State inspector of coal mines reports

Section 17, Pages 481 - 510

These reports of the Kansas State Mine Inspector mostly concern coal mining, though by 1929 the scope of the reports broadens to include metal mines. The content of individual reports will vary. The reports address mining laws and mining districts; industry production and earnings; fatal and non-fatal accidents; accident investigations and transcripts of oral interviews; labor strikes; mine locations; mining companies and operators; and proceedings of mining conventions. The reports document the political, economic, social, and environmental impacts of more than seventy years of mining in southeastern Kansas.

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Q. What time did you examine the rooms? A. Every morning.
Q. Did you know if there was anything wrong in the mine in that room? A. Well, they took the coal from under the rock.
Q. I want to ask you if he knew anything about the rock being loose? A. No. He was in there taking the coal out of the place.
Q. He was in the room? A. Yes, sir.
Q. What we want to get at is, did this man think the place was all right when he went in there? A. He undermined the coal, and it left a loose rock.
Q. What was the man's name? A. Hurley.
Q. Did he have a man with him? A. Yes, sir.
Q. What was his first name? A. Elihu.
Q. How far did it fall? A. The coal was only 22 inches in height, and he was to crawl under it; so it could not fall very far.
Q. How did the stone fall on him? A. Right square on top of him; on his head and shoulders and on his right side.
Q. Was he discovered at once? A. Yes, sir; we were close to him.
Q. Was he killed outright? A. He lived about three or four minutes.
Q. Three or four minutes? A. About that; I do not suppose he lived any longer.
Q. Could not that rock be propped up so that it could not fall? A. They did not need to get under the stone. They had a way to get around the stone. That sulphur rock hardly ever falls.
Q. Whose business would it be to prop it up? A. The man's place who worked there. It is something that hardly ever falls in the place. It nearly always has to be wedged down.
Q. Are you pit boss? A. Yes, sir.
Q. You consider it, then, an unavoidable accident? A. Yes, sir.
Q. If it was anyone's fault, it was his own? A. It was his fault more than anyone else's.
Q. They took the coal from under it, and they should have wedged it down? A. Yes, sir.
Q. You say it was purely an accident? A. Well, he knew the rock was there, and he had a way of crawling around it instead of crawling under it.

HENRY KOCH, being duly sworn, states:

Question. Your name is Henry what? Answer. Henry Koch.
Q. You say your name is Henry Koch? A. Yes, Henry Koch.
Q. Do you work in the Riverside mine? A. Yes.
Q. Miner? A. Yes; doing company work now.
Q. Well, now, Mr. Koch, you tell the jury how this happened and all about it. A. He went from this room where we were working into—
Q. Wait a minute. What was his name? A. Elihu; Elihu Hurley.
Q. That is the name of the man who was killed? A. Yes, sir.
Q. Elihu Hurley was the name of the deceased. Tell the jury how it happened. Make it as short as you can. A. He went to the next room and wanted to get some oil or a drink, and when he came back he crawled right under that stone, when there was room enough to get past without going under it.
Q. He crawled under the stone, then? A. He crawled under the stone, and the same time when he got under there the stone fell.
Q. And as he got under the stone it fell? A. It fell right on his head and shoulder.
Q. On his head and shoulders; both shoulders? A. He had both shoulders under it.
Q. All right; go on. A. We were six hours in that room. We went up there and tried to get him out. We heard him holler, and tried to get him out.
Q. How far were you away from him? A. I was away from him about five or six feet. I did not hear the stone fall; I heard him holler.
Q. Did you know the stone was loose? A. I was working in there all day, and told him that it was not safe. I did not tell him the last time he went to the room, but I told him when he went in there. There was about two feet and a half between the gob and the stone.
Q. Why was it not propped up the day before? A. It was all right. This stone was a sulphur and did not fall often. It had to be wedged.
Q. But it had to come down? A. The stone could not be propped up.
Q. And he could have gone up some other way, could he? A. Yes.

Q. Did it ever happen here before that a stone fell? A. No; it never happened here as I know.
Q. It does not happen often that one of those rocks will fall? A. No.
Q. You think it was purely an accident? A. It was purely accidental.
Q. It could not be avoided? A. No.
Q. The falling of the stone could not be prevented? A. No.
Q. When did you tell him the rock was loose? A. When he went to the other room, I did not tell him then. I told him before. I notified him when he came in at noon.
Q. You notified him at noon that the stone was loose? A. Yes.

ISRAEL T. JOHNSON, being duly sworn, states:

Question. Your name is what? Answer. Israel T. Johnson.
Q. Do you work in this mine? A. Coal miner.
Q. You work company work? A. Yes, sir.
Q. For the Riverside Coal Company? A. Yes, sir.
Q. Kansas & Texas Coal Company? A. Yes, sir.
Q. Tell the jury what you know about this. A. Elihu Hurley went to the next room to get a lamp full of oil.
Q. Went where? A. To the next room.
Q. To the next room? A. Yes, sir.
Q. To get some oil and water? A. Yes, sir.
Q. Well, now, what next? A. The pit boss sent me up there to get his shovel, and just as he was coming back I started up there and got as far—
Q. Just wait a minute—to get a shovel? A. Yes, sir; I did.
Q. Well, what next? A. Then we both met right here at this place where this stone was, and I crawled up to the gob and laid aside for him to pass.
Q. Wait a minute—met where? A. Where this stone was.
Q. Both met where the stone was. Proceed. A. And just as he got even with me I told him, I says, "Hurry up there and get out of the way; it looks like it was going to fall."
Q. Wait a minute—just as he got even with you, you told him what? A. "Hurry up; it looks like it was going to fall." Just as he got even with me.
Q. Wait a minute—just as he got even with you, you told him to hurry up. A. Yes, sir.
Q. You told him to hurry up—that the stone looked like what? A. 'T was going to fall.
Q. You told him to hurry up—that the stone looked as if it was going to fall? A. Yes, sir. He tried to get out of the way, but before he could get away it dropped on h m.
Q. He made an effort to get out of the way? A. Before he could get out of the way it dropped on him. Yes, sir.
Q. He made an effort to get out of the way, but before he could get out of the way the stone fell on his head; what else, now? A. When the stone dropped on him, I hollered for somebody to help to get it off of him.
Q. You went to get it off of him? A. Yes, sir. We three went to take the stone off.
Q. You three went to take the stone off; well, what else? A. Well, that is all I know. He could have crawled towards me; he did not need to crawl under the stone.
Q. You say there was room enough for him to pass without crawling under the stone? A. Yes, sir. I told him at the time that it was dangerous; told him to hurry up. He was talking and joking with me when it fell on him.
Q. You told him it was dangerous? A. Yes, sir.
Q. What caused it to drop—did he touch it? A. He might have touched it and caused it to drop, but of course a man crawling through it is liable to touch the roof anywhere.
Q. Did you see the stone fall? A. Yes, sir; I was laying right aside of him.
Q. What part did it fall on? A. On his shoulders and head.
Q. He was not any time under there—just passing through? A. No, he did not stop—crawling right through.
Q. And you could not say what was the cause of its dropping all at once? A. No, sir.
Q. How long did he live after it dropped on him? A. About three or four minutes.

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Q. How many days was that stone in that condition? A. I do not know. Yesterday was the first time I was up in there. It could not have been that way very long.

Q. Was there an effort made to secure the stone, or take it down, knowing it was dangerous? A. Sir?

Q. Was there no effort made by some one to move the stone from the roof before it fell? A. They were working up that way to get the stone—to prop it up and make it safe. They were taking coal out so as to take it down and make it solid.

Q. In the case of a stone like that, do you brace it up? A. We wedge it down and load it up.

VERDICT.

LEAVENWORTH, May 12, 1891.

We, the undersigned jury, being duly impaneled and sworn, upon our oaths do find, that the deceased, Elihu Hurley, came to his death by the falling of a rock upon him—purely accidental; and we further believe that there was no blame attached to the Kansas and Texas Coal Company, in whose mine the accident occurred.

FRANK MCQUILLEN. LOUIS VOSS.
JOHN GREELISH. E. D. GRAY.
ED. RICE. HENRY HITCHCOCK.

June —, 1891.—A serious accident occurred at an old traveling-way, connected to an abandoned shaft of the Weir Coal Company, Weir City, Cherokee county. Frank Titter and a boy named Willie Eadie were playing at the old traveling-way; they had tried to see who would go furthest down the old stairway into the abandoned mine, and Titter was first; he had only descended a few steps when he was overcome by carbonic-acid gas, and fell to the bottom of the shaft. The other boy gave the alarm, and assistance came soon, but no one seemed to know how to do anything. In the meantime, the father of the boy, James Titter, heard of the accident, and ran as fast as he could, for nearly half a mile, to rescue his boy, and, not thinking of danger from gas, rushed down the stairway, but only proceeded a few steps when he was overcome with the deadly gas and fell to the bottom. It took nearly two hours to get the boy and his father out of the shaft, when both were found to be dead. A coroner's inquest was held, and the verdict rendered that both came to their death by being overcome with carboni-cacid gas, or black damp.

June —, 1891.—An accident occurred at Keith & Perry Coal Company's mine No. 3, Weir City, Cherokee county, Kansas, whereby Clarence Manning, a young man, aged 19 years, was killed. In company with another man, deceased was engaged in making a new cross-road through some abandoned rooms, and were cutting through a pillar, when a mass of roof slate fell and caught Manning, killing him instantly. A coroner's inquest was held, and rendered a verdict of accidental death by a fall of roof.

June 24, 1891.—An accident occurred in No. 5 shaft of the Superior Coal and Mining Company, at Osage City, Osage county, whereby a miner named August Sands, aged 50 years, a Swede, lost his life. The accident was in north cross entry, off first east entry, on north side of shaft. Deceased had taken down a fall of coal, and was in the act of putting coal to the roadhead, when a piece of soapstone roof, weighing about two tons, fell on him, catching his head and shoulders, killing him instantly. He had only one prop to the stone, which the weight of the stone swung out. It was a bad slip in the soapstone roof, which could not be seen, and as a consequence was almost impossible to guard against. August Ericson, who was working with him as a partner, had just gone out of the mine to have some picks sharpened at the time of the accident. Deceased was married, and left a wife and family.

July 20, 1891.—At about 8 o'clock A. M., Monday, July 20, James May, aged 39 years, was seriously injured at the slope of the Weir City Coal Company, generally

known as "Bennett's Slope," by an empty car, which broke away from the top of the slope, and, running down the same, struck May, who was standing at the foot of the slope, which he had only descended a few minutes before, crushing in his shoulder and side, from which he died 49 hours later, never recovering consciousness. This slope is worked by the endless-rope system, and the cars are run in trips of two coupled together, with a clutch grip on the rope on the first car going up the slope and on the last car going down the same. May was late coming to work, and followed one empty trip down the slope, and when he got to the foot of same he stopped to light his lamp and get accustomed to the darkness of the mine. The cager, Adam Humble, at the bottom of the slope, who took off the empty cars and put the loaded cars on the rope, stated that May was standing with one foot resting on the empty track when Humble told him to get out of the way, as an empty trip was coming, but did not know that it was a runaway car, and he says May did not reply nor seem to notice him. There was plenty of room for him to get out of the way of the car. The cause of the accident or the car running away is differently stated by the two men who were in immediate control of the operating of the cars going up and down the slope at the time. Adam Humble, who put on the cars at the bottom, stated that he put a coupling, which was partly broken and not fit to be used, on the top of the loaded cars the trip previous to the accident, and he thinks that the top man put this coupling in the trip with which the accident occurred. On the other hand, Charles Hill, the top man, says that when he was starting the trip at the top of the slope the coupling jumped out of the cars, letting the first car run down the slope. There are two blind switches for turning runaway cars off the track before they reach the mouth of the slope, thus preventing them from running into the mine, but by some means the top man failed to have them turned in time to prevent further accident.

August 25, 1891.—An accident occurred at the Pittsburg and Midway Coal and Mining Company's shaft No. 1, whereby R. E. Jones, employed as a miner, was killed. Deceased was engaged in taking out entry pillars, and had fired a shot in the corner of one of them, taking down a large mass of coal, when he examined the roof and found it loose, and proceeded to put a prop under it, when, striking the prop, it sprung back and let the roof fall on him, killing him instantly. Deceased was father of the pit boss, Thos. R. Jones.

October 15, 1891.—At No. 17 shaft, Kansas and Texas Coal Company, Litchfield, Crawford county, on or about 7 o'clock P. M., John Comisky, aged 32 years, employed as a shot-firer, came to his death in the last room in the second east entry, north side of shaft. Deceased had lighted two shots in the face of the entry, one of which was pointing outward and towards a room partially turned, into which deceased retired for safety until the shots exploded, but the shot above described as pointing to this room blowed through and struck deceased on the head, killing him instantly. W. H. Bird, the partner of deceased for five months previous to the accident, said that he (Bird) went on the south side of the shaft and fired all the shots on that side; then came to the north side to meet deceased, as was their usual custom, at an agreed place. On the night in question, deceased did not come at the usual time, when Bird went to look for him, and found him as above described. Bird also said their instructions were, not to fire any shots that in their judgment were too much on the solid, or any one that the shot-firers considered dangerous. Deceased was married, but had no family.

October 27, 1891.—At 2 o'clock P. M. on above date, Albert Parker, aged 34 years, was killed by a fall of sand-rock roof in his room, while at work in the Walter Richardson mine, at Minersville, Cloud county. It was the last room on south side of east entry. Deceased was lying down on his right side, in the act of undermining

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the coal; his partner, J. A. Deweese, was also in the room, throwing coal to the roadway, when he saw the roof working; he called to deceased to get out of the way, at the same time jumping to the roadway himself, just in time to avoid being caught by the falling roof. He at first thought deceased had gone out by the next roadway, but, upon looking back, saw him under the fall. He gave the alarm, and it required the utmost exertion of four men two hours to get his body out. The rock was 10 feet long, 2½ feet wide, and 2 feet thick. The room had not been worked for several days and was in a dangerous condition. He left a wife and widowed mother, who were dependent on him for support. The following is the verdict of the coroner's jury:

STATE OF KANSAS, CLOUD COUNTY, ss.

An inquisition held at Minersville, in Cloud county, on the 27th day of October, 1891, before me, a justice of the peace of Sibley township, in said county, acting coroner of said county, on the body of Albert Parker, there lying dead, by the jurors whose names are hereunto subscribed. The said jurors upon their oaths do say, that Albert Parker came to his death by an accidental falling of sand rock, while at work in his room in the Walter Richardson coal mine, due solely and entirely to his own dereliction in not taking warning when told of the approaching danger, and which could have been avoided had he been a practical miner.

IN TESTIMONY WHEREOF, Said jurors have hereunto set their hands, this 27th day of October, 1891.

K. E. VERMETT. S. F. WILSON.
ALEX. HENDERSON. WM. NEITZEL.
H. WILLMAT. R. DAY.

Attest: JAMES A. GUSHWA, *Justice of the Peace, Cloud county.*

November 6, 1891.—An accident occurred at the Pittsburg Coal Company's mine, Pittsburg, Crawford county, whereby Charles Green lost his life. On the first north entry, east side of shaft, deceased was driving the back entry, and had come into the place of William Harmer, who was in the main entry, 42 feet in advance of the back entry. The deceased came to ask Harmer what o'clock it was. Harmer came out from under a piece of roof slate, where he was working, to get his watch out of his pocket, when deceased went into the place where Harmer came out of, and had not got time to sit down when the piece of roof slate fell on him and killed him instantly. Harmer did not know the roof was loose, and it is evident that Green's coming into his place saved Harmer's life, and lost his own. Following is the verdict of the coroner's jury:

STATE OF KANSAS, CRAWFORD COUNTY, ss.

An inquest holden in the city hall, in Pittsburg, in Crawford county, on the 6th day of November, A. D. 1891, before me, C. A. Fisher, coroner of said county, on the body of Charles Green, there lying dead, by the jurors whose names are hereto subscribed. The said jurors upon their oaths do say, that Charles Green came to his death by an accident in the Pittsburg Coal Company's shaft, by a fall of slate.

IN TESTIMONY WHEREOF, The said jurors have hereunto set their hands, the day and year aforesaid.

A. B. CHURCH. JOHN T. VICKERS.
WM. B. GROSS. G. BENEDICT.
J. D. WEARE. GEORGE FOX.

Attest: C. A. FISHER, *Coroner.*

Frank Skobitz, aged 31 years, was killed by a shot in No. 4 mine, Cherokee and Pittsburg Coal Company, Chicopee, Crawford county, about 7:30 P. M., December 21, 1891. He had been shot-firing, and went into a room in which there were three shots, and it is supposed that he had lighted all of the shots, when two of them went off, and he had returned to light the other one, when in the act of doing so it exploded and killed him. That is the opinion of his partner, Wm. Edwards, and all the others who found him.

Following is the verdict of the coroner's jury:

At an inquest holden at Chicopee, in Crawford county, on the 22d day of De-

cember, A. D. 1891, before me, C. A. Fisher, coroner of said county, on the body of Frank Skobitz, there lying dead, by the jurors whose names are hereto subscribed, the said jurors upon their oaths do say: That we have inspected the body, heard the testimony, and made all needed inquiries; we, the jurors, do agree that he came to his death by a shot, while in the act of going to refire it, on the evening of December 21, 1891, at No. 4 shaft, Chicopee, Crawford county, Kansas.

IN TESTIMONY WHEREOF, The said jurors have hereunto set their hands, the day and year aforesaid.

MARK CUMMINGS. JOHN FUNKE.
ROBERT LEIGH. L. H. DEMARS.
HERMANN BUGE. CASPAR ASCHOBER.

Attest: C. A. FISHER, *Coroner*.

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BOILER INSPECTION.

Section 3, chapter 11, Session Laws of 1883, reads as follows:

Every steam boiler used in or around the coal mines of this State shall be provided with a proper steam gauge and water gauge, to show respectively the pressure of steam and height of water in the boilers, and to be also provided with a proper safety-valve; and the owner, agent or operator shall have the said boiler or boilers examined and inspected by a competent boiler maker, or other qualified person, once in every six months; and the result of every examination shall be certified in writing, and conveyed to the Mine Inspector, to be filed in the records of his office.

The above law provides for an inspection of boilers at regular intervals, and that a certified copy of the same shall be sent to the Inspector of Mines. While no serious damage has occurred at any of the mines in the State using steam, it is no reason why this part of the law should not be rigidly complied with. The few reports below show how many have fulfilled the requirements of the law. As there are over 70 boilers in use at the different coal mines of the State, those complying with this provision are but a small percentage of the whole. Blanks upon which to make reports have been sent to all.

CHEROKEE COUNTY.

Report from Columbus Coal Company:

To State Mine Inspector: I hereby certify that the boilers used by the Columbus Coal Company at their shaft 4½ miles north of Columbus were examined and inspected on the 6th day of June, 1891, and found to be in good order and safe under a pressure of 80 pounds—and we use 45 pounds. WM. WINN, *Engineer.*

Report from Norton Coal Company:

To State Mine Inspector: I hereby certify that the boiler used by the Norton Coal Company at their shaft at Scammon was examined and inspected on the 3d day of July, 1891, and found to be in good order. J. H. GUINN, *Engineer.*

CRAWFORD COUNTY.

Report from Cherokee and Pittsburg Mining Company:

To State Mine Inspector: I hereby certify that the boiler used by the Cherokee and Pittsburg Mining Company at their shaft No. 4, at Chicopee, was examined and inspected on the 25th day of July, 1891, and found in good condition, and we carry 60 pounds pressure. N. W. HENDERSON.

To State Mine Inspector: I hereby certify that the boiler used by the Cherokee and Pittsburg Coal and Mining Company at their shaft No. 1, at Frontenac, was examined and inspected on the 25th day of July, 1891, and found that they were being repaired, and then they will be in as good a condition as new. N. W. HENDERSON.

To State Mine Inspector: I hereby certify that the boiler used by the Cherokee and Pittsburg Mining Company at their shaft No. 2, at Frontenac, was examined and

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inspected on the 10th day of July, 1891, and found in first-class condition, and carrying 60 pounds pressure. N. W. HENDERSON.

To State Mine Inspector: I hereby certify that the two boilers used by the Cherokee and Pittsburg Coal and Mining Company at their shaft No. 2, at Frontenac, Crawford county, Kas., were examined and inspected on the 7th day of June, 1890, and found to be in good condition; average pressure, 60 pounds.

N. W. HENDERSON.

To State Mine Inspector: I hereby certify that the four boilers used by the Cherokee and Pittsburg Coal and Mining Company at their shaft No. 4, at Chicopee, Crawford county, Kas., were examined and inspected on the 15th day of May, 1890, and found to be in good condition; average pressure, 65 pounds.

N. W. HENDERSON.

Report from J. H. Durkee Coal Company:

To State Mine Inspector: I hereby certify that the boiler used by the J. H. Durkee Coal Company at their shaft No. 1 was examined and inspected on the 26th day of December, 1891, and found in good working condition. JOHN SHAW, *Engineer.*

Report from the Kansas and Texas Coal Company:

To State Mine Inspector: I hereby certify that the boiler used by the Kansas and Texas Coal Company at their shaft No. 17, Litchfield, Kas., was examined and inspected on the 21st day of February, 1891, and found safety-valve, blow-off, and gauge-cocks clear, and boiler in good condition. Pressure allowed, 80 pounds.

D. RAMSEY, *Superintendent.*

To State Mine Inspector: I hereby certify that the boiler used by the Kansas and Texas Coal Company at their mine No. 18, Weir City, Kas., was examined and inspected on the 22d day of February, 1891, and found steam-gauge correct, gauge-cocks and safety-valve clear. Pressure allowed, 80 pounds. Condition of boiler, good. D. RAMSEY, *Superintendent.*

To State Mine Inspector: I hereby certify that the boiler used by the Kansas and Texas Coal Company at their mine No. 20, Pittsburg, Kas., was examined and inspected on the 21st day of February, 1891, and found in good condition; safety-valve, blow-off and gauge-cocks all free; pressure allowed, 80 pounds.

D. RAMSEY, *Superintendent.*

To State Mine Inspector: I hereby certify that the boiler used by the Kansas and Texas Coal Company at their mine No. 22, Litchfield, Kas., was examined and inspected on the 22d day of February, 1891, and found in good condition; safety-valve in good condition, and set to blow at 85 pounds; steam-gauge and gauge-cocks clear; pressure allowed, 85 pounds. D. RAMSEY, *Superintendent.*

To State Mine Inspector: I hereby certify that the boiler used by the Kansas and Texas Coal Company at their mine No. 23, Weir City, Kas., was examined and inspected on the 22d day of February, 1891, and found in good condition; safety-valve works free at 80 pounds; gauge-cocks and blow-valves clear; pressure allowed, 80 pounds. D. RAMSEY, *Superintendent.*

To State Mine Inspector: I hereby certify that the boiler used by the Kansas and, Texas Coal Company at their mine No. 28, at Pittsburg, Kas., was examined and inspected on the 21st day of February, 1891, and found to be in good condition; steam-gauge, safety-valve and gauge-cocks clear; pressure allowed, 85 pounds.

D. RAMSEY, *Superintendent.*

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Report from the Wear Coal Company:

To the Wear Coal Company, Pittsburg, Kas.: The Hartford Steam Boiler Inspection and Insurance Company make the following report of the condition of your steam boiler, inspected on the 2d day of December, 1891, by Inspector E. Sullivan, at mine No. 2: Our inspector made an internal inspection of your boiler, finding it in good condition, being well made and braced, and of good material. The fittings and attachments are all properly connected. Safety-valve set at 100 pounds. C. C. GARDINER, *General Agent.*

Report from the Western Coal and Mining Company:

To the Western Coal and Mining Company, Fleming, Kas.: The Hartford Steam Boiler Inspection and Insurance Company make the following report of the condition of your steam boilers, inspected on the 3d day of December, 1891, by Inspector E. Sullivan: Mine No. 2, two boilers; mine No. 3, one boiler. I examined the above boilers by the "hammer test" and report them in good condition.

EDWIN SULLIVAN, *Inspector.*

To the Western Coal and Mining Company, Minden, Kas.: The Hartford Steam Boiler Inspection and Insurance Company make the following report of the condition of your steam boiler, inspected on the 30th day of November, 1891, by Inspector E. Sullivan: One boiler at mine No. 4, opposite Minden, Mo., in State of Kansas. I examined the above boiler by the "hammer test" and report it in good condition.

EDWIN SULLIVAN, *Inspector.*

To the Western Coal and Mining Company, Minden, Kas.: The Hartford Steam Boiler Inspection and Insurance Company make the following report of the condition of your steam boiler, inspected on the 26th day of May, 1891, by Inspector E. Sullivan: Mine No. 4, one boiler. I have examined the above boiler by the "hammer test" and report it in good condition. EDWIN SULLIVAN, *Inspector.*

To the Western Coal and Mining Company, Fleming, Kas.: The Hartford Steam Boiler Inspection and Insurance Company make the following report of the condition of your steam boilers, inspected on the 25th day of May, 1891, by Inspector E. Sullivan: Mine No. 2, two boilers; mine No. 3, one boiler. I examined the above boilers by the "hammer test" and report them in good condition.

EDWIN SULLIVAN, *Inspector.*

LEAVENWORTH COUNTY.

Report from Penitentiary coal mine:

To State Mine Inspector: I hereby certify that the four boilers used by the Penitentiary coal mine at their main-shaft boiler room, at Lansing, Kas., were examined and inspected on the 28th day of September, 1891, and found in first-class condition, and carrying 80 pounds of steam. THOMAS GIBSON.

To State Mine Inspector: I hereby certify that the four boilers used by the Penitentiary coal mine at their air-shaft boiler room, at Lansing, Kas., were examined and inspected on the 14th and 24th days of September, 1891, and found in first-class condition, and carrying 80 pounds of steam. ED. GOLIGHTLY.

LINN COUNTY.

Report from Mine Creek Coal Company:

To State Mine Inspector: I hereby certify that the boiler used by the Mine Creek Coal Company at their shaft No. 1, Jewett Station, Kas., was examined and inspected on the 26th day of July, 1891, and found in excellent condition; pressure made, 125 pounds. WM. HAMILTON, *Engineer.*

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REPORTS AS TO VENTILATION.

The following reports of ventilation, as to number of cubic feet of air at intake, at face of gangway, and at outlet, have been sent to this office:

REPORT OF VENTILATION.

LOCAL NAME OF EACH SPLIT.	*No. cubic feet in intake.*	*No. cubic feet in face of gangway.*	*No. cubic feet at outlet.*
REPORT OF PENITENTIARY MINE FOR MONTH OF JUNE, 1891. Signed by R. M. Lamm, inside foreman.			
North intake, main shaft	15,840		
South intake, main shaft	14,880		
North outlet, near air shaft			16,640
East outlet, near air shaft			18,020
Totals for first week	30,720		34,660
North intake	17,160		
South intake	14,880		
North outlet, near air shaft			15,080
East outlet, near air shaft			18,550
Totals for second week	32,040		33,630
North intake	15,180		
South intake	12,480		
North outlet			13,520
East outlet			14,840
Totals for third week	27,660		28,360
REPORT OF PENITENTIARY MINE FOR MONTH OF JULY, 1891. Signed by R. M. Lamm, inside foreman.			
North intake, main shaft	19,140		
South intake, main shaft	13,440		
North outlet, near air shaft			17,160
East outlet, near air shaft			16,960
Totals for first week	32,580		34,120
North intake	15,180		
South intake	12,960		
North outlet			13,000
East outlet			15,370
Totals for second week	28,140		28,370
North intake	16,500		
South intake	14,400		
North outlet			15,600
East outlet			18,550
Totals for third week	30,900		34,150
North intake	15,840		
South intake	12,000		
North outlet			13,520
East outlet			15,370
Totals for fourth week[1]	27,840		28,890

[1] Temperature, 82° on surface; sultry.

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REPORT OF VENTILATION—CONTINUED.

LOCAL NAME OF EACH SPLIT.	No. cubic feet in intake.	No. cubic feet in face of gangway.	No. cubic feet at outlet.
REPORT OF PENITENTIARY MINE FOR MONTH OF AUGUST, 1891. Signed by R. M. Lamm, inside foreman.			
North intake, main shaft	16,500		
South intake, main shaft	15,360		
North outlet, near air shaft			14,560
East outlet, near air shaft			16,430
Totals for first week	31,860		30,990
North intake	13,860		
South intake	11,040		
North outlet			15,600
East outlet			13,780
Totals for second week	24,900		29,380
North intake	15,840		
South intake	13,920		
North outlet			15,600
East outlet			16,640
Totals for third week	29,760		32,240
North intake	17,820		
South intake	15,800		
North outlet			17,680
East outlet			19,610
Totals for fourth week [1]	33,620		37,290

[1] Temperature, 72° on surface.

RETORT OF PENITENTIARY MINE FOR MONTH OF SEPTEMBER, 1891. Signed by R. M. Lamm, inside foreman.			
North intake, main shaft	16,500		
South intake, main shaft	15,800		
North outlet, near air shaft			20,800
East outlet, near air shaft			19,610
Totals for first week [1]	32,300		40,410
North intake	13,200		
South intake	14,880		
North outlet			14,560
East outlet			15,370
Totals for second week [2]	28,080		29,930
North intake	14,520		
South intake	14,400		
North outlet			14,560
East outlet			15,900
Totals for third week	28,920		30,460
North intake	13,200		
South intake	14,880		
North outlet			14,560
East outlet			15,900
Totals for fourth week [3]	28,080		30,460

[1] Temperature, 70° on surface. [2] Warm; falling barometer. [3] Temperature, 83°; sultry.

REPORT OF W. C. & M. CO.'S NO. 4 MINE FOR MONTH OF NOVEMBER, 1891. Signed by Wm. McGinnis, inside foreman.			
North side of shaft	5,600	5,400	5,900
South side of shaft	5,800	5,600	6,100
Totals for first week	11,400	11,000	12,000

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REPORT OF VENTILATION — CONCLUDED.

LOCAL NAME OF EACH SPLIT.	No. cubic feet in intake.	No. cubic feet in face of gangway.	No. cubic feet at outlet.
REPORT OF W. C. & M. CO.'S MINE — *Concluded.*			
North side of shaft	5,600	5,300	5,800
South side of shaft	5,700	5,600	5,900
Totals for second week	11,300	10,900	11,700
North side of shaft	5,100	4,900	5,200
South side of shaft	5,300	5,100	5,400
Totals for third week	10,400	10,000	10,600
North side of shaft	5,700	5,500	6,000
South side of shaft	5,800	5,400	6,100
Totals for fourth week	11,500	10,900	12,100
Averages for month	11,100	10,700	11,600
REPORT OF MINE CREEK COAL CO. FOR MONTH OF AUGUST, 1891. Signed by Hugh Reed, inside foreman.			
West side	.....	.....	4,878
East side	.....	.....	3,078
Total	.....	.....	7,956
REPORT OF COLUMBUS MINE FOR MONTH OF JUNE, 1891. Signed by Christopher Newland, inside foreman.			
Second south	[1]	.....	[1] .....
Third south	[1]	.....	[1] .....
Second north	[1]	.....	[1] .....
Third north	[1]	.....	[1] .....
Totals	6,000	.....	7,700

[1] Details not given.

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LEAD AND ZINC MINING.

This important industry is carried on in the southeast part of Cherokee county. The mines are worked on a different plan from coal mines, as the vein is not regular, and is generally followed up or down, whichever direction it may go. There is very little system used, as the plan of leasing allows every one to work the ground according to his own idea on the matter.

Companies or individuals lease a number of acres of land, and subdivide it into mining lots 200 feet square, which they sublet to miners, who enter into contracts with original lessee to mine the ore for a certain per cent., the price to be fixed according to the selling rate of lead in the St. Louis market.

The zinc ore is generally found in the same mines intermingled with the lead. Both are sent to the top as they are found, and are cleaned and separated by a system of what is termed "jigging." The price of zinc, when cleaned and ready for market, ranges from $14 to $24 per ton. The miner pays from 10 to 20 per cent. of the output to the owner of the land for royalty.

A great many accidents occur in these mines. I endeavored to get a record of them, but could find no one who could inform me with any certainty.

The following tables give the total output of lead and zinc from the Galena and Empire City mining district, in Cherokee county:

TABLE showing output and estimated value of lead ore produced in Galena and Empire City district in 1891.

NAME OF COMPANY.	*Pounds of lead ore produced.*	*Estimated value of output.*
South Side Mining and Manufacturing Company	1,403,344	$35,083
Galena Lead and Zinc Company	794,780	19,869
Clement Mining Company	489,700	12,242
Illinois Lead and Zinc Company	151,670	3,791
Empire Mining Company	114,026	2,850
Windsor Mining Company	399,490	9,987
Ohio Lead and Zinc Mining Company	460,300	11,507
Maggie Taylor	199,580	4,989
Ol. Sparks	277,951	6,948
Central Company	430,800	10,770
J. M. Cooper & Co.	677,800	16,945
Queen Bee	24,585	614
Kansas Lead and Zinc Company	158,865	3,971
Annie Laurie	105,040	2,626
Cornwall Company	113,550	2,838
Murphy & Murphy	71,450	1,786
Wyandotte Company	1,910	47
Carthage Company	23,710	592
Mississippi Company	131,350	3,283
Bonanza	27,200	680
Neutral	1,147,319	28,682
Totals	7,204,420	$180,100

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TABLE showing output and estimated value of zinc ore produced in Galena and Empire City district in 1891.

NAME OF COMPANY.	*Pounds of zinc ore produced.*	*Estimated value of output.*
South Side Mining and Manufacturing Company	7,154,800	$71,548
Galena Lead and Zinc Company	4,079,337	40,793
Clement Mining Company	4,965,700	49,657
Illinois Lead and Zinc Company	2,412,935	24,129
Empire Mining Company	2,403,891	24,038
Windsor Mining Company	2,250,375	22,503
Ohio Lead and Zinc Mining Company	2,336,332	23,363
Euclid Company	1,937,502	19,375
Maggie Taylor	843,572	8,435
Ol. Sparks	858,622	8,586
Central Company	934,802	9,348
J. M. Cooper & Co.	651,380	6,513
Queen Bee	555,866	5,558
Banner Mining Company	668,870	6,688
Midland Company	500,000	5,000
Kansas Lead and Zinc Company	475,692	4,756
Annie Laurie	424,480	4,244
Cornwall Company	409,717	4,097
Murphy & Murphy	355,670	3,556
Wyandotte Company	220,258	2,202
Templar Company	445,830	4,458
Carthage Company	16,330	163
Bonanza	126,220	1,262
Neutral	5,499,210	54,992
Totals	40,527,391	$405,273

The following comparative table shows what proportion the lead and zinc produced in this district in 1891 bears to the total output of the United States for the same year:

ITEMS.	*Output in United States in 1891—tons of 2,000 pounds.*	*Output in Kansas in 1891—tons of 2,000 pounds.*	*Per cent. of total output produced in Kansas.*
Lead	205,488	3,602	1¾
Zinc	76,500	20,263	26⅓

From this table, it will be seen that Kansas produced more than one-fourth of the total zinc output of the United States, and the industry is yet in its infancy.

From a review of the lead and zinc district written for the local press, I quote the following extract:

The year just closed has been marked in the lead and zinc industry as one of low prices, and the output of both ores has been much less than it would have been had fair prices prevailed. . . . All the mining companies of Galena have devoted much time to prospecting during the year 1891, many companies having sunk very deep prospect shafts. The South Side, Windsor and Clement companies have proven that the heaviest bodies of ore lie deeper than has yet been mined. . . . Many new tracts of land are now being developed, enough prospecting having been done to show that they are ore-bearing lands, and when they are properly opened the Galena and Empire City mines will be the leading lead and zinc producers of the Southwest.

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KANSAS SALT MINES.

The salt mining industry includes two shafts in Kingman county. The Kingman Rock Salt Company was the first in the State to sink a shaft. The Kingman Crystal Rock Salt Company has the largest shaft of any kind in the State, the same being 12 x 24 feet in the clear, with four compartments. The shaft is over 1,000 feet deep, and well equipped with machinery for a large output. There are also several large salt wells at Kingman. The Lyons Rock Salt Company, at Lyons, Rice county, has a shaft 1,120 feet deep. This company mine, or under-cut, the salt with two Ingersoll and one Harrison mining machines, run by compressed air. These mining machines do good work, notwithstanding that the under-cutting is very hard. A 55-horse-power Norwalk air compressor furnishes the motive power to run the mining machines and an Ingersoll drilling machine. There is also a 75-horse-power engine to run the machinery, which makes 12 grades of salt. A pair of 18 x 32 inch cylinder engines are used for hoisting; 1¼ inch steel ropes are used, attached to single cages, carrying mine cars holding two tons of salt each. Some of the large lumps of salt, as they come from the mine, are loaded into box cars, and shipped to the cattle ranches for stock purposes. First-class machinery is used to manufacture the salt into a marketable commodity.

The Lyons Rock Salt and Mineral Company is sinking a shaft near the city of Lyons. They were down about 700 feet at my visit.

The Royal Salt Company, at Kanopolis, Ellsworth county, has a good mine. It is well equipped with a pair of 24 x 36 inch cylinder engines, first motion, attached to a conical drum. The engine which drives the salt manipulating machinery is a very fine "Buckeye," automatic cut-off, and gives good satisfaction. Ventilation is maintained by a fan 16 feet in diameter and 8 feet width of blade, and can be used as an upcast or downcast at any time.

Having no power to officially inspect these mines, nor any means of collecting the statistics of the output, neither are here given.

GASES MET WITH IN COAL MINES.

CARBONIC ACID GAS.—Its symbol is CO_2; that is, it is composed of one atom of carbon and two atoms of oxygen. Its specific gravity is 1.524; therefore it is half as heavy again as air, and for that reason, before being mixed with air, it rests on the floors of mines. It is called "choke-damp," "black damp," and "stythe" by the miners, and is colorless and invisible, having a sharp odor and taste. It is composed of 72.73 per cent. by weight of oxygen, and 27.27 per cent. by weight of carbon. Being a direct product of combustion, when any substance containing carbon is burned in the air, it cannot support combustion. On the contrary, it is uninflammable, extinguishes combustion, and a common test as to its presence is given by a light going out if placed in air containing 10 per cent. of carbonic acid gas. Air containing 3 or 4 per cent. of carbonic acid gas is unfit to breathe, and air containing only .35 per cent. of it is very unwholesome when inhaled. Air containing 8 to 10 per cent. of this gas is fatal to life. During animal respiration, carbonic acid gas is given off from the lungs; it is yielded naturally in some mines, and is produced by burning lights or lamps, and from exploding gunpowder. The amount of carbonic acid gas yielded in a mine from animal respiration or as a product of combustion is easily dealt with by the ordinary means of ventilation. In mines where it issues from the strata, or is liberated from water which may have absorbed it in penetrating into the mine, the removal of the gas is more difficult, on account of the large quantity to be carried away.

Carbonic acid gas is most commonly found in dip workings, on the floors of roadways, or at the foot of steeps in rising return air-ways, owing to its specific gravity. Many lives have been lost where men have descended wells and shafts without first taking the precaution of testing them for gas. Sumps of pits, wells or abandoned shafts should be tested to see if this gas is present, before any one descends. Its presence in dangerous quantities is known by lowering a lighted lamp or candle into it, as the light will be immediately extinguished.

CARBONIC OXIDE.—Its symbol is CO, one atom of carbon and one of oxygen. By the miners it is called "white damp." It is colorless, tasteless, and poisonous. It has a slight and peculiar odor. It does not, in the ordinary sense, support combustion; yet, singular as it may seem, candles or lamps will burn in a mixture of it with air, which at once destroys life. It is more poisonous than carbonic acid gas; air containing 1 per cent. is at once fatal to warm-blooded animals breathing it. The effects of a trace of it in the air, if breathed, are a sensation of giddiness, sickness, debility, and

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fainting fits. The report of the French fire-damp commission gives the temperature of ignition of this gas at 1,202 degrees Fahr. It is found in mines as a result of exploding gunpowder, because it is a product of the explosion, and from the combustion of coal or wood under certain conditions, particularly where ventilation is deficient. In mines where the air is good, and constantly maintained so, this gas is not met with. In mines insufficiently ventilated, and where gunpowder is freely used for blasting, the circumstances are favorable for the presence of carbonic oxide gas. The fumes then given off by blasting have a most disagreeable odor, greatly irritating the organs of respiration, and sometimes proving fatal to those who inhale them.

The commissioners appointed to inquire into the accidents in mines in England state in their report that the presence of this dangerous gas in after-damp has never been clearly proved, but its existence is possible in that resulting from an explosion consequent on an outburst of gas. When a coal seam, or the gob, is on fire, the gas is produced in large quantities owing to the imperfect combustion, through efforts made to exclude the air from the fire.

CARBURETTED HYDROGEN, or light carburetted hydrogen, is the "fire-damp" or inflammable gas met with in mines; its symbol is CH_4. Its specific gravity is .562; it is, therefore, more than half as heavy as air. Owing to its lightness, its tendency is to rest against the roofs of mines and in cavities, unless it is displaced by air currents acting upon it. By a property all gases have, called *diffusion*, it gets mixed with air. It is a colorless, inodorous gas, scarcely soluble in water, and does not support combustion or respiration. It is not a poisonous gas, but if breathed in its pure state it causes death, because it does not support respiration. If mixed with twice its own volume of air, it may be breathed for some time without much injury resulting.

When this gas forms 1 part to 30 of air-and-gas mixture, its presence may be detected by the "cap" formed on the flame of a safety lamp. When it forms 1 part out of 13 of the mixture, it may be ignited by a flame, and the whole of the mixture will be converted into a mass of flame, but its force will be feeble. The explosive force, however, increases as the ratio of the gas to air increases, from 1 to 13, to 1 to 8 or 9, at which point it attains its greatest force, but explosions will occur with a diminishing force as the ratio of the gas to air passes from 1 to 8 or 9, to 1 to 5, after which the mixture, instead of exploding, extinguishes the flame of lamps.

The French fire-damp commission gives the temperature of ignition of this gas at 1,436 degrees Fahr., but the report of the Prussian commission gives a much higher temperature of ignition, as silver and copper wires were fused without igniting it.

Mixtures of fire-damp and air may become altogether inexplosive if sufficient carbonic acid gas or free nitrogen be allowed to mix with them; even

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small quantities of these gases, when present in the mixture, lessen the explosive force on ignition.

AFTER-DAMP, resulting from an explosion of fire-damp and air, consists of 71.2 per cent. of free nitrogen, 9.6 per cent. of carbonic acid gas, and 19.2 per cent. of steam; or, in round numbers, out of 10 parts, after-damp contains 7 of nitrogen, 1 of carbonic acid gas, and 2 of steam. Directly after the explosion the steam condenses, and there is then left, out of 8½ parts, about 7½ parts of nitrogen and 1 of carbonic acid gas. Breathing after-damp soon causes death, and many who escape the force of a fire-damp explosion in mines fall victims to the deadly after-damp.

SULPHURETTED HYDROGEN.—Its symbol is H_2S, two atoms of hydrogen and one atom of sulphur. Its specific gravity is 1.171, and it is rather heavier than air. It is this gas which imparts to rotten eggs their offensive smell, and it may be recognized by its odor. It is colorless, and very poisonous, and, even when largely diluted with air, acts as a powerful narcotic. It does not support combustion nor respiration, but is itself combustible, and burns with a blue flame. The water which drains through decomposed pyrites has a muddy, iron color, and exercises an injurious effect on iron rails, pumps, and upon articles made of leather, such as shoes, pump leather, etc. This gas is found in mines as a result of the decomposition of pyrites or some animal substance containing sulphur, and also as a result of exploding gunpowder. The exact proportion of sulphuretted hydrogen fatal to life is not known, but it produces fainting fits when present in very small proportions—different authorities give from .5 to 4 per cent. It is very rarely met with in mines, except as a part of a mixture containing several gases.

DIFFUSION OF GASES.—This property is the influence of a force powerful enough to resist the influence of gravitation, and cause a blending or mixing of gases through each other, notwithstanding their different specific gravities. When light and heavy gases are exchanging places, a larger volume of the light gas passes in one direction than of the heavy gas in the other. When these gases have become thus mixed they will remain so. It is this diffusive force which maintains the atmosphere uniform in constitution. The property of diffusion is only thoroughly carried out when the gases are still. It has little influence for good on the ventilation of mines, and is inadequate as a means of rendering harmless the noxious gases there met with. On the contrary, it is a means of forming inflammable mixtures of gas and air in all quiet nooks and cavities into which fire-damp finds its way.

TREATMENT OF PERSONS OVERCOME BY GAS.—There are quite frequently cases occurring in mines where the men employed therein are prostrated by one or more of the gases common to such places. It is not always possible to obtain the aid of a physician. Instead of crowding around the disabled miner in sympathetic idleness, those who form the onlookers

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should be able to at once address themselves to the best and quickest way of restoring the patient. The following directions, taken from the "Colliery Engineer Pocket-book," are submitted with the hope that they may prove useful in case of accidents:

Miners are exposed to asphyxia when the circulation of the air is not sufficiently active, when the mine exhales a quantity of deleterious gas, when they imprudently penetrate into old or abandoned workings, and when there is an explosion. The symptoms of asphyxia are sudden cessation of breathing, of the pulsations of the heart, and of the action of the senses; the countenance is swollen, and marked with reddish spots; the eyes are protruded, the features are disturbed, and the face is often livid. Such are the most common symptoms noticeable in persons who are overcome by poisonous gases.

The first and best remedy to employ, and in which the greatest confidence ought to be placed, is the renewal of the air necessary for respiration. In succession —

1. Promptly withdraw the person affected from the deleterious place, and expose him to pure air.

2. Loosen the clothes round the neck and chest, and dash cold water on the face and chest.

3. Attempts should be made to irritate the nose on the inside with the feathered end of a quill, which should be gently moved in the nostrils of the insensible person, or to stimulate it with a bottle of volatile alkali under the nose.

4. Keep up the warmth of the body, and apply mustard plasters over the head and around the ankles.

5. If these means fail to produce respiration, Doctor Sylvester's method of producing artificial respiration should be tried, as follows: Place the patient on the back, on a flat surface inclined a little upwards from the feet; raise and support the head and shoulders on a small, firm cushion, or folded article of dress placed under the shoulder-blades; draw forward the patient's tongue and keep it projecting beyond the lips; an elastic band over the tongue and under the chin will answer this purpose, as it will retain the tongue in that position; remove all tight clothing from about the neck and chest, especially suspenders, should the patient wear them; then, standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and keep them stretched upwards for two seconds (by this means air is drawn into the lungs); then turn down the patient's arms and press them gently and firmly for two seconds against the sides of the chest (by this means the air is pressed out of the lungs).

Repeat these measures alternately, deliberately, and perseveringly, about 15 times in a minute, until a spontaneous effort to respire is perceived; immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth.

6. To promote warmth and circulation, rub the limbs upward with firm, grasping pressure and energy, using handkerchiefs, flannels, or other substitutes which may be at hand. Apply hot flannels, bottles of hot water, heated bricks, etc., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet.

7. On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing has returned, small quantities of wine, warm brandy and water or coffee should be administered.

8. These remedies should be promptly applied, and as death does not certainly appear for a long time, they ought only to be discontinued when it is clearly confirmed. Absence of the pulsations of the heart is not a sure sign of death, neither is the want of breathing.

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RECOMMENDATIONS.

In the Fourth Report of the State Mine Inspector, the writer recommended some amendments to paragraph 3847 of the Revised Statutes of 1889, whereby some means should be on hand for the workmen to get out of a mine where a second opening had been made, there being no provision in the mining law for this purpose since 1885, when the following section of the law was repealed. Section 4, chapter 117, Session Laws 1883, read as follows:

SEC. 4. Where the natural strata are not safe, every working, pumping and escapement shaft shall be securely case-lined, or otherwise made secure, and all escapement shafts shall be provided with ladders, securely fastened, so as to bear the combined weight of not less than 10 men ascending or descending the same; and where ladders cannot be conveniently used, other safe means of hoisting the persons employed in any such coal mine shall be kept ready, so as to be available in case of accident to the regular hoisting shaft or machinery in use at the same.

The elimination of this section from the mining law rendered that part of it which provided for a construction of a second opening almost useless, as a hole in the ground, called a "second opening," would be of very little service if there were no means provided for getting out of the same.

Paragraph 3860, General Statutes of 1889, provides as follows:

No person under 12 years of age shall be allowed to work in any coal mine, nor any minor between the ages of 12 and 16 years, unless he can read and write, and furnish a certificate from a school-teacher, which shall be kept on file, showing that he has attended school at least three months in the year; and in all cases of minors applying for work, the agent of such coal mine shall see that the provisions of this section are not violated; and upon conviction of a willful violation of this section of this act, the agent of such coal mine shall be fined in any sum not to exceed $50 for each and every offense.

As a matter of fairness, the agent of a coal mine who is liable to a fine should have some protection, but at present he has none, having to depend on the veracity of these minors, or their parents, who seek employment for them. Therefore it would be wise to add a provision to this section requiring the parents or guardians of all minors applying for work to make affidavit to the boys' age before they were given work by the pit boss or agent of the mine.

In my introduction to this report, I call attention to the fact that there is complaint from various sources that the Mine Inspector does not visit mines as often as is desired. The appropriation under the present law does not pay the salary and expenses of one man; therefore, there is no pay provided for assistance to be employed to perform the duties required by the

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law as to making visits to the mines, collecting the statistics relating to the same, and giving the necessary care to the accidents that occur. Likewise no provision is made for postage, expressage, or the multifarious expenses which occur daily, every expense having to be paid out of the Inspector's salary — including traveling and livery hire. In other States having mining interests, the Inspector is provided with a fund for all expenses, said fund being available for use monthly, or quarterly, at furthest, and in addition has a clerk to assist with the correspondence and the compiling of his report. The mining interests of this State are too large for one inspector to attend all the duties incumbent upon him in a satisfactory manner. I would therefore recommend that the Legislature provide for an Asssistant Mine Inspector or divide the State into two inspection districts.

The workmen in the salt, lead, zinc and gypsum mines of this State should not be overlooked, as it is the duty of the State to protect the lives and health of the miners employed in these industries as well as in the coal mines. I think it is very essential that the benefits of the mining law should be extended to them all.

The collection of statistics heretofore has been quite a burden and cause of expense to this office. Paragraph 3857, General Statutes of 1889, makes it the duty of coal operators to make quarterly statements to the Inspector of the amount of coal mined, and all persons employed in and around the mine. While most of the large companies comply with this provision of the law, many of the smaller mines and the strip banks do not, and it is impossible to get this data except by personal visits. As there is no penalty attached to this provision, it cannot be strictly enforced. I would recommend that a small fine be provided as a penalty, and that the law be made to include strip-bank operators as well as mines. In order to make the statistics of the output of coal complete, it is necessary that the reports should come in as regularly as possible.

The mining interests of the State are becoming so important that the question of the qualifications and ability of the Mine Inspector should be put beyond a cavil or doubt. Therefore, I would suggest the passage of a law embodying the features set forth in the following from the mining law of Iowa:

> The Executive Council shall appoint a board of examiners composed of two practical miners, two mine operators, and one mining engineer, who shall have at least five years' experience in his profession. The members of said board shall be of good moral character, and citizens of the United States and State of Iowa, and they shall, before entering upon their duties, take the following oath (or affirmation): "I, ———, do solemnly swear (or affirm) that I will perform the duties of examiner of candidates for the office of Mine Inspector to the best of my ability, and that in recommending any candidate I will be governed by the evidence of qualification to fill the position under the law creating the same, and not by any consideration of political or personal favors; that I will grant certificates to candidates according to their qualifications and the requirements of the law." They shall hold their office for two years.

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Said board shall meet biennially, on the first Monday in April of each even-numbered year, except that for the year 1888 said board shall meet on the second Monday, in the office of the State Mine Inspector in the Capitol, and they shall publish in at least one newspaper published in each mining district of the State the date fixed by them for the examination of candidates. They shall be furnished with the necessary stationery and other necessary material for said examination, in the same manner as other State officers are now provided. They shall receive as compensation the sum of $5 per day for time actually employed in the duties of their office, and actual traveling expenses. The said compensation and expenses shall be paid in the same manner as the salaries and expenses of other State officers are now paid: *Provided*, That in no case shall the per diem received by any member exceed $50 for each biennial session.

Certificates of competency shall be granted only to citizens of the United States and State of Iowa, of good moral character, not less than 25 years of age, who shall have at least five years' experience in the mines, and who shall not have been acting as agent or superintendent for any mine for at least six months prior to their appearance for examination.

The examination of candidates for the office of Mine Inspector shall consist of oral and written questions in theoretical and practical mining and mine engineering, on the nature and properties of noxious and poisonous gases found in mines, and on the different systems of working and ventilating of coal mines. The candidates shall not be allowed to have in their possession, at the time of their examination, any books, memoranda or notes to be used as aids in said examination. The board of examiners shall give to all persons examined who, in their judgment, possess the requisite qualifications, certificates of such qualification; and from the persons holding such certificates the Governor shall appoint the State Mine Inspector.

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ERRATA.

Page 2, in second line, read December 31, instead of December 1.

Analysis of earnings of Cherokee county miners for 1893, not marked in contents. See page 15.

Analysis of the earnings of the Crawford county miners for 1893. See page 41.

Analysis of the miners' earnings in Leavenworth county for 1893. See page 56.

On page 70—table of coal mines for Osage county for 1893—in the column headed, "Average thickness of vein in inches," the thickness, as printed, is 12 inches too much in each case.

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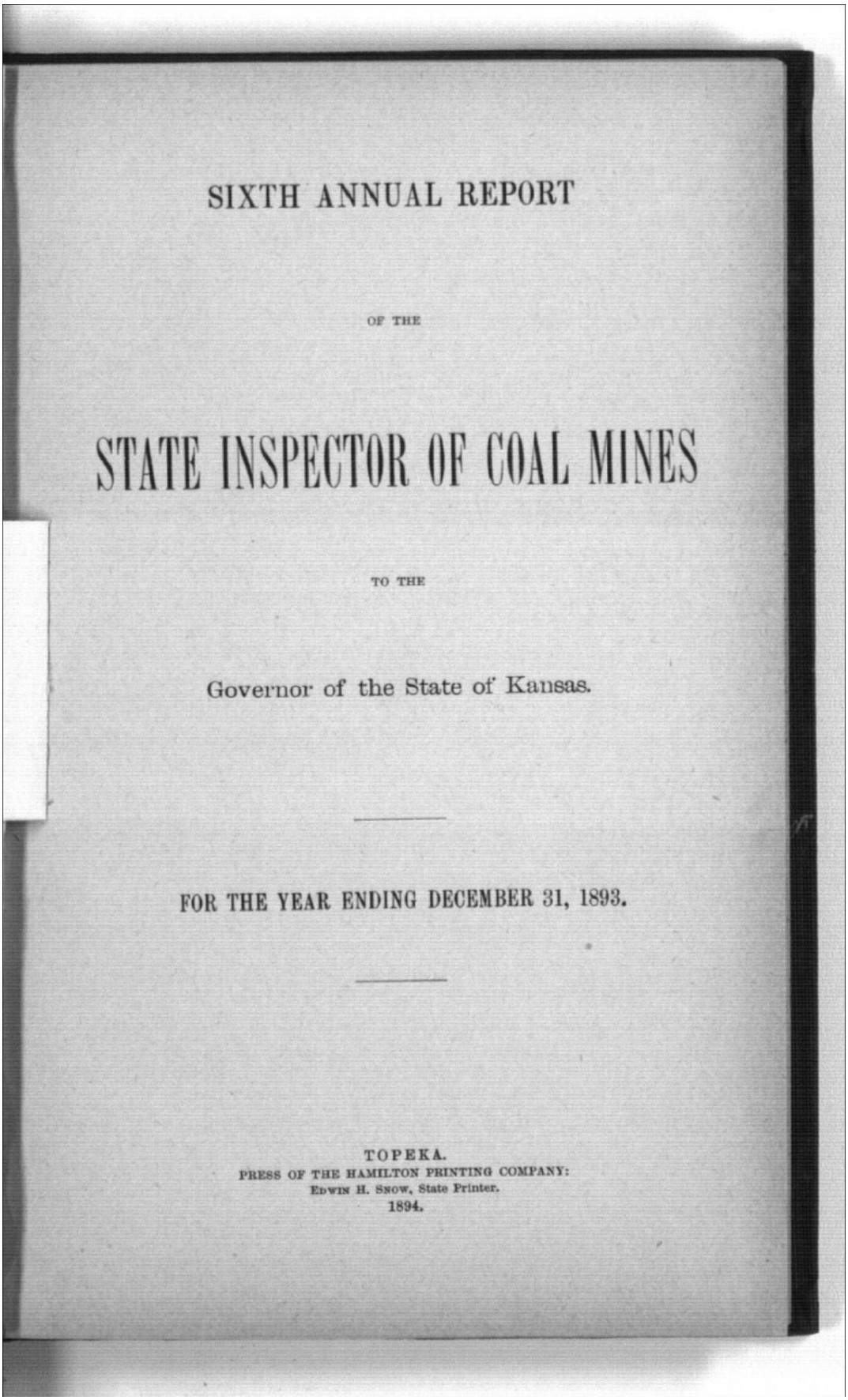

SIXTH ANNUAL REPORT

OF THE

STATE INSPECTOR OF COAL MINES

TO THE

Governor of the State of Kansas.

FOR THE YEAR ENDING DECEMBER 31, 1893.

TOPEKA.
PRESS OF THE HAMILTON PRINTING COMPANY:
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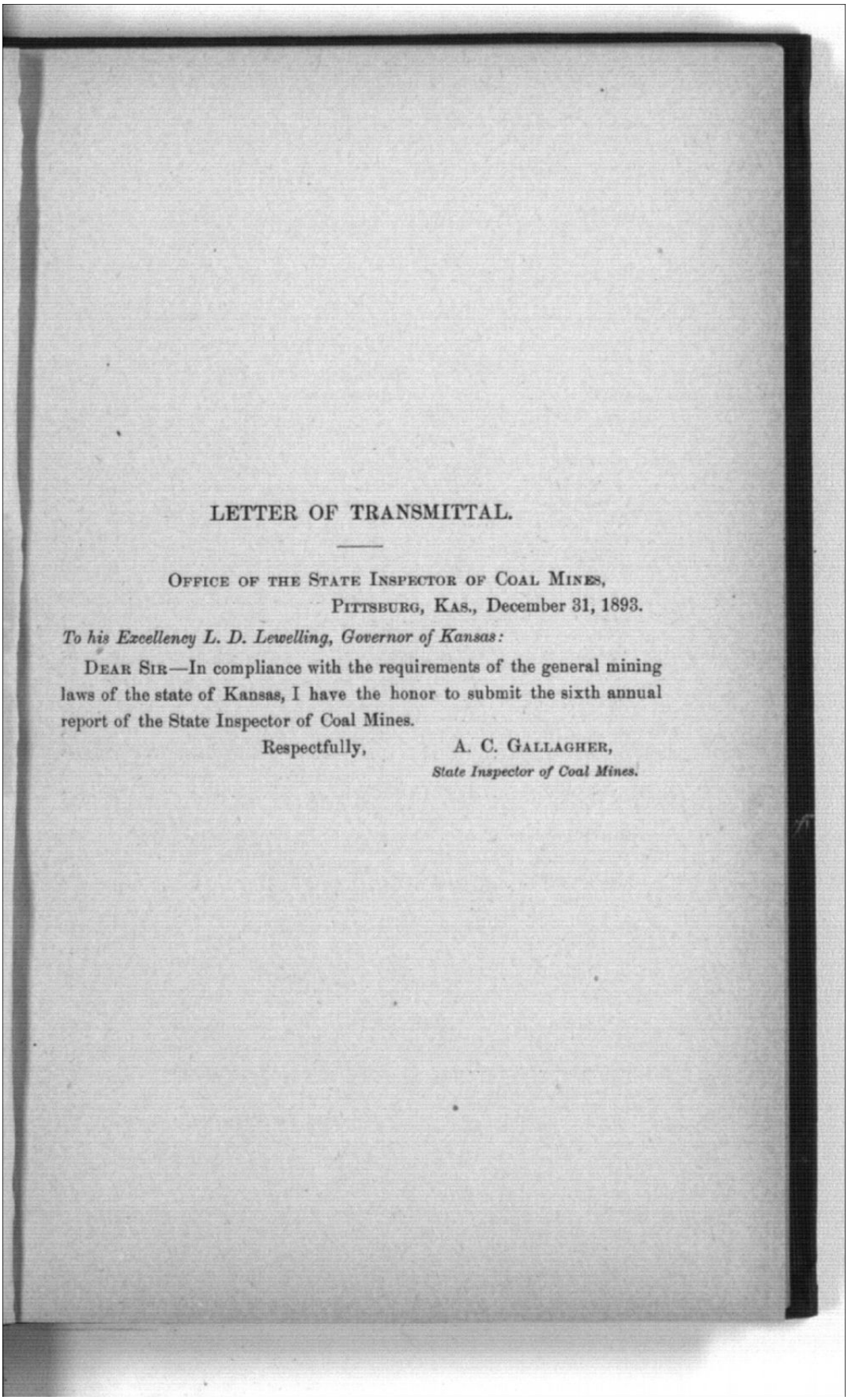

LETTER OF TRANSMITTAL.

OFFICE OF THE STATE INSPECTOR OF COAL MINES,
PITTSBURG, KAS., December 31, 1893.

To his Excellency L. D. Lewelling, Governor of Kansas:

DEAR SIR—In compliance with the requirements of the general mining laws of the state of Kansas, I have the honor to submit the sixth annual report of the State Inspector of Coal Mines.

Respectfully, A. C. GALLAGHER,
State Inspector of Coal Mines.

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REPORT.

THIS report contains an account of my duties as State Inspector of Coal Mines from April 1 to December 1, 1893.

Statistics and descriptions of 17 coal-producing counties are herein contained, giving name of operator, name or number of mine, post-office address, number of days worked in 1893, the number of bushels produced by each mine, and the estimated value of same, the number of miners and day hands employed, average price paid per bushel for mining unscreened coal; describes kinds of opening, whether shaft, drift, or slope; shows whether mine has two surface openings or not, depth of each shaft, kind of coal mined, thickness of vein, and system by which coal is mined; describes by what power operated and ventilated, giving divisions of air in each mine; describes whether shaft is connected with railroad or not, and the number of kegs of powder used, and giving a descriptive history of each and every mine in the state; also giving an analysis of the miners' earnings in the four principal coal-producing counties, viz.: Cherokee, Crawford, Osage, and Leavenworth; and a table showing the miners' total receipts and necessary disbursements for each of the four counties, for 1893.

There are 243 coal mines in the state, which gave employment to 9,891 men, producing 72,048,268 bushels, or 2,881,930 tons (short tons), the estimated value of which was $3,960,331.64. The number of accidents for 1893 were 76—15 fatal, and 61 nonfatal. This would give a ratio of 5,542,-174 bushels mined to each fatal accident, and 1,181,119 bushels to each nonfatal accident; 7 of the fatal accidents occurred in Cherokee county, 5 in Crawford, 2 in Leavenworth, and 1 in Shawnee county. Of the nonfatal accidents, 33 occurred in Crawford county, 11 in Osage, 5 in Leavenworth, and 2 in Linn county. Of the 15 fatal accidents, but 5 were practical miners.

In addition to this is a record of boiler inspections and maps or plans of mines; also a history of the strike, or suspension, and an article on coal dust; philosophy of ventilation, a treatise on coal mines and their supervision, general mining law, and a glossary of technical mining terms.

STATISTICS, DESCRIPTION AND INSPECTION OF COAL MINES, BY COUNTIES.

ATCHISON COUNTY.

In this county a new field of coal has been discovered, three miles south of Atchison city, and in exploring this field W. S. F. Donald began operations in November, 1893. The vein has an average thickness of 15 inches, of the finest quality of bituminous coal. The work now in operation is a drift, and extensive preparations are being made to develop the vein. Only a very small amount was produced in 1893—about 2,375 bushels, or .003 per cent. of the total output of the state, its value at the mine being $213.75. I visited this field the latter part of November, 1893, and found considerable active prospecting in progress. Mr. Binning was sinking a prospect shaft six miles south of the city, near the Missouri river. The same vein has been found about half way between Binning's works and the city, and there is every prospect of its active operation. The mine now in operation is near the Missouri Pacific railroad, and, so far, the most of the work done has been in the way of improvements, such as brushing and timbering the drift, building tipple, etc. Twenty-five men have been employed, under the management of Mr. George Grant, superintendent and pit boss. He is calculating to operate on the "long-wall" system.

BOURBON COUNTY.

Kind of coal, bituminous; thickness, 10 to 18 inches; average depth of coal from surface, 10 feet; total output for 1893, 475,000 bushels, or .659 per cent. of the total output of the state; estimated value, $33,250.

The coal of Bourbon county is obtained from drift mines and strip banks; nearly the entire output is used for household purposes. None of the mines or strip banks are in connection with the railroads.

The greater part of the mines are operated only in autumn and winter, and employ from one to six miners, who lease the mines from the owners of the land at 1 cent per bushel royalty.

There is no system carried out in developing this vein. Each man mines under any system most convenient whereby he can procure the most coal. They drift under the hill until such time as it becomes impossible for them to mine any longer for want of air, as they have no system of ventilation in the majority of drifts.

Having no boss or superintendent, the mining laws are disregarded, and when requested to comply with the law they abandon many of the drifts and commence operation in some other convenient place. In fall and winter, about 185 men are employed in the various drifts and strip banks in this county.