

fire had gone up. On October 29 it was found that there was a large fire above the east or long plane level, when it was decided to flood the mine. On Sunday, October 30, the water of Panther creek was turned into the shaft, and continued until December 5, when the water had raised 549 feet up the shaft. The hoisting of the water out of the shaft again began on the afternoon of December 5, and on December 31 had been lowered 103 feet.

#### **Kaska-William Colliery Disaster.**

On May 26, 1898, Wm. Morgan, a loader boss, Wm. Derr, a pump runner, Martin Molochus, Peter Durkin, Vindie Proboiski and Paul Katsouski, laborers, met their death at the Kaska-William colliery, operated by the Dodson Coal Company, by water breaking in from old workings which had been abandoned many years before. A tunnel was being driven from the Seven-foot vein on the shaft level, south. The tunnel men were working by night, and the laborers were loading the stuff by day. The tunnel men had cut the bottom of the Orchard vein during the night of the twenty-fifth, with the last round of shots fired, but had not gone into the face of the tunnel after firing, so that they did not know that the vein had been cut. The fire boss, in making his rounds in the morning, discovered that the vein had been cut, and so reported to the inside foreman, who took some men with him and drilled a hole in the vein about six feet long to find its thickness. During this time the laborers above named were engaged in loading the stuff that had been cut by the shots fired during the night before. The colliery was idle on the twenty-sixth, and no men were at work in the inside slope, which is about 360 feet deep below the shaft level, the tunnel being 400 feet west of the top of the slope. About 11 o'clock in the forenoon, Wm. Morgan, who was working near the top of the slope, was let down the slope by Thomas Hawkins, the fire boss, to feed the mules, and Wm. Derr, the pump runner, who had been up the slope during the forenoon, was let down by Hawkins about 12 o'clock noon, to go to the pump. Hawkins remained at the top of the slope, expecting them to return soon, and was waiting to hoist them up. Between 12 o'clock and 1, the water broke in at the Orchard vein, which had been cut at the face of the tunnel. Hawkins heard the water coming and retreated toward the bottom of the shaft, and on the way met Mr. Flannigan, the inside foreman, who had been at the pump room at the bottom of the shaft, getting his dinner. They attempted to get back to the slope, but the water was rising rapidly at the bottom of the shaft, and they had to retreat up the shaft. The water rose to the roof at the bottom of the shaft, cutting off all communication with the inside slope, and the tunnel where the water had come

from. The steam pipes were broken by the rush, and the pumps at the bottom of the shaft were stopped. The water from the shaft was hoisted by tanks until the 28th, when one of the pumps was reached and started, the second pump being started the following day. On May 30 the shaft was clear of water and the work of clearing up the debris began. The top of the inside slope was closed, also the gangway between the top of the slope and the tunnel. The timber and track in the hoisting slope had all been washed down the slope, and the workings below were filled with water to within 166 feet of the top of the slope. The pump slope which is 75 feet west of the hoisting slope, was filled tight with stuff that had been washed out from the tunnel. The hoisting slope was retimbered down to the water, and the pumping of water out of it began on July 22. In the meantime, the cleaning up of the gangway from the top of the slope toward the tunnel was being done and the first body was found buried in the debris on the night of July 2, and the second body on July 9. The mouth of the tunnel was reached July 14, and the third body found on July 27 in the gangway west of the tunnel. The face of the tunnel was reached on August 16, when it was found that the old gangway on the Orchard vein, from which the water had come, was about 15 feet on a pitch of 50 degrees above the top of the tunnel. The body of the fourth man who was in the tunnel was not found and had evidently been washed down the slopes, along with a mule and three mine cars that were on the shaft level when the water broke in. The Orchard vein slope, from which this water broke in, had been abandoned many years ago and was caved in at the surface. In the latter part of 1896 the company began to reopen it and on February 10, 1897, got down to the water, which was 185 feet from the top of the slope. The water was being pumped out, but the slope being full of debris, it went down slowly and was finally stopped. On November 13, 1897, Mr. Thos. C. Reese, superintendent of the colliery, called at my office in regard to letters I had written to him on the 8th and 11th about the bad condition of the ventilation, and before leaving told me they were going to drive a tunnel from the Seven-foot vein on the shaft level to the Holmes and Primrose veins, then drive holes up on these veins to the tunnel, that had been driven from the upper lift of the old Orchard vein slope and tap the water at that level, so that this lift of the Holmes and Primrose could be worked, leaving the lower lift of the Orchard unworked. I immediately got out the Geological Section, which was the only section in my possession, and which showed that the Orchard vein did not come down to the level of the proposed tunnel, so that it would not be of any use to drive the tunnel any farther than the Primrose vein if the section was correct; and, if it was not correct, it would be of no use, as the Orchard vein had been already worked. As this

plan was perfectly feasible, I could raise no objections, and considered it would not need much watching until the Primrose vein had been cut and the holes were being driven up the pitch, and only then after they had been driven up a couple of hundred feet, as there was ground enough above that to allow for any inaccuracy in the elevations which the Geological Section had marked as only estimated, and which could not be relied upon. During the following week I noticed an advertisement in the "Daily Republican," of Pottsville, inviting proposals to drive the tunnel, from the Seven-foot vein to the Primrose vein, and on November 20, a contractor called at my office with a proposal for driving the tunnel, and wanting my opinion as to prices. This proposal also plainly stated that the tunnel was to be driven from the Seven-foot to the Primrose vein, and with the advertisement agreed exactly with the plan that had been talked of in my office. I visited the colliery on January 13, 1898, and found the tunnel had been started two days before, and had been driven in ten feet. I visited the colliery again on January 31, but was not in the tunnel on this visit. On March 23 I again visited the colliery, and was in the tunnel which had just cut the bottom of a vein, which I supposed to be the Holmes, and which it afterwards proved to be. During these visits, nothing was said of any change of plan or intention to drive the tunnel farther than the Primrose vein. After the water had broken in on May 26th, I found that the tunnel had been driven beyond the Primrose vein and had cut the Orchard vein, which had come down below the level of the tunnel, instead of making a basin above, as the Geological Section had shown. That the Geological Section was not correct was plainly apparent after the Holmes vein had been passed and when the Primrose vein had been reached, and the tunnel continued, it was plain that the Orchard could be cut on this level, and the superintendent had been expecting it to be cut for several days before. Yet, knowing this, he failed to take the ordinary precautions which were necessary for the safety of the lives and property under his charge. On the day before the accident, an official of the Lehigh Coal and Navigation Company, from which the colliery is leased, knowing that the tunnel was being driven, but not knowing how far it was intended to go, wrote to the superintendent, Thos. C. Reese, telling him that there was a section in that office which showed that the Orchard workings were nearly down to the level of the tunnel, and advising him that it were best to take no chances, but to keep a drill hole ahead after going in 570 feet. This letter was received by Reese in the morning, before the accident occurred, but the tunnel was in farther than 570 feet and the vein had been cut. Reese went into the tunnel about 11 A. M., along with Inside Foreman Flanigan, and told him of receiving a queer letter, but did not say what it was about. The boss la-

Leier, it seems, had been in the habit of firing any holes left unfired by the tunnel men, during the day shift. That morning there had been a top hole left unfired. The contractor said he had put the blasting battery in the box and locked it before he left that morning, the boss laborer also having a key to the box. After the accident the blasting battery was found washed out near the pump room with the wires attached. The box in which it was kept has not been found yet, so that it is evident that after Reese and Flanigan left the tunnel, the boss laborer had fired this top hole, and no doubt put powder in the hole that had been drilled to test the vein and fired that also, which broke the barrier of coal between the tunnel and the water. This barrier had held the water back for ten or eleven hours, after the tunnel men had fired during the night, and both Reese and Flanigan testified that when they were in the tunnel last, an hour before the water broke in, there was no sign of water more than usual, and even at that late hour, after receiving the warning, had the men been taken out or prevented from firing until flank holes had been driven on both sides and up the pitch, the accident could have been averted, as the coal between the tunnel and the old gangway would have held the water, if no blasting had been done. An inquest was held on September 5th and the jury rendered a verdict that "the accident occurred through the misleading maps and drafts whereby six men had lost their lives by drowning." At this inquest, the superintendent, Thos. C. Reese, stated to the jury that he had asked the Inspector, when he had told him of the intention to start the tunnel, whether it would be necessary to keep a drill hole in advance, and that the Inspector had said it was not, and that all inquiry possible had been made in regard to finding the depth of the old Orchard workings, and from what he could learn, the slope was not as deep as the tunnel. In regard to keeping a drill hole ahead from the time the tunnel was started, nothing was said about it at the time, but had I been asked I certainly would have said that it was not necessary to keep a hole ahead until the Primrose vein had been reached, and had the tunnel been stopped at the Primrose vein, as I was informed it would be by the superintendent, and by the printed notices, it is plain that there would have been no necessity for a drill hole ahead, and the accident would not have occurred in the tunnel at least. That proper inquiry had not been made as to the old Orchard vein workings was evident from the letter received by the superintendent on the morning of the accident, which proved conclusively that such information was available, also showing that the Orchard vein workings were near the level of the tunnel, if it had been sought. There were also sections in possession of other mining engineers showing the same thing, from whom no information was asked. Even the company's engineer, who might

have constructed a section as the veins were being cut in the tunnel, which would have shown the error in the Geological Section and very nearly the true position of the old workings, was not consulted other than to give a line for starting the tunnel.

I send with this report a sketch showing the ground plan of part of the colliery from the bottom of the shaft eastward to the tunnel from the bottom split of the Mammoth vein, on which the inside slope is sunk; also the gangway westward on the top split from the top of the inside slope to the tunnel driven south to the Orchard vein where the water broke in. The connections from the mouth of this tunnel to the pump rooms at each side of the shaft are also shown with the tidal elevations of the bottom of the shaft, top and bottom of the inside slope, and the south end of the tunnel and old gangway above. The Red Ash slope which is on the Orchard vein and the old workings from this slope on the Orchard, Primrose and Holmes veins, from which the water came, are shown by dotted lines, as taken from the colliery maps, indicating that their position could only be shown approximately. However, it can be seen by this sketch that the supposed position of the lower gangways on the Orchard vein was very close to its true position, as the end of the tunnel is close to the old gangway, the difference of level between the bottom of the tunnel and the bottom of the old gangway being less than 20 feet. I also send on the same sheet a cross section of the veins from the bottom split of the Mammoth vein at the bottom of the shaft to the Orchard vein as cut at the face of the south tunnel. This section shows in heavy lines the position of the veins as they have been cut by the tunnel with the old Orchard vein gangway a few feet above the south end. The dotted lines show the position of the Orchard, Primrose and Holmes veins, as shown on cross section line No. 15 of the Second Geological Survey, from which it can plainly be seen that if the Geological Section had been correct it would have been useless to drive the tunnel further than the Primrose vein, as it would have reached the land line before any workable coal of any account was cut. It can also readily be seen that after the Holmes and Primrose veins had been cut, any person possessed of ordinary knowledge of mining and a tape line and clinometer could readily have seen that the geological section was not correct, and knowing this, would have taken some precautionary measures for the protection of life and property.

I do not hesitate to say plainly that this disaster was caused by the misrepresentation and incompetent management of the superintendent in charge, whose previous training was not of such a character as to qualify him to take charge of a colliery of this kind. The condition of the colliery had been poor for two years before this accident, as is evidenced by records of my visits which have been frequent, and by correspondence relating thereto.