An account of the dreadful explosion in Wallsend Colliery, on the 18th June, 1835, to which is added a list of explosions, inundations, &c.; which have occurred in the Coal Mines of Northumberland and Durham ... : y John Sykes.

AN ACCOUNT

OF THE

DREADFUL EXPLOSION

IN

WALLSEND COLLIERY,

ON THE 18TH JUNE, 1835;

TO WHICH IS ADDED,

A LIST OF EXPLOSIONS, INUNDATIONS, &c.

WHICH HAVE OCCURRED IN THE

Coal Mines of Northumberland and Durham,

MORE COMPLETE THAN ANY HITHERTO PUBLISHED.

WITH NOTES.

BY JOHN SYKES.

DEDICATED BY PERMISSION TO JOHN BUDDLE, Esq.

"The crowd from all sides soon collected to the number of several hundreds,—some crying out for a husband, others for a parent or a son, and all deeply affected with an admixture of horror, anxiety, and grief."

Newcastle upon Tyne:

PRINTED FOR JOHN SYKES,

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TO

JOHN BUDDLE, Esq.,

OF

WALLSEND, NORTHUMBERLAND.

Sir,

I feel much gratified in having the opportunity of placing your name at the commencement of the following account, and although the catastrophe is generally lamented, yet it must be a consolation that the public are perfectly satisfied, by the evidence given on the inquest, that not a shadow of blame can be attached to you. Your great scientific knowledge, together with your well-known philanthropy, particularly to those under your charge, must exonerate your character from the least suspicion of negligence; and for the further satisfaction of the public, I shall make free to quote from your letter of June 28, 1835, your own words:—"As far as my duty has gone, I feel quite confident of having more than fulfilled it. I therefore court enquiry."

I am, Sir,

Your very obliged

And obedient Servant,

John Sykes

Newcastle, 24, *Leazes Crescent*, *July* 11*th*, 1835.

AN ACCOUNT,

&c.

HERE took place, about half-past two o'clock in the afternoon of Thursday the 18th of June, 1835, one of those dreadful explosions of hydrogen gas which have been so lamentably frequent in this neighbourhood, at one of Mr. Russell's collieries at Wallsend, about four miles east of Newcastle, known by the name of the "Church Pit," or "Russell's Old Wallsend," by which one hundred and one men and boys lost their lives, and four others were severely injured.* This is the most disastrous explosion of hydrogen gas upon record in Durham and Northumberland. About two hundred and fifty individuals were employed at this colliery. The hewers commenced working early in the morning, and having finished getting the coal, it was, as is customary, left to be brought to the bottom of the shaft by the young men and boys during the day, which is the reason why so great a proportion of boys were in the pit when the accident took place. The colliery was viewed in the morning by Mr. Atkinson and his son, under-viewers, and it was by them considered perfectly safe and secure in every respect, there being no indications of any extra escape of gas; and at the time of the explosion there were four overmen and deputies down, who had been accustomed to work in the pits for upwards of

* There were in the mine, at the time of the explosion, eleven horses, all of which were killed.

thirty years. These are among the sufferers. The catastrophe was made known to the banksman by a considerable report, accompanied by a rushing of after-damp to the mouth of the shaft, the force of which carried the banksman's hat from his head, and blew it over the pullies. There are other shafts connected with this colliery, in one of which only two men were at work, who said that they felt a slight shock at the time, and soon after a quantity of after-damp. They happily escaped by being drawn up immediately. On the alarm being given, eight men volunteered to go down, in hope of being able to save and bring up some of their companions. After descending to the bottom, however, in attempting to go into the works, they instantly found themselves being suffocated by the foul air: they had the greatest difficulty in regaining the ropes, and were almost insensible before they could be drawn up again.

FRIDAY, JUNE 19.

Twenty-one of the bodies* had been recovered on Friday evening—two men and nineteen boys. Great difficulty was experienced in getting at them from the ruinous state of the workings, caused by the explosion. Many tons of rubbish had to be brought to bank before even this much could be effected.

Between 5 and 6 the same evening, STEPHEN REED, ESQ., Coroner for the district, arrived at Wallsend, and proceeded to view the bodies, which had been taken to their several homes. About nine, he returned to the Colliery Office, where a respectable jury was impanelled, consisting of the following gentlemen:—

ANTHONY EASTERBY, ESQ., FOREMAN,
JOHN WRIGHT, ESQ.,
REV. JOHN ARMSTRONG, CURATE OF WALLSEND,
MR. PATRICK PYE,
MR. WILLIAM JAMIESON,
MR. ROBERT HENRY COWARD,
MR. MATTHEW ELLIOTT,
MR. JOSEPH ATKINSON,
MR. JOSEPH MORDUE,
MR. JOHN HORSLEY,
MR. ROBERT SWANN FOTHERGILL,
MR. JOHN BROUGH,
MR. GEORGE SHANKS,
MR. JOHN FALCUS,
MR. CHARLES WEATHERLEY,
MR. WASHINGTON POTTS.

The CORONER then said, it was his painful duty to call the attention of the jury to the distressing event which occurred yesterday, into the origin of which they were met to inquire. It would be needless for him to dilate upon the circumstances yet known respecting it; for they were already acquainted with them, and it was for them to draw their conclusions, not from what they had as yet heard, but from the evidence. He had performed the painful duty of inspecting the bodies which had been recovered; and the

* These were brought out of the mine by another shaft, where the air was less noxious: some of them were black, shrivelled, and burnt; some were mutilated; but the greater portion having been suffocated by the after damp had the appearance of being in a profound and tranquil sleep.

immediate and most painful duty of the jury would be to do the same, and to visit the dwellings of these poor, bereaved widows, parents, and children. They would then proceed to examine the witnesses; and he had no doubt that when they heard the testimony of the men of science and skill in mining affairs who would appear before them, they would be able to satisfy themselves and the community, but more especially the families of the sufferers, as to the origin of the accident, and thus tend to allay the feelings of those now so much distressed on the loss of friends and relatives. It was impossible to say how their investigation would terminate, but it was their duty to make every inquiry. Accidents in coal-mines had been so frequent, and the loss of life so extensive, that they had become an object of enquiry with the legislature itself; and at that moment a Committee of the House of Commons was engaged in investigating the subject. In the present case, he could not anticipate what extent of evidence they would be called on to go through; though he did not apprehend the inquiry would take up much time, because occurrences of this nature were almost invariably caused by those who suffered from their effects. It was necessary, in the first place, that they should view all the bodies, which they would do either that night or in the morning, when he would come prepared with warrants authorizing the burial of the deceased. He should then adjourn the inquest to a future day; and as their after proceedings would not affect the merits of the case, and as he was himself almost obliged to go some distance during the ensuing week, he left it to the convenience of the jury to fix on what day they would meet in the week following. In the mean time, as a matter of form, they would consider themselves bound in recognizances of 20l. each, to attend at that place on Monday, July 29, at eleven in the forenoon,—suiting their own convenience as to the appointment of any other day of the week.

The jury then determined to view as many of the bodies as they could that night, and proceeded on their melancholy duty.

Monday, June 22.*

The greater number of the bodies having been recovered,† the Coroner determined to hold the inquest on them this evening. The Jury were accordingly assembled, at 4 o'clock in the afternoon, and shortly afterwards proceeded to Wallsend church to view the coffins containing bodies which were in so decomposed a state as to render immediate interment necessary. At this time the village presented a most heart-rending

* To those unacquainted with the arrangements of northern coal mines, it may be necessary to state that the workmen of each colliery form, with their families, a distinct colony. They are provided with cottages, forming long rows, near the works. Amongst the community resident near the mine in question, intelligence of the explosion spread with the utmost rapidity. The distressing scene that ensued no pen can describe. Of the large assemblage collected, there was scarcely an individual but had to mourn the sudden loss of some relative. On the Sunday, great crowds of people repaired to Wallsend to witness the funerals of those whose bodies had been recovered. On the following day, the entire vicinity of the mine presented an appearance indescribably agonizing. In the afternoon, about sixty bodies were conveyed in carts to the parish church, where they were interred. A black pall was, in each instance, thrown over the coffin. In some cases, three were taken from one house. It was impossible to view unmoved, the scenes of distress, lamentation, and woe. The coffins were furnished by the owners of the mine, who also contributed £1, in addition, for the interment of each body.

† The greatest praise is due to the pitmen belonging to the colliery, and to many others from distant parts, for their laudable and humane exertions in descending the mine to recover the bodies of those who had perished. There was no hesitation in any of them—the competition seemed to be which should go down first.

spectacle—the dead being carried to the grave in all directions, and the living mourning over the loss of relatives or friends, in some cases with loud and distressing lamentations. Not a dry eye appeared in the place.

After being absent upwards of an hour, the Jury returned, and proceeded to the commodious school-room attached to the Methodist chapel at Wallsend; but considerable delay took place, in consequence of several of the jurymen being engaged in the burial of the dead. At length the number was complete.

The Coroner then observed to the Jury, that they were now about to enter on a very arduous duty, and it was his particular request that they would pay every possible attention to the evidence, and discharge their duty honestly and impartially. They would bear no favour towards any party, but act under a conviction that the public eye was upon them, and would watch them most particularly during this important inquiry. His motive for adjourning the inquest from the 19th to the 29th instant, was that he hoped by that time the pit would be cleared, and all the unfortunate men have been brought to bank; and that the viewers would have had an opportunity of examining the workings, and thus be able to give some satisfactory information as to the situation where the explosion first took place, and as to its cause, from the indications presented by the mine. He had no idea that such a number of bodies would have been recovered in so short a time; but from the laudable exertions which had been made by the viewers and those who had the direction of the colliery, with assistants, the greater part of the sufferers had been brought to bank. That being the case, he had considered that the sooner the inquest was held the better, and had appointed the present day, as being more convenient to the Jury than waiting a week longer. With respect to the bodies not yet recovered, the Jury need make no further inquiry, and he would grant warrants for their interment when got out of the workings. Yesterday 26 men were brought up, for whose burial he granted warrants immediately. He believed that previously to entering upon the inquiry, Mr Buddle was desirous of making some observations: and he (the Coroner) apprehended that it would be a saving of time, and would materially assist the Jury in understanding the evidence, if Mr Buddle drew their attention to a plan of the workings, and explained the general circumstances of the mine, previously to entering on the examination of the witnesses. Mr Buddle, they all knew, was a man of great experience, and was well qualified to direct their attention to facts which would enable them to make up their minds with greater facility, and also with greater comfort. He thought it unnecessary to detain the Jury by any further remarks at present, and they would now proceed with hearing Mr Buddle's statement and evidence, and then with the other witnesses in succession.

Mr. Buddle then entered into a long and interesting statement of the way in which Wallsend colliery is conducted, and illustrated his description by references to a large plan of the workings, without which it is impossible to convey any exact idea of their nature and extent. He stated, that between 20 and 30 years ago, he devised a plan of ventilating coal mines, by what he called double air courses, which consisted simply in driving a current of air down one shaft, and up another by rarefaction. It required just 14 times the quantity of atmospheric air to be diluted with one of foul air to enable the latter to bear a naked flame without exploding. The Bensham seam* of the Wallsend pit emitted a great quantity of foul air, and of course required the intromission of

* The first attempt made to work the low main seam in the neighbourhood of Newcastle, was at Bensham, about the year 1710. Hence, no doubt, the name the seam has since obtained.

good air to fourteen times the extent. To effect this, the best system of ventilation was required, and had been adopted. The means taken were, to produce rarefaction by furnaces when the air was not sufficiently inflammable to fire at naked flame, and thus carry the adulterated air up one air shaft, by driving a current of atmospheric air down another. Where the emission of gas is so great, that the introduction of a flame would cause instant explosion, as is the case with old workings, currents of air are carried along the face of these workings, by means of what is called the gas or dumb drift; and these currents bear the gas along with them as it oozes out from the front of the coal. Thus the air which is safely accessible to naked lights goes to the furnace, and by rarefaction is carried out of the mine; whilst that which would fire on the introduction of a flame is carried off by a distinct drift, without coming in the way of flame at all. The colliery comprises 4 shafts, one of them double, and extends over an area of 105 acres. Thus 5 pits cover 105 acres, which is only about 20 acres to a pit; and these are ventilated by 3 down-cast and 3 up-cast shafts. Whenever a place is doubtful, the naked light is not permitted to be taken there. There are 4 divisions of the colliery now working, in two of which, those called the pillar divisions, Davy lamps are used; and in the other two, called the whole (or unwrought) coal divisions, the work is carried on with candles. In the latter, the air is so good that candles may be safely used: and when Davy lamps are employed no explosion can take place in the former, but by some sad neglect, or accident, or inadvertence. Should the lamps become heated, this operates as a caution to the men, and they are directed to retire from such places as early as possible. Their art only extended to the taking off the gas by means of drifts or air courses; and all they could do was to make the mine safe in one place for naked lights, and in the other for Davy lamps. No communication can take place between the workmen who use candles and those who work with Davy lamps. They are divided by stoppings, or walls of brick or stone, and are about 100 yards apart. By this method of dividing the works it is hoped that should an accident occur in one division, its consequences may not extend to any of the others: for this can only be done by the stoppings being blown away. There is an immense gasometer which feeds a flame, by means of a pipe, at the C. or village pit, at the rate of 11 hogsheads per minute; and if the fire had reached that magazine, the effect would have been like that of an earthquake. The village of Wallsend might have been destroyed by the explosion. He (Mr. Buddle) knew no more than a child where or how the accident originated. Up to that morning, he had supposed it to have taken place in the east pillar division; but when they had got through the obstruction caused by the blowing away of the brattishes, they found this could not have been the case. The bodies found there had died from suffocation by the after-damp; and had the shaft not been choked up, and the air stopped thereby, it is probable that not over 20 or 30 lives would have been lost. So deliberately had the workmen left this part of the mine, that each boy had his Davy lamp, and one man, who seemed to have driven the lads before him, had brought away 5. This conjecture as to the origin of the fire proving unfounded, he could not conceive where it had commenced. The locks of the gas-drift doors had sometimes been taken off; and God only knew whether something of the kind had taken place on this occasion, and thereby led to the explosion. They could say, almost with certainty, that it had not occurred in any of the divisions where the men were working.

Mr Buddle then, in answer to questions put by the Coroner, said,—I have been employed in Wallsend Colliery about 43 years. The pit had been wrought about 10 or 11 years before that time. I was then under-viewer, under my father. In 1806 I be-

came principal viewer. Since I have known the colliery, the main coal seam, from six to seven feet thick, has been wholly worked; the metal coal seam, three feet thick, very partially worked; and the Bensham seam, which was first opened in 1821, is now in course of working. It is about five feet six inches in thickness, from the roof to the pavement. The depth of the pit where the explosion took place is between 140 and 150 fathoms from the surface. It does not follow that the deeper we go, the greater is the accumulation of hydrogen; as, for instance, in the very deep collieries on the Wear the quantities of gas are very insignificant; but it must be confessed it is the case at Wallsend, and the Bensham seam, which is below the main coal, has always been particularly fiery. The present workings in the Bensham seam have extended over about a hundred acres. The coals are drawn from one pit only, the G pit, which is a double pit, coals being drawn up on both sides of the brattish which divides the shaft. There are 5 ventilating shafts: the atmospheric air goes down 3 and comes up 2; the former are called the down-casts, and the latter the up-casts. The Bensham seam has always been known and considered as a dangerous seam, which required the utmost care in keeping in a working state; and therefore the most approved system has been adopted and pursued in its ventilation. I think these 5 ventilating shafts sufficient for the purpose. They have been found to be so up to the present time; and I firmly believe this accident has not arisen from any defect in the system of ventilation. There is a stone band running through the Bensham seam, exactly 2 feet 10 inches from the roof: this band varies from a mere parting of the coal, about an inch thick, to about 15 inches in thickness, and lies in the form of a wedge from west to east. The men work in different districts, for the purpose of dividing the risk; so that if an explosion should take place in one district, it might not extend to another. The men working in this pit worked in four divisions, two in the pillars and two in the whole coal. One party of men were working full five hundred yards from the G. pit shaft, where the explosion took place. This place was, in my opinion, the most dangerous part of the mine. It was at the extremity of our eastern boundary; and as the coal was wrought and taken away, the roof naturally fell in from pressure, there being no pillars of coal left to support it. Erroneous impressions exist very generally as to the use of timber props, which we knock out when leaving works. They are put up for the temporary convenience of the workmen, to support the thin laminæ or shale which would otherwise fall from the roof. If left in, they would inevitably be crushed to pieces on the coal pillars being worked away. These wastes are not ventilated. Such a waste is called a goaf or void, and a great quantity of foul air is necessarily engendered there. At these situations, a current of air is directed to pass the face or in front of the void, to carry off the gas emitted from it into the gas drift, by which it is discharged into the up-cast shaft, which is two thousand yards from the place where the foulness is generated, without being allowed to come in contact with the flame of the furnace which is used for rarefaction. This furnace is about two thousand yards from the place where the men were working, as above described. Another party were working at a distance of upwards of one thousand yards from the shaft of the G. pit. Both these parties were working in the pillars. A third party were working in the whole coal; that is, where the coal had not been wrought before, at about the same distance as the last from the G. pit shaft; and a fourth party were working at about nine hundred yards from the shaft, in the whole coal also. In all these workings inflammable air exists, more or less, which in the pillar workings is carried off by separate currents of air into the gas drift, whilst the inflammable air from the whole workings is carried off by appropriate currents to the furnaces in the up-cast

shafts. The two pillar divisions were working with Davy lamps; and the whole coal divisions with candles: but if any danger was apprehended in the latter, the Davy lamps were used there also. One of the divisions of pillars is in the vicinity of a division working whole coal: they are upwards of a hundred yards apart, and are effectually separated by a course of substantial air stoppings, by which the air courses are kept separate and independent. If one of the stoppages were removed, no danger would arise from the intermingling of the two currents of air, the atmospheric and the inflammable, inasmuch as the leakage or pressure of air would be into the foul workings; and the man in charge of the atmospheric current would soon miss his air. It is about three weeks since I was down the pit, when I found the system of ventilation in good order in all its details. It is a voluntary part of my duty to go down this pit, and I do so for my own satisfaction only. The daily details of the ventilation and pit-work are committed to Mr. John Atkinson, with his overmen, deputy overmen, wastemen, and other assistants whom he finds necessary for his purpose; and I believe I can say that every man in charge of this colliery has been promoted from merit alone. The viewers go down frequently both by day and night. I was down the pit after the accident on Friday morning, to see what was best to be done to recover the bodies. I went down the village or C. pit. The first body I came to was that of the deputy-overman: he was lying as far in as could be reached with safety. He had not been killed at once, and had got a small distance from his post, which he had evidently been at when the explosion took place. I took his cap off, and not a hair of his head was singed. He had been creeping, and must have died of the after-damp, from suffocation, the explosion having deranged the ventilation. The pit was not then further accessible. As far as I have been able to explore there are no indications to show where the explosion originated; but at present we have every reason to think that it did not take place in any of the workings. Where I found the overman, who was unburnt, a lad was lying within four yards of him who was much burnt. Some, in fact, were burnt, and some not, though lying near each other. If the fire had originated there, they would undoubtedly all have been burnt. The reason of candles being used in working the whole coal is, that it was necessary to work the coal by blasting with gun-powder, which I consider a great safety to us, because it proves that the ventilation is good; it is a test of its pure state. Blasts of gunpowder at all times prove the efficiency of the ventilation. If it were not so, gunpowder would not be used. Up to this day, I thought the explosion must have occurred in the workings eastward of the G. pit shaft; but having got through the rubbish which obstructed the passage to this part of the mine, we find that no fire has been there; and I have no doubt that if the explosion had not choked up the mouth of the shaft, all the men and boys in this part of the workings would have been saved. They appeared to have left their work with deliberation; the boys had their Davys with them, and one man, who had taken time to collect five Davys, had fallen behind the boys, as if he had been in the act of driving them before him, until they met with the fatal obstruction above noticed, which cut them off from all communication with the atmospheric air.*

After Mr. Buddle's examination, the inquest was adjourned till next day, at 12 o'clock.

* Lawson, a deputy-overman, and eight boys, had been working in one of the dangerous parts, situated about five hundred yards from the G. pit shaft; about one hundred and sixty yards from this shaft they were all found dead together. In front of the body of Lawson were six of the boys all lying together; on each side of him was one of the youngest, and near the poor fellow's body were the Davy lamps which the boys had

TUESDAY, JUNE 23.

At the commencement of this day's business, Mr. EASTERBY, the foreman of the jury, observed to the Coroner, that he had never heard any subject so well elucidated as the general mode of working this colliery had been by Mr. Buddle the preceding day. But that gentleman had not been in the pit for three weeks, and what they wanted was to know the condition of the mine as recently before the accident as possible. Now this could be ascertained only from the men whose daily business it was to attend in the colliery and inspect the operations; and he would suggest that these were the men who should be called before the jury.

The Coroner thought this a very proper observation, but must observe, at the same time, that in his opinion Mr. Buddle's evidence would greatly facilitate a proper understanding of the future witnesses.

MR. BUDDLE was then further examined to the following effect:—I have already observed that the Bensham seam, in Wallsend colliery, abounds with inflammable air; and in order that an idea may be formed of the quantity discharged, I shall take, for example, the quantity which is now in a state of combustion at the top of the gas-pipe at the C. pit. The stream of gas issues from a detached portion of the workings of about five acres in area. The quantity, as gauged, issuing from that pipe, is 11 hogsheads per minute; and supposing this volume of gas was suffered to pass through the workings, instead of being discharged at the pipe, it would require from 150 to 160 hogsheads per minute of atmospheric air to dilute it below the firing point, so as to admit of its being safely carried through the fire of a furnace. I am of opinion that the three down-casts now in use are amply sufficient to convey an adequate supply of air for the safe ventilation of the mine; bnt the workings in the broken or pillars are always dangerous, and cannot be worked without the aid of the Davy lamp. About 750 yards from the broken at the east side of the mine, and 250 yards from the G. pit to the west of it, a portion of the mine has been wrought, and there the parts are crept or fallen in. In this place a considerable quantity of foul air exists, and to prevent the workmen having access to these old workings they are built up with strong walls, excepting two doors to allow the wastemen to enter, whose business it is to travel the gas pipe or dumb drift for the purpose of keeping it free and open at all times; which doors are kept constantly locked, excepting when the wastemen have occasion to go into them. On these occasions the wastemen use Davy lamps. In 1821, when the Bensham seam was first opened in this colliery, the dangerous nature of the seam was soon discovered by the fatal accident which took place on the 23rd of October in that year,* which showed the necessity of adopting the most efficient mode of ventilation that could be devised. At that time only one pit was sunk to this seam. The workings were, therefore, suspended until other pits were sunk, until, progressively, five in all were put down to this seam, as already stated, and the system of ventilation thereby brought to its present improved state. The next witness examined was

JOHN ATKINSON, who said he was an under-viewer at Wallsend colliery. Had been

used. The obvious conjecture is, that poor Lawson had been attending to his duty—the explosion in a distant part of the mine had alarmed him, and disdaining to leave his young charge exposed to danger, he had hastily collected the Davy lamps, hurried the older six boys before him through the mine, and taking each of the lesser ones by the hand, had travelled till the after damp put a period to their existence. The brave and humane conduct of this man deserves to be recorded.

* See Sykes's Local Records, vol. 2, page 144.

so for three years and a half. His duty was to see all the workings kept in proper order, and for that purpose he went down the pit nearly every day, and sometimes twice a day. Came up on Thursday morning last, about half-past seven o'clock. At that time, so far as he could discover, every thing was safe, and the currents of air in the pit were free and good. The Bensham seam, particularly in the brokens, contained a great quantity of gas. The brokens could be safely worked with the Davy-lamps, but not otherwise. On Thursday morning last, witness went round all the workings, and found the pit every where in a particularly good working state; it was perfectly safe when he left it. Shortly before the blast took place, which was about half-past two P. M., all the hewers had come up, except six. The number that had thus left the pit might be about 88. The six men who remained had gone in to their work shortly before the others ascended. They were all working in the whole coal, two of them at the north-west district, and the other four about 200 yards distant. These men were working with candles, the mine being there sufficiently ventilated to admit of it with safety. The rolley-way which they went up from the G. pit, when they ascended, proceeded nearly in a direct line to the quarter where they had to work. The rolley-way might always be travelled with a candle. At the face of the boards, where these men were working, the gas sometimes fired at the candle when they were driving their holes to blast the coal, but that was in such small quantities that it was easily *doused* out with a bag kept for the purpose. Although the gas was not soon extinguished, it would not spread to any other part of the workings. In general, the jets of flame were easily put out; but if any difficulty arose in effecting this, a small cannon, kept for the purpose, was fired, and the concussion of the air thus caused had at once the desired effect. As far as they had been able to explore, there was no appearance to cause a belief that the explosion had occurred where these six men were working. Witness visited, on the same morning, the part of the broken where the four hewers were working in the fourth south district of the C. pit, and found all safe. The men had their Davys: the air was not bad there. The pit, in that part, witness considered quite safe. The thickness of the band stone in this broken was between eight and nine inches. The pitmen have to separate the stone from the coal, and are only permitted to send the coal to bank. If there be a certain quantity of stone in the coal, the men are fined from 6d. to 2s. 6d. a-corf, but if an extra quantity, the corf of coals is forfeited altogether. The Davy shows light enough for the men to make the selection, but they cannot do it very expeditiously. Witness never, to his knowledge, since he came to Wallsend colliery, knew the men take the tops off their Davys to procure more light. Was aware of indiscretions of this kind having been committed at other places, to light pipes and for other purposes. Whenever men have been known to take the tops off their lamps, they have been dismissed. The lamps at Wallsend colliery are all locked. About three or four in the morning of Thursday, witness and a wasteman went up the gas-drift from the broken at the north-east part of the mine to the west of the G. pit shaft. It was in a very good state. It would not fire the lamps, neither would it allow of a candle being taken into it. Had frequently known the foul air fire the lamps in the C. pit. They left the drift at the doors, and entered the G. pit shaft. They locked the doors after them. The locks to these doors had been taken off three times, once as many as three in one week. The last occurrence of this kind was about six months ago. Danger was likely to ensue from the doors being thrown open, but nothing material had yet happened, in consequence, that they knew of. Had frequently known the men to smoke in the whole boards, where there was no danger. It would be dangerous

if they were to smoke in the broken quarters, and any man known to have done so would be discharged. Never knew a workman to go into the gas drift,—if any one did so with a pipe, it would explode immediately. None of the men had ever stated to him lately that the mine was dangerous. Knew some of their lamps fire, the day before the accident, in the brokens; but that was a circumstance of not unusual occurrence, and was of little consequence. The Davy lamp was then the protection of the men; it was a warning to them, and if danger was likely to ensue, the men retired. The band of stone in the coal varied from four to twenty inches in thickness. The quantity of powder used in each blast varied according to circumstances, of which the men are the best judges. They blast both above and below the band, the shot in the one case being put in near the roof, and in the other near the base of the seam. The blasting does not render either roof or pavement unsafe.

John Atkinson, jun., an overman at Wallsend colliery, said he had been employed there upwards of three years. His duty was to go down the pit every day, and see that all was right; and if there should be any particular part which he did not see, or did not think necessary to see, to take the report from his deputies. Six overmen and deputies form the establishment. On the morning of the accident, witness went down the pit a little after two. Every thing was then correct; in some parts there was less discharge of gas than there had been at other times, particularly on the morning previous. Witness was not through all the workings, but he went through three out of the four working districts. The reason of his not going through the fourth district was, that his father and one of the wastemen had been there before him. In one part of the mine a more than usual quantity of gas was emitted the day before; and on the morning of the day of the accident, witness took his father and another man to the place, and manœuvred with his Davy lamp to show them in what state the pit then was, observing, at the same time, that it was unusually clean.

The Coroner, who had been obliged to retire twice or thrice, and was evidently labouring under a severe cold, here intimated that he was so sick and ill as to be unable to devote that attention to the evidence which he considered necessary, and with the sanction of the jury he would adjourn the inquest until Thursday at noon, which was accordingly done.

Thursday, June 25.

At about half-past twelve o'clock this day, the inquest was resumed. After the Court had opened, the Coroner requested it to be cleared for a few minutes, as he wished to consult a little with the jury. On the public being re-admitted,—

Mr. Buddle observed to the Coroner and the Jury that gross misrepresentations had got into circulation in the neighbourhood respecting the evidence he had given before them on Tuesday. It was industriously reported in the village, and he understood believed, that he had sworn, of his own knowledge, to the safety of the mine, when he distinctly stated that he could only speak as to the ventilation; that all the means which could be invented had been adopted to cause a free circulation of pure air into the mine; and that the overmen would speak as to the details of its daily working. He further observed, that the greatest consternation had prevailed in the neighbourhood since the circulation of these unjust reports, which he trusted the Coroner and Jury would set right.

The Coroner and the Jury immediately stated, that they had observed nothing in the conduct of Mr. Buddle but what had tended to give the utmost satisfaction to their

minds; that he had shown the greatest anxiety to have the melancholy circumstances connected with the misfortune properly investigated; and that in his evidence he had referred to the ventilation of the mine only.

JOHN ATKINSON, Jun.'s evidence was then continued. He said,—I went to the second north-east district first in the morning, where the men were to begin to work the broken; the hewers would commence about three o'clock, and the number to be employed there would be about 18. My object in being there before the workmen was to ascertain if there was any superabundant discharge of gas, as an extra discharge had taken place the previous day, which had subsided in about half-an-hour. I found the pillars where the men had to work entirely free from gas. The Davy lamps are suspended or placed near to the face of the coal where the hewers are working. Each man has a Davy. When the gas in the interior of the lamps becomes inflamed, it is then prudent to withdraw, and the men are directed forthwith to do so. The gas will not explode from the gauze of the lamps being red-hot; but if it continue in that state, I think it probable an explosion would take place, although I never knew an instance. In that part of the mine I have mentioned, when the props are withdrawn at the broken, to let down the stone, all the coal having been previously taken away, a discharge of gas generally takes place in the last pillar that has been taken off; at this time the men retire a considerable distance back with the lamps, and do not return until the place is clear of gas. If the gas continue in any quantity they are withdrawn altogether. The quarter before alluded to contains an immense quantity of gas, and, as has been before described, is a complete gasometer; in fact, were not the most judicious means used to convey a current of air round the goaf, it would be totally unapproachable. There are various main doors in the course of the current of fresh air, which, if negligently left open, or accidentally injured, the fresh air would not go to the parts where it is required, and the consequence would be, that the workings would be filled with noxious gas, so as to render the place dangerous, and unfit to work in; those main doors are substitutes for stoppings, which are built up permanently with brick; at these places two trap-doors are hung, so that if one of them be displaced or injured, the other may be a protection. The trams go through the trap-doors. I have known one of the doors injured, and sometimes negligently left open. The deputies and myself see the workings always twice a day, so that if any thing is found wrong, it can be remedied. The main doors above described are for ventilating large portions of the mine; the traps are used for admitting fresh air to each board where two men are at work. The main doors have always a boy or an old man stationed at each, for the purpose of opening and closing them. The trap-doors are left open until such time as the hewers in the board proceed to such distance as it becomes necessary for them to have a greater supply of fresh air; the doors are then closed, by which means a circulation takes place to the face of the board, and then a boy is stationed at the door to keep it close, and open it when required. I have known an instance when the trapper or door-keeper has left his station at the door, but, not being long absent, no inconvenience took place from it; on such occasions the delinquents are punished, and, if often repeated, discharged altogether. The men employed are old and infirm, being past hard work, but are quite competent for this duty. The boys vary in age from 7 to 14 years. From my experience, I find that I can put most dependence upon the old men engaged in this work. The younger boys are placed at the least dangerous places. The men and elder boys are placed in situations where more care and attention are required. The old men have

1s. 4d. per day; and the boys from 10d. to 1s. 2d.—at present the men and the older boys are employed about ten days in the fortnight. Were not the greatest care and attention observed, it would not be possible to work the Bensham seam. On the morning of the misfortune, a little before four o'clock, and after the men had commenced working at the broken, I looked into the dumb or gas drift, near to the broken, and did not find there such a quantity of gas as to be inflammable with the Davy lamp. The place where I entered the dumb drift was with the return of the air where there are no doors, but where the state of the broken can be best discovered. I found the air so pure that I was assured the doors were all secure—I mean the doors that enter into the dumb drift, which are generally kept locked. The old workings at the south-west of the G. shaft are continually charged with vast quantities of gas, which is carried off by the dumb drift, and discharged through the dumb furnace up the B. pit shaft; therefore, so long as the B. pit shaft is kept in proper order, this gas cannot escape into the workings. After satisfying myself of the safety of the workings at the 2nd north-east district, and waiting at the bottom of the G. pit to see the boys set to their work at the proper stations, I proceeded to the 2nd north-west district, where the men were working both the whole and the broken coal: these men were divided into two districts; there were eight men at the whole coal, and from 14 to 16 at the broken; the whole and the broken quarters are about 150 yards separate; these two quarters are ventilated from the C. pit. I found the air at the broken perfectly good; from thence there is a great quantity of gas discharged, but the place where the men were working is kept free from the gas by good air, which drives it into the C. pit gas drift. The same observations occur respecting the trap-doors and air-courses at this station, as before described. There is access between this broken quarter and the whole, by the open way by which the coals are taken out; but if any communication took place between the two bodies of men, the nearest road they could go would cause them to travel near two hundred yards. The eight men described as working at the whole coal in this district were stationed two at each board, which are twenty yards from each other. At these boards the men work with candles, which are lighted at the G. shaft, where they enter the pit, and from thence carried to the place of their employment. In proceeding, they go so far up by the side of the gas drift, but not nearer than twenty yards. And if the men go the direct way from the G. pit to their work, at the whole coal before mentioned, they cannot possibly come in contact with the current of gas, so as to be at all dangerous. In taking away the whole coal, the mass is thrown down by blasting with gunpowder. Two or three holes are drilled in the coal from three to four feet deep, to put the charge of gunpowder into. From these holes there is occasionally an escape of gas; but at the place where these 8 men were employed, there is no gas whatever. I have known, since I came to the colliery, of explosions having taken place in the Bensham seam, occasioned by working with candles, through the negligence of the workmen or boys, and men have been burnt, but no lives lost. I have occasionally known the gas explode from the gunpowder when it was discharged, but no accident was caused by it. We allow the men to smoke in the whole coal, but not in the broken. I never knew of a pipe being taken into the quarter where the broken coal is worked. I have never heard of a pipe being lighted at the Davy-lamp in this colliery, nor of the top of a Davy-lamp being taken off in the broken part. When I examine the workings, I use a candle in the whole coal quarters, and a Davy-lamp in the broken ones. The men cannot get out of their way in going to the bottom of the shaft, as they go along railways or rolley-ways.

By the Foreman of the Jury.—It is my daily business to examine the different currents of air both at commencing and leaving the works; and previous to this misfortune, I found all the currents of air in a workable state.

By a Juryman.—We have open oil lamps placed on the rolley way at different stations; and the nearest to the broken coal that any of those lamps is placed, is about 140 yards. The state of the atmosphere above ground has occasionally considerable effect upon the gas and air in the pit. On particular occasions, when the barometer falls, the seam emits a more than usual quantity of gas; and from the like cause the current of air carried through the workings is affected, and becomes less pure. On this happening, I do not think, according to my experience, that there would such a quantity of gas escape from the broken, as to reach the place where the oil lamp is stationed. On the morning of the accident, about 90 hewers went down the pit, the greater number between 2 and 3 o'clock in the morning, and the remainder at four. The deputies had previously been down, some of whom had gone into each board to see if they were safe; and others had examined the broken for the same purpose. The whole of these 90 men, except 6, had come up from about 9 o'clock, according as they had finished their work, until the time the misfortune happened. The men and boys who were lost went down the pit about half-past 4 in the morning. Not one of the men complained to me about the pit being in a bad state. No part of the workings had holed into any other waste. So far as we have yet been able to explore, we have found no appearances to denote where the explosion had originated.

The Coroner, at the conclusion of Mr. Atkinson's examination, said, he had given a straight forward and exceedingly manly evidence, and he was very much satisfied with it.

John Moor, deputy-overman, said he lived at Shiney Row, and had been about 27 years employed down the pit at Wallsend colliery. His duty was to go down the pit before the men descended, to see if it was in a workable state, as far as his particular rounds extended. On the morning of the 18th, he went down as usual, and found the workings as free from gas as at any former period. On that morning there was nothing in the state of the weather to draw his particular attention. He first visited what was called the first west crane, and examined all the boards in that crane. He then proceeded to the broken at the east crane; where his duty terminated. At half-past 9 he left the pit. Did not hear any complaints from the workmen. Before he left the pit, and after he had completed his rounds, he reported to Thos. Simpson, who succeeded him, that the pit was in her usual state. Witness went down the C. pit shortly after the accident to render what assistance he could, but he could not safely proceed more than about 200 yards on account of the after-damp. The doors and stoppings in these 200 yards were blown down. Had not been in the workings since that day.

Edward Cumby, a deputy-overman, said he lived at Carville, and had been employed 15 or 16 months in that capacity. He described his duty to be similar to that of the last witness. He also prepared timber to secure the roof. On the morning of the 18th he went down at half-past 1, and found the pit in a regular safe workable state. Witness proceeded to the far-west part of the workings, and from thence to the far-east part, where his duty ceased. Returned to bank at 8 in the morning. During his morning's work he found occasion to set timber to secure the roof at the brokens, both at the east and west parts of the mine. Since the accident, witness had attended the repairing of the shaft, and conducting things up and down the pit; but had not been further in the workings than 60 yards. None of the men had complained to him of the

state of the pit. Witness and Moor are the only deputies remaining; three other deputies and one overman have been lost.

JOHN BELL, a hewer, living at Wallsend, gave the following evidence:—I have wrought in Wallsend colliery 19 years gone April last. Was last down on the day of the accident. Went down about a quarter past 2 in the morning, and returned to bank a little before 11. I was working in the broken at the east part of the colliery.—When I went to work in the morning, I did not find the pit at the broken so bad as I did the day before. I used a Davy lamp. There were other 5 men working at the same place, who all had Davy lamps. The day before the misfortune, the pit was in so dangerous a state that we were obliged to come away. We extinguished our Davy-lamps before leaving, except one man, who reduced his light as small as possible, so as to allow us to find our clothes. Edw. Cumby, an overman, previously left us to go to some men, who were working on the other side of the mother-gate, to warn them.—There are separation doors between the foul air and the fresh; one of these doors may be about 60 yards from the headway where we go in to work, and the other door about 20 yards further on. The entire distance from where we were working to the outer door was about 136 yards. Nearly 2½ yards from the outer door there is an oil lamp. I considered this lamp to be placed too near the separation doors, and desired one of the boys who kept the lamps, and who is lost, to shift it further out-bye, as I was apprehensive that if any fall took place where we were working, which is a usual occurrence, the gas would be forced with such violence against the separation doors as to force itself through them, and explode at the lamp. These doors were quite in order, except that they did not sufficiently fall to. Since I went into that part to work, I never considered the door next the broken to have a sufficient fall. Was never afraid till the 17th, when a fall or crush occurred. Never mentioned to any of the overmen that I had apprehensions of the safety of the inner door, or that the lamp was too near the outermost door. On the 18th, when I went to work, the lamp I had complained of before was still in the same situation. It was not burning as I went to work, but on returning, I found it burning; and on passing the boy who had charge of the lamp, I repeated that it ought not to be there. I have not been down since, but from what I have heard, I have reason to believe that the pit did not fire at this place. I saw the overman, John Atkinson, at the place where I was working on the morning of the 17th, having sent for him in consequence of apprehensions of the stone coming down. The roof bearing heavily upon the props, it caused the bottom to lift, and a quantity of gas escaped from it. On the 17th, the gas that came away was so overpowering that we had to extinguish our Davys, as before mentioned. On the overman arriving, I pointed out to him the situation of the stone, and he said if she came heavier on the props, meaning that if the stone was likely to fall, we were to take up the plates. About 4 or 5 hours after this, the stone did fall, and the consequence was, that the gas was forced out to a great distance from the broken wall. The lamps then became red hot, and we extinguished them as soon as possible, excepting the lamp before named; and we left immediately. Cumby, the deputy, was present when the stone fell, and left, as before stated. to lay the other men off. The men who were working with me on the 17th were Charles Swan and Matthew Buddle, on the west side, and on the east side were, Thos. Rutherford, Thos. Wilkinson, and Jacob Maddison. On the succeeding day, this particular place was in a much more workable state, otherwise we could not have gone into it. There was a very partial fall of stone that morning, but it did not prevent us continuing our work. We left work a quarter before 11 o'clock in the

forenoon, and I cannot say the pit was then in a safe state. This was mentioned amongst the men; and Joseph Lawson, who was a deputy, and a very cautious man, I warned to be cautious. On the 18th, we left work not on account of the danger, but because our shift was finished. At the same time, I considered it was not safe. The whole of the lamps were on fire that day. [Here witness produced his lamp, and that of Matthew Buddle, but though they appeared to have been subjected to an intense heat, they were in no way injured, or rendered in the least unfit for use.]

Thomas Rutherford, another hewer, said, I have worked at Wallsend colliery for about twenty years. Was working near to the last witness on the 17th and 18th inst. I can corroborate what John Bell says happened on the 17th, having heard the evidence he has given. On the 18th, I went down about two o'clock in the morning, and found things better than I expected to find them. The pit was in a more workable state at that situation than it was the day before, in consequence of the fall on the 17th; the foulness appeared to have subsided. There was a trifling fall on the 18th, but it was at some distance from us. These falls frequently take place at the old grooves, and no person minds them, unless they fall in the air courses. I never observed my lamp fire that day; it was warm, and I found myself very warm all the day. I was working within ten yards of the last witness. In the range of our working we may approach within six or eight yards of each other. We can hear each other talk, and when we are so near, can see each other if we look round. Bell, Buddle, and Swan got finished before we did; Buddle came to me before he was done, and said his lamp had fired. I stopped and finished my work, and when I left I told the boys to be careful when filling the coals, or they might get themselves burnt. I got to bank about twelve. The boys, of whom several are dead, would have to remain about five hours after we have left, to put the coals. Bell and his companions might leave their work about an hour and a half before me. The boys are all furnished with Davy lamps at the brokens. They are superintended in their work by the deputy and back-overmen; these overmen are not stationary, but go about the pit, and continue there till the boys are done. When the Davy lamps first came into use, I knew an instance of the top being taking off by a boy; but I have not heard of any thing of the kind for several years. Locks have been placed on the lamps to prevent the tops being taken off. Those I have seen lately have all locks. I understood that the explosion took place a little before two in the afternoon. The pit, in the place where I was working, was in as good a state as when I went down in the morning. I never found the pit in so bad a state as she was after the fall on the 17th.—The Coroner having, when done examining each workman, invited the bye-standers to ask any question which suggested itself to them,

Benjamin Pyle, a pitman, asked the witness how he could say he did not hear some of the men talk of the pit being in a dangerous state, when Buddle came to him, whilst he was working, and told him that his Davy had fired? Rutherford replied that Buddle did say his lamp had fired; but he did not appear to have considered Buddle's statement as an indication of danger.

Charles Swan, another hewer, who had worked at Wallsend colliery fourteen years, and had worked in the Bensham seam about four years, said he always considered it a dangerous seam, from the great quantity of foul air found in it. Several small explosions take place, but they are not considered dangerous. On the 18th of June, he was working in the brokens on the east side of the colliery. When he first commenced work, he placed his Davy near the roof, when it immediately fired. Witness then took the flame down, and cautioned the other men to be careful with theirs. After he had

worked about an hour he put the lamp near the same place, and it fired again. His lamp was afterwards accidentally extinguished, and he sent it by one of the putters to get it relighted and examined by the boy who had the charge of the lamps. When witness left his place of working, he did not consider the pit safe there; foul air was coming off the grooves on the north side. Left about half-past ten in the forenoon. Told Simpson, the back-overman, to caution the boys to be careful how they used their Davys in the place where he had been working. The young man who had the chief charge of the Davys did not come near them either on the 17th or 18th. The boy under him, Thomas Elrington, was about thirteen years of age. They sent in a fresh Davy in the course of five minutes. Did not complain to Mr. Atkinson on the 18th, that his lamp had fired. Never complained of the dangerous state of the mine. So far as he could judge, both the main-doors and trap-doors were correct. They never, in the broken workings, took off the tops of their Davys to get a better light.

George Jude, a hewer, had worked for five days before the accident in the 2nd north-west district. John Bell worked with him; they worked with candles. The pit was well ventilated where they were. When they blasted the coal there were no signs of any gas. There are no old wastes near to where they were working. Fourteen years ago, an explosion took place in the Bensham seam, and killed 52 men; but since that period the workings had been better ventilated.

Alexander Haxon, a wasteman, had been employed about Wallsend colliery about 23 years. He said—My duty is to keep the air-ways good, and I am constantly down the pit seven hours a day. The Bensham seam is a dangerous pit, more so than any in this neighbourhood, and requires the utmost attention to keep her in a workable state. On the 18th of June, Mr John Atkinson, the under-viewer, and myself, travelled all round the wastes; and the air appeared to be as good as at any time I recollect; I went down the pit before two o'clock on the morning of that day, and came up about six hours after. All the main-doors and traps were correct. I have heard men who were working in the north-west quarter near the C. pit say that their Davys were rather fiery, but not at all dangerously so. Went through the gas drift on the morning of the 18th, and found the air as good as usual. Have been in all parts of the pit since the accident, as far as could be got; but have not yet discovered any appearance that can lead us to a conjecture where the explosion commenced. I have got no further than the crane at the far east of the pit. Much damage has been done in the first west-north district and far west. The doors, traps, and stoppings have been blown away. We have not yet been able to get to the dumb drift.

George Watkin, a hewer, in the whole coal at the first west crane near the G. pit said, that they had frequently too much air in that part of the workings: it swealed the candles. He had sometimes to request the deputies to take the brattish down, and thus slacken the current of air. Witness had himself, in the absence of the overmen, taken the brattish away.

James Heppell has the inspection of the Davy-lamps at Wallsend colliery. Never observed that the lamps had sustained injury, by widening the apertures of the wire. Has never known the locks interfered with. His duty is to clean the lamps, supply them with fresh cotton and oil, and lock them. Charles Swan was employed at the broken at the east crane. It was no part of witness's duty to visit that part. Witness had two boys under him for the purpose of fetching the lamps from the broken, which they retrim, light, and send back. Both these boys were lost.

Jacob Maddison, a hewer, has worked in the Bensham seam for several years. She was more dangerous than the Main Seam; but witness had no apprehension in working in the mine. Was working with John Bell and four other men in the broken on the 17th and 18th of June. [The witness here corroborated the other witnesses as to the state of the workings on the 17th, and proceeded.] On the 18th, he was working back to back with John Bell, and witness's Davy did not fire, nor did he see any other lamp fire. He observed to his partner, when his shift came round, "the pit has behaved very canny to-day;" and thought he had never wrought a pleasanter day's work. The pit was in a very workable state. Charles Swan was working between 10 and 12 yards of witness. Has seen the mine in as bad a state as it was on the 17th, on one or two other occasions; it was caused in each instance by a fall. In one instance the Davy-lamps fired.

John Dawson lives at Swan-row. Is a hewer, and has been employed at the colliery for 30 years. Has worked in the Bensham seam 7 or 8 years. Considers it to be a very dangerous seam. Has known partial explosions of gas take place there, but no person injured, except on occasion of the two heavy misfortunes. Has known, in the east narrow boards where the coal is now working, the men be provided with wet cloths round a stick, to douse out the fire. Remembers, on the second day after he went into the east judds to work, seeing the lamps in such a state that he thought they should not be continued there. Went and sought the deputy, and told him. The deputy instantly appointed a trapper to a door, which made it safer to work by the admission of fresh air.

This witness, it was understood, concluded the evidence which it was deemed necessary to call as to the state of the mine, but an anxiety was evinced, by the Coroner and Jury, to visit those of the survivors who were competent to give their testimony. It was therefore arranged that the foreman, in company with some other gentlemen of the Jury, should visit the houses of the poor people, and report the result to the Coroner and Jurors on Monday. The inquest was again adjourned, at half-past eleven o'clock at night, to Monday.

Monday, June 29.

The inquest was resumed this day, at 12 o'clock, when the following evidence was adduced:—

Mr James M'Intyre, Surgeon, said,—I attend this colliery as a surgeon. I have examined several of the bodies which have been recovered since the accident. Some of them were very severely scorched; others had no marks upon them. The death of the latter had been caused by suffocation, from inhaling carbonic acid gas; others, I understand, had their bodies much mutilated; 3 men and a boy* were brought up alive on Saturday the 20th inst., at about 10 o'clock at night. Two of them I consider safe; the other two are yet in a very weak state, but I have hopes of their recovery. One of the latter had a leg amputated above the knee. They are all too weak to be removed, but two of them (Brown and Morallee) are competent to give evidence.

* John Reed, rolley-way man; Robert Morallee, door-keeper, 70 years of age; John Brown, hewer; and Martin Delap, or Middleton, a boy, who had been miraculously preserved, were brought out of the mine at ten o'clock on Saturday night. They were all more or less burnt, and the intellects of two of them appeared to be deranged. It was deemed necessary to amputate one of Reed's legs. These poor fellows had been under ground, at a depth of one hundred and forty-five fathoms, for sixty-five hours—fifty-six hours of which they had literally been entombed alive. They did not appear to have suffered from hunger.

The Foreman of the Jury remarked, that they had visited the men and the boy whose lives had been providentially spared, and Mr. M'Intyre's account of their state was perfectly correct. Two of them were capable of giving evidence; but Reed and Middleton were in great danger.

The Coroner asked if they could give any satisfactory account of the cause of the misfortune?

Mr. Easterby said, No; they had given an opinion of where the fire came from; but they could say nothing as to its origin.—[The two next witnesses were examined at the suggestion of these men].

Robert Giles, said,—I am a hewer at Wallsend Colliery. I was down the pit on the 18th, working in the Bensham seam. I was working at the broken in the north-west quarter. I could find no fault while I was down the mine. The air was as good as usual; it is commonly warm. There was no fall in that quarter. I left the pit about 10 in the forenoon, when it was in its usual state. My lamp did not fire that morning. I had only been at work in this colliery for 12 days. My lamp never did fire while working where I was on the morning of the accident. I never heard of any of the other men's lamps firing in that quarter.

Robert Usher deposed,—I am a hewer, and live at Wallsend. I have worked in the Bensham seam for these 14 years past. On the 18th June, I was working at the broken in the west district. I felt no difference in the ventilation; the air appeared just as usual. There was no fall where I worked. My lamp did not fire. For two months past, I had been working at that place, and my lamp did not fire at any time. I cannot form any idea where the fire originated.

John Atkinson, Sen. re-examined.—The furnace for ventilating the colliery is about 23 yards from the shaft bottom, at the A. and B. pits. The gas is conveyed up the shaft about 4 fathoms above the furnace; it cannot come in contact with the flame. I have never known the gas to fire at the furnace at the B. pit of Wallsend colliery. Two years and a half ago, a man was killed by an explosion of gas, at the C. pit. It was at the furnace where it happened; and the gas, in all probability, fired there. This furnace has not been altered. It has not been burning since that time. A new furnace has been built at the B. pit, and it was shifted further back than where the old one stood, as a matter of precaution, and to be farther out of the way of the gas. We have been employed in heightening the drift from the G. pit in a line with the A. pit, at about 460 yards from the G. pit. The dumb drift was about 20 yards from the part of the drift we were engaged in heightening on the day of this accident, and it runs nearly parallel with the stone drift. There were two men found at the place where the drift was being heightened; they had been employed in doing so. There was no oil lamp nearer that place than 140 yards. The men working there had candles. The stones that were got from the roof were stowed in a double head-way about 40 yards from the place where they were working. The men used gunpowder to blast the stone from the roof of the rolley-way. There were a main-door and a tram-way main-door in this vicinity; one door would be about 15 yards from the place where they were blasting with powder, and the other door about 10 yards further on. The nearest of those doors would be about 70 yards off the old workings or waste, which are filled with gas, and which, as Mr. Buddle described, are complete gasometers. In firing the blast, it is not likely that the doors would be thrown open by the concussion; but if they were left open, there would be danger from blasting with gunpowder. I cannot say whether these doors where open or shut. I saw the men working at the

rolley-way on the Tuesday morning, two days before. I did not consider the work they were engaged in dangerous, but I cautioned them about the doors. I have been as far as where the men who were working at the drift were found, but could get no further from the after-damp. One of these men was found much burnt; but I did not see any other indication of fire near the place. If the explosion originated there, there would not be any marks of it where the men were found, but in all probability some marks might have been discovered in the dumb drift, 20 yards off. We have not been able to explore the dumb drift since. The man that was found burnt was severely so. The other man, his companion in heightening the roof, was not burnt; he had been killed by the after-damp. The men might be 2 yards apart. They were found about 40 yards from the place where they ought to have been working. The explosion has blown the stoppings out eastward of the place where the work at the rolley-way was going on. The stoppings are built of brick, 9 inches thick, and are calculated to afford considerable resistance. All the stoppings in and around this particular part have either been wholly or partially thrown down. The door above described, between the rolley-way and the gas drift, were not locked, to the best of my belief. There were snecks upon them. The way through these doors into the gas or dumb drift I consider to be very dangerous, there being vast quantities of gas in the old workings in that vicinity. When travelling that district with my Davy, I have never seen fire; but, in the adjoining district, I have known the gas fire frequently at the lamp. In the latter district, which is the first south-west, the gas is constantly feeding into the dumb drift; and the gas is also constantly feeding into the dumb drift from the second south-west district, so as to render these places, near where the men work, in the rolley-way before described, exceedingly dangerous. The men were found about 15 yards from the doors before-mentioned. I do not know that they deposited their tools within these doors; but I know that they had orders not to go near them. I gave them orders myself. I consider it would be dangerous if those doors were left open: for it is possible that, if they were open, the gas might fire at the candles used by the men who were working in the rolley-way. Robert Morallee, one of the men saved, was keeping a trap-door about 60 yards west of the G. pit shaft.—The place where the two men, above-mentioned, were working at the rolley-way, was from 330 to 350 yards to the west of that door. [This man Morallee, who was unable to attend and give evidence in court, described to the Rev. John Armstrong and Mr. Easterby, two of the jurors, that the first sensation he experienced at the time the explosion took place, was a ringing in his ears, and then he heard what he described as a booming noise proceeding from the west; immediately afterwards, he felt the door he was attending thrown against him. At this time he was standing at the east side of the door. He was deprived of sensation, and when he recovered, he found what he thought to be the door lying upon him. The above jurymen further examined John Middleton, the boy who was saved, and who was also too ill to attend the inquest, being very severely burnt. The boy was a rolley-driver, and described himself as having been employed on the west rolley-way; and the first indication he had of something having gone wrong, was a noise at the trap-doors to the west. This boy's account appeared to coincide with Morallee's, but he was exceedingly ill when the jurymen saw him, and unable to undergo any particular examination.]

John Atkinson, jun. re-examined.—I was in the workings in the second north-east district, and the second north-west district, on the morning of the 18th, when the accident occurred. There were two men working at the rolley-way, increasing the

height, to admit of horses. These ways are generally made about 6 feet 4 inches in height. I saw these men engaged in their work about a week or 10 days before the accident; but it is out of my district, and I did not see them on the day when I was last down. My father generally took these men under his charge. The furnace-men travel this rolley-way to work.

ALEXANDER HAXON re-examined.—I was down in the workings of the Bensham seam at half-past eight o'clock on the morning of the 18th June. Near where the two men were working at the rolley-way, there were two doors into the dumb or gas drift. I saw those doors on the 17th, the morning before. I went through the doors into the dumb drift to examine the course of the air. These doors were never locked. I have known the men, who worked in the rolley-way, deposit their working-gear between the doors of the first south-west district, which, as has been before described by Mr. Atkinson, sen., is the most dangerous place in all the workings. I have known this twice done,—the last time about 6 months ago. I told them to put no more gear there, which they promised to observe, and I put locks on those doors. I was through the doors on the 18th; I found them locked, and left them so after passing through. The reason of those two doors near to the place where the men were working at the rolley-way not having been locked is, they were considered so far out of the way, both of the boys and men, that there was no occasion for keeping them locked. I cannot say that the men left their gear between these two doors last spoken of, but I think it looks very like it. Had I found the men leaving their gear at this place, I would have brought them before Mr. Buddle, because I considered it extremely dangerous.

THOMAS KENNEDY said,—I am a furnace-keeper in Wallsend colliery, where I have been employed nearly 40 years. My duty is to attend to the furnace at the B. pit. It is at the bottom of the shaft. On the 18th June, I went down the G. pit to work: from the bottom of this shaft to the place where my duty was at the furnace, the distance might be about three-quarters of a mile. I went along the drift which proceeds westward from the G. pit to the furnace. On my road, I passed the place where two men were working at the roof of the drift, increasing the height. These men were lighted at their work by candles. Never saw any men at this place with pipes, smoking. At the time that the explosion took place, I was convinced something wrong had happened from the current of air that was forced upon us. After remaining about a quarter of an hour, my companion and I found it prudent to leave our work, the after-damp coming heavily upon us; we did not return the way we came, for I persuaded my companion to try the C. pit towards the north, as I thought it would be safer to get to the colliery that was not working, than to that which was. We found very great difficulty in reaching the C. pit, but ultimately succeeded in making our escape.

JOHN PATTERSON said,—I am a banksman, and live at Wallsend. I have been employed above 40 years in that capacity at this colliery. My station was at the G. pit. On Thursday the 18th of June, about two o'clock in the afternoon, after I had landed the undermost corf that had been drawn up, and thrown the empty one into the shaft, and before I had reached the middle corf, which was suspended at the mouth of the pit, the blast came up the shaft. To explain this, it is necessary to state that there are three corves brought up by the chain together, one above the other. The violence of the blast blew the empty corf out of the shaft to bank again. The blast also took my hat off my head, and blew it over the pulley, about 26 feet from the ground. The shaft of the G. pit was choked with rubbish, so that all access to the pit was closed up

down this shaft. When I turned, in the course of a few minutes, and looked towards the C. pit, near Wallsend village, I saw the smoke coming out of it. No other men were saved at the moment of the explosion but the two furnace-men who got out at the C. pit.

The Coroner then addressed the jury to the following effect:—Mr. Foreman and Gentlemen of the Jury,—We have at length concluded a long, painful, and fatiguing inquiry into the circumstances attending this distressing accident, and, I trust, have bestowed upon it that patient investigation, care, and attention, so serious a calamity demanded at our hands. If this is satisfactory to the country, especially the bereaved relatives and friends of the unfortunate people who have suffered by this calamity, you cannot but be considered as having fully discharged yourselves of your duty, and will retire from this room acquitted, at least in your own minds, of any negligence or want of care in the endeavour to develope the immediate cause of this frightful catastrophe.

Perhaps, gentlemen, with the exception of the Heaton accident, there never occurred at any former period a misfortune that excited so much public interest as the lamentable case now before you; and I may not be wrong in saying, that your decision is looked for with intense anxiety by all classes, from the highest to the lowest stations of society, throughout the kingdom.

At the present period, this investigation may not be without its consequences in an inquiry that is now making, by a parliamentary committee, into the nature and cause of those frequent colliery accidents in the mining districts, probably with a view to some legislative enactment for the better protection of a numerous and valuable body of men engaged in this dangerous occupation.

You are now about to perform the last and most momentous part of your duty, that of pronouncing a verdict on the case before you, grounded on the evidence that has been obtained. It will require, and I have no doubt will obtain, your dispassionate and most serious attention, which will enable you to arrive at such a conclusion as may be satisfactory to every one.

Gentlemen,—Before calling your attention to the evidence, I feel myself called upon to make some few observations, for which I must bespeak your indulgence. The examinations taken in this inquisition are of considerable length; yet as the facts they elicit chiefly relate to the system pursued in ventilating and working the mine, with a detail of the men's daily duty in it, there are no circumstances in the evidence to create any difficulty or doubt that I am at present aware of in the nature of your verdict, or render it necessary for me to detain you by minutely reading over the whole of that evidence. Nevertheless, I am ready to go through the whole of it, if you so require. It will be sufficient, I trust, to draw your attention to the general bearing of the testimony that has come before you.

Gentlemen, the first witness you examined was Mr Buddle, whose long practical knowledge, his scientific researches connected with mining subjects, his unwearied and unrelaxing attention to the arduous duties of the responsible charge intrusted to him, have justly placed him at the head of his profession. He has laid before you, assisted with plans and sections of the Bensham seam of Wallsend colliery, a very candid, clear, and elaborate explanation of the system adopted in working the coals in that mine; and it would be doing injustice to that gentleman, if I did not here declare it to be my conviction that his greatest anxiety has been to promote, by all the means and information in his power, a full, unconcealed, and scrutinizing inquiry into the unfortunate cause of this most awful and distressing event.

Gentlemen, as in the course of this investigation it has been adverted to, I will go back as far as the lamentable accident of a similar nature which happened in the workings of this identical seam 14 years ago, which must be in all your recollections; and though it is not connected with the present case, yet it will be the means of showing the nature of the difficulties that have had to be contended with at this colliery, and to what extent science and care have for so many years successfully averted the dreadful calamity of an explosion, which comes too soon however long delayed.

Gentlemen, in the year 1821, an explosion of gas took place in the Bensham seam of this pit by which 52 lives were lost. This accident first discovered the dangerous nature of the seam, and called into exertion the best energies of those who had the charge of the colliery to adopt the most approved measures that science and experience could devise to procure a fuller and better ventilation, as an assurance of safety for the workmen employed at this dangerous pit. And until other shafts were sunk, at a great expense to the proprietors, the working of the colliery was suspended. Progressively five pits or shafts have been completed, by which the mine obtained those currents of fresh air from the surface that, in the judgment of practical men, were sufficient to guarantee the future progress of it with safety to the workmen; and as new and better plans have been discovered for ventilation they have successively been adopted. It has with great candour been admitted by Mr Buddle and the other witnesses who have been examined, that notwithstanding all the precautions which human knowledge and ingenuity could adopt, the Bensham seam has still continued a very hazardous one to work; and that nothing but the greatest care, attention, and watchfulness could secure it from accident. That such care and attention have unvariedly been adhered to, the fact of 14 years' safety sufficiently proves; and when you take into consideration the enormous quantity of hydrogen gas which is daily withdrawn from the pit, to the extent of 15,840 hogsheads in the 24 hours, you may then form some idea of the skill and exertions which have been used to expel from the workings this dangerous enemy to human life, and supply the pit with a purer and more wholesome atmosphere.

Gentlemen, the viewers, deputies, overmen, and hewers, all agree in their testimony that every care and caution have been studiously attended to. Not a single act has been proved to throw blame upon any one; nor yet has it been ascertained, by the most careful inspection, how or by what means the gas has come in contact with flame so as to produce the explosion that has occurred. In the morning the accident took place, it has been shown that the gas drift was carefully examined, and every door and trap found in perfect order, and in its proper place. The ventilation was then perfectly good and free. It has been proved, that the fall of coal in the broken at the east quarter of the colliery, when an eruption of gas took place the day before the explosion, was not attended with any serious consequences; and that on the morning of the following day the workings of that place had again obtained as good a supply of air as usual. One of the men who worked at this board, and who left the colliery a few hours previous to the accident, states it as his belief that the blast did not originate at that particular spot; and this is the only situation in the workings where it is proved that any eruption (more than usual) had taken place. No want of care in the Davy, or other lights or lamps, is made out; nor can it be shown that the use of pipes in those parts of the mine where the air was not good could lead to the misfortune. It would be well, however, if the viewers put a prohibition upon pipes being used at all in any part of the mine whatever. Some few men were in the pit hewing in the whole coal

quarter, which, with the overmen and boys who remained down to convey the coals to the shaft, were all who were in the pit when the explosion took place, and, with the exception of four, fell the victims of this dreadful accident.

Gentlemen, with some or other of those unfortunate people it may have originated; but how, in all probability, will remain a mystery for ever, and defy the utmost stretch of human ingenuity to explain, as in all cases of this nature, the object by whose instrumentality the misfortune is produced, is the first victim who perishes. Perhaps this awful visitation could never have happened at a time when the consequences attending so great a waste of life, could have been less serious and distressing to the surviving friends. A small portion of men who had families depending upon them were down the pit; nor could there have been a class of sufferers, so suddenly removed, better fitted for being called into another state of being, than those who have suffered, the most of them being children, having little to answer for. But silent and deep as may be the moans over the desolate hearth, consolation at this trying moment will not be withheld, and the active sympathies of a generous public will respond with the best feelings of our nature to the distress of the lone widow and bereaved parent.

Gentlemen, this unhappy occurrence which has taken place, might any day, any instant of time, for these last 14 years past, have happened; and can it therefore be said that Providence has been unwatchful of the lives of the numerous individuals who have gained their bread in this perilous employment? For reasons of infinite wisdom, inscrutable to the human mind, it has been suffered to take place. The fiat went forth, and 100 human beings have instantly been swept away from the face of the earth. But are we to suppose this awful visitation will pass away without any ultimate benefit? May it not be the means of leading to investigation in the highest quarters. Men of science and learning will devote their thoughts, their energies to the inquiry; and who dare deny that the same Providence that so long arrested, and has now willed the deplorable event, may direct some superior intelligence, whose gigantic mind may successfully grapple with the latent foe, and generations yet unborn look back with gratitude to the cause of future protection. Thus good may spring out of evil.

Gentlemen,—There has nothing come before you in these examinations to warrant any other conclusion than that the unfortunate people have come to their deaths from an accidental explosion of hydrogen gas. But how, or by what means the same has been occasioned, no evidence appears. But in coming to this verdict, two other inquiries suggest themselves, upon which, it appears to me, your minds should be satisfied; and they are of great importance to the parties most interested in this colliery. The result of these inquiries will either allow your verdict to go forth unfettered with any observation of a painful nature, or justify you in the duty you have to perform in accompanying that verdict with an expression of censure. The first is, has there been any positive negligence in the agents whose duty it was to superintend the daily working in the pit, and more particularly to look to its efficient ventilation? Or has there been any negligence with the workmen themselves engaged in its various departments? If satisfied that no positive negligence can be attributed to any party, the next inquiry is, has there been due caution used in excavating and taking away the coals to the shaft which so dangerous a seam most imperatively required?

Perhaps it may not be strictly within the province of a jury to inquire how far it is prudent and justifiable to persevere in working the coal of the Bensham seam, which has been admitted to be attended with such great danger; especially after the

extensive loss of life which occurred in the same seam fourteen years ago. This is a question more particularly resting between the employer and the employed; but taking all the circumstances of the case into your most serious consideration, if you should be of opinion, that there has been a want of due caution in permitting the men to work in the mine at a time when there was more than ordinary danger, or that the strictest care has not been observed in every department by all parties, workmen and others connected with it, by which an inference may reasonably be entertained that, for want of that due caution, an accident might very readily be the result, it becomes your bounden duty, however distressing it may be to your feelings, to accompany your verdict with an expression of censure. And I am sure, if such be the opinion you arrive at, that no party or parties, be their station what it may, will induce you to shrink and depart from the obligation you are under; but that, looking neither to the left hand nor to the right, you will proceed in a straight-forward course, and pronounce the verdict you give without fear or favour; and unbiassedly and independently discharge the duty you owe to yourselves and the country.

Gentlemen, my task is done; and I have only now to thank you for the patience and attention you have paid to the observations I have considered it my duty to make. And I take this opportunity of further offering you my acknowledgments for your ready attendance as jurors on this melancholy occasion; and the courtesy you have shown to myself personally, especially in consulting my convenience during so fatiguing and protracted an investigation. I shall now leave you to your own deliberations; and if there should occur any thing to require explanation or assistance from me, I shall be near at hand to attend your summons. When you have agreed upon your verdict, I will be happy to return and record it.

The rest of the company having retired, the jury proceeded to consider of their verdict, and after they had continued in deliberation about a quarter of an hour, the public were re-admitted.

Mr. Easterby then rose and observed, that in the first place it was barely necessary for him to read over the verdict which they had come to, after due consideration. It was as follows:—"We find our verdict to be Accidental Death, arising from an explosion of inflammable air, but how, or in what part of the mine it originated, there is no evidence to show. In recording this verdict, the jury must express their full conviction that there has been no want of due care and precaution on the part of those who have the direction and management of the mine." That, continued Mr. Easterby, was their verdict, and it might possibly render it unnecessary for him to say more upon the subject. But there was one individual (Mr. Buddle, it was presumed), whose inventive skill, ingenuity, and science, had been so well displayed in his endeavours to save human life, that they could not depart without expressing their entire approbation of his conduct. On the part of Mr. Coroner, the labour, the attention, the skill, and the manner in which he had expressed himself in his summing up, were beyond all praise.

The other necessary forms were then observed, and the inquest closed.

LIST OF SUFFERERS AND SURVIVORS.

Age.	*Name.*	*How employed.*		*Widow & Children.*	
62	Thos. Simpson	overman		widow	12
63	Joseph Lawson	deputy-overman		widow	10
56	William Craister	deputy-overman	father and son	widow	6
17	William Craister, jun.	crane-man			—
35	John Robson	deputy-overman	father and son	widow	5
12	Andrew Robson	trapper			—
12	Matthew Usher	trapper			—
16	Peter Green	stone stower			—
19	Luke Mason	putter	brothers		—
17	Peter Mason	putter			—
15	William Mason	putter			—
13	Robert Mason	trapper			—
20	James Miller	putter			—
33	Martin Brown	hewer	brothers in-law	widow	3
21	Robert Clark	putter			—
17	William Dinning	putter	brothers		—
12	Bateman Dinning	putter			—
67	Christopher Ovington, sen.	door keeper	father and son	widow	5
19	Christopher Ovington, jun.	putter			—
20	John Stanness	putter			—
12	John Reavley	trapper			—
22	Edward Combie	putter	brothers		—
20	Robert Combie	putter			—
11	James Combie	trapper			—
22	Francis Bell	crane-man	brothers		—
19	Richard Bell	putter			—
16	William Bell	rolley-driver			—
13	Robert Bell	rolley-driver			—
20	John Gillis	putter		mother	3
8	Robert Roseby	trapper			—
15	John Lowry	attending Davy lamps			—
43	Cuth. Reavley	hewer	father and sons	widow	7
20	John Reavley	putter			—
16	Thomas Reavley	helper up			—
12	John Hepple	trapper			—
16	John Roseby	putter	brothers		—
10	Joseph Roseby	putter			—
15	Joseph Roseby	rolley driver	brothers, cousins of the above		—
13	Christ. Roseby	rolley driver			—
21	Henry Giles	putter	brothers		—
19	John Giles	putter			—
16	Andrew Giles	rolley driver			—
12	Edward Combie	rolley driver			—
19	John Buddle	putter	brothers		—
17	Michael Buddle	putter			—
14	Matthew Buddle	putter			—
17	Henry Appleby	putter	brothers		—
11	James Appleby*	trapper			—
72	Joseph Harbottle	trapper		widow	—
13	Thomas Swan	rolley driver			—
15	Ralph Pendlington	rolley driver		mother	5
15	Thos. Elrington	attending Davy lamps		mother	3

* This boy, having finished his own work, had bargained with another boy, who was anxious to visit the race course (it being the Thursday of Newcastle race week, when the gold cup was appointed to be run for), to remain at work for him. The stipulated wages for this service was one shilling—that shilling cost the deceased his life.

Age.	*Name.*	*How employed.*		*Widow & Children.*	
19	John English	putter			—
19	Roger Sharp	putter			—
18	Hutton Raite	putter	brothers	mother	3
13	Christopher Raite	putter			—
53	William Thompson	sinker	father and son	widow	8
13	James Thompson	driver			—
14	John Thompson	rolley driver			—
16	George Kennedy	rolley driver			—
23	John Croser	hewer		widow	2
12	Thomas Mason	trapper			—
19	James Green	crane-man			—
34	Thomas Reavley	hewer	father and son	widow	5
11	John Reavley	trapper			—
14	Thomas Moore	helper up	brothers		—
12	James Moore	way cleaner			—
21	Joseph Wright	putter			—
19	John Chicken	putter		mother	4
16	John Soulsby	way cleaner	brothers		—
14	George Soulsby	trapper			—
47	William Johnson	sinker		widow	2
19	James Giles	putter			—
18	Edward McNay	putter			—
75	Ralph Waggott	trapper		widow	10
31	Matthew Soulsby	onsetter		widow	3
9	George Kyle	trapper			—
21	John Waggott	putter		mother	3
18	John Hall	putter	brothers		—
11	George Hall	putter			—
10	Joseph Wanlas	trapper			—
24	William Reay	hewer	brothers	mother	1
28	Andrew Reay	hewer		widow	3
11	Thomas Huggup	trapper			—
19	David Collins	putter		mother	2
15	Luke Watson	trapper			—
14	Francis Haxon	trapper			—
20	James Cousin	putter			—
16	George Miller	putter	brothers		—
12	John Miller	trapper			—
19	Thomas Sharp	putter		mother	2
19	Edward Bell	helper up			—
16	Ralph Waggott	driver	brothers		—
14	John Ch. Waggott	driver			—
17	William Patrick	trapper	brothers		—
15	David Patrick	trapper			—
21	Robert Wilkinson	trapper	brothers		—
17	William Wilkinson	rolley driver			—
13	Robert Dawson	trapper			—
15	Percival Reed	way cleaner	brothers		—
13	John Reed	way cleaner			—

John Reed, father of the above boys, who was one of the four got out of the mine alive, and had his leg amputated, (see note page 21), died on the 3rd July, 1835. The other two men, Robert Morallee and John Brown, and the boy, Martin Delap, were then considered out of danger.

SUMMARY.

Total number of men and boys dead	102
Remaining alive	3
	—105
Women deprived of their husbands	17
Widowed mothers deprived of their sons	8
Number of children under the age of 14 left fatherless	48
Total left unprovided for	—73

EXPLOSIONS, INUNDATIONS, &c.

WHICH HAVE TAKEN PLACE IN THE

COAL MINES OF NORTHUMBERLAND & DURHAM.

XPLOSIONS and other Casualties happened as frequently in our Collieries formerly as at the present time; but the servility of the local press prevented their being given to the public. The following extract from the *Newcastle Journal of March 21st*, 1767, will prove this assertion:—

"As so many deplorable accidents have lately happened in Collieries, it certainly claims the attention of Coal-owners to make a provision for the distressed widows and fatherless children occasioned by these Mines, as the catastrophe from foul-air becomes more common than ever; yet, as we have been requested to take no particular notice of these things, which in fact could have very little good tendency, we drop the farther mentioning of it; but before we dismiss the subject, as a laudable example for their imitation, we recommend the provision made in the Trinity-House for distressed seamen, seamen's widows, &c., which in every respect is praise-worthy, and confers honour on that brotherhood." From this it is reasonable to conclude, that there must, at that time, have been a *dreadful sweep of human life* in one or more of the neighbouring Collieries; and it is from such injunctions laid upon the newspaper editors, that these occurrences for a great number of years were kept as much as possible from the public;* however, I shall here give a more complete list than any hitherto published:—

Time when.	*Collieries.*	*Causes.*	*Lives lost.*
1658. May.	Gallow Flat,† near Elswick ...	inundated	number unknown.
About 1710.	Bensham‡	exploded	... ... 70 to 80

* It is not many years since coroners inquests were first held on the bodies of the unfortunate sufferers by these visitations; consequently "*the ready coffin and the church yard closed the scene.*"

† "April 24th, 1695, were buried, James Archer and his son Stephen, who, in the month of May, 1658, were drowned in a coal pitt in the Galla Flat by the breaking in of water from an old waste. The bodys were found intire after they had lyen in the water 36 years and 11 months."—*St. Andrew's Register.*

‡ This was the first attempt made to work the low main seam in the neighbourhood of Newcastle.

Time when.	*Collieries.*	*Causes.*	*Lives lost.*
1743. Jan 18.	North Biddick	exploded	17
1756. Aug. 11.	Chaytor's Haugh	ditto	4
1757. June 10.	Ravensworth	ditto	16
1760. June 15.	Long Benton	ditto	1
1761. Dec. 1.	Hartley	ditto	5
1765. April 2.	Walker	ditto	8
1766. March 18.	Ditto	ditto	10
—— April 16.	South Biddick	ditto	several
—— Aug. 22.	Lambton	ditto	6
1767. March 27.	Fatfield	ditto	39
1773. Dec. 6.	A Colliery near the Wear ...	ditto	several
1776. Oct. 7.	Ovington's Pit,* East Rainton	ditto	2
1778. Dec. 8.	Dolly Pit, Chaytor's Haugh	ditto	24
1780. Aug. 21.	Birtley North Side	ditto	3
1782. May 17.	The Fauld Pit,† Gateshead	ditto	4
—— Oct. 11.	Wallsend‡	ditto	1
1783. May.	Washington	ditto	2
These occurred between the years 1783 & 1794	Ditto	ditto	2
	Ditto	ditto	2
	Lambton's A Pit, Bourn Moor	ditto	1
	Ditto B Pit, Do.	ditto	several
	Ditto Lady Ann Pit, Morton	ditto	2
1784. Nov. 6.	Wallsend ‖	ditto	3
—— Dec. 12.	Ditto ‖	ditto	2
1785. June 9.	Ditto§	ditto	1
—— Dec. 4	Ditto	ditto	2
1786. April. 9.	Ditto	ditto	6
1790. Oct. 4.	Ditto	ditto	7
1793. Dec. 27,	Hope Pit, Sheriff Hill ...	ditto	14
1794. June 9.	Rickleton Pit, near Picktree	ditto	30
—— June 11.	Harraton	ditto	28
—— Nov.	Glebe Pit, Oxclose	ditto	2
—— Dec. 21.	Hope Pit, Sheriff Hill ...	ditto	several
1795. April 24.	Paradise, or West Pit, Benwell	ditto	11
1796. Feb. 12.	New Washington	ditto	7
—— April.	B Pit, Washington	ditto	2
—— Sept. 8.	Slatyford	inundated	6
1798. Feb. 27.	B Pit, Washington	exploded	7
—— May 22.	Glebe Pit, Oxclose	ditto	4
1799.	Jane Pit. Newbottle	ditto	1
—— Aug. 13.	A Pit, Oxclose	ditto	1
—— Oct. 11.	Lumley	ditto	39

The bodies of these unfortunate sufferers were never found.

* This explosion happened as follows:—Michael Smurthwaite having made preparation for a blast in the stone, working downwards or sinking, fastened a rope, called the centre line, in the hole for the purpose of running a hot iron ring from the top of the pit to a train of gunpowder, and being drawn up from the bottom so as to be considered safe, the ring was run down the line by the other man William Wilson, which caused the explosion, and they were both lost. Wilson had gone to work that day for another man whose turn it was.

† These unfortunate men were all that were down the pit at the time of the explosion. Three of the bodies were got, the other *still remains in the mine.* The coals worked here were called the Hopewell. This colliery was on the east side of the High Street of Gateshead, in what is called the High Ward.

‡ The coal set on fire, and the colliery drowned up to extinguish it.

‖ These explosions were *supposed* to have taken place at the spark of the steel mill, by the light of which the people were working in the shaft. The bodies were not recovered for several months.

In repairing the shaft after these explosions, the mode of throwing the rays of the sun down a shaft by a mirror, so as to light it, was accidentally discovered in the following manner:—While the people were working in the shaft, at about 80 fathoms from the surface, a carpenter was employed to do something at the head framing immediately above the mouth of the shaft, and in using his saw he turned the bright blade of it accidently so as to throw a pencil of the sun's rays suddenly down the pit, to the great terror of the workmen below, who thought the pit had fired again. The cause of their alarm being, however, soon discovered, it suggested the idea of applying a mirror to throw the light of the sun down the shaft, which mode of lighting has since been frequently resorted to when other lights could not be used.

§ This was the first explosion which was distinctly known to have taken place at the

Time when.	*Collieries.*	*Causes.*	*Lives lost.*
1803.	Morton Pit, Lambton ...	exploded	2
—— Sept. 25.	Wallsend	ditto	13
1805. April.	A Pit, Oxclose	ditto	2
—— Oct. 21.	Hebburn	ditto	35
—— Nov. 29	Oxclose	ditto	38
1806. March 28.	Killingworth	ditto	10
1808.	New Pit, Shiney Row ..	ditto	2
—— Aug. 31.	Hall Pit, Fatfield	ditto	3
—— Nov. 29.	Harraton*	ditto	4
—— Nov. 30.	Hall Pit, Fatfield	ditto	3
	Colling's Pit, Rainton ...	ditto	2
	B Pit, Oxclose	ditto	1
	Houghton Gate Pit, Lambton	ditto	2
	(The last three I have no dates for.)		
1809. Sept. 14.	Killingworth	ditto	12
1812. May 25.	Felling	ditto	92
—— Oct. 10.	Herrington Mill Pit, Pensher	ditto	24
1813. July 17.	Collingwood Main	ditto	8
—— Sept. 28.	Hall Pit, Fatfield	ditto	32
—— Dec. 24.	Felling	ditto	22
1814. April 5.	Howdon Pit, Percy Main ..	ditto	4
—— Aug. 12.	Hebburn	ditto	11
—— Sept. 9.	Leafield	ditto	4
1815. May 3.	Heaton Main	inundated	75
—— June 2.	Success Pit, Newbottle ...	exploded	57
—— June 27.	Sheriff Hill	ditto	11
—— July 31.	Newbottle	Bursting of the Boiler of a high pressure Locomotive Engine	18
—— Dec. 11.	Sheriff Hill	shaft brattice firing ...	5
—— Dec. 18.	Townley	exploded	1
1817. June 30.	Row Pit † Harraton	ditto	38
—— July 2.	Nova Scotia, Harraton ...	after-damp ...	8
—— July 21.	Sheriff Hill	exploded	1
—— Sept. 25.	Jarrow	ditto	6
—— Nov. 3.	Ouston	ditto	1
—— Dec. 18.	Plain Pit, Rainton	ditto	27
1818. Aug. 5.	Wallsend‡	ditto	4
1819. July 19.	Sheriff Hill	ditto	35
—— Oct. 9.	George Pit, Lambton ...	ditto	13
1820. April 28.	Jarrow	ditto	2

steel mill. Some doubt remained up to this time as to whether the fire damp would explode at the spark of the steel mill or not; but the fact was clearly ascertained on this occasion, as the person, John Selkirk, who was "playing" the mill at the time, survived the accident.

* The coal was set on fire by this explosion, and the pits were tightly scaffolded to exclude the air, for the purpose of smothering out the fire. The pits were opened out at the end of two months, when the fire on the coal was found to be extinguished; but to the astonishment of every body, a pony was found to be alive and in high condition. This pony had a trick of slipping his halter, and wandering about the workings. The explosion happened just after the pit had finished its day's work, and the horses, 22 in number, had been tied up in the stables. It is supposed that this pony had slipt his halter, and gone upon his ramble as usual, as all the remaining 21 horses were killed in the stable by the explosion. It would seem that the life of this pony had been preserved by the fresh air which was pent up in the rise part of the workings, and he had lived upon the forage of his dead companions. He survived the accident many years.

† This is the explosion alluded to by Mr Buddle, at page 49, folio, and page 10, octavo editions of the Report of the Evidence taken in 1829, on the State of the Coal Trade of the United Kingdom. "It was occasioned entirely by the perverse obstinacy of a young man named John Moody, one of the hewers, who, in defiance of the orders of the overman, refused to use Sir H. Davy's Lamp, and lighted a candle, which was twice put out by the workmen whom he was to relieve; but he re-lighted it by unscrewing the lamp, and thus sacrificed his own life and the lives of his companions. Two days after, eight men who went down the Nova Scotia pit of the same colliery were killed by the after-damp which had entered the workings, supposed from the Row Pit, subsequent to the explosion."—*See Sykes's Local Records, second edition, vol. 2, page* 105.

‡ This is the only explosion that has been known to have happened at the Davy Lamp. It occurred as follows:—Two men and two boys were working in a certain part of the mine in an explosive mixture. One of the men extinguished his *Davy* in trimming it, and sent one of the boys to the "stationary" light in a safe part of the mine to get it

Time when.	*Collieries.*	*Causes.*	*Lives lost.*
1820. Oct. 1.	Backworth	after-damp	1
1821. July 9.	Rainton North Pit	exploded	1
—— ———	Coxlodge	ditto	1
—— Oct. 19.	Nesham's Newbottle	ditto	6
—— Oct. 23.	Wallsend (Russell's)	ditto	52
—— ———	Felling	ditto	6
1823. Feb. 21.	Ouston	ditto	4
—— June 19.	Walker	falling in of earth ...	6
—— Nov. 3.	Plain Pit, Rainton	exploded	59
1824. Nov. 19.	Dolly Pit, Newbottle	ditto	11
—— Oct. 25.	George Pit, Lumley	ditto	14
1825. July 3.	Judeth Pit, Fatfield	ditto	11
—— Oct. 5.	Hebburn	ditto	4
1826. Jan. 17	Jarrow	ditto	34
—— May 30.	Townley	ditto	38
—— Sept. 5.	Heworth	ditto	5
—— Oct. 27.	Benwell	ditto	2
1827. July 20.	Charles Pit, Lumley	ditto	1
—— Sept. 5.	Fawdon	ditto	2
1828. March 15.	Jarrow	ditto	8
—— Sept. 1.	New Pit, Houghton-le-Spring	ditto	7
—— Nov. 20.	I Pit, Washington	ditto	14
—— Dec. 1.	Townley	inundated	1
1829. May 13.	Killingworth West Moor ...	exploded	1
—— June 26.	Dorothea Pit, Newbottle ...	ditto	1
—— Dec. 3.	Willington	ditto	4
1830. Aug. 3.	Jarrow	ditto	42
—— Nov. 27.	Hebburn	suffocation	2
1831. July 9.	King Pit, Wreckenton	exploded	3
—— Sep. 20.	Willington	ditto	7
1832. March 7.	Beamish	inundated	2
—— June 15.	Newbottle	boiler exploded ...	12
—— Oct.	Wallsend	exploded	1
—— Nov. 10.	New Pit, Gosforth*	falling down the shaft	2
—— Nov. 13.	Heaton	exploded	1
1833. May 9.	Springwell	ditto	47
—— May 24.	Great Lumley	ditto	2
—— Aug. 2.	Fatfield†	fall of stone ...	1
—— Nov. 8.	Blackfell	exploded	3
—— Nov. 26.	Wideopen‡	boiler bursting ...	1
1834. Feb. 25.	Fanny Pit, Gosforth‖	corf unhooking ...	4
—— March 28.	Buddle Pit, Pittington§ ...	corf blown down the shaft	2

relighted. The boy returning with it in haste, fell when near to the man to whom he was carrying it, and falling with the lamp upon the corner of a cast iron tram-plate, burst a hole in the wire gauze cylinder of the lamp, and the explosion instantly took place. The man survived a few hours, and told the writer of this note the circumstance, who *took up* the Davy on the spot where the boy was killed, and found it in the state described.

* These two men were ascending the pit in the usual way, but by some means the engine drew them up to the pulley over the shaft, from which they fell, one directly down the shaft, and the other, after alighting near the mouth of the pit, fell in also, by which both were literally dashed in pieces.

Oct. 15, 1832.—The shaft metal tubbing of Houghton Pit, belonging to Lord Durham, gave way, from which gushed out an immense stream of water, so as to fill the workings of the pit. All the horses that were down the pit at the time were drowned, but no human life was lost.

† Mr John Robinson, overman, whilst traversing the workings, a large piece of stone, supposed to weigh about twenty tons, fell upon him. When the stone was removed, his body presented a shocking spectacle. A man who was with him just before the accident, had stepped back a few paces, having forgot something, and thus saved his life. Robinson left a widow and five children.

‡ This man's name was John Gibson; he was engine man, and was killed by the bursting of one of the boilers of the main pumping engine.

Nov. 29, 1833.—An explosion of fire damp took place at Low Moorsley Pit, near Houghton-le-Spring, by which Mr. Appleby, viewer, Mr. Dawson, overman, and four men, were dreadfully burnt, but hopes were entertained of their recovery.

‖ These four youths were killed by the corf in which they were ascending slipping off the hook. Their names were John Forster, James Rayne, John Gilchrist, and Thomas Lumsden.

§ An empty corf having been left near the mouth of the shaft, was caught by the wind

Time when.	*Collieries.*	*Causes.*	*Lives lost.*
1834. Sept. 17.	Elemore Pit, Hetton* ...	boiler bursting ...	1
—— Oct. 4.	Springwell†	timber falling down the shaft	2
—— Nov. 24.	Hartley‡	breaking of the shaft rope	4
—— Nov. 24.	St. Lawrence	exploded	3
1835. May 1.	Whitley‖	corf improperly hooked	6
—— June 18.	Wallsend	exploded	102
—— June 30.	Backworth	fall of stone	2

Many of these catastrophes were truly heart-rending, as in some instances the poor fellows' bodies were blown up the shaft with the velocity of a cannon ball, and their limbs scattered over the adjacent grounds. On the first report of an explosion, the wives and children of the workmen, who almost invariably dwell contiguous to the colliery, run to the shaft with shrieks and howlings indescribable. The Rev. Mr. Hodgson, in his excellent account of the dreadful explosion which took place in the Felling Colliery on the 25th of May, 1812,§ says "The subterraneous fire broke forth with two heavy discharges from the John Pit, which were, almost instantaneously, followed by one from the William Pit. A slight trembling, as from an earthquake, was felt for about half a mile around the workings; and the noise of the explosion, though dull, was heard to three or four miles distance, and much resembled an unsteady fire of infantry. Immense quantities of dust and small coal accompanied these blasts, and rose high into the air, in the form of an inverted cone. The heaviest part of the ejected matter, such as corves, pieces of wood, and small coal, fell near the pits; but the dust, borne away by a strong west wind, fell in a continued shower from the pit to the distance of a mile and a half. In the village of Heworth, it caused a darkness like that of early twilight, and covered the roads so thickly, that the footsteps of passengers were strongly imprinted in it. The heads of both the shaft-frames were blown off, their sides set on fire, and their pullies shattered in pieces; but the pullies of the John Pit gin, being on a crane not within the influence of the blast, were fortunately preserved. The coal dust, ejected from the William Pit into the drift or horizontal

and hurled down the shaft at the time five men were ascending, two of whom, Matthew Wall and Edward Wilson, were killed, the rest were severely injured.

* This man's name was George Bell. Several others were dreadfully injured.

† By the fall of a heavy piece of timber down the shaft, a scaffolding or "cradle," on which were standing in the act of repairing the shaft, William Punsheon, brakesman, and John Smith, wasteman, was carried to the bottom, a depth of thirty fathoms, and both were killed upon the spot.

‡ Three men and a boy were killed by the breaking of the rope in descending the shaft. They left three widows and ten children. The names of the men were Thomas Martin, William Witty, and John Barrick.

‖ A man named Robinson, and five boys, were killed by the hook not being properly placed in the bow of the corf.

§ This was probably the first circumstantial account of a coal mine explosion that had ever been given to the public.

parts of the tube, was about three inches thick, and soon burnt to a light cinder. Pieces of burning coal, driven off the solid stratum of the mine, were also blown up this shaft. As soon as the explosion was heard, the wives and children of the workmen ran to the working-pit. Wildness and terror were pictured in every countenance. The crowd from all sides soon collected to the number of several hundreds; some crying out for a husband, others for a parent or a son, and all deeply affected with an admixture of horror, anxiety, and grief." The following is the same gentleman's description of the formation and effects of one of these blasts:—"When the air has proceeded lazily for several days through a colliery, and an extensive magazine of fire-damp is ignited in the wastes, then the whole mine is instantly illuminated with the most brilliant lightning; the expanded fluid drives before it a roaring whirlwind of flaming air, which tears up every thing in its progress, scorching some of the miners to a cinder, burying others under enormous heaps of ruins shaken from the roof, and, thundering to the shafts, wastes it volcanic fury in a discharge of thick clouds of coal-dust, stones, timber, and not unfrequently limbs of men and horses."

It is the opinion of an eminent Colliery Viewer of the present day, that "the loss of lives by other accidents in Coal Mines, exceed, on an average of years, the number lost by explosion."

To John Buddle, Esq., of Wallsend, I owe many obligations, for his kind and unreserved communications, which considerably augmented my list of explosions and notes, published in the year 1829. I also feel much indebted to Mr. Alexander Birkbeck for his voluntary communication in 1830, of which I have availed myself in the present list.

FURTHER PARTICULARS

RESPECTING THE CAUSE OF THE

EXPLOSION AT WALLSEND COLLIERY,

JUNE 18TH, 1835,

WHICH,

IN ALL PROBABILITY, CONTAIN ALL THAT WILL EVER BE KNOWN ABOUT THE ORIGIN OF THIS LAMENTABLE OCCURRENCE.

It has been ascertained, in the course of exploring the mine, since the accident happened, that the explosion did not take place in any of the working districts, nor at a Davy-lamp; but that it must have happened in the gas-pipe drift, from the first S.W. district, in the G., or Church Pit, out of which the pillars had been worked some years ago.

Two men, William Thompson and William Johnson, were blasting down the roof-stone to make horse-height for a new rolley-way, near to a "stenting," which led through the coal barrier wall into the pipe drift. A *man* door was placed in this stenting, for the convenience of the wastemen going into the pipe-drift; and from the situation in which William Thompson's body was found, there can scarcely be a doubt that he had either opened this man door, and fired the gas in the pipe-drift, or that he had approached it so near, that the gas, oozing through the crevices of the door, had fired at his candle, which, passing along the pipe-drift, like a train, exploded the gas in the first S.W. district, as already stated. This district has been in a

crept state for several years, and could not be ventilated; it has, therefore, been standing *dead*, or charged with gas.

Johnson was working in the *stow-board*, at some distance from Thompson, with a Davy-lamp, which he still held in his hand when his body was found. His body was not at all burnt, while that of Thompson was severely scorched.

As no fire had been in those divisions of the workings where the Davy-lamps were used, it is quite clear that the explosion had not happened from any mismanagement of, or accident to, the lamps.

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