THE EXPLOSION AT STARKVILLE.

On October 8, 1910, about 10 p. m., an explosion occurred at the Starkville mine, which caused the death of fifty-six persons, whose names are given below:

Name.	Nationality.	Occupation.	Age.	Single or Married.	Number of Children.
Thos. Upperdine	American	Triprider	28	Married	2
Francis Goggin	American	Driver	18	Single	..
Luke Upperdine	American	Night boss	50	Married	2
Fred Seppie	American	Motorman	23	Single	..
Wilbert Hedquist	American	Motorman	23	Single	..
Henry London	Colored	Driver	31	Married	..
Savato Gregor	Austrian	Miner	28	Single	..
E. Horvatt	Servian	Miner	31	Married	1
Joe Deromich	Serivan	Miner	20	Single	..
Jan Lkimek	Pole	Miner	23	Single	..
Frank Klimek	Pole	Miner	19	Single	..
Albery Legh	Pole	Miner	25	Married	1
Frank Krawczyk	Pole	Miner	34	Married	4
John Krawczyk	Pole	Miner	25	Single	..
Josef Baronski	Pole	Miner	34	Married	4
Josef Scafranski	Pole	Miner	38	Married	4
Josej Dobranski	Pole	Miner	40	Married	4
Meker Chovenski	Pole	Miner	40	Married	3
Joe Lubranski	Pole	Miner	35	Married	3
John Cysz	Pole	Miner	37	Married	3
Wit Nyzio	Pole	Miner	38	Married	2
Alois Szevczyk	Pole	Miner	37	Married	2
Jon Dylenski	Russian	Driver	21	Single	..
Pete Zimbra	Pole	Miner	36	Married	1
Pete Branka	Pole	Timberman	32	Married	2
Mike Kumorek	Pole	Miner	35	Married	4
Lawrence Kobara	Pole	Miner	50	Married	6
Frank Lukasich	Pole	Miner	27	Single	..
John Mehora	Pole	Miner	50	Married	3
John Tobias	Pole	Miner	31	Married	3
Rudolph Kempany	Pole	Miner	28	Married	2
Rudolf Ptaschek	Pole	Miner	29	Married	3
Frank Ziskowski	Russian	Miner	37	Single	..
Paul Baltusznik	Russian	Miner	40	Single	..
Peter Gut	Pole	Miner	28	Married	2

Name.	Nationality.	Occupation.	Age.	Single or Married.	Number of Children.
Mike Maday	Pole	Miner	35	Married	1
Anton Lysczarz	Pole	Miner	25	Married	3
Albert Lavuski	Russian	Miner	24	Single	..
Anton Malacarne	Italian	Miner	44	Married	1
Goyo Giacomo	Italian	Miner	34	Married	2
U. Santogrossi	Italian	Miner	19	Single	..
Savino Santogrossi	Italian	Miner	23	Single	..
Anton Malacarne	Italian	Miner	37	Married	2
G. Baldazari	Italian	Miner	25	Married	..
Stefano Mussati	Italian	Miner	24	Married	4
John Faro	Italian	Miner	20	Single	..
Pete Faro	Italian	Miner	24	Single	..
Felix Porcie	Italian	Miner	24	Single	..
Joe Silano	Italian	Miner	24	Single	..
Dominic Tomazino	Italian	Miner	35	Married	2
E. Gallegos	Mexican	Miner	24	Single	..
Carpio Lopez	Mexican	Miner	22	Single	..
Alex Gallegos	Mexican	Miner	19	Single	..
Emilio Maes	Mexican	Miner	24	Single	..
Frank Greer	American	Triprider	22	Single	..
Tom Plutto	Italian	Miner	24	Single	..

The Starkville mine is located on the Atchison, Topeka & Santa Fe Railroad, about five miles south of Trinidad, Las Animas county, and is operated by the Colorado Fuel & Iron Company. The coal is bituminous and of the coking variety. Its chemical analysis is as follows:

Fixed Carbon	Volatile	Moisture	Ash	Sulphur
50.86	30.29	.55	18.30	.74

The coal bed under consideration lies nearly horizontal and varies from five to seven feet in thickness and belongs to the lower series of the Laramie cretaceous formation. The mine was opened through two drifts some twenty-five years ago and in recent years a third drift was opened, advancing almost parallel with the other two drifts. The first two were known as the old mine and the later one as the new mine.

The average output of the mine prior to the disaster was 1,200 tons per day, the largest portion of which was made into coke at the plant near the mine.

The coal is mined by the room and pillar system. The hauling is performed with electric locomotives from partings in different sections of the mine to the surface. The primary haulage, or gathering from the rooms to the inside partings, is done with mules.

Prior to the explosion the mine was ventilated by a 4′x10′ fan of the company's own make, driven by electric power and located at the foot of an air shaft at C-1 entry, about 4,800 feet from the portal of the main haulage drift. Assisting this was a 7-foot Stine fan located at J-6 entry, about 9,000 feet from the portal of the main haulage drift. The system of ventilation was practically one continuous current.

The date of my last inspection of the Starkville mine was July 29th, 1910. At that time I found the mine in a reasonably safe condition. I did not detect any explosive gases and the fire-bosses' reports showed the mine to be perfectly free from firedamp. The ventilation was fair throughout the various parts inspected and there were no accumulations of dust along the roads. The road beds were sprinkled by tanks mounted on trucks and were hauled into the mine with water and while in transit the water was permitted to escape along the road bed.

Air measurements on the date of this inspection were as follows: Stine fan, 39,600 cubic feet per minute, at J-8 intake; 27,440 cubic feet per minute at main return; near C-1 fan, 44,800 cubic feet per minute.

As a factor of safety no powder was allowed to be used in the mine for several years past, and it gave off so little gas that naked lights were used exclusively.

The explosion started at a point about 800 feet from the portal of the old mine on the main haulage road, and was caused by the derailment of loaded cars displacing some timber and thus relieving and setting in motion a shower of fine dust that had from time to time accumulated upon the timber and lagging above. The main haulage road, where the explosion started, is equipped with two tracks having a grade from 1½ to 2 per cent. in favor of the loads. A loaded trip consisting of 31 cars was found about 800 feet from the mouth of the mine. This trip had broken in two while on its way out. Attached to the motor were ten cars, all standing on the track intact, with the motor forced against fallen debris of rock and timber on the outward side. The front end of the second section, consisting of twenty-one cars, and which had broken away, was seventy feet further in; the two front cars were off the track and had been forced against the left side and thus knocked out three sets of timber, as stated above. When the trip broke in two, no doubt the two sections became separated for some distance and, as usual, the nipper, under such conditions, would signal the motorman to keep ahead so the cars could again come together gradually and thus avoid a crushing compact. Being on a grade, it is natural to believe the cars were traveling at a high rate of speed, and in the meantime the first two cars of the hind section became derailed, thus releasing the timber and precipitating the dust into the atmosphere. The displaced timber from which the electric trolley wire was suspended caused the wire to sag and come

into contact with the iron bar of the cars, creating a short-circuit and forming an arc, the flame or flash of which ignited the dust that was floating in the air.

The explosion from its point of origin could be easily traced to its terminations by the scattered timber and other material, also by the location of coke deposits and by the scouring of the ribs and coal slips along the entry. The course of the forces of the explosion, as indicated by the strewn timber and debris, shows that from the derailed section of loaded cars, one section of the flame traversed the main road to the surface. Another force started inward along the main haulage road to C-1 fan, wrecking it, and upon passing 3 and 4-S entry it stopped near C-1 parting, this section being wet and on the return air of the mine. It turned to the right at the 3 and 4-S entries and continued along said entries to the new mine haulage road, following it to 8-south entry, and passed through the Stine fan, wrecking it and displacing the motor. It then turned to the right and continued up to J-7 and 8 entries, where the first eleven bodies were found, then going left along 8-south entry and stopped for want of fuel upon getting into the H-entries.

Immediately after the explosion, word was sent throughout the State of the disaster; the Colorado Fuel & Iron Company summoned all the superintendents of its various mines to hasten to the rescue of the men entombed. Chief Inspector J. D. Jones and his two assistants responded to the call as soon as notified.

As soon as the ventilating current was re-established by installing a 7-foot Stine fan at the entrance of the air course to the new mine, a conference was held by the officials of the company and the State Inspectors, and the result was that the force present was divided into three parties or shifts, and each was accompanied by three or more helmet men. The work of recovering the bodies of the men was slow and hazardous, owing to the workings being filled with the deadly afterdamp. Too much praise cannot be given to the men who so diligently carried on the work to recover bodies.

In J-7 eleven bodies were recovered in the rooms and it was shown plainly that they were burned by the intense heat and killed outright. These rooms showed thick deposits of coke on timber and cars. With the exception of two, all of those found in the H-1½ and 9-south died from suffocation, due to afterdamp, also all of the men working in the K-entries. Nearly all those found in the K-entries walked back to the Cabin parting, a distance of about 1,000 feet from their working places. The timber supporting the main entry stood intact the entire length of the said loaded trip, but the entry was completely demolished from there inward and outward, showing plainly that the point where the explosion originated acted as a cushion for the forces going in the different directions.

It was purely a dust explosion and without any assistance, as far as I am able to determine, from firedamp. The initial point being about 800 feet from the mouth of the mine indicates that it started at least one and a half miles from the nearest working place. This disaster probably could have been avoided if the timber and sides of the haulage roads had been kept free from dust accumulations, and it is an absolute proof that the mere sprinkling of the road beds will not suffice.

(Signed) FRANK N. OBERDING,
Deputy State Coal Mine Inspector.