

REPORT ON THE EXPLOSION IN NO. 4 MINE,
PITTSBURGH TERMINAL COAL CORPORATION,
Herning, Pennsylvania,
February 3, 1926.

By

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By H. O. Howarth.

GENERAL STATEMENT:

At 3:55 p.m. February 3, 1926, an explosion took place in the No. 4 mine of the Pittsburgh Terminal Coal Corporation at Horning, Pennsylvania. Of the 20 employees killed, one probably met death by violence, two were suffocated by afterdamp and 17 were in the flame zone of the explosion. Seven officials, including the general superintendent, lost their lives in the explosion which was the outcome of a fire that was being sealed off. The fire resulted from an attempt to operate a shortwall coal cutting machine equipped with an open type controller box after a clay vein had been cut, liberating explosive gas.

Two machine men working in an adjoining section of the mine had a narrow escape from being trapped by afterdamp.

There were none injured either by the explosion or by an ignition of gas which produced a very strong air blast when the first recovery party was building a temporary stopping at the mouth of 14 butt. This took place about eight hours after the first explosion. There were 7 Bureau representatives in the party at the time. Some of them were the first persons to arrive at the mine after the explosion.

Twelve Bureau representatives took an active part in controlling the fire and recovering 17 bodies, the last of which was recovered at 11:30 p.m. February 16. When the sealed area was finally opened and ventilated on March 13, three Bureau representatives were present and assisted. Car Holmes of the Bureau arrived at the mine at 10:00 a.m. February 4, and was stationed at the mine for a period of about two weeks being used as sleeping quarters and a laboratory for analysing the gas samples which were taken at regular intervals to serve as a means of foretelling the condition of the fire. Analyses of gas samples are given in Table I at the end of this report. The

GENERAL INFORMATION:

The mine is working the Pittsburgh bed of coal and is located on the Pittsburgh & West Virginia Railroad, formerly the West Side Belt Railroad, at Horning, Baldwin Township, Allegheny County, Pa., about 12 miles from the Pittsburgh Station of the Bureau and two miles from the Experimental Mine.

OWNERSHIP AND OPERATORS:

The No. 4 mine at Horning is one of seven mines in Allegheny and Washington Counties, Pennsylvania, owned and operated by the Pittsburgh Terminal Coal Corporation. The general offices of the company are in the Wabash Building, Pittsburgh, Pa. The officers of the company are: C. E. Tuttle, president; Geo. F. Osler, vice president and general manager; A. J. Apple, secretary; E. C. McKibbins, treasurer.

Joseph Treverrow, superintendent of No. 4 mine, had been transferred to No. 9 mine three days before the explosion and was again

placed in charge of No. 4 mine after the explosion. George Travis, mine foreman, was promoted to superintendent and Lawrence Loadman was appointed mine foreman to fill the vacancy made by the promotion of Travis. Both these men with H. M. Ernst, general superintendent, were killed in the explosion.

The mine has been in operation about 25 years and has always been considered more or less gassy, but has never had an explosion until this one. About 10 days or two weeks prior to this explosion six men were burned, not seriously, in No. 3 mine at a point about 2500 feet from where the fire occurred in No. 4 mine. About 6 or 7 years ago there was a very violent explosion in No. 3 mine at a time when there were no men in the mine, resulting in considerable damage but no loss of life.

DEVELOPMENT AND SYSTEM OF WORKING:

Including the shafts of the abandoned No. 5 mine, there are 5 shafts connected with No. 4 mine. The hoisting shaft is 180 feet deep and is equipped with self-dumping cages. The tibble is equipped

to prepare coal of various sizes and has a capacity of about 4500 tons per day, the average daily output being about 3700 tons.

The surface plant consists of a blacksmith shop, carpenter shop, supply house and a central power plant, the power plant furnishing power to a number of the company's mines and also to the Wabash Building in Pittsburgh.

The coal is of firm texture and does not spall off the ribs to any great extent. The roof condition in this mine is excellent, especially in the section where the explosion occurred. Immediately under the roof which is a poor grade of coal, there is a layer of hard shale, termed draw slate in the Pittsburgh district. This draw slate has an average thickness of about 12 inches, and is taken down in the operation of recovering the coal. The floor consists of layers of shale and hard fire clay.

In general the mine is dry, notwithstanding the fact that large quantities of water are pumped to the surface by electric-driven pumps. Most of the water finds its way into the mine where the removal

of the coal has caused subsidence of the surface.

Gas is given off in considerable quantities in different parts of the mine, especially in entries being driven into virgin coal or where clay veins are being encountered, also on some of the roof falls where pillars are being drawn. A ventilating current of about 250,000 cu. ft. per minute under a pressure of 3 inches of water column is produced by an exhaust fan. The mine is divided into 8 ventilation districts or splits. The air is conducted to the working face by means of stoppings and overcasts built of masonry or concrete, and doors are so arranged that the opening of any one door will not seriously affect the flow of air. Brattice cloth is used for deflecting the air into rooms and pillar workings and conducting air to the face of entries.

The mine is developed on a room and pillar system, the room entries being divided into sections about 1500 feet long by face entries or cross entries flanked on both sides by 100-foot barrier pillars. Entries are on 50-foot centers and are about 10 feet wide. Rooms are turned on 39-foot centers and are 21 to 25 feet wide. In the rooms the

roof is supported by single props spaced about 4 feet apart. In the entries little or no timber is used and is only placed where local conditions require it. Figure 1 is a plan of the part of the mine affected by the explosion.

Between 450 and 550 men are employed underground on the day turn and about 50 on the night turn. Edison electric cap lamps are used for lighting. The mine is electrically equipped and 5 open type breast machines and 18 short wall machines with enclosed motors and open type control boxes are used for cutting the coal. The mine track is 44 inch gauge. On the main hauling road 60 lb. per yard tee iron, laid on wooden ties, ballasted with mine refuse consisting of coal and slate is used. The track in room entries is 20 to 30 pound per yard tee iron laid on wooden ties and ballasted as on main hauling roads, and in the rooms, light tee iron laid with steel ties is used. Coal is gathered to the mouth of room entries by horses and mules and hauled to the hoisting shaft by trolley type locomotives.

About December 1, 1925, blasting with black powder was re-

placed with permissible explosives. A few of the men may have still been using black powder at the time of the explosion, as a number of partly filled 5-pound powder cans were found by exploring parties. The firing of shots was under the supervision of an assistant to the foreman and was done by individuals selected from among the men working in each section or entry.

The main hauling roads had been rock dusted to the ends of the trolley wire or as far as the rock dust distributor could be taken by a trolley locomotive, the type of machine used being the Legrabon rock dust distributor developed by the Pittsburgh Coal Co. and manufactured by the Diamond Machine Co., Monongahela, Pa. No regularly installed fire protection was provided in the mine, but it was a standing rule of the management that spars or clayveins should not be cut except in the presence and under the supervision of the assistant mine foreman or fire boss in charge of the section or some other official authorized to supervise the cutting of such places.

STORY OF THE FIRE AND EXPLOSION:

At about 10 a.m. on the day of the explosion, a clay vein about 12 inches thick was being cut at the face of No. 16 butt right off No. 9 south face. The machine was a Sullivan CE7 shortwall type. The entry had been standing idle on account of this clay vein until a outthruough 50 feet back from the face was driven through to No. 15 butt. It appears that the machine had about completed the cut when there was a sudden increase in the flow of gas from the undercut. The assistant foreman supervising the cutting gave orders that the machine be stopped and after placing a piece of brattice cloth over the controller box, presumably to prevent ignition of the gas, attempted to back the machine from under the cut by power. The position of the machine and the position of the control levers indicated that the machine had moved out from under the cut a short distance when the gas was ignited. Flame from the ignited gas extended through the outthruough, 50 feet from the face, to No. 15 butt but none of the men were burned. The gas feeder at the face of 16 butt continued to burn and all the men

working in 5 pairs of room entries or the whole 4th section were ordered out of the mine. In early attempts to extinguish the fire, charges of permissible explosives were fired in the open nearby, supposedly expecting that the concussion would extinguish the gas flame. After trying to beat the gas flame out with wet brattice cloth and fighting the fire by direct means for several hours the officials decided to seal off the entries with brick stoppings, when it appeared that the fire was gaining headway. The location of these stoppings is given in Figure III. This version of the fire and early attempts to extinguish it is taken from testimony at the Coroner's inquest and told by the loader (miner) who worked in 16 butt and other persons present before the fire had gained much headway.

When the general manager, Mr. Osler, left the scene of the fire about 3:25 p.m. a brick wall had been laid up dry and plastered on the outside and a second wall set in cement mortar was under way. These were on 16 butt and had a pipe and valve placed near the center for relief of pressure. At this time a dry wall on 15 butt was about

was laid up and the work was progressing in a satisfactory manner,
a canvas brattice having been previously placed in by.

The assistant foreman from No. 3 section and two or three
other men who had delivered brick, water, sand and cement at the mouth
of 15 butt went to the scene of the fire after Mr. Osler left, and
state that progress was being made and that enough supplies were on hand
to complete the stoppings when they left. These men say that they were
in a man trip at a point about 4500 feet from the fire when they felt
a slight disturbance of the air. In this man trip there were about
60 men and various estimates place the number of men in the mine at the
time of the explosion as being between 300 and 400. There also were
a number of men in No. 3 mine which adjoins and has connection with No.
4 mine through a pair of butt entries in the section where the explo-
sion occurred. This pair of butt entries also has direct connection
with a large area air shaft. Both mines, except the 4th section in
No. 4 mine, were in operation all day, but all the men with the possible
exception of three or four had left their working places and were either

out of the mine or on the way out at the time the explosion occurred.

The fire bosses' report for the examination made prior to the men entering the mine the morning of the day on which the explosion occurred, shows that there was no gas at the face of 15 butt or any other place in 15 and 16 butts, but that gas was liberating at the face of No. 9 face entry.

Some of the men, including the assistant mine foreman who had delivered supplies, just prior to the explosion, went back to the 4th section as soon as they had delivered the man trip at the shaft bottom. These men had recovered 3 bodies just inby No. 10 butt right on 8 face and had been as far as 12 butt right when Matthew Blair, superintendent of Terminal No. 8 mine, and the writer, arrived at the intersection of 8 butt and 8 face. The advance into the 4th section to this time had been made without any attempt to replace damaged doors at the entrance to 7 butt and 9 butt. Temporary repairs had been made to these doors, all stoppings to the right and left of 8 face examined and preparations were being made to build the first temporary stopping in

7 face outby the damaged overcast when Mr. Osler, general manager of the Pittsburgh Terminal Coal Co., arrived with D. J. Parker and George S. McGee of the Bureau of Mines, George Deike and J. T. Ryan of the Mine Safety Appliances Co., and others. The stopping referred to above, a temporary stopping on 7 face just outby 15 butt off 3rd section, one in the mouth of 13 butt right air lock entry and one in the mouth of 13 butt right were built and a temporary stopping was being started in the mouth of 14 butt when the second explosion occurred. As a result of this second explosion it was decided that the 4th section should be sealed off with brick stoppings placed just inby 14 butt right to prevent air reaching the fire which manifestly was still burning. Temporary brattice cloth and wood stoppings were built by men wearing breathing apparatus and then brick stoppings set in cement mortar were built outby the wooden stoppings. The enclosed area consisted of 3 parallel face entries 1100 feet long and a pair of butt entries 500 feet long, from one of which 7 rooms had been driven a short distance.

In this enclosed area there were 17 bodies, of which one had been located. Figure II shows the location of the seals and the air lock and gives the proposed schedule for advancing as soon as the oxygen content within the sealed area had been reduced to 4 per cent. This was the amount agreed upon in a conference at which were present J. J. Walsh, Secretary of the Dept. of Mines of Pennsylvania; State Inspectors, officials of the Coal Company, representatives of the Bureau of Mines and others. It was at the same or a similar conference that the schedule of advance referred to above was drawn.

Table I gives the analyses of all gas samples collected in connection with the recovery work.

Figure III was prepared by the engineering department of the Coal Company and shows the manner in which fresh air was advanced and the bodies recovered, also the date and location where bodies were found and the names and occupation of the men killed.

All of the area enclosed by the original seals at 14 butt was explored in short stages by men wearing Gibbs type breathing apparatus.

In all there were about 80 sets of breathing apparatus; also a large number of All-Service gas masks which were used by men working at the air locks.

ALLEGED CAUSES AND CURRENT THEORIES:

The explosion was a direct result of the fire at the face of No. 16 butt but the exact manner in which it started is not known. The prevailing theory is that the stoppings for sealing the fire were being built too close to the fire to allow room for expansion and for the accumulation of gas issuing from the clay vein, the result being that an explosive mixture formed and was ignited by the fire.

A second theory is that the stepping in 15 butt collapsed due to snow and ice melting from the brick which were brought from the outside or that a support was accidentally or otherwise removed from under the outer end of the relief pipe in the 16 butt stepping causing it to collapse. Either one of these would allow air to rush into the partially enclosed area forming an explosive mixture of gas and air which was ignited by the fire. It is also possible that a fall of roof

coal over the burning area may have thrown up a cloud of dust which was ignited by the fire giving an extension of flame that was propagated by additional dust raised along the entries.

STATE MINE INSPECTORS' REPORT:

A commission of State Mine Inspectors consisting of John I. Pratt, *Chas. P. Baker* and Alexander McCannoh in their report say that the most likely source of ignition of the fire which afterward initiated the explosion was the starting box of the cutting machine; that coal dust must have propagated the explosion beyond the limits of the gas explosion which originated at the face of 16 butt, and that gas may have accumulated at the face of 9 face entry and assisted in the propagation. The commission is further of the opinion that rock dust was a big factor in checking the flame. A copy of the commission's report is appended as *Exhibit E*.

CORONER'S INQUEST AND VERDICT:

The inquest was held in Pittsburgh, Pa., March 11, by W. J. McGregor, Coroner of Allegheny County. The jury's verdict was that

H. M. Ernst and 19 others met death "through an explosion, the cause of which was undetermined".

At the inquest Rudolph Valentine gave testimony to the effect that he was employed as a coal loader in the 15 right butt entry in the Horning No. 4 mine; that he was present at the time the coal cutting machine cut into a gas feeder in 16 butt right; and that the assistant mine foreman who was present sent his buddy back to secure a piece of brattice cloth which was brought to him and which the assistant mine foreman wrapped around the starting box of the machine. Rudolph Valentine called to the assistant mine foreman not to turn on the power or he would start a fire but when he saw the assistant mine foreman take hold of the lever he began to retreat and stoop down so in case the gas was ignited it would not burn him. He saw the gas ignited in the vicinity of the starting box and later the gas feeder; coming from the undercut on the left side of the entry the flame blew like a blow-torch flame.

The above statement was confirmed by Mr. Frank Demshar,

buddy of Rudolph Valentine, who had brought the piece of canvas for the assistant mine foreman.

These two coal loaders remained some time at the scene of the fire and when they found that there was no probability of the places being undercut so they might have coal to load, they left the mine and were out of it at the time of the explosion.

The most important part of the testimony given at the inquest is published in Coal Age, page 408-9, vol. 29, No. 11, March 18, 1926, a photostat copy of which is attached as *Exhibit II*.

NOTES OF EVIDENCE:

The following notes were obtained by H. G. Howarth from time to time while the recovery work was in progress, and extending to the final opening of 15 and 16 butts which were sealed on account of the fire.

D. J. Parker, Geo. S. McGee and other Bureau representatives assisting with the recovery work and the officials of the company assisted freely in studying the evidence. The evidence as given in

the following is in progression from the fire at the face of 16 butt to the outermost extreme of violence, coking and flame.

Extent of Fire:

There is no evidence that the fire which caused the explosion extended any farther than the first outthrust or 50 feet from the face of 16 butt. The coal ribs were not burned to any great depth, possibly 3' to 6". There was about 15 inches of roof coal down, practically all of which had fallen before the fire was extinguished. This conclusion is based on the fact that particles of coal were charred or coked in place on the entire under side of the roof after the 15-inch layer had fallen.

Ventilation was established in 15 and 16 butts on March 13, 1926, 38 days after the explosion or 26 days after the seals had been placed in the mouth of these entries. Two days prior to opening the sealed area gas samples taken through a pipe in the 16 butt stepping indicated that there was no fire. (See sample No. 35, Table 1.) An inspection of the sealed area was made by three crews of men wearing

breathing apparatus before any attempt was made to remove the gas.

Gas sample No. 36 was taken near No. 3 room on 15 butt and sample No.

37 was taken at the face of No. 16 butt. The temperature of the air

at No. 3 room and the temperature of the burned material on the floor

at the face of No. 16 butt was recorded by means of maximum and minimum

recording thermometers. The temperature at both places was 61.4° F.

There being no evidence of fire when this inspection was made, the

gas was removed and ventilation established as quickly as possible.

The work was completed in about 3-1/2 hours.

Extent of Explosion:

The part of the mine through which the explosion propagated is shown in Figure 1 and consists of the pair of butt entries in which the explosion started, an adjoining pair of butts and the face entries from which they are turned. About 1/8 of the total output of the mine was produced in this section.

Violence: Manifestation of violence was found mostly in blown out stoppings. A number of cars were derailed, but none of them

were badly damaged. The direction of major forces is shown by arrows in Figure I and details are given in the following:

The stopping built at a point about 100 feet from the face of 16 butt was blown outby and brick scattered along the floor for about 20 feet. All of the bodies found in this entry were at the points where they may have been expected to be working. A water box and supply cars on 16 butt at the chute nearest the face were not disturbed. The stopping in 15 butt at a point about 100 feet from the face just toppled over outby. The greater part of the brick were within 10 feet and had the appearance of having fallen from a wall that had been built almost to the roof. The position of the bodies of the men working on this stopping was such that it might be supposed that they had some warning of impending danger. A brick and tile stopping in the outthorough between 15 and 16 butts at No. 2 room was blown, with some violence, toward 15 butt, some of the brick being crushed against the north rib between No. 2 and No. 3 room. At the time when these brick were thrown across 15 butt the force of the explosion was traveling outby in 15

butt as there were no brick inby the outthrough and a few were carried outby as far as No. 2 room. The door in the first chute, between 15 butt and 16 butt just off 9 face, was blown toward 16 butt and there was a large amount of dust piled against the 16 butt side of the part of the door frame that was left standing. This door apparently had been blown open without damage by the explosion traveling out 16 butt and was then forced through the frame and torn from the hinge post by detonation waves. There was no disturbance in any of the rooms in 15 butt. The door between 8 and 9 face in 15 butt chute was blown toward 9 face, a part of it being found on 9 face 50 feet outby 15 butt. The brick stepping on 9 face between 15 and 16 butt was blown toward 14 butt, the brick being scattered down 9 face for a distance of about 200 feet. The stoppings in the outthroughs between 9 face and 8 face from 16 butt inby were blown toward 8 face, most of the brick being found in the outthroughs. The door in the chute from 8 face to 9 face at 17 butt was blown toward 9 face, probably by detonation waves. A shortwall machine on a truck in the mouth of 17 butt was lifted off the track

toward the face of 9 face; the track at this point was also moved toward the face of 9 face; 17 and 18 butts had just been turned and were in about 20 feet from 9 face. The only evidence of force in 5 face and 7 face from the faces to 15 butt was small piles of dust at the outby corners of the cutthroughs deposited by the outgoing blast in these entries.

By inquiry it has been definitely established that about 15 minutes before the explosion there were six cars of supplies (sand, brick and cement, also oxygen tanks) and an 8 or 10-ton trolley type locomotive parked on 8 face just inby 15 butt chute and a box of water and 3 or 4 cars of supplies just outby the chute. The track switch was last turned for 15 butt to get an empty car out of the chute. Andrew Smith, fire boss, was on guard at the entrance to 15 butt chute. After the explosion the first six cars referred to above were found as follows: Numbered beginning at the inby end, the first was off the track to the right; No. 2 off the track to the left; No. 3 back wheels off the track to the left; No. 4 back wheels off to the right and the

endgate turned back; No. 5 off the track to the right, and No. 6 off the track to the right with the front end against the northeast corner of the cutthrough to 7 face just outby No. 15 butt chute. The endgate of No. 5 car was resting on top of car No. 6 and the endgate of car No. 6 was turned back. These cars had been moved a distance of about 50 feet and the material in the cars was jammed toward the front end, indicating that the cars had come to a stop suddenly. The electric locomotive was found off the track to the right, having been moved outby about 90 feet. The brake was set tight, the reverse lever set to run toward the face and the controller about on the first point. The controller lever had been struck by something that knocked the wood handle off and the trolley pole was broken in two. Part of the sheet iron top of the locomotive was found 25 feet outby the motor and another part was found about 500 feet outby. The box of water and the 3 or 4 cars of supplies that were just outby 15 butt before the explosion were found just outby 13 butt, having been moved a distance of about 500 feet without going off the track.

The brick stoppings in the outthrougs from 8 face to 9 face between 15 butt and 14 butt were blown toward 8 face. The stoppings in 15 and 16 butts, 3rd section between 7 face and the last rooms were blown down 15 and 16 butts toward 6 face with considerable force. Brick from these stoppings were found 150 feet down the entry. The track rails extending from the frog into the rooms were torn loose at the first 7 or 8 rooms in 15 butt.

There was more evidence of violence in 13 and 14 butts off 9 face than in any other part of the mine. The brick stoppings on 9 face between 14 and 13 butt and between 13 butt and the air lock entry parallel to 13 butt were blown outby in 9 face and were scattered for a distance of about 250 feet. The stoppings in all the outthrougs between 13 butt and 14 butt were blown into 13 butt. The door in the chute at No. 9 room was blown toward 14 butt as was the door in the chute at 25 room. The track in the outthrough nearest the face and in 13 butt near the last outthrough was disarranged, the direction of force being toward 14 butt and out 13 butt. An empty car was found crosswise

of 13 butt opposite the room neck just outby the last cutthrough. A loaded car was forced out of No. 17 room neck and turned on its side just inby No. 15 room with the bottom of the car toward the face of the entry. At other points where loaded cars were left in the mouth of the rooms in 13 butt, the coal was blown off the top of the car toward the entry. About 90% of the props in the rooms were blown out and toward the mouth of the rooms. A great many of the tools including picks and shovels were seen with broken handles. Nine empty cars were jammed into the space of 3 car lengths on 14 butt at a point 75 feet from 9 face where the track curved into the chute leading from 14 to 13 butt. All the stoppings between 8 face and 9 face from 13 butt to 12 butt were blown toward 8 face. The top of the overcast across 8 face 100 feet inby 12 butt was lifted and carried toward 7 face. A brick stopping in 9 face about 75 feet inby 12 butt was blown out and the brick carried to 11 butt where they were deposited under 3 cars which were turned over on their side, blocking 9 face. These 3 cars were part of a trip of 10 loaded cars which extended across 9 face on

11 butt. The slide door and part of the frame were blown outby in a stopping on 7 face just inby the cutthrough connecting the above mentioned overcast with 7 face.

The stoppings between 11 and 12 butts in the cutthroughs at 12, 23 and 26 rooms were blown toward 11 butt with but very little violence. There was no violence in the rooms on this entry.

The doors at the entrance to 9 and 10 butts was blown inby as was the door at the entrance to 7 and 8 butts. The roof and ribs in 8 face and the 8 butt hauling road which had been rockdusted were blackened with coal dust to a point about 200 feet outby 8 face. A trip of about 6 or 10 empty cars and a small trolley type locomotive which were on the side track in 8 butt just outby the 4th section were given a start by the explosion that sent them down the grade to a point outby the 3rd section, a distance of about 1500 feet.

Coke deposits and other evidence of heat: Coke was deposited all the way down 16 butt from the seat of the fire to 9 face, the deposits being slightly less on inby exposures than on outby exposures.

In the chutes and outthrougns from 16 butt to 15 butt the coke deposits were on exposures facing 15 butt. The only evidence of heat in 15 butt from the face of 15 butt to No. 7 room was some scorched brattice cloth and scorched newspaper and bright places left on the ribs where chips of coal had spalled off. There were no deposits of coke in 15 butt from the face to just outby No. 7 room where coke deposits were found near the floor on exposures facing outby. From this point to the mouth of the entry coke had been deposited on the ribs and it was observed that the distance from the floor to the top edge of the deposit increased until at No. 3 room coke extended from the floor to the roof. It appears possible that the coal dust cloud began to form at about No. 7 room and ignition of the dust may have taken place along the line described above. The deposits were thickest on the inby corner of the room necks, but in no case did coke extend more than 5 to 10 feet in the room neck. Evidence of heat could be traced in the rooms by bright spots on the ribs where chips of coal had spalled off. There was a decrease in the spalling as the face of the rooms was approached.

and it extended a greater distance (nearer to the face) in No. 2 room than in No. 7. The distance from the face to the end of the spalling was greater in each room from No. 2 toward No. 7.

On the left rib of No. 1 room opposite the air lock entry there was a very heavy deposit of coke. This extended from top to bottom and was about six feet wide; the thickness at the center of the deposit was 2-3/4 inches. Masses of coke were deposited on exposures facing outby in the air lock entry parallel to 15 butt all the way from No. 1 room to No. 9 face.

In 9 face entry near the face, the coke deposits were very heavy and on all exposures. Between 17 and 16 butt the deposits were on the exposures facing inby and from 16 butt to about 200 feet inby 12 butt the deposits were on exposures facing outby and were light compared with the deposits inby 16 butt. In the bleeder rooms off 9 face between 12 and 13 butts, and between 14 and 15 butts, the coke deposits were very heavy and were found on all surfaces. Coke deposits in 8 face extended from the face to a point about 350 feet inby 12 butt and

were on exposures facing outby except near the face where they were found on all surfaces. In 7 face the deposits extended from the face to a point 175 feet inby the point where 16 butt 3rd section intersects 7 face. These deposits were on exposures facing outby except near the face where they were on all surfaces as in 8 and 9 faces.

In 7 face small chips of coal had spalled off the ribs giving evidence of heat 100 feet beyond the end of the coke deposits. There was no evidence of heat beyond the coke deposits in 8 face and 9 face.

In 13 and 14 butt entries and in the rooms off 13 butt, there was a large quantity of coke. In most places the deposits were on both inby and outby exposures extending within a few feet of the faces of rooms and both entries. In 17 room neck about 15 feet off 13 butt a box containing about 10 sticks of Union H.L.F. explosive was found. The box was in a niche in the rib and was broken by debris. Part of one of the sticks of explosive was missing and probably had burned up as the remaining part consisted of about 1/3 of a stick and

the edges of the wrapper were charred. In No. 12 room opposite a outthrough to No. 13 room there was an unusually heavy deposit of coke on the west rib. This was about 2 inches thick and about 4 feet square.

Dust and gas: In the section of the mine affected by the explosion the hauling roads were well cleaned and no unusual amount of dust was present. The dust in 15 and 16 butts and the rooms off 15 butt was rather damp and was not readily blown into suspension. In 13 and 14 butts and the rooms off 13 butt there was considerable dry dust which was easily blown into suspension. The hauling road had been rock dusted to the end of the trolley wire 3 or 4 days before the explosion occurred. In 8 face the trolley wire ended about 600 feet from the face or at a point less than 50 feet beyond the chute to 15 butt, and in 13 and 15 butts the trolley wire extended less than 100 feet beyond 9 face. A Legrabon rock dust distributor is used and apparently makes a good job of rock dusting.

Owing to the fact that 7, 8 and 9 face entries were rock-

dusted by hand just after the bulkheads were built inby 14 butt, satisfactory dust samples could not be obtained at the outby limits of the flame area except on 8 face between 12 butt and the overcast 100 feet inby 12 butt where a sample was taken from the roof and one from the ribs, and from the roof and ribs in 15 and 16 butts 5rd section just off 7 face. The dust collected was deposited on exposures facing inby, by air waves in advance of the explosion and the analysis should give some idea of the kind of dust that had been thrown into suspension by the explosion. Analysis of these samples is given in Table II. Gas was issuing freely from a clay vein that was exposed at the face of 16 butt and also at the face of 9 face entry. A line drawn through the points where this clay vein was exposed would pass within 250 feet of the Philadelphia Company gas well No. 295 and it was thought that gas might be escaping from the well through the clay vein into the mine. The analyses of gas samples given in Table I show that there was no ethane in the samples collected. Furthermore the well was plugged in the year 1916 as shown by *Exhibit III*, a copy of the gas

company's record of the well. After ventilation was established and at a time when there was about 12000 cu. ft. of air in circulation gas could not be found with a safety lamp in the return from these places. In another split of air in 16 butt, 3rd section, the air was carrying gas that gave a cap estimated as being about 0.8 per cent.

Location of bodies and nature of injury causing death: The location where the bodies were found is given in Figure III which also gives the names and occupation of the men killed. The first three bodies were found on 8 face hauling road just inby 9 and 10 butts. No. 1 body was found face down with the head toward the hoisting shaft. No. 2 was in a manhole face up with the head toward the face of the entry. There were no major injuries on these bodies and they probably were overcome by afterdamp. No. 3 body was found in a mutilated condition, stripped of shoes and clothing and doubled with the feet and head toward the hoisting shaft. An arm was found 15 feet inby the body and the clothing was found 15 feet outby. A safety lamp carried by this man was found broken in pieces about 100 feet outby. No. 4 body was

found on 8 face about 300 feet outby the chute to 15 butt where he had been on guard and had the appearance of having been rolled a considerable distance. A shoe was found 10 feet inby the body and a safety lamp was 50 feet outby. This body as well as the other 16, was in the flame area. With the exception of No. 20, none of the 16 had major injuries. The undertaker stated that the hands of No. 20 had the appearance of having been burned off. It is possible that the mutilation may have been caused by the fall of slate under which the body was found, or it may have been the result of floundering about as the body was found at the face of a room where it is barely possible that the flame of the explosion did not penetrate. Bodies 17, 18 and 19 were found in a heap as though the first had stumbled and the other two had fallen over the first as they tried to escape. It appears that all the other bodies were at about the locations where they are supposed to have been working except No. 7. This man may have run from about the center of the chute toward 16 butt.

SUMMARY OF EVIDENCE:

There appears to be no doubt that the explosion started at the fire at the face of 16 butt, but there is no means of determining the exact manner in which it originated. It may be surmised that a large portion of the top coal that was down in the fire area fell in a broken mass and created a disturbance that caused the dry brick wall, being built on 15 butt, to topple over allowing sufficient air to rush into the fire area to start the explosion or the above wall may have collapsed without the aid of any disturbance but with the same result. Whatever the manner was in which the explosion started, the position of the bodies of the men working on the stoppings was such as to indicate that the men on 15 butt had sufficient warning to allow them to make an effort to get away while the men on 16 butt showed no signs of having any warning.

Deposits of coke throughout the section which the flames of the explosion traveled is conclusive evidence that propagation was the result of coal dust. Propagation down 15 butt and along 9 face to 14

butt may have been aided by the presence of a small percentage (1% or less) of methane in the air current as this was the course of the return from the fire zone. The retarding influence of the limestone dust on 8 face hauling road would be all the more effective on account of being dry and in air not contaminated with methane.

It is very evident from the lack of violence in 15 and 16 butts that in the early stages propagation was very slow, and while there were no exceedingly violent spots in the explosion, the points of greatest violence were not near the origin but in 13 butt and at the face of the face entries, the points most distant from the origin.

Lessons to be Learned in Preventing Repetition:

1. An explosion proof coal cutting machine in proper working order would have prevented ignition of the gas by electric spark or arc.
2. By exercising better judgment the men in charge of the machine could have prevented ignition of the gas had they disconnected the power cables in accordance with rules and regulations.

3. In view of the fact that the clay vein had been exposed by a previous cut, compliance with the requirement that a hole be drilled in advance of the undercutting would have given knowledge of the presence of gas.

4. With adequate fire fighting equipment available it would no doubt have been possible to extinguish the fire and this may have been accomplished by the use of a liberal application of sand or limestone dust both of which were available.

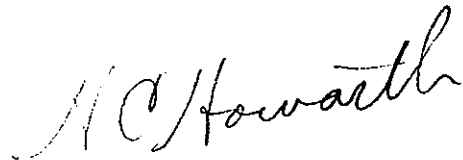
5. There has been more or less criticism of the location and manner in which the stoppings were being built to seal the fire, but it would have been possible for a fall, such as was described under the heading "Summary of Evidence", to disarrange or cause the collapse of a stopping under other methods or conditions.

6. In view of the fact that propagation of the original impulse of the explosion was of a very weak nature, experiments made in the Experimental Mine justify the statement that the application of rock dust or limestone dust, in such quantities and in the manner

recommended by engineers of the Bureau of Mines, from the working face to the mouth of the entries, would have resulted in the saving of 5 more lives, if not all of those who were killed.

7. While the application of water to the cutting bar of the machine may not have any direct effect on preventing ignition of gas under the circumstances of this case, water piped to the working face under such pressure as would be desirable for application to the cutting bar could no doubt have been used to extinguish the fire.

8. The practice of firing charges of explosives in the open at points near burning gas feeders is a very dangerous one because of the possibility of creating a dust cloud that might be ignited.



H. C. Howarth.

Approved:



Chief of Coal Mining
Investigations.

TABLE II.

AS RECEIVED ANALYSIS OF TEST SAMPLES OBTAINED IN PYRETHROID TREATMENT

COAL CORPORATION, NO. 4 NINE, NEWBINE, PA.

AFTER THE EXPLOSION FEB. 3, 1926.

Lab. No.	Date collected.	Analysis					Size					Location from which sample was collected.
		Moisture.	Ash	Carbon dioxide	Combustible.	Incombustible.	On 20-mesh rejected.	Per cent through	20	40	60	
A 1958 ¹	2/9	1.7	27.3	2.5	65.5	31.5	6.7	100	84.8	71.8	85.5	From ribs on S face - 12 Butts lady 100 feet.
A 1958 ²	2/9	1.2	24.5	2.1	72.2	27.8	1.8	100	96.4	91.0	81.8	From roof on S face - 12 Butts lady 100 feet.
A 19701	2/23	12.0	21.7	1.1	65.2	34.8	8.3	100	79.4	55.9	34.0	From roof and ribs - 15 Butts 2nd Section from rooms 1 to 6
A 19702	2/23	13.2	22.1	0.7	64.0	36.0	11.5	100	75.4	59.7	30.3	From roof and ribs - 16 Butts 3rd Section from rooms 74 to 364

* These rooms are at the end of 15 and 16 butts nearest 7 face.

Exhibit No. 1. Report of State Mine Inspectors.

Pittsburgh, Pa., February 22nd, 1926.

Mr. Joseph J. Walsh,

Secretary of Mines,

Harrisburg, Penn'a.

Dear Sir;

We regret deeply to report officially the occurrence of a mine explosion on February 3rd, 1926, at 3:55 o'clock p.m. in No. 4 mine of the Pittsburgh Terminal Coal Corporation, being a shaft operation in the Pittsburgh Coal Seam situated at Horning in Baldwin Township, Allegheny County, Pennsylvania, in which twenty (20) lives were lost, many of them being mine officials.

It appears that about 9:30 o'clock a.m. a fire occurred at the face of No. 16 butt entry right on No. 9 face South, being in No. 4 section south, while a mining machine was undercutting the face of the entry. It also appears highly probable from the evidence adduced and the conditions and circumstances surrounding the fire that a feeder of gas came in contact with an electric arc formed at the exposed electric starter serving the mining machine, although there could have been other electric sources about the mining machine or its trailing cable from which ignition could have occurred, and this in turn ignited the coal and combustible material on and possibly in the mining machine, hence a mine fire was initiated and in progress.

Various direct methods of extinguishment were pursued with

indifferent success until about 2:00 o'clock p.m., when conditions justified the conclusion that sealing off the fire area was the only wise solution, wherefore sealing operations were immediately commenced in No. 16 butt right entry on No. 9 face south by building a brick stopping, and almost simultaneously a 4-ply canvas stopping was erected in its companion entry, No. 15 butt right entry on No. 9 face south. As the masonry stopping in No. 16 butt entry right was reaching completion, being completed at the time of the explosion, a brick stopping was started in the companion entry just outside of the 4-ply canvas stopping heretofore mentioned, and was partly erected when an explosion occurred, in all probability, within the fairly well sealed fire zone, ejecting its flame and force into contiguous areas from which areas the explosion was propagated by coal dust and possibly a small amount of explosive gas accumulated in No. 9 face south, until all parts of No. 4 section south were involved by flame or force as well as Nos. 15 and 16 butt entries right on No. 3 section south.

While the explosion covered a considerable area of workings, yet a much larger area would have been effected, but for the fact that the form of the workings near the seat of the explosion and the area through which it later traveled furnished an excellent opportunity for expansion, thus lessening the heat and consequently the force, in conjunction with the quenching influence afforded by certain rock-dust-treated entries traversed.

Soon after the explosion, an organized and determined attempt was made to reach the entombed, but a second explosion which injured

no one seriously, but enveloped the rescuers in a more or less poisonous atmosphere, disorganized and discouraged this attempt, and compelled the sealing off of No. 4 section south, at a point just south of No. 14 butt entry right, until reasonably safe provisions could be made for recovery operations, which required a good deal of patient planning and labor, and many determinations of the character of the gaseous content within the sealed zone.

The initial step in recovering the sealed area as well as the entombed men was commenced on February 10th, 1926, at 2:45 o'clock a.m., and was continued incessantly with marked zeal and courage, until 11:00 o'clock p.m., February 15th, 1926, at which time the last body was recovered, and the sealed area completely retrieved, save a small area in the entries wherein the mine fire originated.

Practically all of the recovery work was done by men highly trained in the art of wearing and working in self-contained breathing apparatus under the leadership of experts in the same art as well as in the technique involved in hazardous mine recovery work, and the work was made exceedingly difficult by reason of the fact that it was necessary to advance and expell the poisonous gases without permitting the entry of fresh air through any of the seals, many of which seals were made necessary in reaching the objective.

Because of the large number of mine officials lost in this disaster there will always of necessity be some doubt about the conditions and circumstances surrounding this explosion, but the occurrence announces in unmistakable terms the great need of exclud-

as far as consistent with mine practice from dry and dusty mines that generate explosive gas either regularly or intermittently all sources that give rise to the ignition of gas or coal dust at the face of the workings; that, to make rock dusting so effective as to confine an inflammation within narrow limits, all avenues of escape from the face of the workings must be liberally and systematically rock dusted or otherwise rock dust treated and extended up close to the working faces and thereafter lengthened almost concurrently with the advance of the workings.

It is equally important from the view point of safety that all electrical equipment and material used in the mining of coal, which through defect or misuse may furnish a source for the ignition of gas or coal dust be placed in the hands of competent and authorized persons and carefully supervised by the mine management.

The map hereto attached or to be attached shows many particulars concerning the explosion and is intended on the whole to illuminate this report.

Respectfully submitted,

John I. Pratt
Mine Inspector for the 17th Bit. Dist.

Alexander McCamish
Mine Inspector for the 1st Bit. Dist.

Charles P. Byrn,
Mine Inspector for the 21st Bit. Dist.

Was Horning Explosion Caused by Switch Of Cutting Machine Igniting Gas?

The substance of the verdict returned by the jury at the Coroner's inquest of the disaster of Feb. 3 in the Horning mine of the Pittsburgh Terminal Coal Corporation, at Horning, Pa., was that the twenty victims met death "through an explosion the cause of which was undetermined." This verdict however, failed to record certain facts established by the testimony, the recital of which did not leave the causes entirely shrouded in doubt. This, in short, is what the witnesses set forth: At the time of the explosion the victims were engaged in putting the finishing touches to two seals, inby of which was a fire which had originated from the ignition by a cutting machine of a feeder of gas in a clay vein. The inquest was held in Pittsburgh on March 11 by W. J. McGregor, Coroner of Allegheny County.

The fire which caused the explosion was started about 10:30 a.m. at the face of Butt 16 in Sec. 4. Prior to the fire on Feb. 3, Joseph Mott, fireboss, made two inspections of the places on his run, which included Butt 16. He read his report for that day covering these inspections. No gas was detected at the face of this entry nor at the face of the companion entry. He did detect, however, slight traces of gas being emitted from a clay vein at the face of 9-Face South, one of three entries from which Butts 15 and 16 are turned. Mr. Mott said that he had noticed a portion of a clay vein in the lower left-hand corner of the face of Butt 16. This place had remained idle for about six weeks prior to Feb. 3 while a crosscut was being put through to Butt 15 at a point a short distance behind the faces of these entries.

Test Failed to Reveal Gas

Frank Demshar and Rudolph Valentine, loaders, had been engaged as buddies in advancing these entries. Mr. Demshar testified that he entered Butt 16 at 7 a.m. on Feb. 3, intending to resume the advance of this place, the required crosscut having been completed. He remained idle until about 10 a.m., when the cutters arrived accompanied by George Denard, assistant foreman. Mr. Denard tested for gas, and finding none, instructed the machine men to proceed with the cutting.

On being questioned by Inspector John I. Pratt, technical adviser for Coroner McGregor, Mr. Demshar said that a test hole was not drilled into the clay vein prior to the cutting operation. No gas emission was noticed until the cut had been completed to a point about 8 in. from the right-hand rib. Gas being discovered at this stage, Mr. Denard told the cutters to stop the machine and ordered Mr. Demshar to get a piece of canvas. This was wrapped about the starting box (open type) of the cutting machine, after which an attempt was made to back out the machine. A burst of flame followed, which was not of sufficient intensity to burn any of the men present.

Mr. Demshar, who at one time was a cutter, was positive that ignition origi-

inated in the starting box. He stated that he advised Mr. Denard not to attempt to move the machine in the presence of gas, but was told that the machine had to be removed. As attempts to beat out the flame entirely failed, Mr. Denard set off in the open one shot of permissible explosive 10 min. after the fire started and another 10 min. after the first. No reason for his act was revealed at the inquest. It must be inferred that he expected the concussive force of these blasts to extinguish the flame. Mr. Valentine, the second loader, substantiated the evidence given by his companion.

Two types of cutting machines (shortwall and breast) were in use in this mine, according to Herman Ludwig, machine boss. The motors on the shortwalls were inclosed, but those on the breast machines were open. On some of the shortwall machines were starters which, he aptly remarked, "were closed and safe when properly adjusted." The machine used for cutting the face of Butt 16 on Feb. 3 was a shortwall equipped with an open starting box.

Joseph Trevorow, who for 23 months ending Jan. 30 had been superintendent of the Horning mine and then had been transferred to another of the company's mines, explained that the workings of Butts 15 and 16 were ventilated by a split of 16,000 cu.ft. per minute. This air followed an inby course in Butt 16 and returned in Butt 15. The face of Butt 16 had been advanced to a point about 3,000 ft. from an airshaft and 9,000 ft. from the hoisting shaft. All workmen were equipped with electric cap lamps and the officials with flame safety lamps, some locked with keys and others magnetically.

At the time of his last inspection of the Horning mine as safety engineer, during the second week in January, G. W. Owing found conditions good. Haulways had been cleared of all debris in preparation for rock dusting, which had already been started. On no split did he find less than 12,000 cu.ft. of air at the last crosscut. Prior to

the explosion rock dust had been applied as far as the end of the trolley wire in the main haulway of Sec. 4 and had been extended 100 ft. into Butt 15. Inasmuch as the dusting machine is propelled by a trolley locomotive, rock dust could not be applied by this means beyond the limits of the trolley wires.

John I. Pratt, state mine inspector of the seventeenth bituminous district, inspected the Horning mine on Jan. 12, 13 and 14. At that time the fan was developing 236,000 cu.ft. of air per minute against a 35-in. water gage. He found at that time some gas in two places in Sec. 4; otherwise the mine was in good condition.

Efforts to Extinguish Fire

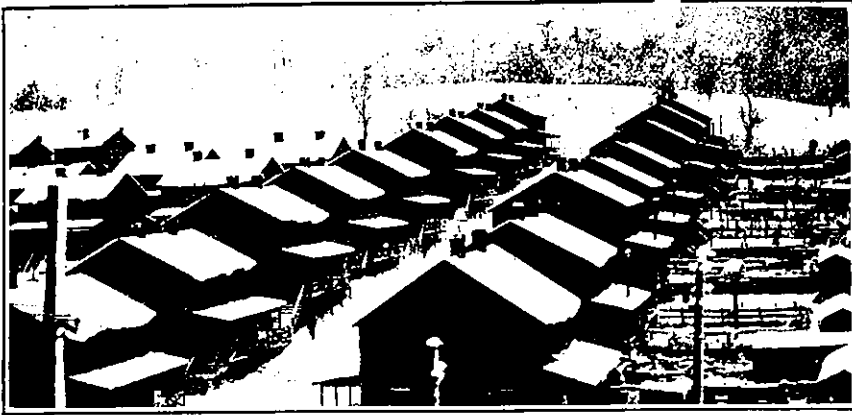
Details as to the attempts made prior to the explosion to put out the fire and afterward to seal it were given by George S. Osler, vice-president and general manager of the coal company. When he arrived at the seat of the fire, about 12:20 p.m., he found that a 3-ply canvas stopping had been erected in Butt 16 intake at a point between a chute and the last crosscut. In his presence a line brattice was tacked to posts and carried up close to the cutting machine by men who held these posts while others attempted to move the truck of the cutting machine and put out the fire. A water box had been hauled to the scene. Pieces of canvas were wetted with water and used in an effort to extinguish the fire, which, obviously, was of small proportions. It broke out, however, with renewed vigor when fanned by the air which was conducted to it by the brattice. During this time tests for gas were made continually but none was detected. It was decided then to seal off the fire.

A 2-ply stopping was erected at a point about 100 ft. from the face. Behind this was erected a single-course dry brick stopping with a pilaster in the middle. The canvas stopping was completed at about 2 p.m. Outby of the dry brick wall was erected a double-course brick-and-mortar stopping which had been completed before the explosion took place, at about 4 p.m. Likewise on the return side, or Butt 15, a 3-ply canvas stopping was erected followed by a brick-and-mortar stopping which must have been nearly completed when the explosion occurred. Each of

Horning Mine Tipple

Twenty men who perished in the disaster of Feb. 3 met death, according to the jury at the Coroner's inquest, "through an explosion the cause of which was undetermined."





A Portion of the Town of Horning, Pa.

High winds and a heavy snowstorm, as shown in the picture, hampered the rescuers in reaching the scene of the explosion in No. 4 mine of the Pittsburgh Terminal Coal Corp. on Feb. 3. Twenty men were killed by the blast.

these airtight walls was provided with a pipe and valve.

The construction work was delayed by the fact that cars of supplies could not be hauled by locomotive to the location and therefore were pushed by men. Mr. Osler left the fire zone shortly before the explosion and was not aware that an explosion had taken place until told by men on the outside.

Coroner McGregor asked why so small an area was inclosed by the seals. He wondered whether a larger zone would have allowed for expansion and contraction to a greater extent and delayed the time when an explosive mixture might have been developed. Mr. Osler remarked that all present were of one opinion with regard to the most feasible location for the seals. He thought the explosion was due to a radical change of conditions after the walls were erected. He is certain that rock dust stopped the explosion from going any farther than it did.

Matches in Victims' Clothes

John B. Black, superintendent of the Allegheny County morgue, said that in a search he found matches in the clothes of a number of the victims. On two men he found cigarettes and on one tobacco and a pipe. Edward B. Laughlin, funeral director, testified that he found twenty matches in the clothes of one victim. He bore out the statement by Mr. Black to the effect that quite a few of the men had matches in their clothes.

State Mine Inspector Alexander McCanch testified as to the findings of a state investigation commission of which he was a member. The commission believes that the most likely source of ignition of the fire which afterward initiated the explosion was the starting box of the cutting machine. Coal dust must have propagated the explosion beyond the limits of the gas explosion which originated at the face of Butt 16, and the commission believes that gas may have accumulated at the face of 9-Face entry and assisted in the propagation. The commission is further of the opinion that a large open area near the seat of the explosion allowed it to expand and spend its force quickly without carrying any great distance, and that rock dust was a big factor in checking the flame.

William Young, captain of a rescue team of the Pittsburgh Coal Co., Beading, Pa., testified that no great violence was displayed near the seat of the explosion. The bricks of the seals lay in such positions on the bottom as to lead one to decide that the walls were merely toppled over. Few of the bricks traveled any great distance and some of those near the bottom remained in the position in which they were set by the bricklayers.

Following are the commission's recommendations to Joseph Walsh, Secretary of Mines of Pennsylvania, following its investigation, which, incidentally, were not presented at the inquest:

"Because of the large number of mine officials lost in this disaster there will always be some doubt about the conditions and circumstances surrounding this explosion. The occurrence of this explosion announces in no unmistakable terms the great need of excluding from the working face, as far as consistent with mine practice, from dry and dusty mines that generate gas either regularly or intermittently all sources that give rise to ignition; that, to make rock dusting so effective as to confine flammation within narrow limits, all avenues of escape from the face of the workings must be liberally and systematically rock-dusted and that this treatment be extended and maintained close to the face concurrent with the advance of workings.

"It is equally important from the viewpoint of safety that all electrical equipment and material used in the mining of coal, which through defect or misuse may furnish a source for the ignition of gas or coal dust, be placed in the hands of competent and authorized persons and carefully supervised by the mine management."

California Mine Ships Coal

The first shipment of coal from Shasta County mines was made March 1, when five tons was dispatched from the mines on Oak Run to the Pacific Gas & Electric Co., San Francisco, to be given a working test in gas works. There is a possibility that the company eventually will substitute coal for oil as fuel in its various gas plants.

Kansas Union Men Restless; Would Close Strippings

Arrest of several of the officials of District 14, United Mine Workers, and Alexander Howat, deposed president of the district, has halted "marches" by union miners in the Pittsburg (Kan.) district. The "marching," all of which was done in motor cars, was a gesture of the unionists to stop work at a number of steam-shovel mines in an effort to force the operators to sign a contract with the union under the Jacksonville agreement.

Charges of unlawful assembly were filed against seven district officials of the union and five miners. All were released under \$1,000 bond each. Three miners also were charged with assault and battery.

Union district officials arrested included Matt L. Walters, president; Harry W. Burr, secretary-treasurer; Dan O'Donnell, vice-president; Charles Skidmore, William Brady and Ed McCluckie, district board members, and James Fitzgibbon, joint board member.

District President Walters declared that the union would seek to remove the cause of the controversy over wages at the non-union shovel mines by having the Kansas Legislature enact a law against removing coal from shallow veins. He declared that shovel mining is an economic waste of land.

Coronado Case Rival Results In Second Mistrial

The Pennsylvania Mining Co.'s \$600,000 damage suit against the United Mine Workers resulted in a second mistrial at Fort Smith, Ark., March 13, when a jury reported itself unable to agree upon a verdict after more than fourteen hours of deliberation.

The coal company's suit was the outgrowth of the Jamestown labor troubles several years ago, and was similar in many respects to the famous Coronado case, which was tried in federal court for the third time last December. All three of the juries which heard the Coronado case failed to agree upon a verdict.

The Pennsylvania case was tried originally in 1920, the jury failing to reach a verdict.

Jail Awaits Bittner

The West Virginia Supreme Court of Appeals has dismissed the writ of error granted last June to Van A. Bittner, international representative of the United Mine Workers in northern West Virginia. The decision upholds the Monongalia County Circuit Court in sentencing Bittner to six months in jail and fining him \$500 on a contempt charge for violating an injunction of Judge I. Grant Lazelle forbidding interference with non union workers at mines on Scotts Run last spring. The court ruled that contempt charges would be reviewed by the court only to ascertain whether the lower court acted within its jurisdiction, holding that a circuit court may punish summarily, without trial by jury, a person who has disobeyed or resisted a lawful decree of that court.

FIG I

PITTSBURGH TERMINAL

COAL CORPORATION.

MINE NO 4. HORNING, PA.

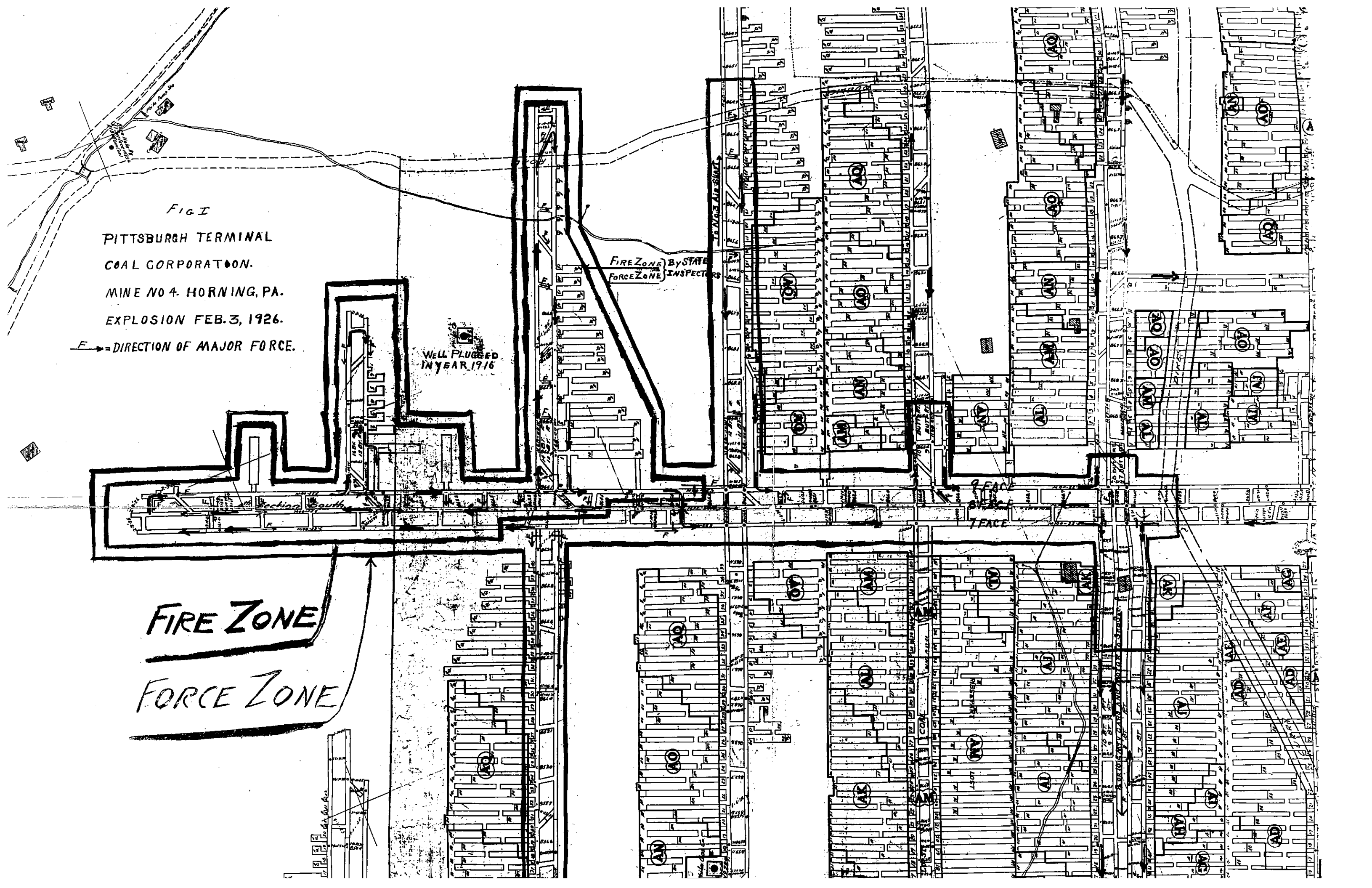
EXPLOSION FEB. 3, 1926.

F → = DIRECTION OF MAJOR FORCE.

WELL PLUGGED
IN YEAR 1916

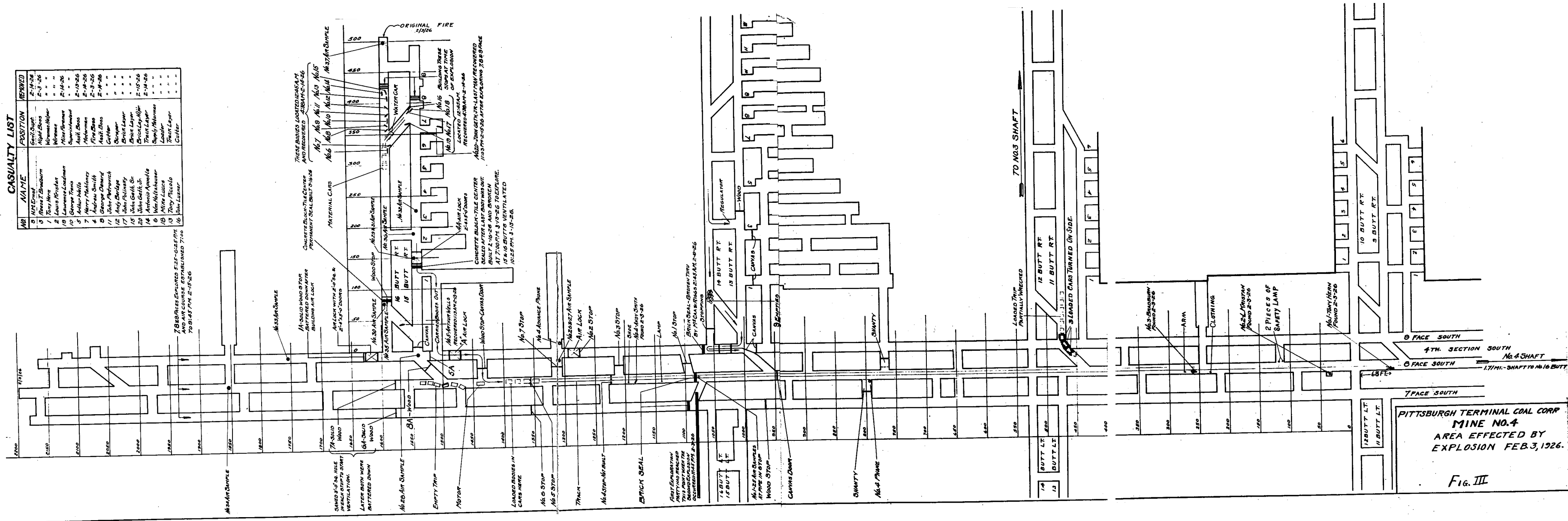
FIRE ZONE BY STATE
FORCE ZONE INSPECTORS

FIRE ZONE
FORCE ZONE



CASUALTY LIST

NR	NAME	POSITION	REMOVED
0	Mr Ernest	Night Supt	2-14-26
1	Reese T. Blackburn	Asst Supt	2-3-26
2	Louis Martin	Worms Helper	" " "
3	Tom Hoke	Worms	" " "
4	Lawrence Ladman	Minor Foreman	2-14-26
5	George Travis	Superintendent	2-13-26
6	Harry McKelney	Asst. Boss	" " "
7	Arthur Mahoney	Workman	2-3-26
8	Andrew Smith	Asst. Boss	" " "
9	George Omerod	First Boss	2-14-26
10	John Postovich	Cutter	" " "
11	Andy Burdage	Strapper	" " "
12	John Rulinsky	Brick Layer	" " "
13	John Geth. Sr	Brick Layer	2-15-26
14	John Geth. Jr	Brick Layer	" " "
15	John Appleby	Tract Layer	2-14-26
16	Wm. Hulsehauser	Supply Workman	" " "
17	Mine Lucas	Loader	" " "
18	Tom Flesche	Tract Layer	" " "
19	Tony Lucner	Cutter	" " "



PROPOSED SCHEDULE.

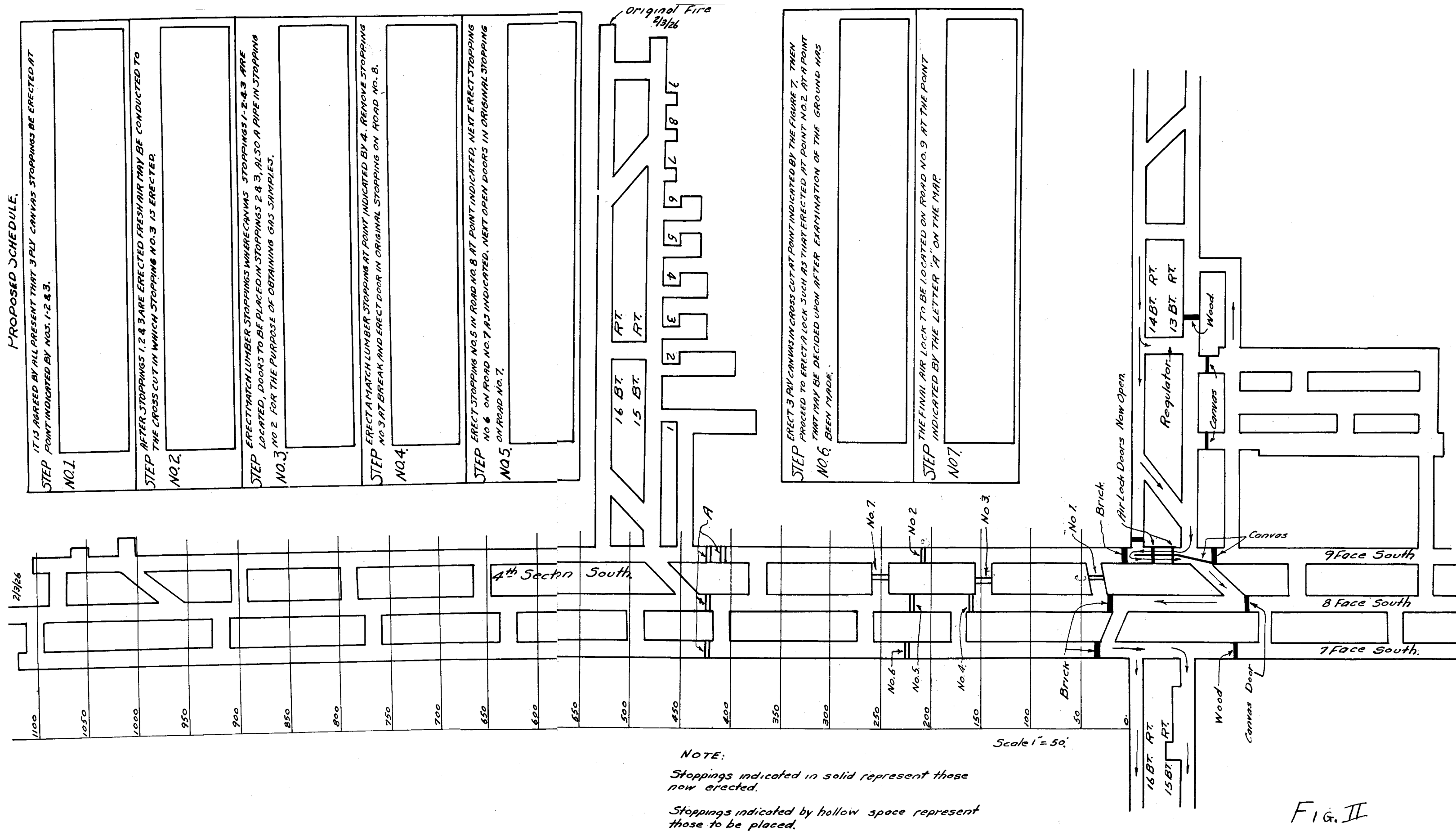


FIG. II