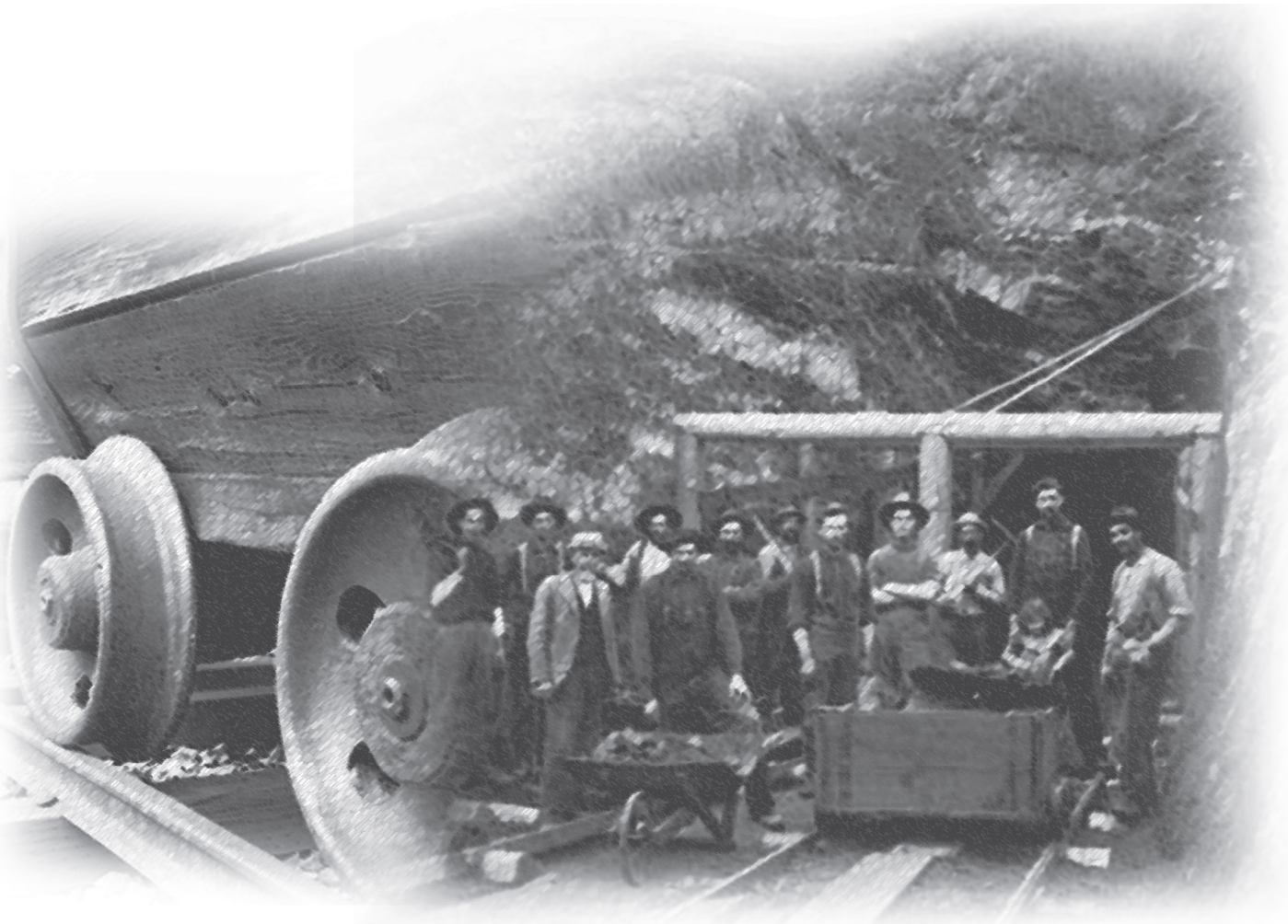


The No. 1 Mine Explosion Dawson, New Mexico February 8, 1923

About 2:20 p.m. February 8, 1923, an explosion occurred in the No. 1 Mine of the Phelps Dodge Corporation in Dawson, New Mexico, resulting in the death of 120 of the 122 men underground at that time. The explosion coming out of the mine practically destroyed the concrete portal at the Main 11 Entry and blew out the explosion doors at the fan, and otherwise damaged the fan approach at the surface but did not injure the fan itself. Temporary repairs were made renewing air circulation near the mine portal in less than an hour after the explosion. The quick resumption of ventilation allowed for prompt entrance into the mine carrying fresh air, and this, together with the fact that there were so many extended falls of roof in the interior of the mine, made it unwise and unnecessary to try to use oxygen apparatus, hence no apparatus work was done.

This mine was slightly affected by the shot firing explosion starting in the adjacent connected No. 6 Mine on April 14, 1920, resulting in the death of five men, two being killed in No. 1 Mine. There was also an explosion in No. 6 Mine, October 14, 1919, resulting in no loss of life. On October 23, 1913, there was a disastrous explosion in No. 2 Mine (with a portal of about 1200 feet from No. 1 and No. 6), resulting in the death of 263 persons and in much damage to property.



2 Men Survived...

STORY OF THE EXPLOSION

The explosion occurred between 2:20 and 2:30 p.m., February 8, 1923, there being 122 men in the mine at the time. Underground Superintendent Dupont was at the mine portal but just out of the direct line of the main entry, and while thrown a short distance was not hurt. The reinforced concrete portal of the No. 1 Main Entry was shattered and it partly collapsed, necessitating some immediate work to get past it safely. The fan explosion doors were blown out and fan approach somewhat shattered. The fan itself was unharmed and continued to run. Upon completion of temporary repairs to the fan approach and making No. 1 Main Entry portal safe, General Manager Brennan and a number of helpers went into the mine, restoring ventilation as they went by placing temporary brattices in the crosscuts between the main entry or intake air course and the return air course on the right, with the stoppings on the left between No. 1 and No. 6 Mines remaining in place.

Except for the violence seen at the fan and No. 1 Main Entry portal, together with the blowing toward the return air course and the manway of stoppings and occasionally timbers blown toward the mouth of the mine, comparatively little sign of force was encountered until a point about 1900 feet from the portal was reached. On an abandoned parting starting about 1500 feet from the mouth of the mine and ending about 1800 feet in, there was a loaded trip of over 20 cars with electric locomotive on outby and with controller on locomotive said to be in the "Off" position. There was evidence that the two cars adjacent to the locomotive had been off the track for over 100 feet but had been partly placed on the track by a re-railer located near the outby end of the parting. The motorman,

badly burned but not broken by violence, was found dead at the mouth of a crosscut a short distance back of the locomotive. The nipper, also burned but not mangled, was found a few feet inby the inside car of the trip. At least two cars (probably three) were off the track about midway in the trip, and these cars had torn out three sets of timber. This abandoned parting was fairly closely timbered with legs and crossbars, also in places with cribs, and practically all timber was standing, everything indicating presence of very little force at any time on this parting.

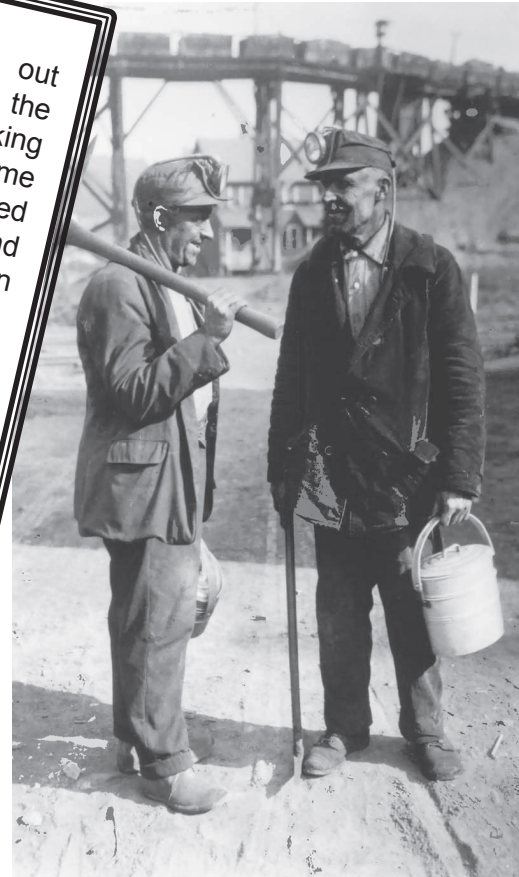
The exploring party encountered comparatively little trouble with falls until it had gone into the 4th North and inby the 4th North in the Main entry. However, both in the 4th North and in the Main entry and other entries inby the 4th North, falls were numerous, in places almost continuous, and practically all stoppings blown out by a force going inby. The 4th North overcasts were temporarily restored and part of the air taken into the 4th North and that region explored and simultaneously part of the air taken in on the Main entry. On account of numerous falls encountered inby the 4th North and because it was found feasible to carry circulating air along by temporary bratticing, oxygen breathing apparatus were not used though both apparatus and apparatus wearers were quickly available. Apparatus explorations inby the 4th North would have been impracticable except for very short distances, as the falls were of such nature that apparatus wearers would have been seriously handicapped.

The morning of February 9, about 8:00 a.m. at a time when there were no persons in the mine on rescue or recovery work, two men who had been working in an unventilated portion of the mine extracting some pillars West of the 4th North and opposite region between 4th and 5th East off 4th North, walked out of the mine unharmed and unaided after having been in the mine at the time of the explosion and remaining there for about 18 hours afterwards.

(continued on next page)

Notwithstanding the numerous falls encountered, there was not much extreme violence and the recovery of bodies was comparatively rapid, being facilitated by the fact that only about 11 or 12 bodies were under falls. By the night of February 10, or 48 hours after the explosion, 53 bodies were out of the mine, and by February 13, 108 bodies were recovered, the inquest being held on February 14. It is understood that the entire 120 bodies were recovered later on and that all were identified.

The two men who came out alive about 18 hours after the explosion, had been working in the 4th North region in some old pillars several hundred feet West of the 4th North and adjacent to No. 6 Mine between the 6th and 7th cross entries. After the explosion these men remained at their working place which, at ordinary times, had comparatively little air circulation, and it is thought by the mine officials that they probably received some slight amount of fresh air from No. 6 Mine through the squeezed-caved region between the place in No. 1 Mine where they were working and No. 6 Mine. That is the only reason they survived.



Cause of the Explosion

During the first few days after the explosion there were the usual numerous rumors as to the cause, among them the lighting of a match for smoking purposes with ignition of methane. This was disproved in a number of ways, among them the fact that no matches were found on any bodies and no positive evidence was produced showing that methane entered at all actively into the explosion. Another rumor was that methane had been ignited by one of the five old type 250 Volt DC non-permissible electric cutting machines in use; this was disproved also, as it was found that all of the five machines had power disconnected (controller in "off" position), and there was no evidence that force or violence came from the region where these machines were located. One cutting machine out of order was in a parting off the 3rd North opposite the 4th East. One machine was at the face of 6th North with

power shut off though the machine was in position ready to sump, the machine men being burned and somewhat battered by violence. A third machine was found on a parting in the 3rd East off the 7th North. One machine was found at the face of Room 10 off the 2nd East off the 12th South, but the men were placing bits hence power was off. These men too were burned and battered by force coming from outside. The fifth machine was in the neck of Room 4 off 2nd East off 10th South, the machine man having gone out because of lack of places to cut. It was also thought at first that the trolley locomotive operating in the interior of the mine near possibly gaseous faces might have ignited some methane. However, the locomotives were found with power off and, as with the electric cutting machines, there was absolutely no

evidence that the explosion originated at or near these interior locomotives.

The actual point of ignition was undoubtedly the place where timbers were torn out by derailed cars on the abandoned parting on the main entry about 1600 feet from the mouth of the mine. The cause of the explosion was undoubtedly ignition of coal dust by electric arcs from short-circuit of trolley wire and trolley feed cable when they were thrown upon the steel cars by dislodged timbers from the derailed cars. The coal dust for the ignition was probably supplied partly by the settled dust which had been on the dislodged timbers, together with dust thrown into the air from a car of machine cuttings off the track at the head end of trip and "bumping" over ties for over 100 feet before it came to a re-railing device near the outer end of the old parting. Fuel for propagation of the explosion was supplied by dry, very fine settled dust on timbers, ribs and roof ledges combined with dry dust from the floor. Although, the roadways had apparently been comparatively free of the usually found accumulations of large sized coal, rock, etc.

The trolley locomotive at the head or outer end of trip had proceeded a few feet out of the old parting and was on the track, and while somewhat dust-covered, was in good condition mechanically and electrically. There was evidence that at least one, probably two, loaded cars (one with machine cuttings) adjacent to the locomotive had been off the track for at least 100 feet within the old parting and were placed, at least partly, on the track by a re-railer in the track a short distance back of the place where the locomotive was found.

The motorman, burned to some extent, was found dead at the mouth of a South crosscut near the locomotive. The old parting had cross bars from rib to rib practically throughout, there being center posts a few feet from the north rail; however, the east end of the parting for a distance of about 100 feet was filled on

the north side with timber cribs, leaving but 7 or 8 feet to the south rib. Practically none of this timber on the abandoned parting was disturbed by the explosion, though a few sets had been pulled out by some derailed cars about 125 feet back of the locomotive, these timbers letting the trolley wire and 400,000 circular mill bare stranded trolley feed cable down on the end of the steel cars.

Undoubtedly, there were two decided arcs as the trolley wire showed a decided burn, and opposite it the stranded feed cable had two or three wires severed by burns. There was much very fine dry settled dust on the timber caps in this region, as well as in the adjacent cribs and on the floor, and the dislodged timbers undoubtedly released a considerable amount of this dry fine dust, and this dust, together with that brought back from bumping over ties of the derailed car of machine cuttings, gave the fuel for ignition in contact with the intense heat from the two arcs.

This explosion, as well as others which have taken place at Dawson, make it certain that the dust is very explosive and that as yet the correct method of handling it has not been placed into operation. It would appear advisable to make a thorough detailed study of the mines at Dawson and vicinity to try to determine the best methods of handling these mines to prevent explosions. ✕