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Accidents In Mines

In returning to the report and evidence of the select committee on this interesting subject, it will be necessary to allude to the different opinions of individuals concerning the merits of the late **Sir Humphry Davy's** "safety lamp," and also the somewhat contradictory manner the properties of this lamp are dwelt upon in the report itself, which leaves the question of its usefulness in a state of considerable doubt and uncertainty.

By a careful perusal of the evidence, however, it clearly appears that the "safety lamp" is only safe in some mines, and probably under circumstances where an ordinary light would hardly burn at all. There is also, doubtless, some delusion arising from the mere name of "safety lamp," which has generated a false degree of confidence in workmen on the one hand, and an almost blameable degree of enterprise in the owners of mines on the other.

The line has evidently not been drawn sufficiently marked to distinguish between operations under the safety lamp, where no naked light could possibly be used, and consequently, without the imagined safety lamp no hazard would have been run, and the legitimate use of the lamp, which **Sir Humphry Davy** himself intended as a protection in healthy mines against sudden and unforeseen changes in the atmosphere.

In page 7 of the report it is asserted that the committee have endeavoured to investigate, with strict impartiality, the merits of the different lamps which have been brought under their notice ; that the invention claimed by the late **Sir Humphry Davy**, on principals demonstrated by that able philosopher, may be considered as having essentially served the mining interests of this kingdom, and through them have contributed largely to the sources of national and individual wealth. Many invaluable seams of coal never could have been worked without the aid of such an instrument, and its long use throughout an extensive district, with the comparatively limited number of accidents, proves its claim to be considered, under ordinary circumstances, "a safety lamp."

The report of the committee is, as was before observed, in some circumstances contradictory. For instance, in the part we have just alluded to, it is asserted that since the introduction of the "safety lamp" there is a "comparatively limited number of accidents," whilst at page 4 of the report it is thus written :— "One striking fact requires to be particularly pointed out. If the year 1816 is assumed as the period when **Sir Humphry Davy's** lamp came into use, a term of 18 years since 1816, and a similar term prior to 1816 being taken, it will be seen that in the 18 years previous to the introduction of the lamp 447 persons lost their lives in the counties of Durham and Northumberland, whilst in the latter term of 18 years the fatal

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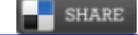
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accidents amounted to 538," being an evident increase in the number of accidents of 91, instead of a diminution thereof.

The committee should have strongly dwelt upon this extraordinary fact, instead of which it is explained in this manner :— "That, to account for this increase of accidents, it may be sufficient to observe that the quantity of coal raised in the said counties has greatly increased ; that seams of coal, so fiery as to have laid unwrought, have been approached, and worked by the aid of the safety lamp ; that many dangerous mines were successfully carried on, though in a most inflammable state, and without injury to the general health of the people employed in them."

As to the "general health" alluded to, that is difficult to comprehend after the admission of an increase of deaths.

It appears from various parts of the evidence that on the introduction of the "safety lamp," a most dangerous idea had been propagated and encouraged of its perfect security under all circumstances attending mining operations ; so much so, that nearly all the precaution and vigilance which were formerly used were laid aside as unnecessary. This has very evidently been a most dangerous delusion, and the committee deserve great credit for alluding to and condemning it. The report says — "Your committee has been drawn by different witnesses to contingencies in mining, under which the lamp of **Sir Humphry Davy** ceases to afford adequate protection. Of the possible existence and nature of those contingencies your committee have ascertained that the inventor was well aware, and they regret that the cautions he gave to some of his immediate friends were not made more public. Accidents have occurred where his lamp was in general and careful use ; no one survived to tell the tale how these occurrences took place. Conjecture supplied the want of positive knowledge most unsatisfactorily ; but incidents are recorded which prove what must follow unreasonable testing of the security of that lamp, and your committee are constrained to believe that ignorance, and a false reliance up-on its merits, in cases attended with most unwarrantable risk, have led to most disastrous consequences."

Immediately after the appointment of the committee, intelligence arrived in London of a most awful and melancholy explosion at Wallsend Colliery, between Newcastle-upon-Tyne and Shields. On this melancholy occasion no less than 101 men and boys were in an instant deprived of life. The evidence of [Mr. Nicholas Wood](#) on this subject will be considered interesting, and is exactly in unison with the remarks which in a former paper were submitted to the public :—

"You are aware of the report of a very fatal accident having occurred during the last week at one of the collieries on the Tyne ; have you any observations to make upon any of the circumstances which have come to your knowledge as connected with that explosion ? — I do not consider myself in a situation to give any opinion relative to that accident ; but with respect to the question that was asked, as to whether I could point out anything that might be in furtherance of the object of this inquiry, which I presume to be to endeavour, if possible, to prevent accidents in the coal mines, and at the same time not to enhance the price of coals unnecessarily to the consumer, I mentioned, with regard to the safety lamps, that some defects existed in each of those lamps. I think it would be extremely useful if experiments in the mines could be made upon the different lamps by practical men. I likewise think, if this committee would furnish to the public the evidence which is given here, it would direct the attention of practical and scientific men to the question and to the lamps, or modes of lighting or ventilation that have been presented to them. If these were furnished to the

public, and the coal owners would institute a set of experiments upon each of the lamps submitted to their notice, I conceive that it might be attended with some beneficial result, and if that were followed up by a premium offered by the coal trade generally for the best mode of ventilation, or best manner of lighting mines, it would in my opinion be still further likely to be useful. I think the information obtained by this committee will furnish scientific men with all the minutiae of the operations of coal-mining, together with the manner in which gas is met with in the mines to a greater extent than they have hitherto been furnished with, and that they will consequently be better able, by knowing the defects of the system, to devise something that may be useful. I have stated the defects in the lamp, which I think absolutely necessary, in order to direct the attention of scientific men to those defects."

The presence of carbonic acid gas, or choke-damp, though less sudden and violent in its consequences, has too often proved a fatal attendant of the miner, and this in districts where explosions are rare and insignificant. On this subject **Mr. Ralph Elliott**, when under examination, states as follows :—

"Will you explain the way in which the accident happened in **Mr. Russell's** Church pit ?

"I was not working in the pit at the time.

"Then, what have you heard from authentic sources on the subject ?

"I perhaps saw more, for as soon as I knew the explosion had taken place (I was not living a great distance from the pit), I immediately went and descended with the viewers down to the place where the accident happened, and I can give no idea how this happened.

"What were the sort of lamps that were used ?

"**Sir Humphry Davy's** safety lamps.

"Did you find the pit foul when you entered it ? — Not for a long way in.

"You visited the spot where your nephew lost his life ? — I visited the spot, and was the first person that went near where he was lying.

"Was he severely burnt ? — No, he had died from suffocation or choke-damp.

"Is it your general impression that men more often perish from the after-damp than the fiery ignition ? — I dare say three to one.

"Have you not seen men severely burnt ? — Yes ; but on going into mines after a blast, I have found men frequently to have suffered two to one more by suffocation than by absolute burning — I might say three to one.

"Is there any particular appearance about the faces of those who die from the after-damp ? — Yes.

"State what the appearance of the body is — that is, when they die by suffocation ? — When they die by suffocation there is nothing particular about the body more than one may imagine of a person who has slept away. There is no kind of strangling in his appearance, not frequently so, but those that die by the blast, sometimes they are all shattered to pieces.

"Struck against the sides of the mines, their limbs all broken to pieces, and their heads likewise. On those men that are blown to pieces there is also on their persons and clothes no appearance of burning ? — Yes.

"In one case the man is destroyed by absolute concussion, in the other by the choke-damp ? — It is possible that a man may be thus blown to pieces by a blast occasioned by ignition of gas, and yet the fire never to have touched him.

"In many cases men are destroyed by the motion of the air striking them against the sides of the mine, when they have not suffered from the effects of the choke-damp or the fire ; in other cases men are not moved at all, but they die from want of air where there is choke-damp ? — Yes, two or three to one. Both those that die by concussion and by suffocation are three to one to those who are burnt to death."

There are other noxious gases, varying in kind and combination which exist in certain mines, and which furnish additional subjects for chymical skill in their investigation. Inundations of water have also occasionally been very destructive. On this subject [Mr. John Buddle](#) was desired by the committee to explain the cause of the lamentable inundation at Heaton Colliery :—

"Do you remember the lamentable inundation of that colliery ? — I do.

"Do you recollect whether any borings or exploring drifts would have been advisable, and have prevented that accident ? — They were practised ; it was under my management at that time, and every precaution possible was taken. The accident arose from a cause which we could not possibly guard against — a natural fissure in the rock ; there were two men working in the place when the water broke in."

There still remains a very long list of casualties attending the working of mines, some of which are wholly beyond human control, and are inseparable from mining pursuits. The labours of the committee, and particularly the making public the risks which are often unnecessarily run, cannot fail, however, of being attended with the most beneficial results ; whilst the hints thrown out by the scientific individuals who have been examined before the committee, and to whom the community is largely indebted, will doubtless lead to further public benefit. The suggestions of the committee are, however, of so important a nature, that they must necessarily be deferred to another opportunity.

Names mentioned in this article

Name	Age	Occupation	Notes
Buddle, John			Whos Who Page
Davy, Humphry, Sir			
Elliott, Ralph			
Russell, —			
Wood, Nicholas			Whos Who Page





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