

generally condemned, all the witnesses whose opinions on the point were of any value were unanimous in considering the furnace entirely safe. The opinion that the fire was not caused by the furnace in the mine is supported not only by the experience and judgment of experts, but by positive evidence of a well-nigh conclusive character. This is found in the present condition of the brettee or wooden partition which divided the shaft into a hoisting way and an air way, or an up-cast and a down-cast. This brettee is discolored at the top, not at the bottom, except a few feet which was ignited by the burning *débris* and ashes which fell to the bottom of the shaft when the breaker building was consumed. The brettee was the only material which could have carried the fire from the bottom to the top of the shaft, if the fire had been communicated to the brettee at the bottom, as it would have been had the furnace communicated it. It is impossible to believe that a portion of the brettee beginning at a point only twenty feet from the bottom and extending thence upward for 130 feet, could have remained unburned, as it now remains. What could have extinguished the flames twenty feet from the bottom, and rekindled them 130 or 140 feet higher up? The thing is inconceivable. Not one of the witnesses could assign for the origin of the fire any cause connected with the working of the mine. Most of them thought it expedient not to attempt any explanation at all, and only one of the hundreds to give positive expression to the horrible suspicion that evidently lurked in the minds of all. One witness on his oath said he believed the mine was intentionally fired. Let us not attempt further to excite the horror which the mere suspicion of such an enormity at once arouses, but examine for a moment the facilities for incendiarism afforded by the peculiar situation. GEORGE MORGAN swore that he believed the fire began at the mouth of the tunnel, or a little below it. The tunnel referred to affords the best possible cover for incendiary operations. Beginning under the lower side of the breaker, it ran under that building and opened into the shaft at a point about forty feet below the surface. The part of the shaft into which it opened was not the hoisting-way, which was continually traversed by the carriage, frequently with men aboard, and in which any suspicious appearance would almost certainly have been noticed. The tunnel opened into the air shaft or up-cast by a wooden door. This point in the air shaft, forty feet beneath the surface, was perfectly screened from observation. It was up the air shaft that the fire came, and it came with the speed and force of an explosion, bursting into the engine-house, as the engineer swore, with the puff of an explosion of loose powder. This explosive character of the flame is partly accounted for by the strength of the draft in the air shaft; but the use of a quantity of highly inflammable materials at the mouth of the tunnel would have tended to produce precisely the same effect. What is more easy than to enter the tunnel, say at daybreak, charge its mouth and the brettee opposite with a quantity of kerosene or other inflammable material, lay a slow fuse connecting with it, light the fuse, escape unnoticed, and be miles away before the catastrophe came? The fuse and magazine would be most effectually concealed while the former was burning. It is a dreadful thing to feel compelled to advocate such a theory; but is any other possible? Can it be conceived that such a conflagration, if occurring from any accidental cause or at the bottom of the shaft, could have escaped the notice of men passing up and down the shaft only fifteen minutes before the flames burst from its mouth? Was not the mouth of the tunnel the only point opposite the burned part of the brettee at which fire could have been communicated? Was it not impossible for any fire to accidentally come from the tunnel? In brief, is not the theory of incendiarism possible, and all others impossible? In reaching this conclusion we do not take into account the reports about traces of kerosene at the mouth of the tunnel. It will be time enough to consider these when they have been elicited on oath in open court. The evidences of the most heart-sickening crime on record are far stronger than we could desire them to be already."

Explanation of Mining Terms—The Suspicion of Incendiarism—Review of the Evidence Taken—Testimony to Come—Thanks to the Heroes of Avondale—The Fund—Resumption of Work.

From our Special Correspondent.
SCRANTON, Monday, Sept. 13—2:30 P. M.
CORNER WADHAMS, on Saturday, had scarcely begun the taking of testimony before he and the non-mining portion of his jury found themselves confounded by a profusion of mining terms. He therefore interrupted the proceedings to insist upon a nomenclature and such explanation of professional phrases as would render the testimony intelligible to the jury. As the general public will undoubtedly labor under the same difficulty in considering the evidence, I submit a glossary of

TECHNICAL MINING TERMS.
Shaft is the opening from the surface to the coal-bed, and is always sunk in the lowest part of the "dip," so that the water flows from all parts of the mine to the bottom of the shaft. The subdivisions of a shaft are generally three, namely, airway and two carriages. In the first are the pumps, whence it is sometimes called the "pumpway," and through it the foul air ascends, whence it derives its third name of the "up-cast;" in the other two the "cage" or "carriage" for bringing up and letting down men and coal cars travels by the aid of a stationary engine on the surface, and the fresh air also descends by them to ventilate the mine, whence they derive the second designation of "down-cast." These terms for the various subdivisions of the shaft are used at random, and readers desiring to understand the testimony of the experts, which will be taken to-morrow, will do well to bear them in mind.

Brettee is a term now familiar to the public in the mangled form to which it has been reduced by the telegraph. It implies simply a wooden partition, but in its mining sense means the partitions dividing the shaft into the compartments mentioned. The boards are always of pine, and fitted one into the other, so as to raise the presumption that the brettee is air-tight. In all shafts this brettee goes from the top or head of the shaft to the bottom, and where there are the three compartments there must be two of them.

Bunting means always the timbers set across a shaft for any purpose whatever, but they are thus set chiefly as a foundation for the brettee. *Guides* are heavy pine timbers in the hoisting-ways, projecting beyond the brettee, for the purpose of keeping the "cages" in place while ascending and descending the shaft.

Sumph is simply a large hole dug below the surface of the mine at the bottom of the shaft as a reservoir for the drainage of the mine, into which enter the great pumps running through the airway, and through which the water is lifted to the surface of the earth.

Furnace in a mine means a huge open grate placed in an airway near the bottom of the shaft. It is placed always in the solid rock, and its fires are sustained by anthracite coal. It is therefore only a great mass of glowing coal, giving out intense heat, but no sparks. It is always connected with the air-way of the shaft by a flue, which, in the case of the Avondale mine, was cut through solid coal, was inclosed in brick, was six feet by seven, and entered the air-way about eight feet above the bottom of the shaft.

When the interior of a mine is reached the technicalities are fewer. *Airways* and *gangways* are the chief passages of the mine, corresponding to the streets of a city. They always run parallel, and the airway is always the largest. They do not follow any other course than that of the coal, and hence are often tortuous, and, conforming to the "dip" of the coal in every mine, have sometimes a steep but often a short ascent.

Chambers open out of the gangways laterally, at different angles, and are formed by digging out the coal from each side of the gangway. *Flame* is an acclivity in the mine caused by the upward dip of the coal, for as stated, the shaft is so sunk that the formation never dips downward from its foot.

Breast or *Face* are convertible terms about equally used and mean simply the end of the mine; where the miner quits work for the day is the breast or face of his chamber; where the gangways and airways stop, is the breast or face of either.

Slope and *mule-way* are synonyms which should have been mentioned before. In many cases a tunnel opens into the mine obliquely at a point remote from the shaft, making an independent means of egress and ingress as well as of ventilation. If it descends at a sharp angle it is called a slope; if it proceeds nearly on a level until it strikes the "out-crop"—the point where

the coal is nearest the surface of the earth—it then preserves its proper name of tunnel, and in either case is also designated the mule-way, because the mules are always taken in and out by these openings in mines having them, and the miners also frequently use them in preference to the shaft.

Breaker is an immense wooden structure extending from over the mouth of the shaft to some distance below it, the general conformation being that of an inclined plane. It incloses the engine, boiler, hoisting apparatus, but chiefly the complex and extensive machinery for breaking and assorting the coal into various sizes ready for market. This "breaker" is built entirely above ground, and its head, or the "dumping-place," where the cars coming up out of the mine are emptied, is many feet above the surface-mouth of the shaft.

There are many other technical terms used in mining, but I can think of none not explained and likely to be used during the inquest in such a way that an understanding of them is necessary to a comprehension of the testimony.

THE TERRIBLE SUSPICION.
The origin of the fire, first given to the public in my dispatches of Friday evening, was the legitimate consequence of the condition in which the brettee was found after the fire. That it was not sooner bruited was due simply to the fact that the brettee was not especially noticed by the experienced, intelligent miners going up and down the shaft until after the dead had been removed, or if they did notice it they naturally did not speak of it until after the intensity of the affair had somewhat relaxed. When the suspicion did come it came originally from these miners, and I am frank enough to confess that had I heard it first from a person in the interest of the owners, or had seen any reason to suppose that it had been set afloat in their interest, I should have hesitated to give it publicity. But it came in no such questionable shape, and was rather the result of the independent conviction of miners who have been fighting the owners all their lives. It was founded on the possibility of incendiarism and the impossibility of any other origin of the fire. But the miners thus believing cannot see how incendiarism clears the present mining system of the great peril of working mines with but one outlet, and that incumbered with inflammable material. Admitting that the system is carefully administered, they do not intend the less to desist from efforts for its abrogation, because, as they believe, the Avondale disaster was the result of design. The crime committed by the person firing the shaft was awful; but they believe the *laches* of the owners, which made the culmination of his crime possible, scarcely less criminal.

THE TESTIMONY TAKEN.
The evidence elicited on Saturday was loaded with much irrelevant matter, but that of GEO. MORGAN, ANSON DUNN and of one or two others was conclusive on some disputed points. MORGAN being an inside foreman, and a most intelligent and experienced miner, his statements of fact can be taken without question, and his opinions are entitled to respect. He swore positively, in common with all other witnesses, that the fire never was communicated from the furnace, but must have commenced near the top of the shaft. How closely he examined the brettee before arriving at this conclusion is seen by the fact that he was able to say that below the mouth of the tunnel the upper edges of the boards were burned, and the lower intact, thus showing conclusively that the fire burned down and not up. While all the witnesses having any knowledge of the subject agreed as to where the fire commenced, only one gave an opinion as to how it originated, but he, in boldly saying it was set on fire by an incendiary, evidently expressed the opinion of all.

TESTIMONY TO BE TAKEN.
It is not certain that the evidence to come will bring this matter into bold relief, but it has taken such firm and exclusive possession of the minds of the leading miners that there is great probability that it will. In that case the drift of the evidence will be to show that the incendiary could easily have reached the shaft through the tunnel and have poured kerosene or some other inflammable substance upon the brettee without his movements being noticed, and by then putting a train to the oil and firing it, could have been distant from the scene when the catastrophe occurred. Supposing this to have been done, the terrible rapidity with which the flames shot upward through the shaft is fully accounted for as well as the place where the fire undoubtedly began; but any other hypothesis adopted, and both circumstances remain inexplicable mysteries. But whether these ideas become part of the legal record of the case or not, they are now universal, and have already been publicly expressed in the *Scranton Republican*, which says this morning that "the evidences of the most heart-sickening crime upon record are already far stronger than we could desire them to be."

The most important witnesses yet to be examined are BENJAMIN HUGHES, general inside foreman of the Delaware, Lackawanna and Western Company; HENRY J. PHILLIPS, mining engineer of the same Company; THOMAS CORSON, THOMAS WATKINS and REES D. EVANS. These gentlemen are all practical miners, whose positive knowledge is of far more worth than any quantity of theorizing. While their testimony will be of great value, it will be of equal interest to the general reader.

THE AVONDALE RELIEF FUND.
The fund is so steadily increasing that there is little doubt now but that it will reach the \$250,000 which is desired and needed to make a permanent fund. There is now a grand total of \$45,316 50 from all sources, and of this sum \$1,021 were raised in the town of Pittston on Saturday. The bulk of the subscription thus far has come from New-York.

The three great anthracite coal companies are the Delaware, Lackawanna and Western, the Delaware and Hudson, and the Pennsylvania. Of these the second has subscribed \$3,000 to the fund and the last \$5,000. The first, which is the wealthiest of these great corporations, is the owner of the fatal mine, and has as yet subscribed nothing, but it is stated a meeting of the directors has been called for Wednesday next, when action will be taken in the matter. The Company did, indeed, assume the funeral expenses of the victims, and these it is stated were \$2,500, so that it has not been altogether remiss. It is desired if the fund reaches the required amount to invest the principal and make it produce a certain if small stipend for each sufferer.

EXPRESSION OF THANKS.
Everybody feels devoutly thankful to the brave men who dared death and horror to bring out the entombed miners, and the subjoined letter is a forcible expression of the universal gratitude and reverence:

THE DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY, OFFICE OF THE COAL DEPARTMENT, SCRANTON, Penn., Sept. 11, 1869.

I feel that I am under many obligations to the miners and others in the Lackawanna and Wyoming Valleys for the aid and services rendered at the Avondale catastrophe. I cannot express in language my feeling of gratitude for the disposition and willingness shown in going down the shaft in search of those poor helpless fellow-workmen. Even when it was known that the carbonic gas in the mines was nothing short of death to whoever would inhale it for a short time, yet many of our brave miners were there in readiness to descend, with life in hand as it were, until my feelings of gratitude toward them overflowed. I hope God—I cannot, and God alone can—will repay all for the heroic conduct displayed in their effort to rescue our dear and beloved fellow-miners. Your conduct will be greeted with a warm heart and a thrill of pride by all who learn of it for generations to come. In the hope that a similar calamity will never be witnessed in the Valley, please receive my sincere thanks, one and all, without mention of names, which are so many. Respectfully yours, &c., BENJAMIN HUGHES, General Inside Foreman.

WORK RESUMED.
To-day the miners resumed work, and although

the memory of the great calamity yet remains and exerts a subduing influence upon these sons of toil, it is still but a memory of the past, seemingly dating much further back than only last week. E. C.

Aid for the Sufferers—Contributions from Various Localities.

HUDSON, N. Y., Sept. 13.—Last evening a collection was taken in the Reformed Church of this city for the Avondale sufferers, and about \$100 was raised. The sum will be increased by donations from members of the congregation not present when the collection was taken.

PHILADELPHIA, Sept. 13.—The Treasurer of the Avondale Relief Fund has received, in all, \$17,500, including \$500 from the Moyanensing Hose Company and the collections made here in the churches yesterday.

HONESDALE, Penn., Sept. 13.—The Honesdale Casino Club, at a meeting held on Saturday, Sept. 11, voted \$100 for the sufferers by the Avondale disaster. This sum will immediately be forwarded to H. GAYLORD, Treasurer, Plymouth, Penn.

ALBANY, N. Y., Sept. 13.—The sum of \$200 was obtained at a collection taken up last night in the First Baptist Church for the Avondale sufferers. Dr. LARIMER, the pastor of the church, made an eloquent appeal in behalf of the sufferers.

PLYMOUTH, Penn., Sept. 13.—The late disaster at Avondale leaves 73 widows and 154 fatherless children. The latter number will be increased to nearly 200. The cash receipts by the Treasurer, H. GAYLORD, are as follows:

Previously acknowledged.....	\$2,385 00
Collected by Chamberlain & French, New-York.....	140 00
Collected by J. McAlarney.....	220 00
The New-York Gold Exchange.....	2,500 00
The Pennsylvania Coal Company.....	5,000 00
John B. Smith, Dummore, Penn.....	100 00
Hon. G. W. Woodward, Wilkesbarre, Penn.....	50 00
Hon. S. G. Turner, Wilkesbarre, Penn.....	100 00
Hon. Stewart Pearce, Wilkesbarre, Penn.....	75 00
John Wolf, New-York.....	100 00
Employes of Whittemore Bros., New-York.....	20 50
Miner's subscriptions.....	40 25
Total.....	\$10,731 75

A telegram has been received from G. H. STUART, of Philadelphia, announcing \$17,000 in his hands for the Avondale Fund.

A meeting of the Avondale Relief Association was held at the First National Bank this evening. The following persons were elected as a Board of Managers of the relief fund: E. C. Wadhams, W. S. Wilson, J. W. Eno, Ira Davenport, J. Fuller Reynolds, Thomas P. Macfarlane, Draper Smith, Frank Turner, Thomas J. Phillips and H. H. Harvey, of Plymouth; George Coray, of Scranton; Hon. H. B. Wright, of Wilkesbarre, and J. B. Smith, of the Pennsylvania Coal Company, of Dummore. The Board of Managers will meet at the First National Bank of Plymouth on Wednesday next, the 15th inst., at 9 o'clock.

A Statement by the Miners' Union—Incendiarism Disbelieved.

WILKESBARRE, Penn., Sept. 13.—The Miners' Union desire that the following statement on their part be given to the public:

The dispatches which are being constantly transmitted from Scranton in relation to the Avondale disaster are in many instances entirely unfounded in fact. That the fire which occurred at the mine was the work of an incendiary no one believes.

THE AVONDALE CALAMITY.

A New Theory Advanced—Ignited Gas the Cause of the Fire—Meeting of Miners at Hyde Park.

Special Dispatch to the New-York Times.
SCRANTON, Sept. 13.—A new theory accounting for the brettee in the Avondale shaft being fired so near the top has been advanced by J. W. HARDEN, mining engineer of Wilkesbarre, in a letter to be published in the *Scranton Republican*. It is founded on a presumption that on Monday morning the furnace man might have continued using timber for some time, and then covering the red embers with coal, certain circumstances might easily have resulted which would have filled the up-cast of the shaft with carburetted hydrogen. Assuming such to be the case, the miners would have found the air bad, and the first act of anyone going to the furnace and finding a sluggish fire would have been to open the door of the short cut for additional air, when the supply of oxygen being increased, the furnace fire would be correspondingly intensified, and light set to the carburetted hydrogen, thus causing an explosion as of powder, spoken of by one witness in this case. The ignited gas would be much more likely to set fire to the brettee at the dry top than at the bottom, and but for the jagged edges of the boards, it is possible that the flame might have passed off, doing no other damage than creating alarm. This theory will doubtless be advanced at the inquest, and, in common with all other aspects of the mystery, thoroughly examined.

A meeting of Hyde Park miners was held this evening for the purpose of devising measures of relief for the Avondale sufferers, but adjourned until Wednesday, to await the action of the Delaware, Lackawanna and Western Company.

The Scranton Republican on the Origin of the Fire—The Theory of Incendiarism.

Dispatches to the Associated Press.
SCRANTON, Sept. 13.—To-day's *Republican* publishes the following editorial article in connection with the evidence taken at the inquest on Saturday:

"The intense interest felt in the Avondale disaster will not be lessened by reading the reports of the evidence elicited before Coroner Wadhams' jury at Plymouth on Saturday. The theory of the fire, which has gradually been received, viz., that the wood work of the shaft was ignited by the heat from the ventilating furnace is scouted by every experienced miner who was examined. There was no difference of opinion on the point. While the working of a mine with but one opening and the building of the breaker over the mouth of the shaft were