

proved a fault with a thickness of only $3\frac{1}{2}$ yards of coal from the face of the drift, which was too tender to resist the pressure, and the sad event occurred by which 26 lives were lost.

One of the most instructive examples of the necessity of extreme accuracy in laying down on plans every detail of the workings, is furnished by the fatal accident which occurred at the Clay Cross Colliery, in Derbyshire, on the 11th day of June, 1861. In this instance the position of the old workings was well known, as they had been carefully surveyed before they were abandoned, and filled with water. A barrier of coal from 40 to 50 yards in thickness was left between them and the workings to the dip, the position of the latter being also accurately delineated on the plan. No danger was apprehended under such circumstances, and but for the remissness of one man—in whose place the indication of water first appeared—in giving notice thereof in the proper quarter, probably no lives would have been lost. Suddenly, however, the water burst through the thin piece of coal which alone confined it, and in a very short time prevented all egress by the shafts, and thus 23 of the workmen were shut out from help for 22 days, and of course perished. On investigating the cause of this accident, it was found that a *single heading* had been driven from the old workings to the dip, probably to contain the water made in working the coal to the rise. This, it is supposed, must have been made *after the workings were surveyed*, and by some inadvertency on the part of the person at that time in charge, it had not been put on the plan.

It will not be out of place here to remark that even if bore-holes had been made in the usual way, they might not have prevented the accident, as the relative position of the two places was such that the front holes might have passed the face of the heading, and the flank one have been alongside of it, without holing in either case. But if the heading *had been shewn on the plan* the workings on the dip side would have been so arranged as to avoid it, and no risk have therefore been incurred.

Other instances need not, I think, be given in proof of the importance of some system by which mining operations may not only be accurately delineated, but also carefully preserved; and I proceed, therefore, to give a few practical details to be observed, in order that such records may be of that reliable character without which they will be valueless. And here I would again remark on the fitness of the time for carrying into effect these suggestions.