

LLWYNYPIA. Porth, Glamorganshire. 25th. January, 1932.

The colliery was the property of the Welsh Associated Collieries Limited and was situated near Porth, Glamorganshire. The explosion occurred in the Pentre Seam where the coal was worked by longwall faces, some conveyor faces and others as stalls. The seam was 2 feet 10 inches thick and the area affected by the explosion was bounded by roads named, 'Cooper', 'Randell' and 'George Rees'. Several weeks before the explosion the George Rees' Road had reached a downthrow how fault of three feet and it became necessary, to recover the seam over the fault, to drive a heading through the fault. This was done by the time of the accident. A heading 15 feet wide was being driven to the rise and parallel to the fault to form a new conveyor face. This heading was known as George Rees' conveyor face.

The heading was ventilated by a current of air which reached it by way of Squints' airway and the current was prevented from passing out along George Rees' road by a brattice erected across the road about 50 feet back from the fault. It was then conducted to the face of the heading by a brattice which divided the heading into two. On reaching the face the air current turned round the end of the brattice and continued down a spout hole cut through the fault which was described as '*an airway of somewhat restricted dimensions*'. At the time of the explosion it could only be passed through on elbows and toes. The means by which the air was split was primitive. A brick was placed to prevent the door on Old Camm's road between Cooper's and Joe Davies' from closing.

The coal got from driving the heading known as George Rees' conveyor face was put onto a compressed air driven conveyor which dumped it on the floor at the face of George Rees' road where it was filled by hand into trams. This method had been used for six weeks and it produced a lot of coal dust.

On Friday morning 22nd. January at about 12.30 p.m., a joint in the compressed air main laid in Cooper's failed, with the result that the conveyor in George Rees' conveyor face could not be worked until it had been repaired and the coal had to be turned back from the face by hand. The coal so moved would fill about six trams, remained stacked in George Rees' conveyor face until Sunday, 24th. January when two men, Edward Henry Charles Bulgin and Edward Davies went in at 6 p.m. to fill it away. One filled on to the conveyor and the other into the trams when it was dumped at the delivery end. According to the evidence of these two men, the afternoon shift fireman, Richard Cheney, who was killed in the explosion, told them not to go beyond the loose coal and that he would send some brattice which Edward Bulgin agreed to erect.

The fireman made his inspection between 9.30 and 10.30 on the Sunday night prior to the night shift coming down to work at 11 and his report showed that he had found firedamp in George Rees' conveyor face but in what particular part it did not show but from the instructions given to Bulgin and Davies it would appear to have been at the face and was still present at the time he allowed them to go to work.

The evidence of the night shift fireman, Gordon Hughes which descended the pit at 10.45 p.m. on Sunday told that he met Cheney who told him that he had found gas in George Rees' place at the beginning of the shift and that everything was all right now. This was just before 11 p.m. The day shift fireman, Reginald Shipp Camm descended the pit at 6.45 a.m. and conferred with the outgoing fireman, Hughes who told him everything was '*pretty fair, only that there was a blockage in George Rees' airway.*' Camm had the blockage removed by a collier, Charles Bulgin which stated that it amounted to '*a few stones which I shoved on one side.*' Camm said that during this shift everything was normal and that he had never found gas in George Rees' conveyor face but gas had been found in the rippings of George Rees' road on the 7ht, 8th., and 10th January. He had erected a fly sheet to turn the air coming along Squints airway into the rippings and this had diluted the gas. the fly sheet had remained there after that as a precautionary measure.

On the completion of the shift Camm saw the oncoming fireman, Richard Cheney but had nothing to report to him. On this shift of 25th. January, two men, Thomas Cryer and

Herbert Evans were to work in George Rees' conveyor face, Cryer to get the coal at the face and fill it onto the conveyor and Evans at the delivery end filling the coal dumped on the ground by the conveyor into the trams standing on George Rees' road.

John Lewis, haulage rider was standing near the bottom of Camm's passbye where he saw Richard Cheney and Morgan Bowen, a coal cutting machineman, cutting by the brattice. Morgan Bowen's place of work was in Prior's or Brown's but he had come to work late that shift and Lewis thought that Cheney had enlisted him to do some work on the brattice. According to Lewis, the two men left Camm's passbye carrying the brattice in the direction of Cooper's and about 15 to 20 minutes later, Lewis said he felt a rush of air and dust.

The bodies of Cheney, Bowen and Cryer were found near the face of George Rees' conveyor face with the brattice cloth they had taken in. The body of Henry Evans was found on George Rees' road about 10 yards from the rippings. These four men were killed at once by the explosion. Seven others lost their lives, two of the rescue workers who died from the effects of afterdamp.

Those who lost their lives in the explosion were -

Richard Cheney, fireman,
Morgan Bowen, coal cutting machineman,
Charles Cryer, collier,
Henry Evans, collier,
Stanley Dando,
David Hughes,
Clifford Sparrow,
William Thomas,
David Rogers.

Killed by the afterdamp -
J. Alsop.

The rescuers who died -
John Evans, overman and
John Jones, fireman.

The inquiry into the disaster was held at the Police Court, Porth on Monday 21st. March and concluded the following day. All interested parties were represented and opinions differed as to the precise point of origin of the explosion but it was generally agreed that it was either in George Rees' conveyor face or George Rees' road. As to the cause no one could give a definite opinion. Thomas Sheppard, overman had no idea how the ignition was caused and Mr. E. Sims Rees, Senior Inspector thought that it could have originated from a 'pop' shot but there had been no shotfiring in the seam so this explanation could be dismissed.

Mr. Rees dismissed smoking as a cause of ignition and Mr. William Henry Mainwaring, Miners' Agent for the Rhondda District of the South Wales Miners' Association Federation said that all he could think of was that in erection the brattice cloths, a hammer had slipped and caused a spark which led to the ignition.

The way in which the coal was loaded had led to a lot of coal dust being deposited in the workings and roads and there was evidence from the Gwlwym Griffiths, Instructor of the Porth Rescue Station who, with others had been the first to enter the area said that there smoke contained a lot of sulphur which indicated that it was coal dust explosion.

With reference to the rescue operations the Inspector commented that, '*they were conducted with greater valour than discretion*' The men from the Porth Rescue Station were equipped with breathing apparatus but officials of the mine including the General Manager, Mr. J. Whitticombe, the Agent Mr. R. Lloyd and the Manager Mr. J.

Whitticombe had no apparatus and were engaged in Prior's and Brown's. They had a canary with them and appeared to have more regard for its life than their own with the result that one of the party, John Evans, overman was overcome by the afterdamp and died.

The other death of John Jones, fireman from another seam should not, in the opinion of the Inspector, have occurred. It appeared that he went down the pit himself and went straight inbye on the Main Road where afterwards he was found dead with a canary in his hand.

Sir Henry Walker commented -

"The Rescue Brigade itself is not free from criticism for a base was established elsewhere than the intake air. It may be said in answer that officials and men, unequipped with rescue apparatus had already been exploring in the return air apparently without ill effects, but such an answer does not meet the point. Men trained for the purpose of rescue work are expected to avoid such unnecessary risk.

Until Mr. T.L. Mort arrived on the scene at 9.30, the exploration work was on unorthodox lines. Mr. Mort starting at the intake, followed the intake air and by replacing with boards and brattice the two doors on Camm's which, with their side walls, had been blown outbye, restored the ventilation to its normal course. Had this been done at the outset and no one allowed to go beyond the doors across the main level other than men equipped with breathing apparatus, the loss of life would probably not have been so great."

There was one strange incident which was recorded in the Report. When the explosion occurred, a collier, Fred Cordey, was at work with his butty, William West, filling coal trams at the face of Brown's heading. There was a rush of wind followed by a cloud of coal dust. Cordey made no remark nor did West but William J. Thomas, from J. Alsop's face adjoining, and afterwards found dead by the men of the Rescue Brigade, who near at the time, asked "*What was that?*" and Cordey replied that he did not know, he did not see anything out of the ordinary and he and West went on filling the trams. In a short time both felt a little groggy and West collapsed. Cordey got hold of West and dragged him on his back for 30 yards away from the face. He put West's lamp out of reach, and being unable to take himself further, went outbye for help. He travelled as far as the Pentre Main Heading where he found the Undermanager of the No.2 Pit, George Patch and William Price. Cordey explained to Mr. Bowen that he wanted help for his butty. The following events were told in Cordey's own words -

"All right he (Mr. Bowen) said, give me a hand with William Price, and another chap named Richard George came in and we got William Price up to the mouth of Camm's heading. Then I came back to George Patch and attended him for a bit, and Mr. Bowen came in, and I do not know who else came in with him and I told him what I wanted for my butty, and so they went in front of me and by the time I got to the mouth of Prior's road they had fetched me out."

Mr. Bowen was the first official to hear of the explosion and it was he who notified the General Manager by telephone and sent messages to the Agent, the manager and alerted the Porth Rescue Brigade. He went down the pit with Henry Hughes who was working at the surface but at one time had been a fireman underground. They met the afternoon shift overman, John Evans, near the entrance to Camm's and Mr. Bowen asked him if he could tell where the men were working, but he could not as he had come from the seam below. Bowen and Hughes went forward past Camm's and found two men under trams with their faces in water and sludge on the floor. These men were George Patch and William Price. They were released and were being given attention when Cordey came out of Brown's.

Mr. Bowen then took up the story -

"So here comes Cordey back from Brown's. He asked me what had happened. I said 'Nothing much. You sit down here, my lad.' I said, 'What is the matter?'

'Nothing much,' he said. What have you got there?' He said to me. 'It is all right,' I said: 'you keep cool.' When I was cooling him down a bit I said, 'Where were you working?' I did not know the man. he said, 'Up in Brown's.' I said, 'Did you have a butty working. with you?' He said, 'Yes.' Where is he now?' I said. "Well, I dragged him back,' he said , 'for about 20 to 30 yards, and then I had to drop him.' I saw he was coming to himself, and I said, 'Will you hold this young man, and I will go and look for the butty.' 'Yes I will Mr. Bowen,' he said. i said, 'Come on Hughes, we will go and look for his butty.' So up we goes to Brown's. We went up to the return and nod I said, 'Hughes, we have to be very careful here because the road is leading back to the return.' I tested for gas, but it was all right there. So we advanced for a few yards forward, and my lamp went out. So I said to Hughes, 'We have to be careful here. let us go back a bit. We will step ten yards back, and I will put the lamps on the side.' So we stepped back ten yards and we advanced on again. we could hear now this man West groaning, and so I said to Hughes, 'I can see a light up there.' "Well now,' I said, 'we have to go for this man. You keep two yards behind me, and we can have him.' We went on, but Hughes did not keep the two yards behind me, so that the two of us arrived together. So we pulled him back. He had his lamp in his hand the same as Cordey said yesterday. So we drew him back to where out lamp was to safety. Then we started and we turned him round. i slackened his belt and opened his shirt and gave him plenty of ventilation and we started first aid on him."

The Inspector commented -

"It may seem paradoxical to look upon this piece of work by Bowen and Hughes with favour and yet to frown upon that of the officials when Evans lost his life. There is however a difference. In the former case Bowen and Hughes took their lives in their hands in the latter, the party had with them a canary and had they made use of it, as they should, the overman's life would not have been lost."

Sir Henry Walker concluded his report by saying -

"I fear that the truth was that there was little searching, if any, was done for the men who worked on the afternoon and night shifts, and his fear is strengthened by the fact that after the explosion a cigarette was found contained in a tin box in a waistcoat pocket. This tin box measured approximately 2 inches by 1 inch and was therefore not an article which could easily be missed by any person making a proper search. Its presence, having regard to its contents, seems to show very clearly that the men to whom it belonged knew perfectly well that no searching was being done."

BICKERSHAW. Leigh, Lancashire. 10th. October, 1932.

The colliery was the property of Ackers Whitley and Company and was in Bickershaw village a few miles from Leigh. On Monday 10th. October when the cage containing the first load of day shift workers was being lowered down the No.3 shaft, an overwind took place and nineteen of the twenty men in the cage were drowned in the sump.

The No.3 shaft was 18 feet in diameter ad 700 yards deep. There was an inset to the Wigan Six Feet Seam at 638 yards. The centres of the pulleys in the headgear were 50 feet 3 inches above the landing plates and the top of the detaching hook bell was 42 feet 2 inches above the keps which were four and half inches below the landing plates. The cage conductors, four for each cage, were suspended from girders in the headgear and kept taut by weights 50 feet below the Wigan Six Feet inset. Thirty six feet below this inset, there was strong scaffold of planks, resting on beams, on which any debris from the shaft collected. Five feet three inches below the inset, which was the height of the bottom deck of the cage, there was a landing platform constructed of very strong beams running parallel with the cages, on which were laid two eight inch by seven inch wooden beams on which the cage rested..

Any water made in the No.3 or No.4 shaft, which also went down to the Wigan Six Feet Seam, was collected in the sump of the No.3 shaft and at infrequent intervals, was raised to the surface in tanks suspended under the cages. When the water tanks were not in use, they were suspended in the sump on light girders resting on the same bearers as carried by the landing beams. On the day of the disaster, the level of the water in the sump was 14 feet below the inset and the water tanks and the suspension weights were under water.

The winding engines were a pair of horizontal cylinders, 36 inches in diameter with a stroke of 84 inches, which were directly coupled to a drum 18 feet 6 inches in diameter. The brake paths, one on each side of the drum, were 19 feet 3 inches in diameter. There were slide valves operated by link motion from the drum shaft. There were four post brakes, eight feet long and five feet wide which were operated either by hand or by steam. When they were operated by steam, the brakes were held in the off position by steam pressure on a 10 inch diameter piston. When the steam was cut off, a weight of 915 pounds at a leverage of 88 to 1, actuated the brake.

The steam for this and other large engines was drawn from a receiver placed at the level between the boilers and the engines and a pressure of 75 pounds per square inch was used. The ropes were 1.5 inches in diameter and weighed 96 hundredweight when they were new. The detaching hooks were of the Ormerod type.

The cage had two decks but men were raised and lowered only in the top deck. The maximum number of people allowed in the cage at one time was 20. The cage gates were telescopic and on being raised, were held up by hooks. Each cage was provided with eight chains, four in tension and four slack.

The automatic device to prevent overwinding was the 'Visor' and was made by Messrs. John Wood and Sons of Wigan. Before the accident it was set so that if the speed at three selected points in the wind was excessive, steam would be cut off and the brake applied, after which the drum would be brought to rest within two revolutions. These control point corresponded with the cage being at 200, 130 and 100 yards from the surface landing plates. There was further protecting trip, mainly as a guard against the engines being run in the wrong direction, which operated when the cage was raised three feet above the landing plates.

The Mechanical Engineer at the colliery had said in a report to A.D. Nicholson, H.M. Divisional Inspector of Mines, that there had been other overwinds at the colliery and more sensitive controls had been installed..

On the day of the accident, the dayshift winding engineman arrived to take over the engine from the night engineman at 5.45 a.m. and found several persons in the enginehouse who had no right to be there. There was general discussion about football, and some discussion between the enginemen with regard to the engines. At 5.55 a.m., the buzzer sounded and the banks man signalled that he was ready to descend. The cage attached to the overlap rope was within sight of the banksman and was brought to the surface. After the necessary signals had been given, the cage loaded with 20 men was lowered.

Shortly after there was a crash and the capel of the underlap rope was seen by these in the engine room to be hanging through a hole it had made in the roof. It was then seen that the cage, which had been detached by the Ormerod hook, was hanging in the headgear and that the 'Visor' control had functioned, cutting off the steam and applying the brake.

The day engineman said he shut off the steam at about half shaft, run on to within two revolutions of the end of the wind, just touching the brake with his foot level, and then thrown over his reversing lever. On finding the engines did not retard, he used the steam brake, but without result and the overwind took place. The suggested that the condensing water in the winding engine cylinders and the steam brake cylinder prevented him from having proper control.

The engineer said that when he arrived the enginehouse, he said that the reversing level was in the running position for the underlap rope, and this accounted for the overwind. No steps had been taken up to the time of his arrival to reset the 'Visor' controller but as he arrived the signal was given from the Wigan Six Feet inset for the cage to be raised. The controller was then reset, this operation took about one minute, and the cage raised. This would have been 10 to 15 minutes after the overwind had taken place.

Only one man in the descending cage escaped. He said that after the cage got to the 'meetings', it was suddenly checked and then, followed by half a dozen jerks, they seemed to be in the water in a flash. He was the last man to enter the cage so that he was near one gate, which he managed to lift and get out. He rose to the surface of the water and held on to one of the conductors until he was rescued.

The onsetter said that after the cage left the inset to ascend the shaft he heard unusual noises and saw the conductors jerking about. The descending cage passed the inset a tremendous speed, throwing the skeleton gate violently back on its hinges with a gust of air. He heard cries from the shaft and on looking down, saw a face in the water. He thought the winding rope had broken and devoted all his attention to getting the man put of the sump.

The night shift men were approaching the pit bottom at the time of the disaster and with their aid and a length of rope, and then a ladder, the man was got onto the landing plates. In the meantime, a telephone calls and signals from the surface had been ignored. When he got the man out the onsetter saw that the rope was not broken but was slack and had lined up with the conductors. He answered the telephone and called for the cage to be raised. This was done and the 19 bodies removed. All had died from asphyxia after being immersed in water.

Those who lost their lives were:-

James Baines aged 47 years, fireman, married with five children, of 9, Common Lane, Leigh.

Daniel Hogan aged 48 years married with one child of 87, Nel Pan Lane, Leigh.

Joseph Thomas Waters aged 31 years, married of 23, Canaan, Lowton, Leigh.

Griffith McDonald aged 46 years, married of 5, Howard Street, Plank Lane, Abram.

Thomas Shepherd aged 20 years, haulage hand of 357, St Helens Road, Leigh.

Charles Lowe aged 50 years, single of 20, Plank Lane, Leigh.

Walter Lowe aged 44 years, single of 20, Plank Lane, Leigh., brother of Charles.

Henry Felthouse aged 64 years, dataller, married of Langdale Street, Leigh.

Thomas Walls, aged 40 years, married with eight children of Cowper Street, Leigh.

Robert Jones aged 40 years, .married of 57 Plank Lane, Leigh.

Richard Briscoe aged 51 years, married of 19, Walthew Lane, Platt Bridge, Wigan.

William Dawber aged 34 years, married of 2, Leonard Street, Plank Lane, Leigh.

Thomas Jackson aged 41 years, married, 2, Nevison Street, Leigh.

Michael Carroll aged 41 years, married of 14 St. Helens Road, Leigh.

Samuel Derbyshire, fireman, married of 95, Smallbrook Lane, Leigh.

William Talbot aged 45 years, single of 40, Talbot Road, Plank Lane, Leigh.

Walter Nelson, aged 30 years, married of 212, Firs Lane, Leigh.

The inquest was opened on the 11th. October for the purpose of the identification of the bodies by Deputy Coroner, Mr. R.H. Barlow. The proceedings to determine the cause of the disaster were held on the 20th., 21st., and 24th, October.

After the disaster it was found that the cage had cut through two eight inch by seven inch beams and bent the light girders carrying the water tank and came to rest on the platform protecting the weights. The two and half inch shackle pin on the underside of

the detaching hook of the top cage was slightly bent and one of the bridle chains was broken. Two of the hangers from the cage bottom were slightly bent.

The coroner heard all the evidence and the summed up to the jury who returned the verdict the cage got out of control and went into the sump so drowning the men. The jury did not find that the engine was faulty but the wrong lever had been applied and that the cage had passed the point at which the 'Visor' was set. They recommend that water in the sump should be kept at a reasonable level. The source of the accident was an error of judgement by the engineman Hitchen.

As a result the 'Visor' controller at the colliery was immediately altered and 16 points were provided in the last 90 yards of the wind. The accident caused great anxiety to all users of winding engines in Lancashire.

EDGE GREEN. Garswood Hall No.9 Ashton-in-Makerfield, Lancashire. 12th. November, 1932.

The Garswood Hall No. 9 Colliery was one of a group of Collieries owned by the Garswood Hall Collieries Company Limited, of which Mr. James H. Edmondson was the Managing Director. Mr. William Sword was the Consulting Engineer and Mr. H.J. Whitehead, the Agent. The Colliery was situated off Edge Green Lane in Ashton-in-Makerfield, Lancashire and was also known as the Edge Green Colliery. Mr. J. Latham was the Manager and Mr. Peter Bullough the undermanager of the No.9 Colliery, which had three shafts, the No.9, the downcast and coal-drawing shaft, the No.2, which was the upcast shaft and the No.3, which was close to the No.2, but at the time of the explosion was not in use.

The seams the were worked at the Colliery were the Ravin and the the Orrell Four Foot which was called the Arley mine. The Arley was reached from the Ravin by two tunnels driven through an upthrow fault to the east with a throw of some 80 to 90 yards. The strata dip to the south east at the rate of 1 in 5. The working day was divided into three shifts, day, afternoon and night with about two hundred and two people being employed on the day shift, one hundred and five on the afternoon shift, and one hundred and sixteen on the night shift. Coal was got on the day and the night shifts and wound during the day and afternoon shifts. The average daily output was about 800 tons. The repair work was done on the afternoon shift. Supervision of the workforce underground was exercised occasionally by the Agent and on a daily basis by the manager and the undermanager. They had a staff of eleven firemen, four on the day shift, three on the afternoon shift, and four on the night shift. On the day and night shifts, there was a fireman in each of these districts. On the afternoon shift, one fireman supervised the No.5 Brow and No.2 Brow districts, but there was no work in the No.2 Brow district during that shift. The Colliery did not employ any overmen or other officials between the undermanager and the firemen. An inspection was made by each fireman towards the end of his shift and this inspection constituted the inspection within two hours of the commencement of work in the succeeding shift. Reports of these inspections were duly entered in the prescribed report book kept in the office at the pit brow.

The workings are divided into four districts, three of which were on the North Side, No.5 Brow, and No.2 Brow" all of which were in the Ravin seam and the other district was the "Orrell Four Foot", in the seam known by that name as well as by the name Arley. The station for all the districts was at the bottom of the No.9 pit and this was where the Report books were kept.

The ventilation of the mine was by means of a "Walker" fan situated near the top of the No.2 shaft, which caused a total quantity of 28,500 cubic feet of air per minute to pass through the workings. Of this total quantity, 10,500 cubic feet ventilated the " North Side" district, and the remainder passed along the South Level to ventilate the Orrell

Four Foot, the No.5 Brow and No.2 Brow districts. The North Side was not affected by the explosion.

Travelling inbye along the South Level, the No.2 Brow was reached first, then the No.5 Brow and finally the South Brow, which lead directly into the workings in the Orrell Four Foot Seam, beyond the upthrow fault already mentioned. On No. 2 Brow, between Nos.2 and 3 Levels, there were two wooden doors to prevent the air passing down that brow. The air current, less the amount that leaked through these doors, continued along the South Level to the No.5 Brow where 6,800 cubic feet per minute turned down that brow, leaving the remainder to pass on and down the South Brow into the Orrell Four Foot. This split of 6,800 cubic feet, travelled down No.5 Brow as far as No.10 Level where it's progress downbrow was barred by two wooden doors placed across the brow. One was just above the No.11 Level and the other just above the No.12 Level. Entrance to the No.11 Level was blocked by a brick stopping, but the entrance to the No.10. Level was not blocked. This split of fresh air returned into that level and was guided along it to No.8 Brow by brick stoppings built across No.6 and No.7 Brows. Following that part of the air current which, having passed beyond the top of No.5 Brow turned down the South Brow, it was found that, after being coursed round the workings in the Orrell Four Foot seam, it returned upbrow and eventually arrived at the No.5 Brow district where, at the junction of the No.8 Brow with No.10 Level, it rejoined the split which has reached this point by way of the No.5 Brow and the No.10 Level. The quantity of air in the last mentioned split, measured on the 25th. October was 6,060 cubic feet per minute. There was a current of air slightly over 12,00 cubic feet per minute which, after ventilating the workings in the No.5 Brow district, passed on to, and around, the workings in the No.2 Brow district, and then, after joining the return air from the North district, by way of a long main return airway to the upcast shaft which was the No.2 shaft.

This scheme of ventilation was in operation at the date of the explosion, but before the 5th. September, the two doors in the No.5 Brow had been near the top of that brow and no fresh air, other than that which leaked through the doors, was passing down the brow. It was a scheme which appeared to have been sufficient so long as the working of the Ravin Seam was confined to the getting of coal in "stret" places only, but when the boundary had been reached and the taking out of the pillars, formed by driving of the "stret" places, became necessary, then it's sufficiency became doubtful, especially as the goaf to be laid down was to the dip of the district.

The first sign of this, so far as could be ascertained from the firemen's report books or any of the witnesses at the inquiry, was the detection of firedamp, towards the end of the shift on 1st. September, in the working place of a collier, William Edwards. According to the evidence given by Mr. Edwards, he had just found this firedamp when the fireman, William Marsh, came into the place and Marsh, after making a test, withdrew him from it.

In his report book in reference to the inspection made by Marsh, he reported, under the heading 'Noxious or Inflammable gases' -"None, except a three per cent cap in W. Edwards' place in No.8 splitting. Place fenced off". A similar report was made daily by each of the three firemen inspecting in the No.5 Brow district until the report at the end of the morning shift on 9th. September William Marsh reported:- "Edwards' place clear, all fences removed". A second sign of doubt as to the sufficiency of the ventilation scheme occurred in the report of the inspection made on the same day, the 1st. September, of the No.2 Brow district, between the hours of 8 and 10.30 p.m. by the fireman of the district, Frank Clough. That report in reference to the finding of noxious or inflammable gases read:- "A show of 2 per cent. cap of gas coming from the No. 5 panel brow."

On the 1st. September, the manager was on holiday. He returned to work on 5th. September and after consulting with the agent and the undermanager, he set about trying to try to improve the ventilation on the No.5 Brow district. As things were, he found his greatest difficulty was to concentrate the ventilating current on the edge of the goaf and the working places, and to keep it from escaping through the stret places driven in

the first working. His first step was to take away the doors situated across No.5 Brow near the top, and to hang brattice sheets across that brow just below the entrance to No.10 Level, so fresh air was free to go down the No.5 Brow and into the panel side of the No.5 district by way of the No.10 Level, where it joined the air current which had been round the workings in the Orrell Four Foot.

The brattice sheets below the entrance to No.10 Level, however, allowed too much of the fresh air coming down the No.5 Brow to escape directly down that brow, so two wooden doors were erected and the brattice sheets allowed to remain. Brick stoppings were erected in Nos.6 and 7 Brows between Nos.10 and 11 Levels and across the entrance to No.11 Level off No.5 Brow.

On the 8th. September, the manager mad a test with a McLuckie apparatus to the return end of the No.5 Brow district to determine the percentage of firedamp in the general body of the air at that point, and found it to be 1.35%, This he considered to be an exceptionally high percentage, so he returned to the same district the following day and on making a similar test he found that the percentage had risen to 1.5. He measured the quantity of air passing down the panel brow intake and found it to be 10,000 cubic feet. He also made a similar measurement either on No.13 Level or in the working place below, he was not quite sure which, between Nos.6 and 7 Brows, and found the quantity of air passing to be 8,800 cubic feet per minute and to be carrying 1.2 per cent of firedamp.

Efforts to keep the air on the working places were continued and, on the 22nd. September a door in a brick wall stopping was erected on No.12 Level about 18 yards on the inbye side of No.7 brow but two days later, the Manager found, so far as he could remember, because he had kept no record, 0.3 or 0.4 per cent of firedamp in the general body of the air at the intake end of the district, rising to 1.2 per cent at the return end. He stopped all shotfiring in the district. On the 24th. September when he prohibited all shot firing in the district but, by the 29th. September, he considered the ventilation to be so improved that he felt justified in allowing the firing of the shots to be resumed.

The extracts from the firemen's reports seem that, no report of firedamp having been found between the 9th. and the 22nd. September, its appearance as reported by Storer, on the afternoon of the later day, by Lowe in the succeeding shift, and then again by Storer on the 23rd. September, had been the cause of shotfiring being prohibited. But Mr. Whitehead, the Agent, who visited the No.5 Brow district on the 26th. September, said that this was not the case and explained that shotfiring was stopped because of the finding of "a slight percentage, 1.2 per cent, of firedamp in the general body of the air". He said he was concerned about the ventilation of the district, not because of the 1.2 per cent firedamp in the general body of the air, but because of the two per cent firedamp reported by the firemen in the No.6 Brow even though it was also reported as being "made dilute".

This explanation was difficult to understand if the two per cent of firedamp reported by the firemen was, in fact "diluted as made". These words, however, have been understood in mining parlance or, having been used once, were repeated time after time in parrot-like fashion. The fireman Marsh, said the indication on his lamp of the firedamp coming from Nos.7 and 6 Brows ceased only when, travelling outbye along No.13 Level, he had nearly reached the No. 5 Brow. That there was no gas in the air all the way along No.13 Level from No.7 Brow to the end of No.6 Brow, and that this gas was coming up No.7 Brow continuously and was kept off the men working in the ribbing to the left of the at brow by a brattice sheet stretched from the landing place to the face.

The Inspector found it difficult not to doubt whether the whole of the facts in connexion with the occurrence of firedamp in the No.5 Brow district were divulged to the Inquiry, especially having regard to the evidence given on the last day the the Inquiry by a miner, Francis Smith. Smith said that three weeks before the explosion when packing rubbish behind a stopping in the brow, to the dip between Nos.5 and 6 brows, he was

"gassed" and had to be taken out of the mine. He saw of work a fortnight, had to have a doctor and was paid compensation.

Mr. Whitehead, during his inspection of the district on the 26th. September found that the ventilation was rather sluggish due to leakage along No. 12 Level, and he instructed the manager to improve the brattice sheets on that level and to hang more. These sheets were not in a neglected condition, but they were being lifted by the haulage rope, and the wood door on the inbye side of the No.7 Brow could not be kept shut because of the running of that rope. This door was removed from its frame and replaced by a brattice sheet.

During October the general state of the ventilation appeared to have been improved except that, as has been seen, two per cent of firedamp, "diluted as made", was continually reported until 10.30 p.m. on the 24th in No.6 brow and from that date onwards in the No.7 Brow, the same percentage being observed and the same remark. "diluted as made", was recorded. On the afternoon shift fireman, Storer, reported on his inspection made between the hours of 8.30 p.m. and 10.15 p.m. on the 7th. September, recorded that he had found no gas in No.3 Engine Brow which was off No.12 level, and that it was fenced off and was being attended to. In evidence to the inquiry, he explained that he found firedamp at 3.45 p.m. about half-way down the brow below the No.12 Level and he put a fence across the brow and then going down the next brow outbye, No.9 Brow, he also found firedamp half way along the right-hand ribbing and he put up a fence there too. He explained that this firedamp had accumulated because a brattice sheet across the No.12 Level at the top of the No. 9 Brow had been disarranged. He repaired this brattice sheet and went away to attend to his duties. He returned at 10.15 p.m. when he found the firedamp had been cleared as far as the bottom of No.3 Engine Brow. The next report in reference to this accumulation of firedamp was made by the nightshift fireman, Mr. Lowe, on the 8th. November, when he reported - "No.3 Engine Brow and No.12 Level found clear at 5 a.m."

There was a discrepancy in these reports. Storer reported he found gas in the No.3 Engine Brow off No. 12 Level and Lowe reported No.3 Engine Brow and No.12 Level found clear at 5 a.m. From the last report, it could be thought that Lowe had found firedamp on No.12 Level. It could have been that he had not read Storer's report with sufficient care and, when writing his own, he had in his mind that Storer had in fact reported that he had found firedamp on No.12 Level. The truth would never be known as Lowe was killed in the explosion. The main point of these reports lay in the fact when the dayshift fireman, Marsh, left the district towards the end of the morning shift on 7th. November and met Storer at the pit bottom between 2.30 and 2.35 p.m., he knew nothing of any firedamp in the No.3 Engine Brow and yet at 3.45 p.m. Storer found firedamp half-way up that brow, and according to his evidence, the disarrangement of a brattice sheet. At 5 o'clock on the following morning Lowe found that the accumulation had dispersed. This showed just how quickly firedamp accumulated following the disarrangement of the brattice even at the intake end of a district.

Mr. Latham became manager of the colliery in May, 1931 and it was on record that he did not consider the scheme of ventilating the Orrell Four Foot, the No.5 Brow and the No.2 Brow Districts, a good one. He planned to have two separate splits of air, one for the Orrell Four Foot and the other from the Nos.5 and 2 Brow districts. To do this, it was necessary to build two air crossings, one over the No.5 Brow and the other over the No.2 Brow, and to drive a road in the coal for some 130 yards, along which the return air from the Orrell Four Foot to the overcast over No.5 Brow would be led.

In September, 1931, Mr. William Roberts, H.M. Sub-Inspector of Mines, made an inspection of the No.5 Brow District and reported that he found an air crossing in the process of being built across No.5 Brow below the doors, which at that date were near the top of that brow and that those doors were later to be taken out. Unfortunately this intended rearrangement of the ventilation had not been made prior to the explosion

although everything had been completed for that purpose. The air crossing over No.2 Brow had been finished about a fortnight previously.

Shots were fired in the coal by duly appointed shotfirers during the morning and night shifts and by the firemen during the afternoon shifts. The explosive, Hawkite No.2, was supplied free to the colliers who took it underground in locked canisters. Only the shotfirers only had a key. The roads in the pit were dusted with carbonate of lime, between three and four pounds of this dust being spread per ton of coal drawn. The No.12 Level from No.5 Brow to the shunt at No.8 Brow was so treated on Tuesday, Wednesday and Thursday the 8th.,9th.,and 10th. November before the explosion. Three samples which were taken along the No.12 Level between No.5 Brow and No. 8 Brow from the floor, roof and sides contained 45, 9 and 19 percent of combustible matter respectively, while three samples taken from between Nos.8 and 9 Brows on that level showed 66 per cent of combustible matter in the sample taken from the floor, and 60 per cent in the samples taken from the roof and sides. The results of the tests showed that it was only in the area on the inbye side of the No.8 Brow that dust comparatively high in combustible matter was found after the explosion.

The manager, underlooker, firemen and shotlighters used 'Protector' flame safety lamps and the leading collier in each working place was provided with a similar lamp for gas testing purposes. He also had an "Oldham" electric lamp and this type of lamp was used by all other workers underground. The shaft siding to the top of the No.2 Brow was lighted by fixed electric lights. Two of the eight persons making each cage load were searched at the surface for matches and other prohibited articles and every person was again searched at the shaft bottom.

An electrical haulage engine was placed near to the No.9 shaft bottom for working the endless rope haulage to the South Level and South Brow. All other haulage engines in the mine are driven by compressed air. Two that were situated on the rise side of the South Level, hauled the sets of tubs up the No.2 and No.5 Brows by the main rope. One, situated on the North side of No.5 Brow opposite the entrance to No.12 Level in No.5 Brow district worked a single track endless rope haulage along that level. The return wheel was fixed some 18 to 20 yards beyond the top of the No.8 Brow. There were also, in that district, on the high side of the No.12 Level, small hauling engines at the top of Nos.7,8,and 9 and 9A Brows for hauling the full tubs up those brows. Signalling on all the mechanical haulage roads was by means of electrical bells except in No.7 an 9 and 9A Brows. The battery in each circuit consisted of several Leclanche cells and the conductors were of galvanised iron wire and the other copper covered with vulcanized rubber. Pushes were provided at places from which signals had, or might have to be given and it was intended that the signals should be given only by means of these pushes. Detailed inspection made after the explosion by Mr. James Cowan, Junior Electrical Inspector of Mines, found that the conductors in the No.5 Brow, which were not affected by the explosion showed many bare places on the conductor which should have been covered. About ten of these bare places occurred where joints he been made, but the remainder, about 60, were bare for about two and a half to three inches with the insulating material at each end of the bare part with clean cut edges. These appeared to have been made deliberately in order that signals might be given by bridging the conductors. This appeared to have been the practice, as Mr. Cowan found only two pushes on this brow and and one of these had no cover. He also found insulation missing on the No.12 Level.

In the No.12 Level engine haulage room Mr. Cowan saw a "Wigan Gastight" bell which was in circuit with the conductors that led along the level and the casing of this bell was broken and held on by a joiners wood screw. The battery consisted of three Leclanche cells connected in series to the bell push. A push on the No.12 Level near the entrance to the level was a water tight push as manufactured but the cover was missing and thus the contacts within the push exposed. Mr. Cowan examined the electrical signalling apparatus in the No.8 Brow and found parts were torn down and there was no

bell push at the bottom of the brow and bared wires as be travelled down the brow. With regard to the condition of the conductor which was intended to be covered it was recorded that William Ackers, whose duties were confined to the care of the signalling units and telephones in the mine said that pushes were installed at 30 to 40 yard intervals and it would not have been possible, to his knowledge, to give signals other than by using a push. He said he knew of no bare places on the covered conductors and that he had never seen a push without a cover. He said that the bell at the hauling engine at the top of the No.8 Brow was a "Wigan 1920 bell" with a battery of eight three pint Leclanche cells. This was corroborated by Arthur Holland who drove the engine during the morning shift.

Holland said that he had sometimes had to go down the No.8 Brow sometimes because the signal wires had got crossed and the bell kept ringing. This occurred about twice week and he had to go down the brow and uncross the wires and he put a road nail underneath the insulated wire to keep it in its place. This was always at the same place and the fireman on his shift, William Marsh, heard the bell ringing continuously just as he had and when this had occurred. Marsh thought that wires were crossed and sometimes Marsh had told him to have a look. Marsh said that this had occurred. Albert Tootle, who drove the hauling engine working the endless rope haulage on No.12 level, said the bell at that engine sometimes rang continuously. He acknowledged that the push might be sticking but as soon as a boy was sent to remedy the situations, the bell ceased to ring.

William Maltby, assistant electrician at the No.9 Colliery gave evidence that he had seen pushes occasionally without their covers and had seen places where the insulation had come off. He agreed with Mr. Cowan that were only two pushes on No.5 Brow and that there were places where the insulation was missing but he did not agree that either of the two pushed was without a cover. Mr. Maltby said that about two pushes about a fortnight came out of the mine for repair, usually a new cover or new screws. The reason that the screws were missing was that people stole them and covers went astray because if a push was sticking people took the cover off in order to signal more easily. He added that these incidents were reported to the manager.

Mr. Ralph Brown, electrician at the No.9 Colliery, who had been at the colliery for fourteen years, said that when he came, both the conductors in the signalling wires were bare and that the change to insulated ones. Bells with metal cases were introduced at the same time, these complied with the regulations. He disclaimed any responsibility for the signalling system underground but he received three or four times a week reports from William Ackers and from the firemen of missing covers. He regarded this as a serious matter both from a safety and an expense point of view. He had a serious discussion about it with the manager and the undermanager.

The scene for the explosion was set and the twenty five victims of the disaster were working an the night shift when at about 2 a.m. an explosion occurred about 1,200 yards from the pit bottom in the No.5 district where twenty eight of the one hundred and five night shift workers were engaged.

News of the disaster reached those in the vicinity of the pit early on the Saturday morning. One man who lived about three hundred yards from the pit was awake at the time of the explosion but heard nothing and the first indication that he had that something was wrong was a knocking at his door and the voice of a woman saying, "Number Nine's gone up".

Rescue gangs from a wide area rushed to the Colliery including the main Brigade from the Lancashire and Cheshire Owners Rescue Station based at How bridge, Atherton. Teams of volunteers also arrived form the Maypole Colliery, Wigan Junction Colliery, Richard Evans and Co., Bryn Hall, Collins Green, Wigan Coal Company and Crompton and Shawcross Collieries and relays from these brigades went underground with breathing apparatus throughout Saturday and Sunday until the last body was brought to the surface. A number of ambulances from Wigan Borough and Police were

rushed to the scene and remained standing at the pithead in the hope that there would be survivors.

In addition to the Rescue Brigades stoical heroism was shown by numbers of others who volunteered to go down the pit without breathing apparatus and assist in the operations. Among these was Mr. John Latham, the manager of the Colliery, who had a narrow escape while trying to drag a young man to safety. He was overcome by the gas and rescued in an exhausted state.

At the pit head, beshawled women and silent men waited at the pit head as news of the disaster spread. They remained throughout Sunday and well into the night despite the cold which blew from the colliery buildings. Mothers and sisters stood in groups some with children in their arms, hoping against hope. Even when the victims were brought out of the pit there was no sound from the crowd.

Below ground the first that was known of the explosion was a terrible flash of flame which despite its force spent its self in a surprising short distance due to the area having been dusted down with stone dust. Immediately after the news of the disaster spread through the pit, the workers organised themselves into rescue parties and heedless of their own safety, rushed to the aid of their stricken colleagues. Four men were brought out alive but despite the efforts of the rescue workers in the gas filled workings it was not until late on Sunday night that the rest of the bodies could be got out and brought to the surface.

Mr. Peter Bullough the undermanager also took part in the rescue attempts and although he was an elderly man he worked without rest for eleven hours and was also brought out of the pit in an exhausted state at three o'clock on Sunday afternoon and had to be revived with oxygen.

There was no lack of expert assistance and advice including Sir Henry Walker, the Chief Inspector of Mines and Mr. Gordon McDonald the M.P. for Ince went below ground. Mr. Christopher McBride was in charge of the first operations at the pit bottom. Dr. James, of Ashton, hurried to the scene and was reported to be in his bedroom slippers when he arrived at the pit.

The papers of the time reported that there had been a gob fire near the scene and that shot firing had taken place earlier. Evidence of burns were found on several disfigured bodies and on the injured and there had been a number of heavy falls of rock several of the dead having been buried. The coal seam is five feet thick in this district where the majority of the dead were located.

By 9 a.m. three bodies had been recovered and at that time it was thought that the death toll would be ten but it became increasingly obvious that the toll would be greater than this. At one o'clock twelve bodies had been recovered and they were brought out of the pit wrapped in field grey and red blankets to the saw mill which had been hastily improvised as a mortuary where they were placed to await identification.

Most of the bodies had the appearance of being gassed and two seem to have been stricken down whilst the rest were heaving coal in their arms. In all sixteen bodies were recovered on Saturday. The work went on all night and by Sunday, twenty two bodies had been recovered and the remaining three, Clough, Lodge and Beddows were under a heavy fall in the shunt.

The three were found lying near each other and Beddows was recovered just before 9 o'clock and he was lying near his engine and covered by a fall of debris. The fall was sixteen yards long and the task was rendered all the more difficult owing to the dangerous nature of the roof which was sprinkling and a heavy fall might have occurred at any moment. Beddows was seen lying near his engine but before we could get him out the roof came down again and the pick and shovel work had to begin again.

There were many messages of sympathy from all over the country. Lord Derby visited the Colliery Offices at Bryn on the Sunday following the explosion and expressed his sympathy and he conveyed a message of sympathy from the King which read :-

"The Queen and I are much distressed to hear of the disaster at the Garswood Hall Colliery and the serious loss of life involved. Please convey to the deceased relatives our heartfelt sympathy and make inquiries on your behalf on the progress of the injured.

George RI."

Copies of this message of sympathy were presented to the families and relatives of the dead.

Other messages of condolence came from the Prime Minister to Henry Walker, the Chief Inspector of Mines -

"Will you please express my heartfelt sympathy with the families of those who have been lost in the disastrous explosion at Garswood Hall Colliery early this morning. I am deeply grieved to hear of the terrible explosion."

There was also a telegram from Mr. Ernest Brown the Minister for Mines to Mr. Walker which read:-

"Deeply grieved to hear of the serious loss of life at the No.9 Garswood Hall colliery this morning. Please convey my sincere sympathy to the families and friends of those who lost their lives and keep me informed of the progress of the injured and of the rescue operations."

Mr. E. Edwards the Secretary of the Miners Federation of Great Britain sent a message to Mr. Edmondson, the proprietor of the colliery, which said:-

"Convey my heartfelt condolences to all as a result of the explosion."

Mr. G. Lansbury M.P., the leader of the opposition also sent a message and Lord Colwyn who was a former Chairman of the Company, who had resigned only a few weeks before said - "I am terribly grieved. I feel the deepest sympathy for the relatives of the dead men".

The news of the accident came as a sad blow for there had not been a serious accident at the colliery for almost thirty years. There was an official statement issued on the Saturday which stated:-

"The Management regret to report that a slight explosion occurred in the No.9 pit Edge Green Colliery, Ashton-in-Makerfield. There were one hundred men in the mine but the explosion was confined to one district in the No.5 brow and we regret to say that there were few survivors from this district. The death toll will probably be twenty three or twenty four. Fortunately the explosion was not caused by fire but there was a considerable amount of firedamp. The causes of the disaster are as yet unknown beyond the fact that an explosion occurred and the cause of the disaster has not yet been established."

Those men who had got out of the pit alive had graphic stories to tell. John W. Devenny, one of the injured was interviewed at the Wigan Infirmary suffering from shock and he said that he heard a noise which sounded like a crump and the fireman came up and asked him if he had heard anything and he went away to investigate. The fireman later telephoned for some men to go along.

A rescue worker, George Henry Jones, of York Street, Ashton-in-Makerfield, a packer who was at work three miles away in the Arley mine was called upon for the rescue operations. They came across a shotlighter who was moaning on the ground and took him away.

At a colliers working place they found three men lying on the ground lying on the ground of which two were dead. Jones was asked to go and get help and as he went along he saw three lamps but no trace of any men. He reported this to the undermanager who found that a large fall fourteen yards long had occurred. The undermanager had to get over this and by the afternoon a number of bodies had been recovered from under the fall and the bodies were not recovered until an enormous amount of debris had been removed.

One of the early volunteers of the rescue work, John Fearnley aged 25 years, a collier of Old Road, Ashton-in-Makerfield, had an amazing escape. He had rushed from the

Arley mine when news of the disaster spread. When the first volunteers retreated from a wall of gas it was discovered that he was missing. His family was waiting at the pit head. He was last seen in the early hours of Sunday morning and as the day wore on it was four o'clock when the news came that Fearnley had been discovered alive.

A Doctor went down the pit and took a bottle of brandy and the ambulance took Fearnley to Wigan Infirmary. It appears that he went to the scene of the explosion when he was overcome by the gas and became unconscious. He remembered nothing more until he found he was sitting up against a pit prop with the debris of the roof around him but he was too weak to move and it was very quiet in this region of the dead. He saw a glimmer of lamps and his spirits rose. He called as loudly as he could in his enfeebled state and was rescued. At the Infirmary he had little recollection of what had happened.

"I found myself alone and there was very little to do except sit there and wait. My lamp had gone out I was in total darkness and I drifted in and out of consciousness and I was afraid that I would not be found. I looked down the drawing road and was overjoyed to see a light move across and knew that the party was near. One or two more lights appeared and they heard me and got me out of the mine."

More details of the conditions below ground and the work done by the men and conditions were revealed at the inquiry into the disaster which took place some months later.

The notes on the victims were made at the pit head as they were brought out of the pit and examined by the Doctors. The notes appeared in the report of the official inquiry and were typical of the injuries received by men who had been in a mine explosion.

The medical report on the victims was made by Dr. S.W.Fisher, H.M. Medical Inspector of Mines attended the mine on the day of the explosion and the following day. He visited Wigan Infirmary and there by the consent of the Hospital Authorities, he was allowed to see the men George Dallimore and Patrick Quinn but they were so ill he made no attempt to speak to them.

Dr. Fisher's evidence pointed to the site of the greatest flame during the first explosion being on the No.12 Level. When giving his evidence, Dr. Fisher bore testimony to the assistance given to him by the ambulance men and to the satisfactory nature of the ambulance arrangements.

Those who died were -

Edward Mitchell aged 55 years, a married man of 7, Russell Street, Wigan who was a pit setters labourer. He had burns to the lips and superficial on the face singed hair.

Joseph Pimblett aged 60 years. A married man of 6, Golborne Road, Ashton-in-Makerfield a bricksetter. He had Superficial burns and numerous small cuts.

Ernest Yates aged 22 years, a single, of 315, Bolton Road., Ashton-in-Makerfield. He had a small burn on right shoulder.

Joseph Lowe aged 64 years. A married man of Birch View, Edge Green, Ashton-in-Makerfield who was the colliery fireman. He had superficial burns.

Joseph Hill aged 39 years of 249, Edge Green Lane, Golborne who was a collier. He had extensive superficial burns.

Joe Uel Prescott aged 43 years. A single man of Edge Green Lane, Golborne who was a collier. He had superficial burns and no other injuries.

Frederick Hughes aged 50 years a married man who lived at 67, Golborne Road, Ashton-in-Makerfield who was a collier and had superficial burns and no other injuries.

John Pownall aged 56 years. A married man of 46 Church Street, Golborne who was a winner. He had superficial burns and no other injuries.

William Campbell aged 41 years of 3, Leigh Street, Golborne. He had extensive and superficial burns and no other injuries.

Henry Pennington. A married man of 8, Dane St., Golborne and was a collier, aged 44 years. He had extensive and superficial burns and no other injuries.

Gordon Rowland Bell aged 52 years. A married man of 6, Helen Street, Golborne who was a collier. He had superficial burns and a scalp wound.

Peter Thornton aged 42 years, of 14, Child Street, Golborne who was a collier. He had extensive and superficial burns and no other injuries.

William Catterall aged 50 years. He had superficial burns and abrasions to the left side of the face as though he had fallen heavily in dust. He was a married man of 34, Golborne Street, Ashton-in-Makerfield who was a collier.

Thomas Woolham aged 37 years who had superficial burns and no other injuries. He was a married man of 4, Church Street, Downall Green who was a collier.

James Broughton Brogan aged 41 years. A married man of 26, Liverpool Road, Ashton-in-Makerfield who was a collier. He had superficial burns abrasions to the head and a small scalp wound at the back of the head.

Harold Woodcock aged 29 years. He had extensive burns and not other injuries. He was a married man of 12, Edge Green Street, Ashton who was a collier.

Thomas Lyons aged 20 years, a single man who was a haulage hand of 34, Dan Lane, Golborne. Burned from head to foot, very sever over the lower part of the thighs back and front. Deep cut three inches long to the bone on the right side of the forehead caused post mortum, bone not fractured at site of injury. Swelling over left upper arm and shoulder.

Alfred Gill aged 26 years. A married man of 54, Warrington Road, Platt Bridge who was a collier. He had extensive and superficial burns over the arms calves abdomen and over the back but no other injuries.

William Carless aged 18 years a single man of 9, Liley Lane, Ashton who was a haulage hand. He was burnt on both legs right below the knee and inside the thigh. He was burnt on the front left thigh and leg hair singed both arms burnt mostly on the right no other injuries. On his back his right thigh extensively burnt posterior (over scapula region) large deeper burnt area 12 inches by 6 inches, roughly the upper part of back also burnt. He had no other injuries.

William Kenny aged 30 years. A single collier of 12, School Street, Golborne who had superficial burns from head to foot. Feet protected by clogs no other injuries.

Austin McDonald aged 28 years. A single collier of 46, York Road, Ashton-in-Makerfield. His face and hair singed and extensive superficial burns to the arms and chest and legs. Deeper degree of burning over the whole of the right side of the chest also to the inner side of the thigh and legs. There was a blister containing clear fluid at the back of the waist and a deep cut over lower third of right shin.

Herbert Hughes aged 23 years who lived with his father who was also killed at 67, Golborne Road, Ashton-in-Makerfield. He had superficial and extensive burns all over the body. Four small wounds cut over the left eye, comminuted fracture of left elbow.

Jospeh Clough aged 20 years. A drawer who was single and had burns to the forearms and hands, thighs and legs and eyelashes singed. Simple fracture of the lower third left leg.

Fred Lodge aged 36 years. He had burns confined to his back and a simple fracture to the lower left third of the left leg. He was a single man of 8, Druid Street, Ashton-in-Makerfield who was a drawer and Hector Beddows. An engine boy aged 16 years of 39, North Street, Ashton-in-Makerfield who was a drawer. He had both hands severely burnt hair and eyebrows singed burning passing along the thighs body pitted where it was pressed against the floor. A piece of coal about three quarters of an inch was driven into the left upper arm. Badly crushed compound fracture of the right leg caused in the opinion of the doctor after death.

In every case carbon monoxide gas was the immediate cause of death although some burning was very extensive. Any other injuries were comparatively slight and would not themselves cause death with the exception of the injuries of Beddows, and possibly Clough and Lodge.

Those who had been got out of the mine alive but injured and were taken to Wigan Infirmary were -

George Dallimore aged 50 years. He had superficial burns to the arms, chest and head. Moustache singed and hair as well. He was asleep and unable to be questioned. Tannic acid treatment was administered at the colliery and continued in hospital. He died on the 18th. November 1932, Patrick Quinn aged 55 years, a shotfirer of Golborne Road who had a compound fractures to both legs dislocation of the right ankle lacerated ear fractured jaw. He was too ill to be questioned in hospital. There were visual signs of carbon monoxide poisoning which was shown by the pigmentation to the face and lips, was absent. This could have been due to the time that had elapsed. He died 19th. November 1932, William Williams aged 22 years of Bank Street, Golborne who suffered from shock and the effects of gas and John Devenny of Colliery Cottage, Edge Green, Golborne who suffered from the effects of gas and shock.

George Gilmore aged 50 years of Victoria Road, Platt Bridge who had burns to the face and shock.

The victims were buried at St. Thomas' C. of E., Ashton-in-Makerfield, St. Oswald's, Ashton-in-Makerfield and Downall Green Parish Church.

The time within which the investigations the area affected by the explosion could be made was cut short by a decision made by the Managing Director of the Company, Mr. J.H. Edmondson to erect stoppings at certain points. Mr. Edmondson made this decision solely on the grounds of safety.

At 7 a.m. on the morning following the explosion Mr. C.M. Coope, manager of the Lyme Colliery belonging to Messrs. Evans and Co. was in the No.5 Brow district and found a peculiar smell near a pack at the bottom of the No.7 Brow. To Mr. Thompson, the only thing this smell conveyed to him was that there was "that there might be something left behind by the first or second explosion". It was not anything like as strong as the 'gob stink' which, in his experience, came from a heating in the Ravin Seam but it did suggest the possibility of spontaneous combustion. Mr. Coope did not express any opinion as to what it might mean. Mr. Thompson went to the surface about 8 p.m. and saw Mr. Whitehead and Mr. Sword, who had not been underground that morning. He reported the finding of the smell which he told them he thought "Was the parafinny smell that you get in the very early stages on any heating". He did not tell Mr. Whitehead and Sword that there was any heating. He did not think there was a heating but it was a sign that there might be something in the very early stages. He was, as he said 'trying to be ultra-cautious if possible, knowing there had been two explosions in the district'.

Mr. Coope, on leaving the mine, conveyed his views to Mr. F.B. Lawson, the general manager of the Haydock Collieries of Messrs. Evans and Co. who had hurried to the scene of the disaster and had been underground on the day of the explosion. An investigation was there upon made on the spot by Mr. Whitehead, Sword, Bullough, McBride and Coatesworth and later in the day by Mr. Walker, Mr. Charlton, Mr. Stevenson, who was a past manager of the No.9 Garswood Hall Colliery. In no case did anyone consider the smell to indicate the presence of gob fire or of heating. Mr. Latham, the manager, did not associate the smell with a heating in the goaf but said that the idea of a possible heating having been put into his head by other people, made him very anxious, knowing as he did that there was a good deal of firedamp in the mine.

The opinions of Mr. Stevenson and Mr. Bullough, as men of great experience in this mine, carried much weight in reassuring Mr. Walker and he was also reassured by the favourable results of analyses of the mine air for carbon monoxide content taken on the day of the explosion and the following day by Mr. Ivor Gibson, Assistant Director of the Birmingham Research Laboratory and his assistant Dr. T.D. Jones,

When the explosion occurred, Mr Edmondson had been ill in bed for a week, but he came to the Colliery Office but was not able to go underground. Mr. Walker was present in the office on the following day of the explosion before his underground, when Mr. F.B.

Lawson, having had Mr. Coope's message, first suggested that the smell might indicate a heating in the gob and that there was on this account further risk of another explosion with possible loss of life.

When Mr. Walker returned to the surface. Mr. Edmondson had left the colliery so Mr. Walker was not able to advise him, personally. Mr. Walker was fully reassured of the position. Mr. Edmondson was ill, being so concerned lest any further disaster should occur had however given orders for the district to be sealed off.

It was unfortunate, that while the putting in of certain of the first stoppings was mutually agreed between Mr. Charlton and Mr. Edmondson, the final sealing off of the district was done without discussion between representatives of all who were interested. During the examination of the explosion area after the event, a damaged flame safety lamp was found and this was carefully considered as a possible source of ignition. The results of the investigations made on the lamp that was found at the bottom of the No.9 Brow. The lamp was called, "Damaged Flame Lamp No.62". This damaged lamp was found on the evening of the day following the explosion when Messrs. Whittaker, a surveyor, Simmons, assistant surveyor and Messrs. Bloor and Roberts, H.M. Sub-Inspector of Mines were engaged in taking measurements of the district to make a plan showing the effects of the explosion. The lamp when found apparently minus its glass the gauzes being down in the oil vessel. When examined later in the Office of the Colliery the gauzes were lifted and a piece of glass fell out. The lamp was examined at the Mines Department Testing Station, Sheffield by the Superintending Testing Officer Captain C.B. Charlton who submitted his findings to the Inquiry.

His report on the particular lamp came to the following conclusion -

"With the exception of lamp 62 all the other lamps both flame and electric were in good condition and as received were incapable of igniting firedamp.

I could find no evidence that lamp 62 had been burning in an atmosphere contain firedamp."

The electric bells and the signalling equipment in the mine also came under great scrutiny. Two electric signalling bells as described below were sent to Captain Platt for the purpose of ascertaining, in respect of either or both, whether the spark produced by breaking the external circuit and at the trembler contacts whilst the bell was ringing was capable of igniting firedamp.

A '1920' bell by which the signals given on the No.8 Brow were indicated to the haulage engine driver at the high side of the No.12 Level. A 'Wigan Gastite' bell taken from the haulage engine on the north side of the No.5 Brow opposite to the entrance to the No.12 Level. The results of Captains Platt's experiments were that the spark it produced did ignite an explosive mixture of firedamp and air. Captain Platt also made tests to find out whether the pushes installed in conjunction with the bells were flameproof. With the cover of the push removed, the spark produced at the make and brake contact, when the push was operated, ignited firedamp.

In a series of tests which Captain Platt made to determine whether the actual case of the switch was flameproof, he found that when it was completely assembled, as intended by the maker, an ignition of gas within the case would not pass flame to the outside atmosphere. If, however the small rubber gasket at the gland of the switch case and a small hexagon nut retaining the gasket on position were removed then a flame from within the case could pass to and ignite gas (8.3 per cent firedamp) in the outer atmosphere. This occurred even if the line wire was in position through the gland. Ignitions were not however obtained every time and were as Captain Platt described them "Chancy".

All the possible causes of the explosion were examined. They were shotfiring, a fire due to spontaneous combustion, to which the Ravin Seam was subject, a match struck for someone smoking, sparks or heat due to falling rock, a damaged safety lamp and electricity.

Examining these possible causes, there was no evidence of any sort that a shot had been fired immediately prior to the explosion. The evidence given by Mr. Ivon Graham and of Dr. T.D. Jones, eliminated any suspicion that a fire due to spontaneous combustion might have been the cause. There was a careful inspection of the area for matches or smoking material failed to reveal any signs of such articles and there was no evidence of a fall having occurred prior to the explosion and the roof was shale nor rock. Two falls were found on the No.12 Level after the explosion but as burned bodies were recovered from beneath each of them, it is evident that they occurred after the explosion.

There remained, a damaged safety lamp and means of ignition caused by electricity. Mr. D. Coatesworth, H.M. Junior Inspector of Mines, expressed the opinion that the point of origin of the first explosion was in the No.12 Level, somewhere between Nos.7 and 8 Brows and considered that an explosive mixture of firedamp and air accumulated in that level because the ventilation current was more obstructed by the restrictions in the path that it was intended to follow than it was by the numerous brattice sheets placed across No.12 Level. He considered that this accumulation was ignited either at the bell-push or at the wires, while a signal was being given to move the haulage rope on No.12 Level. He had heard evidence that there was no pushes in the mine which did not have covers and that it was extremely exceptional for pushes to be found without covers but he had also heard the evidence of Mr. Cowan who found pushes without covers and when in the north district subsequent to the explosion he had himself seen nine pushes four of which had no covers and the fifth otherwise defective.

The second explosion in Mr. Coatesworth's opinion was caused by something left burning by the first but he was not prepared to say definitely where that burning was. He thought that it was at the fall at the top of the No.8 brow but it might have been elsewhere. The suggestion that the damaged safety lamp had been the cause of the explosion was dismissed by Mr. Coatesworth. Mr. L.T. McBride, Senior Inspector of Mines, agreed with this opinion.

There was now only the one other cause, namely electricity, which was in use in the No.5 Brow district at the time of the explosion for the purpose of giving signals. The evidence was quite clear that Harold Hesketh, the driver of the haulage engine working the haulage along No.12 Level received a signal from the gangrider who was in the shunt on that level between No.7 and 8 Brow "to stretch up" and within a short interval, Hesketh gave that interval as 13 seconds and then as 18 seconds, he heard a report like a shot which came out of the No.12 Level and was followed by dust also out of that level. There was no doubt that an electric spark made when that signal was given, ignited firedamp which had collected in the shunt on No.12 Level. Mr. Charlton thought that firedamp would accumulate in a cauch or ripping and even if a strong current of air is passing beneath and would remain there.

During the Inquiry, suspicions became fastened on the brickwork wall with a door in to which had been erected in No.12 Level in an endeavour to prevent air leaking from the intake outbye long this level. There were no less than ten brattice sheets across No.12 Level in addition to the brick wall which had had a door in to but in which the door had been replaced by a brattice sheet because the movement of the hauling engine kept the door open.

The manager, who said that he knew that district better than the fireman, described the condition of the brattice sheets and of the brick wall in the No.12 Level and said that the brattices were good, fairly heavy, and three or four layers thick. They were swung from the roof bar and fastened to the roof bar and swung down and fastened at their sides as well. In regard to the brick wall, he said it went up to the roof and it had a door frame, about four feet by four feet from which the door was taken away and replaced by a brattice sheet.

Mr. Latham described the brattice sheets to be good but there was still a leakage of air along the No.12 Level but that leakage was very small. Some air leaked air trough

three brattice sheets between Nos.9 and 8 Brows and turned down No.8 Brow that some went on through the sheet over the door frame in the brick wall and the brattice sheet between Nos.8 and 7 brows and turned down No.7 brow. The remainder of the leakage went on and through the two brattice sheets between Nos.7 and 6 Brows and turned down No.6 Brow.

Keeping these conditions in view and remembering that the seam dipped one in five and a half to the goaf, there had been no difficulty whatever with firedamp until the goaf was formed. The air had to travel a long way and therefore the air current sluggish. Was it natural that firedamp would creep along the roof from the goaf up into the No.12 Level in spite of the 'very small' leakage of air along that level of which Mr. Latham gave evidence? The answer could only be 'Yes'.

Such behaviour of firedamp is within the knowledge of mining men with experience of the working of inclined seams. What Manager who had tried to course the air down an inclined face had not experienced the great difficulty of preventing the firedamp given off that face from accumulating at the top end?

Two questions remained to be answered, namely:-

- 1) Why did not the firemen discover firedamp in No 12 level? and
- 2) At what height from the ground was the signalling push in the shunt in that level?

The two firemen, Marsh and Storer and the gangrider Albert Woodcock on No.12 Level were recalled to give evidence on the last day of the Inquiry. Storer was called first and he was asked to describe exactly the route followed when making an inspection of the No5 brow district. This he did. He was asked to show exactly where on that route he made the theses for gas and this he did. Marsh was also called and he was asked to do the same having given his replies it is clear from the replies of the firemen that neither of them made any tests for firedamp on the no 12 level. according to the evidence given by Mr. Latham he did not expect the firemen to take any test on No 12 level except at the far end.

It maybe said that the drawers and the others working at the No.12 Level would have smelled firedamp if it had accumulated there. The reply to this is that on the Sunday following the explosion, there were places in the No.5 Brow where there was so much firedamp that safety lamps had, if they were to be kept alight, to be kept close to the floor and yet that firedamp even to those on the look out for it was not smelled. There certainly was a smell at the bottom of the No.7 Brow on that day but even to sense that smell, it was necessary to be within a very small radius of a certain spot.

The effect of the presence and movement of the drawers and of tubs passing to and fro along the No.12 Level would be to mix the firedamp and air between the brattice sheet. Albert Woodcock followed the fireman, Marsh in the witness box on the last day of the inquiry and on being asked to indicate in what position his hand would be when he was pressing the push in the shunt on the No.12 Level he raised his hand to a point slightly above his head. He was five foot eleven inches tall.

Coupling with these facts the evidence by the electricians during the inquiry in reference to the constantly recurring occasions on which covers of such pushes had to be replaced or repaired, the apparently casual manner in which, and the frequent intervals at which, the underground electrician made inspection of the signalling apparatus. The evidence given by Mr. Cowan in regard to the numerous bare places evidently made for the purpose of bringing the conductors together for the purpose of giving signals and the fact that on that day of the explosion I myself saw an uncovered electric bell-push on No.5 Brow near by Hesketh's hauling engine I have no hesitation in reporting that the first explosion caused by the ignition of firedamp which had accumulated in No.12 Level and the cause of the ignition was the open sparking signal given by Hesketh to 'Stretch up'.

It may well be asked if the explosion has occurred as I have said why did one not occur before?. At the foot of the No.9 Brow there was marked a break in the roof. That

break was along the low side of and touching the pillar of coal and ran along by that side of that pillar towards No.8 brow.

On the last day of the inquiry, a witness, Francis Smith, of whose important evidence would not have been presented but for the fact the Mr. Latham, when giving his evidence, said that he had not been given certain information by Smith. Smith said that when he was working at the bottom of the No.9 Brow about 9 o'clock on the night of Friday 11th. November, that is some five hours previous to the explosion, the waste below the No.9 Brow was weighting but there was no beak in the roof. The break was there after the explosion and if firedamp came off at that break, as no doubt it did, it would rest on the sluggish current of air, keep to the high side of the place which was the side at which it was emerging at the break pass along No.8 Brow up that brow to No.12 Level and accumulate in the space provided between the roof and the level of the lintel of the door frame in the brick wall. This course of events may have been the answer to the question but it has also to be remembered that Captain Platt in his evidence in reference to his experiments with the electric bells said that he did not get an ignition of firedamp every time he made and broke the external circuit.

With the accumulation of firedamp on the No.12 Level was ignited there would be a train of flame right back to the point from which it was emerging and coal dust would be stirred up partially consumed resulting in the production of the deadly carbon monoxide gas. George Dallimore alone of the 26 persons in this part of the No.5 Brow escaped and he owed his escape to the fact that at the moment he was working in the intake air at the entrance to the district.

The flame died out on the No.12 Level in an outbye direction namely owing to the release afforded by the openings to the left and right up and down No.7 Brow and the presence of stone dust prevented the burning of coal dust.

On the inbye sides of the No.8 Brow there were openings left and right up and down No.9 Brow but that part and all parts inbye had not been dusted with stone and the coal dust prevalent in those parts and especially prevalent because the workings were 'broken' workings would and did extend the area over which the flame spread.

The second explosion was due to a fire left as a result of the first and that fire was in the shunt in No 12 level and to have been extinguished by a heavy fall which was found later in that shunt. It will be remembered that in his evidence Hesketh described he appearance of the atmosphere at the outbye end of the No.12 Level after the first explosion as being like mist, whereas he Daly and Duffy were near the entrance to that level some time later before the second explosion occurred they describe the atmosphere emerging fro that level at that time as black fumes with a peculiar smell as something burning.

The two doors on the No.5 Brow were blown open by the first explosion and remained open after Quinn and Hesketh soon after the explosion had passed through then when on their way to the No.5 Brow. Later they were closed by Duffy, Daly and Hesketh and a second explosion occurred within a few minutes there after. It may be, as was suggested by Mr. Coatesworth and probably was the fact that the second explosion was hastened by the closing of these two doors. It was certain that if they had been blown open by the first explosion and remained open and so allowed fresh air to go direct down No.5 Brow and into No.2 Brow the men in that district would all have been killed by the carbon monoxide in the afterdamp carried on to them. As it was they had a narrow escape.

The Official Report began by commenting on the conditions in the colliery before the explosion. The scheme of ventilation was bad and it was recognised that the manger evidently recognised that this was the case.

Long before the working out of the pillars was begun, Mr. Latham had started to make preparations with a view to an alteration. The Inspector of Mines commented -

"It was unfortunate that he did not press on with the work. It could have been completed long before the removal of the pillars formed I the stret work began and

it is surprising that when firedamp began to give trouble he did not then immediately complete his scheme it is also surprising that the Agent, Mr. Whitehead did not press him to do so instead of telling him, as he did to put more brattices across No.12 Level."

The new scheme would have given each district its own air supply and have got rid of the several doors erected on the haulage brows. The air current at the time of the explosion had to find its way as best it could along the edge of the goaf which was always a dangerous practice. The travelable airways should have been kept open either by the use of chocks or stone buildings.

It would have been a wise for Mr. Whitehead and Mr. Latham to have taken Mr. Charlton into their confidence when they found themselves in difficulties they should have either have gone to see him or asked him to visit the colliery to discuss the position. If they had done so the advice which Mr. Charlton with his long experience could have given then would have been of great value.

On this point, Mr. Walker commented -

"On many occasions I have tried to impress upon those in charge of the working of mines that when in difficulty their proper course was to take the Inspectors into their confidence to put their troubles clearly before them and to ask for their help. The Inspectors are at all times anxious to be of assistance and especially in times of their difficulties."

The signalling system came under great scrutiny at the inquiry. It was found to be unsafe in the presence of firedamp. It could be thought that the No.5 Brow on the inbye side of the doors of the No.12 Level were not parts of the mine in which inflammable gas, was likely to occur in quantity sufficient to be dangerous and that the General Regulations did not apply, but this could not be the case in regard to the foot on No 8 brow.

The position does not seem to have been understood. The system in use had been described, two conductors one insulated and one bare, pushes and bells which were thought to be flameproof and batteries of Leclanche cells. Had the bells and pushes been flameproof and maintained in that condition and had signals been given by means only of bell pushes, then the system was safe. But the bells and pushes, even if they were flameproof when new, were not maintained in that condition and signals, in view of the numerous bare places on the insulated conductor, obviously were used other than by using the bell-pushes. The bells themselves were not safe. They were of such construction that the spark given when the circuit was made and then broken, was capable of igniting firedamp.

It had not been realised that to ensure safety under all conditions when using electric bells, the bells themselves must be of such construction, that the spark given at any point within the bell should have been incapable of igniting firedamp.

Many types of bell were available which had been tested and certified by the Mines Department as safe. Their safety was achieved by incorporating a device which absorbed part of the energy which otherwise would be released on breaking the circuit at the point at which the signal was given.

Mr. Walker commented -

"The position is complicated and not easy to understand. It is necessary that it should be cleaned up and steps are being taken by the Mines Department to this end."

When an explosion occurred in a mine it was natural for those men who had not been affected, without waiting for the arrival of the Rescue Brigades to enter the area covered by the explosion with the object of giving aid to any of their comrades who may be alive. They looked for firedamp and so long as they can keep a light going forward, were unaware of the much greater danger from the carbon monoxide. It was realised that it would be hopeless to try to prevent men acting in this manner but the officials of every

mine should have knowledge of this danger and the means by which men unequipped with rescue apparatus can guard against it.

This point was mentioned during the Inquiry and at the close, Mr Walker made some observations upon it which were to the effect that in mines in which an explosion is possible, mice or small birds should be kept in every district for the use of those who attempt rescue operations before the arrival of a Rescue Brigade.

He went on to say -

“The suggestion may seem, no doubt, fantastic, but I know no other means of protecting men in such circumstances. It does not appear efficient, as is now required to keep birds at the surface of every mine for the would be rescuers are themselves already underground and forget or may never have known of the birds kept at the surface. Where birds kept underground their presence would be known and the reason for their presence would become common knowledge.”

The Official Inquiry into the Edge Green Explosion finished with these words -

“In conclusion I desire to record my deep appreciation of the courtesy shown to me by the representative parties to the Inquiry and by all those who attended the Inquiry.

I have the honour to be,

Sir,

Your Obedient Servant,

HENRY WALKER.”

CARDOWAN. Stepps, Lanarkshire. 16th. November, 1932.

The colliery was the property of Messrs. James Dunlop and Company, Limited and there were two shafts at the colliery. The No.1 was a downcast and the No.2 upcast. Each shaft was sunk to the Kilsyth Coking Coal Seam which was reached at a depth of 342 fathoms, the Main Coal Seam was struck at about 237 fathoms and the Wee Coal Seam at 242 fathoms, the output from the Kilsyth the Coking Coal Seam was wound at the No. 2 shaft and that from the Main Coal Seam at the No.21 shaft. The Wee Coal Seam was worked for a time but proved too thin and the workings were discontinued. The Main Coal Seam varied in thickness from 24 to 36 inches and there were three districts known as the East, South Heading and the West. The coal was worked by longwall method and coal-cutting machines, conveyors and gate-end loaders were driven by compressed air in each district. The seam was a very gassy one, dry but not dusty and the coal was fairly hard and brittle.

The ventilation was produced by a double inlet Sirocco fan and a total quantity of 220,000 cubic feet of air per minutes passed into the mine at a water gauge of four and three quarter inches. of this quantity, about 100,000 cubic feet was circulated in the Main Coal Seam. Limestone dust was used for dusting the floor, roof and side of the roads with about half a pound of dust being used for every ton of coal produced. The fireman and the shotfirers were provided with two flame safety lamps and in addition, an electric cap lamp. Electric cap lamps were also used by the greater proportion of the workmen but some used electric had lamps and a small proportion had flame lamps. Mr. John Macdonald Williamson was the agent and manager and Mr. James Peacock the surveyor who was also responsible for collecting representative dust samples form the floor, roof and side of the roadways for analysis and for making practical tests for firedamp in the return airways by means of a McLuckie apparatus.

At the time of the explosion the West district consisted of a longwall face about 760 feet long which dipped at 1 in 6 to the North East. The face was divided by the main intake airway and haulage road into two parts, that o the rise was 480 feet long and that to the dip was 280 feet. It was on the latter part of this face that the explosion occurred. The seam was three feet thick with a blaes roof and a fireclay floor.

The ventilating current for the West district was measured at 22,800 cubic feet per minute in the main intake, 100 yards back from the face on the 2nd. November. The current was the split right and left. The dip side split had two returns the 7 x 7 road, which was about halfway down the face and the 'downset' road at the extra end. A check screen was hung in the 7 x 7 road about 200 feet from the face to prevent too great a proportion of the split from travelling that way.

Two days after the explosion the measurements were taken with and without this screen in position and the air passing on the dip side was measured at 7,080 cubic feet of which 6,720 cubic feet were passing down the 'downset' road. with out the screen in position 3,50 cubic feet passed to the 'downset' road. Sail screens were erected at right angles to and about 3 to 3Å feet from the coal face and carried 12 to 16 feet into each dummy road. The air that was diverted from the face in this manner was found to be sufficient to ventilate the roads.

Tow chain-cutting machines which were driven by compressed air were used to undercut the coal to an average depth of four feet. Two shaker conveyors which were arranged in tandem, delivered the coal from the face to the rise of the main road on to a loader tub placed in the road. The coal got from the face to the dip was delivered on to the same loader belt conveyor. Work was carried on at the face on a 24 hour cycle in the West District. During the night shift, 11 p.m. to 6.30 a.m., coal-cutting, completion of brushing the roads and moving forward the conveyors was done by 35 people. The day shift, 7 a.m. to 2.30 p.m., there was shottfiring in the coal stripping and loading coal, boring shotholes in the brushings was done by 45 people and on the afternoon shift, 3 p.m. to 10.30 p.m. the conveyors were disconnected and moved forward, roads brushed and shot holes bored in the coal by 30 persons.

All the work on the face with the exception of shottfiring was under contract. Robert Kirkland, who held a Second Class Certificate of Competency was the contractor. Supervision on each shift was by the fireman. The fireman on the afternoon and night shifts fired the shots in the brushings and the day fireman had two shottfirers who fired shots in the coal. The shot holes in the coal were bored 3Å to 4 feet deep, four to five feet apart in the top six to nine inches of the seam which was hard coal. The charge of explosive in each hole in the coal was limited to a single cartridge which weighed one and a half ounces which were stemmed with eight to ten inches of tough clay. In the brushings 'Polar Ajax' was the explosion that was in use and 'Rounkol' and A.1 Rounkol' in the coal. The average number of shots that were fired for the three months ending 15th. November were 14 by the afternoon shift fireman and the night shift fireman in the brushings and about 70 by the day shift fireman and one shot firer and about 60 by one shottfirer in the coal. It was noted that there was an irregularity on the day shift as detonators were given to the firemen by the shottfirer to whom they were issued from the store.

Stone dust was stored in bags in the main intake and from there was taken to the roadheads as it was required. The most recent entry in the firemen's reports of firedamp in the West District prior to the explosion was dated 7th. April 1932 and that entry referred to firedamp found on the right side of the face. Gas did not seem to have been detected on the dip side at any time. The last test before the disaster was made on the 27th. October by Mr. Sleight with the McLuckie apparatus and showed 0.2 per cent present in the return air from the dip side and 0.5 per cent in the return air from the rise side.

The explosion occurred at the face to the dip of the main intake at about 8.45 a.m. At the time the conveyors and gate-end loader had been standing for several minutes owing to a lack of empty tubs. Peter Lusty a miner, Andrew Murphy, the conveyor engine attendant, two loader attendants, James McVey and Michael Flynn, a putter, Patrick Johnson and the contractor Robert Kirkland were at work and John Whiteford, the shottfirer, and ten other men were also at work. Of these men who were actually on the face all with the exception of Lusty who was about 7 feet to the rise of the main intake

were burned. Of the 12 who were burned, six came out of the face into the intake without help, two had to be assisted and four were found dead. Of the eight who came out of the face, five died later in hospital as did the two loader attendants, James McVey and Michael Flynn who were burned.

At the time of the explosion, Robert Kirkland, contractor, was standing on the main intake about 30 to 40 feet from the gate-end loader with his back towards the face. He heard no noise but felt a slight heat on the back of his neck and a blast of air which raised a thick cloud of dust. He turned round and saw Michael Flynn with his shirt on fire. Kirkland and Patrick Johnson tore the shirt off and Johnson took him out by. Murphy and Rae, then Sharpe and then Bradley and Watt came out from the face. Lusty came next and he was immediately followed by Whiteford, the shotfirer. Kirkland asked Whiteford what had happened and Whiteford replied that he had been firing a shot. Lusty, who was uninjured took Whiteford out by.

Patrick Johnson was just going to have something to eat as the conveyor were still. He left the loader and walked about 15 yards out by and was stooping down and in his own words -

“I heard a loud report, a sort of dull report, and then, in the position in which I was, you see I was half bent at the time, well, it blew me down just on my hands, then when I looked round I saw a flame practically in the full head of the working, in the roof. After that the dust came, and you could hardly see your hand.”

At the time of the explosion William Horn was near the top end of the rise side face. Alexander Barton, shotfirer, and 17 other workmen were also at the face. Their first impression was that one of the compressed air hose had burst, but then smoke and dust began to come up the face. They went out by by way of the return airway and some of them came out of the return by the doors at the air crossing over the West Main Intake and others by the doors at the air crossing over the South Heading and returned in by to give assistance.

After sending Lusty out by with Whiteford, Kirkland went to the dip side of the face with some of these men. They found George Mullen about 30 to 40 feet down the face and Peter Fratti near the top corner of the 7 x 7 road and took them out. On going beyond the 7 x 7 road, Kirkland, who had not got a flame safety lamp, felt the air was not good so he went back and waited until the fireman William Horn arrived. Horn made tests but did not find any firedamp and Kirkland and he went forward. They found John McNab and James Reynolds further down the face, both dead. Horn made another test for gas in the gob and told Kirkland to be careful as he went further down the face to the end of the conveyor where he found the bodies of William McAllister and Richard Maroney. They had been severely burned but their immediate cause of death as carbon monoxide poisoning.

Those killed in the explosion -

Richard Maroney, William McAllister, James Reynolds and John McNab.

Those who died 17th. November 1932 -

John Watt jnr., Peter Fratti, William Bradley, George Mullen and James McVey

John Whiteford died 18th. November 1932 and Michael Flynn died 19th. November 1932.

There were three others who were in the explosion area and were injured, Peter Lusty, Robert Kirkland and Patrick Johnson.

The inquiry into causes and circumstances attending the explosion which occurred at the Cardowan Colliery, Lanarkshire on the 16th. November 1932, was conducted by Sir Henry Walker. C.B.E., LL.D., H.M. Chief Inspector of Mines in the Justiciary Buildings, Jail Square, Glasgow on the 10th. to the 17th. January. All interested parties were represented and the report was presented to Ernest Brown Esq., M.C., M.P., Secretary for Mines on 24th. March 1933.

Kirkland gave evidence that the air in the dip end of the face was nearly clear and quite breathable 20 minutes after the explosion. Tests were made by the undermanager James Peacock when the bodies had been removed and the only firedamp that was found was at the face of the brushings in the 'downset' road where about 2 per cent as found. Signs of heat were found in the timber lagging behind the steel arches at the gate-end loader and on the compressed-air hoses, the upper surfaces of which had been softened and made sticky. Similar signs were found in the timber lagging behind the steel arches in the 7 x 7 road but these were not as marked. Here, pieces of paper had been singed. The props at the face showed little signs of heat and there was no coking to be seen.

Mr Arthur Stoker, senior Inspector of Mines and Mr. John Masterson, Divisional Inspector of Mines, inspected the face and found a shotfiring cable in two parts with the leads of a detonator attached to the end of the two shots which had evidently been fired. The shotfiring battery was not seen at the time but it had been seen near the cable by two miners John Ford and Thomas Timlin who went with the fireman, Horn down the face shortly after the disaster. Timlin also saw a flame safety lamp with its light extinguished on the floor near the battery. He picked up the lamp and handed it to the lamp cabin at the surface without making a report.

Dust samples were collected and analysed, as were the lamps and the shotfiring battery by Captain C.B. Platt at the Mines Department Testing Station at Sheffield. He reported that none of the lamps could have caused the explosion but the cable which had been found in two lengths to which one of the detonator leads was attached was in a dilapidated condition with the conductors close together and uninsulated.

All parties agreed that the cause of the explosion was the firing of a shot. Mr. William Buchanan, the General Manager of the Kilsyth group of Collieries and Coke Ovens of Messrs. Baird and Company Limited had made an inspection the day after the explosion and he thought it was purely an explosion of firedamp fired by one of two shots. The one that had been fired first caused fissures and breaks so that the second shot had ignited the gas that came from these breaks. Sir Henry Walker came to the conclusion that- 'I have no hesitation in reporting that the explosion was caused by the firing of a shot in coal which had been loosened and broken by a shot fired immediately before that the firedamp thus ignited had been contained in the undercut and amongst the coal already brought down by the previous shot, and that the flame was extended throughout the face and the intake road by coal dust.

Sir Henry made reference to the following specific points that had arisen during the inquiry, namely the examinations that were made for firedamp, the application of stone dust before shots were fired in the coal, the number of shots that were fired by the fireman and the two shotfirers during the day shift and the firing of two or more shots in the same place simultaneously.

CORTONWOOD Barnsley, Yorkshire 9th December 1932

Explosion at Cortonwood Colliery 9th December 1932

Cortonwood Colliery was sunk in 1873 to the Barnsley Seam of coal, first was reached at a depth of 210 yards. The shafts were later deepened between the years 1907 & 1908 to the Thomcliffe Seam. By this time the Barnsley Seam had become exhausted. The Parkgate Sewn of coal at the pit lasted until 1941, this left only the Swallow Wood and Silkstone Seams with viable coal to be won.

The Silkstone Seam which was first developed in 1927, was to become just a few years later, on the 9th December 1932 the scene of a tragic explosion in which 4 men lost their lives immediately and 3 more died as a consequence of it later.

The Silkstone Seam at that time was reached from the Parkgate pit bottom then via a drift about a mile long. The explosion occurred on a coal face about 100 yards from the

bottom of the drift. The height of the seam at the shaft side is recorded as being 1 yard 7 inches, but at the coal face where the explosion happened it was only 2 feet 10 inches high.

The explosion was reported to be confined to a small area of the coal face where shotfiring had been taking place. The deputy in charge of the district, Alphonso Allen was one of the four victims. who died immediately in the explosion.

The coal on this particular coal face was cut by machine and filled by hand. The seam lending itself to this type of work because of its thickness, rather than the Pillar and Stall system of mining which was usual in the thicker seams.

The explosion occurred around midnight on the 9th of December 1932. Nine men were involved in the tragedy, four were killed outright, three later died in the Barnsley Beckett Hospital. The other two men suffered injuries but survived.

The dead men were:-

Walter Nutter aged 38, of Barnsley Road, Wombwell.

Royal Outram aged 45, of Victoria Road, West Melton.

William Landles aged 31, of Camley Street West Melton.

Alphonso Allen aged 51, of Cliffe Road, Brampton.

Albert Windle aged 18, of Firth Road, West Melton.

Fred Humphries aged 21, of Pearsons Field, Wombwell.

Norman Scargill, of Goodyear Crescent Wombwell.

Walter Nutter, Royal Outram, William Landles and Alphonso Allen were killed in the explosion. Albert Windle, Fred Humphries and Norman Scargill died later in hospital.

The injured men were:-

John W Eccles who died a short time after the tragedy. and

James E Moore. John Eccles

The rescue party which went to the scene of the explosion found all nine men badly burned, the clothes they were wearing hung from their burned and singed bodies in rags and tatters.

It was not long after the explosion that the General Manager Mr. R Graham along with the Manager Mr. H Fawcett and others were organising operations to get the victims out of the pit. Those who had survived the ordeal were quickly taken to hospital in Barnsley.

In a statement early that Friday morning Mr. R. Graham said:-

"that the explosion had occurred in the Silkstone Seam about midnight, and as a result four men have died and three men and two boys are in hospital suffering from burns. We sent for the rescue parties, but they were not needed. The men died as a result of burns and though we are not sure what caused the explosion we believe that some gas may have come out of the waste with tragic consequences. About twenty men were in the seam at the time of the tragedy."

"Everything is normal now. It has always been the custom to close the mine for a day following a fatal accident, and so the men are not working today. This is the first serious accident we have ever had."

"Mr Herbert Smith, president of the Yorkshire Miners Association, came here as soon as he heard of the tragedy, and the Divisional Mines Inspectors, Mr. E.H. Frazer and Mr. C.W. Scott have also been. We are doing everything we can to lessen the grief which this sad occurrence has caused."

In a further statement from the official side, the Manager Mr. H. Fawcett explained:-

"There was a flash on the machine face and five men were injured and four men killed. Later two of the injured died."

" The flash which took place about 50 or 60 yards along the face, is believed to have been a slight explosion, due it is thought to shot firing"

"The Cortonwood rescue team, with apparatus, were quickly on the scene, but there was no need for the apparatus to be used.

The coal face where the men had been working was only 2 feet. 10 inches high. So they would be working in somewhat conined conditions with very little space. The face was on the dip side of the pit and because of this water had gathered to a depth of two or three inches. The dead men were all found in one spot on the face.

There were men working in the the seam at the time who heard nothing of the explosion. One man Horace Cadwell of Brampton when told there had been an accident could not believe that there had been a explosion. Cadwell was working some half a mile distant from where it happened. He thought that he would be returning to his place of work so he did not take anything with him when he went to help. "There was a flash and that was all. "Some of the others working inthe seam felt the draught caused by the displacement of the air.

One man, Oscar Frost who lived in Cliffe road Brampton, Said he heard a bump and felt a draught of warm air. He went along with the other to help with the dead and injured.

William Jones of Wetmoor Lane, Wath on Dearne had worked in the Silkstone seam since it was first developed. He like Horace Cadwell was working some distance away and did not know anything about it until someone shouted for him to get out. Go Going with the others to the scene of the accident. He saw the first body to be that of R Outram who had been a personal friend of his.

Fred Jackson of Dearne Road, Brampton had only been employed about 10 months at Cortonwood, His job being that of a "pan turner" in the Silkstone Seam. He was about 100 yards away from where the tragedy occurred.

He was reported as saying, "We could hardly realise what had happened. The scene of the explosion was obscured by smoke, and I felt the hot air on my chest." He said that some time went by before anyone could see anything, and he was able to assist those giving first aid. He went on to relate how badly injured were the dead, and that the clothes they had on were in rags. The victims were carried to the pit bottom on stretchers, and the foul air and thick smoke making the work of rescue a difficult task.

Alfred Smith of Concrete was apparently one of the first to reach the place where the explosion had accured. He was reported as saying tb-at he thought that the whole team had been killed because they were all 'laying so still. Though Smith did not see the flash himself, he felt the effect, that of the oxygen being taken out of the air, and the foggy after effect of it. Though he heard no explosion he felt the concussion of it. One of his workmates remarking that they were blowing out a compressed air pipe. A practice used to clear the pipe of any dust before putting on the end cap with the valves attached.

Though he had never before been in an explosion, like any miners he knew by instinct what the real possibility was. Smith was working about half a mile from the tragic occurence. When he arrived on the scene the dead men had been got off the face and he was one of the party who helped carry them out of the pit. The most noticeable evidence of an explosion was the bad smell that was around.

Smith had formerly worked in that section of the seam, and had only been moved to another part two or three shifts previously.

There were many tributes to the rescuers, one being from Joseph Hall an official of the Yorkshire Miners Association, and who as a workman had previously been employed at Cortonwood Colliery. He is quoted as saying, "The colliery officials worked so hard in bringing the dead and injured out of the mine that they were almost exhausted by their efforts. I understand that there was no lack of helpers, and Mr. Tom Bird and Mr. Tom Abbot (officials of the Cortonwood branch of the Y.M.A.) were among those who helped.

" I know well this part of the colliery where this happened, and can understand the horror of it, and what would have happened had it been a longer face and there had been more men in the pit."

" The men who escaped told me that they were working on a sixty yard face in a seam that was only opened out four years ago.

"Shotfiring was taking place and a sheet of flame suddenly went across the face, doing its deadly work in a flash. There was no actual fire - simply a flash and no more.

Joe Hall also paid tribute to the work of the ambulance men, and said he knew the staff of Bamsley Beckett Hospital were doing everything they possibly could.

The men who died were well known in the district and some took part 'm the community life of their districts.

Fred Hurnphries was born in Durham his father worked in one of the pits in that county. He had travelled to Wombwell four year previously and lived with his sister Mrs. Swift. It would seem that there was a large family at his home 'm Durham and that he had been in the habit of sending money to the family to help them. He was sixteen when he came to live in Yorkshire and got his first job, and would have been twenty-one in just a few days time.

William E Landles was well known in the West Melton and Brampton area. His wife told a reporter of the day, that he had been on the afternoon shift until the Thursday night and that she had tried to persuade him not to go to work that night because she felt that something was going to happen to him. This was a common feeling that some of the wives of miners seemed to have, a sort of premonition of danger befalling their husbands or sons.

Mrs. Landles was reported to have said that her husband had been singing to the wireless before putting his 'snap' in his pocket to walk out of the house never to return. W Landles came to South Yorkshire from South Shields about 1925.

Walter Nutter was a player as well as a member of Wombwell Football Club. He had also played for Chesterfield, and was known for his football in the Midland League. He had only been married a short time.

Royal Outram was well known in West Melton where he lived with his father, J.H. Outram had been secretary of the Y.M.A. Branch at Cortonwood Colliery some years previously. Royal Outram had been a member of the Brampton Parish Church Choir for 34 years and was one of the members of the Victoria Male Voice Choir. He had three sons and his wife was expecting his forth child when he died. He had worked at Cortonwood Colliery for 32 years man and boy.

Alphonso Allen was employed as a Deputy at Cortonwood Colliery. He was well known in the area of Brampton. He was a leading member as well as a class teacher at the Cortonwood Wesleyan Chapel.

Albert E Windle who died in hospital was a man of eighteen years. He played football for the West Melton Rangers and had been employed at Cortonwood Colliery since he was fourteen. If he had recovered from his serious injuries it was feared that he would be blind.

Norman Scargill was only seventeen and was a member of a old Wombwell family. He was a cadet in the Wombwell Church Lads Brigade. His employment at Cortonwood Colliery had only been for six weeks, Having worked previously at Mitchell Main Colliery. He was one of a family of seven. His brother should have been with him that fateful night, but for some reason or another was sent back home that night.

In the House of Commons on the morning of Friday the 9th of December, Mr E Brown (Liberal Nationalist), the then secretary of the mines department in reply to Mr. Lunn, (labour), the MP. for Rothwell, expressed with regret that an explosion had taken place at the Cortonwood Colliery near Wombwell at 11-50 pm. And that according to a preliminary report he had received, that four people had been killed and five injured three of them seriously.

He went on to explain that the explosion had been caused by shot - firing. He then concluded by saying "that the house would join with him in offering to the relatives and friends of those killed sincere sympathy and to the injured a speedy recovery."

Expressions of sympathy came from all quarters as soon as the news spread, and within a few days a colliery disaster fund was opened. A meeting was held between Wath on Dearne Urban District Council and Brampton Parish Council at Wath town hall for co-operation in the setting up of a relief fund for those families left behind. The meetings at Wath and Brampton were followed by a conference of the three authorities of Wombwell, Wath and Brampton at Wombwell Town Hall.

On the following Monday a decision was taken to inaugurate a relief fund. At this meeting Mr. Fred Ambler of Brampton Parish Council was appointed Chairman and Mr. W Popplewell who was Chairman of Wath U.D.C. and Mr. RT. Preston Chairman of Wombwell U.D.C. were appointed vice chairmen. The clerk to Wombwell U.D.C. Mr. PM Walker was appointed the secretary of the fund. They agreed to start the appeal at once, and that donations were to be sent to either

Mr. PM Walker, at the town hall Wombwell or to the Midland Bank, Wath on Dearne.

After it was stated that work in connection with the Wath Main Disaster Fund had all been done voluntarily. Mr. Preston replied that the officials of the Wombwell U.D.C. had made the same offer.

The following appeal was published in the local newspapers of the day:-

CORTONWOOD COLLIERY DISASTER FUND

Deep and widespread sympathy has been evoked for the widows, children and parents of those who were the victims of the terrible explosion which occurred at Cortonwood Colliery late on Thursday evening last. Seven deaths are already reported and two men now lay in a critical condition in the Beckett Hospital Barnsley. The relatives of the victims are indeed plunged into deep sorrow. The public will realize how helpless the widows and other dependants will be by reason of the loss of the only bread winner and it is felt that many would like to make some contribution however small towards the amelioration of their distress. We therefore venture to make an appeal for donations from all who have it in their power to give, and we assure all who respond that they will have the sincere gratitude of those who are to benefit.

Will those desiring to help kindly send their donations to:-

Midland Bank Ltd. Wath on Dearne, Yorks.

Treasurers of the fund.

Any other bank at Wath on Dearne, or Wombwell.

For transmission to the fund.

Fred Ambler. Chairman of Brampton Bierlow Parish Council.

RT. Preston. Chairman of Wombwell Urban District Council.

WM Popplewell. '

Chairman Wath on Dearne Urban District Council.

PM. Walker. Honary Secretary, Town Hall Wombwell.

13th December 1932.

WEST CANNOCK. Hednesford. Staffordshire. 16th. May, 1933.

The colliery was at Hednesford in the northern end of the Cannock Chase coalfield and was owned by the West Cannock Colliery Company Limited. The agent for the colliery was Mr. B. Madew with Mr. A. R Latham as manager of the No.2 (upcast) Pit from which the Shallow Seam was worked. The mine was in geologically disturbed ground near a large fault which was formerly regarded as the western boundary of the coalfield and, owing to a second large fault, the workings from the two pits were widely separated, the only connection between them being at the shafts.

The Shallow Seam had been extensively worked in the coalfield and gas had been encountered but it was not a fiery seam in the accepted sense and had been worked with naked lights. At the No.5 Colliery Protector flame safety lamps were used.

The coal was fairly hard and little dust was produced in the workings. The seam was 9 feet thick with 4 feet of Black bass above and above that 1 foot 6 inches to 2 feet of jointy rock. All this, underlay 9 feet of hard rock. The floor was of fireclay. The top two and a half feet of the coal was left to form the roof though some of this coal was recovered in the roads and wastes.

The Upcast District of the Shallow Seam was reached by two undulating roads which led from the shafts at a depth of 310 yards from the surface and reached the seam at a point 1,400 yards from the shaft. Of these roads the main haulage road was also the main return airway and travelling road.

The seam was originally opened with narrow headings and it was intended to work it by retreating longwall faces but after the headings had been driven for about 130 yards from the main roads roof troubles cause the retreating system to be abandoned and the seam was developed by hand-got advancing faces. The faces were supported by six-yard packs which were built with material got from the ripping. The wastes from six to eight yards in width were between the packs. The packing material consisted of Black bass and rock from above the seam and occasionally as much as four feet of rock were blown down to produce the packing material.

The seam was liable to spontaneous heating and it was decided to remove the pillars formed when driving the narrow headings. The removal of these pillars had a very adverse effect on the roadways of the district which had been developed to the East and West of the two main roads from the shaft. The area to the West was not affected by the explosion and that to the East was reached by two main levels, No 328's and 340's which were driven slightly to the rise with gateroads turned off them.. The length of the face on the North side of this area between 377's stall and 360's level, was not being worked at the time of the explosion.

The face haulage was operated by a compressed air engine and a winch was installed at the face of 360's level for hauling the empty tubs to the face and lowering the full ones outbye. Signalling on this level was by electric bell with bare wire conductors. No electrical power was employed in the area affected by the affected area.

On average 40 shots were fired in 24 hours in the Eastern half of the district for coal getting and ripping. The district was ventilated by a single air current which entered at the Western end and, after coursing round the faces, passed into the main return airway at the foot of the 340's level. A measurement taken on the 5th. May showed that 2,835 cubic feet per minute were entering the district at a point 100 yards outbye of the first working place. A small fan, a Typhoon Blower driven by compressed air, was installed near the face in 360's level to drive the air into the extreme rise corner of the face. This fan was running at the time of the explosion.

From the reports of the night fireman, Bertie Reynolds, and the statements of other men on the night shift, conditions in the district appeared to have been normal except for a fall that had occurred about 6 a.m. in 328's level at a point 70 yards from the coal face. No firedamp was reported by the fireman who completed his round about 6.45 a.m. and the night engineman at the winch at the face of the 328's level noticed nothing unusual up to the time he left the place at 7 a.m. or a little later.

The day fireman, Charles Abner Perks, met Reynolds at the fall in 328's and received the report that, apart from the fall, the district was ' All right'. He then proceeded to the outbye end of the 360's level, then through the 327's road, when he repaired a sheet, to the fan near the top corner of the face. He had been at the fan for only a short time when he was knocked down and burned by a flash which came from the direction of the 362's stall.

After meeting the two firemen, the men proceeded towards their places. John and Joseph Williams to 362's stall, Cornwall and Higgs to 337's, Gwilt and Turncock to 333's and Craddock to the engine at the face of 328's level.

The fall in 328's had damaged the signalling wires, thought they could still be used, and a machinery examiner, Arthur Thomas Lote who was sent to repair them, reached the place about 8.25 a.m. A dirt tub was dealt with by the haulage engine while Lote was in the level, and before he repaired the wires, he gave a signal of 10 rings on the electric bell to inform Craddock that the wires were in order.

In the meantime, Craddock's two lamps had been extinguished as had the two lamps belonging to John and Joseph Williams. Craddock took his lamps outbye to be relighted and George Archer had taken two other lamps out. Archer passed Lote in 328's level and met Joseph Williams about 30 yards from the face and gave him the lamps. He then started outbye to look for the tubs while Williams returned to the face. After Archer had gone about 30 to 40 yards the explosion occurred. He saw no flame but was knocked down a slightly burned. Lote a little further outbye, was knocked down but not hurt.

The men in the 328's Pillar, T.J. Middleton and E.A. Handy, saw a flash and felt the shock from the explosion. The flames extended from the fan near the top corner of the face, along the East face, to a fall between 361's and 365's stalls and travelled a distance of about 70 yards down the 328's level and about 30 yards down 361's.

There was evidence that the men in 337's stall had realised that the ventilation was unsatisfactory shortly before the explosion. William Higgs found the place was hot and not fit to work in. he was preparing to dress and go out after telling Cornwall when the blast occurred. He was badly burned and gave his evidence before he died but could give no explanation as to the cause of the disaster.

When the explosion occurred, all the men in the Eastern half of the district, with the exception of Gwilt, Cornwall, Turncock and Abner Perks, immediately made their way out from the faces. The men in the Western half, remained unaware that anything had happened until they were withdrawn by officials.

The day overman, William Challoner, entered the district just after the men from the Easter face had reached the main level and hearing that Russell Cowdell, a pony driver, was missing attempted with two other men, H. Lyons and F. Gough went up the 328's level. They were driven back by afterdamp. They then went down the 340's level to 342's road where they met Cowdell who told them that Gwilt and Turncock were still inbye. They eventually succeeded in reaching 361's road head but could get no further. On returning they heard some ponies in 328's passbye but were unable to reach them.

Returning to the main level, Challoner learned that Perks, the fireman, was missing and with G. Devall went through 377's stall to 327's roadhead where they found Perks. He was conscious and able to make his way out. Challoner attempted to go further but was stopped by bad air.

During this time Reynolds, the night fireman, had returned and with Parton succeeded in getting to within about 10 yards of the face in 328's level. On their return they rescued two ponies from 328's passbye. This was done with great difficulty and two other ponies in 324's road were too far gone to rescue.

At this time the first rescue team had arrived and explored 328's level. Passing up the level their bird died 30 yards from the main level and on reaching the face, they found Cornwall's body on the flat sheets in front of the engine and Gwilt's leaning over a tool box near 333's roadhead.

The electric bell at the haulage engine was ringing when they reached it and to stop it a zinc rod was removed from the battery. Two bodies were recovered by the second team and the air was improving. Mr. E. Rowley, H.M. Senior Inspector of Mines, Mr. Latham, the manager and Mr. W. Bagnall, Miners' Agent, followed the team to the face where Turncock's body was found in the face between 33's and 362's roads.

The idle face on the North side was explored up to point near the fan when progress was stopped by foul air. A sheet which had been at the end of 327's road was found to

be down and the air was short circuiting along the road. When the sheet was re-hung the air resumed its normal course around the face and a later team succeeded in reaching Williams' tool box in 362's stall.

The face was found to be closed by falls extending from the fan near the North East corner almost to the fault in 362's stall. The return end of the district was examined and then left to the following day.

Those who died were -
Samuel Nickles Gwilt,
Benjamin Cornwall,
Charles Turncock,
John Henry Williams and
William Thomas Higgins.

Two others, Charles Abner Perks and George Archer received slight burns and a further thirteen others were affected by afterdamp, but only five of these were seriously affected.

The inquest was held by Mr. W.W. Morgan, H.M. Coroner for Stafford. proceedings lasted over three days and all interested parties were represented. the report of the disaster was presented by Mr. W.E.T. Hartley, H.M. Inspector of Mines. At the inquest the jury returned a verdict that the deaths of Gwilt and Turncock were due to carbon monoxide poisoning and those of J.H. and Joseph Williams and Higgs to toxæmia due to extensive burns, shock and the after effects of breathing carbon monoxide gas.

The inquiry found that the explosion was caused by firedamp and the part played by coal dust was very small. The roads were well stone dusted and the flames died out in the gateroads. The firedamp came from the normal bleeding of the strata combined with an emission from the extension of 328's level beyond the engine. It was not cleared by the ventilating current being too weak partly from leakage through the sheets and partly by the derangement of some sheets.

The means of ignition was by an electric spark caused by the ringing of the signal bell at the engine but there was no evidence of what caused the bell to ring. The bell was not of a type certified by the Mines department by the colliery officials believed it to be incapable of igniting gas.

In the Report, Dr. S.W. Fisher commented of the arrangements at the colliery to deal with injured men. he said -

"As usual, I went into the treatment, by the First Aid personnel of the mine, of the men involved in the explosion, and I found that every man was taken to the surface ambulance room and effectively given oxygen from three or four Novita Apparatus by the man in charge of the room and also by Mr. Payton, the Superintendent of the Hednesford Rescue Station, who in fact, supervised the whole organisation. All the men I spoke to in the accident room told me that the oxygen did them good."

Mr. Hartley concluded the report,

"The overman, William Challoner and the man assisting him deserve credit for their actions immediately after the explosion. Challinor in particular, acted very well under trying circumstances. In the saving of the two ponies under very difficult conditions, Reynolds and Parton showed courage of a high order."

GRASSMORE. Chesterfield, Derbyshire. 19th. November, 1933.

The colliery was the property of the Grassmore Company Limited. Mr. E.L. Ford was the Agent and manager. The colliery worked the Tupton, Blackshale, Deep Hard and Waterloo Seams. Coal was raised from Nos. 1, 4, 8 and 12 shafts. Nos. 1, 4 and 12 were downcasts and No.8 was the upcast. Mr. H. Curry the Undermanager in the Deep Hard and the Waterloo Seams. there were two other undermanagers, Mr. G.A. Sellars for the Blackshale seam and Mr. R.H. Swallow for the Tupton Seam. All the

undermanagers held First Class Certificates of Competency and Mr Ford had an assistant, Mr. J. Austin who held a Second Class Certificate.

The explosion occurred in the North District of the Deep Hard Seam shortly before 2 a.m. on Sunday, 19th November. The North District consisted of a face about 200 yards long which was approached by three roads. The road at the right hand side of the face, the right tail gate, was the intake and the road on the left, the left tail gate was the return. The third road was midway between the intake and the return and was an extension of the main haulage road. In effect, the face was divided in two, the right-side bank and the left side-bank. In each side there was a shaker conveyor which delivered onto a belt conveyor in the middle of loader gate.

The seam consisted of about one foot eleven inches of top coal, nine inches of thin layers of bat and coal and one foot seven inches of bottom coal. Above the top ten inches of hand coal were left unworked. Over it was about 20 to 25 feet of blue bind overlaid by sandstone.

During the afternoon shift the face was undercut to a depth of five and half to six feet in the nine inches of thin layers of bat and coal by two electrically driven coalcutters, one in each bank. During the night shift, the conveyors were moved forward, the packs extended and shotholes bored by a Siemens-Schuckert electric drill. During the day shift the coal was filled onto the conveyors. Shots were fired in the coal during each shift but usually the greatest number were fired during the day shift. The work of getting, filling, packing and repairing was all done under contract let to six contractors, two of whom worked on each shift.

The last recorded measurements of the air passing round the face were made by William Stewart, the day shift deputy, on 4th. November when the quantity passing in the right tail gate was 4,510 cubic feet per minute and in the left tail gate, 2,750 cubic feet per minute. the difference between these two measurements, passed outbye by the middle gate. No attempt was made to prevent so great a leakage and there was but one screen, a board made of brattice sheet, across the middle gate. The leakage was deliberate so that a current of air might pass the electrical gear situated in the middle gate. The highest point of the district was at the face opposite the left hand tail gate and there was a gentle rise across the face from right to left. The left tail gate rose towards the face at a gradient of 1 in 13.

The workmen used electric safety lamps, either hand or cap and the deputy and the shotfirer on the night shift and the deputy of the afternoon shift carried electric cap lamps in addition to their flame safety lamps. Stewart, the deputy on the morning shift, carried flame safety lamp and the men on the ripping gate had similar lamps which they hung about four feet from the ripping and six feet from the floor. On the afternoon shift, Charles Edwin Staples, the deputy of the shift said that the chageman in the left bank, W. Coley and the men working in the two headings near the foot of the left tail gate, also had flame lamps.

Before 5th. November, there was no evidence that firedamp had ever been found in the district except on one occasion about eight or nine months previous when deputy Stewart found gas in a crevice in the roof at the ripping. during the afternoon of the 4th. November, a heavy fall of roof, about 13 yards long, occurred in the right bank, with the result that the ventilation was obstructed and towards the end of the afternoon shift on the following day, firedamp was found in the left bank by Staples, the deputy of that shift. He made two inspections of the left bank, the last one between 8.20 and 8.50 p.m.. he did not find any gas but at 9.15 p.m. he stepped into the left side to allow a workman to take an eight foot prop up the right end bank and detected gas. He put a fence at the entrance to the bank and later in the left tail gate. he reported with reference to flammable gas -

“Yes. 5's left side fenced off for gas due to a fall on the right side impeding ventilation.”

In a reference to the ventilation he said -

“Good except in left side.”

Similar reports were made by all deputies on all three shifts until 10th. November when W. Coley, the acting deputy, reported, with reference to inflammable gasses, 'None. (Fences removed left side.' and the state of the ventilation, 'Good'. For the same shift Staples reported the state of the ventilation as being, 'Slack, due to the fall on the right bank.' After this it was reported on all shifts as being good with no gas present.

Continuous efforts were made to clear the fall in the right bank but during the night of the 12th., a heavy fall of roof occurred at the entrance to the right hand bank from the middle gate. Part of this fall extended into the middle gate but it was cleared by the 15th and the roof secured. Coalcutting in the left bank was resumed on the 16th and was continued until the explosion. The undermanager made a further inspection on the 17th. and found the district to be free of gas.

The deputy and men on the afternoon shift on the 18th, November were all out of the mine before 8.30 p.m. The night shift deputy and the men of that shift descended the No.4 shaft just after 11 p.m.. These two shifts did not succeed one another so that work was carried on without any interval and therefore could not in the words of Section 64 sub-section 94) of the Coal Mines Act, 1911, 'be deemed to be one shift.' No inspection was made prior to the night shift on the 18th November and the men were allowed to pass the station.

The night shift consisted of 31 men in addition to the deputy, Albert Wheatcroft and the shotfirer, Leonard Wheatcroft who examined the men's lamps. four men went inbye into the North District along the main intake who was also the travelling road. These men arrived at the place where they left their clothes, about 50 yards back from the face of the middle gate, about 11.45 p.m.

The two contractors on the shift were James Stevenson and Joseph Wilkinson and they went up the left hand bank and set their men to work at several jobs. The regular driller, A.C. Johnson, took the drilling machine from the middle gate up into the left hand corner of the face, laying out cable as he went, but he was not able to start drilling shotholes as the current was not available. Johnson was set to work on the left tail gate pack.

James Stevenson, Hiram Tagg, Charles Riley and Frank K. Foyster came out of the left bank immediately after the explosion and said that nothing unusual had happened during the shift prior to the blast. The ventilation was good, the compressed air was blowing near the conveyor engine where Stevenson was working and there was no sign of weighting in the roof. Stevenson said -

"It was absolutely normal. There was not even a prop broken. It was absolutely right, no sign of weighting and the wastes had not broken down more than usual. There was nothing abnormal and the ventilation was good."

John Ford, electrician did not go inbye with the other men. He left the station. At about 11.30 p.m. when Leonard Wheatcroft was still there but Albert Wheatcroft had left. After examining some electrical equipment at the pit bottom, Ford went inbye along the main return which was also the haulage road. When he arrived at the top conveyor in the middle gate, he switched on the current to the motor and turned the belt round for Wilkinson to examine it. It was found that it needed repair, the current switched off and the Wilkinson stayed to do the necessary repairs while Ford returned to the haulage road about 70 yards outbye from 8's level. to which he was going to connect a cable which was already connected to a switch box in 8's level at the foot of the left tail gate.

Ford was working at this switch box when, at 12.45 a.m., Leonard Wheatcroft came inbye. He spoke to Ford as he passed a moment or two later, Ford heard somebody talking and saw that Leonard had been joined by Albert Wheatcroft at the junction at 8's level with the main haulage road.

At the inquiry, Leonard Wheatcroft said Albert Wheatcroft went with him along 8's level and then up the left tail gate as far as the ripping lip. They both had flame safety lamps and electric cap lamps. The deputy tested for gas at the lip while Leonard put his hand over his cap lamp and held his flame lamp behind him. There was no indication at

Albert's lamp. This would have been about 1 a.m. In the face opposite the left tail gate, he saw a conveyor pan reared up against a prop and he did not see any men at work.

They travelled along the bank to the middle gate and to point about 50 yards from the face where Wilkinson was repairing the conveyor belt. Here Albert spoke to Wilkinson and sent Leonard into the face to tell the contractor, Stevenson, to leave the packs and get on with the staking of the conveyor engine. Leonard went up the face and shouted to Stevenson, who was working at a pack some 15 yards along the left bank, and Albert passed him under the ripping lip of the middle gate when on his way to the men at work in the left bank. Leonard returned to Wilkinson and helped with the repairing of the conveyor belt.

Shortly after receiving the instruction, Stevenson went to stake the engine, Albert passed him as he was working in the pack when he informed Albert that there were some loose pans further up the face. Albert relied, "All right, I know that", and went on his way. Stevenson did not notice what lamps Albert had. About fifteen minutes later the explosion occurred.

Of the 18 men in the left bank, four, James Stevenson, H. Tagg, C. Riley and F.K. Foyster were able to get out. They heard no report but felt a heavy gust of wind which came down the face from the left. Dust was raised and they were knocked down but not burned.

Leonard Wheatcroft, who was in the middle gate, thought a compressed air bag had burst and ran out by about 200 yards and shut the cock. He returned to the face. He was intent on going back into the bank but Wilkinson retrained him. Wheatcroft took the men out by and after telephoning for help, he got a safety lamp which he had left hanging on a fence rail at the main haulage on a fence rail at the main haulage return wheel, about 400 yards from the face. He went into the middle gate where he found a cap of the flame of the lamp which he took to be firedamp.

After making the test, he took the four survivors into the intake by way of the slit connecting it with the haulage road. His telephone message was received on the surface by deputy B.G. Brittain which at once summoned the Chesterfield and Mansfield Rescue Stations. The call was received at the Chesterfield Station, which was about three and half miles away, at 2.30 a.m. and at the Mansfield Station, ten miles away, at 2.36 a.m. and the Brigades were at the pit at 3 a.m. and 3.20 a.m. respectively.

The Chesterfield Brigade went in by the travelling road and formed a fresh air base on the intake side of the doors in the slit. They then went through the slit into the haulage road and up the middle gate to the face with the help of breathing apparatus due to the foul air. They numbered the bodies as they were found and by 11 a.m. they had been removed from the face into the middle gate and then to the surface by stretcher bearers. there were no falls to impede the recovery of the bodies although the middle bank of the roof was weighting.

Those who died were -

George Lenthill,
James Stanley Knifeton,
Owen Stevenson,
George Peasgood,
Reginald Hopkins,
Frank Wilbourne,
Walter Brocklehurst,
Sydney Tunnicliffe,
Albert Weatcroft, deputy,
George Muschamp,
Ernest Keithy,
Samuel Foyster,
Alfred Cyril Johnson and

George Wright.

Mr. J.D. Felton, H.M. Divisional Inspector, inspected the pit in the afternoon of the disaster and found three percent firedamp, 400 yards from the face up the left tail gate. The following Monday he made another inspection and the captains of the two Rescue Brigades pointed out the places where the bodies had been found. No safety lamp was found at the face and nothing was found during the inspection to indicate the cause of the disaster but later a pair of tub wheels was seen about 120 yards from the face and about 10 yards nearer the face than the shattered tub. Prior to the tub the explosion the tub had been further up the gate and was then intact. It was also noticed that the upper parts of many of the steel arches supporting the roof and sides of this left tail gate had been removed three or four inches outbye and that some of the lagged arches had been displaced. There was a cavity about 20 feet long outbye from the face of the ripping and there were small pieces of brattice cloth at the face.

In the face, lying on the kirvings, was the Siemens-Schuchert drilling machine and in the cut made by the coalcutting machine, was the drill. The cable was attached to the machine and from there passed under a piece of the conveyor belt, under a conveyor pan and then to the face. The conveyor pan, which was lying against a prop, had been flattened and bent and beyond this pan there was another, also leaning against a prop and between the props there was a shovel with a crumpled blade and the shaft broken.

All this evidence pointed to the face that the force of the explosion had radiated from some point between the bent pan and the displaced steel arches and suspicion was focused on the drilling machine. It may be remembered it had been said that at the time of the explosion the electrician, Ford, was at work the cover on the three way box in the main haulage road and before starting the job, he had switched off the current from the district and locked the switch in the off position.

The Inquiry into the disaster was held in the Council Chamber, Stephenson memorial Hall, Chesterfield an opened of 13th. December and was finished by 16th. December. The Report on the disaster was presented to Ernest Brown, Esq., M.C., M.P, by Sir Henry Walker, H.M. Chief Inspector of Mines, in March, 1934.

All interested parties were represented and the inquiry investigated all aspects of the disaster. Nothing had been found in connection with the drilling machine that could have caused the ignition of the gas and other sources were looked for. There had been no shots fired and there was no evidence of smoking or matches. The roof was of soft bind immediately over the coal and contained many ironstone balls but there was no evidence of any pick or other tool that had been used, ever causing a spark.

There remained the question of the lamps which were all tested at the Mines Department Testing Station at Sheffield. All the lamps had been recovered intact with the exception of four cap-lamps.. Captain C.B. Platt, Superintending Testing Office gave evidence on these four lamps . He said -

“Lamp No. 21 was received in lighting order but the hinge between the battery and the lid was broken, thus exposing the battery terminals the fracture of the metal was of recent date, as the surfaces were clean and bright.

Lamp No. 31 was received locked and in lighting order. The fuse in the latter case had blown this was found to be due to the bared ends of the cable leads inside the lid being in contact, thus short circuiting the battery. An ignition of firedamp could not have been caused. however, by this fault, which also did not leave the lamp in a condition which would enable it t ignite an inflammable mixture of firedamp and air.

Lamp No. 52 was received locked but the cable had been pulled out of the gland on the battery case. The lantern was in lighting order and the fuse intact. the face that the cable was pulled out of the gland did not cause the lamp top be unsafe.

Lamp No.99. This lamp was received incomplete, as the headpiece was missing. The battery case was received locked and with the cable still attached to it. From

the appearance of the end of the cable it would seem that the lantern and the cable had been wrenched apart, snapping the copper wires. The ends of the cable were not bared and the fuse was intact, showing that the battery had not been short circuited during or after the separation of the lantern from the cable.”

Captain Platt made experiments with cap lamps fitted with bulbs from the colliery and found that in twelve tests, an explosive mixture was ignited on two occasions, when the glass of the lamp and the bulb were broken.

Lamp No.99 had been issued to S. Tunncliffe and was found, without the headpiece, attached to his body after the explosion. It was not his own lamp. He used an electric hand lamp but on the night of 18th. November, he asked to be given a cap-lamp and the lampman, Charles Brailsford gave him No.99. This was the first time Tunncliffe had used a cap-lamp. A search was made in the face and the waste for several days for the missing headpiece but unfortunately it was never found.

The ventilation system at the colliery was closely scrutinised and the inquiry decided that it was '*ill-considered*' even when there was no fall on the right bank. The report stated -

“Had an overcast been made at the junction of the middle road with 8's level, each bank could have been given its separate split of fresh air and there would have been no necessity for the board and brattice sheet, which, being on the main haulage road, was a nuisance.”

Several theories as the cause of the explosion were put forward at the inquiry but it was generally thought that there had been a sudden evolution of the gas from the goaf just before two o'clock and that ignition had taken place in the goaf near the source. As to the cause of the ignition all possible sources had been ruled out except the missing piece of cap-lamp No.99. It was thought that the man had moved quickly to avoid falling stones and had knocked off the lamp.

After 1st. January, 1933, manufacturers of approved electric cap-lamps were required to fit the head-pieces of the lamps with cover-glasses of unsplinterable glass except those protected with a safety device which automatically cut off the current from the bulb when the glass was broken. The cap-lamps at the Grassmore Colliery were obtained before this date.

BILSTHORPE. Mansfield, Nottingham. 26th. July, 1934.

The colliery was owned by the Stanton Iron Works Company Ltd. and was about eight miles from Mansfield. It had been getting coal only since August 1927 when the Top Hard seam was reached by shafts 482 yards deep. There were two shafts 20 feet in diameter and both were equipped for coal winding but only the Top Hard seam was worked. The colliery employed 1,250 persons below ground and 260 on the surface. Mr. N.D. Todd was the General Manager and Agent for the whole of the mines of the Stanton Company and the colliery Manager was Mr. L.T. Linley and the Undermanager Mr. A. Holmes.

The colliery was worked on the longwall system with some coal being got by hand and by cutting machines. The filling on all the faces was done by conveyors. The disaster occurred in the North West No.6 district which was worked by three shifts. The day and night shifts got coal and filled and the afternoon shift moved pans, ripped, timbered and packed. There were no coal cutting machines in this district. Shots were fired to bring down the face ripping in the gates but no coal was got by firing shots.

The coal was from five feet nine inches to six feet thick and one foot three inches of Coombe coal was left as a roof. In the loader gate the ripping face was five feet three inches to five feet six inches thick including the Coombe coal was taken down which gave a height of almost twelve feet and the road was twelve feet wide between the packs. Wood chocks were erected opposite each waste in line with the packs and these

advanced with the packs and the back line of chocks were withdrawn daily. the rate of advance of this face was about ten yards per week.

The No.6 district had a face 300 yards long which was approached by two main roads, the haulage road, which was the intake and the supply gate, which was the return, was the No.5 road. On the left of the loader gate the face was 100 yards long and the right 200 yards long and each had a conveyor delivering coal to the loader gate and then delivered the coal into tubs at a loading point 200 yards away from the face. At the ends of the face there were two auxiliary airways, one as an intake to the face and the other as a return connecting the loader and supply gates.

The ventilation entered the district down the haulage road, up the airway to the left end of the face, along the face and down the airway to the supply gate. From there it passed down a cross-gate to join the currents from the Nos.3 and 4 districts and then to the main return, In the loader gate there was a brattice sheet to direct the ventilation up the left airway.

The daily reports of the fireman showed that there was firedamp in the No.6 district over the three months before the explosion. There had been eight reports from the 5th. to the 8th. May. There had been a heavy fall and gas was coming from the top of this but it was stated that the ventilation was good enough to clear the gas. The fall was cleared on the 8th. May and from that date to the explosion no firedamp had been reported in any part of the district.

The last inspection was made by the day shift deputy, Joseph William Sutton between 1.20 and 3.10 p.m. when he left the district and went to the pit bottom. He did not report any firedamp. On 26th. July the afternoon shift of 66 men descended to the North-West No.6 district at 2.30 p.m. and met Bertram Meakin, a deputy, at the pit bottom where they tried their lamps and searched some of the men. Meakin had spoken to Sutton on the telephone, found that all was well and sent the men forwards and afterwards followed them inbye. The two men met and had a short conversation.

On arriving at the loader gate, Meakin stood on a scaffold and tested for gas and found it clear as was the face. He saw that the waste on the left bank had broken down and it was not safe for him to go beyond the timber. From the left bank he went down the airway to the loader gate where he fired a back ripping shot about eighty yards from the face for William Storer and continued up the loader gate to the face. Later he fired another ripping shot in the left airway.

Arthur Caudwell was the contractor in charge of the face work and as responsible for moving the conveyors, packing and drawing the wastes. He arrived at the face about 3.15 p.m. and he examined the face with the flame lamp that he carried as well as an electric light. He returned to his men at the gate end and saw the deputy test for gas at 4.15 p.m.. Caudwell and Meakin went together down the right bank and there they parted, the deputy going to see some men in the return and Caudwell going back to the loader gate.

As he went back Caudwell heard two shots fired and when he was about thirty yards from the loader gate he was stopped by T. Crowder who warned him that a third shot was to be fired in the gate ripping but as this was still being charged by Caudwell, he could go forward. He went passed the gate and passed William Wright, William Burrows and others some thirty yards from the gate and Enoch Reeves, Walter Hardy, T. Worsop and others at various points farther along the left bank. reeves had drawn off the first waste at about 4.30 p.m. to 5.0 p.m. and Caudwell observed that some of the Coombe coal had fallen and the waste was open to about thirty feet back from the face but beyond that it had fallen.

When he was about fifty yards from the loader gate, Caudwell heard the third shot and 'saw a yellow flame and red hot sparks up the face, and a second later they came down the bank..' He told he men near him to drop to the ground and as he lay there several men rushed last him. he said - "The flame and sparks passed over me and they seemed to hang to the roof." After the flame had died out and most of the men had left

the face, Caudwell saw a light along the bank and on going to investigate he found George Stewart lying below the second pack. He was burned and helped to the bottom of the gate. Some of the clothes that were hanging in the bank were collected and used to cover some of the men who had been badly burned. Caudwell went along the bank as far as the first waste and he saw some clothes smouldering on the floor which had been on a chock. He saw - "All the first waste lit up and I saw a yellow flame in the top, and immediately afterwards noticed a blue flame burning near the roof".. He gathered what clothes he could, returned to the bottom airway, took the men out and sent them to the shaft bottom having first checked that all the men were accounted for. All the survivors from the left bank agreed that the flame travelled along the face from the loader gate and appeared to come from the first waste shortly after the shot was fired.

The deputy, Bertram Meakin, was returning along the face to the loader gate and was about 70 yards away when he saw - "A red light which appeared to fill the whole of the face," near the loader gate. He heard men shouting and hurried to the gate. He had gone thirty yards when -

"Something like escaping wind and compressed air came towards me. I saw no flame but I was burned on my arms and face and bowled over. My safety lamp was extinguished, but my electric light was burning. I picked it up and returned to the bank, got the men together and took them outbye via the return airway and Nos.3 and 4 district.'

Harry Wilkinson was on the right bank and saw two flames, the first did not travel along the bank but the second did. It just reached him and singed his nose and hair.

William Henry Bradshaw, a deputy on the afternoon shift in the Nos.1 and 2 headings at the pit bottom, reached the No.6 about 5.30 p.m. where he met Meakin who told him he had fired a shot in the bottom gate and handed over the shot firing battery and cable to him so that he could fire three shots in the ripping at the loader gate where the holes had already been drilled. Bradshaw went off to fire the shots.

Before firing the shots, Bradshaw made a careful examination for gas at the ripping lip and at the back of the gate and then along each bank as far as the first waste on each side. He examined the lip standing on a plank and no trace of gas was found. He then examined the holes and charged with eight ounces of Polar Samsonite No.3 with a No.6 L.T. detonator. before charging Woodcock posted an man at each bank to prevent anyone approaching and he remained in the gate to assist the shotfirer. When the shots had been fired successfully he made another thorough examination. The place had been stone dusted by the chargeman ripper, Arthur Woodcock.

Bradshaw made a similar examination before firing the third shot on the left side which he charged with fourteen ounces of explosive and stemmed the hole with clay. He retired 30 to 40 yards down the gate with Woodcock and fired the shot. William Bradshaw described the events that followed.

"I uncoupled my battery and had taken two steps towards the lip when I saw a light on the gate which was flickering and was near the face towards the left side. I think it was gas ignited. A few seconds afterwards there was an explosion and a flash which appeared to come from the left had side of the lip. I shouted for everyone to clear out. The flame seemed to come out along the gate, so I threw myself down on the right side of the belt, Woodcock doing the same behind me. Neither of us was burned.'

Bradshaw then went to the gate where William Storer was working and told him to telephone the men at the pit bottom telling them that there had been an explosion and asking them to cut off the electricity. He also requested them to send some men to meet the party that was coming out and to get some rescue men. He returned up the loader gate to the face and found that all the men had gone out. Despite some smoke in the left bank he was able to go along and he observed a light in the waste which he thought was gas burning in a roof break. There was also some timber burning on the floor which was

covered by fall Coombe coal. They met up with Caudwell who said all the men from the left side were out of the pit.

Meanwhile Francis Wheatcroft, the overman who was on the South-West haulage road, had been informed of the explosion, sent for F. Pemberton who was a trained rescue man who was working nearby and some canaries. He instructed the men at the pit top to call the Rescue Brigade, the Manager and the Undermanager and set off along the North West No.6 haulage road. After about fifty yards he met Bradshaw, Woodcock, Caudwell and Smith who told him where the explosion had taken place and on reaching the face he found that it was not possible to go down the left bank because of smoke and fumes. Other deputies arrived and reported that all was well in the rest of the mine.

The eighteen men who were injured all walked from the mine. The manager had called for medical assistance which was given to the men at the surface and the more seriously burnt were sent to hospital. Six subsequently died from their injuries.

Bradshaw and Caudwell and two or three others returned to the loader gate near the intake airway and waited for the arrival of the first Rescue Brigade. While they were waiting, Bradshaw, with the full approval of the others, decided that the ventilation screen in the loader gate should be taken out and erected in the intake air way and this was done. They thought that this would cut off the air from the fire and ensure fresh air along the right bank and down the return air way where he understood, men were still travelling to the bottom of the shaft. Wheatcroft, the overman and Mr. Holmes the Undermanager both knew that this had been done and it was to have important repercussions.

The Mansfield Rescue Brigade was the first to arrive and reached the colliery at 6.57 p.m., changed into their apparatus and descended at 7 p.m. arriving at the junction of the loader gate and the intake airway at 7.30 p.m. this was thirty five minutes after the position of the screen had been changed. The man in charge of the Brigade, Francis Bates, met Bradshaw and the overman, who explained the position. They did not know that there was fire and did not have extinguishers with them. Their chief concern had been to get underground as soon as possible to rescue any one who may still be in the explosion area. Frank Pemberton returned with the canaries and the Brigade had brought him an apparatus. He then assumed control of the situation.

The Brigade established a base near the face and wearing apparatus, they examined the left bank. They found a fire in the first waste of burning coal and timber on the floor, burning red but not giving off much smoke. Some clothes were found that had been on fire and had been put out with the water from bottles that were hanging nearby. The Rescue man tried to put the fire out with what stonedust and sand was available but they could not quite reach the seat of the fire. They used some of the ripping dirt to build a barrier to prevent the fire extending towards the coal face.

Bates handed a safety lamp to Pemberton who tested for gas at the first wood chock. He and Mallinder saw the gas "go right up into the gauze" and the men were withdrawn to the telephone beyond the loading point where they waited half an hour for the arrival of the second Rescue Team.

Meanwhile the haulage was out of action and both roads were blocked with tubs and Mr. Holmes had gone to help organise supplies of dust to go to the face and a barrel of water to replenish the extinguishers which had been sent for.

The Brigade from Chesterfield reached the colliery at 7.43 p.m. and treated a number of injured men in the ambulance room. At 8.10 p.m. they descended the mine under Superintendent Taylor where they went to the No.6 junction telephone where Mr. Holmes explained the situation. Both Holmes and Taylor feared that gas might have accumulated in the left bank by the erection of the screen. They contacted the other Team by telephone and Bates reported that the men had been withdrawn because of gas near the fire. At the inquiry Mr. Taylor said -

"It seemed plain that to remove the brattice sheet would precipitate a crisis and it was considered imperative that the fire (which was not thought to be of serious

proportions) should be subdued before the gas percentage should rise and spread the fire.'

The men of the Chesterfield Brigade went forward with the fire extinguishers to deal with the fire and stone dust was being applied along the loader gate to check any secondary explosion which might occur. Mr. Taylor followed them in and asked the Mansfield men to stand by to give assistance. On finding the air clear he moved the base to within ten yards of the ripping lip and arranged for workmen to take positions behind so that they could pass extinguishers and buckets of stone dust to those at the face.

W.A. Gent, the captain of the Chesterfield Brigade with William Preater, John William Jones and William Beardsley went to tackle the fire which according to Wilcock of the Mansfield Brigade, had got worse. They had some difficulty in directing the extinguishers directly at the fire but the flame was subdued and Preater and Jones thought it was almost mastered when it flared up again.

While this was going on Beardsley tested for gas in the bank near the first chock. He found four and a half percent and pointed this out to Gent. Beardsley and Gent relieved Preater and Jones and Mr. Taylor went to the gate-end and asked the position. At this time smoke was seen coming from the pack through a roof break into the loader gate.

Through the smoke Taylor saw that the safety lamp at the face had a large flame. At 9.20 p.m. and he was about to make a second test when the second explosion occurred. Gent was on his way up the gate to report to Taylor and William Beardsley was the nearest to the fire. He was kneeling in the waste trying to clear a fall when he -

"Felt a puff of cold air and immediately afterwards heard a slight hissing and saw a flame which reached from the fire to the roof over the waste and what seemed like coloured balls coming out of the region of the fire."

If it was not for the fact that he was kneeling and wearing breathing apparatus he would have certainly been killed. Taylor described the events like this -

"As I looked from the gate round the corner into the hole the body of smoke struck me in the face. It seemed to hesitate for an instant before venting itself in a dull heavy blast, upward through the hole, to strike the roof over the heap of debris and go searing its way back along the main airway outbye."

He fell between the belt run and the gate side and remained there for some time and when all was quiet he made his way out along the belt in the dark until he reached the telephones.

In the gate, carrying fire extinguishers and stone dust were, Bradshaw, Woodcock and Caudwell. Bradshaw described the explosion -

"We had been near the lip about five minutes and I was standing to the right of the belt, with others both near the face and behind me, when just opposite me on the left side of the gate about 20 yards from the face I saw smoke issuing from a break in the roof. I called them all clear, and had made about six or seven steps out the gate when it burst into flame above us, and I was knocked off my feet. There seemed to be another rush of flame as I lay on the floor."

The men got on the belt and made their way out picking up an electric light which was still burning and they went to the pit bottom. all these men were burned and Woodcock later died.

At the fresh air base Superintendent Taylor was burned about the face gave oxygen to men as they passed. Alfred Selby and one or two others went in search of any missing men. After about 50 yards he found Gent and 80 yards further up, Preater and Jones were found badly burnt. Jones had to be assisted out but Preater managed to walk to Mr. Brown, the Rescue Station Manager, who removed his apparatus and covered him up. Jones and Preater were carried out on stretchers and taken to Chesterfield Hospital where they later died.

Beardsley was still missing and Mr. Taylor went back to the base to seek help. The party got to the gate end and were enlarging the hole over the fall when Beardsley, who

had a light and breathing apparatus, came out of the right bank to the loader gate where he collapsed. In his anxiety to get out after the explosion his electric lamp had gone out and had missed the gate and gone into the right bank. He was badly burned and was taken to Chesterfield Hospital and made a good recovery. He was well enough to give evidence at the inquiry.

The manager had informed Mr. J.R. Felton, H.M. Divisional Inspector of Mines, shortly after 8 p.m., that all the men were out and that seven had been sent to hospital and the rest sent home. Mr. T.E. Pickering, the Junior Inspector, and Mr. A.H. Steele, the Senior Inspector, went to the pit and were informed that a wood chock was on fire but the Rescue Brigades had the situation in hand and the fire was almost out. At about 10 p.m. Mr. Felton received a telephone message that a second explosion had occurred and he went to the colliery at once.

With all the men out and the fire still not out it was decided to seal off the North West No.6 district by erecting a stopping in the main intake 300 yards from the face and in the return if possible. These two stoppings were made of brattice cloth backed by sand and these were closed simultaneously at 5.30 a.m. on the 27th. July and then strengthened.

About three hours later Mr. Brown reported that the return air was full of firedamp and it was considered unwise to continue the work and it was decided to erect another stopping in the North west No.3 return road, near the North West main return. On the morning of 28th. July this area was sealed off by men wearing breathing apparatus. during the work thirteen or fourteen explosions were heard behind the stoppings, the first of the 27th. July and the last at 12.10 a.m. on the 30th July.

There were two explosions at the colliery, one shortly after 6 p.m. which injured eighteen people, six of whom died from their injuries and this was followed three hours later by a second which injured twenty two, three of whom later died.

Those killed in the first explosion.

T.W. Crowder, ripper who had severe burns to the upper body. Died 27th July 1934,

E. Warsop. Drawing wastes and a packer who died from burns to the upper body 27th. July 1934,

Walter Hardy. Drawing wastes and a packer. He died from burns 28th. July 1934,

Enoch Reeves. Drawing wastes and packer who died 29th. July 1934,

William Burrows. Drawing wastes and a packer who was badly burnt and died 31st. July 1934 and

William. J. Wright, ripper who died from burns 7th. August 1934.

Those who died in the second explosion were -

Arthur Woodcock, ripper who died 27th. July 1934,

John William Jones. A Permanent Rescue man who died 27th July 1934 and

William Preater. A Permanent Rescue man who died from burns 3rd. August 1934.

Two of the injured died in Nottingham General Hospital, two in Mansfield Hospital and two in the Chesterfield Royal Hospital and by arrangement of the three Coroners who were concerned the inquest on all the mine that were killed was held at Mansfield Police Court on the 25th and 26th September by Lt.-Col. H. Bradwell, the Coroner for that part of Nottinghamshire. The owners and management were represented by Mr. F.H. Jessop, the Nottingham Miners' Association by Messrs. V. Coleman and W. Bayliss, The Nottingham Miners' Industrial Union by Messrs. G.A. Spencer and H.W. Cooper and the National Association of Colliery Deputies by Messrs. R. Price and T. Buddle, H.M. Senior Inspector of Mines, Mr. A.H. Steel, was present.

The medical evidence was presented and the evidence of identification. Twelve witnesses were examined and the verdict of the jury was -

"That death was due to toxæmia and shock following burns the first explosion of firedamp by which six men lost their lives was brought about through unforeseen

circumstances, and the second explosion causing the deaths of three men was also accidental.”

The jury added a rider that chemical fire extinguishers should be available in the future as a precaution against similar occurrences.

The official report on the explosions at the colliery was made by J.R. Felton, H.M. Divisional Inspector of Mines to Ernest Brown, Esq., M.C., M.P., Secretary for Mines on the 23rd, November 1934.

The causes of the accident were self evident but the disaster led to some recommendations by Mr. Felton on means of dealing with underground fires. He recommended that water under pressure should be available at the pit bottom and at each inset from which coal was raised and that hydrants and connections should be provided. Where conditions permitted, the water pipes should be carried along the main haulage roads.

A supply of sand and stone dust should be kept at the junctions and at convenient points in each district and chemical fire extinguishers of at least two gallon capacity should be kept and clearly labelled where they were and how to use them.

GRESFORD. Wrexham. Denbighshire. 22nd. September, 1934.

The Gresford Colliery was owned by the United Westminster Wrexham Collieries, Limited and was at the village of Gresford about two and half miles to the north of Wrexham. The mine had two shafts the downcast which was known as the ‘Dennis’ and the upcast which was called the ‘Martin’. Coal was wound at the Dennis and materials down the Martin shaft. Men were raised and lowered in both shafts. The sinking of the shafts started in 1908 and coal was first wound in June, 1911 so it was not ‘newly opened’ within the provisions of the Coal Mines Act, 1911 and the provision that there must be two intake roadways from each seam did not apply to the colliery.

The mine employed about 2,200 persons, 1,850 below ground and 350 at the surface. Three seams were worked at the colliery. They were the Main, Crank and Brassey but by the time of the explosion the workings in the latter were idle. The Dennis section of the Main Seam, in which the explosion occurred, was made up of five districts each worked on the longwall system. These sections were known as 20’s, 61’s, 109’s (which included 92’s), 14’s and 29’s and employed 280 men on the day shift, 240 on the afternoon shift and 195 on the night shift.

Coal was got and wound on the morning and afternoon shifts and some coal was wound on Friday and Saturday nights. The packs and faces were moved during the night shift. The weekly output of coal from each of the Districts during the ten weeks prior to the explosion were 928 tons from the 20’s, 732 from the 61’s, 813 from the 109’s, 1,617 from the 14’s and 1,340 from the 29’s.

Mr. William Bonsall, the manager had occupied that position since 1917 and for three years previous to that he had been assistant manager to Mr. Groves. Previous to that he had been a deputy for three years, an overman for three years and undermanager for two years at Swanwick Colliery, Derbyshire. Before that he had worked for nine years as a filler, holer and contractor at Pinxton and Cotes Park Collieries and for four years as a haulage hand at Birchwood Colliery, all in Derbyshire.

Until two years before the explosion there was also an agent, Mr. T.H. Cockin but that office had not been filled and Mr. Bonsall was left to work the mine without guidance from any technically informed official. He visited the several districts in the Dennis Section from time to time but before the explosion, he had spent most of his time in the South-East Section where belt conveyors were being installed. He had been underground during the night shift but it was so long ago, that it emerged at the inquiry, he could not remember when it was.

For many years Mr. Thomas Hughes was undermanager but in 1933, he fell sick and Mr. Edward Alan Roberts acted in his place. After January, 1934, there were two

undermanagers, Mr. Edward Alan Roberts and Mr. Andrew Williams, Mr. Roberts supervised the South-East and No.1 North Section of the Main Coal Seam and the Crank and Brassey Seams and Mr. Williams the Dennis Section of the Main Coal Seam. Since 1914, Mr. Roberts had been employed as an overman at the colliery. Before 1934, Mr. Williams was not employed at the colliery but, up to nine years before he had been employed at the Hafod Colliery for 24 years. During the time he was not in the North Wales Coalfield he was the manager of the Blaenhirwaun Colliery in Carmarthenshire. Supervising only the Dennis Section, Mr. Williams was underground daily but not at night. he arrived at the pit about 5 a.m. each day and left about 5.30 p.m. but very often returned to the pit. He was underground during the night shift of the 27th. April to see that repairers working on the 142's deep and on the night shift of the 7th. August he visited the face of the 14's district to see how a newly installed coalcutting machine was working.

Electrical power was used for coalcutting and conveying and the chief electrician at the colliery was Mr. Josiah Ernest Hague. Mr. Sydney Erwin Hayes was the Colliery surveyor and he was assisted by Mr. William Idris Cuffin who was also given additional duties under the manager's directions for taking air measurements and the collection of dust samples. there were three overmen on each shift but only one of these, Mr. Frederick John Davies on the night shift, exercised any supervision in the Dennis Section and that only occasionally. Previous to the explosion, the last time he had been at the face of any of the workings in the Dennis Section was on the 21st. August when he went along the face of the 14's District. some time during August he had been along the face of 29's district and on the 19th. August he was in 20's district but did not visit the face. In June he had been in 23's face and 109's district and in March he went round the 95's district and in two or three faces on the 20's district. At the inquiry Mr. Davies stated that he devoted his time to the South-East Section of the Main Coal Seam and only went into the Dennis now and again. This meant that, except for the time that Mr. Andrew Williams, undermanager of the Dennis Section, was underground, that section of the mines was supervised by 15 deputies. They were Richard Owen, T.B. Tune and William Salisbury in the 20's, J.T. Jones, W. Swinnerton and William Salisbury agent, in the 61's, N. Parry, R.T. Edwards and S. Matthews in the 109's, J.H. Thomas, H. Amos and R. Jones in the 14's and H. Thomas, W. Davies and D. Jones in the 29's on the Day, Afternoon and nights shifts respectively. The remaining deputy, Edwin Chester was employed on the night shift when he supervised men in the drift at the inbye end of the Dennis main haulage road beyond the 'Clutch' and travelled and reported on that haulage road and the Martin return airway.

Three phase current at 3,300 volts was taken down the Dennis shaft to two transformers at the bottom of the shaft where the voltage was reduced to 570 volts to power the haulage engines, coal cutting machines and conveyors. each transformer was connected to a separate switch board. The lighting at the pit bottom was supplied from a small transformer at 110 volts. There was one main cable installed in the Dennis main intake airway which carried the whole of the current inbye for the section. The cable was controlled at its origin by a switch and fuse. Some of the coal cutting machines and conveyors were certified flameproof but others of another design were used which were supposed to be flameproof. The bells were certified flameproof but the magneto telephones were neither intrinsically safe nor in flameproof casings.

The haulage in the Dennis Main Intake and 142's Deep was by endless rope driven by an electric motor placed near the Dennis shaft bottom. The districts generally had tail and main rope haulage driven by electricity and compressed air.

The mine was generally dry but there was a and a small one for pumping water from the Dennis shaft sump to the Martin shaft sump lodgement pump at 500 feet from the surface between the two shafts and a small pump for emptying the Martin sump into tanks in the cages in that shaft and wound to the pit bank.

Thirty electric lamps were used by the electricians but most of the lamps were flame lamps of the Prestwich Patent Protector Type. The ventilation was produced by a double inlet Walker fan placed at the surface and steam driven. There was no proper air lock at the top of the upcast, Martin shaft. Platforms called 'butterfly boards' or 'policemen', raised by the cages as they came up were relied on to prevent the air from the fan flowing directly from the surface to the fan.

The explosion occurred shortly before 8 a.m. on Saturday when there were 480 men at work. News of disaster became known only early on Saturday morning and relatives of the night shift men rushed to colliery. Rescue men from Gresford and Llay Main Collieries rushed to colliery to fight fire and doctors and nurses, St John Ambulance men and Wrexham Fire Brigade were quickly on scene. A party went down the mine including Mr. T. Boydell, the Divisional Inspector and District Inspector when it was found that the location of the explosion was about three quarters of a mile from pit bottom and that fire and smoke were intense.

Within a short time seven bodies had been recovered and brought to surface and Rescue parties under Mr. H. Herbert, superintendent of the Rescue Station at Wrexham, equipped with gas masks and apparatus, were working underground.

There was continual activity at pit head with cages being raised and lowered at frequent intervals containing the rescuers and large quantities of sand in paper bags, then in sacks, then loads of stone dust and dozens of fire extinguishers. One of rescuers described the scene underground as '*a blazing wall of fire*'. Rescue appliances were rushed from Lancashire and batches of men arrived from various parts of the county to offer their help.

Lorries loaded with sand continually drove into the pit yards and were unloaded at the pit head into sacks by a host of volunteers including the Vicar of Rhosddu, The Rev. G.R. Davies. Dozens of these sacks were taken underground but the bulk of them remained at the surface to underline the seriousness of situation. The pile of sacks led to rumours that the mine was to be sealed but this was denied by management.

Relays of rescue workers were going down pit in teams of four and grim realisation of what had happened came to hundreds of silent men, women and children on pit banks when the bodies of two of rescue men were brought to surface. They were taken to the ambulance room where artificial respiration was tried for half an hour before they were pronounced dead and removed to the temporary mortuary.

They were Daniel Hughes, Second Avenue, Llay and William Hughes, Jackson's Cottages, New Rhosrobin, both members of Llay Main Rescue Team and were in first party to descend after the explosion. To add to the bitterness, news came that a member of the same party, John Lewis of Railway Terrace, Cefnybedd, was missing and had not been recovered.

The '*Leader*' reported of the scenes at temporary mortuary -

"What a tragic sight a scene which brought tears to the eyes of many while a comrade sat silently weeping in the rescue station."

Writing about the rescue men the '*Leader*' reporter said -

"I was standing near the ambulance room not far from the pit head on Saturday morning just at the time when the ambulance men and doctors were trying to revive the two rescue party who had been overcome whilst engaged below. Dr. J.E.H. Davies of Wrexham, the veteran St. John officer was in charge and the men were working for all they were worth, trying to revive them. News soon came out, however that they were dead. They had sacrificed their lives for their friends. There was scarcely time to realise the tragic nature of the announcement before another party of rescuers with their masks and apparatus could be seen coming along on their way to the pit bottom again, there to continue to fight for the men entrapped below. Few who saw these things will forget the courage of these rescue parties

returning to the scene of death and passing near the building in which the dead bodies of their comrades in the Rescue Brigades were lying.

The rescuers shook their heads when asked for news of any progress. All they would say was, *'Things are pretty bad.'* The state below was reflected by the strain that showed in their faces.

Very little information was available apart from the fact that an explosion had occurred in the Dennis District and parts of the Main Dennis Road were on fire. Rumours were rife and it was not until 10 a.m. that colliery management issued an official statement -

"The managing director, Mr. H. Dyke Dennis wishes to state that it is feared there has been an explosion at Gresford Colliery near Wrexham in the main district. As far as can be ascertained the number of men involved is approximately 100 and the Inspectors of mines and colliery officials are present underground."

Almost immediately after the explosion it became known that about half of the men who were not working in the district where the explosion occurred, had reached the surface safely but there was great uncertainty as to the number trapped in the mine. At an early stage, the number given was 102 but it was not until Sunday evening that an official figure of 261 was announced.

Mr. H. Dyke Dennis, the managing director of the colliery explained how the original estimate of 102 men missing came to be made. He said -

"In the early confusion many lamps were missing, but it was discovered later that some of the men to whom they belonged were safe, having thrown the lamps away in the rush to escape. It was because of this that the first estimate of about 100 had perished. This estimate was made in good faith, and in the honest belief that it was accurate."

Men women and children were waiting in the drenching rain. The men, many of whom knew better than others the prospects which confronted their comrades, and in some cases their own fathers, sons and brothers bravely consoled the women. Time passed slowly and anxiety increased but hope remained and a ceaseless vigil was kept.

Mr. William Jones, a rescue worker and one of the most experienced miners at the pit said -

"I have just come back from facing a wall of flame through which we can not break. At the moment there are 100 men in the fire fighting party near the main shaft. We made little progress. We attacked the fire with fire extinguishers and by throwing sand against the flames. We were able to advance about twenty yards but we could go no further. We came across a number of bodies and sent them up."

As the morning wore on the work went on but the fire was burning fiercely with timber at the sides of the roads ablaze. It was hoped that three firemen with the trapped men could have gathered them were the air was breathable. Volunteers came forward in increasing numbers and men went down the pit in relays. During Saturday afternoon Sir Henry Walker, H.M. Chief Inspector of Mines arrived at the colliery and at 6 p.m. the following official statement was issued -

"The fire on the main road which is preventing exploration of the mine has been fought throughout the day and the latest report is that it is being overcome. It may be that beyond the fire men may be found alive and it is with this hope that no effort is being spared but in any event the death toll will be heavy."

Work went on all through the night and when Sunday arrived there were reports that good progress had been made and it was hoped that the men in 29 district would be reached by 3.30 p.m.. prospects appeared brighter and it was reported that the rescue workers had progressed three quarters of a mile and that the road to the dip had been cleared to allow a pony to work clearing debris. The body of George Roberts of Glanavon, Maesydre was recovered and brought to the surface but soon afterwards, cage loads of sand were seen to be carried down the pit. It was thought it was just a change of shift but the news came that a door had been reached, the fire was getting

worse and more explosions had occurred and conditions had become so dangerous that it had been decided to withdraw all the men from the mine.

The last men to leave the pit were Edward Williams, E. Povah, A Alderman Cyril O. Jones and Edward Jones, miners' agent for North Wales, Sir Henry Walker, T. Boydell, P.G. Doniny, Percy Heyes and John McGurk. At this time only 10 bodies, including two of the rescue men, had been recovered. This meant that 258 men remained entombed and all hope of their rescue had to be abandoned .

Mr. John McGurk, President of the Lancashire and Cheshire Miners' Association described the scene underground -

"It is hell let loose and it is not at all safe for anyone to be near where the fire is raging. There were three explosion when I was down this afternoon. They may become more frequent because of the fire and the fumes. That is the risk, and therefore all safety man must be withdrawn from the mine. There is no chance of any man in the pit being left alive.

I have been at about ten explosions in different parts of the country, but I have never seen anything like this. There is a point where the fire is raging for twenty yards and the stones are red hot."

A conference was held between H.M. Inspectors and representatives of the colliery management and at 8 a.m. came the fateful official statement signed by Mr. H. Dyke Dennis, managing director, Edward Jones, miners' agent for North Wales and Sir Henry Walker -

The attempt to overcome the fire in the main road has gone on continuously since yesterday. In spite of very strenuous efforts and although some progress had been made in the road, the fire has got a further hold in a road to the right, through which it was hoped at first to reach any possible survivors.

Today several explosions inbye of the fire on the main road have occurred. this afternoon they became more frequent and closer to where the men were working on the fire. The return airway in both the main returns is carrying carbon monoxide in dangerous quantities, and it is with great reluctance that all parties - the management, representatives of the miners and H.M. Inspectors - have come to the conclusion that no person can possible be alive in the workings.

In these circumstances, and in view of the increasingly grave risk to the men engaged in combating the fire and on the main road, it had been decided that it would not be right to continue to expose these workers to such serious risk, and all persons have been withdrawn from the mine."

The number of dead and missing was put at about 260 and hope gave way to despair. In the darkness of the night weeping women and mourning men left the scene of the disaster with sad hearts and bodies weary from the long hours of waiting.

No further statements wee issued and on Monday morning work on sealing the pit was commenced. iron girders and timber were placed over the downcast shaft and tone of sand and cement were used to seal the upcast shaft. Work was suspended at the neighbouring Bersham and Hafod Collieries as a mark of sympathy and to assist in any work that was required at the stricken colliery.

Dramatic stories came from the eyewitnesses to the explosion who had got out of the mine alive. Cyril Challoner of Windsor Road, New Broughton told the local press -

"There were about six of us having our '*snapping*' on the wicket road at about five past two. We were about 300 yards from the clutch and we were laughing and talking. Suddenly there was a gust of wind. It scattered our snapping tins and out clothes and covered our bread with dirt.

We thought it was a burst air pipe. Suddenly an elderly fellow came running up and said, "*You had better get your clothes and get out of here. Try the wind road.*" (This was the return air road where the bad air passes).

We knew something was up now. we did not bother with our clothes, and about twenty other fellows joined us. We started making our way to the pit bottom in just

our shirts and working knickers. Taking off our shirts, we began fanning to keep the air clear. we got to the end of the wind road and then we began to meet the gas. All of us fanned hard. the gas was getting in our eyes and we could taste it. We took turns in leading so that everyone would have the same risk. We now began to meet falls and we had to scramble over them. I thought the other twenty fellows who had joined us where we were having our snapping, were following us. I looked round but I could not see them. I don't know what happened to them.

The gas was getting thicker but we kept fanning with out shirts and we got through to the pit bottom where we met the rescue party. They brought the six of us to the pit top. we wanted to go back when we learned there had been an explosion but they would not let us and they sent the six of us home."

Challoner came from a mining family and his three brothers were among those who volunteered for work with the rescue teams.

Robert Edward Andrews was also one of those who got out of the mine. He told the press -

"We heard an explosion at 1.55 a.m. it deafened us. There were about 30 to 40 of us working on the coal face in No.22 district. The bang was followed by a cloud of white dust. then a young fellow, a haulage man named John E. Jones, exclaimed, "*Good God, something terrible has happened.*" Our faces were covered with dust. a fireman named David Jones cam up and cried, "Hurry from here." We all rushed put into the road. I heard someone groaning. We picked him up and got him out., His name was Walley.

We were one and half miles from the shaft. Six of us decided to make a dash for it, David Jones, Bert Samuels and Jack Samuels, brothers, a man named Fisher, Cyril Challoner and myself. We got hold of pieces of cloth and waved then to make air. then we fought our way through the bad air - afterdamp - to where the air was good.

It took half an hour to fight our way through. There was fire in the main road. We saw a man lying in the road. We turned him over and found he was dead. Then we came to the main road. the girders were twisted and the rails turned over. It sounded to me as if there was some machinery going, but I don't know what it was. We crawled over the top of the falls. We had three lights between us. We came to a dead end but there was small hole to get through. We got thorough one at a time, afraid that something would drop on us. Two hundred yards further on we met the undermanager, Mr. Andrew Williams. he was the first of the rescuers. He and others helped us out. Fisher had a slight injury to his leg.

The other 30 who had been with us at the coal face could, I think, have got away had they come with us as soon as we did."

Two members of the Llay Main rescue parties, Mr. Parry Davies of Llay Green and Mr. H. Povah of Second Avenue, Llay spoke to the local press. Parry Davies said -

"As a rescue team, we were called to Gresford at 5 a.m. on Saturday. We stood by until 9.30, No.1 team in charge of the captain, Mr. John Charles Williams, having gone down at 7.45 a.m. In response to a call for two more rescue men, T.P. Jones and R. Harrison went down. Ten minutes later another call came through for all available rescue men and four of us went down, myself Povah, Emyln Jones and Peter Hughes. When we got to the pit bottom, we heard that three of the first rescue team had gone under so we went through the return airway. I, T.P. Jones, Price Beard and Dick Harrison helped to get J. C. Williams, the captain of the first team and Dan Hughes to safety after being gassed. Hughes was dead at the time, but there was doctor at the pit bottom in the fresh air, waiting to receive the men out.

We went for another rescue member, W. Hughes of Rhosrobin, a memeber of the Gresford rescue team who had gone down with the Llay Main party. On reaching

him we dragged him to safety but after artificial respiration had been applied he was found to be dead.

We the volunteered to fetch John Lewis of Cefynbedd. We could see his lamp burning 100 yards ahead but he was certainly dead because he was further in than the other rescuers' bodies we had recovered. The heat was terrific and some of our men were feeling the effects of it and Mr. Boydell, the Mines Inspector, refused to allow us to go for Lewis.

Our team was called down at 5 o'clock on Sunday morning and we went through the intake way. After encountering several falls, on which voluntary workers were engaged, we got to the doors behind which some men were supposed to be but the doors were all burnt away. The fire was still raging and we went in relays one very five minutes, but after getting through a fall we found fire - everything was burning, props, coal dust, brattice and all, and the more fresh air released on it made the fire a great deal worse. It was like hell. That is all you can call it."

There was another explosion on Tuesday afternoon about 1 o'clock when people hear the shaft heard a dull thud. Upon investigation it was s found that upcast shaft was not damaged but the sides of the fan drift had caught fire and the Wrexham and Chester Fire Brigade were summoned to fight the fire. George Brown of Birkett Street, Rohostyllen was at work on the surface near the downcast shaft and was injured by flying material. He was attended on the spot by Dr. Harrison of Gresford and taken to hospital where he died from his injuries.

Several men had near escapes when the second explosion took place. Mr. Baird, the engineer and other members of the technical staff of the colliery who were in duty, escaped just before the blast having been warned by Dr. T. David Jones, of Birmingham University who was making analytical tests was able to give the alarm.

A third explosion took place at 1.45 a.m. on Wednesday when the fan drift was blown out and considerable damaged done at the pit head. There were no injuries due to this explosion and afterwards men worked under the direction of Mr. Bonsall, the manager, emptying lorry loads of sand and other material into the space between the walls of the fan drift. Smoke and fumes continued to come from the shaft during Wednesday. The pit head was roped off and notices were posted warning everyone not to enter the pit yards because of the very great danger.

The men who died in the explosion.

Joseph Anders aged 27 years, beltman of 17, Empress Road, Wrexham.

Joseph Thomas Anders aged 31 years, repairman of 39, Bertie Road, Wrexham.

George Anderson agd 67 years, repairer of Old Rhosrobin, Wrexham.

Alfred Owen Andrews aged 43 years, cutterman of Benjamin Road, Wrexham.

Joseph Archibald aged 47 years, metalman of 44, Finney Street, Wrexham.

Thomas Archibald aged 30 years, cutterman of Council Houses, Pandy.

David Baines aged 26 years, haulage hand of 9, Victoria Road, Brynteg.

Maldwyn O. Bateman aged 15 years, haulage hand of 11, Lorne Street, Rhosddu.

Edward Wynn Bather aged 36 years, collier of Finney Street, Rhosddu.

Edward Beddows aged 63 years, collier of The Woodlands, High Street, Gwersyllt.

Arthur Bew aged 45 years, cutterman of 13, Colliery Houses, Rhosddu.

Thomas Lloyd Bewley aged 58y ears, collier of 15, Park Street, Rhosddu.

Alfred Bowen aged 53 years, borer of 71, Langdale Avenue, Rhostyllen.

Henry Boycott aged 38 years, packer of 18, Offa Terrace, Wrexham.

Herbert Brain aged 31 years, repairer of 15, Pentrefelin, Wrexham.

George Bramwell aged 30 years, haulage hand of 11, Western Road, New Broughton.

Joseph Brannan aged 32 years, collier of Fford Edgeworth, Maesydre, Wrexham.

William Arthur Brown aged 22 years haulage hand of 2, Albert Street, Wrexham.

J.A.H. Bryan aged 20 years, packer of 72, Llew Road, Coedpoeth.

A. Buckley aged 21 years, haulage, of Mountain View, Windy Hill, Summerhill.

Fred Burns aged 41 years, collier, of 33, Bennions Road, Hunteroyde, Wrexham.
John A, Capper aged 35 years, packer of 1, Wrexham Road, Broughton.
A. Edward Cartwright aged 24 years, filler of 25, Florence Street, Rhosddu.
Charles Cartwright aged 33 filler of 25, Florence Street, Rhosddu.
Stephen Chadwick aged 21 years, filler of 8, Kenyon Street, Wrexham.
Edwin Chester aged 67 years, fireman of Beales Cottages, Pandy.
Arthur Clutton aged 29 years, packer of 40, Lorne Street, Rhosddu.
George Albert Clutton aged 20 years, collier of 7, March Terrace, New Rhosrobbin.
John Collins aged 62 years, shotfirer of Council Houses, Bradley.
Thomas R. Cornwall aged 30 years, haulage of 32 , Bennions Road, Wrexham.
William Crump aged 36 years, cutterman of 157, Council Houses, Bradley.
Thomas Darlington aged 28 years, ripper of 39. Mountain Street, Rhos.
Edwrad Davies aged 53 years, packer of 33, Cyngorfan, Rhos.
George William Davies aged 26 years, haulage, 29, Farndon Street, Wrexham.
Hugh T. Davies aged 26 years, borer of Holly Bush Terrace, Bradley.
James Davies aged 31 years repairer of 4, Williams Cottages, Moss.
James Davies aged 37 years, repairer, filler of 14, Boundary, Terrace, Gree, Bymbo.
Janes Edward Davies aged 21 years, filler of 29, Farndon, Street, Wrexham.
John Davies aged 64 years, repairer of Fern Leigh, Rhosrobin Road, Wrexham.
John E. Davies aged 32 years, collier of 43, Bennions Road, Wrexham.
J.R. Davies aged 69 years, repairer of Fern Leigh, Rhosrobin Road, Wrexham.
Matthias Davies aged 24 years, filler of 4, Erw Las, Maesydre, Wrexham.
Peter Davies aged 50 years, repairer of 8, Newtown, Wrexham.
Peter Davies aged 25 years, filer of 6. March terrace, Rhosrobbin.
Petere Davies aged 21 years, borer of 7, Glanllyn, Brandley.
Robert Thoms Davies aged 34 years, collier of 4, Mountain View, Caego, Wrexgham.
Sam Davies aged 35 years, filler of 14, Woodland View, New Rhosrobbin.
Thomas Davies aged 3 1years, repairer of Erw Cotttage, Caergwrle.
William Davies aged 33 years, repairer of 14, Acton Terrace, Rhosnessney.
Thomas Dodd aged 39 years, ripper of 5, Maeseinnion, Rhos.
Fred Duckett aged 29 years, collier of 7, Beech Terrace, Ruabon.
Jospeh Edge aged 28 years, haulage hand of 31, Green Road, Brymbo.
T. Sam Edge aged 30 years, collier of 62, Nelson Street, Hightown, Wrexham.
Albert Edwards aged 62 years , repairer of Nr. Kings Road, Moss.
Ernest Edwards aged 16 years, haulage hand of 31, Green Road, Brymbo.
E. Glyn Edwards aged 32 years, haulage hand of 13, Woodland View, New Rhosrobbin.
Ernest Thomas Edwards aged 23 years, ripper of 4, Queen Stree, Rhos.
F. Edwards aged 32 years, pipeman of Chestnut Avenue, Acton.
James Sam Edwards aged 32 years, haulage hand of Top Road, Moss.
John Edward Edwards aged 39 years, collier of 6, Glan Afon, Maesydre, Wrexham.
Joseph C. Edwards aged 30 years, packer of 9, Cornation Cottages, New Road, Southsea.
Thomas David Edwards aged 40 years, ripper of 6, New Street, Rhos.
William Edwards aged 32 years, ripper of 20, Church Street, Rhos.
John Edwardson aged 41 years, beltman, of High Street, Gresford.
George Edward Ellis aged 43 years, collier of 35, Council Houses, Pandy.
Fred Evans aged 50 years , collier of 1, Grange Avenue, Rhosddu.
Joseph Evans aged 32 years, cutterman of Ness Cottage, Park Wall, Gwersyllt.
Norman Evans aged 37 years, doggie, 14, Grange Avenue, Rhosddu.
Ralph Evans aged 37 years, cutter 135, Pentre Lane, Llay.
Len Fisher aged 30 years, haulage hand of 44, Marple Avenue, Acton, Wrexham.
Irwin Foulkes aged 21 years, haulage hand of 15, Cyngorfan, Rhos.
Richard George Gabriel aged 61 years, collier of Crispin Lane, Wrexham.
Jospeh Henry Gittens aged 42 years, repairer of 11, Adenbury Street, Wrexham.

J. Goowdin aged 51 years, packer of 6, Chapel Road, New Broughton.
Edward Griffiths aged 21 years, filler of Brandy Cottages, Ruabon.
Ellis Griffiths aged 50 years, packer of 68, Cyngorfan, Rhos.
Emmanuel Griffiths aged 53 years, packer of 14, High Street, Penycae.
E.C. Griffiths aged 25 years, repairer of 6, Gardd Estyn, Garden Village.
John Francis Griffiths aged 57 years, repairer of 14, Oxford Street, Wrexham.
Walter Griffiths aged 50 years, repairer of 53, Victoria Road, Brynteg.
Walter Hall aged 49 years, packer of 4, Church Road, Brynteg.
T.W. Hallam aged 32 years, packer of 3, Railway Terrace, Gwersyllt.
Arthur Hamlington aged 62 years, repairer of Yew Tree Cottage, Little Mountain.
Frank Hampson aged 32 years of repairer of 78, Ruabon Road, Rhostyllen.
Arthur Harrison aged 21 years, collier of 30, Moss Hill, Moss.
Charles Edward Harrison aged 15 years, haulage hand of 19, James Street, Wrexham.
Phillip Hewitt aged 56 years, repairer of Poplar Avenue, Rhos.
William Henry Higgins aged 27 years, haulage hand of 12, Finney Street, Rhosddu.
Alfred F. Holt aged 31 years, cutter of 155, Finney Street, Rhosddu.
Joseph Henry Houlden aged 21 years, haulage hand of 25, 2nd. Avenue, Llay.
Cecil Hughes aged 32 years, packer of Tanygraig, Minerva.
F.O. Hughes aged 60 years, repairer of 7, Acton Terrace, Rhosnessney.
Harry Hughes aged 44 years, cutterman of 3, Hill Crest, Spring Lodge.
John Hughes aged 58 years, repairer of 59, Percy Road, Wrexham.
Peter Joseph Hughes aged 27 years, collier of Tanygraig, Minera.
Robert John Hughes aged 29 years, collier of 14, Lorne Street, Rhosddu.
Walter Ellis Hughes aged 24 years, packer of Rosemary Cresnet, Rhostyllen.
William Hughes aged 43 years, collier of 4, Long Row, Brymbo.
Ben Humphreys aged 34 years, collier of 50, Vernon Road, Brynteg.
Joseph Humphreys aged 30 years, cutterman of 22, Edward's Road, Brynteg.
Thomas Husbands aged 40 years, collier of 18, Manley Road, Wrexham.
Ernest Jarvis aged 41 years, cutterman of 7, Vownog, Bersham.
W.T. Jenkins aged 25 years, collier of 14, Heol Offa, Vron, Wrexham.
Percy Johns aged 29 years, packer of 27, Fford Edgeworth, Maseydre, Wrexham.
A. Edward Jones aged 31 years, borer of 25, Nelson Street, Wrexham.
A. Jones aged 37 years, header man of 50, Westminster Road, New Broughton.
Cyril Jones aged 26 years, collier of Main Road, Old Rhosrobin.
Dan Jones aged 33 years, repairer of 14, Western Road, New Broughton.
Edwads Jones aged 64 years, repairer of 5, Woodleand View, High Street, Gwersyllt.
Edward Jones aged 56 years, repairer of Queen Street, Cefn.
Edward George Jones aged 23 years, haulage hand of 29, Ruabon Road, Wrexham.
Eric Jones aged 23 years, filler of 116, Rosemary Crescent, Rhostyllen.
Ernest Jones aged 36 years, packer of 35, Glan Garth, Maesydre, Wrexham.
Evan Hugh Jones aged 55 years, repairer of Marion House, New Brighton, Minera.
Fred Jones aged 30 years, packer of 4, Woodland View, New Rhosrobbin.
F.H.C. Jones aged 31 years, borer of 1, Bridge Street, Holt.
F.O. Jones aged 27 years, haulage hand of 21, Council Houses, Berse.
George Jones aged 47 years, beltman of 18, Glan Garth, Maesydre, Wrexham.
Gwilym Hunphrey Jones aged 22 years, haulage hand of 24, Russel Street, Cefn.
Henry Jones aged 59 years, collier of 1, Gordon Terrace, Rhosddu.
Idris Jones aged 37 years, haulage hand of 59, Nant Road, Coedpoeth.
Iorwerth Jones aged 52 years, haulage hand of Bryn Dolwar, Rhosrobbin Road.
Jabez Jones aged 43 years, haulage hand of 1, Morgan Avenue, Rhosddu.
John Dan Jones aged 42 years, repairer of 3, Williams Cottages, Moss.
John Richard Jones aged 33 years, repairer of 6, Mostyn View, Coedpoeth.
John Robert Jones aged 55 years, repairer of 119, Pentre Lane, Llay.
Llew Jones aged 49 years, repairer of 3, Windsor Road, New Broughton.

Llew Jones aged 38 years, haulage hand of Yew Tree Bungalow, Gresford.
Llew Jones aged 38 years, collier of 3, Bersham Road New Broughton.
Richard Henry Jones aged 21 years, haulage hand, 5, Bryn Terrace, Ruabon.
R.J. Jones aged 34 years, repairer 3, White Houses, Lodge, Brymbo.
Robert Jones aged 57 years, fireman of Drefechan, Penycae.
Robert Jones aged 49 years, packer of Hillock Lane, Gresford.
Thomas Jones aged 55 years, packer of 28, Council Houses, Gresford.
Thomas E. Jones aged 29 years, collier of Poolmouth Valley, Moss.
Thomas John Jones aged 58 years, haulage hand of Bryndedwydd, Marford Hill, Penllyn, Trevor.
T.O. Jones aged 59 years, collier of Penllyn, Tevor.
William Jones aged 51 years, haulage hand of 16, Lorne Street, Rhosddu.
William Jones aged 21 years, filler of 2, Lloyd Street, Rhos.
James Kelsall aged 30 years, haulage hand of 34, Florence Street, Rhosdu.
John Kelsall aged 37 years, packer of Rose Cottage, Common Wood, Holt.
William Lawrence aged 43 years, haulage hand of 9, Nelson Street, Hightown, Wrexham.
John Thomas Lee aged 30 years, repairer of 10, Hoel Offa, Coedpoeth.
Thomas Lee aged 30 years, repairer, 6, Hoel Offa, Coedpoeth.
David Lewis aged 44 years, repairer of 6, Merlyn Street, Johnstown.
David Thomas Lewis aged 46 years, cutterman of 3, Middle Road, Coedpoeth.
Joel Lilley aged 41 years, repairer of Main Road, Old Rhosrobbin.
Thomas Lloyd aged 55 years, packer of 14, Colliery Road, Rhosddu.
William Lloyd aged 59 years, collier, 22, Finney Street, Rhosddu.
W.S. Lloyd aged 19 years, haulage hand, 172, Pentre Lane, Llay.
John Lucas aged 59 years, collier of 153, Council Houses, Glanllyn, Gwersylt.
Joseph McKean aged 30 years repairer, of 15, Cheshire View, Spring Lodge, Wrexham.
Colin V. Maggs aged 17 years, haulage hand of Talwrn House, Talwrn.
Albert Mannion aged 29 years, filler of 12, Hill Crest, Spring Lodge, Wrexham.
Thomas A. Mannion aged 33 years, repairer of 31, Meadows Lane, Spring Lodge, Wrexham.
William Henry Martin aged 37 years, ripper of 7, Newton, Gresford.
W.V. Matthews aged 18 years, haulage hand of 22 Hill Street, Penycae.
Sam Mathias aged 42 years, fireman of 6, Eagles Place, Moss.
William Meade aged 39 years, packer of 22, St. John's Road, Wrexham.
George Mitchell aged 32 years, haulage hand of 35, James Street, Wrexham.
Ernest Monks aged 23 years, haulage hand of Glan Afon, Bwlchgwym.
Edward Morley aged 57 years, repairer of 89, Council Houses, Bradley.
Alfred Morris aged 20 years, haulage hand of 20, High Street, Penycae.
Harry Nicholls aged 35 years, collier of 3, Ashfield Road, Crispin Lane, Wrexham.
William Henry Nicholls aged 25 years, collier of 34, Farndon Street, Wrexham.
Evan Henry Owens aged 54 years, packer of 22, Cunliffe Walk, Garden Village.
Alexander Palmer aged 20 years, haulage hand of Kingstown, Maesydre.
Isaac Parry aged 65 years, repairer of 41, Western View, Wrexham Road, Lodge, Brymbo.
J. Parry aged 65 years, repairer of Western View, Wrexham Road, Lodge, Brymbo.
J.E. Parry aged 31 years, haulage hand of 19, Pisgah Hill, Pentre Broughton.
J. Richard Parry aged 31 years, haulage hand of 37, Manley Road, Wrexham.
Stephen Penny aged 32 years, filler 10, Stansty View, New Rhosrobbin.
William H. Penny aged 32 years, ambulanceman of 60, Council Houses, Pandy.
Frank Perrin aged 23 years, haulage hand of Finney Street, Rhosddu.
Henry Peters aged 38 years, packer of 114, Pentre Lane, Llay.
George Phillips aged 22 years, haulage hand of 75, Trevenna Way, Spring Lodge.
Herbert Phillips aged 30 years, filler of 27, Haig Road, Hightown, Wrexham.

John Phillips aged 40 years, filler of 9, Gardd Estyn, Garden Village.
John Frank Pickering aged 22 years, haulage hand of Sycamore Terrace, Old Rhosrobbin.
Charles Powell aged 57 years, railman of 24, Dale Street, Rhosddu.
Ernest Price aged 27 years, cutterman of Oldfield Terrace, Gresford.
Joseph Pridding aged 32 years, haulage hand of 19, Oxford Street, Wrexham.
Mark Prince aged 59 years, repairer of Manley Road, Wrexham.
William Prince aged 30 years, repairer of 23, Meadow Lea, Spring Lodge, Wrexham.
Isiah Pritchard aged 54 years, repairer of 11, Woodland View, New Rhosrobbin.
Ernest Pugh aged 49 years, doggie of 5, Quarry Road, Brynteg.
Thomas Pugh aged 54 years, collier of 61, vernon Street, Rhosddu.
John Ralphs aged 53 years, cutterman of Market Street, Pentre, Broughton.
Thomas A. Rance aged 21 years, haulage hand of 11, High Street, Pentre, Broughton.
A. Rees aged 56 years, pipeman of 3, Gatewen Road, New Broughton.
Lloyd Reid aged 20 years, haulage engine driver of 11, bryn gardden, Rhos.
Arthur A. Roberts aged 63 years, repairer of Wire Mill Cottages, Bradley.
Edward Roberts aged 35 years, collier of Bryn Estyn Cottages, Rhosnessney.
Ernest Roberts aged 26 years, filler, Little Penybryn, Abenbury, Wrexham.
E.C. Roberts aged 42 years, collier of 12, Council Houses, Gresford.
Frank Roberts aged 26 years, haulage hand of 3, Bury Street, Wrexham.
George W. Roberts aged 28 years, filler of 12, Glan Afon, Maesddre, Wrexham.
Idris Roberts aged 16 years, haulage hand of Pump Houses, Highfield, Stantsy.
John David Roberts aged 47 years, collier of 14 Lorne Street, Wrexham.
John H. Roberts aged 33 years packer of 2, Patison Row, Coedpoeth.
Olwyn Roberts aged 24 years, filller of 32, Hill Street, Penycae.
Percy Roberts aged 26 years, haulage hand of The Bungalow, Lydiart fanny, Coedpoeth.
Robert Roberts aged 33 years, repairer of Off Brook Street, Rhos.
Robert John Roberts aged 49 years, filler of Market Street, Wrexham.
Robert Thomas Roberts aged 57 years, railman of Crispin Lane, Rhosddu.
Robert William Roberts aged 38 years, packer of 5, Forge Road, Southsea.
Thomas James Roberts aged 19 years, filler of Kendrick Place, Beast Market, Wrexham.
William Roberts aged 45 years, packer of 41, princess Street, Wrexham.
William T. Roberts aged 40 years, collier of 165, Pentre Lane, llay.
William Robertson aged 41 years, cutterman of Spring Road, Rhosddu.
Edwrad Llew Rogers aged 20 years, haulage hand of 18, New Houses lane, Buckley.
Grenville Rogers aged 29 years, repairer of 19, Wheatsheaf Lane, Gwesylly.
Harry Ross aged 34 years, collier of 45, Nelson Street, Wrexham.
John Rowlands aged 36 years, cutterman of 85, Holt Road, Wrexham.
John David Rowlands aged 17 years, haulage hand of Old Cross Foxes, Minera.
William Salisbury aged 36 years, fireman of 48, Victoria Road, Minera.
George Shaw aged 63 years, collier of Ashwood, Wrexham Road, bBynteg.
John Stone aged 34 years, packer of Gresford, Wrexham.
Richard Stone aged 49 years, doggie of High Street, Gresford.
Arthur Slawson aged 22 years, haulage hand of Cresent Road, Wrexham.
Leonard Smith aged 20 years, haulage hand of 25, Bennions Road, Huntroyde, Wrexham.
R.T. Stevens aged 25 years, haulage hand of 27, Pisgah Hill, Pembre, broughton.
Albert Strange aged 25 years, collier of 21, Nelson Street, Wrexham.
Stanley Stratford aged 39 years, packer of 5, 9th. Avenue, Llay.
John Tarran aged 59 years, repairer of 77, Liverpool Road, Buckley.
William Henry Taylor aged 53 years, cutterman of Church Street, Holt.
Berwyn Thomas aged 26 years, haulage hand of 2, Kent Road, Lodge, Brymbo.

John Elias Thomas aged 29 years, haulage hand of 5, Queen's Terrace, Gwersyllt.
Robert Thomas aged 32 years, haulage hand of Pant Hill, Rhos.
Tec. Thomas aged 26 years, collier of 51, Council Houses, Pandy.
John Thornton aged 24 years, repairer of 6, Coronation Cottages, New Broughton.
Edward Tittle aged 44 years, repairer of Snith Lane, Acton, Wrexham.
Ernest Trow aged 41 years, collier of 13, huntroyde Avenue, Wrexham.
Fred Edward Valentine aged 24 years, haulage hand of 20, Glan Dwr, Acrefair.
John Edward Vaughan aged 28 years, repairer of 15, Alford Street, Wrexham.
John White aged 38 years, beltman of Chapel Cottages, Gresford.
George Williams aged 31 years, collier of 3, Garden Terrace, Summerhill.
Harold Williams aged 37 years, collier of 2, Osborne Terrace, Claypit Lane, Gresford.
Hugh Llewellyn Williams aged 43 years, collier of Park Street, Rhosddu.
John Williams aged 44 years, repairer of 28, Dale Street, Wrexham.
John Williams aged 62 years, repairer of Cheetham's Lodging House, Mount Street, Wrexham.
J.D. Williams aged 29 years, repairer of 2, Vulcan Cottages, New Road, Southsea,
John Thomas Williams aged 33 years, packer of 12, Brynyffynon, Brymbo.
Morris Williams aged 24 years, electrician of Pentre Lane, Llay.
Reginald Williams aged 29 years, electrician of Old Rhosrobbin.
Thomas Williams aged 57 years, repairer of Park View Stores, Bradley.
W.A. Williams aged 29 years, cutterman of 9, gatewen Road, Pentre, Broughton.
John Walter Wilson aged 32 years, haulage hand of 5, Victoria Terrace, Coedpoeth.
Henry Witter aged 56 years, repairer of The Mount, Gresford.
Edwrad Wynn aged 68 years, repairer of 32, Bradley Road, Wrexham.
Willima Walter Wynneyard aged 47 years, repairer of New Inn, Cefn-y-bedd.
Morgan J. Yemm aged 28 years, repairer of 39, 7th. Avenue, Llay.

The rescue men who died were -

Dan Hughes aged 56 years of 23, 1st. Avenue, Llay.
William Hughes aged 54 years of Janckson's Houses, New Rhosrobbin.
John Lewis aged 48 years of 9, Railway Terrace, Cefn-y-bedd.
George Brown aged 59 years, surface labourer who was killed by a further explosion on the 25th. September, 1934.

The inquiry was opened at Wrexham on the 25th October, 1934. The inquiry was conducted by Sir Henry Walker, C.B.E., LL.D., H.M. Chief Inspector of Mines as the Commissioner and Mr. John Brass and Mr. Joseph Jones as assessors. As the whole of the mine was sealed off at that time it was realised that an investigation into the actual causes of the explosion were remote and it was decided that evidence should be taken on the state of the mine prior to the disaster, the events leading up to the explosion and to take such evidence as was available as to the cause as was available

The air measurements were said to have been made monthly and were entered in the Report Book but at the inquiry it emerged that there were practices at the colliery which were contrary to the Coal Mines Regulation Act.

In the report of the disaster, Sir Henry Walker stated -

"I do not believe that many of the measurements recorded even in the prescribed book were ever made. I have in my possession, Mr. Cuffin's notebook in which were entered for the velocities and areas at the various measuring points for November 1933, January, April and June, 1934. but for November, 1933, there is only one entry in the notebook referring to the Dennis Section, namely a measurement at M1 in January, and again in April there are only two such entries, namely measurements at M2 and M5 and in June there are five entries, namely, measurements at M1, M2, M3, M4, and M5.

On 8th. June, 1936 during the sitting when he confess that the figures for July and August were fictitious, Mr. Cuffin was asked by me where the calculations not appearing in the notebook where. He replied that he did not always use a notebook but used foolscap.

I do not accept this explanation. I think Mr. Cuffin was given more work than he could overtake and that in consequence he scamped the work of measurement."

Of the figures that were in the notebook, Sir Henry found that many of the calculations were inaccurate.

Counsel for the North Wales Miners' Association produced detailed evidence that there were serious and progressive reductions in the quantity of air reaching the furthest workings inbye which could only be accounted for by massive leakage due to the deterioration of the airways and lack of repair. Sir Henry thought the basic evidence was sound but that the figures presented were unreliable as they did not give the actual state of the ventilation or of the return airways

Some of the deputies report books from the start of 1934 could not be produced and copies of them had not been kept according to the Coal Mines Act, 1911. The missing books were said to be in a cabin at the bottom of the Martin shaft and some books were recovered when the cabin was entered during recovery operations and put in evidence on 31st, March, 1936. the books covered the period 1st. January to 21st. March, 1934 and no gas was reported. None of the workmen who gave evidence, had seen gas in the district.

The ventilation of the district was reported to be in good order by the officials and some of the workmen said it was good, others, not so good and others said it was poor.

A first-hand account of the recovery of the Gresford colliery after the explosion by Mr. Parry Davies

"As a Captain of one of the Rescue Teams which were employed directly after the explosion, and later in the recovery of parts of the mine which possibly could be worked, I have often been requested to put into writing my actual experiences during the time that work was being carried out.

RECOVERY OPERATIONS STARTED.

Now the big day has arrived, all men are re-examined by the Doctors, and all have to pass a practical test with the apparatus, and to prove his knowledge and functions of the various parts. The airlock at the top of the shaft is completed and the trained men with the equipment are needed to take off the seal. It is realised that when this is done, the poisonous gases which have been put up in the pit by the sand stopping, will rise and soon fill the airlock just as soon as the seal was removed. There, no one could possibly live without the apparatus. On examination, it was found that the winding ropes, and the chains from the rope to the cage, after being stood 20 weeks, was not in a condition to think of riding men down the pit, and it was decided that the ropes must be re-capped, but how was this to be done? Only men trained with the apparatus could enter the airlock, and none of them had experience of this kind of work! Then they must adapt themselves to a new profession and get down to being a temporary blacksmith. Take the chains off the cage and detach the rope from the chains, so that the rope could be newly capped. This was done successfully in a minimum of time, put back again, and the job is as sound as ever. All this work done by rescue men wearing the apparatus and

breathing oxygen all the time, and this just goes to show how in cases of difficulty an inexperienced man may be taught to carry out other very important work to which he had never been accustomed.

Still other difficulties make themselves apparent, How are the rescue men to be lowered down the pit and no means of signalling? Can we use a microphone? We try it, no use, different ideas are discussed, but none are satisfactory, Everyone connected with pits know of the gong and hammer which the shaftsman carries in the cage when he is inspecting the shaft. The sound will carry a long way, but what of the water that is pouring down the shaft from the water lodge? A stream at the rate of 25,000 gallons per minute is falling down the shaft and this would deafen the sound of the gong.

Well then, we shall have to stop the water from going down the pit and turn it so it falls down the 'Dennis Pit' instead of the 'Martin Pit'. It only means going as far as the pump house in the shaft, a matter of only 200 yards down, and to go far the ordinary pitman's gong will do. Now the work of turning the water to the 'Dennis Pit' was a tricky piece of work, and the pump house a very difficult place, the entrance being not directly in front of the cage but at the side, with a distance of over half a yard to step from the cage to a foothold at the pump house entrance, and 500 yards of a drop if you missed your footing. That space looked more like two yards than half a yard. We were required to take measurement of the opening at the entrance so that shoring timbers could be sawn and taken to fix across the opening, and afterwards special clay in bricks could be put behind the timbers and so form a dam to a higher level than the opening in the side of the 'Dennis Pit', where the water naturally would go to the lower level. The noise of the falling water was terrific, each man holding on to his life by a mere thread, feet slipping and everything touched wet and 'slimy'. Every man giving half his attention on the job in hand and the other listening to the 'click, click' of the valves in his equipment. This was a very sever trial of nerve and endurance, every men wet through to the skin. Standing in a cage with an open top in the middle of the pit, and not knowing what may fall from above. Rust and slime everywhere above It was possible to make a thorough examination to say that everything was safe. However, the dam was completed by two teams on Monday March 1st. and the pit left to drain itself until March 7th. when the first descent was attempted. The weather was similar to that on that fateful morning of the explosion. The March air was nippy although not quite as much a rain falling.

THE FIRST DESCENT.

Now what is going to be the fate of the first team? Doom. Are they going to return alive? The reporters present called it the 'Death Trap', the 'Pit of Death' also many other titles were given to the pit. A Special Emergency Rescue Station had been erected at the Colliery where the equipment could be cleaned and refilled with oxygen, also testing and repairing of all equipment.

As the Captain of the team detailed to make the first descent I received a copy of typewritten instructions of which I give in detail.

GRESFORD COLLIERY INSTRUCTIONS TO CAPTAINS OF THE RESCUE TEAMS.

The Captain is responsible for his team, and all his members shall obey his instructions.

The Captain and at least one other member of his team, must carry watches, and before going underground he must see that the watches are set at exactly the same time as the watches of Mr Abbott and Mr Fairhurst or Roberts or Joshua Jones, whichever is at the entrance to the airlock.

The Captain shall ascertain the pressure of oxygen in the cylinders carried by himself and each member of the team at the start, and shall read the gauges every 20 minutes during the first hour, and every ten minutes afterwards, and the chart provided. He shall withdraw the whole of the team if any one of the gauges records only 35 atmospheres.

The code of signals recorded on the back of the Pressure Gauge Chart must be observed:-

- a) 'Distress' or 'Help wanted' - 1 hoot
- b) 'Halt' - 2 hoots
- c) 'Retire' - 3 hoots
- d) 'Advance' - 4 hoots
- e) 'To call attention' - 5 hoots

The Captain shall obtain clear instructions, of what he and his team have to do before proceeding underground, and on no account shall he attempt to carry out any part of such instructions which in his judgement might cause risk of life to any member of his team.

The Captain must see that his team keeps together, and every member of the team must come out with the Captain when the work is completed, or the time limit is reached, or the oxygen supply is getting near 36 atmospheres, or for any other reason.

The Captain must see that his team gets back to fresh air, that is outside the airlock, with not less than 30 atmospheres of oxygen, and under no circumstances, must the team be taken away from fresh air for more than 1 hour 40 minutes.

The Captain must have with him the necessary small tools for the 'Proto' apparatus. He must carry one spare nose clip, he must be careful and warn the members of his team to be careful on entering and leaving the cage.

Don't forget the frequent shaking of the breathing bags to keep the CO₂ absorbent free, this is particularly important with Soda Coke.

Don't forget note book, pencil, chalk, 33ft tape measure and two foot rule.

The Captain must make a written report of the work done, and to report any remarks made by members of his team concerning the apparatus, in the book provided.

FIRST PROCEDURE.

Cages to be run up and down the shaft several times to clear pipes, and engine cylinders of water, and to make sure that the winding gear and signals are in order. Engineer will enter airlock with two members of the team which are to remain to act as banksman and give signals. The engineer will examine the cages, bridle chains, detaching hooks and rope cappings. Also see that the gates on the cages are secure, hang shaft lamp on bridle chains, and when satisfied that everything in order he will leave the airlock and the first team must then be ready to descend.

HAVE READY -

- 1). Hammer and Gong on the cage, these must remain there.
- 2). Hammer and gong to be hung at the bottom of the pit and remain there.
- 3). Tools comprising, picks, shovels, hammers, handsaws and axes.
- 4). Stretchers and ambulance requisites.
- 5). Oxygen reviving set and cylinder of Di-Carbox gas.
- 6). Spare cylinder of oxygen with fittings and shoulder straps.
- 7). Materials for stoppings - Scantlings, Boards, 4" and 6" wire nails, Brattice cloth and nails, also a quantity of wedges, hand hammers, wooden blocks, and bags of sand.

- 8). 1" pipes, 4 feet long, with tapered wooden plugs to be fixed through each stopping near the top so that samples of pent up gas can be taken.
- 9). 12 electric hand lamps.

SHAFT SIGNALS TO BE USED.

Men descending or ascending	- Signal 3
To lower cage	- Signal 2.
To lower cage slowly	- Signal 5.
To raise the cage	- Signal 1.
To raise cage slowly	- Signal 4.
To stop the cage when in motion	- Signal 1.

AFTER ASCENDING.

When the cage reaches the stopping place signal '1' and if materials are required from the surface signal '1' for the cage to be raised to the surface. Await the return of the cage, signal '1' to stop it where required. Take materials from the cage, then signal '4' to raise the bottom deck out of the sump. Signal '1' to stop it, and leave it there until required. Signal '2' to lower it when required, then the usual '3' and '1' to ascend

If materials are sent down on a tram or in tubs on the cage, be very careful to fasten the tram or tubs securely with wedges Also when sending the empty tram or tub up on the cage.

Messages to be placed in the leather bag hanging on the cage hand rail.

ON RETURNING TO THE SURFACE.

After leaving the airlock, take off nose clops, and mouthpieces, close main valves.

On entering Rescue Room each member of the team to deposit his apparatus in the position marked for the same, and report to the Captain on the conditions.

Each member of the team to carefully dismantle his own apparatus, empty and clean the breathing bag. Also wash out the mouthpieces and air cooler.

When finished deposit the parts at the appointed place, except the breathing tubes which are to be hung up to drain.

It was most important that the breathing bags should be washed out thoroughly before recharging and the gauges must also be cleaned.

As instructions these were to be observed throughout the whole of the recovery operations, and every one of the team had to be thoroughly convergent with them. All of us realised that they had been carefully thought out, and arranged by practical men, and that the instructions were sound common sense, but there was still a lot to do before we could apply some of them.

After the Engineer had made his inspection of the rope cappings, chains, sec. my team was ready to descend with instructions to ascertain that the dam which had previously been put at the entrance of the Pump House, was holding good, and that there was no danger of it giving way, for it this was to happen after the cage was below this level the it was fairly obvious that whichever team was below would be drowned by the sudden inrush of 25,000 gallons of water per minute. Then we were to return to the surface and report to the Inspectors, Directors, and Mr. Abbott who was directing the recovery operations. After reporting we then had to descend again, and ride down to the 'meetings', that is where the ascending cage passes the descending cage in the shaft. The object being to satisfy ourselves, and the people responsible that the cages would pass without catching each other. We were then to again return to surface and report, leaving the remainder of the shaft to be examined by the next team.

These instructions were pretty clear and easily remembered, and after being examined still once more, this time by two Doctors, and all the apparatus fully tested and passed we are ready for the 'Death Trap' so freely spoken of. No persons were allowed in the Pit Yard except those holding permits, but it appeared to us that all the Pressmen, Photographers and B.B.C. representatives in the British Isles, had received these permits. Cameras were on the tops of cars, on legs and held in the hands and one could hardly get through the throng to reach the pit.

Along the Chester-Wrexham Road outside the Colliery Yard were lines of cars and hundreds of people. Why were they all there? Curiosity? No, many of them praying to God, that we should return and that the roll would not be greater. Every precaution had been taken, and the arrangements made with the winding engineman regarding the signals etc. It was arranged that he should lower us down to the point where we had been on the Monday (the Pump House), and then every 20 yards below this point he was to stop without a signal, and then if he did not receive a signal to lower further, he must bring us back up. If he continued to receive a signal then all was well. If he did not receive a signal, probably the cause would be that the sound of the gong was not reaching the rescue man acting as Banksman, or probably another cause I need not mention. Sound and definite instructions had been given, we were to go so far, and no further, and prior to entering the airlock, watches were compared pipes coupled to the mouthpieces, and with all good wishes from the Coal Owners, Doctors, Engineers and Inspectors, we were once more inside and on the cage, each one of us absolutely confident that the apparatus we were wearing would not fail us, and that the precautions that had been taken gave us an even chance of coming back up again.

"DOWN SO FAR SO GOOD".

What a time? What a thrill? What anxious moments for everyone concerned? Those on the surface seeing those wheels revolving so slowly. Every minute an eternity, every time the wheels stopped an anxiety. Are they all right? Is the dam holding? We could imagine all this from the responsible officials. These were the most anxious moments of the re-opening of the Gresford Colliery after being closed for 6 months. We are now down to the Pumping House entrance, and examining the dam. Thank God it is holding, and doing all that is needed. There is very little water coming through, but what was falling down the shaft was making a din as it dropped into the water 500 yards below. Anyway the dam is holding and our instructions are to return to the surface to report our findings to those eager anxious waiting people. Up to now this trip had been quite easy. What was in store for us on the second descent when we were to go 150 yards further down to the 'meetings'? Each member of the Team realised, that in going below the Pump House level, that he was dependent on his own examination of the dam having been of a minute character, and that if his judgement had been at fault then his life was the toll that would be taken, but we were thoroughly satisfied that the dam was doing its work and that given ordinary conditions it would continue to do so.

Now we were passing the Pump House on the second descent, stopping as arranged every 20 yards. Signalling '2' to lower us further, the noise of the falling water into the bottom is now getting louder and as we are passing one of the garlands, (a cast iron recessed ring built in the shaft bricking in the water bearing strata) we find that a good deal of water is falling from this, but the noise below is far greater than the quantity. Lower and lower, still very slowly. Stopping as arranged, then going down and down till we see the chains of the ascending cage. Will it pass without catching out cage or will it catch and upset us, throwing us out of the cage into the water 350 yards below? Every inch it moved nearer, all eyes on the chain and ears listening to the valves in the apparatus. It is a real funny time

which one can hardly describe. No fear, still anxiety. Seconds seemed ages. We moving down so slow, the ascending cage coming up to meet us just as slow. By now the anxiety is over. The up-going cage is passing well clear of ours, and as we watch it, it comes into line with us and we signal "stop" later signalling '7' to indicate to the winder the fact that the cages are dead level, so that he could mark his indicator on the engines, the point of the 'meetings' in the shaft, It is then necessary that we should go just a little lower to be able to see the underside of the ascending cage and make certain that there was nothing loose hanging from it which was likely to fall down the shaft as the next team descending was to go below the point we had marked, After making the examination was signalled to be drawn back to the surface and reported our findings.

DOWN TO THE PIT BOTTOM. 1

After the next team for duty had passed through the same searching examination as we had been subjected to, they were given their instructions. The same method as before to be adopted, get down to the 'meetings' and then every 20 yards the engineman to stop and signal to be given from those on the cage to lower a further 20 yards. They were to proceed to the pit bottom and make an examination of the 'landing'. Would they be able to reach the landing? How about the water we had heard? They were descending on what was known as the 'Gresford Cage'. The nearest side to the Gresford Village. The one nearest Wrexham was called the 'Wrexham Cage and all went well with the descent until they reached the supposed 'landing'. The lower deck of the cage would not lower into the sump, below the landing. What a sensation when they could hear the chains on the cage slackening and banging on top of the cage and they not sure that their signal could be heard on the surface. Providence was once more kind to them. Their signal to be raised back to the surface was heard, and then answered, and soon they were on the surface reporting their eerie experience. Well if that cage will not lower into the sump then they must go down the Wrexham cage and down they went to see if that cage would lower sufficiently far enough to enable them to get off at the landing.

It will be readily understood that nerves would be all shaken after their first experience, but without a murmur and no hesitation they were back and going down. There was no difficulty this time. The descending cage was lowered to the 'Landing Level' and as the bottom deck of the cage was being lowered in the sump one can imagine the feelings of those men. One yard of a mistake by either signals or winding engineman and they would be lowered into the water to be drowned like rats in a trap drain.

After they had examined the condition of the landing they returned to the surface, reported on it's condition and also the condition of the lower part of the shaft. The first part of our venture had been completed successfully.

CARRY ON.

The ovation that the second team received on their return to the surface will live long in my memory. They were met by crowds of people who could no longer be restrained. Their emotion and enthusiasm carried them into the Pit Yard to congratulate those brave lads on their achievement.

The third team is now ready after passing the preliminaries. They are to go further again and explore and report on the road leading from the pit bottom. It is impossible to describe the havoc which met their gaze when they got off the cage many of the men in the third team were well acquainted with the pit bottom prior to the explosion in September and even they could not realise that this was the same place that they knew so well.

The floor of the roadway was lifted up, rails and sleepers all torn up and strewn about the place in an indescribable manner, the brick walls in the pit bottom all broken down, heavy sections of girders bent and broken pointing in all directions, the 'landing' and 'scaffolding' all blown to pieces and need needing renewing. This team had a peep at the 'Pit Bottom Office' or 'Bosshole' for the first time since the explosion. Was it the same place they had known previously? They could not be sure, but it must be. It only appeared to be a small cavity in the brick wall but there were some books etc. and this must be the place they had known as the 'Bosshole'. The damage done to the place was appalling. What could they report on arrival back at the surface? It would take a lifetime to fire anything like an accurate description of the havoc below. However this completed the first days work of the exploration of the Gresford Colliery and I for one was feeling very pleased that all we had been asked to do had been done successfully and without further loss of life.

One can imagine the grave looks and puckered expressions on the faces of those officials responsible for opening the pit after they had received the report of the third team down. What had caused those terrific later explosions? Was it the fire after the first 'Dennis' explosion that had ignited the gas after the sealing of the shafts? Theirs was a very grave responsibility. They were getting no rest either day or night, If so much damage had been done around the pit bottom, what was the damage likely to be nearer the seat of the explosion wherever it had occurred? What to do first and how to set about the job? All this needed a lot of discussion and a decision was not easily arrived at. One thing only was certain they had decided to reopen the pit, and the work must go on until something definite had been done.

The analysis of the atmosphere assured the authorities that the fire which had been seen on 22nd. September had, through lack of oxygen supply, died out. Thus the seals on the pit had achieved. Well the rescue teams must continue and we are again organised into shifts to carry on with the work of exploration and finding suitable places to erect stoppings in the 'Dennis Intake' and return airways thereby making doubly sure that we stop still longer the supply of oxygen to the seat of the first explosion. The work on the first day was as nothing compared with what was to follow and done by the Rescue Men in the further exploration the disastrous pit. No man ever dreamed of so much damage. No man had ever seen such a calamity in any mine in the whole world. There was nothing for hundreds of yards around the pit bottom that was not wrecked. Upheavals in the floor, falls of roof girders, tubs, rails, and timber everything and every kind of material was blown and twisted all shapes. Every move had to be done with the utmost care. Not only had we to face the poisonous gas, but we had the possibility of further falls to look out for. May be in crawling past some fall or twisted girders there was always the possibility that one might knock off the nose clip or catch the air pipes and pull them, off the equipment. The first 4 weeks of the reopening 5 teams were engaged on the work, and after this time it was decided to reduce the number to 4 teams. Three to be down the pit and one team in the airlock as banksmen, and loading material required below.

An attempt was made to get from the bottom of the 'Martin Pit' to the bottom of the 'Dennis Pit', but at first this attempt failed owing to the heaped up material which had been thrown together by the explosions. The teams had to go through water, waist deep to get to the roads, where the stoppings had to be put in. Really I don't know how we all stood the strain. Considering the heat and the water, it was perfectly wonderful, the spirit of endurance shown by every man. Personally, I did not credit myself that I could take such a gruelling. But even in all this, there was always some little humour. Particularly so when we had the Ministry of Mines Doctor in the Company. One thought so little of the work when listening to his

jokes, but for all his jesting, I suppose he did it for a purpose and knew it was better than his medicine as a nerve smoother. He was quite a genuine chap was our Doc. Always ready with some good advice. many others were similar.

One good lady of Gresford in particular was always waiting in the cabin at the surface, awaiting our return from below, and she always had a good big basket of food, chocolates and cigarettes and she was doing this daily for three months. Later she had to cut the food out of her benefactions, as the Colliery Company wished to make themselves responsible for this part. I will not comment on the change but thank the Company for their efforts. The good lady was not going to be put off like this and if she couldn't bring sandwiches along she came with other for more delectable delicacies and the current newspapers. The Vicar of Gresford was also a daily visitor and he had to bring along his quota of chocolates and gigs.

Everyone connected with the work seemed to be determined to keep our minds off the work we were doing the time we were 'standing by' in the cabin. The Press reporters had photos to show us, they had taken for their respective papers. I am sure that each of the Rescue Men had enough photos of himself to paper the living room with and at this juncture I would like to pay a compliment to the Gresford Teams of Rescue Men for their jovial and friendly ways and the way they acted to those from other collieries. Whenever we were in the need of anything wanted help to carry out our work they were always willing. It was a big help to a strange team to have knowledge of roadways and roof conditions prior to the explosion. Whatever we had occasion to ask for, that thing was immediately given to us. Doors and bridges also air crossings as marked on the plan no longer existed.

STOPPING 'F' IN THE 'DENNIS DIP'.

The first stopping to be built was the one so reported in the Press. Stopping 'F' to be built just inbye of the 'slant' in the 'Dennis Deep'. It was a three block stopping, wood blocks 3ft long and 1ft square being used. Each block weighed about 25 lbs. and about 800 would be needed as the roadway at this point was 18 ft high and 13 ft wide and to get these blocks of wood meant that we had to carry them 300 yards. This would prove a very slow job and it was decided to clear a road, lay rails and transport the blocks on flat trolleys part of the way and an aerial rope was fixed up and the blocks slung on chains to this rope. This was indeed a considerable help. The Pressmen were reporting day after day "Rescue Men Build Stopping Off". it had many other names before it was finished. Each team had only two hours supply of oxygen, and they must do their work and get back to the surface before the time expired, and after going down, and receiving the trolley of blocks to take it along the aerial rope, unload and put each block on the aerial, put each block in position on the stopping and allow time to come back to the surface, we found that our two hours were up.

If any team was a few seconds overdue the responsible people on the surface were in a bad way. They were wondering if something had happened and one does not wonder when it is considered that various species of insects and birds, in fact all manner of creatures that could walk, crawl or jump, had been tried in the airlock to see how long they would live in the atmosphere.

I remember one Doctor who brought a rat into the airlock (he of course was wearing apparatus). He was anxious to know how long the rat would exist, but before he could turn his wrist to look at his watch, the poor old rat had "gone west". One gentleman remarked that it was probably half dead when it was taken into the airlock, so it was decided to get a special sewer rat, one that was used to foul and poisonous gases. Give this one his due, he survived 10 seconds and he was 'gone'. A saucerful of all kinds of crawlers was next tried, but they were all dead before they had been on the job a second. Strange to relate the small 'ladybird' was the best of them all. She walked about for 6 hours before she gave up the ghost.

Wood lice seemed to thrive in the atmosphere, but the Black beetle showed his legs instantly.

Now if all these creatures were dying in such a short time what of the team who were working 11,00 yards from the airlock? If the least thing went wrong with the apparatus what chance had they? There was no back door here. No wonder the officials were anxious if a team was late getting back to the surface.

To get to the stopping, every piece that was put on had to be 'solid' every joint 'crossed' and levelled up with sand. The work was so slow that it became notorious, and I am sure the public were tired of reading about the building of 'F' stopping. However, the thing that matters most is that the responsible people were satisfied that the job was being made a good one. Many days were spent before it completed, and many of us were most anxious to get on to other work, and other parts of the pit. The spark of curiosity was being kindled and although there was nothing but wreckage, we wanted to see how other parts were affected.

Although going to the same place of work day after day, the authorities on the surface were most anxious and worried for our safety. Every hour, day, every minute was counted, and valued whilst we were down below.

Our task and danger was exactly the same. No man of the team was likely to forget where he was, and everything was going along smoothly and successfully. Teams were working hand in hand. No spirit of competition. The work handed over to the next team. a true report of what was needed next, and how the job was left. All this helped the work on considerably. Good comradeship and fellowship is essential on this kind of work. However one might neglect this spirit in ordinary daily life. It was only the spirit, and that alone which enabled us to reopen the Gresford Colliery. I am proud to say that the same spirit prevailed until we finished. It was left in the hands of the teams to carry the work through. It was out of the question for this work to be delegated to others, so we needed harmony, and the true spirit of fellowship.

Many and varied were the digressions when we were 'standing by'. On one occasion I asked a prominent Director of the Colliery Company if he could tell us the winner of the Lincoln Handicap. He replied that if he knew the winner of the Lincoln Handicap we could have Gresford Colliery, but I pointed out to him that we as the Rescue Men thought that the Colliery already belonged to us as nobody else seemed to want to go down the pit. To this he smilingly agreed, but I don't think any of us would accept it as a gift. Indeed I know that I personally would not. There was always a good joke going and these repaid us for the continued monotony down below. So many different personalities visited us, listening to our experiences and the 'waiting period' simply flew on wings. It was time for the working team to come back almost before one thought they had gone down. Our turn next, and although the time seemed to be short, that 'waiting period' was always worse than the actual 'getting down' to it. Most of us were only colliers and it was an honour to be in the company of such eminent people. Medical Men, Research Doctors, University Professors, Chief Inspector of Mines, Senior and Junior Inspectors, Representatives of the Owners, Mining Engineers, Rescue Station Superintendent and also our own local celebrities, the Vicar of Gresford, and the lady of the land whom I mentioned previously. Mother of all indeed, the Ruth of old. We have never heard of such a lady and all round sport always a perfect Christian who lives up to her profession. Let us not forget the Pressmen, and a lot of chaps, but don't let them hear too much.

All these people had something new to tell us each and every day, all were from different parts of the Country. All had different occupations and modes of living. It was highly educating to us to listen to some very interesting discussions, some of the becoming very heated at times. Each man upholding his own country, or defending his own profession. But when all their high standings and professions

had been taken into consideration, they had to admit that we lowly Rescue Men, held the key of success on this particular occasion. We were supreme at this period and at this class of work, and they all had to bow to us, as we now have to do to them now we have returned back to normal life and occupation. This world is not to be a selfish world or a one man's property. It proves to us that each and every one is dependent on the other. It matters not what position a person may hold, he is at all times dependent on someone else. It is a great pity that people do not realise this, it would be better for all classes.

All this of course is not building 'F' stopping. Day after day. Team after team. The same old work on the same old stopping. If other stoppings were to take so long, what were the chances of ever opening Gresford Colliery? But this was the main one, and the largest. It was down this road that the fire was actually seen, and we know that even now, by the samples of air taken from behind the stopping, that there is still 'heating' and the importance making it as near airtight as possible. The work progressed well up to the last foot to be built, here all shapes of blocks were required, and wedges to tighten up. Every team knew that it was useless to attempt any 'scamped' work and that last foot took as long to complete as the whole remainder of the stopping had done. One good thing about the work, no one was hurrying the job on, and after completion and fresh air was put into the pit the Mining Engineers, Inspectors, and all concerned, had a word of praise on the way the work had been done. All were agreed, that the work could not have been done better even in daylight and fresh air if the stopping had been built on the surface and by men not encumbered by the apparatus.

I am not flattered or giving undue praise, when I say that those higher officials, Inspectors and Agents, who accompanied the teams did exceptionally well. Many of them were not accustomed to heavy manual labour, but they would take any position as allotted by the Captain on the Team. Haulage, carrying blocks or building made no difference to them and they worked side by side, and took their turn at the heavy work, like other members of the Team. We marvelled at their fitness and capabilities, I thought some of them had never caught hold of a hammer or shovel. They surprised us all. Each Team looked forward to these people coming down with us. It meant a man extra in the Team. As a rule there was an Inspector of Mines with each Team. These changed around to avoid being the last down the shaft. If ever such work is necessary again, I am sure Teams will ask the Mines Department for those same Inspectors. Occasionally after the fresh air had been put into the pit, we had other visitors accompanying us down. They were sightseers, some for experience which we hope they will ever need. At this time Gresford must have been the Buxton Research Station. Every day eminent Professors were moving to and fro with the paraphernalia. During the opening period, I think every Country that was connected with Mining and Research work was represented and later Mr. Ernest Brown, the Minister of Mines came along to see for himself the work that had been done.

Stopping 'F' was completed on the 28th April and we were pleased to be moving on to the next, stopping 'E' which was to be erected in the 'slant'. This was not considered to be near so important as the previous one, and it was decided that three thicknesses of brattice cloth across a framework would suffice, and this only took two shifts to complete. Next one, stopping 'H', was to be put in the 'Dennis Return Airway', but we had other tasks.

Occasionally we would accompany the Research Doctor from Birmingham University who would want a few samples of the air in the pit from various places. It was a treat for any Team to accompany him, and if because he had the apparatus on, he could not speak his motions were equally as humorous and we were taught how to take and bottle the little samples of air and the direction of the ventilation. He was quite a hefty chap, about 16 stone in weight, so he could not overrun us,

we were always 'top dogs' as he had so much more to carry, and many times he was glad of a halt in the journey. I remember that on one occasion we had to take down a hand pump with 100 yards of hose for delivering the water from the 'sump' into the low side. This was water which, in the first occasion down, had stopped the cage from entering the sump. As I said we took the pump and the suction pipes consisting of two large lengths coupled together with a clamp. We fitted the pump as near to the shaft side as the suction pipe would allow, and the Doctor thought to make himself generally useful, put his sample tackle on the side, and begins to couple the hose to the pump. Then throws the (as he thought) securely coupled lengths of suction hose into the water ready to start pumping. Every man worked in turn his hardest to get the water delivering. No good. Examine the valves of the pump. Still no water. Blame the engineers who have sent the pump down. Try again. No good. Hold on a minute. Why, there is no wonder we have not pumped any water, there is only two feet of suction pipe. Not near the water, and the remainder of the pipe is floating about in the sump uncoupled from the pump. One hour wasted. What is to be done? We must go to the surface and procure another length to couple up to the suction side, but we were careful to tell them on the surface, that the piece we had taken down was not long enough to reach the water. You can imagine the puzzled look on their faces. They probably thought we had put the pump where it was intended to deliver water. Our Doc, was never forgiven for throwing the suction pipe into the sump and the joke was always revived when we were sure no one directly connected was listening.

Stopping 'H' was being built in a place easy of access, only 100 yards from the 'Martin Pit Bottom' along the 'Main Martin Return'. This was to be built similar to 'F' stopping i.e. blocks of wood. by this time every man was so accustomed to his apparatus that everything was much easier. only listening the valves click watching the pressure gauges, making sure that every man had a sufficient supply of oxygen, and this stopping much smaller of course the 'F' was put up in tree days, It had previously been decided that seven stoppings would be necessary, but after reconsidering, the Mining Engineers were of the opinion that some would be unnecessary for the time being at last, and so we were put on to build 'D' stopping of sand bags.

This proved to be very hard work. We had up until now only had to transport the material to the 'dip', but for 'D' we had to go to the other side of the pit, to the 'Rise', and the whole way we were travelling up to the knees in 'slurry' and grease. A trolley was being used to load the bags of sand, some pulling the trolley by means of a piece of rope, others pushing behind. 500 bags of sand were needed. How pleased we were when the last bag was put on.

This completed all the stoppings around the pit bottom, and after a careful inspection by Agent, Inspectors and Rescue Teams of all other stoppings it was found that all were doing the work expected of them, and the second stage of the recovery could be considered with a practical possibility of success.

"SEAL TAKEN OFF DENNIS PIT".

By taking the seal off the Dennis Pit and dismantling the airlock at the top of the 'Martin Pit' natural ventilation would be set up and make it possible for those persons, not trained in the use of the apparatus to enter the pit. Those high officials who had waited day after day on surface listened to the reports of progress made, curbed their impatience week after week. These could now go and see for themselves the work that had to be done to make it possible for them to go down. Separating doors in the roads between the two pits in the pit bottom were opened wide, and men who had done no work for 7 months were busily digging the sand seal off the top of the 'Dennis' shaft. Removing boards, girders and other material. The foul air being liberated from the pit was like dense black smoke. It was found

later that the latter explosion (after the seals had been put on) had dislodged two girders forming the seal, and these had fallen down the pit doing damage to the extent that no one knew at present, but all could conjecture.

This was a very anxious time for all concerned. If the stoppings erected were not airtight some more oxygen would feed through on to what? If the fire was still smouldering, there was a possibility that the whole lot would be set away again, but, as has been proved those stoppings were good and held put the necessary oxygen. A task had been accomplished by the Mining Engineers, Inspectors, Research Doctors and Rescue Men. Something unique in the Mining World. The only pit ever opened after sealing by Rescue men working in an irrespirable atmosphere.

Great credit was due to the manufacturers of the 'Proto' apparatus Messrs. Siebe Gorman of London. Their representative was present during the whole time seeing that all the apparatus was kept up to standard and generally given sound advice on the care and use of their equipment.

It was the 8th. April when after a most careful examination of all the stoppings, the men wearing 'Proto' apparatus returned to the surface, and the seal was taken off the 'Dennis Pit'. All the Heads of Departments, Chief and Divisional Inspectors, Superintendent of the Recovery Work, Mr Abbott, Mining Engineers and Directors of the Colliery all were able to go and look round the area up to the various stoppings. I am sure that a moment of consideration on that first trip round of theirs, would convince them that there had been no exaggeration in the reports by the captains of the Rescue Teams. To say the least they were amazed at the damage and far worse than they had expected. Not only the force of the latter explosions, but the fact that 25,000 gallons of water per minute had been pouring down the shaft for 7 months and everyone knows the effect of water in a pit. The floor is lifted up until the roadways are not even half the size that they were originally. Everyone knows equally the effect water had when put on lime. How the lime will crumble to a powder, and the water had a similar effect on the limestone that formed the strata. Destruction everywhere, played by two agents, 'Explosion' and 'Water'. It is difficult to imagine what were the thoughts of those gentlemen who were the Directors of the Colliery. Their thoughts must have run on these lines. Can any sort of order be restored out of this kind of chaos? Will ever we be able to get any more coal along these roadways? On one thing I feel sure, that the gentleman who had previously been asked for the winner of the 'Lincoln' and had replied that if he had known he would give us the Gresford Pit, I am sure that on looking round he must have wished that he had known the Lincoln winner, and so got rid of what seemed an impossible commercial proposition, a coal pit which looked and was a shambles.

The reporters of the Press were allowed to accompany the Officials down the pit and many were the photographs which were taken, one I believe of which now hangs in the Ministry of Mines Offices. It is one of a place that was known as the 'Big Junction' where coal tubs had been piled one on top of the other in endless confusion and on one of the tubs was written in chalk:-

*"SAME WAY BACK
CAN'T GET THIS WAY
PARRY DAVIES - CAPT. 11.3.35."*

and on this message hangs a tale that I think I had better relate.

It would appear that on his first visit down the pit after taking off the seals, the Chief Inspector of Mines, Sir Henry Walker had seen this message, and I was sent for to appear at the General Offices and told that they considered that I had accomplished an impossible feat in climbing up these tubs with the equipment on,

as they themselves had tried and failed. "How on earth did you get the team there?" was their query. The thoughts running through my mind was that I was in for a 'slating', a real good 'telling off'. But no. After the explanation which after all was very simple, everything was all right. I explained, that with the Agent, Mr Charlton, accompanying, the Team had waded through water which came up to our waists. The Agent and myself intended going a few yards further to see if we could get measurements for another stopping. As Captain, and not being able to speak to the Team, this was the way I conveyed to them my intentions. That was, to return the same way, and they being fully trained men knew that I intended them to remain there until the Agent and myself got back to those piled tubs. The Chief Inspector made it pretty clear to me that had he have known that the Teams were taking these additional risks, he would not have let the Teams go down the mine. Each Team was doing the same. Taking risks. Indeed, what was the whole job, but one huge risk? Each team went down to find out exactly what was the position, so that an accurate report could be given. Who would have dreamed that photographers would be allowed down the pit and so be able to put on record out transgressions of 'Safety First'. No doubt the other teams committed similar acts, only they were either 'lucky' or 'unlucky' whichever way the question is looked at.

Let me here record, that we all did a good deal 'off our own bat' some jobs that those in authority could not possibly have instructed us on. We also did one or two jobs on instructions and, dare I say it, regretted it afterwards, and were ready to throw the tools at each other afterwards. I remember on one of the occasions we were told to take two of the four cover plates off the top of the cage, so that the team following us could go down and do some repairs to the scaffolding in the shaft bottom. The cage we were to operate on was brought to the pit top and we took into the airlock sledge hammers, sets, cold chisels, etc. to beak off the heads of the bolts holding these two plates in position. Now swinging a sledge is a man's job, even with 40 lbs. of equipment and in an atmosphere which is irrespirable and we had worked like 'niggers' for the first hour and had 'knocked off' only 12 of the 40 bolt heads. Each member of the team was getting done up, and tired and progress seemed definitely slow. We were carrying out the instructions of the 'heads' which had been very particular, even to showing us how to hold the 'set' on the bolt head, and if progress is slow then they will have to put up with it.

All the time we could be observed through a glass window in the airlock, and now and again, one or other of the authorities came to the window to see how we were going on. Slow? I should say we were, and not by any stretch of the imagination could we be expected to go faster as our two hours neared the end. Just then a stranger to us, beckoned of me to go outside the airlock. He told me, that the two plates were held by two clips and that if they were loosened, the plates would lift off the top of the cage. Back I went on to the job, and sure enough, there were two clips and in two minutes we had the plates off, and we had done the job that every man of the team had been hammering his brains out for more than an hour. Still we had been busy carrying the instructions and had never dreamed of doing any other, or that those two plates were fixed different from the other two.

This never happened again, we always looked over the job ourselves after this, and the easiest was our way in the future. We found on several occasions, that if we had carried out our instructions of how to do the job, we would have worked hard and accomplished nothing. This is where a good Captain is important. It will be realised by that conversation is impossible and therefore, there is no 'discussion' down below, on the best way to do a job. The Captain will convey to the men what he wants them to do, by motions or writing, to tackle the job in the way he thinks, and he holds firm to that way. If he does not, then each individual member of the Team adopts his own methods, each one different, and the team finishes with the job partly done, and badly at that.

I don't suppose any Captain had trouble in this respect. All men knew that the captain was responsible, and the way, any particular job was done did not concern them.

By this time there were 400 men employed clearing the debris and relaying the rails. These men were able to work without apparatus, as the air was quite fresh in all roads up to the stoppings after unsealing of the pits. These men were thoroughly skilled in the repair of the roadways, and the timbering of same, and let me add they were quite anxious to get back 'into collar' again after 7 months of walking the streets. Not them for the 'Dole' any longer than they could help.

The Rescue Men wearing their gear were to advance through stopping 'H' after a new airlock had been built. The airlock to be made of two doors properly bricked in the roadway directly in front of stopping 'H' and in fresh air. When a Team passed through the first door and closed it, the second could then be opened and the Team were again in the 'danger zone'. Rails had to be advanced and 'bars' set in the roof for support, and falls to clear. We advanced along the 'Martin Return Airway', 300 yards in this manner, and to a point where it was considered the second advance should be stopped and the ground 'won' consolidated. Framework erected and 'brattice cloth' covering, was sufficient for this and when completed the number of workmen could be increased to clear up the mess. Next stopping was one in advance of the big stopping 'F' on the 'Dennis Dip'. This was also to be of brattice cloth stopping. Of course only temporary as the first ones had not been taken down yet. Stoppings were also put up the 'slit' from the 'Martin Road' and the little 'slant' also on '20's Road', the last where we knew that one of the first rescue teams was still laying. However the stopping was erected 200 yards from where the body lay. On the little 'slant' a heavy sandbag stoppage was built, and by means of these various stoppings and the airlock we have moved 300 yards down the 'Dennis Deep' and not had to alter or make a road through the big stopping 'F' and we can travel by way of the 'Martin Return' and out back on the 'Dennis Deep Road'.

What of all that water which had gone down the pit? We could see no travel of water here. It had all been absorbed by dry strata. All of it seemed to have gone down by way of 'headings'.

The conditions of the 'Dennis Deep' along the distance we had travelled was exactly in the same condition as when we left it on the 23rd September 1934. There was very little change, and it would appear that those later explosions had not touched the area where the first explosion had happened, and that the other districts in the pit were the ones to suffer in the later explosions.

I have read and heard broadcasts on the wireless, that the bodies of the victims would be left submerged in the water that had gone down the pit during those seven months. It is a great mistake that such statements should be made. Nobody can say that this is the case for certain. If any man could find water for the 250 yards we advanced down the 'Dennis Deep', I would think it and that would surely put an end to me. Not only is the statement conjecture, but what of the harm such a statement would make on the relatives? What would the poor relatives think? It is enough to know that their loved ones are still down that fateful pit, without the added horror that they are floating up and down the district. None are in the position to know as much as the Rescue Men and none of them believe that the water is near those bodies. In fact I will go as far as to say that emphatically I do not believe there is any water in that particular part. The theory of the man making the statement is wrong, and his calculations are a long way out, and to announce this as his opinion, is disastrous. We of the Rescue Teams claim to know all the facts that we have ascertained of the conditions down the Gresford Colliery. Some facts that are of no importance to others than in the mining world, and if revealed would only be added injury to those poor mothers' feelings. We have lodged those

particular things in our own memories and need not divulge them to any person. If they were of any benefit, either to prevent similar explosions in the future, or to give a clue to the cause of this one, then of course they would have to be given. It is of no use to surmise that so and so happened, and I propose to leave to a later time this matter. By then probably other such silly ideas will have been broadcast.

On 2nd, May all stoppings were again completed and we were ready to advance a further 300 yards, All the original stoppings were to be taken down and those just erected were to do the same duty, that of holding the fresh air on one side and the gas on the other.

Suddenly and without any warning a halt was called. All recovery work is suspended until the 'Dennis Shaft' which suffered in the later explosions, was made safe, so that in case of accident to the 'Martin Shaft' or winding engines, there would be a second means of egress out of the pit. The Authorities considered that the of only one pit had been taken too long, hence their decision to suspend operations. We were told that we should be wanted back there in a week's time to further advance the stoppings, to get to the bodies and if possible to find the cause of the original explosion. we were informed that on the Tuesday following the Jubilee celebrations we should be again going forward. None of us wanted it, but we had stood up to the work up to this time and it was up to us to go ahead to find the cause and if possible to get those bodies. What has happened we do not know. For some reason or other the Rescue Operations have been suspended and we do not start after the Jubilee celebrations. Was all hope of recovery of those bodies abandoned? Why such a change of plan? Surely the least they could have done was to tell us that no further attempt was to be made to reach those bodies. We were told nothing and of course were constantly expecting the call to come to restart the recovery operations.

NIGHT VISIT TO THE DEAD RESCUE MAN.

I was still left wondering when the Rescue Operations would be restarted when on a certain evening at 6 p.m.. a call came to my house with the instructions to proceed to Gresford Colliery, and report at 9.30pm. The messenger did not know what for, and I was left to think what may be the reason. I accordingly went along and reported to the Agent. He informed me that the Inspectors intended to try to get to the body of the Rescue Man who had been left in the 'Return Airway' on September 22nd. 1934. I was to be Captain of the Team made up of two Inspectors and the Ministry of Mines Doctor. I had to look round the pit top to find any old clothes I could to change into, and then downed the old No.13 apparatus, seeing that every one's equipment was in order we proceeded to the 'Dennis Pit', taking stretcher, brattice cloth and other necessities. Everything had been kept a dead secret to avoid any crowd of sightseers or photographers. This was the first time I had gone down the 'Dennis Pit' since 23rd. September and I was astonished at the change which had taken place and the extent of the damage done. If anything it was worse than the 'Martin Pit'. In fact the water, after being turned to the Dennis Pit had done more damage. There was 4 feet of a 'dinting' being taken up from the cage in the pit bottom where the water lifted the floor. However, it is no use bothering the reader with these details. We had a job on hand, and as the only person in the Team who was aware of the position of the body, and it will be remembered I had seen the lamp shining down the road when on the 22nd. September we had fetched the other dead Rescue Man out. This apparently was the reason I had been sent for to accompany the Doctor and Inspectors. We proceeded to '20's Airway' and coupled up our apparatus in exactly the same place we had done the same thing on September 22nd. Our feelings were not the same on this occasion. We knew now that we were going in to fetch one who was past human aid, and we had no anxiety that there may be someone alive down there.

The roadway had stood wonderfully well. One or two small falls here and there and the floor lifted a little with the water running down. These made it difficult to get along. Measurements of the roadway were taken, loose stones pulled down and falls levelled as best we could.

We reached the body and the Doctor made an examination taking myself as a witness, In appearance the condition of the body was none the worse. Not a stone had fallen near it, He lay with his arm under his head and face downwards. Often the question is asked "What state would the bodies be in after three months down the pit?". I can truthfully say, that I would have been able to identify his body even if I had not known he was there. I had, as a boy, attended the same school, and later we worked together in the pit. His features, his hands were without a blemish and very little decomposition had taken place. We did not move the body It had taken us an hour to get there and make the examination, and it was too great a risk that we should bring him back now, in view of the short time at our disposal and the fact that there were those two small falls to level.

This was the second time I had been compelled to leave a comrade where he had given his life in attempting to save others. Although I had to give the decision to leave him for the present. As Captain of that Team I am proud of that decision and I knew that the chances would be greater after the road had further been cleared. The Inspectors and the Doctor were good and fully trained in the use of the apparatus, but there was hard and heavy work to be done to get the body to the surface. Our time was limited and I could see that the supply of oxygen was not likely to last out. the road was rough and stony and my knees, through crawling along, were very sore, and I expect those of my team mates were in a worse plight as, of course, they were not accustomed to this kind of travelling. They were all agreed that it was better to have the road repaired and levelled at the earliest possible moment. It was the first time in my life that I had to work with Mines Inspectors or at least have them working for me, and the highest tribute that could be given I would give to them for that night's work. They worked under the Captaincy of their inferior in ordinary pit life and they gladly submitted to every instruction given to them. The Doctor, as I have said earlier was the life and soul of my party. First he would grouse, next he would praise, and finally he would groan. He kept this Special Team in good spirits on the homeward journey, till he felt his knees giving in to all the torture they had been subjected to, by his crawling over those sharp stones. The temperature in the return was 100oF, and all this, coupled with the size of the Doctor, gave him something to think about. The perspiration was pouring from him and I didn't think he could have a dry switch of clothing on him. I guess he was pleased to get back into fresh air.

If we attempted to carry out that body on that occasion what would have become of the Doctor? He could have been no help with all the bruises and sore knees, and I could see we should require every little bit of help possible. Hence my decision to leave the body on that occasion with the view of a nearly recovery. We returned to the surface somewhat disappointed, but on the whole, satisfied. We had seen the body, and knew that it was in a good state and that neither falls of roof or the water that had gone past him had decomposed the body.

On the following Saturday, my original complete Team was summoned to the Colliery to go in and this time bring the body back. All other Rescue Teams 'standing by' in case of need. Again the whole operation was kept secret. at 9.30 p.m. after the usual examination of men and equipment we went down. A team of 5 accompanied by the Doctor and two Inspectors and the Agent of the Colliery. The apparatus was not needed on this occasion, as fresh air had been taken in the meantime forced down the airway. Some distance down, we took off the apparatus and proceeded to the body. Oh what a change. Something had happened. The Doctor again making an examination found that one arm and one leg was broken.

A big stone had fallen since our previous visit to the body and had disturbed the remains. What a pity, I felt it more because I had seen the corpse perfect and felt guilty because I had decided to leave him there only the previous Thursday. It was unfortunate that had happened and there is no doubt that the fresh air, being turned down that airway, had caused the disturbance in the roof and the quick decomposition of the body. The Team was most anxious to get away from there before any further fall came, and the Doctor carefully wrapped the body in cloth after stones had been lifted from it and the Doctor removed the apparatus which was required to be tested. We carried the body out on a stretcher. After eight long months of waiting for an opportunity to get our fellow Rescue Man out of the bowels of the earth. The Team had felt it was an insult and a mark on the reputation of all Rescue Workers to have surrendered to any conditions, and leave a comrade buried in the unknown grave. We all felt that whatever state he is in, we must know that he is buried in a proper grave, so that we can go along and pay our deepest respects. He is now buried in Gwersyllt Cemetery and his funeral was one of the largest ever witnessed at that burial ground, All classes, all professions, the highest and the lowest in the district attended and paid a last tribute to our fellow comrade. What more could a man have done than to sacrifice his life in attempting to save others? He was the last of three rescue men who lost their lives to be recovered. All three had died heroes and their names will never be forgotten in the Mining World, we raise our hats to their memory.

To their Captain, the same applies. He was the only man of that Team who went into the Airway and came out alive. He is living and working today. By a mere thread was his life saved. He was helped from the pit in an exhausted condition. I saw him that morning, his eyes appearing to be coming out of his head and practically helpless. He had struggled with each one of these mates, trying to pull them back to fresh air and he exhausted himself. Only 20 more yards and he knows there is a chance of life but the struggle is too much and he has to leave them one by one, and he himself staggers back into fresh air. His unselfish attempt to save his mates whilst endangering his own life is worthy of the highest recognition.

BUNKUM AND BRAVADO.

In giving this story of the Rescue Operations at Gresford, I have given the truth which I challenge anyone to refute. There were several reports given to the Press which were sheer bravado and bunkum. One report given by one man, how he had burnt his shoes in the fire at '29's Junction' on Sunday 23rd. September. Well, he must have taken them off and thrown them into the fire. The rescue Teams were the furthest advanced and nearest the fire and none of us burnt our shoes, or even singed our clothes. Anyone who burnt themselves did it purposely.

Later opinions are expounded that the victims died of starvation. A statement that is certainly without foundation. The same person gave it out publicly that his opinion was based on the fact that he believed they died of starvation because their lamps were lit. Is he not aware that lamps will burn in CO and that less than 1% of CO is fatal to life? Personally, I don't attach much importance to what was said by those men who were fortunate to escape. Their report of seeing 70 men following them out. How far? Isn't it too much to expect them to know much of those who are following behind, when their own life was in jeopardy? It had often been said that there are 70 men in the airway near the 'clutch'. I cannot at the moment contradict this, but I have my doubts. We were told that if the teams get down to '29's Junction' on Sunday 23rd. September that there will be 100 bodies there. We got there all right but no bodies were found and we will have to wait and see if the other report is correct of 70 men near the 'clutch' in that 'Return Airway'. There are lots of reports I could mention, but seeing that one can not prove or

deny, and that operations are indefinitely held up, why not let them stand over till, if ever, they are proved or disproved.

A PERSONAL TRIBUTE TO ALL MY MATES.

In conclusion, I feel that I must congratulate all the Rescue Men for their splendid work during the recovery operations. All Teams were one dependant and the other and all worked just as one unit. The majority of the Gresford Teams were new hands, and had been trained especially after the explosion. Each of them was equal to the best, even those who had 22 years of rescue work and training.

Common sense is needed on this kind of work. 'Brain not Brawn'. This is not a job where one can rush in. A physically fit man with common sense and that necessary 'pit sense' and 'pit knowledge'.

None of us are brave men, but we claim to have sufficient confidence in the apparatus and being accustomed to pit work, fear does not enter our minds.

Of the Mines Inspectors, I never did care much for. They always seemed to know all and the Deputy or Workman nothing, but since my contact with them on this occasion I have entirely changed my opinion or should I say they changed it for me? They are a jolly good lot of chaps, particularly the two who constantly worked side by side with the Teams. One from Stoke and the other from Doncaster. Neither in nor out of the pit did they differ from us. They were mixing with us constantly, and if they enjoyed our company, so did we enjoy theirs. We look forward to our next meeting, not we hope under the same circumstances, and the same kind of work. The Chief Inspector, Sir Henry Walker, always had a word of encouragement for the Teams. It built and cemented that confidence in him. We knew that nothing could go wrong if we followed his advice.

A word or two on the reports made at the time of the remuneration of the Rescue Men. The reports were varied and many of them that we were paid #10 per week. Let me tell my readers that the Rescue Men at the explosion were not paid at all. No man asked what the rate of pay was. The question of payment at a time like this does not enter the minds of men, but at Christmas 1934 the owners of Gresford gave a gratuity to all those volunteers who went down the pit on September 22nd. and 23rd. Each man received the same amount which was generous, at the same time pointing out that the services rendered could not be reckoned in money.

The payment for the recovery work never reached anything like £10 per week. It was an agreed rate which taken on an average did not exceed £5 per week. I can safely leave it to my readers to judge the work and the pay. If every man engaged in the recovery was granted a pension of that sum per week for the remainder of his life, he would not be imposing or robbing the Exchequer if only one looks at the question from the saving of the unemployment pay. Nearly £600 per week is saved in this way since it was made possible to reopen the part of the pit and the figure will be increased to £1,000 as soon as they can re-employ men. Nor is this the most important. If we had the opportunity to advance and find the cause of the explosion to possibly prevent a similar happening. What would then have been the value of our work? and what value is placed on our present experiences by the Research Committee? The whole of the Mining Industry has benefited by the unique experience of opening up Gresford.

We are often asked for our opinion whether the bodies could be got out. We have all discussed the matter and personally I say that those that could be got out should. We have heard all the argument that is only sentiment, but the people who use this as an argument have no one belonging to them down the pit, and what is sentiment? Take sentiment from the human being and you place it with the animals. I say I should want mine out if I had one there and I should want the opportunity of visiting his last resting place. If there is nothing more than sentiment in having a proper funeral and a proper grave, why waste ground and go the

expense of a coffin? Why not make a big hole and bury the dead in a heap?. Why take the Nobility to the Abbey? There is something more than sentiment. There is something in the inner man that appeals to all Christians and appeals to me.

The authorities must have had a good reason for not going forward to get those bodies out of which I don't know, but I have always had that assurance that whatever could be done for the sake of the bereaved and for the safety of their future. They would always do. The Ministry of Mines in co-operation with all other officials in these I place my confidence and consider that they are in a position to know what is best.

GRESFORD WORKING COAL.

Now it is the early part of 1936 and 700 men are re-employed at Gresford, working and producing coal. The 'Dennis Area' where the entombed men lie is still sealed off. Visits have been made by the experts which still consider it unwise to break the seals and explore further. It is now hopeless in my opinion either to bring the bodies out or find the possible cause of the explosion. The roadways are undoubtedly closed up by this time with the falls of roof, and the floor lifting. It would be an utter impossibility for Rescue Men to travel these roads. Personally I do not see what purpose is served by the periodical visits of these experts. Past sorrowings are revived by those bereaved mothers and fathers and wives and it would be far better to console them with the blunt fact that their loved ones can never be recovered. This no doubt would be a hard blow at the time but I think even this hard blow would be better than the continual revival of hopes of their recovery.

There is no question that the Rescue Men are responsible for the fact that so far the pit has been able to re-employ all those 700 men. The business in Wrexham (the shopkeepers etc.) have had some of their trade restored to them by the work of the Rescue Teams. 700 unemployed have made their minds easy and are now off the 'Dole'. The owners of the Colliery have had some part of the pit restored to them by those same Rescue Men, and the experience may be of untold value in the Mining Industry in future cases of this description.

Now I have given the report of the disaster and the recovery of the Colliery I feel I must pay a compliment to the manufacturers of the equipment which made it possible for such work to be undertaken and the efficiency of the 'Proto' apparatus made by Messrs. Siebe Gorman of London speaks volumes for itself. Not once during the operations did the apparatus fail to function. Had it done so, there must have been further casualties, Confidence in this equipment was born in each worker of the teams and nothing occurred which caused him to lose that confidence.

The whole of the Rescue Men who took part in the operations of recovery were after the work was completed invited to London as guests of Messrs. Siebe Gorman and made up into two parties, 50 in all. Special saloons provided and arriving at Paddington Station we were met by Mr. Buswell, Siebe Gorman's representative and were conveyed by a private bus to our Hotel 'The Melbourne'. After a good lunch we had a stroll round and went to the Holborn Empire at night. The following day (Saturday) we were again met by Mr. Buswell at 10am. After a real good hearty breakfast and a round of the principle places of London was made, Horse Guards Parade and Whitehall included. At the arranged time we were conveyed to the 'Proto' works where we received a real fine reception from Sir R. Thomas the Chairman of the Directors of Messrs. Siebe Gorman together with three of his sons who work for the firm. Here was a real Royal lunch prepared and after this visit of inspection through the various departments of the works. I had always, during the connection of the Rescue Work, thought I was thoroughly

convergent with all parts of the apparatus, but when I saw the various parts being made I had to admit that my knowledge was very scant indeed.

One of the interesting features was the fact that four of our party donned a diving suit and went into a tank of water 80 ft. deep and about 20 ft in diameter. A glass tank where you could see the men going down under the supervision of course of two experienced divers. that in itself was worth the journey to London and later Mr. Buswell himself an experienced diver gave an exhibition with the diving suit and one that was thoroughly enjoyed by all of us. Back to more refreshment both liquid and solid anything one requires just call for it. Right Royally did Messrs. Siebe Gorman treat those Rescue Men who had pinned their faith in the apparatus at Gresford. afterwards we took leave of Sir R. Thomas and his employees and a future round of sightseeing at Hampton Court and many other places, and then the Palladium at the evening and after the show the bus was still there to convey us to the station for the homeward journey.

To give all the details of the trip to London would be telling tales out of school and I don't intend to do that but can place it on record that this treat was appreciated by all the Rescue Men and would point out to the fact that from leaving Wrexham to arriving back again there was no necessity for any member of the party to spend a penny piece of his own money. To Messrs. Siebe Gorman their employees and particularly Mr. Buswell we tender our sincere thanks an assure then we shall always cherish the group photograph and beautiful little disc which was presented to each member.

Previous to our trip to London, we had been the guests of the Welsh Football Association at the International match played at Wrexham between Ireland and Wales. We went to Wynnstay Hotel, Wrexham. The Doctor of the Ministry of Mines who had been with us during the recovery operations and of whom I have often referred, together with the Mines Inspector from Doncaster invited us to Dinner and afterwards a night at the Majestic in Wrexham, Didn't we enjoy that dinner in Wrexham and we shall always look back to those times with our 'Doc' as some of the brightest moments of our really drab job and monotonous life at that time. For that period Rescue Men were film stars and all the Picture Houses, even in London and Manchester were screening pictures of the Rescue Men going to and from the pit cage.

Before I conclude, let me here, say a word or two of praise for those volunteers who directly after the first explosion, worked hard and continuously until the time all men were withdrawn. They were at work all Saturday night clearing falls of roof, carrying thousands of fire extinguishers, drinking water, coffee and sandwiches anything and everything. There was 200 of these men down on Sunday midday. Some of them had been down all Saturday night and they would not give in probably they would have been down all Sunday till Monday morning had the men withdrawn. Working in all kinds of dangerous places where falls of roof had occurred sometimes in terrific heat. They worked ungrudgingly. No thought of pay. Their only thought being to get their comrades out of it as soon as possible. Officials were there whose names have never been mentioned. Llay Main officials Manager, Undermanager, Overmen and Deputies who all stood the strain from Saturday morning until the end. Gresford Officials of course were always on the spot. It is no fault for these people or for the need of help that the bodies are still down the pit.

Those cars owners also are to be thanked. as each black face came up the pit in that Sunday there was always a free fight who of those car owners should have the privilege of taking you home in his car. That was the kind of spirit which seemed to emit from all those people. A true Christian spirit which seemed to emit from all those people and will be remembered by us to our dying day. We may all be in normal life, in classes apart, but in times of need such as this, even the highest comes down to the low level of their poorer more unfortunate brothers.

Thank God this is the true spirit of Britishers on all occasions of this description, The generous response of the Country to the appeal makes the same spirit more manifest. Nearly half a million pounds subscribed. Rich and poor, both to the same extent doing what was possible to generosity and we are indebted for life to those subscribers."

Gresford remembers 70 years on
Sep 22 2004

By Martin Smith, Daily Post

TODAY marks the 70th anniversary of the Gresford mining disaster, where 265 men were killed. TV producer Martin Smith relives that dreadful day 'THE whole of today's news was overshadowed and darkened by a terrible mine disaster in North Wales. There was an explosion followed by fire at Gresford Colliery, near Wrexham early this morning.' These were the words beamed by a BBC announcer to millions of radio listeners 70 years ago. The news on that Saturday, September 22 1934, plunged much of the country into deep unease. Coal mining was then the basic industry of Britain and the mines alone employed more than 750,000 people. Newspapers rushed out special editions as people waited for information about the fate of over 100 miners trapped in the Dennis section of Gresford pit. The figure was a guess because regulations demanding a tally must be kept of all miners going in or out of a pit had been ignored by the pit managers. On the night of the explosion, 14-year-old Albert Rowlands cycled with his father, a coal cutter, to start the evening shift. Albert cycled on ahead. His surface job was to hand out safety lamps to miners before they went underground. It was the last time he saw his father. Shortly after 2am, the teenager was having a can of tea and sandwiches. "The telephone rang and the foreman turned to me and said: 'Get the ambulance man', so I got my bike and set off," he recalls.. "The ambulance man for the colliery lived the other side of Wrexham. He shoved up the window and asked what I wanted. All I could say was: 'You're wanted at the pit'." Of the men working in the Dennis section of the shift that night only six escaped, and they were left to make their own way home. Face worker Cyril Challoner was one of them. His wife, Irene, clearly remembers that night. "At 5am my husband came home on his bike to New Broughton. He rang the bell and I thought, 'Oh, he's home an hour early'. He said: 'There's been a terrible disaster at the pit.' Then he passed out - just collapsed." Albert Rowlands recalls how the rescue team from Llay Main Colliery arrived as dawn broke. "They had all the gear on - fireproof clothing and masks - and down they went.. Then, they brought stretchers up, men dead on stretchers with blankets covering them." There were volunteer rescuers at the mine too, desperately trying to damp down the fire. Harold Bent was a 21-year-old miner at the time. "There were sheets of flame all the way across. You couldn't get beyond it. You couldn't dowse it and that's where the men were stuck, trapped down there," he says.. In Wrexham, a football match against Tranmere was due to kick off that afternoon. Some of the men had gone in to work on Friday night so they could watch the following day. Blankets were taken around the pitch to collect money for the families of the trapped men before the game, which ended in a 2-2 draw, went ahead. And despite initially optimistic radio reports on the success of the rescue operation, as the day progressed, so news from the pit worsened. Throughout Saturday night and into Sunday, crowds of relatives and fellow miners were at the pit waiting for news. Emily MacGregor, whose father, a hewer at Gresford, was off sick the night of the explosion, remembers the atmosphere the next morning when she accompanied her father to the pit. "I remember going through the gates and seeing crowds of people standing on the pit bank," she says.. "But most of all I remember the crying and wailing." Late on Sunday afternoon a government bulletin announced: "The Mines Department has been notified by the chief inspector of mines at Gresford Colliery that, in view of the

grave and increasing risks of continuing the rescue operations, and being satisfied that none of the persons now left in the mine can still be alive, His Majesty's Inspector Of Mines, the representatives of the colliery management and representatives of the workmen employed, have decided to abandon the operations and all persons engaged in them have been withdrawn from the mine." And according to Stanley Williamson's book, *Gresford: The Anatomy Of A Disaster*, the official bulletin had a swift impact on the site - crowds of people melted away, fans and blowers slowed down to silence and an eerie peace descended on the colliery. A public inquiry took two years to investigate the disaster. The report's appendix lists names, ages and occupations of all 265 men who perished - the youngest was 15-year-old Charles Harrison and the oldest was 68-year-old Edward Wynn. Like the majority of victims, they were entombed in the workings of Gresford Colliery, where they remain, remembered now on a memorial and in the lines of a folk song: "Down there in the dark they are lying. They died for nine shillings a day. They have worked out their shift and now they must lie. In the darkness until judgement day." Nearly three years later, the colliery employers were found guilty of breaching a total of eight coal mine safety regulations. Their punishment? They were fined £140.