral gotten by them, may appoint, at their own cost, and station a check-weigher at each place appointed for the weighing of the mineral, and at each place appointed for determining the deductions. Such check-weigher is entitled to have every facility afforded him for taking a correct account of the weighing, or determining correctly the deductions, as the case may be; and for testing

* Section 61.—Misrepresentation by parent or guardian as to age of boy is an offence under the Act.

testing the weighing-machines, and checking the taring of tubs and trams where necessary. If the person appointed on behalf of the owner to weigh the material impedes or interrupts the check-weigher in the proper discharge of his duties, or improperly interferes with or alters the weighing-machines or the tare, in order to prevent a correct account of the weighing or taring, he will be liable to punishment.

Section 40. (III) The check-weigher, so long as he does not interrupt or impede the working of the mine, may give to any workman an account of the mineral gotten by him, or information with respect to the weighing or the weighing-machine, the taring of the tubs or trams, the determinations of the deductions, or any matter within the scope of his duties as a check-weigher.

(III) In the absence of the check-weigher, the weighing or the determination of the deductions may be carried on without him, but only by the person appointed for the purpose by the owner, agent, or manager, and not if the check-weigher had reasonable grounds to suppose that it would not be proceeded with.

(IV) The check-weigher is liable to be removed by the nearest Court of Petty Sessions if he has—

1. Impeded or interrupted the working of the mine ; or
2. Interfered with the weighing, or with any of the workmen, or the management of the mine ; or
3. Has at the mine, to the detriment of the owner, agent, or manager, done anything beyond taking an account of the weight or deductions, or giving information described in Section 40 (III).

(V) Upon the removal of a check-weigher, another may be stationed in his place.

Section 41. Where a check-weigher has been appointed by the majority, ascertained by ballot, of the persons employed in a mine, who are paid according to the weight of the mineral gotten by them, and has acted as such, he may receive from any person for the time being employed in such mine such proportion of his wages as may be due from such person, notwithstanding that any of the persons by whom the check-weigher was appointed may have subsequently left and others have entered the mine ; and the owner or manager may retain for the check-weigher the agreed contribution from the wages of the persons so employed.

Prohibition of Single Shafts.

Section 43.—

- (a) Every mine must have two shafts or outlets in communication with every seam at work, and capable of affording separate means of ingress and egress to the persons employed in every such seam.
- (b) Such shafts or outlets must not at any point be nearer to one another than fifty yards, and there shall be between such two shafts or outlets a communication not less than 4 feet wide and 6 feet high.
- (c) Proper apparatus for raising and lowering persons at each such shaft or outlet shall be kept on the works belonging to the mine in actual use or constantly available for use.

Exceptions.

45 The foregoing provisions of this Act with respect to shafts or outlets shall not apply—

Exception 1.—In the case of a new mine being opened—

- (a) To any working for the purpose of making a communication between two or more shafts ;
 - (b) To any working for the purpose of searching for or proving minerals ;
- so long as not more than twenty persons are employed below ground at any one time in the whole of the different seams in connection with a single shaft or outlet ; nor

Exception 2.—To any proved mine, so long as it is exempted by order of the Minister, on the ground either—

- (a) That the quantity of mineral proved is not sufficient to repay the outlay which would be occasioned by sinking or making a second shaft or outlet, or by establishing communication with a second shaft or outlet, in any case where such communication existed and has become unavailable ; or
 - (b) That the workings in any seam of the mine have reached the boundary of the property or the extremity of the mineral field of which that seam is a part, and that it is expedient to work away the pillars already formed in course of the ordinary working, notwithstanding that one of the shafts or outlets may be cut off by so working away the pillars of that seam ;
- and so long as not more than twenty persons are employed below ground at any one time in the whole of the different seams in connection with a single shaft or outlet ; nor

Exception 3.—To any mine—

- (a) While a shaft is being sunk, or an outlet being made ; or
 - (b) One of the shafts or outlets of which has become, by reason of some accident, unavailable for the use of the persons employed in the mine ;
- so long as the mine is exempted by order of the Minister, and as the conditions (if any) annexed to the order of exemption are duly observed.

Section 45. The Minister may exempt from the provisions regulating the dimensions of such communications—

- (a) any mine or class of mines by reason of the thinness of the seams or other exigencies ;
- (b) a mine so exempted may be only worked subject to the conditions specified in the exemption.

General Rules.

Section 47. The Act prescribes general rules (set forth at length hereunder) which are to be observed so far as is reasonably practicable in every mine.

Special Rules.

Section 49. (I) In addition to the general rules, but not at variance with them, each mine must have its own set of special rules framed to meet the special circumstances of the mine.

Object.—The object of the special rules is—

1. To prevent dangerous accidents.
2. To provide for the safety, convenience, and proper discipline of those employed in or about the mine.

At What Time to be Made.

Section 50. (I) In mines having special rules in operation on the 1st October, 1896, proper steps must be taken before the first January, 1897, to submit a new set of special rules to the inspector. In the meantime, the existing special rules will continue in force. In the case of a new mine being opened, or the working of an old mine being renewed, the Act allows three months within which new rules may be submitted.

(II) How made. Special rules shall be framed in the first instance by the owner, agent, or manager, and are, together with a notice, to be posted up^o during not less than two weeks in some conspicuous place at or near the mine ; the notice must be printed, and be to the effect that any objection to the rules on the ground of anything contained therein or omitted therefrom may be sent by any of the persons employed in the mine to the inspector, at his address, stated in the notice. On the expiration of the fortnight, two copies of the rules are to be signed by the owner, agent, or manager, and transmitted to the inspector, together with a certificate that the rules and the notice have been posted up as aforesaid.

Section 51. The Minister may, within forty days after their receipt by the inspector, object to the special rules if they are insufficient or unreasonable, and require them to be modified. The owner, agent, or manager may, within twenty days after the proposed modifications are received by him, object (in writing) to them : if he do so, the matter must then be referred to arbitration.

Section 52. (I) After special rules have been established under this Act in a mine, the owner, agent, or manager may propose any amendment of the rules or any new special rules ; the provisions of the Act with respect to the establishment of the original special rules being applicable, as nearly as may be, to such amendments and new rules.

(II) The Minister may also propose any new special rules, or any amendment of the special rules ; and the provisions of the Act with respect to a proposal of the Minister for modifying the special rules transmitted by the owner, agent, or manager of a mine shall apply to all such new special rules and amendments in like manner, as nearly as may be, as they apply to the proposal.

Publication

* Section 58.—Any person who pulls down, injures, or defaces any proposed special rules when posted up in pursuance of the provisions of this Act is guilty of an offence against the Act.

Publication of Special Rules and Abstract of Act.

Section 57. A correct copy of the special rules when made, with the name of the mine and the name and address of the inspector of the district, and the name of the owner or agent and of the manager appended thereto, together with a copy of an abstract of this Act, must be kept posted up in some conspicuous place at or near the mine, where they may be conveniently read by the persons employed. A printed copy of the abstract and special rules must be supplied gratis to each person employed in or about the mine on application. Every copy of the special rules shall be kept distinct from any rules which depend only on the contract between the employers and employed. Special rules are enforceable in the same manner as general rules.

Section 58. Any person who pulls down, injures, or defaces the documents so posted up is liable to punishment.

Penalty for offences against Act.

Section 59. (i) Everyone employed at a mine who is guilty of an act or omission, which in the case of an owner, agent, or manager would be an offence against the Act, will be deemed guilty of such an offence.

(ii) Every person guilty of an offence against the Act, for which a penalty is not expressly prescribed, is liable to a fine not exceeding, if an owner, agent, manager, or under-manager, £20; if any other person, £2 for each offence.

If the inspector has given written notice of the offence, a further fine of £5 for every day after notice that the offence continues to be committed may be inflicted.

Wilful neglect endangering life or limb.

Section 60. Where the Court is of opinion that a fine will not meet the circumstances of the case, imprisonment, with or without hard labour, for a period not exceeding three months, may be given.

Summary proceedings for offences, fines, &c.

Section 61. (i) All offences under this Act not declared to be misdemeanours, and all fines under this Act, and all moneys and costs by this Act directed to be recovered as fines, may be prosecuted and recovered before a Stipendiary or Police Magistrate or any two Justices of the Peace in Petty Sessions.

(ii) Proceedings for the removal of a check-weigher shall be deemed to be a matter on which Justices in Petty Sessions have authority by law to make an order; and summary orders under this Act may be made on complaint before Justices in Petty Sessions.

General provisions as to summary proceedings.

Section 62. In every part of the Colony the following provisions shall have effect:—

- (i) Any complaint or information made or laid in pursuance of this Act shall (save as otherwise expressly provided by this Act) be made or laid within three months from the time when the matter of the complaint or information arose.
- (ii) Any person charged with any offence under this Act may, if he thinks fit, be sworn and examined as an ordinary witness in the case.
- (iii) The Court shall, if required by either party, cause minutes of the evidence to be taken and preserved.

Appeal to Quarter Sessions.

Section 63. If any person feels aggrieved by any conviction made by Justices in Petty Sessions on determining any information under this Act by which conviction, imprisonment, or a fine amounting to or exceeding one-half the maximum fine is adjudged, he may appeal therefrom to a Court of Quarter Sessions in manner provided by section three of the Act of Council fifth William the Fourth, number twenty-two.

Section 64. Misrepresentation by parent or guardian as to age of boy, and misrepresentation by a person as to his experience or previous employment in coal-getting are made offences under the Act.

Section 65. The owner, agent, manager, or under-manager, for an offence under the Act, may only be prosecuted by an inspector, or with the consent in writing of the Minister, where the offence was not committed personally.

Section 66. The result of proceedings against any person employed in or about a mine, by an owner, agent, or manager, must be reported within twenty-one days to the inspector of the district.

Saving for proceedings under other Acts.

Section 67. (i) Nothing in this Act shall prevent any person from being indicted or liable under any other Act, or otherwise to any other or higher penalty or punishment than is provided for any offence by this Act, so, however, that no person be punished twice for the same offence.

(ii) If the Justices before whom a person is charged with an offence under this Act think that proceedings ought to be taken against such person for such offence under any other Act or otherwise, they may adjourn the case to enable such proceedings to be taken.

Section 68. Debars owner of mine and certain others from acting as a Justice, or adjudicating in respect of any offence under the Act.

Section 69. The penalties imposed for neglecting to send notice of any explosion or accident, or for any offence against the Act which occasioned loss of life or personal injury, may be directed by the Minister to be paid to the sufferers, or to the relatives of deceased sufferers, or to some of them, but not to any person who has contributed to the neglect or offence.

Section 72. *Sinking Rules.*—The special sinking rules which, at the commencement of this Act, are in force, shall continue to be in force until superseded by rules established under this Act.

Orders made before.

Section 75. All orders made by the Minister which are in force immediately before the commencement of the Act, continue to be in force under the Act.

General Rules.

Section 47. The following are the general rules which are to be observed as far as is reasonably practicable in every mine:—

Ventilation of Mine.

Rule 1. An adequate amount of ventilation shall be constantly produced in every mine, to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places shall be in a fit state for working and passing therein. The ventilation so produced shall be the supply of pure air in quantity not less than one hundred cubic feet per minute for each man, boy, and horse employed in the mine, which air (in that proportion, but with as much more as the inspector shall direct) shall sweep along the airways and be forced as far as the face of and into each and every working place where man, boy, or horse is engaged or passing, main return airways only excepted.

Every mine, except such as are worked on the long-wall system, shall be divided into districts or splits of not more than seventy men in each; and each district shall be supplied with a separate current of fresh air. The intake air shall travel free from all stagnant water, stables, and old workings. In the case of mines required by this Act to be under the control of a certificated manager, the quantity of air in the respective splits or currents shall at least once in every month be measured and entered in a book to be kept for the purpose at the mine.

Rule 2. Where a fire is used for ventilation in any mine newly opened after the commencement of this Act, the return air, unless it be so diluted as not to be inflammable, shall be carried off clear of the fire by means of a dumb drift or airway.

Rule 3. Where a mechanical contrivance for ventilation is introduced into any mine after the commencement of this Act, it shall be in such position and placed under such conditions as will tend to insure its being uninjured by an explosion.

Stations and Inspection of Condition as to Ventilation, &c.

Rule 4. A station or stations shall be appointed at the entrance to the mine, or to different parts of the mine, as the case may require, and the following provisions shall have effect :—

(i) As to inspection before commencing work :—

A competent person or competent persons appointed by the owner, agent, or manager for the purpose, not being contractors for getting minerals in the mine, shall within such time immediately before the commencement of each shift as shall be fixed by special rules made under this Act, inspect every part of the mine situate beyond the station or each of the stations, and in which workmen are to work or pass during that shift, and shall ascertain the condition thereof so far as the presence of gas, ventilation, roof, and sides, and general safety are concerned.

No workmen shall pass beyond any such station until the part of the mine beyond that station has been so examined and stated by such competent person to be safe.

The inspection shall be made with a locked safety-lamp, except in the case of any mine in which inflammable gas has not been found within the preceding twelve months.

A report specifying where noxious or inflammable gas, if any, was found present, the condition of the ventilation, and what defects, if any, in roofs or sides, and what if any other source of danger were or was observed, shall be recorded without delay in a book to be kept at the mine for the purpose, and accessible to the workmen, and such report shall be signed by, and so far as the same does not consist of printed matter, shall be in the handwriting of the person who made the inspection.

For the purpose of the foregoing provisions of this rule two or more shifts succeeding one another without any interval are to be deemed to be one shift.

(ii) As to inspection during shifts :—

A similar inspection shall be made in the course of each shift of all parts of the mine in which workmen are to work or pass during that shift, but it shall not be necessary to record a report of the same in a book : Provided that in the case of a mine worked continuously throughout the twenty-four hours by a succession of shifts, the report of one of such inspections shall be recorded in manner above required.

Inspection of Machinery, &c., above and below Ground.

Rule 5. A competent person or competent persons, appointed by the owner, agent, or manager for the purpose, shall once at least in every twenty-four hours examine the state of the external part of the machinery, the state of the guides and conductors in the shafts, and the state of the head gear, ropes, chains, and other similar appliances of the mine which are in actual use both above ground and below ground, and shall once at least in every week examine the state of the shafts by which persons ascend or descend ; and shall make a true report of the result of such examination ; and every such report shall be recorded without delay in a book to be kept at the mine for the purpose, and shall be signed by the person who made the inspection.

Fencing of Entrances.

Rule 6. Every entrance to any place which is not in actual use or course of working and extension shall be properly fenced across the whole width of the entrance, so as to prevent persons inadvertently entering the same.

Withdrawal of Workmen in case of Danger.

Rule 7. If at any time it is found by the person for the time being in charge of the mine, or any part thereof, that by reason of inflammable gases prevailing in the mine or that part thereof, or of any cause whatever, the mine or that part is dangerous, every workman shall be withdrawn from the mine or part so found dangerous, and a competent person appointed for the purpose shall inspect the mine or part so found dangerous, and if the danger arises from inflammable gas, shall inspect the mine or part with a locked safety-lamp ; and in every case shall make a true report of the condition of the mine or part ; and a workman shall not, except in so far as is necessary for inquiring into the cause of danger or for the removal thereof, or for exploration be re-admitted into the mine, or part so found dangerous, until the same is stated by the person appointed as aforesaid not to be dangerous. 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 who made the inspection.

Use of Safety-lamps in certain places.

Rule 8. No lamp or light other than a locked safety-lamp shall be allowed or used,—

(a) In any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous ; or

(b) In any working approaching near a place in which there is likely to be an accumulation of inflammable gas.

And when it is necessary to work the coal in any part of a ventilating district with safety-lamps, it shall not be allowable to work the coal with naked lights in another part of the same ventilating district situated between the place where such lamps are being used and the return airway.

Construction of Safety-lamps.

Rule 9. Wherever safety-lamps are used, they shall be so constructed that they may be safely carried against the air current ordinarily prevailing in that part of the mine in which the lamps are for the time being in use, even though such current should be inflammable.

Examination of Safety-lamps.

Rule 10. In any mine or part of a mine in which safety-lamps are required by this Act, or by the special rules made in pursuance of this Act to be used,—

(i) A competent person appointed by the owner, agent, or manager for the purpose shall, either at the surface, or at the appointed lamp station, examine every safety-lamp immediately before it is taken into the workings for use, and ascertain it to be in safe working order and securely locked ; and such lamps shall not be used until they have been so examined and found in safe working order and securely locked.

(ii) A safety-lamp shall not be unlocked except either at the appointed lamp station or for the purpose of firing a shot, in conformity with the provisions hereinafter contained.

(iii) A person, unless he has been appointed either for the purpose of examining safety-lamps, or for the purpose of firing shots, shall not have in his possession any contrivance for opening the lock of any safety-lamp.

(iv) A person shall not have in his possession any lucifer match or apparatus of any kind for striking a light except within a completely-closed chamber attached to the fuse of the shot.

Lamp Stations.

Rule 11. Where safety-lamps are required to be used, the position of the lamp stations for lighting or re-lighting the lamps shall not be in the return air.

Use of Explosives below ground.

Rule 12. Any explosive substance shall only be used in the mine below ground, as follows :—

(a) It shall not be stored in the mine.

(b) It shall not be taken into the mine, except in cartridges in a secure case or canister containing not more than five pounds : Provided that on the application of the owner, agent, or manager of any mine, the Minister may, by order, exempt such mine from so much of this rule as forbids taking an explosive substance into the mine except in cartridges.

(c) A workman shall not have in use at one time in any one place more than one of such cases or canisters.

(d) In the process of charging or stemming for blasting, a person shall not use or have in his possession any iron or steel pricker, scraper, charger, tamping rod, or stemmer ; nor in any mine or part of a mine in which safety-lamps are required by this Act to be used shall dry coal or coal-dust be used for tamping.

- (e) No explosive shall be forcibly pressed into a hole of insufficient size, and when a hole has been charged the explosive shall not be unrammed; and no hole shall be bored for a charge at a distance of less than six inches from any hole where the charge has missed fire: Provided that in cases where a fuse is used no person shall return to a place where such charge has missed fire until a period of eight hours has elapsed from the lighting of the fuse attached to such charge.
- (f) In any place in which the use of a locked safety-lamp is for the time being required by or in pursuance of this Act, or which is dry and dusty, no shot shall be fired, except by, or under the direction of, a competent person appointed by the owner, agent or manager of the mine; and such person shall not fire the shot or allow it to be fired until he has examined both the place itself where the shot is to be fired and all contiguous accessible places of the same seam within a radius of twenty yards, and has found such place safe for firing.
- (g) If in any mine, at either of the inspections under rule four recorded last before a shot is to be fired, inflammable gas has been reported to be present in the ventilating district in which the shot is to be fired, the shot shall not be fired,—
- (i) Unless a competent person, appointed as aforesaid, has examined the place where gas has been so reported to be present, and has found that such gas has been cleared away, and that there is not at or near such place sufficient gas issuing or accumulated to render it unsafe to fire the shot; or
- (ii) Unless the explosive employed in firing the shot is so used with water or other contrivance as to prevent it from inflaming gas, or is of such a nature that it cannot inflame gas.
- (h) If the place where a shot is to be fired is dry and dusty, then the shot shall not be fired, unless one of the following conditions is observed, that is to say:—
- (i) Unless the place of firing and all contiguous accessible places within a radius of twenty yards therefrom are at the time of firing in a wet state from thorough watering or other treatment equivalent to watering, in all parts where dust is lodged, whether roof, floor or sides; or
- (ii) In the case of places in which watering would injure the roof or floor, unless the explosive is so used with water or other contrivance as to prevent it from inflaming gas or dust, or is of such a nature that it cannot inflame gas or dust.
- (i) If such dry and dusty place is part of a main haulage road, or is a place contiguous thereto, and showing dust adhering to the roof and sides, no shot shall be fired there unless,—
- (i) Both the conditions mentioned in sub-head (h) have been observed; or
- (ii) Unless such one of the conditions mentioned in sub-head (h) as may be applicable to the particular case has been observed, and moreover, all workmen have been removed from the seam in which the shot is to be fired, and from all seams communicating with the shaft on the same level, except the men engaged in firing the shot, and such other persons, not exceeding ten, as are necessarily employed in attending to the ventilating furnaces, steam-boilers, engines, machinery, winding apparatus signals, or horses, or in inspecting the mine.
- (k) In this Act 'ventilating district' means such part of a seam as has an independent intake commencing from a main intake air-course, and an independent return air-way terminating at a main return air-course; and 'main haulage road' means a road which has been, or for the time-being is, in use for moving trams by steam or other mechanical power.
- (l) Where a seam of a mine is not divided into separate ventilating districts, the provisions in this Act relating to ventilating districts shall be read as though the word 'seam' were substituted for the words 'ventilating district.'

Water and Bore-holes.

Rule 13. Where a place is likely to contain a dangerous accumulation of water, the working approaching that place shall not, at any point within forty yards of that place, exceed eight feet in width, and there shall be constantly kept at a sufficient distance, not being less than five yards in advance, at least one bore-hole near the centre of the working, and sufficient flank bore-holes on each side.

Signalling and Man-holes for Travelling Planes worked by Machinery.

Rule 14. Every underground plane on which persons travel, which is self-acting or worked by an engine, windlass, or gin, shall be provided (if exceeding thirty yards in length) with some proper means of communicating distinct and definite signals between the stopping-places and the ends of the plane, and shall be provided in every case with sufficient man-holes for places of refuge, at intervals of not more than twenty yards, and of not less than six feet high, three feet wide, and four feet deep, or if there is not room for a person to stand between the side of a tub and the side of a plane, then (unless the tubs are moved by an endless chain or rope) at intervals of not more than ten yards.

Man-holes for other Travelling Roads.

Rule 15. Every road on which persons travel underground, where the load is drawn by a horse or other animal, shall be provided, at intervals of not more than fifty yards, with sufficient man-holes, or with places of refuge, and every such place of refuge shall be of sufficient length, and at least three feet in width between the waggons running on the road and the side of such road. There shall be at least two proper travelling ways into every steam-engine room and boiler gallery.

Man-holes to be kept clear.

Rule 16. Every man-hole and every place of refuge shall be constantly kept clear, and no person shall place anything in any such man-hole or place of refuge.

Dimensions of Travelling Roads.

Rule 17. Every travelling road on which a horse or other draught animal is used underground shall be of sufficient dimensions to allow the horse or other animal to pass without rubbing against the roof or timbering.

Fencing of Shafts.

Rule 18. The top of every shaft which for the time being is out of use, or used only as an air-shaft, shall be, and shall be kept, securely fenced.

Trolley over Pit Mouth.

Rule 19. Every shaft in course of sinking shall be provided with a trolley to run over the pit's mouth and receive the load when brought to the surface. Such trolley to be large enough to cover the opening at the pit top.

Fencing of Entrances to Shafts.

Rule 20. The top and all entrances between the top and bottom, including the sump, if any, of every working, ventilating, or pumping shaft shall be properly fenced, but this shall not be taken to forbid the temporary removal of the fence for the purpose of repairs or other operations if proper precautions are used.

Securing of Shafts—Sinking Pit to be cleared of Gas.

Rule 21. Where the natural strata are not safe, every working or pumping shaft shall be securely cased, lined, or otherwise made secure. Every shaft in course of sinking shall be kept clear of all noxious gases by a fan or some other appliance.

Securing of Roofs and Sides.

Rule 22. The roof and sides of every travelling road and working place shall be made secure, and a person shall not, unless appointed for the purpose of exploring or repairing, travel or work in any such travelling road or working place which is not made so secure,

Timbering.

Timbering.

Rule 23. Where the timbering of the working places is done by the workmen employed therein, suitable timber shall be provided at the working place, gate end, pass bye, siding, or other similar place in the mine convenient to the workmen; and the distance between the sprags or holing props, where they are required, shall not exceed six feet, or such less distance as may be ordered by the owner, agent, or manager.

Option of using Downcast Shaft.

Rule 24. Where there is a downcast and furnace shaft to the same seam, and both such shafts are provided with apparatus in use for raising and lowering persons, every person employed in the mine shall, on giving reasonable notice, have the option of using the downcast shaft.

Attendance of Engineman.

Rule 25. In any mine which is usually entered by means of machinery, a competent male person not less than 22 years of age shall be appointed for the purpose of working the machinery which is employed in lowering and raising persons therein, and shall attend for that purpose during the whole time that any person is below ground in the mine.*

When any shaft, plane, or level is used for the purpose of communication from one part to another part of the mine and persons are taken up or down or along such shaft, plane, or level by means of an engine, windlass, or gin driven or worked by steam or any mechanical power, or by an animal, or by manual labour, the person in charge of such engine, windlass, or gin, or any part of the machinery, ropes, chains, or tackle connected therewith, must be a competent male person not less than 18 years of age.

Where the machinery is worked by an animal, the person under whose direction the driver of the animal acts shall for the purpose of this rule be deemed to be the person in charge of the machinery.

Means of Signalling for Working Shafts.

Rule 26. Every working shaft used for the purpose of drawing minerals, or for the lowering or raising of persons shall, if exceeding 50 yards in depth, and not exempted in writing by the inspector of the district, be provided with guides and some proper means of communicating distinct and definite signals from the bottom of the shaft, and from every entrance for the time being in use between the surface and the bottom of the shaft to the surface, and from the surface to the bottom of the shaft, and to every entrance for the time being in use between the surface and the bottom of the shaft.

Overwinding.

Rule 27. If in any mine the winding apparatus is not provided with some automatic contrivance to prevent overwinding, then the cage when men are being raised shall not be wound up at a speed exceeding three miles an hour after the cage has reached a point in the shaft to be fixed by the Special Rules.

Cover Overhead.

Rule 28. A sufficient cover overhead shall be used for every cage or tub employed in lowering or raising persons in any working shaft, except where the cage or tub is worked by a windlass, or where persons are employed at work in the shaft, or where a written exemption is given by the inspector of the district.

Chains.

Rule 29. A single linked chain shall not be used for lowering or raising persons in any working shaft or plane, except for the short coupling chain attached to the cage or tub.

Prevention of Rope Slipping on Drum.

Rule 30. There shall be on the drum of every machine used for lowering or raising persons, such flanges or horns, and also, if the drum is conical, such other appliances as may be sufficient to prevent the rope from slipping.

Brake and Indicator.

Rule 31. There shall be attached to every machine worked by steam, water, or mechanical power, and used for lowering or raising persons, an adequate brake or brakes and a proper indicator (in addition to any mark on the rope), showing to the person who works the machine the position of the cage or tub in the shaft. If the drum is not on the crank shaft there shall be an adequate brake on the drum shaft.

Fencing Machinery.

Rule 32. Every fly wheel and all exposed and dangerous parts of the machinery used in or about the mine shall be kept securely fenced.

Safety-valves and Gauges for Boilers.

Rule 33. Each steam boiler, whether separate or one of a range, shall have attached to it a proper safety-valve and also a proper steam-gauge and water-gauge to show respectively the pressure of steam and the height of water in each boiler.

Barometer, &c.

Rule 34. A barometer and thermometer shall be placed above ground in a conspicuous position near the entrance to the mine.

Stretchers.

Rule 35. Where persons are employed underground, ambulances or stretchers, with splints and bandages, shall be kept at the mine ready for immediate use in case of accident.

Wilful Damage.

Rule 36. No person shall wilfully damage, or without proper authority remove or render useless, any fence, fencing, manhole, place of refuge, casing, lining, guide, means of signalling, signal, cover, chain, flange, horn, brake, indicator, steam-gauge, water-gauge, safety-valve, or other appliance or thing provided in any mine in compliance with this Act.

Observance of Directions.

Rule 37. Every person shall observe such directions with respect to working as may be given to him with a view to comply with this Act or the special rules in force in the mine.

Books and Copies thereof.

Rule 38. The books mentioned in these rules shall be provided by the owner, agent, or manager, and the books, or a correct copy thereof, shall be kept at the office of the mine, and any inspector under this Act, and any person employed in the mine may, at all reasonable times, inspect and take copies of and extracts from any such books; but nothing in these rules shall be construed to impose the obligation of keeping any such book or a copy thereof for more than twelve months after the book had ceased to be used for entries therein under this Act. Any report by this Act required to be recorded in a book may be partly in print (including lithograph) and partly in writing.

Periodical Inspection on behalf of Workmen.

Rule 39. The persons employed in a mine may from time to time appoint two of their number or any two persons not being mining engineers, who are practical working miners, to inspect the mine at their own cost; and the persons so appointed shall be allowed once at least in every month, accompanied, if the owner, agent, or manager of the mine thinks fit,

* Section 35. (iii) Competent male persons above the age of 18 who were lawfully employed for this purpose before October 1, 1896, may continue to be so employed.

fit, by himself or one or more officers of the mine, to go to every part of the mine, and to inspect the shafts, levels, planes, working places, return airways, ventilating apparatus, old workings, and machinery. Every facility shall be afforded by the owner, agent, and manager, and all persons in the mine, for the purpose of inspection, and the persons appointed shall forthwith make a true report of the result of the inspection, and that report shall be recorded in a book to be kept at the mine for the purpose, and shall be signed by the persons who made the inspection; and if the report states the existence, or apprehended existence, of any danger, the owner, agent, or manager shall forthwith cause a true copy of the report to be sent to the inspector of the district.

Person not to be Employed in Coal-getting without Experience.

Rule 40. No person not now employed as a coal-getter shall be allowed to work alone as a coal-getter in the face of the workings until he has had two years' experience of such work under the supervision of skilled workmen, or unless he shall have been previously employed for two years in or about the face of the workings of a mine.*

Penalty for Interference with Office of Check-inspector or Check-weigher.

Rule 41. If the owner, agent, or manager of any mine, or any persons employed by or acting under the instructions of any such owner, agent, or manager, interferes with the appointment of a check-inspector or check-weigher, or refuses to afford proper facilities for the holding of any meeting for the purpose of making such appointment, or attempts, whether by threats, bribes, promises, notice of dismissal, or otherwise howsoever, to exercise improper influence in respect of such appointment, or to induce the persons entitled to appoint a check-inspector or a check-weigher, or any of them, not to reappoint any particular person, or to vote for or against any particular person, in the appointment of a check-inspector or check-weigher, such owner, agent, or manager shall be guilty of an offence against this Act.

Wollongong, 7 August, 1902.

WE, Thomas Harold Meurant and John Ryall, being relatives of William Meurant and Henry Meurant, deceased, hereby appoint David Ritchie and Andrew Augustus Lysaght to attend and examine any witness at the inquest on the bodies of the above deceased, to be holden by the Coroner on the 11th instant and subsequent days.

THOMAS HARROLD MEURANT, Brother.
JOHN RYALL, Uncle.

Wollongong, 7 August, 1902.

WE, being a majority of the employees of the Mount Kembla Colliery, and a majority of the workmen employed at the said mine, hereby appoint David Ritchie and Andrew Augustus Lysaght to attend and examine any witness at the inquest on the bodies and cause of deaths of Nelson, Meurant, and MacCabe, to be holden by the Coroner on the 11th instant and subsequent days.

For and on behalf of the Mount Kembla Branch of the Illawarra Colliery Employees' Association, being a majority of the employees of Mount Kembla Colliery,—

JOHN WADDOW, Chairman.
FRANK MOON, Secretary.

Exhibit H.

REPORT.

WE have the honor to report as follows:—

About 5.45 p.m. on the 31st of July we received verbal instructions from Sir John See to proceed at once to the scene of a colliery explosion at Mount Kembla, and there, on behalf of the Government of New South Wales, render professional assistance to the injured and supply them with medical appliances and comforts.

Provided with three ambulance chests, we left Redfern Railway Station about 6.30 p.m. We reached Wollongong two hours later; here we arranged for the conveyance of the ambulance material to the mine, and went by coach to our destination, where we arrived between 10 and 11 p.m.

We reported our presence to Dr. Robertson, the Managing Director, and informed him that we were sent by the Government to be of assistance, and that we were at his disposal to perform any duties he may direct. He at once decided that each of us was to accompany a party into the mine. When the parties were about to leave the surface, he directed us to remain at the pit top and there await a message from him or his return from below. Upon making inquiries we learned that all injured men who had been brought alive from the mine after the explosion had been attended to either in their homes or at the Wollongong Hospital by the medical men of the district.

In a corrugated iron building at the north end of the pit top we examined twenty-eight bodies. *Rigor mortis* was present in each; this indicated that they had been dead for some hours.

At the house of Mr. Rogers, the Manager of the mine, we saw Mr. Bates, the Mining Inspector. He was in a dazed condition, and he was suffering from severe shock.

During the early morning of the 1st August we saw many bodies brought by bearers to the iron building before referred to. As each arrived we made an examination. Amongst the number were those of Major MacCabe and Mr. McMurray.

A number of men belonging to the search parties came from the mine during the night. Some of them were suffering from over exertion, and some probably from the inhalation of noxious gases. They were treated with material obtained from the ambulance chests.

We remained on duty at the pit-head throughout the daytime of the 1st of August. We continued to examine the various bodies as they were brought in. At 11.30 p.m. we had seen and examined sixty.

The causes of death were as follows:—

The majority of the bodies looked as if asleep, the features hardly disturbed, arms slightly bent across the chest, legs somewhat flexed, and feet everted; skin black with coal dust; *rigor mortis* well marked; colour, beneath conjunctive of eyeballs, on the mucous surface of the lips, and beneath the nails, of a more or less distinct red, giving an appearance unlike that seen in bodies dead from ordinary causes. Where the blood was oozing from wounds it was of a cherry-red colour, and in those cases where the skin was peeled from the palms the exposed surface was of a bright pink. The cause of death was evidently the inhalation of carbon monoxide, one of the gaseous constituents of the after-damp. Death must have been painless.

In two cases the *post-mortem* appearances were of a different kind. The faces were pale; the eyes, lips, and beneath the finger nails, blue. In one the tongue protruded and was bitten; the hands were tightly clenched. In the second there was copious frothing from the mouth. Death probably resulted from inhalation of after-damp.

Two men had been killed by injuries; their bodies were much shattered.

Some of the bodies were burned; the hair was singed, and the superficial skin peeled from the exposed parts to a variable extent; the peeling epidermis was peppered with partly burned coal-dust. Amongst these we noticed the two smallest. The clothes had been almost completely burned away, and the superficial skin from parts of the limbs and body was charred and peeled. The blood showing in the deep skin was red. The immediate cause of death was inhalation of carbon monoxide. The extent of the burns would probably have brought about early death, but not so rapidly as did happen.

The sixtieth body was brought to the iron building about 11.30 on the night of the 1st of August. Dr. Robertson ordered that when this had been done work was to be stopped for the night. As no search parties were in the mine we left the pit top.

On

* Section 64. Misrepresentation as to experience or previous employment in coal-getting is made an offence under the Act

On the morning of the 2nd of August we consulted Dr. Robertson as to the necessity for remaining longer. It was agreed that the mine was now free from noxious gases, that the majority of bodies had been found, that the local medical gentlemen would be able to meet all requirements, and that we could safely leave for Sydney.

We visited Mr. Bates and a lad named Stanley Richards. The former showed signs of improvement; the latter we directed should be removed to the hospital.

We telegraphed to Dr. Lee, the Medical Officer attached to the colliery, advising him the time of our departure, requesting that he should make arrangements to have any bodies brought from the mine examined, and telling him that the Government would defray expenses of any medical comforts it may be found necessary to order.

In concluding this report we have to state that every possible assistance was given to us in the performance of our duties by Mr. Vickery, jun., Dr. Robertson, Mr. Rogers, the mine officials, and the local medical gentlemen. The hospitality extended to us by the manager and Mrs. Rogers contributed in a marked manner to our comfort.

JOHN B. NASH, M.D.
ROBT. T. PATON, M.D.

Exhibit Q.

Sir,

13 May, 1898.

Referring to my visit to the Mount Kembla Colliery on the 11th instant, and our conversation on several matters, amongst which were:—

1. Old Davy lamps now used by deputies being considered as out of date and illegal under General Rule 9 should be replaced by another type of safety-lamp.
2. General Rule 4. As to reports being made at the "station" and before each shift commences, whether day or night.
3. General Rule 12. Blasting on haulage roads in presence of dust, and necessity for strict observance of the above rule.

I shall be pleased to hear from you on these matters.

I have, &c.,

A. A. ATKINSON,
Chief Inspector of Coal Mines.

Wm. Rogers, Manager, Mount Kembla Colliery.

Exhibit S.

TELEGRAM from Bulli Railway station to Jon. May, Teacher of Mining.

PARTY six inspect Kembla to-morrow; will you make one? Reply immediately.

D. RITCHIE,
Miners' General Secretary.

Coal Fields Office, Department of Mines and Agriculture,

Sydney, 30 April, 1902.

Sir, By direction of the Secretary for Mines, I have pleasure in enclosing herewith for your information copy of a Report by the authorities at the Woolwich Testing Station, England, with reference to the explosibility of certain coal-dusts collected in this State during last year, which were sent Home for testing purposes.

From this Report you will see that under the conditions specified, in all cases was an explosion produced, the intensity only varying.

Having regard therefore to the fact that large colliery explosions are sometimes produced by blasting, and propagated by means of coal-dust alone, it is necessary in the event of blasting taking place in your colliery in dry and dusty places, that the requirements of General Rule 12, section 47, Coal Mines Regulation Act, should be strictly complied with, and the vicinity of the shot thoroughly watered, as required by that rule.

I have, &c.,

A. A. ATKINSON,
Chief Inspector of Coal Mines.

The Manager, ——— Colliery.

Experiments carried out at the Home Office Testing Station at Woolwich during the months of August and November, 1901, to ascertain whether various samples of coal-dust from collieries in New South Wales were capable of causing an explosion when raised by the firing of a charge of blasting powder.

The method of testing.

A cannon of 2-in. calibre and with length of bore of 30 in. was placed with its axis vertical. A charge of two pellets of Curtis's and Harvey's blasting powder (145 grammes in weight) was inserted, and white pottery clay was well rammed on top of the charge to give a length of 9 in. of stemming. This clay is used for the various official tests at the Testing Station, and has been selected for the purpose on account of its purity, freedom from sand, and uniform character. It is obtained from the pottery works of Messrs. Doulton and Company under the following specification:—"The clay to lose not less than 7 per cent. and not more than 9 per cent. of its weight by gentle ignition, and to be of such grain that not more than 94 per cent. and not less than 90 per cent. pass through a sieve of ten meshes to the inch, and not more than 22 per cent. and not less than 20 per cent. pass through a sieve of twenty meshes to the inch."

The remainder of the bore was then filled with coal-dust and a heap of dust 6 inches in height placed on the muzzle. The charge was fired with a low tension electric fuze.

The tests.

Two shots of blasting powder were fired with each sample of coal-dust, and in every case an ignition of the dust took place, though with a varying degree of violence.

The ignitions appeared as a rule to commence about 6 ft. above the muzzle of the gun, but as the experiments were carried out in daylight, it was not possible to gauge the exact height. In some cases the flames appeared to be about 30 ft. in length and of about 4 ft. in diameter, and in other cases not more than about 10 ft. in length and of about a diameter equal to the length. There seems to be no satisfactory explanation of the variations. I have classified the explosions as mild explosion, explosion, and violent explosion. In the first case there was not complete combustion of all the dust, and the flame was somewhat obscured by the unburnt dust. Under the heading of explosion, I have included those cases in which the bulk of the dust was ignited; and under the heading of violent explosion, I have placed those ignitions in which the volume of flame was greater than in the two first cases. It is quite impossible to draw any hard-and-fast line between the three

three degrees, and, after all, the main point to be noted is that with all the samples of dust an explosion was obtained. In some samples there was a considerable amount of comparatively large grains of coal, and these grains fell to the ground in a shower after the finer dust had been exploded. On the whole, the dust seems to be of the same quality as that obtained in English coal-mines as regards its sensitiveness to ignition under the conditions of the test.

I may add that this test is of a somewhat more severe nature than that originally instituted (but now abandoned) of firing a charge into an atmosphere of suspended dust.

A. DESBOROUGH, Capt.,
Officer-in-Charge, Home Office Testing Station.

9/12/01.

No. of Shot.	Colliery.	Result.	No. of Shot.	Colliery.	Result.
1	Mount Pleasant	Explosion.	35	New Park	Explosion.
2	"	More violent explosion.	36	"	"
3	South Bulli	Violent explosion.	37	Pacific	Mild explosion.
4	"	"	38	"	"
5	South Clifton	Explosion.	39	Stockton	Explosion.
6	"	"	40	"	"
7	Coal Cliff	Mild explosion.	41	Hetton	"
8	"	"	42	"	"
9	Metropolitan	Explosion.	43	Co-operative	Very violent explosion.
10	"	"	44	"	Explosion.
11	Osborne Wallsend	"	45	Lambton	"
12	"	"	46	"	"
13	Zig Zag	"	47	West Wallsend	"
14	"	"	48	"	"
15	Oakey Park	Mild explosion.	49	Newcastle Company's A Pit	"
16	"	"	50	"	Violent explosion.
17	Bulli	Explosion.	51	Seaham	Mild explosion.
18	"	"	52	"	Explosion.
19	Corrimal	"	53	Greta	"
20	"	"	54	"	"
21	Mount Kembla	Violent explosion.	55	Wallsend	Violent explosion.
22	"	"	56	"	Explosion.
23	Bellambi	Mild explosion.	57	Burwood	"
24	"	Explosion.	58	"	"
25	Duckenfield	"	59	East Greta	"
26	"	"	60	"	"
27	Bloomfield	"	61	Dudley	Violent explosion.
28	"	"	62	"	"
29	Ebbw Vale (New Lambton)	Mild explosion.	63	Centenary	Explosion.
30	"	Explosion.	64	"	"
31	Wickham and Bullock Island	"	65	Waratah	"
32	"	"	66	"	"
33	New Winning	"	67	Brown's Colliery	"
34	"	"	68	"	"

A.D., 5/12/01.

ROYAL COMMISSION OF INQUIRY RESPECTING THE MOUNT KEMBLA
COLLIERY DISASTER.

MINUTES OF EVIDENCE.

TUESDAY, 6 JANUARY, 1903, 11:30 a.m.

[The Commission met at the Court House, Wollongong.]

Present:—

C. E. R. MURRAY, Esq., D.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER. | D. RITCHIE, Esq., COMMISSIONER.

Mr. Bruce Smith, Barrister-at-Law, instructed by the Crown Solicitor, appeared on behalf of the Crown.

Mr. A. A. Atkinson, Chief Inspector of Coal-mines, assisted Mr. Bruce Smith.

Mr. A. A. Lysaght, Solicitor, appeared on behalf of—

- (a) the representatives of deceased miners, wheelers, &c. (victims of the explosion);
- (b) the employees of the Mount Kembla Colliery (miners, wheelers, &c.); and
- (c) the Illawarra Colliery Employees' Association (the Southern Miners' Union).

Mr. C. G. Wade, Barrister-at-Law, instructed by Mr. F. Curtiss, appeared on behalf of the Mount Kembla Coal and Oil Company (Proprietors of Mount Kembla Mine).

(Mr. J. Garlick, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.)

1. *His Honor.*] Is there any other person who wishes to be represented or to appear personally? (*There was no answer.*)

2. *His Honor.*] I think, Mr. Bruce Smith, you wish to make some suggestion?

3. *Mr. Bruce Smith.*] Yes. I would like to make a suggestion to the Court with regard to the procedure. Of course the Court will settle its own procedure; but I am quite sure it will be open to suggestions from Counsel, especially in view of the fact that the questions to be examined by the Court have been already gone somewhat fully into before the Coroner and Coroner's Jury. The Court does not necessarily require to have any issues before it; but I take it that the Court would like to have some definite propositions to which the evidence can be applied: and it seemed to me from what I saw of the inquiry before the Coroner and the Coroner's Jury that the investigation shaped itself into three different points of view. The Crown, of course, is merely here to see that the investigation is a full one, and to see that any light that can be thrown from any direction on the subject of the inquiry which is omitted, either on the part of the employees or on the part of the Company, should be supplemented from the Crown's point of view. Now, the course adopted before the Coroner's Jury was this: The police brought forward all the evidence that they had with regard to the deaths of the men who were in the mine at the time of the accident. They brought forward a number of witnesses who were rescued from the mine, a number of witnesses who had gone into the mine for the purpose of rescuing: and had seen the condition of things immediately after the explosion or accident: then, having had that evidence before the Coroner, the interests which were represented by Mr. Lysaght put forward a number of witnesses to give their version as practical men, of what they had seen, the data upon which they formed their conclusions. They put forward conclusions, practical conclusions, for what they were worth, as to the cause of this disaster. Then the Manager was put into the box, and he gave his view of the matter without presenting to the Coroner or the Jury any very clear propositions as to how the thing took place: and one or two other witnesses were called on the theoretical view of the question; and the case was finished. Now, I was going to propose to the Court that the Commission, I suppose, will first of all call such evidence as was previously called by the police.

4. *His Honor.*] The Commission does not intend to recall that evidence. The Commission views that as evidence already given.

5. *Mr. Bruce Smith.*] I mean to say that that part of the evidence will be really brought before the Commission by the Commission itself. I was going to propose then that Mr. Lysaght should bring whatever evidence he has—it is all of a practical character,—and that the Department should then give what evidence it can offer with regard to the cause and the locality of this accident: and then that Mr. Wade, on behalf of the Company, should be allowed to call his witnesses last, on condition that both Mr. Lysaght, as representing the men, and I, as representing the Department, should be allowed to answer any fresh evidence or any new theory, other than that which has already been formulated which may be brought forward by the witnesses called by Mr. Wade. So that, according to my suggestion, the order would be 1st, those witnesses who have already been before the Coroner, then, 2nd, any further evidence that Mr. Lysaght chooses to call; 3rd, Mr. Atkinson, the Chief Inspector, and any other witnesses of that character that the Department chooses to call through me; and, 4th, Mr. Wade's witnesses, with the right on both Mr. Lysaght's part and my own, to answer them. I think the Court would find that that would exhaust all the evidence that it wishes to have before it.

6. *His Honor.*] Yes, allowing a fair amount of latitude of course in the way of answering issues that may crop up accidentally in the course of the inquiry, and calling witnesses out of their order who may be discovered during the time that the inquiry is being held. That seems to me, and seems to us generally I think, to be a very fair suggestion. Mr. Lysaght, I suppose you fall in with it?

7. *Mr. Lysaght.*] Yes, Your Honor. I indicated that in a letter sent to the Commission some days ago.

8. *His Honor.*] And Mr. Wade?

9. *Mr. Wade.*] Yes, Your Honor.

10. *His Honor.*] Of course the Commission may call witnesses at any stage of the proceedings. Fresh light being thrown on the matter from day to day, the Commission may see that it is necessary to call witnesses *de novo*: but, if any of those witnesses should by their evidence require answering from any side, an answer will be allowed at any stage of the case. Your suggestion is only as to the general course?

11. *Mr. Bruce Smith.*] Yes.

12. *His Honor.*] And that course is not a hard and fast one.

13. *Mr. Bruce Smith.*] I take it that the Court will not be bound by any hard and fast rules.

14. *His Honor.*] That is to be understood with regard to every phase of the matter. What the Commission wants to do is to try and find out the truth as to the past and what should be recommended as to the future—not in the interests of any particular person or party, but in the interests of the State generally.

15. *Mr. Bruce Smith.*] Might I suggest that that part of the Commission in which the Court is directed to inquire should be read in Court, so that we may take it that there is a series of channels of inquiry to which our attention may be directed.

16. *His Honor.*] I think it would be as well if the enacting or directory part of the Commission were read now openly in Court, so that any one now present may hear what the actual terms are. Mr. Garlick will read it to you.

17. *Mr. Garlick* then read from the Commission as under:—

“KNOW YE that we . . . do . . . authorise and appoint you or any two of you . . . to make a diligent and full inquiry into the causes of the explosion that recently occurred at the Mount Kembla Colliery, in the District of Illawarra, in Our State of New South Wales, whereby many valuable lives were sacrificed; and also to investigate all the surrounding circumstances, in order to ascertain whether blame attaches to any person or persons, and, if so, to report the person or persons to whom, in your opinion, the blame attaches; and, further, to make any recommendation affecting the general management, especially the ventilation, of collieries; and to offer any suggestions which you may deem advisable for the amendment of the law relating to the working of coal mines, especially with regard to the treatment of coal-dust, the prevention of the accumulation of dangerous gases, and the use of safety-lamps and explosives . . .”

18. *Mr. Wade.*] Your Honor, I wish to mention one matter—a matter, I confess, of a somewhat delicate nature: and it really involves a request to a member of the Commission for his consideration as to the position he occupies in this inquiry: and I do it with every sense of the difficulty of the position I am in, and in no way desiring for a moment to criticise the method of appointment adopted by the Executive: because I assume,—and I am perfectly justified in assuming this,—that the Executive, when they made the appointment of this Commission, did so with all the information before them and with a full desire to represent, as they thought, fairly, all interests upon this Royal Commission.

But there are matters which Your Honor and Mr. Ritchie will notice which are such that I think, if I put them before him now and make the appeal to him, I may look with some confidence to his taking no part in this inquiry. I felt a little difficulty about this matter until a few minutes ago I heard the terms of this Commission read, because I thought it might render the whole terms of this Commission abortive; but it appears from the Commission itself that any two Members of the Commission may take part and have jurisdiction on the questions submitted to them, and there would be no wrong done, there would be no abortive results of the inquiry here, and it would relieve those whom I may call the defendants of what they feel is a very unhappy position that they at present stand in. The application I am at present going to make—and I do it with every courtesy—is that, under the circumstances that have taken place in this case before, Mr. Ritchie would see his way not to sit in this inquiry. Now, it is not without precedent that I make this application, because, as Your Honor will know, it is not an uncommon thing in civil and criminal jurisdictions in the State that, if there is any suggestion made by the party before the Court that the tribunal which is to try his matter is in any way prejudiced, or has preconceived opinions, or has prejudged the case, it is considered wiser in the interests of justice, generally speaking, that some other tribunal should be appointed to hear the case: and, as a matter of fact, the Judges have as a rule fallen in with any suggestion of that kind. The veriest criminal before the Court has the right, if he thinks fit, to say that he objects to this juryman or that juryman on the ground that he has prejudged the matter in some way or other. Now the most important matter in the scope of the Commission evidently is to ascertain if any person or persons are to blame in connection with this disaster, which took place at Mount Kembla in July last; and there is a perfect and full scope and jurisdiction given to the Commission to, first of all, pronounce a finding which may involve the Company in a liability for damages; and, secondly, which may involve the Company in a prosecution under the Coal Mines Act; and, last, which may involve the Manager, or other high officials at the mine, in prosecutions for manslaughter: and, under those conditions, it is absolutely essential, at all events for the feeling of security and sense of fairplay on the part of the defendants, (the Company) before the Court here, that they should be able to say that their case comes before a tribunal which has not formed any opinion in any way adverse or prejudicial to their case before the inquiry.

I want to refer very shortly to two things, and to put it as courteously as I can to Mr. Ritchie, and to ask him if those remarks that are put forward do not make a difficulty in his way in sitting here and acting in this case, in an absolutely impartial and unbiassed manner. Of course if he can say in the face of this statement that he can do that the defendants will be relieved.

Mr. Ritchie made certain statements in his cross-examination before the Coroner. He stated that he had made the inspection of the Mount Kembla Colliery because he had seen in the papers that Dr. Robertson was taking in parties of Managers to make official inspections; and he says:—

“In one of those reports I saw that Dr. Robertson had given a definite opinion as to the cause of the disaster; knowing, from my experience, that Dr. Robertson could generally get Mine Managers to say what he liked, I made the application to take in six practical men, in order that, if the parties who had been inspecting on behalf of Dr. Robertson gave evidence which was not in accordance with facts, we should be able to have this party of practical men to give evidence how they found the state of the mine after the disaster.”

Well,

Well, the implication conveyed by that statement to the mind of Dr. Robertson—I speak now under instruction—and to the minds of the Mine Managers referred to there, is that Dr. Robertson is capable of influencing men improperly in regard to their evidence; and that the Managers themselves were so craven as to stoop to be influenced by Dr. Robertson in that improper way; and what they feel is that to come before the tribunal as now constituted, one member of which has made that statement, and that statement being uncontradicted, unqualified and unaffected, they feel that the Commission, cannot take that calm and judicial view of their evidence which they are entitled to in a Court of judicial inquiry. I understand that some if not all of these gentlemen asked Mr. Ritchie some time ago if that could be withdrawn; and his reply was, I am instructed, that he had not time to attend to the question then: and I take it that, this statement being made sincerely and solemnly under oath in the Coroner's Court, Mr. Ritchie cannot very well withdraw from it now. If he can withdraw from it, then I say that the difficulty of the Mount Kembla Company is very much reduced; and their position in this inquiry is materially altered if Mr. Ritchie can say now that he does not in that statement impute any dishonesty to Dr. Robertson or to the Mine Managers acting in conjunction with him: but if these statements remain unaltered the Company feel the very great difficulty they are in that one member of the tribunal should sit here, he having formed that opinion as to their credibility before they come into the box at all.

Then again, with regard to the cause of this disaster, Mr. Ritchie himself expressed the opinion "I am satisfied it was caused by an explosion of coal-gas." Now, as was foreshadowed at the Coroner's inquest, although the evidence was not called on the part of the Company, the case of the Company will be that this trouble was not caused initially by an explosion of coal-gas at all. They have evidence to put before the Court that coal-gas did not play a part in the initial disturbance that caused the death of those men on that day. This puts Mr. Ritchie in an awkward position: but, quite apart from that, the Company feel that if their case is successful they have to overcome an expressed opinion of Mr. Ritchie's which he came to before this inquiry began; and under those circumstances they feel that they have not that security which they have a right to expect from any tribunal if they come before this Court to give their evidence with those statements unqualified and unretracted by Mr. Ritchie. I feel in a very difficult position in dealing with the matter at all, that I am instructed to mention this—not to find fault with the action of the Executive: this is no place to complain of that—but because there are certain facts unknown to the Executive, but known to Mr. Ritchie himself, which, we feel, if put quietly and calmly before Mr. Ritchie, will influence him to see the difficulty he is in and we are in in coming before this Commission on this inquiry: and we appeal to the sense of fairplay which animates every man; and when he realises the difficulty we feel in coming before this tribunal to give evidence in regard to this inquiry under these circumstances we hope he will see his way, without any loss of dignity to himself, to withdraw from the inquiry, and allow the inquiry to be conducted by the other two members of the Commission. We feel it as a duty to ourselves partly, and out of respect to the tribunal itself, that we ought to appear here and be represented on this inquiry; but, as to the other matters, we feel it our duty to bring these matters before Mr. Ritchie and appeal to his sense of fairplay, which I am sure animates him, and ask him whether he cannot qualify this statement which affects the witnesses to be brought before the Commission, or to retire altogether. If he can retract it in any way a very great load will be lifted from the minds of the Company and from the minds of those persons who are to be called by the Company. We are prepared to appear here and to go on; but we ask first of all that this question shall be considered by Mr. Ritchie. I can only say that an appeal of this kind has never been unsuccessful, and I only hope that Mr. Ritchie will see his way to reconsider the position; and he will not set a precedent which will be fraught with danger to the administration of justice.

19. *His Honor.*] This is a matter which, as Chairman of the Commission, I may say is in a sense entirely personal between Mr. Ritchie and the Company: but, as Chairman, I feel bound to speak on the matter whether Mr. Ritchie does or does not wish to say anything.

First of all, as to whether this Commission can be constituted without Mr. Ritchie as a constituent member of it, I certainly think, and Mr. Robertson agrees with me, that in the intention of the Commission it certainly cannot be said to be constituted by the sole action of two of the Commission; and I should certainly refuse to go on with the work of the Commission if Mr. Ritchie thought fit not to continue to act as a member of it. It may be, of course, that it is within the terms of the Commission that the conclusions arrived at by two of the Commissioners will be treated as the conclusions of the Commission; but the action throughout, the consideration, must certainly be the action and consideration of the three Commissioners: and this would be entirely a lopsided matter if it were so constituted—I mean it would be, not in fact, at all, but in the opinion of the public, a lopsided Commission if it did consist only of myself, absolutely independent of all inclinations or tendencies or bias, and known to be so, and of a gentleman who is just as absolutely free from all bias as I am, but whose occupation puts him in the position of appearing to the public generally as if he might possibly have an inclination towards one side. But, apart altogether from that question, the question as to whether this Commission could possibly be said to be properly constituted if Mr. Ritchie were to retire from it, I might mention—and I think my colleagues will certainly sanction my mentioning this fact—that I have had occasion, because of a letter written to the Commission publicly by the Company, to very carefully consider this very question of whether or not in the face of what has happened and in the face of what I have myself observed Mr. Ritchie is or is not an absolutely fair and unbiassed member of a Court which has to deal with the rights of every one equally without prejudice or favour of any kind; and I may say that, having looked into the matter and very carefully considered it, I have come to the conclusion that it cannot possibly be suggested for a moment that Mr. Ritchie is in fact not such an absolutely fair constituent of the Court as that he should not remain a member of the Court. I will not go into all the particulars of my consideration of the matter, but I will simply say that very carefully considering everything, looking into the fact that Mr. Ritchie was compelled to give evidence and did give evidence, looking into the fact that he holds a certain position in relation to the miners, looking into all the circumstances of the case, I have concluded and have satisfied myself that Mr. Ritchie is a perfectly fair, independent, unbiassed, unprejudiced, and honorable member of this Court; and, even if he did happen to form some opinion in the course of the investigation which he had to make in the past, I have come to the conclusion that he, if he should hear evidence which would fairly satisfy him that that conclusion is not correct, will be perfectly ready to form what on the face of the evidence would appear to a reasonable man to be a proper conclusion. Under these circumstances I must say that I do not consider that, as Chairman of this Commission,

Commission, I am bound even to ask Mr. Ritchie to justify himself on this matter. I only say that, if Mr. Ritchie wishes to say anything or wishes to take any course, or to adopt any line of conduct, that is entirely a matter for himself; but I do not put him in an invidious and unpleasant position by, as Chairman of this Commission, even suggesting to him that he should express any intention or any opinion. As far as I am concerned, and as far as Mr. Robertson is concerned, we are perfectly content to go on with this inquiry with the tribunal which the Executive has thought fit to constitute, feeling sure that every justice will be done by every member of the tribunal towards every person and every set of persons whose future action or whose past conduct may be affected by the conclusion to which the Commission will ultimately arrive.

20. *Mr. Ritchie.*] I do not wish to take up the time of the Court by any lengthy reply; but I just wish to state that all this matter which has been brought before the Court by Mr. Wade has been brought under my notice before and also under the notice of the Executive. I have carefully considered the matter; and I presume the Executive has also done so; and after careful consideration I have come to the conclusion that I can sit on this investigation with a perfectly fair and open mind. I shall be quite prepared to make the recommendations which I may think fit to make, based entirely on the evidence which is placed before this Commission for their consideration, apart altogether from any opinion which I may hold or may have formed; and in view of those facts I have determined that I shall sit.

21. *Mr. Wade.*] May I state, only in fairness to the Court itself, that after the expression of opinion by Your Honor and Mr. Ritchie the Company feel greatly relieved with regard to their position before this Court. Of course they had not had the opportunity of hearing your expression of opinion before this occasion; and now they have had it I may say they are perfectly willing to put their case before this Commission.

22. *His Honor.*] I am very pleased to hear you express that final opinion as the conclusion to which you and your clients, the Company, have arrived.

Now the evidence will be called. Mr. Lysaght, there are certain witnesses whom you asked to have subpoenaed. They have been subpoenaed, and I presume some of those subpoenaed for to-day are now present. The usual order will be made for the exclusion of all witnesses.

23. (All witnesses present were ordered out of the Court.)

24. *Mr. Lysaght.*] It occurred to me, Your Honor, this morning that it might facilitate the conduct of the Commission if I mentioned at this stage certain recommendations which the Union instructed me to respectfully make to the Court in order that Mr. Wade and Mr. Bruce Smith might consider them as the inquiry proceeded: and also some general recommendations from the employees of the Mount Kembla Colliery. If they were heard now on a general statement from me it might not be necessary to call witnesses to support some of them. They might be agreed to. Your Honor will have no objection to that?

25. *His Honor.*] No, certainly not.

26. *Mr. Lysaght.*] I would like Your Honor to differentiate the recommendations that are made by the union as a body from some particular recommendations that are sent to me by the Kembla Lodge, representing the employees of Mount Kembla Colliery.

The recommendations as from the Union are these:—

1. That the Coal Mines Regulation Act should be amended to provide that all Managers, under-managers, deputies, and shot-firers, should hold certificates of competency gained by examination before they be entitled to occupy any of those respective positions.

Supplemental to that, Your Honor:—

2. That they should also have five years' practical experience, in addition to their certificate by examination.
3. That the Inspectors should be vested with an absolute power to order the use of safety-lamps wherever they may deem them necessary.
4. That all collieries be ventilated by means of fans, and that ventilation by means of a furnace be absolutely prohibited.
5. That all waste workings should be absolutely sealed off; and in case of any emissions from the wastes such wastes should be surrounded by return air-ways to catch those emissions.

27. *His Honor.*] I understand you to mean not "in case of" but "for fear of."

28. *Mr. Lysaght.*] For fear of. We ask for an absolute sealing off.

29. *His Honor.*] Of course it reads grammatically, or according to the interpretation of the language, it would read as if you had to wait until there had been a blowing out of a stopping: but you mean for fear of the blowing out of a stopping.

30. *Mr. Lysaght.*] Yes, so that the emissions, if there should be any, shall not come in contact with any intake.

31. *His Honor.*] Just read that again, the last part.

32. *Mr. Lysaght.*] That the wastes be surrounded by return air-ways, to carry off any such emissions—(Interrupted).

33. *His Honor.*] It comes to this, that all waste workings be absolutely sealed off, and be also surrounded by return airways?

34. *Mr. Lysaght.*] Yes, Your Honor, and that the return airway shall not in any case come in contact with an intake, that is to say, not to pass over it, but to interfere with the free intake.

35. *His Honor.*] It is rather difficult to say what that means. You see a return and an intake cannot be mixed up in any case; but you may have a return which is riskily near an intake.

36. *Mr. Lysaght.*] Perhaps I might mention that there appears to be some evidence that in Kembla Mine the return airway did actually come in contact with the intake.

37. *Mr. Wade.*] Do you mean the undercast or the overcast?

38. *Mr. Lysaght.*] No, that the return airway actually intercepted the intake airway before it reached the shaft.

39. *His Honor.*] What you mean really is that the separation between return and intake should be, as it always ought to be in all cases, a thoroughly serviceable and good one. Of course any kind of separation between them may be blown out. That cannot be prevented. It may in some cases be blown out by an explosion; but it should be of a substantial nature, you mean?

40. *Mr. Lysaght.*] Yes: that it should be so strict that there cannot be any except a very remote possibility of the return coming into contact with the intake.

41. *His Honor.*] In point of fact it might be taken to mean that intake and return airways should always be substantially separated.

42. *Mr. Lysaght.*] I think that would do, Your Honor. Of course, the whole thing is subsidiary to the chief proposition for the sealing off.

43. *Mr. Bruce Smith.*] I take it that these are only a general indication of what Mr. Lysaght is going to suggest by-and-bye; and that they will be subject to modification after his evidence has been given. I was going to suggest that Mr. Lysaght might hand his recommendations to the Secretary, who might have them typed for us.

44. *His Honor.*] When Mr. Lysaght has gone through them in a general way very likely the other two representative advocates will be able to see whether in a general way they agree or disagree with the suggestions.

45. *Mr. Lysaght.*] Yes.

46. *Mr. Bruce Smith.*] We will be able to judge how far they are supported by the evidence that is brought by Mr. Lysaght.

47. *Mr. Lysaght.*]

6. That with the exception of prospecting drives all places be provided with cut-throughs not more than 30 yards apart.

7. That an extra supply of safety-lamps and requisites equal to one-third of the number of persons employed below ground be kept constantly in good order and ready for use.

48. *His Honor.*] That is to say, for the number of persons employed there should be one and one-third safety-lamps available?

49. *Mr. Lysaght.*] Yes, as a surplus supply to meet emergencies.

50. *His Honor.*] That is where safety-lamps are used in the mine.

51. *Mr. Lysaght.*] Yes, safety-lamps, or general safety appliances. Your Honor will see that there is provision for stretchers and things like that. It is general. The most improved safety appliances —

(*Interrupted.*)
52. *His Honor.*] I thought you meant at first—perhaps Mr. Robertson may have thought so, and Mr. Ritchie might think so—that you spoke of safety-lamps and appliances relating to safety-lamps: but you speak of appliances generally of all kinds?

53. *Mr. Lysaght.*] Yes, conducive to the safety of the pit.

54. *His Honor.*] Perhaps you might express that better?

55. *Mr. Lysaght.*] I can supplement that with the evidence of the miners.

56. *His Honor.*] But you can easily see that a rule of that kind having relation to safety-lamps differs so much from a rule of that kind having relation to other things—stretchers for instance—that it is not expedient to mix the two up together. For example, you would not want one and one-third number of stretchers—that would be useless; but it might well be that you would want one and one-third number of safety-lamps.

57. *Mr. Lysaght.*] I quite see that. Your Honor will see that it is open to alteration by the Commission. It is a mere suggestion which was handed to me this morning in a very rough form. Now, those practically exhaust the recommendations sent to me in writing from the Delegate Board. What I am going to give now about watering is from the Union, but not from the executive officers of the Delegate Board.

8. Regarding the watering of the roads, that the travelling roads as well as the haulage roads should be properly watered.

Now, the next recommendations come specifically from the Mount Kembla Lodge through their President:—

9. That the certificate of the Manager, Mr. Rogers, should be cancelled, in view of the evidence given at the inquest and of other matters to be brought before the Commission.

10. That Managers should be compelled to give more personal time and attention to the management of the colliery.

58. *His Honor.*] There you have a comparative without the positive, Mr. Lysaght, so we do not exactly know what that means.

59. *Mr. Lysaght.*] Well, the Commission might see their way to frame a clause providing that at least two or three times a week the Manager should inspect the inner workings of the colliery as far as his general business will allow, instead of, as I understand in some cases happens, perhaps, being absent for a week or two and leaving it to the under-men.

11. An amendment of General Rule 4, which provides for inspections, Your Honor, but makes an exception that the inspection need not be with the locked safety-lamp, except when gas has been discovered there within the preceding twelve months. We ask that the inspection with the locked safety-lamp should be in all cases—cutting out that exception from the General Rule 4.

12. That there should be a monthly examination by the deputies and the District Inspector with the hydrogen flame, and a special report made in a book to be specially kept for the purpose.

13. That all miners and all employees of the colliery be fully instructed from time to time in all possible means of escape in case of any disaster.

60. *His Honor.*] That is boat drill. We can leave that at present an open question in mines: but it is certainly not an open question at sea.

61. *Mr. Lysaght.*] We know of one case of a person who could have been saved if he had known the way out. He took a wrong turning when he was within a very short distance of safety.

Regarding ventilation specifically, we ask for an amendment of Rule 1 to section 47, which reads that 100 cubic feet of air should be forced through for every man, boy, and horse, and—

14. That the words "500 cubic feet of air" should be inserted for every horse. The rule would then read that 100 cubic feet should be provided for every man and boy, and 500 cubic feet for every horse.

15. That all doors should be so constructed and erected as to close of their own motion.

16. That there should be erected double doors on the drives between the main intakes and returns, and on the main headings where skips are passing.

Your Honor will see that it frequently happens in a pit that one door is open while trucks are passing through and a considerable quantity of air escapes until the trucks have passed and the door is closed.

62. *His Honor.*] It is what may be called the lock system?

62½. *Mr. Lysaght.*] Yes.

17. That instruments shall be placed at the upcast to determine the variations of heat and air pressure.

18. That a weekly measurement of the air should be taken in each section, and a report sent to the Inspector.

It is only provided now that there be a monthly taking of the air. His Honor will permit me to read from page 240 of Abel the terms in which we ask that the recommendations might be made.

"That the Manager or under-manager shall measure the ventilation at least once a week, at the inlet and outlet, and also at or near the face of all the entries; and the measurement of the air so made shall be noted on blanks furnished by the Mine Inspector."

That is, reading from one of the Mining Laws of Colorado.

19. That the size of the manholes should be enlarged. I understand they are now 3 feet x 4 feet deep; but they should be enlarged to such a size as the Commission may consider necessary.

63. *Mr. Wade.*] What height would you like them?

64. *Mr. Lysaght.*] The height is specified—6 feet.

20. That the Coal-mines Act should contain a clause forbidding a black-list being kept of employees: and penalising the improper prevention of discharged persons obtaining employment.

If Your Honor will permit me, I will read on that the Act for the protection of discharged employees. Mining Laws of Iowa, passed in 1888.

"Section 1. That if any person, agent, company, or corporation, after having discharged any employee from his or its service, shall prevent or attempt to prevent by word or writing of any kind such discharged employee from obtaining employment with any other person, company, or corporation, except by furnishing in writing, on request, a truthful statement as to the cause of his discharge, such person, agent, or corporation shall be guilty of a misdemeanour, and shall be punished by a fine not exceeding five hundred dollars nor less than one hundred dollars; and such person, agent, company, or corporation shall be liable in penal damages to such discharged person, to be recovered by civil action; but this section shall not be construed as prohibiting any person or agent of any company or corporation from informing, in writing, any other person, company, or corporation, setting forth a truthful statement of the reasons for such discharge.

"Section 2. If any railway company, any other company or partnership or corporation, in this State shall authorise or allow any of its or their agents to black-list any discharged employees, or attempt by word or writing or any other means whatever to prevent such discharged employee, or any employee who may have voluntarily left said company's service, from obtaining employment with any other person or company, except as provided for in section 1 hereof, such company or co-partnership shall be liable in treble damages to such employees so prevented from obtaining employment, to be recovered by him by civil action."

I propose to support that recommendation by evidence immediately, Your Honor.

Those I think are all the recommendations, except one matter that I have been asked specially to mention this morning. I understand, Your Honor, from the President of the Mount Kembla Union that the practice is now in the No. 1 District for the safety-lamp to be unlocked to light the fuse to fire a shot. It is quite clear that so long as that is permitted the men are under a continual danger; and perhaps, that matter being known now, some steps might be taken to prevent it, as the men feel, that while that is permitted, the whole object of the safety-lamp is defeated. Instead of using a wire to light the fuse, they open the safety-lamp to light it. I am instructed that that was done by the deputy.

That practically summarises the suggestions, Your Honor.

65. *Mr. Bruce Smith.*] I take it that my friend is going to support all those propositions by evidence, or endeavour to do so. I think it would be fairer to the Department and to the Company, speaking for both, if he would formulate those somewhat in the nature of a series of propositions; because they would be rather diffuse as they appear in the notes.

66. *His Honor.*] If they were crystallised into as clear and as concise a form as possible, and typed, and a copy given to Mr. Bruce Smith and Mr. Wade, it would be better. The Commission could have them typed if you have a clear copy in manuscript.

67. *Mr. Bruce Smith.*] It may be that the Department may fall in with some of the suggestions: it may be that we wish to offer slight or large modifications of them; but unless we have them specifically before us it is impossible to know what Mr. Lysaght is contending for.

68. *His Honor.*] Some of them it would seem that the Government would fall in with, and others that the Company would fall in with, but there are others certainly that the Company would not fall in with.

69. *Mr. Lysaght.*] I understand that the evidence taken is to be typewritten, and that a copy will be ready for us next morning.

70. *Mr. Bruce Smith.*] But in that form it is too diffuse.

71. *His Honor.*] Some of them on the face of them want bringing down to a narrow compass and making much clearer. You have evidently not had much time, Mr. Lysaght.

72. *Mr. Lysaght.*] Some of them only reached me this morning, Your Honor.

73. *His Honor.*] Perhaps during the adjournment you could get them into as clear and concise a form as possible.

74. *Mr. Bruce Smith.*] By to-morrow morning.

75. *Mr. Lysaght.*] By to-morrow morning.

76. *His Honor.*] But in the meantime their not being absolutely received or rejected would not prevent you from calling your witnesses?

77. *Mr. Lysaght.*] Just so. Might I ask that I be supplied with a plan of the mine?

78. *Mr. Bruce Smith.*] I would like to state that before the Coroner and Jury Mr. Atkinson had a number of lithographs prepared so that each witness who was called could deal with one lithograph, which was marked with his name and put away as the diagram of his evidence.

79. *His Honor.*] Those are all here.

80. *Mr. Bruce Smith.*] We shall have a number of blank plans here as well.

81. *Mr. Wade*] The difficulty in the way of the Company is this, that they do not want information about the workings of their mine to get about broadcast. They are perfectly willing to let Mr. Lysaght have a plan of the mine for the purpose of the inquiry; and that was done in the Coroner's Inquiry. We asked him there to return it to the Company or the Department after the inquiry, so that it should not get away to the public.

82. *Mr. Lysaght*] But, Your Honor, I will be making a number of notes on the plan which I do not wish to become known to the proprietary.

83. *His Honor*] A plan which you asked to be considered private would be considered absolutely privileged when returned to the Commission; and if you wished that it should be destroyed it might be destroyed.

84. *Mr. Lysaght*] Very well. With regard to the plan which I had at the inquest the sergeant of police informs me that he has it and he will return it to me with your permission.

85. *His Honor*] Yes.

86. *Mr. Lysaght*] Might I also ask that I might be furnished with a printed copy of the depositions taken at the inquest?

87. *His Honor*] Yes. [*The plan and evidence were handed to Mr. Lysaght.*]

88. *Mr. Bruce Smith*] Do I understand that the Commission take the whole of this evidence as having been given?

89. *His Honor*] Yes. That is taken as having been given. Anyone can recall any of those witnesses for the purpose of further evidence, for the purpose of cross-examination, for any purpose; and the Commission will cause him to be summoned if he can be obtained.

90. *Mr. Bruce Smith*] Even for the purpose of re-examination?

91. *His Honor*] Yes.

92. *Mr. Bruce Smith*] I desire to re-examine Mr. Atkinson. This (*the depositions*) is a very summarised statement of evidence; and with an important witness like that I should ask to re-examine him even if he went over some of the same ground: so that I take it that there will be power to recall any witness for any purpose, subject to the ruling of the Court.

MR. THOMAS RICHARD MORGAN was sworn, and examined:—

Examination-in-chief by Mr. Lysaght:—

93. *Q.* Your name is Thomas Morgan? *A.* Thomas Richard Morgan.

94. *Q.* You reside at Woonona? *A.* Yes.

95. *Q.* And you are a miner? *A.* Yes.

96. *Q.* Employed where? *A.* At the Bellambi Colliery.

97. *Q.* You are also the Treasurer of the Illawarra District Union, the Illawarra Colliery Employees' Association? *A.* Yes.

98. *Q.* Do you remember the date of the disaster at Mount Kembla,—31st July? *A.* Yes.

99. *Q.* Did you visit Kembla pit on that evening? *A.* Yes.

100. *Q.* On the 31st July at what time did you reach Kembla Colliery? *A.* As near as I recollect, about 4 o'clock.

101. *Q.* And who accompanied you inside? *A.* I could not give you the names of the first party I went in with. We received instructions from Major MacCabe. He seemed to have control of affairs outside. We received instructions from Major MacCabe to go down to what they call the old rapper and get on the travelling road and get on to the main tunnel at this old rapper, and travel outwards again to the tunnel mouth, to see if we could find any bodies of boys that were supposed to be in the tunnel mouth.

102. *His Honor*] *Q.* Where is the old rapper? *A.* I think it is, as near as I can say, about a quarter of a mile in from the tunnel mouth. It was further in than No. 1.

103. *Q.* But still on the main tunnel? *A.* On the main tunnel.

104. *Mr. Robertson*] *Q.* Would you be able to recognise it from the plan? *A.* No, but it was on the inbye side of that overhead bridge in the travelling road to the No. 1 section, because in coming back over we met Mr. Sellors and Mr. Cater.

105. *Q.* Was it far on the inbye side? *A.* I think about 150 yards.

106. *His Honor*] *Q.* Is that No. 2 Right? Do you know whether it was known as No. 2 Right?

107. *Mr. Bruce Smith*] I do not think there is anything of importance in that.

108. *His Honor*] But we want to understand the evidence.

109. *Mr. Lysaght*] *Q.* Up to that time you did not notice anything that you regarded as of any moment? *A.* No. We came out and reported to Major MacCabe that we could not find any bodies from that old rapper to the tunnel mouth: and then a report was made that there were a lot of men lying in on what was called Mat's Flat, or Mac's Flat, who badly required assistance to get them out alive. I went in with a man named Alfred Weeks: that was in the shaft section: we went down the travelling road and got on to this Mat's Flat. There were a lot of men there lying about unconscious, and one or two of them were dead. We brought out between us a man named Isaac Peace and returned again shortly afterwards and found that all that were left then were dead. We brought out the body of William Bray. I did not go in any more that night: in fact I did not go in any more until about eight or nine days after the explosion.

110. *Q.* Can you fix about the time that you first reached Mat's Flat? *A.* I think it would be about 6 o'clock. I know it was just dusk as we came out of the tunnel mouth with Peace.

111. *Q.* And about how many men were then living who afterwards were dead? *A.* Well, I noticed two bodies lying in the same position—they were alive when I was in the first time and dead the second: but the others that were alive I think had mostly been brought out. When we were going in we passed some of them (the rescuers) bringing them out.

112. *Q.* What were the names of the two who were dead? *A.* I do not know the names. One was lying on a skip and another one was lying up against the rib side.

113. *Q.* Did you observe whether any of those persons found in that locality had been at all burnt or singed? *A.* No: they all appeared to me to have been suffering from the effects of after-damp.

114. *Q.* When was the next occasion on which you went in? *A.* As soon as we took Peace out we went straight

Witness—T. R. Morgan, 6 January, 1903.

- straight back again. That was when they were dead. I did not go in again until about nine days after the explosion.
115. *Q.* And who accompanied you then? *A.* Mr. Maguire, Mr. Ritchie, a man named Hay, in the Colliery, and Morrison, Adam Frost, and one or two others whose names I do not remember at present.
116. *Mr. Wade.*] *Q.* Was Jonathan May one? *A.* Yes, he was one.
117. *Mr. Lysaght.*] *Q.* Which direction did you take on that occasion? *A.* In the No. 1 section.
118. *Q.* Now, can you tell me what you observed on that occasion—anything that would throw any light on the cause of the disaster? *A.* We travelled up the main section — (Interrupted.)
119. *Mr. Bruce Smith.*] *Q.* This is when you went in when? *A.* About nine days afterwards.
120. *Mr. Lysaght.*] *Q.* You went to make an inspection? *A.* Yes, we went to make an inspection.
121. *Q.* Tell us everything that you observed? *A.* We travelled up the main intake to No. 1 section, right up to the end of the No. 1 level. For a considerable distance up there were some very heavy falls, especially on the outbye side of, I think, this 35-acre waste or goaf.
122. *Mr. Bruce Smith.*] *Q.* The outbye side? *A.* Yes.
123. *Witness (continuing his reply to Mr. Lysaght):* We went into some of the working places—that is Morris', Aitken's, and Tost's. We visited a fair number of places. About Aitken's place there was evidence of fire: the props were charred, and there was also cindered dust on the roof. We were in some considerable time; and we travelled back down the travelling road.
124. *Mr. Lysaght.*] *Q.* Can you tell us of any other places besides Aitken's where there were evidences of fire or flame having passed? *A.* In the back heading: in the main back heading, just about Morris' place, the dust seemed to be charred on the rib side.
125. *Mr. Bruce Smith.*] It would be desirable if the witness could mark these things, if there is anything important depending on them. He could mark it with a pencil on the plan.
126. *Mr. Lysaght.*] This is only confirmatory evidence of what already appears on the depositions as evidence of force and flame. Of course, Your Honor, in the absence of any direction from the Commission as to the extent or the scope of the evidence I should offer, I should have to go on offering evidence until Your Honor stops me.
127. *His Honor.*] We have a great deal of evidence both of the particular signs of charring and coking and of force in all this part of the mine.
128. *Mr. Lysaght.*] It seemed to me that the evidence given by the Chief Inspector seemed to detail the evidences of force and charring more than any evidence I could bring; and in the absence of any negative evidence I do not know whether I should be justified in taking up the time of the Commission in amplifying it.
129. *Mr. Bruce Smith.*] If Mr. Lysaght were going to give evidence of any important facts it would be better to have it marked on the plans.
130. *His Honor.*] Any important detail of fact.
131. *Mr. Bruce Smith.*] Yes.
132. *His Honor.*] Mr. Lysaght, if there is any particular fact which you wish to bring forward the witness might mark the particular spot.
133. (At 1 o'clock the Commission adjourned until 2 o'clock.)

AFTERNOON.

134. On resuming after lunch Mr. W. R. Pratt attended to take shorthand notes of the evidence and proceedings.
135. *His Honor (addressing Mr. Wade).*] Do you intend to dispute or answer, or do you disagree with what Mr. Atkinson says with regard to force?
136. *Mr. Wade.*] With most of Mr. Atkinson's evidence we agree, but perhaps there are four or five instances which Mr. Atkinson has not noticed. You find in the course of the evidence for instance that there is mention made of tubs being intertwined with telephone wires. There was also evidence as to the evidences of force being conflicting. I think our evidence will be more decided on some of these points. With regard to what was seen in No. 4 Right our evidence will be more specific on that point.
137. *His Honor.*] Is it your intention to attempt to fix the original centre of force. It might help us if you would mention what your contention is, if you have no objection.
138. *Mr. Wade.*] I have no objection. Our contention is that the original force came from the 4th Right, and that there was no evidence of gas or of any flame. That force could be accounted for by a large area of the roof falling down and forcing the air out.
139. *His Honor.*] You mean that the force originated on the 4th Right, and not because of any explosion.
140. *Mr. Wade.*] The cause may have been contact with a naked light.
141. *His Honor.*] That mixes up the question of force generally coupled with all the surroundings. It is hardly possible to say you admit so much as to make it unnecessary to go into this question of the direction and the lines of force, because they are coupled and are associated with the question of heat.
142. *Mr. Wade.*] The limit, extent, and the cause of this must depend upon the analysis by the Commission of all the evidence as to force.
143. *His Honor.*] As Mr. Lysaght is calling evidence as to the cause, extent, and the lines of that force, it is hardly expedient to stop him.

T. R. MORGAN, previously sworn, was further examined as under:—

Examination in chief by Mr. Lysaght continued:—

144. *Q.* You may continue your evidence with regard to force? *A.* Right up to the main No. 1 level the whole of the force appeared to have gone over that portion, and it must have been very great. In the 4th Right opposite the 35-acre goaf — (Interrupted.)
145. *His Honor.*] *Q.* Where do you mean? *A.* It is near the 35-acre goaf.

146. *Q.* That is a point south, just opposite No. 3 Left and No. 4 Right? *A.* Yes. (*The witness here marked the map with a blue pencil.*) [*Exhibit No. 1.*]
147. *Mr. Bruce Smith.*] *Q.* You say the force came out from No. 3 Right? *A.* The great centre of force was just at about that part. It appears to me to have shot out in different directions.
148. *His Honor.*] *Q.* It split there apparently? *A.* Yes.
149. *Mr. Lysaght.*] *Q.* What else did you see? *A.* At the back end of No. 1 level there was great evidence of force; but along to the left, off No. 1, near Aitken's place, I noticed two skips which had apparently been turned over.
150. *Mr. Bruce Smith.*] What is the number of Aitken's?
151. *His Honor.*] No. 86.
152. *Witness.*] Along to the left I noticed two skips that apparently had been driven end over.
153. *His Honor.*] *Q.* Towards the west? *A.* It would be towards that direction. (*Witness marked the map with an arrow.*) There appeared to have been a return force in the opposite direction coming back towards No. 1 level. It was in the goaf near Aitken's place that I noticed a strong trace of fire—that is, the props were singed—one or two appeared to be singed by fire, and also the roof. I think that is most of the force that I noticed. We travelled backwards and forwards to Aitken's place two or three times. We travelled to the left of No. 1 level and out at a heading not marked on the plan. But the force to the left seemed to be going out past Aitken's place on to No. 1 level and out over. The force seemed to go in this particular direction. From Gills' going bord the force seemed to have gone out and on to No. 1 level and then out over.
154. *His Honor.*] *Q.* Do you mean that there appeared to have been a second force after the force that first went towards the west? *A.* Yes; there appeared to have been a return force. I think that is all I can say about the force.
155. *Q.* What were the signs of the force that you say came from the west towards the east—towards No. 1? *A.* The props were driven in that direction, the bark on the timber that was standing had apparently been blown in that direction also.
156. *Mr. Lysaght.*] *Q.* Were there any indications of fire near that heading—near Morris' working place? *A.* No; it seemed to be fairly clear about that spot, there was not such a lot of timber there.
157. *Q.* From the top of No. 1 to the 5th Right were there any indications? *A.* There was a horse and some skips that had been driven out by it.
158. *Q.* From the top of Morris' heading down to the 5th Right, were there any indications of fire in the Back Heading? *A.* That is the travelling-road?
159. *Q.* Yes. *A.* There were one or two bars which had been driven out over the road.
160. *Mr. Bruce Smith.*] *Q.* Is that between No. 1 and No. 5 road? *A.* Yes.
161. *Mr. Lysaght.*] *Q.* You say the bars were driven out? *A.* Yes.
162. *Q.* Anything else? *A.* Some timber was driven in the same direction. I do not recollect any other evidence of force.
163. *Q.* Where was this horse that you mentioned—what was its position as regards the 5th Right? *A.* It was on the inbye side, if I remember correctly, of the 5th Right.
164. In the main level or on the travelling-road? *A.* Yes; in No. 1 main level.
165. *Q.* And were there any skips near that horse? *A.* I think there were, but I am not quite positive.
166. *Q.* Which way was the horse facing? *A.* Its head was facing outwards.
167. *Q.* Do you remember on which side of the horse the skips were? *A.* I think on the inbye side of it. I did not stop very long where the horse was, to be particular. It was not too pleasant.
168. *His Honor.*] *Q.* The horse was very dead? *A.* Yes.
169. *Mr. Lysaght.*] *Q.* Were there any other indications of force in the vicinity of the 5th Right that you remember? *A.* No, I do not think so.
170. *Q.* Coming down from the 5th Right towards the 4th Right, what were the indications of force on No. 1 main level? *A.* For a certain distance on the inbye side, No. 1 Right, the force seemed to have gone in for a certain distance and out over as well.
171. *Q.* What did you see? *A.* Some of the bars had evidently been driven over.
172. *His Honor.*] *Q.* You mean the railway irons used as girders? *A.* Yes.
173. *Mr. Lysaght.*] *Q.* How many of these did you notice? *A.* I think two. They seemed to have been driven in over.
174. *Q.* Was there anything else between the 5th Right and the 4th Right? *A.* Nothing else that I remember now.
175. *Q.* Coming from the 4th Right towards the telephone cabin, what were the directions of force there?
176. *His Honor.*] This is evidently a perfectly straightforward and intelligent witness, but is it not unnecessary to continue his evidence in this way? *Mr. Atkinson* has dealt with the matter.
177. *Mr. Lysaght.*] *Mr. Wade* has given some evidence of force; and I thought I would supplement it. I purpose asking the witness to say what conclusions he arrived at; and I will hold in reserve the reasons that led him to that decision.
178. *Q.* Are you able to give any evidence as to where the explosion was?
179. *Mr. Wade.*] Ask him first if there was an explosion.
180. *His Honor.*] You can ask if the force was something in the nature of an explosion. After all an explosion is only the driving of air in various directions with very great violence.
181. *Mr. Lysaght.*] *Q.* Will you tell us if you came to any conclusion? *A.* I am rather in doubt. I think the explosion occurred somewhere about Morris' place, at the end of No. 1. section.
182. *Mr. Ritchie.*] *Q.* Did you go further up than Morris'? *A.* Either Morris' or the top heading of No. 1 level. It travelled west towards Aitken's place. The first explosion may have caused a large fall in the 35-acre goaf, which forced a lot of matter out and created a bigger fall somewhere about No. 4 Right. It forced out the matter ——— (*Interrupted.*)
183. *Mr. Lysaght.*] *Q.* What do you mean by matter? *A.* Dust and gas—a great amount of dust came out from that big waste; and that would give it a big help.
184. *Q.* That is one conclusion;—what is your other? *A.* The other is that it may have originated about No. 4 Right, driving out the dust to some naked lights, and spread from there all over that section.
185. *Mr. Lysaght.*] I do not think I can carry this witness any further on a matter like this.

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186. *His Honor.*] I always think it is more simple to put to your own witness as few general questions as you can, and to let the other party cross-examine him afterwards.
187. *Mr. Lysaght.*] Now, taking the first of these recommendations—that all Managers, and under-managers, should pass examinations? —
188. *Mr. Bruce Smith.*] Does Your Honor think it right that Mr. Lysaght should read out these recommendations to the witness, and then examine him on them?
189. *His Honor.*] I suppose the witness knows them already.
190. *Mr. Lysaght.*] Yes, he is one of the Executive.
191. *Q.* Now, what is your answer? *A.* I think it is only proper for every person, Manager, overman, deputy, or fireman, to pass an examination. Deputies never do undergo an examination; and they hold a responsible position in a colliery. In fact I take it that the lives of the miners depend more on the vigilance of the deputy than on the Manager. The deputy is continually in the colliery. He has to make an examination in the morning before the miners start work; and he should be a very practical man. He should understand the nature of everything connected with his duty.
192. *Q.* As regards the Managers, why should they be certificated by examination? *A.* It would be upon the same lines as the deputy—to see that they are qualified for the position they hold. Unless they pass an examination you do not know their qualification. They want a practical and theoretical knowledge.
193. *Q.* The same reasons apply to the under-managers? *A.* Yes.
194. *Q.* What about the shot-firer? *A.* The shot-firer is on the same lines with the deputy. He should thoroughly examine the place, and see that it is free from gas before he fires a shot, and unless he has a knowledge of that class of work, there would be danger attached to his position—and a lot of danger too.
195. *Q.* Do you mean an oral examination or a written examination? *A.* I think both.
196. *Q.* Are there any other reasons you advance for that request? *A.* No.
197. *Q.* Another recommendation is that Inspectors be vested with absolute power to order the use of safety-lamps wherever necessary? *A.* I take it that that is a fair recommendation. We have instances of where Inspectors sometimes think that safety-lamps should be used, and they come into conflict with the management over the matter. The management do not always put them in when the Inspector recommends them, although I have never heard of any disaster occurring because of that; but it is better to take precautions before a disaster does occur.
198. *Q.* Have you heard of any instances where the Inspector was desirous of ordering safety-lamps but had not the power? *A.* I have heard; but it is only reported to me that they did recommend safety-lamps to be used in a Colliery.
199. *Mr. Wade.*] *Q.* Give us the name? *A.* South Bulli.
200. *Mr. Bruce Smith.*] *Q.* Can you mention any other Colliery? *A.* Bulli also.
201. *Mr. Lysaght.*] *Q.* What was the result? *A.* It was some time before they were put in.
202. *Q.* The next recommendation is that all collieries be ventilated by means of fans? *A.* Fans are certainly a more modern system of ventilating a mine. They are not affected so much by the weather as a furnace would be, especially in this locality. A heavy westerly gale affects the working of a furnace very materially.
203. *Q.* What other reasons are there? *A.* A fan would be more constant and more to be depended upon.
204. *Q.* Now as regards safety in case of a disaster? *A.* A fan would certainly be the safest in time of disaster; because a large body of black-damp would put a furnace out, but would not affect a fan.
205. *Q.* In connection with the disaster what are the other objections to a furnace? *A.* One objection is that all the foul matter comes to the furnace, and that affects the working of the furnace; and it is some little time before you can get the furnace in full blast.
206. I suppose that people in every part of the mine might be suffocated? *A.* Yes.
207. With regard to the waste workings, do you consider that essential? *A.* Yes.
208. How would you have them sealed off? *A.* By brick stoppings preferably. In a lot of the waste workings where you have the intake passing the old working the foul air is carried over the mine.
209. *Q.* Into the mine also? *A.* Yes; into the mine also.
210. *Q.* What precaution would you take in case of anything happening to these stoppings? *A.* If the air did escape it would not be so bad if it went towards the return, not the intake.
211. *Mr. Bruce Smith.*] *Q.* That is if your suggestion is followed? *A.* Yes.
212. *Mr. Lysaght.*] Taking the 35-acre goaf, if that had been properly sealed off do you think that would have affected in a great measure this disaster? *A.* I would not care about being quite sure. A fall in a place like that would blow out any stopping. A more modern system would be to work the coal out as you came back. Here you are driving ahead and leaving the old workings as you go in.
213. *Q.* It is recommended that, with the exception of prospecting drives, all places be provided with cut-throughs at every 30 yards? *A.* I do not believe in driving long distances and carrying the air along with brattice.
214. *Q.* What is the objection? *A.* The brattice requires a lot of attention; and it is not always tight. In the event of its being 50 or 100 yards ahead, if the fall occurred on the outbye side of you it would cut off the supply.
215. *Mr. Bruce Smith.*] What is the distance?
216. *Mr. Lysaght.*] Every 30 yards.
217. *Q.* Would the provision of cut-throughs afford much better ventilation? *A.* Of course it would, much better.
218. *Q.* What about the extra supply of safety-lamps and requisites? *A.* I think that is necessary. We have only to take the Mount Kembla disaster for an illustration. When we arrived there we found a number of lamps which were out of order and were not kept in proper repair, and there were not the necessary requisites there. There was an inferior quality of oil and wick. We had to make our own lamps ready ourselves. I got three lamps ready; and they were taken out of my hand: the other lamp I stuck to myself. If there had been a full supply of working lamps there there would have been more rescuers in the pit, and more lives saved. It was only a question of getting the men out who were suffering from after-damp, to save their lives.
219. *Q.* Do you know how many lamps were supplied to Kembla? *A.* I should say thirty or forty—
forty at the very outside.

220. How many of these were ready for immediate use? *A.* I did not see any ready.
221. *Q.* In addition to the three which you got ready did you observe anyone else getting lamps ready? *A.* Yes. The whole of the delegates who went from Wollongong got their lamps ready; and some of them got lamps ready for other people.
222. *His Honor.] Q.* What people? *A.* The miners' delegates. They were witnesses there.
223. *Mr. Lysaght.] Q.* What are the other requisites that you think should be kept there? *A.* Requisites in connection with safety-lamps. You could not keep a supply of stretchers; they keep an ample number of stretchers for ordinary accidents; but lamps are necessary over and above everything else.
224. *Q.* You mean wicks and oil? *A.* Yes.
225. *Q.* What are the necessary precautions you desire to take with regard to watering? *A.* I think that the main travelling road should be watered to keep down the dust.
226. *Q.* Have you observed a dangerous accumulation of dust on the main haulage roads? *A.* Oh, yes; some of them are very dusty. I think the dust I have seen lying about would be dangerous. It would be a great assistance to the force of an explosion.
227. *Q.* Now, regarding the personal attention of the Manager? *A.* I think the Manager should give more personal attention to a colliery than Managers are in the habit of doing.
228. *Q.* How often have you seen your Manager looking over the internal works? *A.* There is a new Manager now.
229. *Q.* Well, the last Manager? *A.* I should say once in six weeks or thereabouts.
230. *Mr. Bruce Smith.] Q.* You are speaking of your own mine? *A.* Yes. But that would not apply to all Managers. I have been in a colliery where the Manager went down more often—two or three times a week. At other places I have not seen a Manager go down for six months.
231. *Mr. Lysaght.] Q.* With regard to the inspection, and the locking of safety-lamps, do you think the latter part of the rule should be wiped out? *A.* Yes; it is in practice now, and I think the latter part of the rule should be left out.
232. *Q.* With regard to the monthly inspection by the Inspectors with a hydrogen lamp, do you think such a lamp would be better for the discovery of gas? *A.* We know that the ordinary safety-lamp will not discover gas so readily as a hydrogen lamp will. I think some collieries are already getting hydrogen lamps.
233. *Q.* Now, with reference to instructing the men with regard to the exits from the mine? *A.* I think the deputies should show the men the exits from the mine upon different occasions, and then in the event of a disaster the men would know which way to go, and if one exit was blocked against them they could go by another. The ordinary style is that a man travels one road from the time of his birth to his death, and does not know any other.
234. *Q.* When do you suggest that the men should be so instructed? *A.* At least once a week.
235. *Q.* With regard to the amendment of Rule No. 1 and the allowance of 500 cubic feet of air to a horse, in addition to 100 feet for each man and boy, what do you say to that? *A.* I think that it is necessary. A horse uses up much more air than a man; and it means that someone is to get less air because the horse uses up more air.
236. *Q.* How much air do you think a horse would use? *A.* I cannot say.
237. *Q.* Roughly? *A.* I should say that he would use about four times as much as a man.
238. *Q.* Are you aware that in mines in Colorado they provide 500 cubic feet of air for each horse and mule in addition to the men? *A.* Yes.
239. *Q.* Are you also aware that the laws of Illinois provide 600 cubic feet? *A.* Yes.
240. *Mr. Wade.]* Give us some English law. *A.* The Yankees are more advanced.
241. *Mr. Lysaght.] Q.* As to two doors in a mine, do you think that a wise thing? *A.* Yes.
242. *Q.* Do you know that it frequently happens that the doors are left standing open? *A.* Yes. I have seen them standing open.
243. *Q.* And the result has been —? *A.* I may say that in the Bulli Colliery one door was left standing open. It was a door between two headings; and in one of those headings the explosion was supposed to have occurred. It would cause a great accumulation of gas.
244. *Q.* In addition to diverting the air? *A.* Yes.
245. *Q.* Could the self-closing of the door be easily done? *A.* Oh, yes. By means of a spring.
246. *Q.* As to double doors? *A.* Where there is one door between two headings, if it were left open the whole of the air would be diverted, but in the event of there being two doors the second door would prevent the diversion of the air.
247. *Q.* Is that a cheap and easily-effected reform? *A.* Oh, yes. There is not much expense in providing two doors.
248. *Q.* Now, regarding the supply of instruments at the upcast for the determination of the variation of heat and pressure, do you think those are desirable? *A.* Yes, I do.
249. *Q.* With regard to the measurement of the air—do you think a monthly measurement is sufficient, or do you think there ought to be a weekly inspection? *A.* I think there ought to be a weekly inspection.
250. *Q.* In what part of the mine? *A.* In the various splits, and in the return section. As a matter of fact, the taking of the air near the intake gives no evidence of the kind of air circulating in the remote parts of the mine, because there may be leakages.
251. *Q.* Now with regard to the enlargement of the size of the manholes—they are now 3 feet by 4 feet—what size would you suggest? *A.* I think they should be wider.
252. *Q.* What do you say to 4 feet by 4 feet? *A.* Yes, I think 4 feet by 6 feet.
253. *Q.* Could that be cheaply effected? *A.* Yes.
254. *Mr. Wade.] Q.* Is that to hold a family? *A.* I have seen six men in one manhole; and you have tins, and picks, and one thing and another, there, and you do not feel very comfortable.
255. *Mr. Lysaght.] Q.* We have certain instructions as to safety-lamps being opened and the fuse ignited by the safety-lamp—is that dangerous? *A.* It is very dangerous. It is as bad as using naked lights. A miner might examine a mine to see if there were any gas in that particular part, but I think the practice itself is dangerous.
256. *Q.* Now, with regard to this suggestion as to dismissed employees, do you know of your own knowledge a case where a miner was prevented from getting work in one Colony or where a letter was sent? *A.* I know an instance of that kind.

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257. *Mr. Wade.*] I think it would be better to have some precise evidence on this matter.
258. *His Honor.*] Is this what you know of hearsay, or do you know it of your own knowledge? *A.* I was dismissed from a colliery myself.
259. *His Honor.*] Then you know it of your own knowledge very well?
260. *Mr. Wade.*] I would ask whether this matter comes under the scope of the present Commission. It is a matter which can be ventilated before an Arbitration Court. There was an Arbitration Court dealing with this case; but we heard nothing about it. The Commission is to offer suggestions for making the working of mines more satisfactory; but the question of a black list between employer and employed cannot carry out that object.
261. *His Honor.*] It is doubtful whether this question does come under the scope of the Commission; but it is possible that it may. There is fair argument that it may come within the scope of the Commission, and we will not exclude it. At the same time Counsel is entitled to draw the line as fine as possible, because we do not wish to stretch this inquiry into the matters that other Courts have to deal with.
262. *Mr. Lysaght.*] The point is that men are afraid to report to the mine authorities, because if they do they are dismissed and cannot get employment in the same district.
263. *His Honor.*] You mean that the men who make reports are not in favour with the authorities.
264. *Mr. Lysaght.*] *Q.* You may tell us what happened in your own case? *A.* I was dismissed from a coal mine.
265. *Mr. Wade.*] *Q.* Tell us the name. *A.* The Bellambi.
266. *Mr. Lysaght.*] *Q.* What were you dismissed for? *A.* It was over the question of the payment of the wheelers. They wanted me to come out and wheel by the score; and I would not. I went the same afternoon and got a job at the North Illawarra line. I started work the next day; and the overman, who was named McKinnon, told me, about the third or fourth day after I started, that I was very lucky that I got a start there. I said, "How is that?" He said, "The day after you started, the Manager got a letter asking him not to start you."
267. *Mr. Bruce Smith.*] *Q.* How many years ago was that? *A.* About nine years ago. Occurrences like that do not come to me every day.
268. *Q.* Were you dismissed? *A.* Apparently I got in ahead of the note.
269. *Mr. Lysaght.*] *Q.* Do you know that in many cases men are afraid to report small defects in the management of a mine for the fear of getting dismissed?
270. *Mr. Wade.*] I object to that question. It is only something the witness may have been told.
271. *His Honor.*] Such a thing may happen anywhere. It is only human nature; such things have happened ever since the beginning of time, and will remain so long as human nature is human nature. If a man is a little inclined to enthusiasm, and is in the habit of pointing out defects—we need not say in a mine, but say in the hoisting gear of a building in Sydney—he may get sent away. I do not think it is necessary to go into the evidence of truth of such a thing as that.
272. *Mr. Wade.*] They are bringing forward specific instances of what is taking place. They will be used as arguments for the making of provisions to prevent these things taking place in the future. We should have something to act upon, so that we could contradict these statements or qualify them. In the first place, there is a difficulty in finding out the men referred to. It is a complaint made against the Managers; and, if true, it is not very creditable to them.
273. *His Honor.*] I will suggest that Mr. Lysaght should not go into such matters as these, because it is only evidence of self-evident possibilities. If it can be shown that in other parts of the world it has been found expedient to legislate to get away from difficulties of this kind, that will be better evidence.
274. *Mr. Lysaght.*] *Q.* Are you aware that one of the Mining Laws of Iowa, upon page 271 of "Abel," is as follows:—

An Act for the protection of discharged employees, and to prevent black-listing. Approved April 16th, 1888. Sec. 1. That if any person, agent, Company, or Corporation, after having discharged any employee from his or its service, shall prevent or attempt to prevent by word or writing of any kind such discharged employee from obtaining employment with any other person, company, or corporation, except by furnishing in writing, on request, a truthful statement as to the cause of his discharge, such person, agent, or corporation, shall be guilty of a misdemeanour, and shall be punished by a fine not exceeding \$500 nor less than \$100: and such person, agent, company, or corporation, shall be liable in penal damages to such discharged person, to be recovered by civil action; but this section shall not be construed as prohibiting any person, or agent of any company or corporation, from informing, in writing, any other person, company, or corporation, setting forth a true statement of the reason of such discharge.

Section 2. If any railway company, any other company, or partnership, or corporation, in this State shall authorise or allow any of its or their agents to black-list any discharged employee, or attempt, by word or writing or any other means whatever, to prevent such discharged employee or any employee who may have voluntarily left said company's service, from obtaining employment with any other person or Company, except as provided for in section 1 hereof, such company or co-partnership shall be liable to treble damages to such employee so prevented from obtaining employment, to be recovered by him by penal action.

Now, do you think that we ought to have an equitable provision of that kind in any new Coal Mining Act? *A.* Yes, I think the provision is a very fair one.

Cross-examined by Mr. Wade:—

275. *Q.* On the day of this disaster—31st of July—nearly every man was in the mine? *A.* Yes, I believe so.
276. *Q.* And all the officials were engaged at the Court down here? *A.* Yes.
277. *Q.* And something like two hours elapsed before anything in the way of assistance could be given to the men;—is that so? *A.* Yes; that was owing to the distance away.
278. *Q.* The first party to give assistance were the men who went from the Arbitration Court? *A.* Yes; I believe they were.
279. *Q.* And people were naturally very upset at the time? *A.* It did give them a bit of a shock.
280. *Q.* And when the main rescuers got to work, every man did his best to save life, did he not? *A.* I would not say that.
281. *Q.* Tell me one name who did not? *A.* I cannot say names. There were no prospecting parties; every one seems to have gone to work — (Interrupted.)
282. *Q.* What do you mean by work? *A.* I mean to carry out either the living or the dead.
283. *Q.* I suppose that without going into the mine you could not tell where the bulk of the men would be; and, therefore, you were not able to rescue them? *A.* No; we could not.
284. *Q.* It took up time finding that out? *A.* Yes.
285. *Q.* Now, with regard to the safety-lamps you speak of which were out of order, as far as you know, except

except the lamps used by the deputies for inspection;—well, safety-lamps were not heard of at Mount Kembla for many years, at all events? *A.* They had not been used as far as I know.

286. *Q.* Since you have been in the district—say, nine or ten years? *A.* Pretty well thirty years, I think.

287. *Q.* And I suppose you know that there has been no report of gas for more than twelve months before the disaster? *A.* I do not know when the last report was made with regard to Kembla.

288. *Q.* Did you not hear the record read out at the Coroner's Court? *A.* No.

289. *Q.* And is it not a fact that the last thing anyone thought of was an explosion at Mount Kembla? *A.* It would not be the last thing that I would think of with regard to any Colliery.

290. *Q.* Did you ever think of it as being likely? *A.* I would think an explosion as likely to occur at any Colliery.

291. *Q.* Do you mean likely or possible? *A.* Possible.

292. *Q.* An explosion at Mount Kembla—it would not be probable? *A.* I would not say probable; I would say possible.

293. *Mr. Lysaght.] Q.* I do not know whether this is evidence with regard to the work at Mount Kembla—did you ever work there? *A.* No.

294. *His Honor.] Q.* Were you here at the time of the inquest? *A.* Only the last day. I was called, but did not give evidence.

295. *Mr. Wade.] Q.* Were you here before that? *A.* I only remember being here on the one day.

296. *Mr. Ritchie.] Q.* Were you inside the Court before you came to give evidence? *A.* No, I do not think I was. I was not anxious to give evidence, or to come the day I did come.

297. *Mr. Wade.] Q.* You spoke about the safety-lamps being opened to fire shots as being a dangerous thing. Do you know that the Act provides that where safety-lamps are used the shots are only to be fired by some specially appointed person? *A.* Yes.

298. *Q.* A miner is not allowed to fire them? *A.* No.

299. *Q.* The ground has to be cleared, the dust swept off, and, if necessary, the place has to be watered? *A.* It should be.

300. *Q.* And every precaution has to be taken to remove any gas and to remove the dust? *A.* Yes.

301. *Q.* Do you know Rule 10, subsection 10? *A.* Yes.

302. *Q.* That safety-lamps shall not be unlocked excepting at the lamp station, or for firing a shot, in accordance with provisions hereafter detailed;—do you know that General Rule? *A.* Yes.

303. *Q.* Now, with regard to the manholes you spoke about;—as a rule, is there not room to stand between a passing skip and the rib? *A.* I do not think that is a general rule.

304. *Q.* Are not the manholes as close as 10 or 15 yards to each other? *A.* I should think so: where there is no room to stand between the skip, and the rib, they should be each 10 yards.

305. *Q.* That is what the Act says. If there was room for standing between the skip and the side of the pit it is each 20 yards. What is your reason for asking for the manholes to be larger? *A.* Because when there are a lot of men together you cannot crowd into one place, and if they were larger there would be better room.

306. *Q.* Do you know of any accident that has ever happened in the South because of this? *A.* Yes, but it is a long time ago. I know that I once rode over a man.

307. *Q.* Were there manholes at that time? *A.* I do not know that there were.

308. *Q.* Were they compulsory? *A.* I think they were compulsory.

309. *Q.* It was only one man, and not several men crowding into one manhole? *A.* No.

310. *Q.* There was no room between the tub and rib? *A.* No.

311. *Q.* And there was no manhole? *A.* No.

312. *Q.* With regard to having instruments at the top of the upcast, do not you know that they keep instruments to record the temperature and the pressure at the foot of the upcast? *A.* I have not seen them.

313. *Q.* Nothing at all? *A.* I think I saw a water-gauge.

314. *Q.* What does that tell you? *A.* The pressure.

315. *Q.* If you have not got a furnace you would not need an instrument for the temperature? *A.* In the event of the furnace being abolished I do not think they would be absolutely necessary.

316. *Q.* What are you asking for now that you have not got at present? *A.* We are asking for these instruments.

317. *Q.* You only refer to collieries that have furnaces? *A.* Yes.

318. *Q.* There is a thermometer kept at the colliery? *A.* Yes; at the pit top.

319. *Q.* What do you mean by the pit top? *A.* The pit top is the surface.

320. *Q.* Is there nothing kept at the foot, at the bottom of the upcast shaft? *A.* I do not know. If they are already there then this provision is unnecessary.

321. *Q.* Is it not a fact that the mouth of the upcast shaft at Mount Kembla is at the top of the mountain, and would take a long time to get to? *A.* I think they are at the bottom.

322. *Q.* I am talking about the tunnels? *A.* They are kept at the tunnel.

323. *Q.* Are not these instruments kept at Mount Kembla and Mount Pleasant? *A.* If so, they are acting up to what we desire.

324. *Q.* Now, as to the door being left open at Bulli—do you say you saw the door left open? *A.* Yes.

325. *Q.* Did you do anything? *A.* Yes, I closed it.

326. *Q.* That could not have caused an explosion? *A.* No.

327. *Q.* And you restored the ventilation current? *A.* Yes. One theory for the cause of that accident was that a door leading into the Western district — (*Interrupted*).

328. *Q.* The door you saw open was closed and the ventilation restored? *A.* Yes; and the deputy complained that it had been left open by the night shift. He came in the morning and found it open also.

329. *Q.* How many years ago was this? *A.* A few days before the explosion in 1887, I think.

330. *Q.* You ask for 500 cubic feet of air for each horse per minute? *A.* Yes.

331. *Q.* When was this discussed first? *A.* Two or three weeks ago.

332. *Q.* Do you now know that the whole matter was gone into by the Royal Commission before the Coal Mines Act was passed? *A.* I do not know.

333. *Q.* Do not you know that the whole thing was discussed? *A.* Yes.

334. *Q.* Did not the Commission recommend what is in the Act now? *A.* Yes. It is probable that if I had given evidence I should have said then what I am saying now.

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335. Q. Do you know of any instance where the provision of 100 cubic feet of air per minute to each man, boy, and horse has led to any danger to man, boy, or horse? A. I am not aware of any instance; but, still, there would be a shortage in the supply where the men are if a horse was there.
336. Q. Would not increasing the supply of air to the mine considerably increase the cost of the ventilation? A. I do not think so. I think that at the big collieries—take the Metropolitan—they get a big supply now.
337. Q. Do they not get 100 cubic feet only? A. Or as much more as the Inspector may desire.
338. Q. Would it not mean an increase in the plant and also larger fans? A. I do not know of any colliery that would have to go to the expense of that.
339. Q. Now, talking about the Manager going down the mine, does not the deputy represent the Manager? A. Yes, in the absence of the overman.
340. Q. And the night deputy represents the Manager? A. Yes.
341. Q. In the daytime you have the day deputy at your place at least twice a day, do you not? A. He visits at least twice in a shift.
342. Q. He often visits it more, does he not? A. No; and he might miss one shift.
343. Q. That deputy can direct the miner as to where he can work the coal? A. He does it.
344. Q. He directs the miner as to keeping the place safe? A. Yes; that is part of his duty.
345. Q. Does he do it? A. Yes.
346. Q. In addition to the day deputy, is the underground-manager there? A. Yes.
347. Q. Is he not in the mine underground for the purpose of direction? A. Yes; and being there, he would direct you how to work the place.
348. Q. Has not the deputy the same power as the underground-manager? A. I think the underground-manager has the power.
349. Q. Has not the deputy that power? A. Only in the absence of the overman. If the overman comes round you take your instructions from him; if he does not come you take them from the deputy.
350. Q. Do you know that the Manager has to attend to all surface work? A. He has men in charge of the surface.
351. Q. But he has to supervise the work? A. Yes.
352. Q. Does he not supervise the office work? A. No, he has clerks.
353. Q. I ask you does he not supervise it? A. Yes.
354. Q. Is not the Manager frequently away from his office on business? A. Perhaps once a week.
355. Q. Were not all the Managers waiting about the Arbitration Court recently?
356. *His Honor.*] I do not think this witness knows very much about this question of management.
357. *Mr. Wade.*] He knows as much as any other miner can.
358. *His Honor.*] From the position which he is in I do not think that he can know very much about the matter which you are now examining him about.
359. *Mr. Wade.*] Very well, Your Honor.
360. Q. Now with regard to the watering of the road: you suggest that the travelling-road should be watered—is that in every case or only if they are dusty? A. Only if they are dusty.
361. Q. No coal goes down the travelling-road, does it? A. Of course in some places the travelling-road is the haulage-road as well.
362. Q. Where there is a travelling-road—is it not simply for the men and horses to go in and come out by? A. That is correct.
363. Q. Under these conditions, where there is no coal taken along it, is it necessary to water it? A. Yes, if it is dusty.
364. Q. What makes it dusty? A. Constant wear and tear.
365. Q. Is that the same kind of dust that you get in the haulage-road? A. It is finer if anything.
366. Q. Is it of the same character—small coal dust? A. Yes. It is ground up very fine. It is finer than the road stuff.
367. Q. Now in the course of your experience did you ever hear of an explosion going down the travelling-road? A. It is quite possible that an explosion could travel down the travelling-road.
368. Q. As to the waste workings. Do you say that the roadway from No. 4 Right in to No. 1 main travelling-road was a source of danger. I mean the road that passes through the travelling-road and into the main level? A. Yes, I say I think so.
369. Q. Do you know that the 35-acre goaf had not fallen in? A. I do not know.
370. Q. You would not seal off a waste until the roof had fallen in, would you? A. Yes, as soon as the place was finished.
371. Q. When is it finished? A. When it is worked out.
372. Q. How long is it that the roof falls after it is worked out? A. Sometimes directly afterwards; it all depends upon the depth of the strata above.
373. Q. There is air all round this goaf is there not? A. At least on No. 1 portion.
374. From No. 5 Right down to No. 2 Right does the returning air go round there? A. Yes, it does.
375. Q. At the top of the north side of the 35-acre goaf has it not been sealed off? A. It is not shown on the plans.
376. Q. Do you see any opening in No. 4 Right? A. They are apparently working up to the goaf on that side.
377. Q. Do you see anything wrong in this system—that is driving a bord right up to the extreme end of the 35-acre goaf towards the face? A. I do not understand you.
378. Q. Supposing the bords are driven and drives made up to the face and then they work the pillars going back to the tunnel mouth—is there any objection to that system? A. No; but then they are not doing it.
379. Q. Taking the 35-acre goaf and climbing the bord first of all to the face and then going back towards the tunnel mouth? A. There is nothing wrong about it, if they do not go back again.
380. Q. Show me any connection between the workings and the 35-acre goaf? A. There is nothing to show; they are not working.
381. Q. The only opening is in No. 4 Right? A. I see there is an opening.
382. *Mr. Wade.*] Q. You are taking one place and I am taking another, it is no good going on. You do

- do not know how the 35-acre goaf was worked out, of your own knowledge? *A.* No. I only know that they are working round it at the present time. As far as I know it may not be worked out at all.
383. *Q.* Is it not a desirable thing that after a place has become a waste you should be able to examine it at different outlets around that waste? *A.* That is, if you have the whole of the working ventilated, and have a good current of air going throughout. I think it would be desirable then.
384. *Q.* What would you have? You say you would have them sealed off. What system do you prefer? *A.* I would like the old workings to be thoroughly ventilated and the air to go to the return.
385. *Q.* You do not adhere to the statement that the workings should be sealed off? *A.* Either system would do for me. Unless there is a proper system of ventilation I think it would be better to seal them off altogether. Of course, in a waste like that of the 35 acres, it would be impossible to examine that.
386. *Q.* When the roof falls does not the material get squeezed up to the roof? *A.* Not always. There is always an opening above it.
387. *Q.* Is it not a tendency of a mine to go on filling up until it gets filled altogether? *A.* I have been over several for myself, but never saw them filled up yet.
388. *Q.* You do not know that? *A.* No, it is not my experience.
389. *Q.* Are there not several falls which take place—the first, the second, and even a third? *A.* I do not know that.
390. *Q.* Do you know there are two falls? *A.* There may even be a dozen falls.
391. *Q.* Do you know that there is one fall? *A.* It depends whether the whole thing gives way in a body. If it does then there is only one fall.
392. *Q.* Now, as to your examination nine days after the disaster. How long did you spend in that area to the left of No. 1 main level—the area in which Aitken's place is? *A.* A couple of hours.
393. *Q.* Did you go thoroughly over it? *A.* Yes.
394. *Q.* Did you go up to the edge? *A.* Some of the party did.
395. *Q.* Do you know where the 4th Right is? *A.* Some of the party did; but they were driven back by the black-damp.
396. *Q.* Did you go over to the edge of the waste? *A.* I was about 20 yards off it.
397. *Q.* Did you see a big timber chock lying on the road? *A.* I believe I did see something of that.
398. *Q.* Was that not on the outbye side of No. 4 Right—was it not over by No. 3 Left? *A.* I do not know the locality of it.
399. *Q.* Was it not on the outbye side of No. 4 Right? *A.* I think it was.
400. *Q.* Did not that appear to be blown outbye? *A.* It was pretty well scattered about in all directions.
401. *Q.* Was it not used to support a place in the roof there? *A.* Yes.
402. *Q.* Now it would require great force to blow that down? *A.* It all depends how tight it was put in.
403. *Q.* Is not the whole work of putting a chock in to put it up tight? *A.* You do not want to jamb it up quite tight.
404. *Q.* Are they not put in to support the roof? *A.* Yes, to take the weight off the roof.
405. *Q.* What size are they? *A.* I cannot tell you the size.
406. *Q.* Would it take great force to blow them down? *A.* It all depends how they were put in.
407. *Q.* Would it take great force in any case? *A.* Oh, no; a practical man never puts in timber roofing too tight. If you put them in too tight, then with the least weight they snap off.
408. *Q.* Would it require great force to blow them down, the ordinary way they are put in? *A.* It would require a fair amount of force—not great force, I should say.
409. *Q.* Where do you think that force came from that blew that chock down? *A.* I think it would come down No. 4 Right.
410. *Q.* Were not all the indications of force in No. 5 Right, in the main road, going into No. 4 Right? *A.* It would go at a fair distance, and then the force would back out again.
411. *Q.* Tell me how far it would go up No. 4 Right? *A.* I should say about 100 yards.
412. *Q.* Was the force going inbye No. 4 Left, nearly opposite No. 5 Right? *A.* No, I think that would go out.
413. *Q.* I am speaking of between No. 4 Right and the point where No. 1 Right meet. Was the force going up? *A.* Not all the way.
414. *Q.* Between No. 4 Right and where No. 1 joins No. 4 Left you saw timber blown outwards? *A.* Yes.
415. *Q.* What kind of timber? *A.* Chocks, sleepers, or something of that kind.
416. *Q.* Were there any props used there? *A.* In some parts.
417. *Q.* Were they used there? *A.* I cannot say.
418. *Q.* Why do you say they were blown outwards? *A.* Because of the way they were lying.
419. *Q.* Was one end towards the tunnel and one end towards the face? *A.* Yes.
420. *Q.* Can you say that props were used to support the roof there? *A.* Yes—I would not be positive, but I did see one or two.
421. *Q.* Were not iron bars blown inwards between No. 4 Right and No. 4 Left? *A.* I noticed two bars blown in right enough. There were some of them very much in doubt.
422. *Q.* Were any of these bars bent? *A.* Yes.
423. *Q.* Were they bent inwards? *A.* One was bent inwards.
424. *Q.* How far was that bar from No. 4 Left? *A.* I do not know the distance between the places. I would take it to be 50 yards, anyhow. Probably more than that.
425. *Q.* You say that you saw some tubs between the 5th Right and the 4th Left—two tubs, I think? *A.* That was in Aitken's place.
426. *Q.* Between the 5th Right and the 4th Left? *A.* It was above No. 5 Right.
427. *Q.* On the inbye side? *A.* Yes, I think the horse and the skip were with them.
428. *Q.* Was not that at the foot of the incline? *A.* Partly down the jig.
429. *Q.* At the foot? *A.* Not at the foot.
430. *Q.* Were they on the road or off it? *A.* Off it.
431. *Q.* There was a dead horse, and 3 yards further off there was a tub across the road. Is that correct? *A.* I think so.
432. *Q.* Is this correct—the coal was thrown inwards? *A.* No.

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433. Q. Were a swingle-tree and chain lying on the tub? A. I did not notice them. I got past them very quick, I could not get past quick enough.
 434. Q. Now, you spoke of props being singed, and of signs of flame? A. We did see a number of them charred—I mean the splinters.
 435. Q. How far did this extend? A. One or two props appeared to be burned.
 436. Q. Where were they? A. Near the heading on the inbye of Aitken's place.
 437. Q. How many props did you see in No. 1 main right road—did you see any at all? A. No.
 438. Q. In the travelling road No. 1 main heading? A. No.
 439. Q. In Morriss' place? A. No; I saw the dust on the side had apparently been singed.
 440. Q. For over how large an area? A. Very little.
 441. Q. Would the space be covered by your hand? A. Just a few particles here and there.
 442. Q. Were there any further indications? A. There were indications; but they were over a fair-sized area.
 443. Q. It was not continuous? A. It was continuous; but not too much in one place.

Cross-examined by Mr. Bruce Smith:—

444. Q. Were you not in the mine twice—once immediately after the accident and once nine days afterwards? A. I was in three times.
 445. Q. You went in immediately after the accident? A. Yes.
 446. Q. And nine days afterwards? A. Yes.
 447. Q. When did you go again? A. I was in three times on the occasion of the accident.
 448. Q. On those occasions did you make any observations at all? A. I simply went in to save life as quickly as possible.
 449. Q. I take it that your observations as to the cause and as to locality were limited to the visit nine days after the accident? A. That is correct.
 450. Q. How long were you in, roughly speaking? A. Four hours.
 451. Q. You went in with a party of inspection? A. Yes.
 452. Q. That was your purpose? A. Yes. That was my purpose.
 453. Q. Your sole purpose? A. Yes.
 454. Q. In order that you might collect data to form an opinion upon as to the extent, locality, and where the explosion originated? A. Yes.
 455. Q. How many of you went in? A. About nine.
 456. Q. You all went in for that purpose? A. Yes.
 457. Q. Did you take a single note on paper of what you saw? A. No.
 458. Q. You have trusted entirely to your recollection now as indicating the direction of force? A. That is correct.
 459. Q. You would not have remembered some things unless Mr. Lysaght had suggested them? A. I would recollect them.
 460. Q. Would you recollect all, or only something about them? A. I think I would have recollected them.
 461. Q. You took the suggestions? A. A suggestion is very handy sometimes.
 462. Q. It was of use to you? A. Yes.
 463. Q. Have you formed an opinion at all which you think worth regarding as to the direction in which this force, or these forces, operated? A. I have given you my opinion.
 464. Q. Do you think much of it yourself? A. I think it is fairly good.
 465. Q. In what direction did you say it was? You see the map with the north and south indications at the bottom of it. No. 1 Right runs as nearly as possible north. In what direction, north, south, east, or west, did the force preponderate? A. More towards the south.
 466. Q. You found indications going east? A. Yes.
 467. Q. You found them going west? A. Yes.
 468. Q. You found them going south? A. Yes.
 469. Q. So that they really went in every direction of the compass? A. The forces seemed to have spread.
 470. Q. Did you not find some indications going west, and again some going east? A. What do you mean?
 471. Q. You found some forces going west, westerly of some going east? A. I do not understand you.
 472. Q. Can you put your hands on the spot and say that they all went from one centre? A. No.
 473. Q. You found some in a westerly direction? A. Yes.
 474. Q. And some in an easterly direction? A. Yes.
 475. Q. And some east of those going west? A. Yes, it appeared as if some of the forces went and returned again.
 476. Q. Did you find any indications of force going north? A. Yes.
 477. Q. And you found indications of force going south? A. Yes.
 478. Q. And did not you to the south of that find indications of force going north again? A. Yes.
 479. Q. And of the force coming south again? A. Yes.
 480. Q. Did you not find indications of several centres of force? A. Yes.
 481. Q. Does not that suggest to you a series of explosions? A. Yes, at least two.
 482. Q. And of explosions having taken place one after the other? A. Yes.
 483. Q. If there had only been one explosion you would have found everything spread in one direction? A. Yes.
 484. Q. You have no doubt from what you saw that there were indication of more explosions than one? A. I take it there were at least two.
 485. Q. Will you not undertake to say there were more than two? A. I would not; but I am strongly of opinion that there were two.
 486. Q. Two at least? A. Two at least.
 487. Q. Did you not think it worth your while to take any note of these things? A. No, I trust to my memory pretty well always.
 488. Q. You have told the Commission that you would advocate having cut-throughs much more frequently? A. Yes.

489. *Q.* You know that in some cases now they are 100 yards apart? *A.* I do not know the distance; I think they are.
490. *Q.* You advocate having them every 30 yards? *A.* Yes.
491. *Q.* You have told the Commissioners that it is objectionable to have leaks? *A.* I did not say so.
492. *Q.* Do not doors cause leaks? *A.* Single doors do.
493. *Q.* Do not cut-throughs have to be stopped sometimes? *A.* Yes.
494. *Q.* If you have more cut-throughs you would have more leakage of air? *A.* Not a great amount.
495. *Q.* Every cut-through would be a leakage, would it not? *A.* Improved ventilation would lower that leakage.
496. *Q.* You trust to memory? *A.* I trust to practical experience.
497. *Q.* What amount of dust do you think would be dangerous in a mine per foot of the roadway. Would it require a hundred weight or a pound? *A.* I should say about 7 ounces.
498. *Q.* How do you get that? Do you not know that is the amount stated by Abel? *A.* I do not know.
499. *Q.* You heard Mr. Atkinson's evidence? *A.* No.
500. *Q.* Do you tell the Commissioners that you made a guess at 7 ounces? *A.* Yes. I guessed pretty near it too.
501. *Q.* Have you ever taken the trouble to consider what all these alterations you desire will involve in regard to the cost of getting coal? *A.* Very little, I think.
502. *Q.* You have considered it? *A.* Yes.
503. *Q.* You thought it worth considering? *A.* Yes.
504. *Q.* Have you made a calculation as to what it would cost per ton to get coal if all your suggestions were carried out? *A.* I could go pretty near to the mark.
505. *Q.* What are the reforms you mean? *A.* I have not suggested any expensive reforms.
506. *Q.* I want you to calculate? *A.* I have not suggested any expensive reforms; they are a mere nothing.
507. *Q.* Do you tell the Commission that you have considered the cost, and that it would be a mere nothing? *A.* I say that some of these reforms are no expense at all.
508. *Q.* Taking the whole of them altogether, you have gone into that aspect of the case, and you say it would not add appreciably to the cost of getting the coal? *A.* No, not to a great extent.
509. *Q.* Now, referring to the practice of opening safety-lamps, do you know of any cases which have occurred? *A.* Not of many.
510. *Q.* Can you give me anyone's name? *A.* I will furnish you with a name.
511. *Mr. Lysaght.*] I will produce one to-morrow morning.
512. *Mr. Bruce Smith.*] *Q.* Now, with regard to the question of dismissing men for reporting gas and other things, can you tell me of any other cases that you know of? *A.* No, only my own, and I have read of the Bailey case.
513. *Mr. Wade.*] The Bailey case was the opposite.

Re-examined by Mr. Lysaght:—

514. *Q.* In addition to what you have heard of the Bailey case, have you heard anything from the men?
515. *Mr. Wade.*] I object to that question. [*The question was disallowed.*]

Re Cross-examined by Mr. Wade:—

516. *Q.* You say that you found several centres of force, can you mark on the plan where you found them? *A.* No. Four Right is one; and I think there is one over Aitken's place. I see that the note I put on the map earlier in my evidence was too far south.
517. *Mr. Bruce Smith.*] Which was the next centre? (*No answer.*)
518. *Mr. Wade.*] *Q.* Can you tell us of any more? *A.* These are the only two I know of.

Re Cross-examined by Mr. Bruce Smith:—

519. *Q.* On this 7 ounces of coal-dust can you tell me whether it is required for every lineal foot or for every square foot? *A.* I take it for every square foot.

Examined by Mr. Robertson:—

520. *Q.* Is it not a fact that Managers and under-managers are required to pass examinations? Yes, since 1896.
521. *Q.* Can you tell me how deputies or shot-firers are appointed? *A.* As far as my own particular colliery is concerned, they have to be pretty well qualified. At other collieries they appoint anyone.
522. *Q.* Would not the Manager for his own protection appoint the most competent men? *A.* Not in every case.
523. *Q.* Would the Manager appoint incompetent men? *A.* They have done so, in my opinion.
524. *Q.* Are there any such men in the district? *A.* There are men whom, if I were Manager, I would not appoint; but I know their qualifications far better than the Manager does.
525. *Q.* Do you not think that a Manager having a knowledge of a man's work would be more competent to appoint a deputy or to pass a certificate as to his competency than an Examination Board, who may not possibly know the man's personal qualities? *A.* I take it that even if a man did pass a good examination it would rest with the Manager to appoint him.
526. *Q.* Yes, a great many people get certificates who are not competent? *A.* No doubt about that.
527. *Q.* Would not the Manager be better qualified to speak as to a man's efficiency than an Examination Board, because it is not only efficiency to fire a shot, because efficiency may depend more on judgment than on scientific knowledge? *A.* I do not think it should.
528. *Q.* Do you prefer a man with scientific knowledge to a practical one? *A.* I should prefer a man who had both.
529. *Q.* We do not always get them associated together? *A.* I think it is possible to do it.
530. *Q.* You spoke in your evidence about an Inspector wanting safety-lamps put in a mine; and you said that he came in conflict with the Manager? *A.* I said the lamps were put in.
531. *Q.* I think you said that the Inspector came in conflict with the Manager? *A.* I do not think I said "conflict."
532. *Mr. Bruce Smith.*] I will read our note on the matter. The witness said, "I have known instances where Inspectors have suggested lamps, and they have come into conflict with the manager on the matter."
533. *Mr. Robertson.*] *Q.* Have they not also come in conflict with the miners? *A.* Yes.

Witness—T. R. Morgan, 6 January, 1903.

534. Q. Have not the miners objected as well? A. Yes, I have heard of instances where the Manager and the miners objected. Of course, miners do not care for safety-lamps at any time.
535. Q. I think you favour the idea of sealing off waste workings? A. That is, where they could not be properly ventilated. If they could be properly ventilated I would leave them open.
536. Q. Is it not better to leave them open than to bottle up dangerous gases? A. I think it would be better to leave the waste open if the air went into the return.
537. Q. You say that you want cut-throughs not more than 30 yards apart. Do you know that it is absolutely necessary that the pillars should be sufficient to support the roof? A. It is necessary.
538. Q. Would not the effect of 30-yard pillars be to bring on a crush? A. I do not think so. You would have to make the pillars larger.
539. Q. You ask us to make 30-yard cut-throughs, and that would mean 30-yard pillars? A. I do not see that a narrow cut-through would weaken it: if you have 100 yards of coal, and drive three cut-throughs through it, it will not take 9 yards off. Instead of 100 yards you have 109 yards.
540. Q. If adequate ventilation is secured by a brattice cloth, or by a cut-through, is not that all you want? A. No; I do not think so.
541. Q. As the depth of the strata or the cover increases, you must have larger pillars? A. I do not know. I do not think you want larger pillars: I do not think a cut-through will make the difference which you maintain it will.
542. Q. What object have you in view in connection with the watering of the roads? A. To keep down the dust.
543. Q. What is the immediate object; is it comfort or safety? A. Both.
544. Q. There are other places than the roads and the haulage ways in which dust accumulates? A. In the waste workings, I suppose, you mean?
545. Q. And an explosion might occur there just as well? A. I suppose so.
546. Q. Would it not be necessary to water all places in a mine? A. It would not be possible, I think, but where water can be used it should be used. If you thoroughly water the hauling roads and the travelling roads you lessen the danger of explosion.
547. Q. Did you observe No. 1 Right? A. Yes.
548. Q. Is it not damaged? A. Yes.
549. Q. And yet the explosion travelled over wet places? Yes, certainly it did.
550. Q. Would not that tell us that unless the watering is thorough and systematic it may as well not be done? A. I take it that wet places would need no watering; you need only water the dusty places of the mine.
551. Q. As to the instruction of the men by the Deputy as to the exits from the mine, in whose time would it be done? A. In the men's time, going in or out of the mine.
552. Q. In the men's time? A. Yes.
553. Q. And in a very extensive mine, where there are scores of miles of roadway, and many exits, and the men are changing districts every quarter, would that be of much service? A. I think so.
554. Q. Where there are six or seven outlets, and, perhaps, three or four intakes? A. Yes; I think it would be a great advantage.
555. Q. It would take a lot of time? A. I do not think so.
556. Q. Are you not thinking of mines where there are only one or two outlets—where there is only one travelling way in or out? A. No. I would take Mouut Kembla, for instance, where there are more ways out than one.
557. Q. I do not think that you recognise that there are extensive mines where the miners are shifted every quarter, and if it were possible that they could be instructed as to the inlets through their own districts, they would probably forget all the other places? A. If they were shown them once a week, I do not think they would forget. I think it is a necessary thing.
558. Q. With regard to the ventilation you are asking about for horses, do you know of any colliery where, under the present rule, there is not a sufficient supply, even for the horses, according to your own scale? A. Not lately. I have not heard of any.
559. Q. Then there is adequate ventilation provided? A. As far as I know.
560. Q. In a mine with 50 horses and 500 cubic feet of air per minute for each, that would mean 25,000 cubic feet of air; and that would be a considerable addition to the ventilation? A. It would be a large mine which would employ 50 horses.
561. Q. Some of them do? A. Yes, some of them, but not many on this coast.
562. Q. As to self-closing doors, do you think that the best practice? A. Yes.
563. Q. Do you not think a man had better close the door himself? A. It would not prevent a man closing the door; he would close it unless he were careless.
564. Q. There are a good many careless men about? A. Perhaps, at Helensburgh.
565. Q. You know that doors in a mine are not like doors in this room; they are sometimes in fair order, but sometimes they are twisted out of place? A. Sometimes.
566. Q. If it was the business of a man to close the door, would he not take care to move any obstacle out of the way? A. It would be the same with a self-closing door.
567. If you heard that no trouble had been experienced in a mine with very complicated ventilation, and a lot of gas going off, would not that satisfy you that self-closing doors were not necessary? A. It would satisfy me that a very good state of things existed at that colliery.
568. Q. In the case you mentioned at Bulli there was only one door? A. Yes.
569. Q. If there had been two doors no air would have escaped? A. No.
570. Q. What sort of instruments do you want kept, a thermometer and a barometer? A. I think both.
571. Q. And you want them, where? A. At the bottom of the upcast.
572. Q. What good do you want to effect by having them at the bottom of the upcast? A. I think it would be advisable to instruct the person in charge.
573. Q. What sort of information would it give to the person in charge? A. He would have a knowledge of the pressure and of the weather conditions.
574. Q. Do you not think the ventilation of a mine ought to be independent of weather conditions? A. Yes.
575. Q. In most collieries are not several travelling ways provided for the men? A. I think in most collieries there are.

576. *Q.* In nearly all? *A.* I would not like to say that.
577. *Q.* Mr. Lysaght said something about the Mining Laws in America with reference to "black-listing." Do you know whether they have an Arbitration Act there? *A.* They do most of their business at the point of the revolver.
578. *Q.* Do you think it necessary to have provisions in a Mining Act which are dealt with in the Arbitration Act? *A.* I think it ought to be in the Mining Act.
579. *Q.* Why have duplicate legislation? *A.* We are quite satisfied to have it in one Act.
580. *Q.* You have arbitration here? *A.* No doubt.
581. *Q.* You object to the mode of working at Mount Kembla? *A.* I do not approve of it. I do not object to it altogether. It is not what I consider an ideal system.
582. *Q.* You would come to the back end of the property, and then fetch the pillars back? *A.* Yes.
583. *Q.* Do you know the mine is some thousands of acres in extent? *A.* It might be.
584. *Q.* It might take thirty years to get to the back end? *A.* Yes.
585. *Q.* Or, say, twenty years? *A.* Yes.
586. *Q.* And in the meantime all the other places would be left in the shape of old working for the gas to accumulate in? *A.* Yes, I suppose so.
587. *Q.* Is it not better to take the roof out and allow the roof to cave in? *A.* I would rather work a mine out as you go into it.
588. *Q.* Would you rather have a gasometer? *A.* That is a gasometer; there is no doubt of spaces of that kind being a place for gas.
589. *Q.* If the roof is squeezed in, where is there any place for gas? *A.* There would be any amount of space in various parts of it.

Examined by Mr. Ritchie:—

590. *Q.* With regard to the watering question. You want the haulage roads and the travelling roads watered? *A.* Yes.
591. *Q.* Would that make the conditions safer? *A.* It would.
592. *Q.* Although there may be dust in other parts of the mine, is it your object to minimise it? *A.* Yes.
593. *Q.* You would bring it down as low as possible? —
594. *Q.* You believe it would be practicable to have these parts watered? *A.* Yes.
595. *Q.* You do not put it forward as making the conditions absolutely safe from dust, but to minimise the danger? *A.* Yes.
596. With regard to putting cut-throughs not more than 30 yards apart, would you put a cut-through and leave it open or seal it off? *A.* It would be sealed off.
597. *Q.* Would it be possible to seal off each stopping not necessary for use, so as to make it air-proof? *A.* I do not know that it could be made absolutely air-proof, but very near it.
598. *Q.* Is that the practice adopted in well managed mines? *A.* Yes.
599. *Q.* All cut-throughs not required would be sealed off? *A.* Sealed off at once.
600. *Q.* Do I understand that the way you advocate cut-throughs at regular distances is for additional security in the way of safety? *A.* Yes.
601. *Q.* Do you think there is considerable danger of the canvas being put out of order and also the air current put out of order? *A.* Yes, there is considerable danger.
602. *Q.* You advocate this in order to minimise the danger of miners being overcome by foul gases? *A.* Yes.
603. *Q.* Do I understand that your general opinion is, that safety ought to be the first consideration, apart from the question of expense? *A.* Yes.
604. *Q.* That no matter of expense should stand in the way of making a mine absolutely safe as far as work is concerned? *A.* Yes.
605. *Q.* You believe that the whole of these suggestions are quite practicable? *A.* Yes, and at small expense.
606. *Q.* You understand the nature of a deputy's work quite well? *A.* Yes.
607. *Q.* The examining deputies are relied upon to see that the mine is safe? *A.* Yes, that is their main business.
608. *Q.* Your proposal is that these persons shall obtain a certificate? *A.* Yes—a man's life depends on the skill and ability of the deputy.
609. *Q.* As far as the examination is concerned it would be one limited to a knowledge of gases, and the best means of discovering them? *A.* Yes.
610. *Q.* Do you know any persons who have been appointed to responsible positions whom you believe have no knowledge of gas? *A.* Yes, I have known such persons to be appointed.
611. *Q.* Is the reason that you advance for Managers being certificated in the same way because of the same defect? *A.* Yes. That is correct. A Manager should go through a proper examination. He may be a very practical man and well up in theory; but we do not know that until a disaster occurs; and then you find out that the Manager you thought all right is altogether wrong.
612. *Q.* In other words, you find out that the person you had been depending on, for keeping the mine safe, has no knowledge as to whether it is safe or not? *A.* Yes.
613. *Q.* And you think he should be qualified by examination? *A.* Yes.
614. *Q.* Do you know of any Managers who would not know gas by sight? *A.* I could not go that far: I can hardly say that.
615. *Q.* Would you regard a Manager who said that he did not know anything about gas to be qualified? *A.* I should think him very much unqualified.
616. *Q.* Would you think a man qualified if he did not know the constituents of gas? *A.* No, I do not think a company would employ a man of that kind if they considered the safety of their employees.
617. *Q.* Do you think a Manager should be more constantly below ground? *A.* Yes.
618. *Q.* You think that he should bring his personal knowledge to bear on matters below the ground? *A.* Yes. That is his work; and I think he should attend to it.
619. *Q.* Do the Government Inspectors attend very often? *A.* I cannot say very often.
620. *Q.* Do you think they ought to attend more regularly? *A.* I think so.
621. *Q.* Do you know anything about the extent of their examination when they do appear? *A.* Well, sometimes I think it is more of a visit than anything else; I do not think you could call it an inspection.

Witness—T. R. Morgan, 6 January, 1903.

621½. *Q.* How often have you seen an Inspector at your mine? *A.* Once in about every six weeks; but he may have come oftener and I not have seen him.

622. *Mr. Lysaght*] Can I ask a question arising out of Mr. Robertson's examination?

623. *His Honor.*] It is rather irregular.

624. *Mr. Lysaght.*] I was going to ask him with regard to the Mining Laws at Colorado.

625. *His Honor* ruled that it would be better to lay before the Commission any books or documents containing such laws.

626. *His Honor*, in answer to Mr. Bruce Smith, said that he intended the Commission should meet on Tuesday, Wednesday and Thursday, next week; that all local witnesses should be taken at Wollongong, and that afterwards a visit should be paid to Newcastle, or other places if necessary, and that witnesses from Newcastle should be examined in Sydney if thought desirable.

627. (At 5.15 p.m. the Commission adjourned until the following day.)

WEDNESDAY, 7 JANUARY, 1903, 10 a.m.

[The Commission met at the Court-house, Wollongong.]

Present:—

C. E. R. MURRAY, Esq., D.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER. | D. RITCHIE, Esq., COMMISSIONER.

Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. Atkinson, Chief Inspector of Coal-mines, assisted Mr. Bruce Smith.

Mr. A. A. Lysaght, Solicitor, appeared on behalf of—

- (a) the representatives of deceased miners, wheelers, &c. (victims of the explosion);
- (b) the employees of the Mount Kembla Colliery (miners, wheelers, &c.); and
- (c) the Illawarra Colliery Employees' Association (the Southern Miners' Union).

Mr. C. G. Wade, Barrister-at-Law, instructed by Mr. F. Curtiss, appeared on behalf of the Mount Kembla Coal and Oil Company (Proprietors of Mount Kembla Mine).

(Mr. J. Garlick, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.)

628. *His Honor.*] It was mentioned yesterday that the evidence taken before the Coroner's Court was being used by this Court as evidence in the case of this inquiry; but it was not actually formally made part of the evidence in this case by its being put in. The Court now considers that, perhaps, it is best to say that it is considered as evidence in the case, and that the various documents which were put in as annexures to that evidence are also to be taken as put in with that evidence on this hearing. Some of those documents, Mr. Wade, are in the possession of the Company actually now.

629. *Mr. Wade.*] Those would be the report books?

630. *His Honor.*] Yes. You might get those books produced.

631. *Mr. Wade.*] If Mr. Garlick will give me a list, I will get them. I am under the impression that the colliery plan was put in as evidence. It would be a great inconvenience if that were taken away from the colliery for any length of time; and we have copies here.

632. *His Honor.*] Were not these copies lithographed from that plan?

633. *Mr. Wade.*] Yes.

634. *Mr. Bruce Smith.*] Will your Honor understand that each witness marked a separate lithograph which was marked with his name.

635. *His Honor.*] Yes; we have those here. It is not necessary, Mr. Wade, that that particular plan should remain out of the possession of the Company because it happened to be put in. The Company may have that.

636. *Mr. Wade.*] Before the evidence begins this morning, I wish to refer to No. 17 of the suggestions made by Mr. Lysaght on the list supplied this morning. It simply says, "Cancellation of Certificate of William Rogers, Manager." I think I might fairly ask at this stage that Mr. Lysaght should state the grounds on which he asks for the cancellation of Mr. Rogers' certificate.

637. *His Honor.*] As that is a suggestion directly affecting the Company in relation to one of its officers, I think the suggestion made by Mr. Wade is a fair one.

638. *Mr. Lysaght.*] I have no objection. The recommendation is made, in a great measure, on account of the evidence given by Mr. Rogers at the inquest; when, amongst other things, he stated this: "I took the report of the fireman as sufficient for me, with my own examination. I never personally took the amount of ventilation passing in the mine at any time. I have seen some black-damp. I saw some there a week ago last Saturday, and before the disaster I remember seeing black-damp in Kembla. That was four or five months before the disaster. I did not report the discovery of that black-damp in any book; and I did discover black-damp before that, and I did not report it. I never remember Evans reporting gas to me. I will not swear he did not report it to me. I knew that gas was found in the mine years ago. In my opinion, if the fireman thought the black-damp which he discovered was dangerous, he should have reported it, and not otherwise. I never heard of the Royal Commission of 1895. I never knew that my own Manager attended and gave evidence. I do not know that I have ever read the report of the Bulli Disaster Royal Commission. I do not know whether we are working the Bulli seam."

639. *Mr. Wade.*] You have missed out the very next word that makes the whole of the difference, "I have been told that it is." I asked for a specific charge or charges. I do not care how many there are if Mr. Lysaght will make the charges. My friend is now merely reading out the allegations in the evidence of Mr. Rogers.

640. *His Honor.*] Mr. Lysaght is now giving his reasons for making the suggestion, the general reason being that certain things appear on the evidence given by Mr. Rogers: but that is hardly a compliance with what Mr. Wade asked for. Mr. Wade's request is that some specific charge be made against Mr. Rogers, instead of merely a request that Mr. Rogers' certificate be cancelled. The certificate could not be cancelled in any proceeding except upon some specific grounds. Mr. Wade has asked what those specific grounds are, and not what the foundation of the grounds is.
641. *Mr. Lysaght.*] Perhaps I can shortly answer:—the incompetency of the Manager as shown by his admissions at the inquest.
642. *Mr. Wade.*] That is equally vague. I am no further ahead at all. Surely my friend can put it in some concise form?
643. *Mr. Lysaght.*] I say it is general incompetency, as evidenced by his evidence at the inquest.
644. *His Honor.*] As Mr. Lysaght has put it in that way, I do not think we can go any further in the matter in compelling him to analyse the incompetency.
645. *Mr. Wade.*] No, Your Honor; but surely he could give the specific instances which indicate the incompetency.
646. *His Honor.*] Then Mr. Lysaght says: "I call attention to the evidence which Mr. Rogers himself gave; and I say that that explains, on the face of it, the nature of the incompetency which I charge."
647. *Mr. Lysaght.*] Yes, Your Honor.
648. *Mr. Wade.*] In that case I would ask him to read anything else he relies upon.
649. *Mr. Lysaght.*] That is what I was about to do when I was stopped. "I do not know that we are working that seam, except from what I have heard. I do not know anything at all about Mr. Green's statement that there was gas in Kembla when he was Manager. I do not know anything about the composition of the Bulli seam so far as its gaseous nature is concerned. I have never made any study of the gaseous properties of that coal. I am not prepared to dispute the statement of Mr. Rowan that 13,500 cubic feet of inflammable gas accumulated in the same seam that we are working in eight hours under certain conditions in a mine (not Mount Kembla) in this district.
650. *Mr. Bruce Smith.*] Does it not appear to Your Honor that this is evidence in support of one of the propositions.
651. *His Honor.*] I think it would be quite enough for Mr. Lysaght to say now—and I have allowed him to say that:—"I ask the Court to gather from this evidence, given on cross-examination by Mr. Rogers, that he is not competent for the work as a Manager which he has undertaken." I think that is quite enough now. It is easy to see the kind of argument that Mr. Lysaght will found upon that, whether it is good or bad.
652. *Mr. Lysaght.*] Might I add also to that that I may be able to call evidence that since the disaster he has permitted practices which are dangerous?
653. (At this stage the map used during the evidence of Mr. Thomas Richard Morgan, and marked by him, was put in, and marked "Exhibit No. 1.")
654. *Mr. Lysaght.*] I have prepared for Your Honor this morning this digest of the recommendations. They number now twenty. I do not know whether Your Honor desires any further amendment of them.
655. Mr. Lysaght then handed in the list of recommendations, which is copied hereunder.

Recommendations made by Mr. Lysaght.

1. Managers, under-managers, deputies, and shot-firers, to hold Certificates of Competency by examination, and to have had five years' practical mining experience, before being eligible for respective positions.
 2. Inspectors to be vested with absolute powers to order use of safety-lamps.
 3. Ventilation by furnace prohibited; and fans substituted.
 4. Waste workings to be absolutely sealed off, and surrounded by return air-ways (for fear of emissions); such return airways not to come in contact with intake.
 5. All places, except prospecting drives, to have cut-throughs not more than 30 yards apart.
 6. Inspection with locked safety-lamp in all cases.
 7. Monthly examination and report by Deputies and District Inspector with hydrogen flame.
 8. Minimum of 500 cubic feet of air per minute to be provided for every horse, instead of 100 as at present.
 9. All doors erected so as to close and remain closed of own motion.
 10. Double doors on drives between main intakes and returns, and main headings.
 11. Weekly measurement of air in each section, and report thereof sent to Inspector.
 12. Extra supply of safety-lamps and their requisites, equal to one-third of number of persons employed below ground, to be kept constantly in good order and ready for use.
 13. Travelling and haulage roads, and other places necessary, to be properly watered.
 14. Managers compelled to give more personal time and attention to management of colliery.
 15. Instruments to be placed at bottom of upcast to determine variations of heat and air-pressure.
 16. Size of man-holes enlarged.
 17. Cancellation of certificate of Wm. Rogers, Manager.
 18. Instruction to employees regularly on means of escape.
 19. Coal-mines Act to forbid a black-list of employees being kept, and penalising improper prevention of discharged persons obtaining employment.
 20. Safety-lamps not to be unlocked for shot-firing.
656. (The order for the exclusion of witnesses was repeated by His Honor).

Mr. EDWIN BIGGERS was sworn, and examined, as under:—

Examination-in-chief by Mr. Lysaght:—

657. Q. What is your name? A. Edwin Biggers.
658. Q. What are you? A. A miner.
659. Q. Where do you work? A. Mount Kembla.

Witness—E. Biggers, 7 January, 1903.

660. *Q.* How long have you been working as a miner there? *A.* I should say about nine years as a miner—as near as possible nine years.
661. *Q.* Were you working in the Kembla Colliery last Wednesday? *A.* Yes, sir.
662. *Q.* Who was the shot-firer for your district? *A.* Mr. Forsythe.
663. *Q.* Was any shot fired by him in your working-place last Wednesday? *A.* Yes. There was a shot fired there last Wednesday.
664. *Q.* At the time, or shortly before firing the shot, had any part of your working-place or the vicinity of it been watered? *A.* I could not say that. I did not take any notice.
665. *Q.* Did you see any part of it watered? *A.* It might have been watered; but I did not see it. I could not say. I did not see it.
666. *Q.* Can you give the number, or can you show on a plan the place, where you were working? *A.* Well, I have not been working in that district, I suppose, for a couple of years. I could not guarantee to give exactly a plan of the place.
667. *Q.* Can you state where it is? *A.* It seems to be to the right of No. 1. I believe I am in the main heading. I have only been there a short time.
668. *His Honor.*] If you saw a plan of the mine, do you think you could pick it out? [*Witness did not answer.*]
669. *Mr. Lysaght.*] *Q.* How was the fuse to fire that shot ignited? —
670. *Mr. Wade* objected to Mr. Lysaght's line of examination. He objected to Mr. Lysaght's examining the witness with regard to any alleged breaches of the Regulations since the date of the disaster.
671. Mr. Bruce Smith stated that he took the same view as Mr. Wade.
672. Mr. Lysaght said that he tendered this evidence in support of recommendation No. 20, which was that safety-lamps should not be unlocked for shot-firing; and also in support of the proposition that Mr. Rogers is not a competent Manager, and that his certificate should be cancelled.
673. His Honor consulted his colleagues.
674. *His Honor.*] We are all of opinion that this matter ought to be brought up to the time of the accident, and not since. Whatever Mr. Rogers may have done, or may have failed to do, since the date of the accident, he can be called upon under section 10 of the Coal-mines Regulation Act in relation to that if it is thought proper to do so: but it is not a question for us of what he has done since or what he has failed to do since, and I do not think we ought to go into that as a test of evidence to show what he might have done before the crucial date. Up to that time we can inquire as to what happened; and from all that evidence as to what happened up to that date we can come to a conclusion, as we are asked, as to the cause of the accident, and can make upon all the evidence that we hear any recommendation that we think fit for the future; but as to the conduct of officials since that date I think we have absolutely no jurisdiction; and I think, also, if we attempted to go into that question we should land this Commission in a most interminable inquiry. Therefore, we uphold the objection made by Mr. Wade; and we decline to hear evidence of these facts which have occurred since the accident, apparently directed towards, principally, the question of whether or not some officer has acted improperly, or whether or not some improper course of conduct has been pursued in the mine in relation to blasting or otherwise.
675. *Mr. Lysaght.*] I take it that your Honor's ruling would exclude me from giving evidence of a dangerous practice for which we ask for a recommendation to amend?
676. *His Honor.*] A dangerous practice upon which a recommendation should be made is a generally existing dangerous practice, or what might be a dangerous practice if it were adopted. It is quite immaterial whether, as a matter of fact, it is or is not adopted now. It is quite easy to show by general evidence that it is a dangerous practice. But, if an accident had happened—if it were a question whether a practice was or was not dangerous, and if, for the purpose of proving that it is dangerous, it could be proved that some accident happened in consequence of its being adopted, then, though that accident happened since the disaster, such evidence might be given: but to show that there is a taking advantage of a loop-hole which is clearly existent in the law is quite useless and immaterial as far as I can see. I certainly do not see that it ought to be given; and my colleagues agree with me in that.
677. *Mr. Lysaght.*] Then I have no further questions to ask the witness, Biggers.

Cross-examination by Mr. Wade:—

678. *Q.* Were you with the party with which were Mr. Ritchie, Mr. May, Mr. Maguire, and Mr. Morgan? *A.* No sir, I was not.
679. *Q.* Was that your brother? *A.* A brother of mine.
[*Witness retired.*]

Mr. JAMES MAGUIRE was sworn, and examined, as under:—

Examination-in-chief by Mr. Lysaght:—

680. *Q.* What is your name? *A.* James Maguire.
681. *Q.* Where do you work? *A.* South Clifton.
682. *Q.* What are you? *A.* A miner.
683. *Q.* You are the President of the Illawarra Colliery Employees' Association? *A.* I am.
684. *Q.* Did you visit the Mount Kembla Mine at the time of the disaster? *A.* Yes, I did.
685. *Q.* What day were you there? *A.* I was there upon the day of the explosion—on the day the disaster occurred.
686. *Q.* Will you tell the Commission what part of the mine you went into. *A.* I went into a part of the mine called the Shaft Section—I think that is the name. I went in there on that occasion for the purpose of doing what I could towards rescue. I assisted, I think it was, two men; they were alive at the time. I forget their names. I assisted to bring those two men out. I did not go in any more on that occasion.
687. *Q.* Were you in the No. 1 Right District at all on that occasion? *A.* No.
688. *Q.* Did you go in the mine on a subsequent occasion? *A.* Yes, I went in on an inspection.
689. *Q.* On what date? *A.* I could not give you the exact date. I think it would be ——[*Interrupted.*]
690. *Q.* The 9th August, with Mr. Morgan? *A.* About five or six weeks after—something like that—I could not give you the exact date.
691. *Q.* With Mr. Morgan and Mr. Ritchie, and a party of six? *A.* Yes, there was a party. 692.

692. *Q.* Well now, I do not want to go right through all you observed—will you kindly tell us what conclusion you arrived at, if any, from your inspection on that occasion? *A.* After the inspection the only conclusion or theory that I could arrive at was this, that an explosion of gas must have occurred, forced out from the old workings, and that it came on to the naked lights and caused the disaster. That is the only conclusion that I could come to.

693. *Q.* Could you indicate on the plan what old workings you refer to? *A.* Yes,—well, some portion of this 35 acres, I should imagine, would be where it would come from, and be forced on to these working places [*indicating on map*].

694. *His Honor.*] *Q.* Through what opening should you say that the forcing of the gas took place? *A.* I thought at the time that it came out at a place worked by a man named Aitken. I remember that name more particularly.

695. *Mr. Wade.*] *Q.* You thought what? *A.* That the gas had come out into this place that was worked by the men Aitken.

696. (By direction of His Honor the Secretary pointed out on the plan to the witness the position of Aitken and son's working place.)

697. *Witness.*] I think that was the name. It was a pillar, at all events.

698. *Mr. Lysaght.*] *Q.* Do you mean that the explosion originated in Aitken's place, or started from gas you think had accumulated in Aitken's place? *A.* Somewhere near to it; from the evidences of force that were there, and the charred props. There were evidences of great force just at that place: skips driven into each other, and charred props, and charred roof.

699. *Q.* You see by the plan that Aitken's place was some distance from that 35-acre goaf. Was there more than one explosion? *A.* Well, perhaps I may have mistaken that about the 35-acre goaf, and I may have taken it as the goaf near by. I see by the plan now that there is a small goaf near Aitken's working place.

700. *Q.* Do we understand now that it is the small goaf you refer to near Aitken's place? *A.* Yes; I suppose it was, now. I understood that this 35-acre goaf was there; but I see by the plan that it was some distance away.

701. *Q.* Do you mean that there was only one explosion, or a series of explosions? *A.* I could not form an opinion on that as to whether there was or was not.

702. *Q.* Do you think that coal dust played any part in the explosion, or in accelerating it? *A.* I have no doubt it would assist, once it started. I think there would be no question in my mind that it would assist.

703. *Mr. Wade.*] *Q.* Did you say "would" or "did"? *A.* I have no doubt it would.

704. *Mr. Lysaght.*] *Q.* In your opinion did it in this case? *A.* Oh, I would think so. Yes, I think it would.

705. *Q.* Beyond that can you give the Commission any information to lead to a conclusion as to the cause? *A.* No, I do not think I can.

706. *Q.* How long were you examining? *A.* We were, I think, about five hours, roughly; something like that.

707. *Q.* Did you observe any indications of burning or singeing or charring in any other place besides Aitken's? *A.* No. I do not remember seeing anything, excepting that place. I remember that place more particularly. I do not think there was any other place. There may have been a place. I am not exactly sure, but I do not remember it.

708. *Q.* You are aware of the first recommendation of the Union:—"Managers, under-managers, deputies, and shot-firers, to hold certificates of competency by examination, and to have had five years' practical mining experience before being eligible for respective positions." What do you say in support of that recommendation? *A.* Well, I think it is only right that men who are in responsible positions should have these qualifications: they are very responsible positions; and I think they should hold certificates.

709. *Q.* Can you go into that more fully, particularly as regards the deputies and shot-firers? *A.* I do not know that I can. I look at it this way, that these men practically have the whole of the people under their charge, and that they should show a qualification for that according to the position they hold.

710. Regarding Recommendation No. 2—"Inspectors to be vested with absolute powers to order use of safety lamps,"—do you think that would be a wise provision? *A.* Yes, I think that would be a wise provision. I think they are the proper persons, or should be the proper persons, to know whether these lamps are required or not; and it is just as well to have the absolute power in their hands; and then we know who has the power.

711. *Q.* What do you say in support of No. 3—"Ventilation by furnace prohibited, and fans substituted"? *A.* Oh, I think fans are less liable to go out of order. The furnace seems out of date. The fan would be superior in my opinion.

712. *Q.* And in what other way is the furnace a danger? Is it dangerous in case of a disaster? *A.* It is more liable to go wrong; and in case of a disaster the fan would be superior, I think, of the two. It would be less liable to accident.

713. *Q.* Is not there the danger that if the furnace — [*Interrupted.*]

714. (Mr. Wade objected to Mr. Lysaght's putting leading questions).

715. *Mr. Lysaght.*] *Q.* Assuming that there was a disaster near the furnace, and anything happened to the furnace, would not that have the effect of shutting off the air from nearly every other part of the mine? *A.* Yes, of course it would.

716. Regarding No. 4—"Waste workings to be absolutely sealed off and surrounded by return airways (for fear of emission)—such return airways not to come in contact with intake." I think you desire to say something on that recommendation, as President? *A.* I would prefer myself to see them, if possible, ventilated. If it was practicable at all, I would prefer to see them ventilated rather than to shut them off; but if that could not be done, then I think that the next best thing would be to close them up.

717. *Q.* Looking at that plan there, that 35-acre goaf, do you think it would be at all practicable to ventilate that—that big goaf there? *A.* I do not know whether it would or not.

718. *Q.* Have you ever heard of large goaves being ventilated? *A.* Well, I cannot say I have.

719. *Q.* Now, No. 5—"All places except prospecting drives to have cut-throughs not more than 30 yards apart";—what do you say to that? *A.* I think that is a matter that could easily be done. I do not see any difficulty in the way of doing that. It would be better than carrying the brattice up and depending on brattice. I think 30 yards would be a reasonable distance.

Witness—J. Maguire, 7 January, 1903.

720. *Q.* Do you think that the driving of these cut-throughs would have any effect upon the support of the roof? *A.* No, I do not think so. I cannot see that it would.
721. *Q.* What size would you propose to have the cut-throughs? *A.* Oh, about 3 yards.
722. *Q.* Wide? *A.* Yes.
723. *Q.* And in what way would the cut-throughs be an additional precaution, an additional safeguard—the extra cut-throughs? *A.* Well, the air would be brought up better, and we would not be relying upon the brattice so much—the brattice gets sagged down, and the air gets lost. There would be precaution in that way.
724. *Q.* After the place had been driven up to where there should be a second cut-through, would you have the first cut-through sealed off? *A.* Oh yes; when the first one was through, and they got the second one, I would brick the first one off.
725. *Q.* And regarding No. 6—“Inspection with locked safety-lamp in all cases”;—you consider it a wise precaution to abolish that section of the Act which allows an inspection—[*Interrupted*].
726. *His Honor.*] Do I understand, Mr. Wade, that you dispute the expediency of that amendment?
727. *Mr. Wade.*] I cannot say I dispute it; but I cannot absolutely admit it. I say this, that, as a matter of fact, for the greater protection of the miners, I think nearly every colliery nowadays does use the safety-lamp for the purpose of inspection.
728. *His Honor.*] A locked safety-lamp?
729. *Mr. Wade.*] Yes.
730. *His Honor.*] There seems to be no valid reason for the exception. It seems to be hardly worth arguing.
731. *Mr. Bruce Smith.*] I understand it is not so in the West. The conditions are different there.
732. *Mr. Wade.*] But I am speaking of the South Coast.
733. *Mr. Bruce Smith.*] But these recommendations appear to apply to the whole State.
734. *Mr. Wade.*] So far as we are concerned in Mount Kembla, I cannot say more than that we have, in spite of the fact that the report-book shows for years and years no gas, made the inspection with a locked safety-lamp.
735. *His Honor.*] You went on the assumption that this is a particularly safe mine; and yet you have adopted that plan. That is very strong evidence to show that that precaution is taken even in cases where it is least necessary.
736. *Mr. Wade.*] I do not want to do anything that will bind anybody else outside my own clients.
737. *Mr. Bruce Smith.*] I do not want it to be supposed that the Department takes any exception to the proposal to make it universal; but of course care has to be taken, when witnesses go into the box who are familiar with the mines in only one part of the State, and they express universal opinions, as to what should be done with respect to the conditions elsewhere.
738. *His Honor.*] I only made the suggestion.
739. *Mr. Lysaght.*] I think I might adopt your Honor's suggestion.
740. *His Honor.*] It is hardly worth while labouring the matter.
741. *Mr. Lysaght.*] It would not be imposing any hardship upon them even in the West.
742. *Mr. Bruce Smith.*] One Inspector, who will give evidence before the Commission, has had a great deal of experience in the West; and we may ask him some questions as to the practice.
743. *His Honor.*] There was one gentleman who gave evidence before the Coroner who certainly expressed the matter very simply, and in a very common-sense way. He said that if you were inspecting for gas with an open light, and if you found the gas, possibly you would not be in a condition to report it.
744. *Mr. Lysaght.*] Your Honor will remember that Morrison stated that he went to inspect with a naked lamp.
745. *Mr. Wade.*] That was a very unfair question. It was put deliberately to make the man say “yes” or “no” to it; and now it is made use of.
746. *Mr. Lysaght.*] *Q.* Now, No. 7—“Monthly examination and report by deputies and District Inspector with hydrogen flame.” Do you think that is an essential precaution to take in the mines? *A.* Yes, I think it would be a good thing, and would give additional security.
747. *Q.* For the reason that the safety-lamp cannot detect below 2 per cent.? *A.* Yes.
748. *Q.* Do you think that would cause any great inconvenience or any material expense? *A.* I do not see it. I do not see that it would be a great matter to do once a month.
749. *Q.* No. 8—“Minimum of 500 cubic feet of air per minute to be provided for every horse, instead of 100 as at present,” you might say how much more air in your opinion does a horse require than a man in a mine? *A.* I could not say exactly; but I could only say that it takes more; that is all.
750. *Q.* In your opinion, is 500 cubic feet a reasonable allowance for each horse? *A.* Well, it is only a matter of guess-work with me as to how much a horse would require; but I think it ought to have that at least.
751. *Q.* The minimum of 100 is in your opinion totally insufficient? *A.* You are asking me about the amount for the horse?
752. *Q.* Yes? *A.* Yes, I think the 500 added to the other would be an improvement.
753. *Q.* In your opinion 100 cubic feet of air per minute is not sufficient for a horse? *A.* I do not think it is.
754. *Q.* No. 9—“All doors erected so as to close and remain closed of own motion.” Do you think that is a necessary precaution to take? *A.* Yes. If they closed of their own motion that would do away with any carelessness on the part of anyone not closing them. If it closed on its own account there would be no necessity for a person to close it.
755. *Q.* Do you think it would add to the negligence of anyone who might come across one that was accidentally open? *A.* No; the rule would be there still that they would have to close them. If any accident happened or anything blocked it from closing they would still have to close it.
756. *Q.* And that would not entail any material expense on the Company? *A.* I do not see that it would entail any.
757. *Q.* And that is a reform that could be very easily and quickly fixed up? *A.* Yes; a very simple reform, that.

758. Q. Now, "Double doors on drives between main intakes and returns and main heading," No. 10. What do you say to that? A. Oh, I think that is a reasonable thing to ask for. One door is closed while the other one is open, preventing escapes while skips are going through, sets, or anything like that—one door is closed and the other is open.

759. Q. That is, one door should be closed and the other open? A. Yes, should be.

760. Q. As a matter of fact in some of the collieries do you know that they have double doors? A. Oh, yes; they have got double doors at some of them.

761. Q. No. 11—"Weekly measurement of air in each section, and report thereof sent to Inspector." As you know, the measurement is now once a month; do you think it would be an additional safety if it were once a week? A. Yes. It would mean increased safety. They would know oftener how things were standing by doing it once a week.

762. Q. Would that entail any extra expense on the proprietaries? A. I suppose it would—a certain amount. There would be the time of a man going round to do it: that would be all.

763. Q. Where would you have the air measured? In what parts of the mine? In each district? A. If it is to be done, I should say do it thoroughly.

764. Q. What would you call "doing it thoroughly"? A. Well, in the whole of the splits.

765. Q. Is the measurement of the air at the main intake any evidence at all of the air circulating in every part of the mine? A. No: only evidence of what air is circulating in that particular place.

766. Q. No. 12, "Extra supply of safety-lamps and their requisites equal to one-third of number of persons employed below ground to be kept constantly in good order and ready for use." Do you think that a wise precaution? A. Yes. I think that in case of anything happening those lamps will be there, and they may be the means of saving life.

767. Q. What was your experience at Kembla regarding lamps at the time of the disaster? A. There was not a sufficient quantity; and they were very short—very few—I do not know how many, but they were insufficient at all events.

768. Q. What was the condition of the wicks? Were they out of order, too, in addition to the lamp generally? A. Yes. I say there was an insufficiency of lamps; and the lamps that were there were not ready for use. They were not ready to go straight in. They had to be got ready.

769. Q. In your opinion, if there had been an adequate supply of lamps in readiness, could a number of more lives have been saved? A. I think it is very probable that there would have been.

770. Q. No. 13, "Travelling and haulage roads and other places necessary to be properly watered." In addition to the watering of the haulage road, do you think it absolutely necessary that the travelling road should be watered? A. Oh, yes.

771. *Mr. Bruce Smith.*] I do not know whether your Honor thinks it best, in getting expert evidence, for the questioner to put the evidence in his own way. It does not come with any weight at all.

772. *His Honor.*] The reporter here, who is a very careful and accurate reporter, is taking down questions and answers; and when questions appear on the report of the evidence which almost necessarily imply a certain answer, and that answer follows, any person reading that evidence will feel how very much the weight of the evidence is taken off by the question. The injury is more to the examiner than to the other side.

773. *Mr. Lysaght.*] Q. What do you say as to the necessity for the watering of the travelling roads? A. What I think about watering is that, although it is a great inconvenience if there is watering all over the mine, a certain amount of watering would be better—the air would be cooler passing over it; and the dust would be laid—not only on the haulage roads, but the travelling roads. It makes it cooler, reduces the dust, and keeps the dust laid. That is all the object I see in watering—the laying of the dust.

774. Q. No. 14—"Managers compelled to give more personal time and attention to management of colliery"? A. Yes; I think he ought to give the fullest possible time that he can, work as much as he possibly can, being the head of the work.

775. Q. What has been your own experience as to Managers attending, watching the inside workings of the pit? Your general experience? A. Well, I see the Managers occasionally. I should say two or three times in a month, perhaps. That is about it roughly. Some months, perhaps, more, you know; and, perhaps, others not quite so many, but something like two or three times in a month.

776. Q. No. 15—"Instruments to be placed at bottom of upcast to determine variations of heat and air pressure"? A. Well, if the continuance of a furnace was to be, you might put an instrument there; but, as far as the upcast shaft is concerned I cannot see much use for it there.

777. Q. That is, if the furnaces are discontinued? A. If the furnaces are discontinued I do not see much in it myself.

778. Q. And the size of the manholes enlarged (No. 16)? A. Yes, I think that would be a benefit. When they are making them they may as well make them a little bigger, and give the people a chance. There may be two or three trying to get into a manhole at the one time; and it is rather small.

779. Q. No. 17—"Cancellation of certificate of William Rogers." That is not a matter upon which you are giving evidence. No. 18, "Instruction of employees regularly on means of escape."

780. *His Honor.*] What is the number of the rule providing for manholes?

781. *Mr. Lysaght.*] They are to be 3 feet wide, and 4 feet deep, and 6 feet high.

782. *Mr. Wade.*] But it is only in special cases—General Rule 14.

783. *Mr. Lysaght.*] The Consolidated Act, General Rule 14.

784. Q. "Instruction to employees regularly on means of escape"? A. I think that is a necessary thing. I think that where there are ways out of the mine a man should be instructed in those ways, so that he can get out as quickly as possible. It may be that he might lose his way, and lose his life through losing his way.

785. Q. Would that interfere at all with the general easy management of the colliery, or could it be easily effected? A. Oh, I think that could be very easily done—no expense, no trouble, or anything—and very necessary too, I think.

786. Q. No. 19—"Coal-mines Act to forbid a black list of employees being kept; and penalising improper prevention of discharged persons obtaining employment." What do you say on that matter generally? A. Well, generally, I think if anything like that was done it would give more security in cases. A man might be loth to come forward to repeat anything or to give evidence; and, if there was something like that, it might encourage him a little to come forward either to report matters or to give evidence in cases. It may be so. He would have that amount of security, at all events.

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787. Q. "Safety-lamps not to be unlocked for shot-firing" (No. 20). What do you say to that? You know of that provision where the safety-lamp can be unlocked if gas has not been discovered? A. Yes. I think it would be better if it could be avoided and the shots fired in other ways, either by electricity or by the wire. I think it would be better not to open the lamp, at all events.

788. Q. Is there anything else you desire to say before the Commission? A. No; I have nothing that I can think of.

Cross-examination by Mr. Wade:—

789. Q. With regard to the question of safety-lamps not being unlocked for shot-firing—supposing that a particular place has been examined in the morning, before work commences; and has been found free of gas; and supposing it has been examined just before the shot is fired, and is found clear of gas; and supposing it is free of dust; do you see any objection, in the way of danger, to the lamp being unlocked under those circumstances? A. Well, there may not be; but still I---[*Interrupted.*]

790. Q. Do you see any? A. No, I do not; under all those suppositions, I would not; but it seems to me to be supposing too much.

791. Q. What is supposing too much? A. Supposing there is no dust, and supposing there was no gas just before, and none in the morning; things might occur in such a short time.

792. Q. The dust would not change? A. The dust might not.

793. That is all right? A. Yes.

794. Q. And if it has been examined before you begin work, and just before the shot is fired, and it is found free of dust on both occasions, do you see any possible risk in firing the shot with the unlocked safety-lamp? A. Not if all those conditions are carried out.

795. Q. And the Act absolutely says, under all those conditions, you may unlock the lamp? Q. Yes, I know it does.

796. Q. Now, with regard to claim 18, "Instructions to employees regularly on means of escape"—is it not the practice now for a man's mate, if he does not know the way, to explain to him the road to his place? A. A man's mate?

797. Q. There are two men—one man knows the road in, or there may be two roads to the place; and the mate is a new hand—does not the other man explain the way to the place? A. He will explain the way that he knows himself.

798. Q. The man who knows the way will tell his mate anything he knows himself? A. He will tell him what he knows himself.

799. Q. He will help him all he can? A. He will.

800. Q. And does not every reasonable miner try and find out the different ways to or from his working place? A. He generally follows the general one of the mine. There may be ways that a good many of the men do not know anything about, where there are two or three ways.

801. Q. You have been a miner for many years? A. That is it.

802. Q. And cannot you say this, that every reasonable miner, for his own safety, tries to ascertain the different means of getting to or from his working place? A. Oh, I think they only generally go the one way.

803. Q. It is not a question of going the one way: it is a question of trying to find out the different ways? A. I cannot say that they do try to find it out.

804. Q. Take yourself: have not you, for your own safety? A. No. I have just simply gone; and I have gone the way that the body of the men go; and there may be other ways out that I would know nothing at all about.

805. Q. You mean to say that you have never bothered to inquire? A. Oh, yes, I may have inquired.

806. Q. Have you not? A. Well, I might explain it. Suppose I went to a colliery to-morrow, to a place I had not been to before. On the first morning I went I would inquire the way to the place I was going to; and I would go with men that knew the way to that place: and within a week or two I might inquire, "Is there any other way out of this place," and I might get the answer, "Yes, so-and-so"; but, unless I have got anybody with me to show me the way out, I cannot find my way out of that place that way.

807. Q. You, as a reasonable man, having found the ordinary way to your place, would inquire whether there were any other ways? A. Oh, I would inquire myself.

808. Q. And I suppose you would admit that any reasonable miner would do that? A. A man might not think of that sort of thing. I would want to know if there were more ways than one.

809. Q. There is nothing in the rules of the colliery that would prevent your coming out the different ways if you can get anyone to show you? A. Not if I can get anyone to show them. I do not know anything that would prevent me if there is a clear way out.

810. Q. Well, what would you suggest for this periodical instruction—that each miner should be taken all round the mine? A. No. I will tell you what I would suggest. If there were two or more travelling ways out, I would suggest two things to be done. In the first, I would have a sort of rough plan of these ways giving the local names of the headings and places, so that the men would know them better; and that would be posted outside; and the men would say, "Well, we will go from so-and-so heading and come here"; and they would know partly from that; and then at stated intervals let the deputy take the whole of the men out this way as they are going out, and show them, perhaps, once in a month or two months, or perhaps once in three months.

811. Q. Once a quarter? A. Yes.

812. Q. Then why should you not leave this to be done by one of the miners who happens to know the whole of the way? Why do you want to drag the deputy in? A. Well, he is a responsible man.

813. Q. There is nothing responsible in walking out by a different road? A. I do not know. I do not know how you are to arrive at one of the miners unless he was appointed by some special appointment to do this. I should think that the deputy would know the roads better than the miner: and he would take them round and show the way out.

814. Q. Suppose you were working in Main No. 1 Kembla? A. Yes.

815. Q. Now, we have been told that there are two ways to get to the face there—along the main travelling road and along the daylight tunnel. Now, what difficulty would there be in those men who knew the daylight tunnel taking out their mates any one day in the quarter along there and showing them? A. I do not suppose there would be any difficulty in taking them; but I think if it was left to each individual like that it would be nobody's business, and it would never be done; but if it were put on one man to do it would be done.

816. *Q.* If it is left to the miners to look after their safety they would probably not do it? *A.* Some would, and some would not.
817. *Q.* And you want a duty imposed on the Company to make the miners look after their safety? That is what it comes to? *A.* Well, it is partly that; it is so that it would be done. Your idea, if I understand you aright, is to leave it to each individual man to find out for himself. Mine is to take one particular man and say to him — [Interrupted].
818. *Q.* Exactly. If the Company give the men permission to know the different roads, you think it is not sufficient, as they would not bother to go? *A.* I think it would be a failure that way.
819. *Q.* But what you want is a duty imposed upon the Company to make the men find these escapes for their own safety? *A.* Yes, to show them; and then, if they did not take it afterwards, well, it could not be helped.
820. *Q.* Well, would you have a penalty imposed upon the men who did not go? Have them fined? Have that added to the special rules? *A.* Fined.
821. *Q.* For not going? *A.* I do not think I would. I would simply put it there; and I think the men would be only too glad to do it.
822. *Q.* Supposing the men do not go even then with the deputy, would you propose that they should be fined? *A.* No, I would not.
823. *Q.* You would still leave it to their own choice? *A.* I would leave it then. If a man after that being put in his way would not do it, I would let him rip and let him put up with the consequences: but I do not think he would.
824. *Q.* Then you are not much further advanced under your proposal than you are now? *A.* Oh, I think so.
825. *Q.* What is the difference? *A.* I think it would be a great difference if it were put into practice.
826. *Q.* But you would not force the men to go? *A.* Because I do not think they would need forcing.
827. *Q.* But supposing some men did: to make sure of their doing it would you advocate a penalty? *A.* No. I would not punish them at all. I do not think they would need it.
828. *Q.* And you would not by any penalty force the men to discover means for their own safety? *A.* No. I think they would do it without forcing.
829. *Q.* But you would force the company to utilise one of their officials to try and make them do it? *A.* Oh, yes, I would do that.
830. *His Honor.*] That would appear as I understand it, Mr. Wade, to be the only practicable and satisfactory way of giving the men an opportunity of finding a roundabout course out from their working places: because I understand it is not the practice for the Mine Manager to allow the men to go anywhere about the mine they like, or to go out by any exit if they happen to have a fancy to explore. This suggestion is that they should have that opportunity, under the control of the management itself, of properly informing themselves of how they might get out in case their regular travelling road was not, under the circumstances, a safe one.
831. *Mr. Wade.*] But the question has not arisen in that concrete form yet. What I put to him is this: Supposing the management allow you on certain days to go out in a body without you taking the deputy with you, would the miners go then?
832. *His Honor.*] But that would be a less satisfactory way of doing it. This recommendation puts the men under the control of the management. The suggestion is as much in the interests of the mine as in the interests of the men.
833. *Mr. Bruce Smith.*] Your Honor will note that Mr. Maguire says he will force the Company to lead the men out, but he would not force the men to follow.
834. *His Honor.*] But he merely says that if the men are such fools as not to take advantage of this opportunity they must take the consequences. It might be better to make it compulsory on the men at certain regular intervals to accept this offer.
835. *Mr. Wade.*] *Q.* Supposing you are working at the face of the No. 1 in Kembla—that is getting on for a mile and three-quarters in—nearly 2 miles? *A.* I suppose it would be something like that.
836. *Q.* Well, if the men are taken—supposing they had been used to the daylight tunnel—would you take them round the No. 1 main tunnel only, or would you take them round all the exits throughout the mine? *A.* I would take them all the different exits in rotation. One time I would take them round one way, and another time I would take them round another, until all the men learned all the ways.
837. *Q.* We see on this plan that there are two ordinary exits—down the main travelling way and down the daylight tunnel? *A.* Yes.
838. *Q.* What you would have is that they should learn to get out by going round the 4th Left at the back of the furnace and coming down the shaft tunnel? *A.* Yes. Whatever means there are I would do that until I got the men acquainted with them.
839. *Q.* Some of those tracks would take a very long time to travel? *A.* Yes.
840. *Q.* I want to know, do you propose that that should come out of the time the miner is supposed to give to the Company, or should he do that after the working hours are finished? *A.* I suppose there would be some arrangement.
841. *Q.* What do you propose? *A.* When the deputy has finished his shift, and the men have finished their shift, he has got to come out and they have got to come out; and all the difference I see is the difference in the length of one travelling road and the other.
842. *Q.* Would you have that done so as to give the Company the full time of the men at the face, as they have now; or would you take it out of the Company's time? *A.* I would take it at the conclusion of the shift, when the men are coming out.
843. *Q.* When they have finished their work? *A.* When they have finished: when they are coming out, I would bring them out that way.
844. *Q.* Now, I want to ask about these manholes—the miners are paid for cutting these manholes? *A.* Yes.
845. *Q.* At what rate are they paid for this, 6 x 3 x 4, at present? *A.* Well, usually manholes are done by day work. I do not know of any that have been done by the yard or the ton; but usually they are done by the shift men.
846. *Q.* Always? *A.* Not always. I said not always.
847. *Q.* Do the miners do this work? *A.* Sometimes the miners.
848. *Q.* Well, do they get paid the ordinary tonnage rate, or something extra, for cutting these manholes? *A.* I could not say; I never did any of them.

Witness—J. Maguire, 7 January, 1903.

849. Q. You have no idea what the rate is? A. I cannot say whether they get paid extra or whether they get the usual rate or not; I have never done any of them.
850. Q. What size do you propose they should be? A. 6 feet high, and 6 feet in, and 5 feet wide.
851. Q. Then you have no idea whether there is a special rate for cutting manholes at present, or not? A. I could not say. All that I know is that in the great majority of cases they have been cut by day work.
852. Q. Now, with regard to the cut-throughs, could you give us any idea as to how much they would be increased in number by your proposal? You propose to have them every 30 yards? A. Yes.
853. Q. And the bords run now very often over 100 yards, do they not? A. Oh, yes, I daresay they do; 100 yards or over.
854. Q. Would it be a fair thing to say that it would mean having four times as many cut-throughs as there are now, speaking on an average? A. Oh, I suppose in a 100-yards bord there would be four; but I do not know whether it would be four times as many.
855. Q. How long do you drive now without a cut-through—from your own experience? A. I think it runs about 35 yards; but it is the regular thing: it is supposed to be the regular thing; but sometimes they go a good deal further.
856. Q. You said they go to 100 yards very often? A. The bords?
857. Q. Before they drive a cut-through? A. 100 yards?
858. Q. You said so a moment ago? A. I do not know that I did.
859. Q. I ask you what increase in the number of cut-throughs it would mean? A. I cannot say.
860. Q. Well, you see in that 4th Left off No. 1 travelling road there are bords that are a good deal more than 100 yards without a cut-through. I think Mr. May told us there were some of 200 yards? A. With no cut-through?
861. Q. Yes. Well, if you put in four in that space, supposing it was only 100 yards, it would just about multiply the number of cut-throughs by four? A. Oh, yes, if they drive them that distance without a cut-through.
862. Q. You are paid for that a special yardage rate in addition to the hewing rate? A. Yes.
863. Q. And the miners have received an increase in their yardage rate from the Arbitration Court lately, have they not? A. Yes.
864. Q. Do you not know that? A. Yes, 2s. 3d. a yard.
865. Q. And it used to be what—1s. 9d.? A. 1s. 9d., I think.
866. Q. You get first of all your tonnage, do you not? A. Yes.
867. Q. For cutting these cut-throughs? A. You get your tonnage.
868. Q. That is 1s. 9½d. now? A. Yes.
869. Q. And in addition to that you get what is called a yardage rate; and it has been hitherto 1s. 9d., but has now been raised to 2s. 3d. a yard? A. Yes.
870. Q. So that that would be an increase of cost to the mine-owners for these cut-throughs? A. Yes.
871. Q. And a gain to the miner too? A. Well, I suppose it would be.
872. Q. When did you formulate this claim for cut-throughs every 30 yards? How long ago? Was it last week? A. Yes. It was a recommendation from the Delegation Board.
873. Q. When? A. Last week.
874. Q. And this increase to 2s. 3d. had been given before that? A. Yes.
875. Q. Before you made the recommendation? A. Yes.
876. Q. Now, while we are on these cut-throughs, supposing you had a great pressure overhead, you would want big pillars, would you not? A. Yes, I suppose you want a good pillar, the greater the pressure.
877. Q. The bigger the cover, the bigger the pillar you want? A. Yes.
878. Q. The bigger the solid pillar? A. Yes.
879. Q. And that means solid coal? A. Yes.
880. Q. And do you not think cutting it up into these bits every 30 yards would weaken it? A. No, I do not think that driving it in would weaken it. I cannot see that it would. I do not think it would make any difference.
881. Q. Would you be prepared to put your own opinion against that of an experienced Mine Manager on that point? A. No. It is only my opinion: that is all. I just give it as an opinion. I do not think it would make a great difference in the pressure.
882. Q. Do you think it would make some difference? A. I do not know whether it would or not. I do not think it would. The taking out of a small piece like that would not make any difference to the pressure.
883. Q. If you were doing that every 30 yards, all over the mine, do you not think it would make any difference? A. No. I do not think it would make any difference.
884. Q. But you say you would not put your opinion against that of a Mine Manager? A. No. I do not put my opinions against anyone's.
885. Q. Do I understand that you do not rely upon bratticing? You do not trust it? A. Oh, yes. I trust the bratticing; but I think it would be better to have these cut-throughs as well. It would be a double precaution.
886. Q. You said that one of the objections is that the brattice might sag, and so interfere with the ventilation? A. Yes, it does do so.
887. Q. Now, if it has sagged and interferes with the ventilation, the miner would soon discover that? A. Oh, yes.
888. Q. Very quickly? A. Oh, yes.
889. Q. And it could very soon be remedied? A. Oh, yes, all things can be remedied.
890. Q. Can you tell me of any danger there is from working with these bords in lengths of more than 30 yards, with brattice up to the face? A. No. I do not know that I can point to anything particularly. All I can say is that I think the cut-throughs would be additional safety. I do not prefer to rely on brattice for that length of distance.
891. Q. Now, supposing you are going to drive ahead, say, 150 yards: under your plan you put a cut-through in the first 30 yards? A. Yes.
892. Q. What do you do after you have passed that;—seal it up? A. No; you leave that until you come another 30 yards, and put that one open, and then seal that other one up, and have the other cut-through through, and keep the air going within 30 yards of the face.

893. *Q.* And you have still the chance of the brattice in that 30 yards sagging? you run that risk still?
A. Yes.
894. *Q.* And what would you do while the cut-throughs were being driven;—would you get the miner to drive that cut-through? *A.* Yes, the man that is working in the place would drive that cut-through.
895. *Q.* Just show me on a piece of paper how you work this. Show me what you mean;—how would you work your cut-throughs in the bord? *A.* I do not think I can draw a plan. I do not think I can do it.
896. *Q.* Do you know that this provision about 30-yard cut-throughs was in the old Act? *A.* A cut-through every 30 yards? *A.* I cannot say. It may or may not have been. I do not remember.
- 896½. *Q.* And that it has been left out of the present Act? I suppose you know that? It is not in the present act? *A.* No.
897. *Q.* Now, with regard to claim 15—“Instruments at the bottom of the upcast”;—what instruments would you have at the bottom of the upcast? *A.* I do not think I said I would have any there.
898. *Q.* Supposing you had a furnace? *A.* Well, if we had a furnace I suppose I would have a barometer and a thermometer.
899. *Q.* The barometer would show what? The pressure of the air? *A.* The pressure.
900. *Q.* Do they have water-gauges now, do you know? *A.* Well, I suppose they have. I do not know much about those things.
901. *Q.* Do you know what they show? *A.* No. I do not know what they show.
902. *Q.* You do not know what they are there for? *A.* No.
903. *Q.* What do you expect to get out of having these things that you ask for? *A.* Well, it would be a guidance for the man that was there if there was anything occurred—if there was any change.
904. *Q.* Change of what? *A.* Change in the air.
905. *Q.* What do you mean by change in the air? *A.* Well, I understand that a barometer shows you any change in the conditions of the air.
906. *Q.* The pressure of the air? *A.* Yes.
907. *Q.* What would that indicate do you think? *A.* That is all I can say about it.
908. *Q.* What does that mean? What does that indicate? *A.* I am not able to answer that question. I cannot answer you.
909. *Q.* But you have agreed to the proposal? *A.* Yes. I agreed to it on the broad principle that a man would be there understanding these things—that instruments of that kind would be necessary for him, to show him these changes that may occur.
910. *Q.* What do you expect when the changes are shown to him? *A.* Well, I expect that if that change showed him that there was any danger he would take steps accordingly.
911. *Q.* How would they show danger? *A.* I do not know much about it.
912. *Q.* You see what you know about it. You have framed these claims? *A.* I do not know much about it.
913. *Q.* What is the width of your roads at South Clifton where you work—your haulage roads? *A.* About 12 feet.
914. *Q.* And what is the space between the skip-side and the rib-side? Is there room for a man to stand? *A.* I daresay there is. We do not travel on it there.
915. *Q.* You do not want it on the South Clifton then? *A.* No. We do not travel on it there.
916. *Q.* As a matter of fact is not there room to stand against the rib-side while the skip goes by, even on the haulage road? *A.* Yes.
917. *Q.* And room for a dozen men to stand, if necessary side by side against the rib? *A.* Yes, in the majority of places I daresay there would be room for the men to stand. I have not been in there for a very long time.
918. *Q.* And is it not a fact that manholes are very seldom used there? *A.* They are very seldom used there.
919. *Q.* At Clifton? *A.* Yes.
920. *Q.* Now, claim 14—“Managers compelled to give more personal time and attention to management of colliery.” You only refer by that to his going underground? *A.* Yes, to visits underground.
921. *Q.* Then if you saw him about three times in a month at South Clifton—that is where you are speaking of? *A.* Yes.
922. *Q.* Then am I to understand that he would probably be round the whole of the pit three times every month? *A.* Oh, no: he might be in portions of the mine where I would not see him.
923. *A.* Of course you would not see him? *A.* What I understand by your question is that he might go down the mine and I not see him?
924. *Q.* No. I suppose he takes it in rotation, and pays a visit to each part of the mine in turn? *A.* Oh, yes; I suppose he does.
925. *Q.* He cannot do it all in one day? *A.* I suppose he might.
926. *Q.* But it would be a big order? *A.* Yes.
927. *Q.* Then if you see him three times in a month, the probability is that he goes round the whole mine three times in a month in rotation? *A.* Oh, yes; possibly it might be more than that.
928. *Q.* And, besides your ordinary surface works at South Clifton, you have coke works? *A.* Yes.
929. *Q.* And there is the railway traffic; that comes right up to the pit head? *A.* Yes.
930. *Q.* Now, you say you would have the whole of the mine watered under claim 13, every road? *A.* The main road and the travelling road.
931. *Q.* Only those two? *A.* Yes.
932. *Q.* In every part? *A.* No. I only said that I thought if there was water in the other parts it would be all the better: that is all.
933. *Q.* But you would not make it compulsory? *A.* No.
934. *Q.* And do you refer to the floor of the roads only;—would that be sufficient? *A.* Well, unless there was something exceptional, I think that if the floor was well watered it would do.
935. *Q.* It would make it cooler? *A.* It would lay the dust and make it a lot cooler.
936. *Q.* Is that the ground on which you recommend this watering of the roads? *A.* Yes; I think it would lay the dust and would cool the air that passes over.

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937. *Q.* Now, with regard to the lamps under claim 13: what you say in regard to Mount Kembla is that on July 31st the lamps were not ready for use? *A.* Yes.
938. *Q.* The oil was not in them? *A.* No.
939. *Q.* And the wicks were not trimmed? *A.* No.
940. *Q.* But otherwise the lamps were in order; were they not? *A.* Otherwise, from that.
941. *Q.* Yes? *A.* Oh, yes. The lamps were there, but they had neither oil nor wick in them.
942. *Q.* Once you put the oil and the wicks into the lamps you were able to use them? *A.* Well, we did use them anyhow.
943. *Q.* You were able to use them? *A.* Yes.
944. *Q.* Now, what is your reason for making this claim about doors—that the doors should be self-acting? *A.* Well, I think it would be extra security. Relying upon a man to close these doors, of course, he may not. He may think they are closed.
945. *Q.* It takes the responsibility off the miners' shoulders? *A.* No, it does not. If he did not hear that door close he would have to go and see. There might be a piece of coal, or stone, or wood. He would have to go and see that it was closed. The responsibility would be still there; but it would make it doubly sure that it did close.
946. *Q.* You have a special rule at your colliery? *A.* Yes.
947. *Q.* Have you a special rule that every man that passes through a door must close it after him? *A.* Yes.
948. *Q.* And, if the door is self-acting, of course, you would still have the rule? *A.* Yes, I would still leave it there; because, although the door is self-closing, there might be still some little thing happen to stop it.
949. *Q.* So that, although they are self-acting, you would still make the men see that they are closed in each case? *A.* Yes.
950. *Q.* That is not much use, is it? *A.* Yes; because it makes it doubly secure. We all naturally listen for the door closing; and, if we do not hear it close, then we want to know why it did not close. Why, even with a self-acting door, there might be some little thing occur once in a way; and he would be there to see why it did not close. The bang of the door would let him know whether it closed or not.
951. *Q.* The time the door is open is very brief;—it might be a few seconds? *A.* Yes.
952. *Q.* You just push it open for the horse or the skip to go through? *A.* Or a man; or it may be a string of them. It is not a very long time.
953. *Q.* You do not lose much air by the operation? *A.* I do not know how much they lose—according to the length of time, I suppose.
954. *Q.* Under ordinary conditions, a man just going through? *A.* If it were one man it would be seconds.
955. *Q.* If there were a string of men going? *A.* It would be so many more seconds. I do not know how many that would be.
956. *Q.* Take your own colliery; do you get strings of men going through at a time? *A.* Yes; very often we might have six, or eight, or twelve men coming out at one time, or going in through these doors; and the door would be open.
957. *Q.* While the six men went through? *A.* While the men went through. It might be only one man; but still it might be six or eight.
958. *Q.* Now, in regard to these double doors, claim 10. That is only for the purpose of preventing the escape of air? *A.* That is it.
959. *Q.* That is not for any further security in case of explosion? *A.* One door would be closed while they were working with the other open.
960. *Q.* It would not be any further security in case of explosion? *A.* No; only for the regulation of the air.
961. *Q.* Now, the measurements of air are taken at present—is it monthly with you? *A.* I could not say. I do not know of my own knowledge how often they take them. They may take them oftener. I suppose they do have it at all events monthly; but as I do not see them of course I cannot say.
962. *Q.* Are they recorded in a book? *A.* Yes, I suppose they are.
963. *Q.* And if the air became deficient you could very soon tell it in your working place if you get short? *A.* Oh, yes; if it fell off to any great extent we would be able to tell it.
964. *Q.* Now, with regard to your minimum for horses, 500 feet, have you any figures at all as to what a horse actually gets now—say in your own colliery? *A.* No. I could not tell you in figures.
965. *Q.* As far as you know does he get sufficient? *A.* Yes. I think they do get sufficient air at that particular colliery. They are very little ones; they are not much bigger than men.
966. *Q.* Have you got any waste workings at Clifton (claim 4)? *A.* Yes. There are waste-workings there.
967. *Q.* Of any extent? *A.* I could not say the extent. I do not know.
968. *Q.* Do you know how they are dealt with? *A.* No. I do not even know that. I have not been near them.
969. *Q.* Have you had any experience of working with a furnace for ventilation? *A.* Experience with a furnace?
970. *Q.* Working at a mine where they use a furnace instead of a fan? *A.* Yes. I worked at Bulli.
971. *Q.* How many years ago was that? *A.* A good many years ago.
972. *Q.* How many—fifteen? *A.* Something like that, perhaps fourteen.
973. *Q.* That is the only place? *A.* That is all the furnaces.
974. *Q.* Now, how long have you been at South Clifton yourself? *A.* Oh, about twelve or thirteen years. Something like that.
975. *Q.* Have you got shot-firers there? *A.* Yes. They have shot-firers there now.
976. *Q.* How long is that? *A.* It is only a few months; that is all.
977. *Q.* Then one man is picked out for the purpose of firing the shots? *A.* Yes.
978. *Q.* Can you say that the man you have at South Clifton is not competent? *A.* No, I cannot.
979. *Q.* Can you say he is competent, as far as you know? *A.* As far as I know, he is. I do not know, you see.
980. *Q.* How long has he been in the mine? *A.* I think there are two or three of them. I think one of them has been there about two years or eighteen months; another one perhaps a little more—about that; something between eighteen months and two years.
981. *Q.* Now, these deputies at times have charge of the mine? *A.* Yes.

982. *Q.* And can control the men and order them about? *A.* Yes, control the men in their district.
983. *Q.* And a good deal of the smooth working of the mine depends upon the way the deputies handle the men? *A.* Yes.
984. *Q.* A good deal depends on their personal character and tact and judgment? *A.* Yes.
985. *Q.* And those are things that the Manager could ascertain by observing the men from day to day? *A.* Yes. He would have his observation to guide him.
986. *Q.* And those you admit are very important elements in choosing a deputy? *A.* Yes; all these things go to make a good one.
987. *Q.* I say they are important elements. Are not they? *A.* Yes.
988. *Q.* I do not ask the question in an offensive way at all; but I do not suppose you have made a study of the chemistry of gases, have you? *A.* No.
989. *Q.* But you know perfectly well when you come across fire-damp? *A.* Oh, yes. If I came across that I would know that much.
990. *Q.* That is from your long experience? *A.* Yes.
991. *Q.* And you know what black-damp is? *A.* Yes.
992. *Q.* And you know when a roof is dangerous? *A.* Yes.
993. *Q.* And you gather all these things from practical experience? *A.* Yes, that is all.
994. *Q.* And I suppose you would not care to face an examination with a man before you with pen and ink? *A.* I would not attempt it. I have not self-confidence enough for that.
995. *Q.* But you feel yourself perfectly competent as a practical man to deal with the ordinary events of a day in a mine? *A.* Just the events as they present themselves to me, that is all.
996. *Q.* Now, just one word about your examination on August 9th—do I understand that, whatever it may be, you believe this explosion began at Aitken's place? *A.* Yes, I think it commenced in the vicinity of that, as far as I could tell.
997. *Q.* That was a place pointed out to you? *A.* We all went along and looked; and that is a place that struck me with signs of force.
998. *Q.* Was that the place with a smaller pillar working close by? *A.* That was a place where Aitken had just commenced a pillar; he could not have worked many days at it.
999. *Q.* Were you all there—all the party? *A.* Yes, I think so.
1000. *Q.* All together? *A.* Within a few yards of each other.
1001. *Q.* You examined this place? *A.* Yes. We were never very far away from each other going round.
1002. *Q.* And I suppose you discussed these things when you saw these signs of burning and charring there? *A.* I do not say there was any discussion.
1003. *Q.* I suppose you expressed your opinion there that this was the place? *A.* I do not remember that we did. I do not remember anything particular being said at all.
1004. *Q.* I did not say anything particular. But you fixed that place in your own mind as being the place of the origin of the explosion? *A.* Yes. That struck me as being the most likely place that I saw.
1005. *Q.* You were there to find out the origin of this explosion? *A.* Yes.
1006. *Q.* Did not you mention this to some of the party? *A.* I do not think I did. I do not think I had much to say to anyone.
1007. *Mr. Lysaght.*] I submit, Your Honor, he has answered three or four times.
1008. *His Honor.*] There is nothing in the witness's manner or style to suggest that he is not telling everything that he has in his mind as exactly correctly as he possibly can. Judging from the manner of the witness all through, I should take him to be a remarkably reliable witness.
1009. *Mr. Wade.*] I do not suggest any imputation against him for a moment.
1010. *His Honor.*] He cannot know more than he does. He cannot remember more than he knows; but if you can suggest something he might remember it. You might recall something to his memory.
1011. *Witness.*] If I had spoken to any one of the party about Aitken's place I think I would remember it; but I do not remember it.
1012. *Mr. Wade.*] *Q.* Was this matter mentioned by you or by anybody? *A.* No. I do not think it was.
1013. *Q.* Either at the place, or have you discussed it with any of the parties since? *A.* No. I have had little or nothing at all to say to anyone about it.
1014. *Q.* Do you mean that you have told no one about it at all? *A.* No. I do not think I have told anyone at all.
1015. *Q.* You have not told one of the party? *A.* Not one of them.
1016. *Q.* And this party went in as a party of miners, did they not? *A.* Yes.
1017. *Q.* To ascertain the cause of the explosion, the cause of the disaster? *A.* Yes.
1018. *Q.* And where it began? *A.* Yes, if possible, of course.
1019. *Q.* And you say you have never mentioned this fact to a single soul since? *A.* No. I do not remember mentioning it to anyone.
1020. *Q.* Was there any reason for not mentioning it? *A.* No reason whatever. I would just as soon have spoken about it if it had come into my head; but I do not suppose it did.
1021. *Q.* Did you trace the course of the explosion—in what direction it went after Aitken's place? *A.* No, I do not think I did. I could not say the direction it went.
1022. *Q.* When you were present, there has been no discussion among the miners, either the officials or the miners, as to where this began or what the cause was? *A.* There has been none, so far as I am concerned. I have not discussed it.
1023. *Q.* It has not been mentioned in your presence? *A.* No.

Cross-examination by Mr. Bruce Smith:—

1024. *Q.* What is your experience as to mining? Have you ever been out of this district? *A.* No.
1025. *Q.* You have not been to Newcastle or the Western District? *A.* I have never worked in a colliery in any other place than this district.
1026. *Q.* Have you ever worked in England? *A.* Yes; I have worked in the North of England.
1027. *Q.* For how many years? *A.* I have been twenty-five years out here—oh, I suppose, about fifteen or sixteen years at home.
- s028. *Q.* In what locality? *A.* All in Durham.

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1029. Q. And have you always been a miner—always worked at coal-getting? A. Yes, with the exception of some slight breaks.
1030. Q. I do not mean as to the continuous character of your employment: but you have never worked in any other capacity but that of a miner? A. No.
1031. Q. You have never been in any responsible position as Manager, or under-manager, or deputy? A. No, nothing of that. I had to get coal all the time.
1032. Q. Now, when you went in, I think you said six weeks, but it was about nine days after the accident—but that does not matter—you only went in once afterwards? A. That is all.
1033. Q. Who led you in on that occasion? A. There was a man of the name of Morrison there.
1034. Q. John Morrison? A. Morrison. A deputy he is now, I think.
1035. Q. How came you to go up to Aitken's place, to that particular part of the mine? A. Well, this was a place we came across in the usual course as we went along. We did not go specially to this Aitken's place.
1036. Q. What determined you as to whether you should go up to the Shaft District or up No. 1 Right? A. I think it was understood that we should visit that part, No. 1 District, that was all.
1037. Q. You went up there, of course, with the intention, as Mr. Wade has put it to you, of ascertaining the cause and the locality? A. Yes.
1038. Q. Did you take any notes at all? A. No, I did not.
1039. Q. Did anybody else take any notes? You had Mr. May with you? A. Yes.
1040. Q. Did he take any notes? A. Well, I believe he did take some little notes: but I am not exactly sure; but I think he did: but, still, I am not too certain of it.
1041. Q. Do you know of anybody else who took any notes that you saw? A. No, I did not see. I fancy that Mr. May took some notes; but I would not be sure.
1042. Q. Did you ever see any notes that were taken afterwards? A. No, never, not a shadow of one.
1043. Q. There were half a dozen of you? A. Yes.
1044. Q. Did you ever meet together afterwards to discuss the cause of the accident? A. No; we never met afterwards. We just came away and — [Interrupted.]
1045. Q. And you did not discuss it in the mine? A. Well, we talked. Now and then we had bits of spells; but I do not know whether there was any discussion—just looking and examining about.
1046. Q. I take it you all went in and formed your individual opinions, and came out again? A. So far as I know, they did. That is all I did, anyhow.
1047. Q. And you never put your heads together afterwards to compare notes? A. No.
1048. Q. And you do not know their opinions? A. I do not know what their opinions may be.
1049. Q. Did you never report to anybody what conclusion you had come to? A. No; I did not.
1050. Q. I do not mean individually, but the body? A. No.
1051. Q. Were you appointed to go in? A. We were appointed to go in, yes; and we simply reported that we had gone in.
1052. Q. Who appointed you to go in as a body? A. I received my instructions to attend from the General Secretary, Mr. Ritchie.
1053. Q. That is all you know? A. That is all I know.
1054. Q. You were told that you were one of a party appointed to go in and investigate? A. Yes.
1055. Q. And yet you never reported? A. No.
1056. Q. And never compared notes? A. No; I did not, anyhow.
1057. Q. Then, as far as you are concerned, you never really responded to the delegation: you never reported what you saw, or what opinion you formed? A. No. I never reported anything.
1058. Q. Now, you did form an opinion, you tell us? A. Yes.
1059. Q. But of a very vague character? A. Well, that may be.
1060. Q. I mean the only conclusion you appear to have come to is that it originated near Aitken's working place? A. Yes.
1061. Q. You do not know what goaf that is near? A. No, I do not.
1062. Q. And, in expressing your opinion, you cannot say whether the goaf you believe it came from was this little goaf 17 perches in area, or the 35-acre goaf? A. No, I really could not say.
1063. Q. And you know the distance from one to the other? A. I do not know the exact distance.
1064. Q. Something like 10 or 15 chains apart—you cannot go any nearer than that? A. I could not say.
1065. Q. Do you consider your opinion is of any value as to the locality? A. Well, I just put it forward — [Interrupted.]
1066. Q. I mean do you put it forward as of any value? A. No; but it was the best idea I could come to on it. That is all.
1067. Q. That is the best you could do? A. Yes. I do not put it forward with any great deal of confidence.
1068. Q. You said to Mr. Wade that your reason for concluding that it originated there was that you saw signs of force? A. Yes.
1069. Q. Did not you see signs of force in a great many places? A. Yes.
1070. Q. Did not you see signs of force down No. 1? A. I saw it on the main road: and in various places there were signs of force.
1071. Q. So that the presence of signs of force is not your reason for saying that the explosion originated where you saw the signs of force? A. Well, yes. I think I would say that the signs of force in that particular place led me to believe that that was the place where it originated.
1072. Q. You saw signs of force down here at the beginning of that 35-acre goaf? A. Yes, I saw signs of force all the way down here [indicating on the Plan].
1073. Q. You saw signs of force in many places 20 chains apart? A. Yes.
1074. Q. Did you observe signs of force going in different directions—opposite directions? A. Yes. It seemed very peculiar to me that there should be signs of force perhaps here, as one may say, and then a comparatively calm place, and then signs of force again in different directions: only I cannot describe the exact positions of those from memory.
1075. Q. And did you see that kind of thing—evidence of opposite forces—in several places? A. Yes. I saw them in three or four places.
1076. Q. Signs of opposite forces, with calm places, in some cases in between? Q. Calm places in between.
1077. Q. Now, with regard to these suggestions, I only want to find out to what extent you are making them on experience of your own. Did you frame these yourself? A. No, I did not. 1078.

1078. Q. Did you take part in framing them? A. Yes. I was there when they were brought forward: that was all. I was simply present when the recommendations were brought forward.
1079. Q. That is when they were completed? A. Yes.
1080. Q. But did you take part in framing them? A. No.
1081. Q. Then the first time you knew anything about these twenty suggestions was when they were submitted to you? A. That is it.
1082. Q. Were you asked to support them? A. Yes. They were placed before me.
1083. Q. Do you profess to have enough experience to support the whole twenty, apart from your being asked to do so? A. Well, after I heard them read and discussed, and so on, and looked into them, I did.
1084. Q. The whole twenty? A. Yes.
1085. Q. Unconditionally? A. Yes, the whole twenty of them, just as you have heard me speak to-day,
1086. Q. Now, take first of all this No. 1—do you know to what extent certificates are now required by Managers? A. To what extent?
1087. Q. Do you know whether certificates are or are not required by Managers now? I only want to see the extent of your knowledge? A. Yes.
1088. Q. Do you know whether Managers require to be certificated now? A. Yes
1089. Q. This recommends that that should be required? A. Yes.
1090. Q. You know that it is being done, do you not? A. Yes.
1091. Q. Do you know that under-managers require to be certificated? A. Yes.
1092. Q. Then you are recommending that something should be done that is done? A. Yes; but men may come in on service certificates.
1093. Q. But that is not expressed here. Do you mean to say that men come in on service now without certificates? you mean that, when certificates were established, men who had served a certain time were allowed to practise as Managers without certificates? A. Yes, without examination. I mean that they should pass an examination.
1094. Q. Have you read this, "Managers, under-managers, deputies, and shot-firers, to hold certificates of competency by examination, and to have had five years' practical mining experience, before being eligible for respective positions"? A. Yes, they all have to hold a certificate.
1095. Q. You are recommending this for the future? A. Yes.
1096. Q. So that this does not really convey what you mean? A. Well, I went in for it more on account of the deputy and the shot-firer, because I was not aware that they had any certificate; and I thought that would bring them in: and that is the reason why I approved of it.
1097. Q. I tell you candidly I am trying to test your knowledge and experience of the things that you are undertaking to indorse. Now, what is your opinion as to the qualifications that are most requisite in a shot-firer? I want to see to what extent your opinion is of value to the Commission? A. I do not think he would want to know anything more than to know something of gases.
1098. Q. How do you mean to know something of gases? A. That he would be able to test for it.
1099. Q. That he should be able to tell the presence of gas? A. Yes, and whether there was a sufficient quantity of it to know whether the place was dangerous or not.
1100. Q. That is practical experience, is it not? A. Yes, a sort of practical experience.
1101. Q. Well, it is the sort of practical experience that a deputy gets? A. Yes.
1102. Q. Where do you get this practical experience? A. The deputies' practical experience?
1103. Q. No, the practical experience that is necessary for a shot-firer? A. If it was practical experience, he would get it by doing it.
1104. Q. In the mine? A. In the mine.
1105. Q. What examination are you recommending the Commission to require from such a man? What sort of examination? In what? A. I would like him to show that he could recognise the danger when he saw it, and know what to do.
1106. Q. What do you propose that he should be examined in? I want to see the extent to which you understand the propositions you support here? What are the subjects you propose he should be examined in? A. I would examine him about the methods of discovering gas in the place.
1107. Q. You could discover gas, could you not? A. Yes; but there may be men put in the position of shot-firer that could not.
1108. Q. You could hold up a safety-lamp? A. I suppose so.
1109. Q. And you could hold up a hydrogen flame lamp? A. I suppose I could.
1110. Q. You know the effect upon a hydrogen lamp of the presence of a minute proportion of gas? A. Yes.
1111. Q. Do you think you are competent to fire a shot? A. Well, there may be other things.
1112. Q. That is what I want to get at. What would you examine such a man in? A. Well, that is pretty well what I would do. I would see that he could recognise the presence of gas, and know what to do if there was a quantity there to get rid of it before he fired the shot.
1113. Q. Does it not boil down to this, that you would require a man to be able to hold up a hydrogen lamp and test the presence of an infinitesimal portion of gas? A. Yes. He would certainly have to do that.
1114. Q. And you would pass that yourself? A. I suppose I would.
1115. Q. Who do you propose should examine the man in that? Do you mean men of Mr. May's stamp? A. I do not know Mr. May.
1116. Q. Is that the sort of man you would leave this examination to? A. There are a Board of Examiners.
1117. Q. At any rate this is the kind of examination you propose for a shot-firer? A. Yes.
1118. Q. Now, do you think any Manager would appoint a man as a shot-firer who did not know how to hold up a hydrogen lamp? A. I would not think so, but he might.
1119. Q. Do you tell the Commission that there is a danger of the Manager of a mine appointing somebody in the mine as a shot-firer who did not know how to test for gas with a hydrogen lamp? A. It is quite possible for a Manager to be deceived in a man. The man might give an exaggerated account of his own abilities. He might say he could do it; and when he got there he could not do it.
1120. Q. With regard to these waste workings, have you compared notes with any of the other people who are recommending these things? A. No. I have not compared notes with anybody.
1121. Q. I understand you do not approve of sealing off the wastes? A. Not if it is practicable to ventilate hem.

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1122. Q. You would leave them open so that any accumulations of gas could escape? A. So that the air would carry it off.
1123. Q. You think that is the best way? A. I think that would be best if it could be done.
1124. Q. And that is the practice adopted now in most mines? A. Yes, I suppose it is.
1125. Q. Then you have nothing new to suggest in regard to waste workings? A. Well, where it could not be done perhaps the best thing would be to seal it off.
1126. Q. You have no fault to find with regard to the practice of carrying it off? A. So long as it is taken off I would prefer that it should be taken off instead of being made a magazine of.
1127. Q. Well, if the mine is ventilated it will be taken off? A. Yes.
1128. Q. Now take No. 6, "inspection in all cases with locked safety lamps": I do not think I need examine you with regard to that. With regard to No. 7: how often are examinations made now? A. I could not tell you.
1129. Q. You do not know? A. I do not know.
1130. Q. So that you have not any alterations to suggest? A. No.
1131. Q. Now with regard to No. 8, do you know of your own knowledge, either by reading or observation, what is the consumption of air per minute by a man? A. No. I could not tell you that.
1132. Q. Do you know whether it is 25 cubic feet? A. No. I could not say.
1133. Q. Do you know whether it is 10 cubic feet? A. No.
1134. Q. But you undertake to come here and recommend that more than an average of 100 cubic feet should be allowed per man and horse? A. Yes.
1135. Q. Do you know how much a horse consumes a minute? A. No.
1136. Q. Do you know whether he consumes 25 feet a minute? A. The only thing I know about that is that a horse must naturally consume more than a man.
1137. Q. You do not know how much a man consumes? A. No.
1138. Q. Do you know what 25 cubic feet of air means? Do you know what a cubic foot of air means? A. Not in that respect, I do not.
1139. Q. Do you know how you would measure a cubic foot of air? A. No.
1140. Q. I do not mean by what apparatus, but what it would have to measure? A. No.
1141. Q. So that you do not know anything about that, do you? A. No. I do not know anything about that.
1142. Q. Now, No. 11. You have undertaken to endorse the suggestion that weekly measurements of the air be taken in each section. You know, do you not, that the men have permission to make what they call a check-inspection? A. Yes.
1143. Q. And they are permitted to make that how often? A. Oh, I suppose pretty well any time they like.
1144. Q. How often do the men as a precaution for their own safety make a check-inspection of the ventilation? Now, I am going to test by the men's own judgment as to how often it is necessary, in order to insure their own safety? A. Oh, that is not done very often.
1145. Q. Is not it a fact that they sometimes allow three months to elapse without a check inspection? A. Yes.
1146. Q. Did you ever make a check-inspection of your own mine? A. Oh yes, it has been done.
1147. Q. Do you personally? A. Oh no—personally, no.
1148. Q. Have you personally had the right to make a check-inspection of your own mine? A. Yes.
1149. Q. Well, who initiates it: who determines when it shall be done by the men? A. The men themselves, if they think it is necessary, call upon the check-inspectors.
1150. Q. If the men think it is necessary they call upon the check-inspectors? A. That is it.
1151. Q. And you admit that they do not think it is necessary sometimes for a whole quarter? A. Yes.
1152. Q. You are recommending that it should be done every week by somebody else? A. Yes.
1153. Q. With regard to the extra supply of safety lamps, are you making that suggestion upon the assumption that safety-lamps are required to be used by miners throughout these mines in the future? A. No. I thought that they might be. Of course there is always the possibility that they might be called for.
1154. Q. You suggest that there should be a safety-lamp for every miner, and one-third of the total number; that is to say if there were 300 miners I understand you to suggest that there should be 400 safety-lamps all in going order? A. Yes.
1155. Q. Is that suggestion made upon the assumption that for the future every miner will have to use a safety-lamp? It makes a great deal of difference. Supposing things are left as they are, and that in consequence of there not being a discovery of gas within twelve months it is optional whether the miners use safety-lamps or not. Would you then require 400 safety-lamps to be kept all in going order in a mine where there are 300 miners? A. No. Looking at it from the danger point of view, if a mine had the naked lights in, and they were being used, and they had these 300 men — [Interrupted.]
1156. Q. You are in the position here of making a recommendation to these three gentlemen which they may or may not attach great weight to; and you practically say to them "If there are 300 miners working in any mine I recommend that 400 safety-lamps shall be bought and kept in working order." Now, do you mean to recommend that, whether the miners are required to work by safety-lamps or not? A. No. I was going to explain that. In the event of a colliery having, say, 300 men in it, if they were working with the naked light, then these lamps would be necessary only in case of a sudden disaster; and I would expect 100 lamps then, equal to one-third of the men; so that the lamps would be there ready for men to go in and render assistance if necessary.
1157. Q. If there are 300 men in the mine, although they do not use safety-lamps when they are working, you recommend that 100 lamps should be kept there in readiness? A. Yes.
1158. Q. Even if they are not compelled to use safety-lamps for their ordinary working? A. Even if they are not compelled.
1159. Q. Now, this watering question: have you read much about watering? A. No.
1160. Q. Do you know the extent to which it is practised at Home? A. No.
1161. Q. Have you any ideas as to how it should be done? A. No, I cannot even say that. I have not seen it carried into operation.

1162. *Q.* You do not profess to know very much about it? *A.* Not a great deal. I recommend it just on the grounds that I say; that it would lay the dust and make the air cooler.
1163. *Q.* You cannot suggest the methods? *A.* No. I would leave that to the people who do it to discover themselves the best method and the most economical.
1164. *Q.* Now, with regard to No. 14—"Managers compelled to give more of their personal time and attention to management of colliery," More than what, do you mean? *A.* Well, I think that three or four inspections in a month — [Interrupted].
1165. *Q.* You have not said that, you see; you are in South Clifton; how often does the Manager go through your mine? *A.* I think I said that, personally, I thought that I had seen him, perhaps, three or four times a month; perhaps, sometimes he might be in oftener; perhaps, other times not so often.
1166. *Q.* Then, personally, you are satisfied with what goes on in your own mine? *A.* Yes.
1167. *Q.* And you have heard that it is not so in other mines? *A.* Yes.
1168. *Q.* Then you say he should go through how often? *A.* Once a week.
1169. *Q.* The Manager or under-manager? *A.* The Manager.
1170. *Q.* That is your own personal opinion? *A.* Yes.
1171. *Q.* That is in addition to the visits of the under-manager? *A.* That is it.
1172. *Q.* I think you told Mr. Wade you really do not know what would be the purpose of these instruments at the bottom of the shaft? *A.* No. I do not know anything about that.
1173. *Q.* Is this once a week for every colliery; or does it depend upon the size of the colliery? *A.* Well, I think in a smaller colliery he might perhaps get down oftener.
1174. *Q.* I am not speaking of how often he could get round, but of how often in your opinion is it necessary for the safety of the mine that an Inspector should go round a small mine? *A.* Oh, I think at least once a week in any mine.
1175. *Q.* And you would have the same time for all of them, large or small? *A.* Oh, yes. I would leave it to their own judgments whether they went oftener or not, in a small mine; but I would have them to go round once a week at all events.
1176. *Q.* With regard to No. 19, can you tell me of any cases that have come under your experience in which a black list has been sent from mine to mine? *A.* No. I never knew of it myself.
1177. *Q.* You are suggesting a cure for a disease which you have never seen? *A.* I have never seen it. I have simply heard of it, though.
1178. *Q.* And with regard to No. 20, can you bring before the Commission any instance in which the practice that you provide against there has existed? *A.* What is that?
1179. *Q.* Safety-lamps not to be unlocked for shot firing. Have you ever known a case? *A.* No, I cannot say that I have.
1180. *Q.* In all your experience? *A.* I cannot remember any particular case.
1181. *Q.* Have you had any case brought under your notice? *A.* No.

Re-examination by Mr. Lysaght:—

1182. *Q.* Regarding this inspection on the 9th August, is it a fact that you were directed — [Interrupted].
1183. (*Mr. Wade* objected to the form of the question. *His Honor* upheld the objection.)
1184. *Mr. Lysaght.* *Q.* Was any direction given before you entered the mine as to the observations which you were to make personally? *A.* Any directions given?
1185. *Q.* Yes, from any person, as to any conclusions you might form? *A.* No. I do not remember anyone giving any directions. No one spoke about such a thing.
1186. *Q.* You know that by these special rules of each colliery there is a prohibition against miners leaving their working places? *A.* Yes.
1187. *Q.* Do you know that it is specially prohibited by the rules? *A.* Yes.
1188. *Mr. Wade.* *Q.* Without leave? *A.* Yes. He gets permission of course.
1189. *Mr. Lysaght.* *Q.* From whom has that permission to be obtained? *A.* I should take it as from the Manager.
1190. *Q.* Is there more than one exit from your colliery at South Clifton? *A.* No. There is only the one there that I know of.
1191. *Q.* May there be some others that you do not know of? *A.* There might be. I only know the one way.
1192. *Q.* How long have you been working there? *A.* Twelve or thirteen years.
1193. *Q.* If the showing of the miners out was left to a miner, would it be easy or difficult to find a miner who would know each road in your mine? *A.* Oh, he would have to be a very old hand; and even then he might not know.
1194. *Q.* And would there be any danger of his leading the men, perhaps into a dangerous part of the mine unconsciously? *A.* Oh, there is always that danger. He might think he knew it, and might make a mistake.
1195. *Q.* Regarding Mr. Wade's supposition that a miner being invited to go and see the way out and not turning up — [Interrupted].
1196. *Mr. Wade.* It was a question I asked.
1197. *Mr. Lysaght.* *Q.* A question or suggestion—in your opinion would there be any man in the district who would do such a thing?
1198. (*Mr. Wade* objected. *His Honor* said he did not think it worth while to have that evidence one way or the other.)
1199. *Mr. Lysaght.* *Q.* With regard to these questions asked by Mr. Smith as to these recommendations, were these recommendations made at the first Delegate Board Meeting?
1200. (*Mr. Wade* objected.)
1201. *Q.* When were they made? *A.* At the last Delegate Board Meeting.
1202. *Q.* How many Delegate Board Meetings have there been since the Commission was appointed? *A.* I do not think there have been any.
1203. *Q.* With the exception of this one? *A.* I do not remember any.
1204. *Q.* What office did you hold at the Delegate Board Meeting? *A.* I was chairman.
1205. *Q.* Were the resolutions discussed at that meeting? *A.* Yes.
1206. *Q.* In detail? *A.* In detail.

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1207. *Q.* What is the average size or the average distance for these cut-throughs now as a general rule?
 1208. *Mr. Wade.*] I suppose you mean at South Clifton?
 1209. *Mr. Lysaght.*] *Q.* Well, as far as you know in any other mine, what is the average distance of these cut-throughs? *A.* I am not sure on that point. I could not say for other collieries, but I think about 35 yards.
 1210. *Q.* If the bratticing gets disarranged, say 30 or 40 yards from where the miner is working, has he any means of knowing that it is the brattice that is disarranged, and cuts off all air, unless he goes back and looks?
A. No. There is nothing to tell him, until he goes back to see what is wrong, and then he will find out.
 1211. *Q.* Now, regarding the watering, if the conditions were dusty would it be sufficient, in your opinion, to water the floor? *A.* Oh, if they were exceptionally dusty they would want the roof and sides doing too. If they were extra dusty.
 1212. *Q.* Did you ever have a hydrogen flame in your hand to examine? *A.* No. I never had one of them in my hand.
 1213. *Mr. Wade.*] You mean a lamp, do you not?
 1214. *Mr. Lysaght.*] *Q.* A hydrogen lamp.
 1215. *Q.* Do you consider yourself competent for the position of a deputy? *A.* No.
 1216. *Q.* Would you consider yourself competent now to be a shot-firer? *A.* Well, I do not know. I would have to see the conditions, I suppose, that I would have to go through.
 1217. *Q.* I think you answered Mr. Wade that you considered you were competent to deal with the ordinary events of the mine. Would you, with all your experience, consider yourself competent to deal as a deputy or shot-firer with the extraordinary events? *A.* No. I would not like to take the responsibility.

Examination by Mr. Robertson:—

1218. You said you would give the Inspectors absolute power to order safety-lamps? *Yes.*
 1219. Is that a general power applying to all mines? *A.* Yes. My meaning would be that, wherever the inspector thought it was absolutely necessary to put these lamps in, I would give him the power of saying whether they should or should not go in.
 1220. *Q.* Would not that apply to gassy mines only? *A.* Well, a mine might in the opinion of some be considered not gassy; and the Inspector might consider it to be so.
 1221. *Q.* So there might be a difference of opinion? *A.* Yes.
 1222. *Q.* If there was a difference of opinion, the Inspector might be wrong? *A.* Certainly he might.
 1223. *Q.* Do you not think it would be justice to give the Manager or the owners an opportunity of proving that there was no gas and no necessity for safety-lamps? *A.* In my opinion you have to give somebody the say. You cannot leave it to too many. And I think the Inspector is the likelier man of the two to be the judge of it. I mean you would naturally look to him from his position.
 1224. *Q.* But you know that, under the Act, in case of any defects that are not provided for by the Act the Inspector may, if the management refuse to remedy them, take it to arbitration? *A.* Yes.
 1225. *Q.* Are you aware that, with reference to these safety-lamps, he has no such power, it having been already provided for in the Act? *A.* I could not say. It may be so.
 1226. *Q.* Would it not meet the case if the Inspector had the power to refer the question of safety-lamps to arbitration? Would it not be fair to both parties? *A.* I do not know. In my opinion it is a fair thing. I do not think he would use it arbitrarily. I still think the Inspector should have that amount of power at all events.
 1227. *Q.* No doubt; but he is only human? *A.* Certainly.
 1228. *Q.* And he may be mistaken? *A.* Yes. Anyone is likely to do that—Managers too. He may make a mistake; but I think it all points the other way, and that he would be very careful and would not do so; and that he would not order them without some reasonable grounds that they should be introduced.
 1229. *Q.* May be. I quite admit that. But an absolute power such as you suggest is almost too much to place in the hands of any human being? *A.* I prefer to put that power in his hands to leaving it to two parties. That is only my view, of course. That is all. I may be wrong, of course, in my opinion; but it is my view of it.
 1230. *Q.* You have asked among other things for a monthly inspection by deputies and District Inspectors? *A.* What number is that? Would you read it?
 1231. (*Mr. Lysaght* read No. 7.)
 1232. *Mr. Robertson.*] *Q.* Are you aware that the tendency of legislation has been to impose the responsibility on the Manager alone? *A.* No. I do not know that I am.
 1233. *Q.* Cannot you see that the whole tenor of the Act is to throw the responsibility on the Manager? *A.* Well, I suppose if I understand it rightly the responsibility even under this would still be on him in this part, to see that this was done.
 1234. *Q.* Do not you think that under this proposal the responsibility would be divided? *A.* The monthly examination would be made by the deputies; but the Managers would still have to see that this was carried out.
 1235. *Q.* But you ask for the deputies to inspect along with the District Inspector. Do not you think that is a very unwise thing, and totally opposed to the whole tenor of the Coal-mines Regulations and legislation? *A.* I do not see it.
 1236. *Mr. Lysaght.*] I think Mr. Robertson misunderstands. It is a monthly examination by deputies, and a monthly examination by District Inspectors; but not at the same time.
 1237. *Mr. Robertson.*] It does not say so.
 1238. *Mr. Lysaght.*] I will state that now. It would mean that one fortnight an examination would be made by the deputy, and the following fortnight an examination would be made by the District Inspector. So that it would really be a fortnightly examination.
 1239. *His Honor.*] It looks as if it were intended to be one inspection made once a month in the presence of both the deputy and the District Inspector.
 1240. *Mr. Robertson.*] *Q.* What sort of an examination do you mean? The usual inspection? *A.* Yes, the usual examinations.
 1241. *Q.* Only with the hydrogen flame? *A.* Yes.
 1242. *Q.* Into the old workings, and so forth? *A.* Yes, and any part—a thorough examination—to go over the whole of the workings.

1243. *Q.* Do you know how this hydrogen gas is obtained? *A.* No.
1244. *Q.* You do not know that it is rather difficult and expensive to get? *A.* No.
1245. *Q.* You do not know how many tests can be made? *A.* No. I only know by hearsay about these things.
1246. *Q.* And yet you recommend a fortnightly inspection, a complete inspection with the hydrogen flame?
A. Yes.
1247. *Q.* Do you know that taking an observation with the hydrogen flame is a very tedious process?
A. Well, I suppose it would be. It may take a certain amount of time.
1248. *Q.* And if it takes a day for the ordinary inspection with the ordinary lamp it would take about a week with the hydrogen lamp? *A.* Well, I do not know. A week would seem to me to be an extraordinary time to take to examine.
1249. *Q.* But you do not know? *A.* No. I am not in a position to say the exact time.
1250. *Q.* Then as an example, if it took the District Inspector three days to inspect a mine that could be done in the ordinary way in one day; and the District Inspectors should have to make an inspection every fortnight, necessarily that would involve the appointment of a large number of additional Inspectors?
A. Oh, if that were so. I do not know whether it is so or not. But if it took the time that you say it would take many more Inspectors.
1251. *His Honor.*] It is suggested here that the District Inspector should examine once a month, and the deputy once a month.
1252. *Mr. Robertson.*] *Q.* Well, once a month. You can clearly see that a large number of additional Inspectors would be required, even supposing it took the same time? *A.* Oh, I do not know that it would require many additional men.
1253. *Q.* I will put it to you in this way: I know of one colliery where a complete inspection would take at least a week. Now, could the Inspectors go round the whole district and visit all the mines under three months? *A.* Visit the whole of the mines in the district?
1254. *Q.* Yes. Take the Inspectors in this district? *A.* Oh, yes, I think they could.
1255. *Q.* In addition to their own duties, clerical work, and attending at Court, and so on? *A.* Yes; I think they could do it under that. It seems a long time.
1256. *Q.* Now, as to the watering of the mine, you only ask for travelling roads and haulage-ways to be watered? *A.* That is all.
1257. *Q.* Is that a sanitary matter, or a matter of comfort, or is it to prevent any danger from explosion extending? *A.* It would answer all those things you have mentioned, I think, more or less—every one of them.
1258. *Q.* But, to be of any use, do you not think the watering should be thorough? *A.* Well, as I said before, if there was water in the mine, a little of it, it would be all the better all over; but I could not see that it was practicable. I thought, if we had the main roads and the travelling roads watered, that would be some assistance.
1259. *Q.* Supposing the main roads and travelling roads were watered in a mine where there would be 20 miles of them, that would be rather a big order, would it not? *A.* Yes, it would.
1260. *Q.* Especially if the temperature were very high? *A.* Of course, the more travelling roads there are, the more work there would be in doing it.
1261. *Q.* And the higher the temperature the more water would be required? *A.* Yes. I suppose the more dust the more water it would require to lay it, and so forth.
1262. *Q.* And have you any idea of the effect of watering roadways in a mine with a high temperature?
A. No.
1263. *Q.* Are you aware that it is injurious to the health of the workmen? *A.* No, I am not aware of that. I never studied that part of it. I never heard of it before.
1264. *Q.* Have you ever heard the name of Hall, an Inspector in the Old Country? *A.* No.
1265. *Q.* In connection with the experiments with coal-dust? *A.* I do not remember the name. I have heard lots of names mentioned. It is a common name too; but I do not remember it.
1266. *Q.* I thought every mining man knew who Mr. Hall was? *A.* I do not remember the name.
1267. *Q.* He is the Inspector of the Liverpool and North Wales District? *A.* That might account for my not hearing of him, because I never took any interest in that part of the country.
1268. *Q.* Are you aware that he has reported that the attempt to systematically water the mines in his district has failed? *A.* No. I never heard of it.
1269. *Q.* With respect to the instructions to miners as to the means of exit and so on, you would not impose any penalty on a miner for refusing to follow the deputy? *A.* No.
1270. *Q.* Would you impose any penalty on the owner if it was proved that a miner had not been shown?
A. No. The question has never entered my head, on either side, because I thought it was such a necessary thing; and I thought that both parties would be only too glad to agree to it. I never thought of a penalty. It seemed to me a law that neither man nor Manager would try to break; and the penalty has never crossed my mind on either side.
1271. *Q.* In the case of a mine where there are a large number of long roadways; supposing that you commenced at one end of the pit to show the men different means of exit, and supposing there are half a dozen roads 2 miles long, it would take some time, would it not? *A.* It would. But surely there is no place with that many.
1272. *Q.* Is there not;—there are some places with a good many more. *A.* Six ways out and 2 miles each; it seems a big place.
1273. *Q.* But in a very extensive mine it would take a long time for a miner to be instructed as to all the means of exit? *A.* Yes. Still it would be just the same trouble to show a dozen men as to show thirty or forty.
1274. *Q.* As to self-closing doors, if a self-closing door was found open, or partially open, say by an Inspector, would not the Manager be liable to prosecution? *A.* I suppose he would; whether it was a self-closer or was not, it would be just the same in either case.
1275. *Q.* Although he provided a self-closing door, and through something—a stone, or anything you like—it was found open, he would be liable to prosecution? *A.* Yes, I suppose he would, just the same as if there were no self-closer on it.
1276. *Q.* But in the other case where there is no self-closing door, and the obligation is on the men to close the door, the Manager would not be responsible, would he? *A.* I would leave the responsibility just the same, but it would work more surely.

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1277. Q. But if, through some cause over which the Manager had no control, such as a workman kicking a piece of slack or a piece of wood against the door, it was kept open, do you not think it would be rather hard that the Manager should be responsible? A. I do not think so.

1278. Q. He having used all the means at his disposal, having complied with the Act? A. He does that under the present conditions, and that is a help to the management, I consider, and makes the door more sure to close.

1279. (The Commission then adjourned until 2 p.m.)

AFTERNOON.

(On resuming after lunch Mr. W. R. Pratt attended to take shorthand notes of the evidence and proceedings.)

Mr. JAMES MAGUIRE, previously sworn, was further examined as under:—

Examination by Mr. Robertson:—

1282. Q. You want to abolish furnaces, and to have fans used instead? A. Yes, I think it is better.

1283. Q. If a company has gone to considerable expenditure to put up a furnace, would it not be a hardship to call upon them to erect a fan? A. Well, I suppose all this means expense; but I am looking at it from the point of view of which is best. I did not study expense.

1284. Q. In the case of a small colliery employing ten men, it would be rather a serious matter for proprietors to erect a fan? A. Yes, that would be a very unusual circumstance.

1285. Q. You know there are lots of little collieries? A. Ten men would be a very small affair.

1286. Q. Say twenty men? A. Twenty men would be a small number too. It would be much more serious if a large number of men were employed.

1287. Q. Would it not be sufficient to meet the case, if an Inspector thought it necessary that a fan should be erected, to give notice to the company, and if the company objected to have the matter referred to arbitration? A. I would not mind doing the same with fans as with the lamps, giving any Inspector full power. I think the power should be placed in the Inspector's hands, and I think the fan is preferable.

1288. Q. But I am afraid that the Inspector would have no alternative but to go for the fan, or for the lamps; he would not accept the responsibility of not ordering them? A. If he thought it was best and safest he would probably order them.

Examined by Mr. Ritchie:—

1289. Q. Do you know of any colliery which has recently introduced safety-lamps, where any part of the mine is worked by safety-lamps, and the other parts by flare-lights, and where the men themselves requested the management to use safety-lamps throughout? A. Yes. At the South Clifton Mine.

1290. Q. Did the management comply with the request of the men? A. No.

1291. Q. Although they regarded the lamps as being necessary? A. The lamps were introduced into one part of the mine, and the men thought it would be better to use them all over the mine. They asked the Manager, but he did not do it. He kept the lamps on one side until he took them out altogether for a time.

1292. Q. Have they been out ever since? A. They have been put in again, but have been put over all the mine now, with the exception of one of the main drives, where they have the naked lights. The wheelers and the shift-men have the lamps.

1293. Q. With regard to safety-lamps: Do you consider that if an Inspector had had the power to order them he would have done so? A. I think that he would. I think that if he had had power to order the lamps they would have put them in sooner.

1294. Q. Under the present law, if an Inspector were to order them to be put in a mine, the Manager could refuse to put them in? A. Yes.

1295. Q. As to the monthly examination. Do you consider that monthly examinations with a hydrogen flame are necessary from a safety point of view? A. I think that more frequent examinations would tend to safety.

1296. Q. Do you consider that the method of testing for gas now is sufficient? A. I think that we ought to keep up to date. Any improvements that there are ought to be brought in.

1297. Q. With regard to the recommendation that waste workings should be examined by the hydrogen flame. Do you agree with that? A. Yes.

1298. Q. You think that it would minimise the danger of gas causing an explosion? A. I think it is desirable that waste workings should be examined as far as they can be.

1299. Q. Is that the reason you advocate ventilation by fan? A. I think the fans are an improvement.

1300. Q. You do not regard them as giving absolute security, but the intention is to minimise the danger in a practical way? A. Of the two systems I prefer ventilation by fan. I think it is the safest and the best.

1301. Q. As to the inspection on the 9th of August, which you speak of. Do you recollect any directions being given by any person as to the expression of opinion? A. The understanding was — [Interrupted.]

1302. Q. Was there any understanding? A. Yes; the understanding amongst ourselves was that we were to keep our own counsel; each one was to form his opinion, but not to speak about it to anyone. It was intended to have a meeting later on to discuss it. We did not have a meeting; and I for one have held my tongue about what I have seen.

1303. Q. According to the understanding arrived at? A. Yes.

1304. Q. Did you take any notes? A. No, I took no notes at all.

1305. Q. Did anyone take notes? A. I think I saw Mr. May taking notes. I relied upon you yourself taking notes. I thought you would be there to take them, and that that would be sufficient.

Further cross examination by Mr. Bruce Smith:—

1306. Q. You told Mr. Ritchie just now of a case in which one-half of a mine was worked by safety-lamps, and where the men requested that the other half should be worked in the same way. Was that before the decision of the Arbitration Court that no extra money should be allowed to the men for working by safety-lamps? A. Oh, yes; it was before that.

1307. Q. And at that time the men were asking for 1½d. extra for working where the lamps were used? A. Yes, they were asking for that.

Mr. EDWARD O'SULLIVAN was sworn and examined as under :—

Examination-in-chief by Mr. Lysaght :—

1308. Q. What is your name ? A. Edward O'Sullivan.
 1309. Q. Where do your reside ? A. At Sydney.
 1310. Q. During the two years 1900-1 were you working in the Kembla Colliery ? A. Yes.
 1311. Q. For how long ? A. Five and a half years altogether.
 1312. Q. How long were you getting coal ? A. For two years.
 1313. Q. Do you remember working with anyone in 1900-1 ? A. Yes ; with George Ramsay.
 1314. Q. Where were you working with Ramsay ? A. At the 4th Left in No. 1.
 1315. Q. Can you fix the quarter of the year that you were at work ? A. November or December, I think, 1900.
 1316. Q. Do you remember anything taking place when you were working with Ramsay ? A. I remember the place being bad ; and there was a little gas there one day—when we went in, about 11 o'clock.
 1317. Q. Will you tell us what happened concerning the gas ? A. We were cutting the bottom out of the coal ; we cut about 19 inches. Ramsay was looking at the face, and put his light up to it ; and the gas took light.
 1318. Q. How far did the gas burn ? A. About 3 yards ; that is the nearest I can say to it.
 1319. *His Honor.*] Q. Did it flash out ? A. He had his lamp in his hand ; and the gas burned.
 1320. Q. Did it flash out ? A. It flashed out, but only lasted for a few seconds.
 1321. *Mr. Lysaght.*] Q. Was it a naked light that was used ? A. Yes.
 1322. Q. How long did it burn ? A. Five or six seconds.
 1323. Q. Was anything done by you or Ramsay ? A. Ramsay reported it to Mr. Nelson.
 1324. *Mr. Wade.*] Q. Were you there ? A. Yes.
 1325. *Mr. Lysaght.*] Q. What did Mr. Nelson do ? A. Mr. Nelson put the brattice closer up to the face of the mine.
 1326. Q. Was anything else done then ? A. We were sent into a cut-through about a week afterwards.
 1327. Q. Now, at the time the gas lit, what was the condition of the bratticing ? A. The bratticing was 4 or 5 yards from the face, at the most.
 1328. Q. Were you ever a wheeler in Kembla ? A. Yes ; I was a wheeler for three years.
 1329. Q. Did you observe anything ? A. I have seen men after firing a shot put up a light to the face ; and I have seen it burn for a few seconds.
 1330. Q. Can you fix the place where you were wheeling ? A. It was in a place in No. 5.
 1331. *Mr. Robertson.*] Q. When were you wheeling ? A. I cannot say the date.
 1332. Q. Was it before that ? A. Yes.
 1333. *His Honor.*] Q. Up to the time that you started mining were you wheeling ? A. Yes.
 1334. Q. What did you say just now ? A. I said that after men had fired I have seen them put a light up to the coal, and it has taken light and has burnt for a few seconds.
 1335. *Mr. Bruce Smith.*] Q. Do you mean the new face ? A. Yes. After the shot had been fired.
 1336. Q. Where was it ? A. In the shaft district and in No. 5 drive.
 1337. *Mr. Lysaght.*] Q. Would it last long ? A. It would be four or five seconds, or perhaps six. You would just see it ; that is all.
 1338. Q. How often altogether have you seen that happen ? A. Only two or three times.
 1339. Q. Did any of the men in your presence ever make a report of any such thing to any official ? A. Ramsay is the only man who ever made a report, to my knowledge.

Cross-examined by Mr. Wade :—

1340. Q. What are you doing now ? A. I have been working at pulling down buildings under Mr. Foley.
 1341. Q. Are you any relation to the great O'Sullivan ? A. Yes ; I am nephew.
 1342. Q. When did you leave Mount Kembla ? A. Nine months ago.
 1343. Q. Where were you last August or September ? A. I think I was in Sydney.
 1344. Q. Do you know how you were working the coal at the time you mention ? A. We were pulling it down with a pick.
 1345. Q. Were you shooting it ? A. No, not at all ; we had done little shooting in that quarter at all. We used to put a shot in the left-hand corner to break it up. We might fire one or two shots altogether.
 1346. Q. You say you had been taking down some coal, and that Ramsay was looking along the face of it ? A. Just after the coal had fallen down he was looking along the face of it to see what kind of coal had fallen. The gas flashed out ; and there was a light.
 1347. Q. You say it flashed out for about 3 yards ? A. Yes.
 1348. Q. Might you not be mistaken about that ? A. I do not think so.
 1349. Q. Might it not be 3 feet ? A. No.
 1350. Q. Then it would not be correct to say it was 3 feet only ? A. No.
 1351. Q. Whereabouts was this ? A. In the 4th Left.
 1352. Q. Whereabouts ? A. In about the middle of the bord. It was an 8-yard bord.
 1353. Q. Did you report anything else to Mr. Nelson except that ? A. Yes. We had been working at the place about a month, and had been complaining all the time.
 1354. Q. Did you complain to Mr. Leitch, the under-manager ? A. Yes ; about a couple of times.
 1355. Q. Who is supposed to be the man to attend to the brattice on the face ? A. I think it is the deputy.
 1356. Q. Did not you know what your duty was ? A. To report to the deputy.
 1357. Q. Did you report about the brattice ? A. I thought it was high enough.
 1358. Q. Is that 5 yards from the face rather a long distance ? A. I do not know that.
 1359. Q. You know that you ought to move it if there was a small quantity of gas ? A. I cannot say that.
 1360. Q. Do you know that the idea is to keep the brattice up to the face and let it carry off any gas that may come off ? A. Yes.
 1361. Q. About the men going up to the face after firing a shot ;—do they go up directly after the shot has cleared off ? A. Yes, shortly after the shot has been fired.
 1362. Q. The first thing is that they put a light to the face ? A. Yes.
 1363. Q. At that time there would be an entirely new face ? A. The broken coal would be there after the shot.

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1364. *Q.* Did you notice where the light was held;—was it near the hole itself? *A.* It would be hard to tell where the hole would be after the coal was fired.
1365. *Q.* Who were the men? *A.* It was a long time ago; and I cannot remember them. I saw them do it; that was all.
1366. *Q.* What parts were they working in? *A.* No. 1 and No. 5.
1367. *Q.* What part of No. 1? *A.* The 4th Left.
1368. *Q.* Can you tell me what time of the day it was that the gas lit when you were with Ramsay? *A.* About 11 o'clock.
1369. *Q.* How long were you working in that place altogether with Ramsay? *A.* I think two months and a half. I think I left before the quarter was out.
1370. *Q.* That was the only time you saw the gas? *A.* Yes.

Cross-examined by Mr. Bruce Smith:—

1371. *Q.* How long after this display of gas did you report to Mr. Nelson, and also to Mr. Leitch? *A.* It was about a bad roof that we reported to Leitch; that was before we saw the gas.
1372. *Q.* Did you ever report about the gas to anyone else besides Mr. Nelson? *A.* Only to Mr. Nelson, the Deputy.

Mr. MICHAEL QUINN was sworn and examined as under:—

Examination-in-chief by Mr. Lysaght:—

1373. *Q.* What is your name? *A.* Michael Quinn.
1374. *Q.* What are you? *A.* A miner at Mount Kembla Colliery.
1375. *Q.* For how long? *A.* About fourteen years. I have not been all the time there; but it is about that time since I went there first.
1376. *Q.* Have you been getting coal all that time? *A.* Yes.
1377. *Q.* Before you came to Kembla did you have experience in any other parts of the world? *A.* Yes, in England, and also in New Zealand.
1378. *Q.* What experience have you had? *A.* I was at Maudesley, in England, in the county of Durham, where I was with the shift overman for a good while, about two years; he looks after the return air.
1379. *Q.* How long were you in New Zealand, and where? *A.* I was at Cammell; and I was also in Victoria for twelve months. I was at Newcastle for about two years, and at New Lambton; and also at Lithgow.
1380. *Q.* What has been your total experience as a miner? *A.* About twenty-five years.
1381. *Q.* Now, in any of the Collieries you have worked in, in the country, were these Collieries known to give off gas? *A.* Yes.
1382. *Q.* Have you had any experience with regard to gas in Collieries, by working in them? *A.* At Maudesley it was an important job I had. I was only a youth at the time, but the person I was with was looking after the airways. He is termed a shift overman. I went with him for company.
1383. *Q.* How many year's experience have you had working in Collieries where there was gas? *A.* Twelve months in New Zealand, all the time I have been at Kembla, and in the Old Country.
1384. *Q.* Were you working at Kembla at the time of the disaster? *A.* Yes; I was working in the 2nd Right.
1385. *Q.* Can you give the number of the bord or the pillar? *A.* It was a heading.
1386. *Q.* Can you point out on the plan where it was—was it near the telephone cabin? *A.* It was near the north daylight heading.
1387. *Q.* Did you notice anything on the day of the disaster? *A.* No; not before the disaster.
1388. *Q.* When did you first know of the disaster? *A.* I was at the working place, and my mate was just going to go home when a boy came up and told me that the pit had knocked off. I thought he was jesting at the time. I thought they were waiting for skips. I said, "You are only having a bit of fun." He said, "Look how white I am." I went into the back heading and met some men going out. We did not know what had happened at the time. Nobody could give you any information, or say what was the matter. Presently a man came along and said that the heat was terrible about the main tunnel, and that he could not get through. I said that they must have struck a blower in the heading.
1389. *Q.* Did you afterwards go into the mine? *A.* Yes. I went to the store to try and get a safety-lamp.
1390. *Q.* What was the condition of the lamps? *A.* I had a terrible job to fix one up.
1391. *His Honor.] Q.* I suppose you came out at the daylight heading, and went round? *A.* Yes; I went round outside.
1392. *Mr. Lysaght.] Q.* What about the wicks for the lamps? *A.* I asked a boy, and he said there were some a few months ago.
1393. *Q.* Were the lamps fit for use? *A.* No; they were not.
1394. *Q.* If there had been lamps ready for use would it have made any difference as to the saving of life? *A.* I think so.
1395. *Q.* What difference? *A.* In my opinion we were stopped from going in to save life; and it was very late when the main body of men got in with stretchers. If we could have got in at first I think that many men would have been saved.
1396. *Q.* Did you afterwards make any inspection of the mine? *A.* No.
1397. *Q.* From anything you observed before, and during the whole of your working there, or from any thing you know of, have you formed any conclusion as to the cause of the disaster? *A.* I told some of the party that I went in with that I thought it came from No. 1. That was the party with whom MacCabe perished.
1398. *Q.* What is your opinion as to the disaster? *A.* In my opinion it happened either in the main tunnel, or from there to Aitken's place.
1399. *Q.* What happened? *A.* An explosion of gas which caught light in one of those places.
1400. *His Honor.] Q.* Do you mean No. 1, or the main tunnel? *A.* No. 1.
1401. *Mr. Lysaght.] Q.* What do you mean by places? *A.* In places from the main tunnel and on to Aitken's place.

1402. *Q.* Do you think there was one explosion, or more? *A.* I think that the gas was near the roof, and that it caught light by contact with a naked light, and that it kept floundering about in the places and then came back to the main heading.
1403. *Q.* Can you support that theory with any other facts? *A.* One of the men who had been working night-work at Mt. Kembla — [Interrupted.]
1404. *Mr. Wade.*] I object to this evidence.
1405. *His Honor.*] I think it is going too far.
1406. *Mr. Lysaght.*] *Q.* Leaving the explosion for a moment, have you on any occasion in Kembla known of the presence of gas? *A.* Yes.
1407. *Mr. Bruce Smith.*] He gave a good deal of evidence on this matter at the inquest.
1408. *His Honor.*] That is already before us as evidence.
1409. *Mr. Lysaght.*] *Q.* Have you read the evidence of Mr. Atkinson as to his theory, and as to the force observed after the disaster? *A.* Yes, I saw some of his opinions.
1410. *Q.* As a practical miner can you give any opinion from your own observations in the past? *A.* It is hard to form a hard and fast line as to which direction gas will come and go. I have seen it before to-day come out twice from the face, and go back a third time to the face. I have seen it strike the face and come out again. What occurred at one time with gas might not occur at another time.
1411. *Q.* Have you observed anything in Mount Kembla? *A.* I was working in the 5th Left; there was gas lit on the back heading. I was working in front. A man was driving the heading at the time and the gas came up to where he was sitting. It went to the face, came back, struck a prop and went out. That man got his beard singed at the time.
1412. *Q.* Who was he? *A.* It was Robinson.
1413. *Q.* When was that? *A.* Eleven years ago.
1414. *Q.* Was that subsequent to the erection of the furnace? *A.* The furnace was up then, it was subsequent to the erection of the furnace.
1415. *Q.* I think you have already given evidence of gas having lit and having been reported to Mr. Rogers, can you tell me how many times you have made reports to officials of the presence of gas in the mine? *A.* I made them only to deputies.
1416. *Q.* Deputies are officials? *A.* Yes.
1417. *Q.* How many times have you reported to deputies? *A.* Twice.
1418. *Q.* Who were the deputies? *A.* I gave evidence of that before.
1419. *Q.* Is there anything else you desire to say about the presence of gas in the Kembla mine? *A.* No.
1420. *Q.* You occupy some office in the Mount Kembla Lodge? *A.* Yes. I am President.
1421. *Q.* Now, what do you say as to these recommendations. 1. That Managers, deputies, and shot-firers should hold certificates of competency? *A.* I think it is proper that they should hold certificates. They have the lives of the miners in their hands; and it is nothing but right that they should know these things. They ought to know all about gases.
1422. *Q.* What do you mean? *A.* They should know what gases would cause an explosion, and all about the air in the place, and they should have a practical and a theoretical knowledge as well.
1423. *Q.* Can you say whether there are any persons at Kembla who, in your opinion, are not competent to be officials?
1424. *Mr. Wade.*] Is this material? It is all very well if the witness was an expert; and the issue is not before the Commission as to the competency of certain men. We have no concern with that now; and we are not concerned to know whether there are men in the mine who are competent or incompetent. It means that if this witness can give evidence as to whether Brown or Jones was competent or incompetent we should have to call a dozen witnesses to prove all about the officials' antecedents.
1425. *Mr. Lysaght.*] Where the deputies and shot-firers do not undergo an examination, men may be employed who are incompetent, danger might be avoided if these men had a theoretical knowledge.
1426. *His Honor.*] I think it is hardly right to go into the particular ability of particular men in a mine. I think you might ask whether in the witness' experience generally he has observed anything as to the general competence of the men who have this particular work to do.
1427. *Mr. Lysaght.*] *Q.* Can you give any evidence of particular facts to show that these men are incompetent—say things that have been done in Mount Kembla. *A.* I have been asked by special request by some of the miners to bring this case before the Commission. We do not want to force any hardship on the Company or upon the men employed; we think that these men ought to be qualified; and the Company could get plenty of men from Helensburgh to do the work, if necessary.
1428. *His Honor.*] *Q.* Then you firmly believe in the expression of opinion involved in this particular recommendation? *A.* That is so.
1429. *Mr. Lysaght.*] *Q.* Can you give any incidents relating to things which happened before the disaster showing that persons who had not passed any examinations were incompetent. *A.* I am of opinion, so far as I am concerned, that no man should hold such positions as these.
1430. *Mr. Wade.*] This is a very vague question.
1431. *His Honor.*] It is vague; but I think it is admissible.
1432. *Mr. Wade.*] If an inquiry like this is opened up, it will mean that we shall have to bring witnesses here to answer these assertions.
1433. *His Honor.*] I do not think it is right to give evidence as to the competency of any particular man; it is general evidence that is wanted.
1434. *Mr. Lysaght.*] I will now ask that the next recommendation be considered. It is, that Inspectors ought to be vested with absolute powers to order the use of safety-lamps. *Q.* Is that a proper and wise provision? *A.* That recommendation ought to be passed. We should leave the decision with them.
1435. *Q.* Do you think that ventilation by furnace should be prohibited, and fans substituted? *A.* I think that is most important—the most important thing of the lot.
1436. *Q.* Why? *A.* Until we have first-class ventilation we shall always be liable to accidents. The only hope to save our lives is by good ventilation.
1437. *Q.* Does any danger arise from the furnace? *A.* If an explosion strikes a furnace, I suppose it would be all over with all of us.
1438. *Q.* Why? *A.* If the explosion had occurred at the shaft instead of No. 1, it is likely that there would have been nobody here to-day to trouble you.

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1439. Q. Why would that have been so? A. It would have stopped the ventilation.
1440. Q. You mean in other parts of the mine? A. Yes.
1441. Q. What do you say about waste workings being absolutely sealed off and being surrounded by return airways? A. I think that is a reasonable request as far as my opinion is concerned.
1442. Q. It is recommended that all places, except prospecting drives, should have cut-throughs not more than 30 yards apart? A. I think that is desirable.
1443. Q. What about any details? A. Because the canvas very often gets knocked down by the wheelers, who are very careless; and this may cause gas to accumulate in various places.
1444. Q. Would there be any additional protection afforded by cut-throughs? A. You would not want so much canvas. The canvas can never be tacked close to the roof. There is always room for the air to come.
1445. Q. In the majority of the collieries which you have worked in, what has been the average distance of the cut-throughs from each other? A. Well, they differ. Thirty-five yards is the limit in England. I think they differ very much in this country.
1446. Q. What about Newcastle? A. At Newcastle they were about 35 yards apart.
1447. Q. What is the average distance in Kembla? A. They have a lot of difference. In some places they were 30 or 40 yards, and in some places 25 yards; and then they were hardly ever across through to the working places. There was one pillar left untouched.
1448. Q. By having cut-throughs every 30 yards, would there be any greater danger of the roof falling? A. I do not think there would.
1449. Q. That is your opinion as a practical man? A. Yes.
1450. Q. What about inspection with a locked safety-lamp in all cases? A. The inspection should be with a locked safety-lamp always—that is the morning inspection.
1451. Q. What about the inspection each month with a hydrogen flame? A. I support that recommendation. The matter ought to be decided by scientific men who understand the nature of these gases. They ought to know what percentage of gas there is in the mine. We have no knowledge of it by simply working in the mine. Until there is some hard and fast rule laid down in the matter, and carried out, we shall always have danger.
1452. Q. It is recommended that a minimum of 500 cubic feet of air should be provided for every horse, instead of 100 feet as at present. A. Well, the more air the better.
1453. Q. Well, in your opinion, is 100 feet of air sufficient for a horse? A. Well, as 100 feet is only sufficient for a man, it would not be sufficient for a horse.
1454. Q. What has been the general rule as to the condition of air in Mount Kembla? A. It differs very much. At times you get first-class air in parts, and at times unbearable air in other parts.
1455. Q. Within the last two years have you had any unbearable air? A. Yes, in one particular place. I stated this in my evidence before. It is in the 4th Right.
1456. Q. In any other place? A. Not to that extent. I had to draw the deputy's attention to it. It was so hot.
1457. Q. Another recommendation is that all doors shall be erected so as to close and remain closed of their own motion? A. Yes, think that is needful in a mine.
1458. Q. Do you think it would take away any obligation on the part of any person to shut a door? Or is this recommendation to be regarded as being an extra precaution? A. No; any person who opens a door should shut it, or if they discover it open they should shut it.
1459. Q. Do you think double doors on drives, between main intake and return, and main headings, are necessary? A. I think so, because if a skip is coming through one door then the other door is shut.
1460. Q. When the skip comes through, does the air escape? A. Yes.
1461. Q. How long does a skip occupy to get through? A. Well, an accident might occur and it might take five minutes or more. A truck might get off the road.
1462. Q. What about weekly measurements of the air in each section? A. I think the present method of measurement is a farce. It is measured at the tunnel mouth; and the air can go where it likes afterwards. That is of no benefit to us. It should be measured at different places. You can measure the air at the tunnel mouth after that.
1463. Q. Is the measurement of the air at the tunnel mouth any indication as to the amount of air circulating in other parts of the mine? A. No, not under present conditions.
1464. Q. Would the recommendation for the weekly measurements of air entail any special expense? A. It would be a farce to measure the air in Mount Kembla unless they had proper stoppings put up. They will have to get stoppings put up to get the air carried round to the faces.
1465. Q. Wherabouts? A. In the cut-throughs.
1466. Q. What about the cut-throughs now? A. The stoppings now are return airways; they must alter that.
1467. Q. Is that a dangerous condition? A. Yes.
1468. Q. You mean places that should be stoppings? A. Yes, they were intended for stoppings; but they leak.
1469. *Mr. Bruce Smith.*] Q. They leak; and the air gets through on the top? A. Yes.
1470. *Mr. Lysaght.*] Q. Were they bricked off? A. They were filled up with slack and stone; and after a time they fell down at the top.
1471. Q. How many of them are there? A. There was one that I was working by the side of last quarter, it was supposed to be a stopping; but it turned out to be a return airway.
1472. Q. How many more are there? A. That is the only one that I took notice of; and I took particular notice of that. I give you my opinion here that this ought to be remedied for our sake alone. It is not a great expense, I think; and it is necessary for the protection of the miners and of property.
1473. Q. What about the extra supply of safety-lamps and requisites equal to one-third of the number of persons employed below ground, to be kept in good order and ready for use? A. I think that is necessary.
1474. Q. And then it is recommended that travelling and haulage roads and other places necessary should be properly watered? A. If the Inspectors say that there is danger of dust causing an explosion, then it is necessary. If not, it is no good.
1475. Q. In whose discretion should the watering be? A. The Inspector should be the man to have the authority.

1476. *Q.* It is recommended that Managers should be compelled to give more time and attention to the management of a colliery? *A.* I think that is a most important question.
1477. *Q.* What has been your experience at Mount Kembla;—has Mr. Rogers given care and attention? *A.* When he was under-manager he was careful in going round; but after he was made full Manager he did not go round so often.
1478. *Q.* How often does he attend to the internal work. *A.* I can give you no information at all.
1479. *Q.* Did he attend sufficiently to know what was going on in the colliery?
1480. [*Mr. Wade* objected to this question; and it was not pressed.]
1481. *Q.* Now, with regard to the instruments which it is suggested should be placed at the bottom of the upcast to record the variations of heat and air pressure? *A.* That is what they have in England.
1482. *Q.* What is the object? *A.* I suppose it is to tell the changes of heat in a mine.
1483. *Q.* Would that be necessary if the furnace were abolished? *A.* I think so.
1484. *Q.* Now, with regard to the recommendation that the size of the manholes should be enlarged. They are now about 4 feet deep by 6 feet high? *A.* That is not so important to us as the air.
1485. *Q.* Would it be an extra precaution for safety? *A.* Not a great lot.
1486. *Q.* It is proposed to ask for the cancellation of the certificate of William Rogers, the Manager?
1487. *Mr. Wade.*] I beg to call your Honor's attention to this point.
1488. (*His Honor* said that he held that the Commission had nothing to do with the cancellation of certificates, and it would only be for the Commission to find out what Mr. Rogers' conduct in relation to the accident had been; but it was not intended that the Commission should deal with the question of the suspension of the certificate, and he thought that this point ought to be omitted from the list of suggestions.)
1489. *Mr. Lysaght.*] I would like to be quite clear. You rule that I am not to bring forward any evidence to show that Mr. Rogers was an incompetent Manager.
1490. *His Honor.*] You can bring any evidence to show that his incompetency may have led up to the accident.
1491. *Mr. Lysaght.*] Then I must confine the evidence to the disaster.
1492. *His Honor.*] That is certainly the proper thing to do,
1493. *Mr. Lysaght.*] *Q.* Are there any facts in your mind which in your opinion contributed to the disaster to which blame was attachable to Mr. Rogers?
1494. *Mr. Wade.*] I object to that.
1495. *His Honor.*] The question is rather complicated.
1496. *Mr. Lysaght.*] *Q.* Do you know of any matter, or anything which Mr. Rogers could have avoided, which probably contributed to the accident — [*Interrupted.*]
1497. *Mr. Wade.*] The witness has not given the cause of the accident beyond saying that there was an explosion of gas because of contact with a naked light.
1498. *His Honor.*] The witness can form a theory the same as anyone else. He may be asked, "Do you in any way connect Mr. Rogers with the happening of what you believe to be the cause of the accident"? The witness is supposed to be an expert.
1499. *Mr. Wade.*] I say that he is not an expert.
1500. *His Honor.*] If he can say how Mr. Rogers contributed to the accident, he may say what he thinks.
1501. *Mr. Bruce Smith.*] I think it is for the Court to decide whether a man who comes here is an expert.
1502. *His Honor.*] In a sense, a miner coming from a mine where he has been working all his life must be treated as an expert.
1503. *Mr. Bruce Smith.*] Would he be an expert in judging of the qualifications of a Manager.
1504. *His Honor.*] It is only a question of degree. The further you stretch the matter the weaker it becomes to some extent.
1505. *Mr. Lysaght.*] If Mr. Rogers noticed the presence of gas on this occasion, it would be his duty not to allow men to work with naked lights at all.
1506. *His Honor.*] If that is your hidden meaning, you can put it more plainly to the witness. I will allow the question to be put in a general way.
1507. *Mr. Lysaght.*] *Q.* Were there any facts known to Mr. Rogers which, had he taken proper steps, would have affected the disaster? *A.* If my opinion is going to do no good—if my opinion is worth nothing — [*Interrupted.*]
1508. *His Honor.*] I did not say that your opinion was not worth anything.
1509. *Witness.*] And if my answer would endanger my position, and very probably my bread and butter, and if it is no benefit at all, I think I had better keep it to myself.
1510. *Mr. Wade.*] If that is the ground, I hope the witness will answer.
1511. *Mr. Lysaght.*] I take it that your Honor rules that this is not the place to inquire into the cancelling of a certificate or into the question of general competency.
1512. *His Honor.*] Only so far as it affects the accident itself.
1513. *Mr. Lysaght.*] Then I will go on to deal with the suggestion that instructions should be given to employees regularly on the means of escape. *Q.* Will you answer that question? *A.* I think it is a reasonable request. It is not expensive; and if an accident happened the men would know the roads how to get out.
1514. *Q.* How many exits are there from the Kembla Mine? *A.* Four that I know of.
1515. *Q.* How long have you known of them? *A.* For some years.
1516. *Q.* When would you propose to have the instructions given to the employees, and by whom? *A.* By the deputy, when they are leaving work; so that it would not be any loss to the company, and it would be a benefit to the men.
1517. *Q.* I see there is a recommendation forbidding any black-list to be kept? *A.* That is very good; but how are you going to get at it?
1518. *Q.* Can you give any instance where persons have been prevented from getting employment, or where an attempt has been made to prevent them? *A.* Yes; but it was not successful.
1519. *Q.* It was tried? *A.* Yes.
1520. *Q.* With whom? *A.* With me.
1521. *Q.* When? *A.* During the strike at Mount Kembla I went to South Kembla, and I was informed that a note came to Mr. Pringle from the management at Mount Kembla; but they did not take any notice of it.

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1522. *Q.* What were the contents of the note? *A.* That I had taken an active part in trying to get the men out of the mine.
1523. *Q.* What was the request? *A.* He did not tell me the request.
1524. *Q.* Do you know any other case where efforts have been made to stop persons getting employment, or where persons have been afterwards dismissed?
1525. *Mr. Wade.*] Produce the persons; and then we can see into the matter. We cannot deal with hearsay evidence.
1526. *Mr. Lysaght.*] *Q.* Do you know Ramsay? *A.* Yes.
1527. *Q.* Were you present when he was discharged? Do you know that Ramsay was present at the inquest? *A.* Yes; and I asked a man who knew a lot about the case, and he told me something.
1528. *His Honor.*] We might have the man here.
1529. *Mr. Lysaght.*] This particular man is afraid to give evidence, for fear of being dismissed.
1530. *His Honor.*] It is not necessary to go into particular cases.
1531. *Mr. Lysaght.*] I think you will appreciate the difficulty of bringing evidence of this kind before the Commission. The men are afraid to report gas in the mine.
1532. *Mr. Wade.*] Call the men themselves on this point.
1533. *Mr. Lysaght.*] If the employees could feel a sense of security, a good deal of evidence would be available to this Commission.
1534. *Mr. Wade.*] Give the names and they will be subpoenaed.
1535. *His Honor.*] The law cannot be altered at once for the protection of these men: but a recommendation may be made to protect men in the future.
1536. *Mr. Bruce Smith.*] Have they not got the protection laid down by the Arbitration Court—"The last to come the first to go"?
1537. *Mr. Wade.*] If dismissed, the Arbitration Court would reinstate them.
1538. *Mr. Lysaght.*] It may be that they are discharged without giving any reasons.
1539. *His Honor.*] It seems to me that the furthest you can go is this: You may ask a witness whether he knows of his own knowledge of the existence of men whose history makes it clear to his mind that they have some valuable information to give, and yet refuse to give it apparently from fear of consequences. I think you can put that generally. Then it is a question for the other side to cross-examine on that or leave the matter alone.
1540. *Mr. Lysaght.*] *Q.* Do you know of any persons who, by reason of their past employment in the mine, and many other causes, you believe could give material evidence before the Commission, but yet are afraid to do so, because of the fear of consequences? *A.* I do not know of what value their evidence may be.
1541. *Q.* Do you think it would assist the Commission? *A.* I cannot form any opinion on that.
1542. *Q.* Have you heard that they could give evidence? *A.* Only what I have told you.
1543. *Mr. Lysaght.*] You told me, but you have not told the Court.
1544. *His Honor.*] *Q.* Do you know that men are holding back from giving evidence, because of the fear of consequences—dismissal or something analogous to it? *A.* I will give you the words of the man — [Interrupted.]
1545. *Q.* I only wanted you to say whether you do or do not? *A.* I know one man who would not give a decided answer about his evidence, because, he told me, it might injure him hereafter. I do not know what his evidence was.
1546. *Mr. Lysaght.*] *Q.* Was that statement made recently? *A.* Yes, about a week ago.
1547. *His Honor.*] A man may be timid, or have an idea in his mind not founded upon a solid foundation.
1548. *Mr. Lysaght.*] *Q.* There is a recommendation that lamps should not be unlocked for shot-firing? *A.* Some of the miners are very alarmed at Mount Kembla about that. I am myself.
1549. *Q.* Is it the practice at Mount Kembla now to fire shots in this manner — [Interrupted.]
1550. *His Honor.*] It is permitted by the Act.
1551. *Mr. Lysaght.*] *Q.* It is permitted under the Act: but we say it is not satisfactory? *A.* No; I think it is a very dangerous practice.
- Cross-examination by Mr. Wade:—
1552. *Q.* Why do you think it is dangerous? Is it on account of the gas? *A.* Yes.
1553. *Q.* Do you fear that the gas may come in contact with the naked light? *A.* Yes; and cause an explosion.
1554. *Q.* You can never tell when an explosion may take place? *A.* No.
1555. *Q.* Is there always a risk in putting a light to any gas? *A.* Yes, when that part of the mine is dangerous.
1556. *Q.* Do you say that it is dangerous because there is a chance of gas coming into contact with a naked light? *A.* Yes. But I want to make a statement.
1557. *Q.* I want your answer, yes or no?
1558. *His Honor.*] I presume that the witness desires to give an explanation.
1559. *Witness.*] Mr. Wade is trying to get around a different matter altogether, about evidence I gave before the Coroner's Court about lighting gas.
1560. *Mr. Wade.*] *Q.* Do you consider it dangerous to put a naked light where you may expect to find gas? *A.* Under present conditions it would be.
1561. *Q.* What are the present conditions? *A.* The mine being dangerous.
1562. *Q.* Is it more dangerous now than it was six months ago? *A.* No.
1563. *Q.* Is it more dangerous now than it was before the disaster? *A.* It is as dangerous now as it was before the disaster.
1564. *Q.* Is there any danger now in putting a naked light to gas? *A.* It depends on the time and the place.
1565. *Q.* Is there some danger now? *A.* It depends on the conditions.
1566. *Q.* Is it safe now to put a naked light where you may expect gas? *A.* If you expect gas now you are not allowed to put a light to the coal.
1567. *Q.* Do you consider it dangerous at present to put a naked light where you expect to find gas? *A.* It all depends on the quantity of air that there is.
1568. *Q.* How can you tell that? *A.* It is for the man who opens the lamp to tell.

1569. *Q.* If there is too little air at the time it is too late afterwards, and the damage is done? *A.* Yes.
1570. *Q.* You cannot tell the quantity of gas compared with the air in a particular place? *A.* I do not want to.
1571. *Q.* Is there not always danger in putting a naked light near where you think there is gas? *A.* Not at all.
1572. *Q.* Then why do you want this provision? *A.* The air courses may have been neglected in this part; and the man has not much knowledge as to the quantity of air there. If the men think it not a fair thing to light the fuse with the open lamp, and if it is not a loss to the company, why not stop the practice?
1573. *Q.* When can you fire a shot and it will not be dangerous? *A.* When you have a perfect knowledge of the air and the gas.
1574. *Q.* That is what no man can get? *A.* There may be some clever men who can tell.
1575. *Q.* Can an ordinary miner tell? *A.* No, he cannot tell.
1576. *Q.* Did you learn of this danger in England? *A.* Yes; but we never used naked lights there.
1577. *Q.* And you were told by Mr. Rogers never to light gas in your place? *A.* I knew you were coming to that. It is all moonshine.
1578. *Q.* Were you told not to light gas in your place? *A.* Not whilst he was there.
1579. *Q.* Do you tell the Court he said "You must not light gas in my presence; but do it when I am away"? *A.* Yes, I always thought that he meant that.
1580. *Q.* You could not do it in his presence; but you could in his absence? *A.* Those are his own words.
1581. *Q.* Did he say, "Do not do it again"? *A.* Not in my presence.
1582. *Q.* You knew it was dangerous? *A.* Not under the conditions in that heading.
1583. *Q.* What conditions? *A.* There were three or four naked lights there.
1584. *Q.* Three or four chances to one? *A.* It was much better to light the gas there and burn it away.
1585. *Q.* I want you to answer my questions? *A.* I am going to answer them in a different manner. I have already given that evidence.
1586. *His Honor.*] Mr. Wade can examine you further upon it.
1587. *Mr. Wade.*] *Q.* Do you think there was any danger in lighting that gas? *A.* Not at the time.
1588. *Q.* Do you think so now? *A.* Yes.
1589. *Q.* Why do you think it is dangerous now? *A.* I think it is dangerous, after the explosion.
1590. *Q.* After all your experience in England and New Zealand you did not think it was dangerous at the time? *A.* No.
1591. *Q.* What do you think was the reason of Mr. Rogers' saying, "Do not light the gas before me"? *A.* He did not want to know there was gas there.
1592. *Q.* That is your view of what Mr. Rogers said? *A.* Yes.
1593. *Q.* Now, how often have you left Mount Kembla? *A.* I left it on three different occasions. I believe I left it on four occasions.
1594. *Q.* Have you worked anywhere else since you first went to Mount Kembla? *A.* Yes; at South Kembla for a few months.
1595. *Q.* You have been a witness against the Company in several actions in Sydney? *A.* Yes.
1596. *Q.* On two different occasions? *A.* Yes.
1597. *Q.* Was the first occasion about fourteen months ago? *A.* About that length of time ago.
1598. *Q.* Did you give evidence against the Company suggesting neglect on their part in connection with a particular waste? *A.* I gave my own evidence.
1599. *Q.* Did that suggest neglect on the part of the Company? Did you not say that a certain waste had not fallen in and was dangerous, where a man named Brownlee was working? *A.* I did not say it had not fallen.
1600. *Q.* Did you give evidence? *A.* Wait for a moment.
1601. *His Honor.*] I suppose you are examining the witness Quinn to show that, although he has given evidence objectionable to the Company, the Company has not attempted to remove him. I think a reason for your not continuing this evidence is that there is no evidence to the contrary.
1602. *Mr. Wade.*] The witness has said that there is someone else who, he believes, is afraid to give evidence, and I want to show what the relations are between the Manager and the men.
1603. *His Honor.*] I think it is hardly necessary to go into this matter more fully.
1604. *Witness.*] I want to make myself clear; and I do not wish to be made to say things that I have never said before. I do not wish to come here to injure the Manager or anyone belonging to him. I would not come here to perjure myself for all the property in the State.
1605. *Mr. Wade.*] *Q.* Let us go back to the day of the disaster. Is it not a fact that, after you had the lamps, you could not get into the mine because you had not sufficient stretchers? *A.* No, it is not a fact.
1606. *Q.* Is it not a fact that all the men had to be carried out on stretchers? *A.* No, it is not a fact. You could not get the stretchers in to them.
1607. *Q.* Did not all these men who were overcome with after-damp have to be brought out of the mine? Did any of them walk out that you know of? *A.* No.
1608. *Q.* And was not nearly every man carried out on a stretcher? *A.* Yes.
1609. *Q.* Was not the difficulty in getting them out that, there were not sufficient stretchers to bring them out? *A.* That was partly so; but we could not get into the mine to the men.
1610. *Q.* Did not those who were rescuing have to wait to get stretchers? *A.* They were blocked at the tunnel mouth by either the Manager or the police.
1611. *Q.* Were not only "Dick, Tom, and Harry" blocked, and only authorised persons allowed to enter? *A.* There was no authorising about it.
1612. *Q.* When you had the safety lamps, did you not have to wait until the stretchers were made? *A.* They had about half a dozen there.
1613. *Q.* Could they not get into the mine with them? *A.* They could not get in with the stretchers.
1614. *Q.* You say that when they had safety lamps they could not get the stretchers? *A.* And they were not permitted to go in with a naked light, and there were not safety lamps there. No one was in until two or three hours after the explosion.
1615. *Q.* Do you say that until two or three hours after the explosion there was no one in the mine with a safety lamp? *A.* Well, I went in one of the first.

Witness—M. Quinn, 7 January, 1903.

1616. *Q.* Do you know that Government inspections are made at Mount Kembla frequently? *A.* They may have been before that. The last man I saw there for twelve months or over was on the day of the explosion. They did not come to me.
1617. *Q.* No, I suppose you might blow them up with your gas. Now, would you keep a man there at present who lights blowers of gas? *A.* No, I would not allow a naked light there now. We will have to get more air there before we do that.
1618. *Q.* When you found the air intolerable, was it because the brattice was short? *A.* There was no brattice at all.
1619. *Q.* When you complained and asked for brattice, did you get it? *A.* In two places I got it; but in two places I did not get it.
1620. *Q.* What happened? *A.* We had finished the place.
1621. *Q.* Was it a practice to put brattice there? *A.* Yes.
1622. *Q.* Do you say that the system of measurement now adopted in the mine is a farce? *A.* Yes, under the conditions.
1623. *Q.* Do you say that the air is only measured at the tunnel mouth? *A.* That is all I have seen them do.
1624. *Q.* Are you prepared to say that that is all they do? *A.* All the time that I have been there it has only been done at the tunnel mouth.
1625. *Q.* Do you not know they measure at other places? *A.* I do not know.
1626. *Q.* Did you say the ventilation was bad during the twelve months before the disaster? *A.* In particular parts.
1627. *Q.* In how many parts, do you think? *A.* In No. 4 Right (*meaning the 4th Right*) the air was bad.
1628. *Q.* Was that from black-damp? *A.* Yes.
1629. *Q.* That is one occasion you speak of? *A.* Yes.
1630. *Q.* How often in No. 4 Right (*meaning the 4th Right*) was the air bad? *A.* During the last quarter I was in there. During all the time I was there.
1631. *His Honor.] Q.* What quarter was that? *A.* Before the disaster. Three or four weeks before the disaster.
1632. *Mr. Wad.] Q.* Were you working in the pillars up to three weeks of the disaster? *A.* Yes.
1633. *Q.* You and a man named Muir? *A.* Yes.
1634. *Q.* Was that the last piece of coal taken out? *A.* Yes; I drew the last timber out of No. 4 Right, (*meaning the 4th Right*) No. 1 Section.
1635. *Q.* Is Muir alive? *A.* Yes; he is at Mount Kembla.
1636. *Q.* Who else was with you? *A.* There were two other men, Filey and Helthingham. They are not at Mount Kembla now. I think one of them is working on the coast; but I do not know where.
1637. *Q.* Do you know that the miners have the right, under the Coal Mines Act, of examining a mine as to whether it is safe? *A.* I do not know.
1638. *Q.* By the Check Examiners -- your own men? *A.* That is simply a farce. It is no good to us.
1639. *Q.* Who is a Check Examiner, is he a miner? *A.* We have none.
1640. *Q.* When you did have one was he a miner? *A.* Yes.
1641. *Q.* Do not you know that the Act gives the miners power to appoint one of their number as Check Inspector? *A.* Yes; but what good is it?
1642. *Q.* You know that they have the right to go and examine a mine? *A.* Yes: it is time that right was done away with.
1643. *Q.* They have the opportunity to point out any defects? *A.* If they have they do not carry it out.
1644. *Q.* Do you complain of the Mine-Manager because of that? *A.* I do not blame him for the acts of others. Why should I?
1645. *Q.* Do you blame him for their neglect? *A.* No.
1646. *Q.* If the Check Inspectors are not capable you can replace them? *A.* I do not know whether they are capable men or not.
1647. *Q.* Do you see reports? *A.* I never see the reports. I have no idea what becomes of them.
1648. *Q.* Does not the Lodge get them? *A.* Not that I know of.
1649. *Q.* Can you show me any single recommendation by the Check Inspectors as to gas at the Colliery? *A.* I do not know about the report. Before the explosion I was at work at Powell's Flat, and that was the first time I had to draw the attention of the Check Inspector to anything. When Mr. Nelson was deputy he was appointed under-manager; and the road through Powell's Flat was No. 5 travelling road. That road was condemned by the Check Inspector; and the roof looked so rotten that I went up No. 1 road. Mr. Nelson waited until I came back, and said, "You are breaking the rules by going that road." I said that I had heard that No. 5 road was condemned. He said, "Who condemned it?" I said, "The Check Inspector recommended that it be condemned." He said, "They ordered some timber." I said, "At the first meeting I go to I will do my duty and bring this up." I examined the timber as I went past; and it was really in a dreadful state. That is all I know about it.
1650. *Q.* Is your objection to a furnace that if an explosion strikes it it will destroy the ventilation? *A.* Yes. I have other objections as well.
1651. *Q.* Is it not a fact that in every explosion the ventilation becomes deranged? *A.* Yes.
1652. *Q.* And after-damp travels all over the mine? *A.* Yes.
1653. *Q.* Would not the same risk be attached to a fan as well as to a furnace? *A.* A fan could be more easily erected.
1654. *Q.* Would not they have to replace the furnace? *A.* I suppose so.
1655. *Q.* You have also to replace the brattice after an explosion? *A.* Yes.

Cross examined by Mr. Bruce Smith:—

1656. *Q.* Can you tell me who appointed Check Inspectors in the past? *A.* I believe they were appointed at the Miners' Lodge; but I have never been there at the time.
1657. *Q.* Are they appointed by the Lodge of which you are President? *A.* Yes.
1658. *Q.* Is it the Lodge that makes recommendations? *A.* Yes.
1659. *Q.* When the Lodge appoints the Check Inspectors, how often do they go over the mine to check the ventilation? *A.* I do not know; I did not take any interest in the affair.

1660. Did not you form some opinion as to what the object of the Check Inspectors was? A. I was not a prominent member of the Lodge then.
1661. Q. Do you know the way the Check Inspectors are appointed? A. Yes.
1662. And in whose interests are they appointed? A. In the miners' interests, to measure the air.
1663. Q. And to check for themselves the statement as to the air current? A. Yes.
1664. Q. Now, you are recommending that the examinations should be made every week? A. By practical men, not by miners. We want Government men free from the management of the mine altogether.
1665. Q. Is it not better to have men to look at the matter from the point of view of the miner? A. No. It may endanger their position if they make a report that is not satisfactory to the Manager.
1666. Q. Then it is a farce, because the miners are afraid? A. Because the miners are afraid to report as to the true condition of the mine.
1667. Q. Have you seen the books of the Check Inspector? A. No.
1668. Q. Do you know of a single case in which the Check Inspectors claim that they are afraid to report to the Lodge when they find the ventilation is insufficient, because they are afraid to report it in the Check Inspector's book? A. I was never at a Lodge at which the matter was reported.
1669. Q. Do you not know that there is a provision in the Act that no promise shall be made or bribe given to a Check Inspector, under a penalty—I refer to Rule 41, section 47? A. I did not know that. I was never at any miners' meeting at which any report by the Check Examiners was given.
1670. Q. Then you never took any interest in it? A. I look upon it as a farce.
1671. Q. Why? A. Very often they are men not qualified for the position. There may be a road that is reported on that will cost a lot of money to put in order; and that may, perhaps, make them disagreeable to the Manager.
1672. Q. Is not the Lodge capable of determining what men are capable of checking the ventilation of a mine? A. Miners are simply working men.
1673. Q. Do they get anything for the work? A. They get paid.
1674. Q. Now, do you know whether they are paid or not? A. I do not know.
1675. Q. Do you say that the members of a Lodge are unfit to choose the men to check the ventilation? A. Yes, because the men are not amongst us. We are not able to examine and report on gases and so on.
1676. Q. As a practical man of twenty-five years' experience, you say that in your opinion you are not intellectually fit to see about the ventilation of a mine? A. Yes; I may pick one man and you may pick another.
1677. Q. There was a ballot? A. Yes; but we differ in opinion. The salary is too small; and there is a lot of liability attached to it—a lot of liability attached to the position.
1678. Q. That is why the examiners take so little interest in it, because they are not paid to examine a mine? A. No, they think it should be in the hands of Government. It should be free from getting the miners into trouble with the management.
1679. Q. Now you told Mr. Lysaght that you had formed some opinion as to the cause of the accident. Did you form that opinion before you went to the end of No. 1 Right;—you have not been up there? A. No; not since the explosion.
1680. Q. What did you form your opinion upon? A. That there was gas lying in these places; they being so far back from the furnace.
1681. Q. In what places? A. In the main tunnel No. 1 (*meaning No. 1 Right Main Level*).
1682. Q. Tell the Commission how the explosion came about? A. When we light gas we see it going backwards and forwards.
1683. Q. Was that what you meant by "floundering about"? A. Yes.
1684. Q. You mean that some gas got lighted? A. In main tunnel No. 1 (*No. 1 Right Main Level*) or in Aitken's place.
1685. Q. You formed that opinion without seeing the place? A. Yes.
1686. Q. Do you think the opinion is of any value? A. You may not think so.
1687. Q. Is that all you have to say about the explosion? A. Yes.
1688. Q. Is that all you know about it? A. Yes.
1689. Q. I suppose you know nothing about watering mines, excepting what information you have picked up yourself; you never read anything on the subject? A. No. We leave the question of watering to more scientific men than we are. We ask the Commission to suggest certain laws which would be best for our protection.
1690. Q. You have lately changed your opinion about the danger of lighting gas—I mean since the explosion? A. Yes.
1691. Q. Since you made a joke of it? A. It was a joke then, but it is no joke now. What we suggest is not much more expense, that is to light the fuse with a wire and not with a lamp.
1692. Q. Did you go with any party to examine the place? A. No.
1693. Q. Did you appoint them or take any part in their appointment? A. No.

Re-examined by Mr. Lysaght:—

1694. Q. Mr. Bruce Smith asked you why you fix upon the top of the heading as the place of the explosion, and you said it was furthest away from the air;—is there any other reason? A. I think it is higher than the other parts of the mine.
1695. Q. Is there any other reason, from anything you were told beforehand? A. No.
1696. Q. Do you know a man named Heron? A. Yes.
1697. Q. Do you know whether he worked in the top heading? A. I do not know whether he worked there or no.
1698. Q. Is there anything that you heard from him that would assist you in coming to a conclusion? A. He told me — (*Interrupted*).
1699. Mr. Wade.] You can call Heron; I object to the evidence.
1700. His Honor.] It is only some question as to the state of the witness' mind.
1701. Mr. Lysaght.] There may be a difficulty in calling Heron, because he has left the district.
1702. Q. What was it Heron said as to the top heading that led you to come to any conclusion? A. Heron told me that the Deputy Dungey told him that if he had gone over the main heading before he would have got his head blown off.

Witness—M. Quinn, 7 January, 1903.

Examined by Mr. Robertson :—

1703. Q. I think you said that the check by the workmen is a farce, one reason being fear of dismissal?
A. Yes.
1704. Q. Are you aware that prior to 1896, when the Act of Parliament was passed, miners had not the power to appoint persons for this duty employed at other mines. The miners grumbled because they could not employ miners at Mount Pleasant, say, to inspect other collieries? A. I am not aware of that.
1705. Q. It is a fact that that was considered a grievance, and as a consequence an alteration was made by which power was given as follows :—“Persons employed at a mine may appoint from time to time two of their number, or any two persons, not being mining agents, who are practical working miners, to inspect the mine.” You see the choice is not limited. So that if these men are not employed at the mine, or any other mine, how can they be in fear of dismissal? A. If they are independent men it would be satisfactory to all concerned.
1706. Q. You said something about a Check Inspector not being competent ;—is not Mr. Ritchie competent? A. But I did not know that he was appointed.
1707. Q. Or Mr. Wynn? A. I did not know about him either.
1708. Q. I think you are ignorant about what is going on, considering you are the President of the Lodge?
A. I have not been President very long. I thought it was a farce.
1709. Q. It need not be a farce so far as dismissal of Inspectors is concerned? A. I am giving you my opinion as to why independent men should be appointed.
1710. Q. Have you not power to appoint independent men? You can appoint any men who can exercise that power? A. I did not understand that. We want the whole thing to be done by Government.

[The Commission, at 4:30 p.m., adjourned until 9:30 the following day.]

THURSDAY, 8 JANUARY, 1903, 9:30 a.m.

[The Commission met at the Court-house, Wollongong.]

Present:—

C. E. R. MURRAY, Esq., D.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER, | D. RITCHIE, Esq., COMMISSIONER.

Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. Atkinson, Chief Inspector of Coal-mines, assisted Mr. Bruce Smith.

Mr. A. A. Lysaght, Solicitor, appeared on behalf of—

- (a) the representatives of deceased miners, wheelers, &c. (victims of the explosion);
- (b) the employees of the Mount Kembla Colliery (miners, wheelers, &c.); and
- (c) the Illawarra Colliery Employees' Association (the Southern Miners' Union).

Mr. C. G. Wade, Barrister-at-Law, instructed by Mr. F. Curtiss, appeared on behalf of the Mount Kembla Coal and Oil Company (Proprietors of Mount Kembla Mine).

Mr. W. Rogers, Manager Mount Kembla Colliery, was also present.

(Mr. J. Garlick, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings)

Mr. CHARLES SMITH was sworn, and examined as under:—

Examination-in-chief by Mr. Lysaght:—

1711. Q. What is your name? A. Charles Smith.
1712. Q. What are you? A. Miner.
1713. Q. Where are you employed? A. Mount Kembla.
1714. Q. How long have you been employed at Mount Kembla? A. I have been there about two years and eight months this time.
1715. Q. And before then? A. I was working there about nine years ago, and worked about nine months that time.
1716. Q. Have you had any other mining experience? A. Oh, yes.
1717. Q. Where? A. In the North of England.
1718. Q. What Colliery? A. Dudley Colliery, Northumberland.
1719. Q. How long? A. I was five years there.
1720. Q. You might state your general mining experience? A. I was five years at Dudley Colliery. I went there in 1870, and I left there and went to the North Riding of Yorkshire, Ironstone Mines, for five years. Then I came to Queensland after.
1721. Q. What mine in Queensland? A. I was working in several coal mines about there, and I was working in the gold mines, too, in Queensland.
1722. Q. Confine yourself to the coal mines—where else? A. I left there; and the next coal mine I worked in was here at Mount Kembla; and then I left Mount Kembla and went to New Zealand, and worked sixteen months in Denison Hill, New Zealand, on the coal there. And I came back here on the coal mines and worked here two years and eight months this time.
1723. Q. And what is the total number of years' experience you have had as a practical miner? A. Well, I will say thirty years. I have been thirty-two years altogether or a little more, but I will say thirty years practically.
1724. Q. Now, were you working in Kembla at the time of the disaster? A. Yes.
1725. Q. What part of the mine were you working in? A. In the 5th Right.
1726. Q. Do you remember the number of the pillar, the bord? A. The bord, yes—94.
1727. Q. Could you indicate that on the plan? A. No. I do not know anything about the plan.
1728. Q. Look, that is the main travelling road there (*indicating*). A. No. 1.
1729. Q. Yes. Here is the 5th Right rope road. What number did you say? A. 94 bord.

1730. *Q.* Smith and Gardener? *A.* Yes, that is the place.
1731. *Q.* It is that one, there (*indicating its position on the Colliery Plan*). What time did you leave work that day, the day of the disaster? *A.* Well, I left it a bit in a hurry as soon as the explosion occurred.
1732. *Q.* Now, you might tell us what you observed concerning the explosion you speak of, and at what time? *A.* As near as I can tell the time, I had a little clock there, and it stopped about a quarter to 2.
1733. *Q.* What was it you observed about that time? *A.* A deafness in the head. I could not hear myself speak. I was trying to speak to my mate, and I could speak to him; but I could not hear myself speaking, not for a while, not for a minute.
1734. *Q.* What happened after that? *A.* I could speak to my mate then; and I told him there must be an explosion. He said, "No, it must be a big fall"; and I said, "No, it cannot be a big fall; I will find out what it is." The first thing we found was Jack Laidlaw and a wheeler.
1735. *Q.* Where was Laidlaw? *A.* Just at his bord, the first bord from the heading, No. 90.
1736. *Q.* Was Laidlaw standing or sitting? *A.* He says to me, "Charlie, I do not know what is up; there is something wrong. There is your wheeler blown to blazes." He meant drifted along the road. Those are the words he said.
1737. *Q.* Meaning lifted along the road? *A.* Yes.
1738. *Q.* What was the name of the wheeler? *A.* Cliff Hammon.
1739. *Q.* Did Laidlaw say anything else to you then? *A.* Yes. He said, "What do you think it is?" "Oh," I said, "an explosion right enough: we must get out of this." He says, "Which way must we go?" I said, "Out to the daylight tunnel, where we are getting our fresh air in." "Well," he says, "How are we going to find that?" I says, "My nose will find the way out to the fresh air any time." So I ran up then the other three bords and fetched the men out, going back towards my place to the No. 94. I was at No. 90 then, and I went back, and I ran up three places and fetched my mate out of my place. He was holding the drill of the boring machine; and I went right up to the place to bring him out. And I went to the next bord, where a man, Skillion, and his son, were working. That was the last place that I could get to handy. I went out then.
1740. *Q.* You led that party out? *A.* Yes. There were two wheelers, Harry Kelly, and a pony, went out with us.
1741. *Q.* Where did you get the pony? *A.* About half way between my place and the wheelers'.
1742. *Q.* With the exception of yourself, do you know whether any of the other men knew the road out? *A.* I do not think there was any of the men knew the way out. They knew which way it went; but they could not tell direct where to go.
1743. *Q.* You knew from things they said and did that they did not know the way out by the daylight tunnel? *A.* Yes.
1744. *Q.* Now, can you tell me in which direction this wheeler had been blown? *A.* He was blown into the 90 bord from the flat: from the First Flat in the 5th Right into 90 bord.
1745. *Q.* Inbye? *A.* Inbye. Up the bord. That is where I fell in with him, just by the bratticing.
1746. Do you know whether Hammon was in charge of a horse? *A.* Yes. He was wheeler to me.
1747. *Q.* Do you know what became of his horse? *A.* Yes. It was blown down on to its side and left there kicking. He wanted to go back for it.
1748. *Mr. Bruce Smith.] Q.* Did you see it; or did he say it was blown? *A.* I did not see it. I did not go back for that.
1749. *Mr. Lysaght.] Q.* You did not actually see the horse? *A.* He told me his horse was blown down. I said "Never mind the horse."
1750. *Mr. Lysaght.]* Perhaps I might suggest to the Commission that Hammon might be called. I did not call him, but it occurs to me he might be able to give evidence.
1751. *His Honor.]* It would appear that he might be able to give some useful evidence.
1752. *Mr. Lysaght.] Q.* Did he get out with you? *A.* Yes. He was all black with dust. That was all that was the matter with him. He was terribly black; he was sick for a week.
1753. *Q.* He told you some things concerning his horse? *A.* He told me his horse and himself were blown up the bord.
1754. *Q.* Now, is there anything else you desire to tell us concerning the disaster—what you observed before you left the pit? Did you observe any smoke? *A.* Oh yes, there was smoke all the way. I had to go from my bord, 94 bord, down the old bord like.
1755. *Q.* When did you first come across smoke? *A.* As soon as ever I found this Laidlaw and the wheeler. As soon as I got to that brattice it was coming against the air. I had good air until I met this smoke coming against the air.
1756. *Mr. Bruce Smith.] Q.* Good air: do you mean in going up to 90 or in coming out? *A.* Going out from 90.
1757. *Mr. Robertson.] Q.* Where did you find Laidlaw and the wheeler? *A.* At 90 bord.
1758. *Q.* What part of it? *A.* I did not go up to his face; but I should say 100 yards from the flat.
1759. *Q.* It is not very much more to the face? *A.* I could not tell you exactly. I do not know what distance they run the bords up. This is the second heading like off the 90 bord where I left them.
1760. *Q.* It is not much more than 100 yards from the flat to the face? *A.* But this is between, well up towards the face, where I was, in this last cross-heading cut off this.
1761. *Mr. Wade.] Q.* Where is the flat?
1762. *Mr. Robertson.]* In the 5th Right.
1763. *Mr. Bruce Smith.]* It is about 180 yards—I have measured it—from the face down to the flat.
1764. *Mr. Lysaght.]* I think, Mr. Robertson, the witness said he got to the second cut-through.
1765. *Q.* Is that so? *A.* The second inbye cut-through. That is the last cut-through up towards the face.
1766. *Mr. Robertson.] Q.* I am rather interested to know; because, as a matter of fact, I found the very same horse alive? *A.* I could not tell to a yard or two what it was, you know. I know it is not far up. I know I drive the bords about 70 yards up; and this is the second one.
1767. *Mr. Lysaght.] Q.* Now, I want you to tell us whether, as far as you know, any smoke or anything else extraordinary came down towards your working place beyond 90, past 91, 92, and 93? *A.* Yes. Just after I could talk I found a terrible dust coming against the air. I met the dust like coming against the air.

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1768. Q. Where did you meet that? A. Just going down to my bord.
1769. Q. Was that before you went to Laidlaw, or after? A. When I was going to Laidlaw.
1770. Q. Then do I understand the first thing you met was dust? A. Yes; a very light dust, though.
1771. Q. And that was coming, I think you said, against the air? A. Yes.
1772. Q. How long after meeting that dust was it that you met the smoke? A. Well, about a minute or so, I suppose; just as I had time to get down to the 90 bord.
1773. Q. Did you observe anything else besides the dust and the smoke? A. No, nothing else.
1774. Q. Did you at any time see any indication of a flame? A. Not at that time; but I had done so before that.
1775. Q. At present I mean concerning the disaster? A. No. I never saw any flame.
1776. Q. Did you after coming out go into the pit again as a rescuer? A. Yes. I did not go far in. I went until I was knocked up. I went three times into the old tunnel.
1777. Q. What is that? A. The travelling road; the old travelling road where we all go in.
1778. Q. Do you mean in the No. 1 Right district or the shaft district? A. It is the entrance for both, where I mean.
1779. Q. How far did you get into the mine? A. The first time I suppose it was 200 or 300 yards. I met a couple of men and fetched them out. I fetched out a man called Prior the next time.
1780. Q. Did you go in after that? A. I went once more until I was done and could not stand any more.
1781. Q. Did you afterwards go into the mine to inspect? A. No. I went into the mine to fetch my tools.
1782. Q. When? A. It was on a Tuesday, I remember. I could not say the day of the month.
1783. Q. How long after the disaster? A. Some eight or nine days, I think.
1784. Q. Which road did you take on that occasion? A. We went down the shaft road to old No. 5, as we termed it; and then we went round to No. 1 District.
1785. Q. Did you go through Powell's Flat? A. No. We had not to touch Powell's Flat there—oh, yes, after we came through No. 5 we came through Powell's Flat.
1786. Q. And down the 4th Left travelling road? A. Yes.
1787. Q. And into your own place across the main No. 1 Right? A. The main heading, yes.
1788. Q. Now, can you tell us anything that you observed anywhere on that occasion as regards the effects of the disaster? Anything that you observed anywhere along any of the roads you travelled? A. Well, at Powell's Flat I found a few dead horses and that like; but there was nothing disturbed much else along there. I went into Powell's Flat in one place to fetch a machine out and tools for a man—I think it was 72 or 73.
1789. Q. Did you observe anything there? A. No: nothing extra there. Nothing disturbed much about there that I saw.
1790. Q. I want you to tell us any indications you saw either on the props or the brattice or the rib-sides of flame having passed in any particular place on this occasion when you went in for your tools? A. I went along from what we call the 80 heading—that is, from Powell's Flat up towards 80. (No. 80 is Hume and Hewlett's working place as marked on the plan.)
1791. Q. Was that in going in? A. Yes. We were not allowed to go to any place until the Deputy took us in. I was following the Deputy in.
1792. Q. Do you mean their working place (Hume and Hewlett's)? A. It is a main road driven up to where they were going to put a rope road some time afterwards.
1793. Mr. Bruce Smith.] Q. Is it not a pillar? A. There is a pillar on the side of it.
1794. Mr. Lysaght.] Q. Do you mean Stafford's going bord? A. Perhaps they might call it the gannon bord.
1795. Q. Do you remember passing Stafford's Flat? A. That is the end of it. Yes, that is Stafford's Flat at the end of this heading as I term it. I worked in the same bord two years ago myself; so I know it very well. I put it up on the jump.
1796. Q. You say that Stafford's Flat is on the end of what you did call a heading? A. Yes; only we did not go to Stafford's Flat; we cut across.
1797. Q. What was it you observed going up there? Where was it? A. I noticed a terrible lot of a sort of sooty stuff knocking about.
1798. Q. Knocking about where? A. On the floor, and the rib side, and everywhere.
1799. Q. I want you to be particular about "everywhere." What about the props? A. Oh, yes. They were all sort of blackened, on one side of them especially.
1800. Q. Which side? Just think carefully? A. Well, I was meeting the clean side as I was going towards the No. 1 heading.
1801. Q. How far up that going bord did you observe these sooty conditions? A. I did not go up there very far. I was crossing that, I mean, to go on towards the No. 1 heading. I kept going on across on the travelling road.
1802. Mr. Wade.] Q. Do you mean you just saw this as you were going across the bord? A. Going across all the bords; and I termed this one 80 because I knew it was 80.
1803. Q. You really crossed more than one bord? A. On this travelling road I noticed—(Interrupted.)
1804. His Honor.] Mr. Lysaght, just get this course clearly from him—as to whether he went along Stafford's bord or just crossed it in one place.
1805. Witness.] I crossed it in one place.
1806. Mr. Lysaght:] Q. When you crossed it, did you get outside Stafford's Flat up the going bord? A. No. We kept on the travelling road.
1807. Q. Then you were never up that bord at all? A. No. We kept on the travelling road from there. I just crossed the 80.
1808. Q. I want you to think carefully now whether you did go up this going bord before you came along the travelling road? A. No. We came along from Powell's Flat right to this heading; and then we crossed this 80 heading to go away towards where my tools were.
1809. Q. So that these indications of soot were only in crossing that flat? A. Yes. I met it from there further on.
1810. Q. How far further on? A. Right away to the No. 1 main heading.
1811. Q. Then do I understand that all the way along the 4th Left Travelling Road you met these conditions of soot on the floor, the rib-sides, and the props? A. Yes. I went into a bord there. I had to get some tools.

1812. *Q.* One minute now: up to the main heading, the No. 1 Right main heading, you say? All the way? *A.* Yes.
1813. *Q.* Now, were the sooty conditions on only one side of the props? *A.* Further up I noticed it on both sides.
1814. *Q.* Where? *A.* I could not tell you. I went into a man called Bunn's place to fetch his tools out—no, Tost it was.
1815. *Q.* Did you go right up to the face? *A.* Yes.
1816. *Mr. Bruce Smith.] Q.* Is that where you found it was black on both sides? *A.* Yes, just round there.
1817. *Mr. Wade.] Q.* The props? *A.* Yes.
1818. *Mr. Lysaght.] Q.* Now, where did you turn in to go up to Tost's and Bunn's place? Where did you turn off the 4th Left travelling road? *A.* I could not tell you exactly which bord, because I was not working up that way.
1819. *Q.* Just look here. Here is Stafford's Flat, where you have come from, along here. That is the 4th Left travelling road. Here is the main No. 1 Right. Now, up here is Tost's and Bunn's working place. I want to know where it was off here that you turned in to go up there? *A.* I think it was two bords before we could get to Bunn's place; because there was a fall there in between. So we had to come along there until we could come to a cut-through. We could not get through for a little bit of a fall.
1820. *Q.* What was the fall? *A.* Just a little bit of a fall of the roof, about a couple of feet thick.
1821. *Mr. Bruce Smith.] Q.* Did he go straight up No. 88?
1822. *Mr. Lysaght.] Q.* No. He said he turned off about two bords before 88.
1823. *Witness.] Q.* I could not say whether it was one or two. I could not recollect the exact spot.
1824. *Mr. Lysaght.] Q.* Could you tell me whether, up to this fall that you met, all the indications of the soot were on the side that you were meeting, or on the side facing the other way? *A.* It seemed to me to be about all alike just there.
1825. *Q.* Now, up to there, on which side was the soot on the top? *A.* At first, in that bord where I got those tools, it seemed all black together there.
1826. *Mr. Wade.] Q.* That is the first time you saw it all black? *A.* Yes.
1827. *Mr. Lysaght.] Q.* As you went up to that bord to get to Tost and Bunn's place, did you see anything up those bords? *A.* Well, I saw a little bit of roof bent down here and there; a little bit bad-looking.
1828. *Q.* Did you see any signs of burning up there, any burnt brattice? *A.* No.
1829. *Q.* Did you see any dust on the props there? *A.* Oh, yes; in that place where we got the tools.
1830. You might tell us exactly what you saw there? *A.* I saw a lot of greyish-looking sort of dust. It looked as if it had been burnt a couple of times, to me.
1831. *Q.* Where was this dust? *A.* On the floor and on the tools. That is how I noticed it so much. It was on the tools.
1832. *Mr. Bruce Smith.] Q.* Up at the end? *A.* Up to the face some of these tools were, and some further back.
1833. *Mr. Lysaght.] Q.* Were the tools lying on the floor? *A.* Some were standing against the rib; and some were lying about.
1834. *Q.* Do I understand that this grey dust was all over the tools? *A.* Yes.
1835. *Q.* Was that grey dust all over the bords too? *A.* Yes. We were looking about for the tools; and it was kicking about wherever we touched.
1836. *Q.* Could you give any indication where that grey dust had come from? Was it from a fall, or where? *A.* No. What I thought was that after the explosion like it settled there. That is the opinion I formed myself.
1837. *Q.* What do you mean by after the explosion? *A.* I know when an explosion occurs the dust has to settle somewhere afterwards.
1838. *Q.* You mean the burnt dust? *A.* Yes.
1839. *Q.* Did you notice whether there was a greater quantity there in that particular place than in any other place? *A.* I saw more there than any place, because I did not go into any further places at all. I came round then into my place. That is where I saw the men.
1840. *Q.* In addition to the dust you saw, was there any other indication of flame having been in that place, as regards the props or brattice, or the roof sides? *A.* I did not notice anything, only the dust, and the brattice lying about.
1841. *Q.* Did you notice whether any of the brattice there was burnt? *A.* No, I did not.
1842. *Q.* Did you notice whether any of it was singed? *A.* I did not notice that. There were three of us with two lights; and we had bad lights.
1843. *Q.* Leaving Tost and Bunn's place, where did you go to after that? *A.* I came down then what we call the back heading, and crossed the main heading, down to the 5th Right, towards my tools then.
1844. *Q.* Do you know where Morris had been working, in No. 89? *A.* I know the spot, but I was never there. I know where it is well.
1845. *Q.* Did you go into that? *A.* No, I did not go in.
1846. *Q.* As you came down the back heading, did you observe anything at all? *A.* Little bits of falls of roof about a foot thick in places.
1847. *Q.* Anything else? *A.* That is all I noticed, besides a bit of dust, as usual, coming along.
1848. *Q.* Grey dust or black dust? *A.* It was blacker coming out that way.
1849. *Q.* When you left the back heading where did you go? Into your own place? *A.* I went round, yes, into that first flat.
1850. *Q.* And then where? *A.* Up to the 90 heading. And then we had to wait while the deputy went up to 90 bord to fetch Laidlaw's tools.
1851. *Q.* Did you notice anything in 90? *A.* Only a little light dust there—not so much dust there.
1852. *Q.* Did you notice any of the brattice there? *A.* There is no brattice, not about there, much.
1853. *Q.* Did you notice any signs of burning or charring of the props? *A.* No.
1854. *Q.* From there where did you go? *A.* Along to my bord then, 94 bord.
1855. *Q.* And from there? *A.* We came back again to the flat with our tools.
1856. *Q.* Was there anything extraordinary in your own bord, No. 94? *A.* There was nothing extraordinary;

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extraordinary; but what I expected—I had a very bad roof there; and I expected to see it hanging badly.

1857. *Q.* You came back to the Flat; then where did you go? *A.* Round the rope road out to the daylight tunnel.

1858. *Q.* Then straight out? *A.* Straight out.

1859. *Q.* Is that all you can tell us concerning indications of either force or burning after the disaster? *A.* Yes, that is all I noticed. That was the only time I was in that way.

1860. *Q.* You do not wish to say anything about any particular thing that you saw? *A.* No. That is all I have to say about it.

1861. *Q.* Did you form any conclusion from what you observed, or from what you knew beforehand, as to the cause of this disaster? *A.* What do you mean?

1862. *Q.* What was the cause, in your opinion, of the explosion? *A.* Gas. That is what I formed.

1863. *Q.* Could you assist the Commission to fix the place where it probably originated? *A.* I think I could find very near.

1164. *Q.* What would you say? *A.* I could not tell exactly.

1865. *Q.* What is your impression? *A.* It is somewhere on the left-hand side of the No. 1 main heading, not far off there, according to what I saw as I was travelling round. I was only round that once.

1866. *Q.* What do you mean by the left-hand side of the main heading? *A.* That is round where I came from that bord.

1867. *His Honor.] Q.* The left-hand side as you come out? *A.* I am speaking of looking in now.

1868. *Q.* The left-hand side as you go up the main heading? *A.* Yes. I am looking inbye now.

1869. *Mr. Lysaght.] Q.* Do you mean towards Aitken's place, or towards Tost and Bunn's?

[Mr. Lysaght explained the position of the various places to the witness on the colliery plan, and the witness indicated the locality in which he thought the explosion originated. This locality Mr. Lysaght described as "between No. 1 main level and two or three bords to the left."]

1870. *Witness.]* I could not say exactly. I noticed it looking black all over the place.

1871. *Mr. Bruce Smith.] Q.* Does he mean near Tost and Bunn's, where he went for the tools? *A.* Somewhere near there, yes.

1872. *Mr. Lysaght.] Q.* You said then that you noticed it getting particularly thick about there? *A.* Yes.

1873. *Q.* What do you mean? What is "it"? *A.* I mean it looked more dusty all over the place all round there.

1874. *Q.* Do you think that there was one big explosion, or more than one explosion? *A.* I think there was only one. I was very frightened of the second one myself; but it did not happen.

1875. *Q.* Do you think that there was one big explosion, or that there were a series of small explosions after the first had started? *A.* I think there was only one explosion, and when it started it went one way and another.

1876. *His Honor.]* He says that the first thing that happened was that he felt himself deaf: but I want to find out whether just before that, instantaneously, he did or did not hear any sound; and, if he did, what sort of sound.

1877. *Mr. Lysaght.] Q.* Before you felt the deafness was there any sound? *A.* No sound before that.

1878. *His Honor.] Q.* You felt yourself deaf; but just before you felt yourself deaf was there something that seemed to explain to you why you became deaf? *A.* Yes.

1879. *Q.* What was that something? *A.* Well, I do not know how I can explain it myself.

1880. *Q.* Put it in the best language you can? *A.* It was like a concussion or something come to my ears: that is all that I noticed.

1881. *Q.* You felt it rather than heard it? *A.* Yes.

1882. *Mr. Lysaght.] Q.* At that time which way were you facing? Were you towards the face or towards the outbye? *A.* I believe I was standing talking to my mate at the time. I would be facing about half inbye looking across my mate.

1883. *Q.* Can you go any nearer than what you have already said as to the position where you think it originated? *A.* No. That is the only place that I noticed. I only came round that way once; and that was my opinion of it.

1884. *Q.* Have you ever been in an explosion besides this one? *A.* Yes, in two small ones.

1885. *Q.* Where? *A.* In England. The Dudley Colliery, Northumberland.

1886. *Q.* What year, or when? *A.* I think it would be in about 1893.

1887. *Q.* Did you observe conditions similar in Kembla to the conditions you observed there? *A.* Yes. That is what made me know what it was when I felt it.

1888. *Q.* And do you know what the Dudley explosion was? *A.* Yes.

1839. *Q.* What? *A.* A gas explosion; because my mate lit it up, so I know how it was caused. It was only a small one. It took my shirt off my back.

1890. *Q.* What was the other explosion? *A.* It was another similar one like, in the same colliery, only on the other seam.

1891. *Q.* When? *A.* About a year after, I suppose; only small; little ones, you know. Two or three men got burnt and died.

1892. *Q.* And was that a gas explosion? *A.* Yes.

1893. *Q.* Now, leaving the disaster, I want you to come to the time you were working in the shaft section. When was that? *A.* I think about two quarters before the explosion like.

1894. *Q.* Where were you working? *A.* In No. 44.

1895. *Q.* Who was your mate? *A.* Alf Prior.

1896. *Q.* Where is he now? *A.* I saw him yesterday morning. He is working at Mount Kembla. I saw him going to work.

1897. *Q.* I want you to tell what it was you observed while working there, if anything, exactly in your own words, fully. *A.* One day after we fired a shot my mate went back; and there was a bit of gas lit up, just a little bit, you know, after firing the shot.

1898. *Q.* I want you to give the details of how the gas lit up? Tell us exactly what took place in detail?

A.