

State inspector of coal mines reports

Section 15, Pages 421 - 450

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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OFFICE OF STATE INSPECTOR OF COAL MINES,
SCAMMON, KAS., December 31, 1891.

To his Excellency Lyman U. Humphrey, Governor :

DEAR SIR — I have the honor to herewith submit the fifth report of the
State Inspector of Coal Mines. Very respectfully,

JOHN T. STEWART, *Inspector.*



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REPORT.

THIS report contains a description of the condition of the mines for the year ending December 31, 1891, with the statistics of the output of coal for the years 1890 and 1891.

As stated in my last report, the statistics for 1890 could not be collected except by personal visitation in a great many instances. I have repeatedly sent letters, and blanks accompanying the same, but no answer would be forthcoming, or, when received, would be so carelessly filled that it was of no value. I was determined that my report should not go to press again until the statistics of the current year would be contained therein, which accounts for the delay in the publication.

As usual, complaints have been made about the carelessness of mine bosses in relation to ventilation, which were on investigation generally found to be well grounded. If the workmen would adopt a system of reporting the condition of the mines to the Mine Inspector, it would aid him in the performance of his duties, and result in a material benefit to themselves, and could result in injury to none concerned who intended to comply with the law. Some such method would compel those who are careless to do their duty. Some of the workmen say that they are afraid to complain to the Inspector for fear of being discharged. This is an old bugbear in the minds of miners as a class, and yet there has never been anyone discharged for such cause to my knowledge in the State of Kansas.

Another complaint by the miners is, that when the Inspector comes to the mine he always inquires for the pit boss, and does not ask for any of the workmen to accompany him in the examination of the shaft. There are two reasons why the Inspector goes to the pit boss. In the first place, no miner wishes to leave his work and lose a day for the benefit of others; and the second reason is, that the mine boss *should* accompany the Inspector, as he—the mine boss—is the responsible party for all defects in the enforcement of the law, as it relates to the actual working of the mine. A reading of section 6, chapter 117, Session Laws of 1883, will convince anyone of the truth of the above statement. The law reads as follows:

SEC. 6. In order to better secure the proper ventilation of every coal mine, and promote the health and safety of the persons employed therein, the owner, agent or operator shall employ a competent and practical inside overseer, to be called "mining boss," who shall keep a careful watch over the ventilating apparatus, the air-ways, traveling-ways, pumps, and pump timbers, and drainage, and shall see that as the



miners advance their excavations all loose coal, slate, and rock overhead are carefully secured against falling in upon the traveling-ways. And every underground plane on which persons travel, worked by self-acting pulleys, engines, windlasses, or machinery of whatever description, shall be provided with proper means of signaling between the stopping places and the ends of the plane; and shall furthermore be provided in every case, at intervals of not more than 30 feet, with sufficient man-holes for places of refuge. And every road on which persons travel underground, where the coal is drawn by mules or other animals, shall be provided, at intervals of not more than 60 feet, with sufficient man-holes for places of refuge. And every mine shall be supplied with sufficient prop timber, of suitable length and size for the places where it is to be used, and kept in easy access to. And it shall also be the duty of the mining boss to measure the air current at least once per week at the inlet and outlet, and at the face of the workings, and keep a record of such measurements, and report the same to the Inspector of the State once in every month. The safety lamps used for examining mines, or which may be used for working therein, shall be furnished by and be the property of the owner of said mines, and shall be in charge of the agent of such mine. And in all mines generating explosive gases, the doors used in assisting or directing the ventilation of the mine shall be so hung and adjusted that they will close themselves, or be supplied with springs or pulleys so they cannot be left standing open; and bore-holes shall be kept, not less than 12 feet in advance of the face of every working place, and, when necessary, on the sides, if the same is driven toward and in dangerous proximity to an abandoned mine suspected of containing inflammable gases, or which is inundated with water.

The above will show conclusively that the law has provided for a "mining boss," and it is through this man that the Mine Inspector is to communicate when he desires any changes to be made in the ventilation and safety of the mine. It is not claimed that the Mine Inspector may not make other inquiries, but it is plain that the "mine boss" is held directly responsible under the law; and such being the case, it is but just and fair that he (the mine boss) should be the first to be communicated with when the Inspector visits the mine. The complaint—if well founded—should be laid to the credit of the law and not to the Mine Inspector. It is my opinion that the law providing for a "mining boss" has placed too many duties upon one man—no matter how competent or painstaking he may be. Some of the larger mine operators recognize this fact by employing two—and sometimes three—"mining bosses," or assistants, to aid in attending to the duties enumerated by the law.

Notwithstanding the roof in the mines of this State is what might be termed safe, the majority of accidents have resulted from "falls of roof," and in every instance where such were investigated there were plenty of props and caps within easy reach of the injured. Hurry to get the work done and the coal out before attending to the propping of the roof has in many instances resulted in accident to the workman. This subject is more fully treated under the head of "Accidents."

There have been no serious explosions in the mines of this State during the year last past, but great carelessness has been indulged in by some of the men employed as shot-firers. So frequent and serious had accidents



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to those engaged in shot-firing become, that I had the following circular printed and posted up at each mine where it was necessary to have shot-firers employed:

CAUTION.

OFFICE OF STATE INSPECTOR OF COAL MINES, }
SCAMMON, November 12, 1891. }

To Miners and Shot-Firers: The attention of miners and shot-firers is hereby called to that part of the law in bold-faced type, a copy of which is hereunto attached.

The issuance of this circular is made necessary by the fact that, during the month of October, 1891, five accidents occurred to men while acting as shot-firers, one of which proved fatal. This is unprecedented, and shows a negligence and disregard of the law by shot-firers or miners, or both. The increasing practice of shot-firers separating at the bottom of the shaft, and doing their work singly, in order to get done with it in a short and hurried manner, should be discontinued. Also, that of the shot-firer going back immediately after a shot has missed fire; this should not be done until all the shots in the mine have been fired; then those which have missed could be approached, and another trial made to get them off.

JOHN T. STEWART, *Inspector.*

PROTECTION OF LIFE AND PROPERTY IN MINES.

[Session Laws of 1889, ch. 172, p. 252.]

SECTION 1. Shot-firers. SEC. 2. Conditions. SEC. 3. Managers; penalty. SEC. 4. Miners penalty.

Shot-Firers.—SECTION 1. All owners, lessees, operators of, or any other person having the control or management of any coal shaft, slope, drift or pit in this State employing miners to work therein, shall employ shot-firers to fire the shots therein. Said shots shall be fired once a day on each day when any such shaft, slope, drift or pit is in operation, but shall not be fired until after all miners and other employes working therein shall have been hoisted out of said mine.

Conditions.—SEC. 2. It shall be unlawful for any miner or any other person other than the shot-firers provided for in section 1 of this act to fire any shot in any coal shaft, slope, drift or pit in this State. Any miner or other person engaged in mining coal in this State who shall drill any hole or fire any shot in the coal vein at the working-face of any room or entry until so much of said coal vein at said working-face as the said shot or shots are intended to throw down shall have been undermined to the depth of not less than two feet, or sheared or cut to the full depth of the drill or shot-hole and of the full thickness of the coal vein in rooms, or shall have been sheared to the full depth of the drill or shot-hole and the full thickness of vein in entries, or who shall so direct the drilling of such holes as to include between such shearing or mining and the back or rear end of the hole a greater width of coal than is contained between such shearing or mining and the mouth of the hole, shall be deemed guilty of a misdemeanor, and fined as hereinafter provided.

Managers; Penalty.—SEC. 3. Any owner, lessee, operator, or other person having the control or management of any coal shaft, slope, drift or pit, who shall refuse to furnish the shot-firers, as provided for in section 1 of this act, shall be deemed guilty of a misdemeanor, and, on conviction therefor, shall be fined in any sum not less than \$50 nor more than \$200 for each offense, or imprisonment in the county jail in the county where such offense is committed for a period not to exceed 30 days, or by both such fine and imprisonment; proceedings to be instituted in any court having competent jurisdiction.

Miners; Penalty.—SEC. 4. Any miner or other person who shall fire any shot in violation of section 2 of this act shall be deemed guilty of a misdemeanor, and, on conviction therefor, shall be fined in any sum not less than \$50 nor more than \$200, or imprisonment in the county jail in the county where such offense is committed not to exceed 30 days, or by both such fine and imprisonment; proceedings to be instituted in any court having competent jurisdiction.

Since this warning was issued, greater care has been taken in the firing of shots, and, as a consequence, less accidents have occurred from that cause.



Section 20, chapter 143, Session Laws of 1885, confining the amount of powder to be taken into a mine at one time to five pounds, on investigation was found to be not a sufficient quantity of powder for a full day's work in the majority of the mines located in Cherokee and Crawford counties; therefore the following law was presented and passed at the last session of the Legislature; and I caused the same to be issued on cards, 9x12 inches in size, and posted at each mine where powder was used:

NOTICE.

HANDLING OF POWDER.

AN ACT to amend an act entitled "An act to provide for the health and safety of persons employed in and about the coal mines of Kansas, and providing for the inspection of the same," and amendatory of section 3351 of the General Statutes of 1889.

SECTION 1. It shall be unlawful for any miner or other person to take into or have in his possession in any coal-mine shaft, slope or pit in this State more than twelve and one-half ($12\frac{1}{2}$) pounds of powder or any other explosive substance at any one time; and all such powder or other explosive substance shall be kept in a tight box, securely locked, and such boxes shall be kept at least 20 yards from the working-face in all such coal-mine slopes, drifts, or pits; and it shall be the duty of all pit bosses or other persons who shall be in charge or control of any coal-mine slope, drift or pit in this State to keep watch over and see that the provisions of this act are complied with; and any person violating or neglecting to comply with the provisions of this act shall be deemed guilty of a misdemeanor, and shall, on conviction before any court having jurisdiction thereof, be fined in any sum not less than \$10 nor more than \$50, or by imprisonment in the county jail not more than 30 days, for each and every such offense; and the possession of more than $12\frac{1}{2}$ pounds of powder or any other explosive substance in such coal mine, slope or drift shall be *prima facie* evidence of the person taking said powder or other explosive substance into such mine, slope, or drift.

SEC. 2. Any miner, workman or other person who shall intentionally injure any safety lamp, instrument, airway, brattice, or obstruct or throw open airways, or carry lighted lamps, pipes or matches into places worked by the light of safety lamps, or shall move or disturb any part of the machinery, or who shall open a door and not close it again, or enter any place of the mine against caution, or disobey any order given in carrying out the provisions of this act, or who shall do any willful act whereby the lives or health of persons or the security of the mine or the machinery is endangered, shall be guilty of a misdemeanor, and, on conviction, shall be punished by a fine, or imprisonment, at the discretion of the court.

SEC. 3. All acts or parts of acts in conflict with the provisions of this act are hereby repealed.

SEC. 4. This act shall take effect and be in force from and after its publication in the official State paper.

Approved March 10, 1891.

The attention of miners and mine owners is respectfully called to the provisions of the above law.

JOHN T. STEWART, Inspector.

Despite this caution and warning, in some of the mines, the workmen persisted in taking into the mine kegs containing 25 pounds of powder. There has been a great deal of trouble in securing compliance with this law. It seems strange that, when the law was changed to give the men enough powder for a day's use, they would continue to take into the

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mine powder in quantities to do the work for several days, thus causing a large storage of one of the most dangerous explosives. Such action not only puts in jeopardy the life of the violator of the law, but equally menaces the lives of men who obey the law strictly. As a general rule, when attention was called especially to the law by a visit to the mine, a more general observance of the same has taken place.

On page 96 of the Fourth Report of the Mine Inspector of this State, under the "Recommendations" of changes in the mining laws, the following occurs:

For the better protection of the miners and other workmen employed in and about the mines, it is necessary that legislative action be had on the present incomplete mining law. The law needs revision, and some essential additions thereto are required.

At every session of the Legislature, with one exception, changes have been made in section 2, chapter 117, Session Laws of 1883. Every change has made it worse and more complicated. The amendments made at the session of 1889 to the above section exempts shafts which are 700 feet deep, or over, from the operation of the law. The final provision of the section leaves the responsibility of the number of men to be employed in such mines on the Mine Inspector. Another material change in the same section is the one changing the depth that an escapement shaft shall be sunk during each six months from 100 to 50 feet. Such changes as noted above are retrogressive, and not in accordance with the mining and mechanical engineering knowledge of the last quarter of a century, when it is a well-known fact that shafts have been sunk in the State over 800 feet deep in six months. No doubt the cost of sinking a shaft to a depth over 700 feet is considerable; but what is cost compared with the lives of the workmen? Such examples as the Hartley disaster in England, where 204 lives were lost, and the Avondale holocaust in Luzerne county, Pennsylvania, with many similar cases where so large numbers were not involved, should be a bar to all legislation even tacitly favoring the working of single shafts—except that necessary to make the proper communications.

Section 6 of chapter 143, Session Laws of 1885, repealed section 4, chapter 117, of Session Laws of 1883, which 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 any accident to the regular hoisting shaft or the machinery in use at the same.

The repealing of this section left no provision for means of escape by a second opening in case of accident to the main hoisting shaft, thus rendering two of the principal provisions of the law nugatory. This section, or one similar, should be enacted into law as soon as possible.

In accordance with the above recommendations, I endeavored to get a bill passed that would remedy the evils enumerated as far as possible. The following is a copy of chapter 174 of the Laws of 1889, and also a copy of Senate bill 191:



CHAPTER 174. LAWS 1889.

AN ACT to amend section 1 of an act of the Legislature of the State of Kansas, entitled "An act to amend an act entitled 'An act to provide for the health of persons employed in and about the coal mines of Kansas, and providing for the inspection of the same,' being chapter 117 of the Laws of 1883," approved March 7, 1885.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. That section 1 of an act of the Legislature of the State of Kansas, entitled "An act to amend an act entitled 'An act to provide for the health and safety of persons employed in and about the coal mines of Kansas, and providing for the inspection of the same,' being chapter 117 of the Laws of 1883," approved March 7, 1885, be and the same is hereby amended so as to read as follows: Section 1. That section 2 of chapter 117 of the Laws of 1883 be and the same is hereby amended so as to read as follows: It shall not be lawful, after six months from the passage of this act, for the owner, agent or operator of any coal mine to employ any person at work within said coal mine, or permit any person to be in said coal mine for the purpose of working therein, unless they are in communication with at least two openings, separated by natural strata of not less than 80 feet in breadth if the mine be worked by shaft or slope, and if worked by drift not less than 50 feet: *Provided, however,* That such coal mine shall not exceed 100 feet in depth, from the surface to the coal; and for every additional 100 feet, or fractional part thereof, six months additional time will be granted; but in all cases the number of men shall be limited not to exceed 25 until the second opening is perfected and made available; and a roadway to the same shall be kept open, not less than three feet high and four feet wide, thereby forming a communication as contemplated in this act, but the limit herein prescribed as to the number working in the shaft before the completion of the second opening shall not apply to mines exceeding 700 feet in depth. And for a failure to do as provided in this section, the owner, agent or operator shall be subject to the penalty provided for in section 16 of this act. And in case furnace ventilation being used before the second opening is reached, the furnace shall not be within 40 feet of the foot of the shaft, and shall be secured from danger from fire by brick or stone walls of sufficient thickness; and the flues shall be composed of incombustible material to an extent of not less than 30 feet from the furnace and the mine while being driven for making or perfecting a second opening. In all cases where the human voice cannot be distinctly heard, the owner, agent or operator shall provide and maintain a metal tube from the top to the bottom of the shaft or slope, suitably adapted to the free passage of sound, through which conversation may be held between persons at the bottom and top of such shaft or slope; and there shall also be maintained the ordinary means of signaling to and from the top and bottom of such shaft or slope. In all mines of 100 feet in depth or over from the surface to the ground an improved safety-catch shall be used, and sufficient horns or flanges shall be attached to the sides of the drum of every machine that is used for lowering or hoisting persons into and out of said mine where steam is used, and adequate brakes shall be attached thereto. The main link attached to the swivel of the wire rope shall be made of the best quality of iron, and shall be tested by weights or other means satisfactory to the Inspector of Mines of the State; and bridle chains shall be attached to the main link from the cross-pieces of the cage, and no single-link chain shall be used for lowering or raising persons into or out of said mine; and not more than six persons shall be lowered or hoisted by the machinery at any one time; and only sober, competent and experienced engineers shall be employed, and said engineer shall have attained at least the age of 18 years; and on no account shall any coal be hoisted, or timber or any other material sent up or down, or empty cars, while persons are descending into or ascending out of said mine. In all coal mines hereafter opened, or that shall hereafter go into operation in the State, the owner thereof or owners, lessee, agent or operator shall construct such escapement shaft as is now required by law in this State, *at the rate of 50 feet every six months until such escapement shaft shall have been fully completed*; and until such escapement shaft is fully completed and connected with the main shaft, it shall be unlawful to work over 25 men in said mine: *Provided further,* That the number of men to be employed in any mine 700 feet deep or more prior to the time when a second or air shaft is sunk, shall be designated by the State Mine Inspector after a careful examination of all the conditions as to the safety and health of the men in the mines.

SEC. 2. That original section 1 of said act be and the same is hereby repealed.

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SEC. 3. This act shall take effect and be in force from and after its approval, and publication in the official State paper.

Approved February 28, 1889.

SENATE BILL No. 191.

By Senator NORTON: An act to amend an act entitled "An act to provide for the health and safety of persons employed in and about the coal mines in the State of Kansas," and providing for the inspection of the same, and amendatory of paragraph 3847, the same being section 18, General Statutes of 1889.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. In all coal mines that are now or have been in operation prior to the first day of May, A. D. 1891, and which are worked by or through, shaft, slope or drift, if there is not already an escapement shaft to each and every coal mine, or communication between each and every coal mine, or some other contiguous mine, then there shall be an escapement shaft, or other communication, making at least two distinct means of ingress and egress for all persons employed or permitted to work in such coal mine. Such escapement shaft, or other communication with a contiguous mine as aforesaid, shall be constructed in connection with every vein or stratum of coal worked in such coal mine, which shall be at least three feet high and at least five feet wide; and the time to be allowed for such construction shall be one year when such mine is less than 500 feet in depth, and two years for all mines over 500 feet in depth, from the first day of May, A. D. 1891. And in all cases where the working-faces of one mine has been driven up to, or into the workings of another mine, the respective owners of such mines, while operating the same, shall keep open a roadway, as hereinbefore described, thereby forming a communication as contemplated in this act. Each and every such escapement shaft shall be separated from the main shaft by natural strata of not less than 80 feet in breadth if the mine be worked by shaft or slope; and if worked by drift, not less than 50 feet, and shall be equipped with stairways or ladders having landing places or platforms at least every 20 feet from the bottom to the top, or in lieu thereof, such hoisting apparatus as will enable the employes in the mine to make safe and speedy exit in the case of danger or any accident to the regular hoisting shaft or the machinery in use at the same; all such escapement shafts shall be kept clear of water, ice, smoke or any other obstruction. In all coal mines that shall go into operation for the first time after the first day of May, A. D. 1891, and in all cases where such mine or mines shall hereafter be put into operation in this State, the owner, the agent or operator of the same shall construct an escapement shaft, as is required by this act to be constructed in coal mines in this State, at the rate of 500 feet per annum, until such escapement shaft shall have been fully completed.

SEC. 2. In case of furnace ventilation being used before the second opening is reached, the furnace shall not be within 40 feet of the foot of the shaft, and shall be well secured from danger by the fire by the use of incombustible material for the construction of the same to a distance of 30 feet from the furnace until a second opening is completed. In all mines of 100 feet in depth, or over, from the surface of the ground, where steam is used for lowering or hoisting the workmen employed therein, shall have a good and sufficient brake attached to the hoisting drum, and no single-link chain shall be used for lowering or hoisting persons into or out of said mines, and not more than six persons shall be lowered or hoisted on any single cage at any one time, and only sober, competent and experienced engineers shall be employed, and said engineers shall have attained the age of 21 years; and on no account shall any coal be hoisted or timbers or any other material sent up or down, or empty cars, while persons are descending into or ascending out of said mine. And for a failure to comply with the provisions of this act, the owner, agent or operator of any coal shaft, slope or drift in this State shall be deemed guilty of a misdemeanor, and subject to a fine of not less than \$100, nor more than \$1,000, or by imprisonment in the county jail not more than three months, or by such fine and imprisonment.

SEC. 3. All acts or parts of acts in conflict with the provisions of this act are hereby repealed.

SEC. 4. This act shall take effect and be in force from and after its publication in the official State paper.

This bill passed the Senate. The changes sought to be made therein, in my opinion, are for the improvement of the mines and the safety of the miners. In the first place, it forces those parties who have not a second



opening to their mine to sink 500 feet in the first year, if their shaft is that depth—under or over there is no exception; while the law of 1889 gave the mine owners four years to sink the same distance. Secondly, under the law as it stands to-day, and as it has been since the repeal of section 4, chapter 117, Session Laws of 1883, a second opening would be of no practical use to the miners as a means of escape in case of accident to the main shaft, as the operators are not required to provide any means of getting out of the same after it has been sunk. Senate bill 191 made provision for a means of escape when the second opening had reached the bottom. (See that part printed in *italic*.) This bill would also have cleared the law of useless and meaningless verbiage and all indefinite provisions, as it states clearly and definitely what was intended to be accomplished by it, and attaches a definite penalty for violation of the law. It requires the services of an expert to find any penalty for violation of the law of 1889, and, if found at all, the conflicting statements surrounding the same are such as to render the law weak in what should be its strongest point. If this bill had become a law, three of the mines in Leavenworth county which had been running without a second opening would have had to commence sinking an escapement shaft on the first of May, 1891, and would have had the same completed in about six months without any further trouble, as the law would have been definite on the matter. But when this bill failed of passage and complaints were reaching me from the Leavenworth mines, I applied to the Attorney General for a construction of the law as it now stands, and received the following reply:

STATE OF KANSAS, OFFICE OF ATTORNEY GENERAL,
TOPEKA, March 7, 1891.

John T. Stewart, Inspector of Coal Mines:

DEAR SIR—Your communication of March 5, addressed to the Attorney General, wherein you desire his official opinion on the proper construction to be placed upon the clauses limiting the number of workmen to be employed in any coal mine in this State to which an escapement shaft has not been fully constructed, as required by law, has been referred to me for reply.

Paragraph 3847 of the General Statutes of 1889 limits the number of men who may be employed to work in any such coal mine to 25, provided said mine does not exceed 700 feet in depth; and instead of making such law apply to mines of a greater depth than 700 feet, the Legislature has, in said paragraph, expressly provided that as to such mines it shall be the duty of the State Mine Inspector, after a careful examination of all the conditions, as to the safety and health of the men employed therein, to designate the number of men who may be so employed. I am, therefore, clearly of the opinion that it is your duty to designate the number of men to be employed in a mine of 700 feet in depth or more, and the duty of the owner, agent or operator of any such coal mine to be governed by your decision in relation thereto.

Respectfully yours,

GEORGE W. CLARK,
Assistant Attorney General.

Upon the receipt of this letter from the Attorney General, I sent a copy of the same to the superintendents of the Home Mining Company, the Riverside Mining Company, and the Brighton Mining Company, with instruc-



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tion to have some adequate means of escapement provided at as early a date as possible. At my next visit to these mines I found that a second opening had not been made, although plans had been drawn for the same on several different schemes, but each had been rejected as imperfect. After a careful examination of the mines, I issued the following order:

STATE OF KANSAS, OFFICE OF STATE MINE INSPECTOR,
SCAMMON, October 12, 1892.

DEAR SIR—In accordance with paragraph 3847 of the General Statutes of 1889, and the opinion of the Assistant Attorney General, a copy of which is hereunto attached, you are hereby notified that on and after the 15th day of October, 1891, the number of workmen to be employed at any one time in your mine, located in Leavenworth county, Kansas, shall be limited to the number of 25, until a second opening or escapement shaft is completed. Yours respectfully,

JOHN T. STEWART, *State Inspector of Coal Mines.*

On the night of the 12th of October, 1891, the engine and boiler houses of the Brighton mine were burned, forcing the men to remain idle for several months, which left the same out of the controversy as to a second opening at that time. After several visits and considerable correspondence, the owners of the Home and Riverside mines (K. & T. No. 34), entered into a contract to drive a tunnel from the workings of one mine to the workings of the other, connecting both mines, and forming an escapement shaft within the meaning of the law. As my order of October 12—before referred to—was still in force, the miners employed at these mines petitioned me as follows:

Hon. John T. Stewart, State Mine Inspector:

We, the undersigned petitioners, do most respectfully pray that you rescind your order of October 12, limiting the number of employes in the Riverside mine to 25, for the following reasons:

All precautions that is possible to exercise to prevent accidents is now and always has been exercised by the company as far as we are able to determine, and we consider the mine comparatively safe.

We are informed that a contract has been entered into between the Kansas and Texas Coal Company [Riverside mine] and the Home Mining Company, by which a connection will be made between the shafts of the two companies, affording abundance of air and a means of escape much sooner than could be secured by each company sinking an air shaft.

We know that work on this connection has been in progress for more than four weeks, and we do believe that by your rescinding this order this connection can be completed at a much earlier date than it possibly could were your order of October 12 to remain in force.

Many of us are permanently located in this community; we own our homes, and to be deprived of the means of earning a livelihood for ourselves and family at this time—as we most surely will be if this order remains in force—would be disastrous, and do ourselves and families an injury that we do not believe it is your purpose or desire to have done.

This petition was signed by 142 men employed at the Home mine, and 173 men working at the Riverside mine. In view of the facts set forth in



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these petitions, and taking into consideration the hardships that the men employed claimed would result from a rigid enforcement of my order during the winter season, I did not rescind my notice of October 12, but refrained from commencing legal proceedings so long as the operators were acting in good faith and pushing the work on the tunnel from both mines as fast as possible. Since the receipt of the petition, I have heard no complaint from the men, although I have visited the mines twice. Although the workings of the law requiring a second opening, as it relates to mines in Leavenworth county, has not resulted in any casualty, the law is defective. No man should be entrusted with the authority this law gives. No man wants to bear the responsibility of saying how many men should be employed in any mine in Kansas, no matter what depth it may be, particularly when the man charged with this great responsibility can only be present at widely-separated intervals of time. As Inspector, I have no specific complaint to make concerning the mines specified here, particularly as the workmen have petitioned me not to interfere; but no man can tell at what time an accident may occur.

In my last report I used the following language:

During the year 1890 a new development in mining took place, namely, that of salt mining. It has been suggested to me by some of the workmen engaged therein that salt mines should be placed under the provisions of the mining laws which could be made applicable thereto.

The following are samples of the complaints which reach this office (names and places being omitted at the request of the writers of the same), and are presented to show the necessity of the action recommended:

To the Mine Inspector, State of Kansas, Topeka:

DEAR SIR—You are hereby requested to come here by the miners working in the mines of the ——— Salt Company, ———, Kansas, and inspect the mine and shaft, as there is no escape, and bad air, and many other dangers, and they also hoist with men on one cage and loaded cars on the other cage.

Yours truly, ———.

To the Mine Inspector:

DEAR SIR—I thought I would inform you that ———, at ———, Kansas, is running a gypsum mine contrary to the State law of Kansas, also contrary to the United States law, and it is necessary for some person that has the right and the legal authority to investigate the matter, to see that these works are kept in a safe condition, in order to protect life; for they have neither air shaft nor air fan, nor they have not got it propped on the inside as it should be—only now and then a prop. I was thinking of writing to Washington, D. C., but I was informed that there was a Mine Inspector in Topeka that would do just as well. Please let me hear from you soon.

Yours truly, ———.

On receipt of the first letter I went to Topeka, and, after consultation with Governor Humphrey, he went with me to the Attorney General, and requested him to give me authority—as an agent of the State and in the name of the State—to visit this mine, as the law only empowers me to visit and inspect coal mines. This the Attorney General decided was beyond his power, and I so notified all complainants of a like nature.



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Some complaints have come to this office to the effect that the Mine Inspector does not visit the mines as often as he should do. In answer to this objection—which cannot be disputed—I can but repeat what was said on page 97 of my previous report, as follows:

Section 4, chapter 143, Laws of 1885, provides that it shall be the duty of the Inspector to visit each mine in the State at least twice each year. As there are 200 mines in the State, and to make even a cursory inspection of each one would take the greater part of one day, it would require 400 days to comply with the law. As some of the mines in the State are 400 miles apart, and a great many over 200 miles, it can be plainly seen that it is a physical impossibility for one individual to fulfill this requirement of the law as Mine Inspector.

No provision is made for any kind of assistance to be rendered the Mine Inspector. He has to attend to the correspondence of the office, collect statistics, attend to the boiler inspection, make out his report to the Governor, visit all places where serious accidents occur, attend to special complaints from mines located at widely divergent points in the State, and do many other things that are constantly requiring attention. This fault complained of is not with the Inspector, it is inherent in the law.



METHODS OF WORKING THE COAL.

The method of working the coal depends largely on the thickness of the vein, the quality of the roof, and, in some instances, the nature of the bottom or floor of the mine. In Leavenworth county the coal is 22 inches thick, the shafts are over 700 feet in depth, the roof good, and mining is done on the long-wall system. By this method all the coal is taken out; very little slack coal being made, as the under-cutting or mining is done in the clay underlying the coal, and, when under-cut, the natural weight or pressure of the superincumbent strata generally breaks down the coal without the use of powder. The clay from the under-cutting, and the *debris*, or slate, taken down to make the roadway the proper height, are thrown behind the miners, filling the space where the coal was taken from. This clay from the under-cutting and the slate from the roadway, which are thrown into the space formerly occupied by the coal, are known as "gob." By this system of mining the air is carried along the face of the working, and is an easy and efficient method of ventilation, provided too many men are not kept on one split or section of the air. The long-wall method is adopted in Osage and Franklin counties, and at two mines in Linn county, and is also practiced in Cloud, and in all the lignite mines in the northwest part of the State.

In Cherokee and Crawford counties the room-and-pillar system is the only one in use. This system is more complicated and requires greater care to conduct the air to the workmen. Three methods of the room-and-pillar system are practiced in this field, viz.: Single entry, partial double entry, and double entry.

The single-entry plan is by driving one single roadway or entry, and turning rooms on each side of this entry, about 30 feet apart, carrying the air forward by curtains placed at the entrance of the rooms—which is a very unsatisfactory way of working a mine. It is almost a complete failure so far as ventilation is concerned, and is only justifiable where a small acreage of coal is to be taken out.

The partial double entry is where two parallel entries are driven, but only one of which is brushed and used for haulage purposes. This plan is a little improvement on the single-entry system, but is by no means to be recommended either for ventilation or the getting of coal out of the mine.

The double-entry method is the best and safest for the purposes of ventilation and the haulage of coal. Two parallel entries are driven, 12 or 20 feet apart—according to the depth of the mine and quality of the roof. The coal left between the entries is called the entry pillar, and the rule is



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that break-throughs are made six feet wide and at intervals of 30 feet. These break-throughs are for the purpose of ventilation; therefore the air is never more than 30 feet — at any time — from the face of the working, if the break-throughs are made at the proper distance apart. By this means the air is properly distributed to the rooms as well as to the entries. Both entries are brushed to the height of five feet, allowing mules to go into either entry at any time, which facilitates the output and haulage of coal. This is the most practical, and, in the end, the cheapest, safest and best method of working coal in these two counties.



STATISTICS AND DESCRIPTIONS OF COAL MINING, BY COUNTIES.

BOURBON COUNTY COAL MINING.

ANALYSIS.—Kind of coal, bituminous; average thickness of vein, 18 inches; average depth of coal from surface, 8 feet; total output for 1890, 480,354 bushels, or .60 per cent. of the total output of the State; total output for 1891, 500,000 bushels, or .73 per cent. of the total output of the State; estimated value of output at the mines: 1890, \$33,624; 1891, \$35,000; number of men employed in 1891, 175.

The coal from Bourbon county is obtained from drift mines and strip banks, the greater part of the coal being taken from the latter. The coal is of a fine quality, and is known as the "Fort Scott red coal." Almost the entire output is used for household purposes in Fort Scott and vicinity. At various times during the year about 175 men are employed in the coal fields of this county.

CHAUTAUQUA COUNTY COAL MINING.

ANALYSIS.—Average thickness of vein, 16 inches; total output for 1890, 37,000 bushels, or .07 per cent. of the total output of the State; total output for 1891, 38,200 bushels, or .06 per cent. of the total output of the State; estimated value of the output for 1890, \$3,330; 1891, \$3,438; number of men employed in 1891, 8.

There are several drift mines in Chautauqua county in the vicinity of Leeds, on the banks of Big Caney creek, which are worked for local purposes only. The vein has an average thickness of 16 inches, and is a fair quality of bituminous coal. I have not been able to get any returns from this county, except from Budd & Muncey, who operate "Connor's Slope," at Leeds, and employ 8 or 10 men. It is almost impossible to get returns of output from local mines unless a personal visit is made.

CHEROKEE COUNTY COAL MINING.

ANALYSIS.—Number shaft mines, 21; kind of coal, bituminous; average thickness of vein, 42 inches; average depth of coal from surface, 82 feet; average number of days worked: 1890, 173, or 56 per cent. of working days; 1891, 175, or 57 per cent. of working days; total output for 1890, 19,338,189 bushels, or 30.85 per cent. of total output of the State; total output for 1891, 20,601,277 bushels, or 32.50 per cent. of the total output of the State; estimated value of output: 1890, \$966,906; 1891, \$1,030,057; number of men employed, 1891, 1,826.

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COAL MINES, CHEROKEE COUNTY.

Office number.	NAMES OF OPERATORS.	POST-OFFICE ADDRESS.	Number of days mine worked.		Number bushels mined.		Estimated value of output.	
			1890.	1891.	1890.	1891.	1890.	1891.
1.....	Woods & North.....	Cherokee.....	190	200	243,200	256,000	\$12,160	\$12,800
2.....	Columbus Coal Company.....	Columbus.....	210	240	1,183,166	1,186,928	59,158	59,346
3.....	Osthoff Bros.....	".....	217	212	47,671	42,000	2,383	2,100
4.....	Robinson's Shaft.....	".....	233	250	38,000	40,980	1,900	2,049
4b.....	James Hall.....	Scammon.....		67		8,400		420
5.....	Keith & Perry Coal Company: Shaft No. 23.....	Scammon.....	202	225	2,373,530	2,430,105	118,676	121,505
6.....	".....	".....	195	225	1,982,730	2,746,936	99,136	137,346
7.....	Norton Coal Company.....	".....	200	224	1,552,950	1,827,000	77,647	91,350
8.....	J. J. Welch.....	".....	180	190	155,000	77,500	7,750	8,875
9.....	Wm. Theobald.....	Sherman City.....	119	114	42,000	42,500	2,100	2,125
10.....	J. H. Durkee Coal Company, Nos. 1 and 2.....	Weir City.....	135	146	2,000,000	2,056,000	100,000	102,800
11.....	Excelsior Coal Company.....	".....	60			23,671		1,183
11b.....	William Hamilton, sr.....	".....	220			1,827,000		91,350
12.....	Keith & Perry Coal Company: Shaft No. 25.....	Weir City.....	180	220	1,293,820	679,831	64,666	33,991
13.....	".....	".....	180	190	1,621,655	882,121	81,082	44,106
14.....	".....	".....	180	200	100,880	1,179,258	5,044	58,862
15.....	".....	".....		180		752,550		37,627
16.....	Kansas and Texas Coal Company: Shaft No. 18.....	Weir City.....	131	260	2,564,800	3,154,900	128,240	157,745
17.....	".....	".....	121	110	1,667,125	769,175	83,866	38,258
18.....	Parsons Coal Company.....	".....	180	160	850,000	520,000	42,500	26,000
19.....	Weir Bros.....	".....	122	240	179,461	293,213	8,973	14,660
20.....	Weir City Coal Company, Nos. 2 and 3.....	".....	172	194	942,701	1,126,395	47,135	56,319
	Strip banks.....	".....			500,000	509,814	25,000	25,490
	Totals and averages.....		173	187	19,338,189	22,428,277	\$966,906	\$1,121,407

¹ New shaft. Commenced hoisting coal in September, 1890.

² In ten months.

³ In nine months.

⁴ Commenced operating about August 1, 1891.

⁵ Mine only operated five months.

⁶ Mine shut down about June 1, 1891.

⁷ Name changed to "The Central Coal Company," in 1891.

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COAL MINES, CHEROKEE COUNTY—CONCLUDED.

OFFICE NUMBER.	Number kegs of powder used.		Average number employes daily—1891.				Average price paid per bushel.		Mine opening.
	1890.	1891.	Miners.	Boys.	Others.	Total.	Summer.	Winter.	
1.....	860	900	25	5	12	42	3½	4	Shaft.
2.....	1,682	2,200	57	4	17	78	3½	4	"
3.....	95	84	3	.....	3	6	3½	4	"
4.....	76	81	3	1	2	6	3½	4	"
4½.....	.....	22	2	.....	1	3	3½	4	"
5.....	5,127	4,927	129	5	32	166	3½	4	"
6.....	4,987	5,264	120	4	31	155	3½	4	"
7.....	3,005	3,852	70	5	17	92	3½	4	"
8.....	150	76	10	1	3	14	3½	4	"
9.....	110	120	7	.....	2	9	.....	4½	"
10.....	4,800	5,010	200	15	41	256	3½	4	"
11.....	.....	70	12	.....	4	16	3½	4	"
11½.....	.....	3,927	70	6	20	96	3½	4	"
12.....	2,729	1,165	43	7	.....	50	3½	4	"
13.....	2,763	1,512	62	10	25	97	3½	4	"
14.....	278	2,021	70	5	15	90	3½	4	"
15.....	.....	1,380	80	2	19	101	3½	4	"
16.....	5,129	6,838	142	6	28	176	3½	4	"
17.....	3,334	1,667	107	2	23	132	3½	4	"
18.....	1,500	1,600	45	2	14	61	3½	4	"
19.....	450	637	25	.....	7	32	3½	4	"
20.....	1,444	2,150	63	.....	15	78	3½	4	"
Strip banks.....	.....	.....	.....	.....	70	70	.....	.....	.....
Totals.....	38,519	44,503	1,345	80	401	1,826	.....	.....	.....

* Winter trade.

Record of Inspection.

WOODS & NORTH COAL COMPANY.—Located 1½ miles south of Cherokee, on the Joplin division of the Fort Scott & Memphis railroad. This company abandoned this shaft in June, 1891. No further work has been done in the lower vein. Richard Davis has leased the top vein, and put up a horse-power gin. He is filling the coal chutes of the above road, and also does some local business. The shaft is in fair condition. Richard Davis, pit boss.

COLUMBUS COAL COMPANY.—Located on a switch at Stipville, four miles north of Columbus, on the Joplin division of the Fort Scott & Memphis railroad. At the last examination, the ventilation was poor in some places. The stack of the furnace being open injured the ventilating power of the same. On measuring the air current of the down cast and up cast, it showed the legal amount of air per man, but nothing for mules and lamps. A new air shaft and furnace has been located and is in operation, at the western limit of the present workings. John Spencer, superintendent; Chris. Newland, pit boss.

OSTHOFF BROS.—This shaft is located one mile southwest of Stipville. It has no railroad connection. It is ventilated by furnace. The condition of the mine is fair. Two or three miners are employed besides the members of the family. This mine has been leased for a term of years to a coal company formed in Columbus, Kas., who are getting in a switch from the Joplin division of the Fort Scott & Memphis railroad. This company intend to operate the mine to its fullest capacity.

ROBINSON'S SHAFT.—Located 3½ miles north of Columbus, and operated by horse power. It does a local trade, having no railroad connections. The labor in the mine is performed largely by members of the family, who are practical miners. The mine is kept in good condition. George Robinson, pit boss.

JAMES HALL.—This is a new shaft opened in 1891, and run by horse power. It has no railroad connections, and the coal has to be hauled about three-fourths of a



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mile to No. 8 switch for shipping. Being a new mine, very little opening has been done so far. The coal is of a good quality. James Hall, pit boss.

KEITH & PERRY COAL COMPANY.—Mine No. 2a, located $1\frac{1}{2}$ miles northeast of the city of Scammon. This shaft has been worked out and the machinery moved to the company's No. 7 shaft, one mile directly north of above-named city. John Jenkins, pit boss.

Shaft No. 4. Located west of the limits of the city of Scammon, on a switch of the Joplin division of the Fort Scott & Memphis railroad. Ventilated by a fan 14 feet in diameter and 4 feet width of blade. The shaft is worked partially on the double-entry system. Thomas B. Scaife, pit boss.

NORTON COAL MINE No. 2.—This mine is worked partially on the double-entry system. It has a second opening by breaking through into their No. 1 mine, which is used as an escapement shaft. It is located one-half mile northwest of the city of Scammon, on a switch connecting with the Joplin division of the Fort Scott & Memphis railroad. Ventilation and condition fair. W. S. Norton, superintendent; John Zimmerman, pit boss.

WELCH'S MINE.—This mine is owned by John J. Welch. Its operations have ceased for the present. It is located about two miles southwest of Scammon.

THEOBALD'S SHAFT.—A horse-power plant 10 miles west of Scammon, and one-half mile from Lightning creek. It has a 24-inch vein of good quality coal, 90 feet deep. It employs only a few men in winter, for local trade. William Theobald, pit boss.

J. H. DURKEE COAL COMPANY.—Mine No. 1. Located on the west line of the city limits of Weir City, on a lease of the Baker land. It has switch connections with the Cherry Vale division of the Kansas City, Fort Scott & Memphis railroad. Fan, 12 feet in diameter and 4 feet width of blade, for ventilation. Air and roadways in good condition. Joseph Humble, pit boss.

Mine No. 2. This is a slope mine. It is located on a lease of the Grarvat land, and hauls the coal in the mine cars a distance of one-half mile, to a switch on the Pittsburg division of the St. Louis & San Francisco railroad. Mine well aired and roads in fair condition. Joseph Humble, pit boss.

EXCELSIOR COAL COMPANY.—Located one-fourth of a mile south of the city limits of Weir. It has no railroad connections, but does a shipping business, hauling the coal by wagon to a switch of the Cherry Vale division of the Fort Scott & Memphis railroad. This is a new shaft, which commenced operations in 1891. It is owned and worked by a number of miners on the coöperative plan. It is run by horse power. Wright Shaw, pit boss.

WILLIAM HAMILTON, SR.—Mine No. 1. Located one mile north of Weir City, on a switch of the Cherry Vale division of the Fort Scott & Memphis railroad. This is a comparatively new mine, and is worked on the partial-double-entry system. At my last visit the air was dull at the face of the second west entry on the main north entry. The mine is considerably troubled with what is generally termed "swamps," or partial dips and raises in the strata. It is well equipped with a pair of hoisting engines—10x16-inch cylinders—made by the Keystone Iron Works, Kansas City, Mo. Ventilation is maintained by a fan 14 feet in diameter and $3\frac{1}{2}$ feet face. Ventilation and roads in fair condition. James Hamilton, pit boss; William Hamilton, sr., superintendent.

KEITH & PERRY COAL COMPANY.—Mine No. 2b. Located within the city limits of Weir, on the west side. This mine was operated on a lease by William Hamilton, sr., but is worked out, and the machinery moved to another location.



Mine No. 3. This shaft was located on a switch of the Cherry Vale division of the Fort Scott & Memphis railroad, but has been abandoned. The machinery and top work has been removed to the company's No. 8 mine, west of the city of Weir, $1\frac{1}{2}$ miles.

Mine No. 5. Is located one mile west of Weir City, on a switch connecting with the Cherry Vale division of the Fort Scott & Memphis railroad. This is a new mine, put in operation in November, 1890. It is ventilated by a fan 14 feet in diameter and 4 feet width of blade, and is worked on the partial-double-entry system. At my last visit the air was poor in the first east entry on the north side, requiring a door on the cross entry, which has since been put in place, materially assisting the ventilation. The stopping and curtains were in poor condition all over the mine, which since my visit has been partially remedied, and improvements are still being made. Archie Fulton, pit boss.

Mine No. 6. Is a new shaft, located one mile west of the limits of Weir City. Has railroad connections by switch with the Pittsburg & Weir City division of the St. Louis & San Francisco railroad. It is worked on the double-entry system, and is one of the finest mines in this coal field. Ventilation is by fan 14 feet in diameter and 4 feet face. Air and roadways in excellent condition. At my last visit to this mine I found that the break-throughs in the pillars between entries were too narrow—in some instances less than four feet—where in no case should a break-through be made less than six feet wide and the height of the vein being worked. It has four currents of air and two overcasts—one on each side of the shaft. William Scott, pit boss.

KANSAS AND TEXAS COAL COMPANY.—Mine No. 18. Located two miles north of Weir City, on a switch connecting with the Pittsburg & Weir City division of the St. Louis & San Francisco railroad, and also a switch from the Cherry Vale division of the Kansas City, Fort Scott & Memphis railroad. The shaft is ventilated by two fans—one 10 feet in diameter and 3 feet width of blade, and one 8 feet in diameter and same width of blade, 3 feet. There is plenty of air in the mine, but it is not conducted up to the face as well as it ought to be, for want of enough doors and curtains to carry it forward. Many of the break-throughs on rooms and entries were not properly closed. At my last visit the air had improved very little from the condition that it was in when I made my previous examination. The system of single entry used in this mine is not conducive to good air, as there are always from two to six men working inside of the last air current. W. H. Barrett, assistant superintendent; D. Thompson, pit boss.

Mine No. 23. This mine is located two miles northeast of Weir City, on a switch connecting with the Pittsburg & Weir City division of the St. Louis & San Francisco railroad. This shaft was in fair condition at my last visit. It has considerable bad roof and many horsebacks to contend with. It is worked on the single-entry system. Ventilation is by fan, 10 feet in diameter—one of Crawford & McCrimin's make. This mine only worked five months in 1891. W. H. Barrett, assistant superintendent; P. Walsh, pit boss.

CENTRAL COAL COMPANY (formerly Parsons Coal Company).—Mine located two miles northwest of Weir City, and connected by switch with Cherry Vale division of the Fort Scott & Memphis railroad. The air was in fair condition at the time of my last visit. This mine is generally dry, and requires to be kept watered to allay dust. Peter H. White, superintendent and pit boss.

WEIR BROS.' SHAFT No. 2.—Located two miles west of Weir City limits, on a switch of the Pittsburg & Weir City division of the St. Louis & San Francisco railroad. This is a new mine run by steam power. It is 96 feet deep. It is ventilated

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by a fan 7 feet in diameter and $3\frac{1}{2}$ feet width of blade. At my last visit the air was poor in the first west entry on the north side and the first east entry on the same side, several doors being required for the proper circulation of air, which remedies were promised to be supplied by the pit boss as soon as possible. Louis Myers, pit boss.

WEIR CITY COAL COMPANY.—Mine No. 2. Is located on a switch of the Cherry Vale division of the Kansas City, Fort Scott & Memphis railroad. This is a slope with an endless-rope system of hoisting, which seems to operate in a very satisfactory manner. A fan has been erected at this mine, which materially aids the ventilation. New doors have also been built to conduct the air. Richard Bennett, superintendent; H. Helm, pit boss.

Mine No. 3. This is a slope, and is located in the southeast part of Weir City. It has no railroad connection, the coal being hauled by teams to a switch of the Cherry Vale division of the Kansas City, Fort Scott & Memphis railroad—about three-fourths of a mile. — Bennett, pit boss.

COFFEY COUNTY COAL MINING.

ANALYSIS.—Thickness of vein, 12 to 16 inches; depth of coal from surface, 8 to 14 feet; total output for 1890, 430,000 bushels, or .60 per cent. of the total output of the State; total output for 1891, 434,560 bushels, or .63 per cent. of the total output of the State; estimated value of output: 1890, \$38,700; 1891, \$38,905; total number of employes, 1891, 110.

Some shafts have been sunk in Coffey county in the vicinity of Lebo, and there are a few drifts open along the banks of Coal creek. But little comes from these places, nearly all of the output being strip coal. As the vein is only from 8 to 14 feet from the surface, and varies in thickness from 12 to 16 inches, it will require close work for regular shaft mining to compete with the strip banks so long as they are so readily worked. The mining underneath the coal is a sort of sandstone. The regular royalty in Coffey county is 1 cent a bushel.

CRAWFORD COUNTY COAL MINING.

ANALYSIS.—Number shaft mines, 16; kind of coal, bituminous; average thickness of vein, 42 inches; average depth of coal from surface, 70 feet; average number of days worked, 1890, 158, or 51 per cent. of working days; 1891, 146, or 47 per cent. of working days; total output for 1890, 21,606,377 bushels, or 34.34 per cent. of the total output of the State; total output for 1891, 23,119,629 bushels, or 33.56 per cent. of the total output of the State; estimated value of output: 1890, \$1,080,316; 1891, \$1,155,972; number of employes, 1891, 2,099.



COAL MINES, CRAWFORD COUNTY.

Office number.	NAMES OF OPERATORS.	POST-OFFICE ADDRESS.	Number of days mine worked.		Number bushels mined.		Estimated value of output.	
			1890.	1891.	1890.	1891.	1890.	1891.
1.....	John Schwab.....	Cherokee.....		110		92,075		84,003
2.....	Cherokee and Pittsburg Coal Company, No. 4.....	Cherokee.....	240	230	3,103,522	3,811,477	\$155,176	175,573
3.....	Bell & Co.....	Coalvale.....						12,706
4.....	Kansas Shaft Coal and Mining Company.....	Cornell.....		94		254,121		
5.....	Western Coal and Mining Company:							
6.....	Mine No. 2.....	Fleming.....	220	208	1,704,398	1,423,025	85,219	71,151
7.....	" ".....	" ".....	88	211	595,564	1,668,060	29,778	85,402
8.....	Cherokee and Pittsburg Coal Company:	Lane, Mo.....	207	214	2,240,409	1,969,050	112,639	98,452
9.....	Mine No. 1.....	Frontenac.....	240	210	5,748,440	5,654,695	287,422	282,734
10.....	Pittsburg and Midway Coal Company:	" ".....		45		590,677		29,533
11.....	Mine No. 1.....	Midway.....	188	151	32,869	55,059	1,643	2,752
12.....	Kansas and Texas Coal Company:	" ".....		120		40,297		2,014
13.....	Mine No. 11.....	Pittsburg.....	157		393,960		19,685	
14.....	" ".....	" ".....	131	129	1,956,490	1,739,960	97,820	86,995
15.....	" ".....	" ".....	181	150	1,633,500	1,320,525	81,675	66,626
16.....	" ".....	" ".....	138	109	2,337,275	1,949,500	116,863	97,475
17.....	Minard Bros.....	" ".....	146	160	860,700	1,019,615	43,035	50,960
18.....	Wear Coal Company.....	" ".....		135		439,009		21,930
19.....	Strip banks.....	" ".....		86		119,775		5,538
20.....	Totals and averages.....	" ".....	158	146	21,606,377	23,119,629	\$1,080,316	\$1,155,972

* Mine idle from May 1 to October 1, 1890.

* In five months; mine abandoned in May, 1890, being worked out.

* In 11 months.

* Had no shaft in 1891. Bought about 40 cars strip coal and 15 cars shaft coal and slack. We have done nearly nothing since August.

* Out of four months.

* Mine idle June 1 to August 15—2½ months.

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COAL MINES, CRAWFORD COUNTY—CONCLUDED.

OFFICE NUMBER.	Number kegs of powder used.		Average number employes daily—1891.				Average price paid per bushel.		Mine opening.
	1890.	1891.	Miners.	Boys.	Others.	Total.	Summer.	Winter.	
1.....		270	21	1	7	29	3½	4	Shaft.
2.....	6,000	700	150		38	188			"
3.....		499	25		12	37	3½	4	Shaft.
4.....	4,017	3,231	65	13	24	102	3½	4	"
5.....	1,561	4,198	75	6	28	109	3½	4	"
6.....	4,027	3,420	90		28	118	3½	4	"
7.....	12,000	12,100	285		56	341	3½	4	"
8.....		1,000	190		33	223	3½	4	"
9.....	1,300	2,308	64		25	89	*82½	*94½	"
10.....		1,918	72		19	91	*82½	*94½	"
11.....	786		45	7	19	71	3½	4	"
12.....	3,910	3,479	80	8	21	109	3½	4	"
13.....	3,267	2,641	70	6	22	98	3½	4	"
14.....	4,674	3,899	100	8	19	127	3½	4	"
15.....	1,721	2,039	55	2	17	64	3½	4	"
16.....		600	†15		8	23	†		"
17.....		‡180	30	2	8	40		4	"
18.....						230			"
Strip banks.....					230	230			"
Totals.....	43,463	42,482	1,432	53	614	2,099			

* Per ton. † Fifteen to November 1; for balance of year, 50.
‡ Twenty-five cents per box, in slope; 4 cents per bushel, in shaft.
§ From September 1, when mine started, to end of year.

Record of Inspection.

JOHN SCHWAB.—Mine located about two miles east of Cherokee, on a switch of the Cherry Vale division of the Kansas City, Fort Scott & Memphis railroad. This mine was opened in the early part of 1891. It was operated by horse power until recently, when a steam plant was put in; and many other changes have been made for the better and more economical working of the mine. The coal is pretty good in this mine, but the roof is very hard and irregular. Ventilation fair. John Schwab, jr., pit boss.

CHEROKEE AND PITTSBURG COAL COMPANY.—Mine No. 4. Located at Chicopee, four miles southwest of Pittsburg, near the terminus of the Chanute & Pittsburg division of the Atchison, Topeka & Santa Fé railroad. At my last visit this mine was in good condition, being worked on the double-entry system, which facilitates the ventilation and also the handling of the coal. Ventilation is maintained by a fan 15 feet in diameter and 4 feet face, made by William Cole & Co., Washington, Ind. William Conners, pit boss.

BELL & Co.—Mine located at Coalvale. It has not been worked during the past year.

KANSAS SHAFT COAL AND MINING COMPANY.—This is a new mine, opened in the spring of 1891. It is operated by steam power. The shaft is 57 feet deep, worked on the double-entry system, and ventilated by a fan 10 feet in diameter, with 3-foot face. Air in fair condition, with the exception that at the face of two entries where connections had not been made by break-throughs, but this will be remedied in a few days. The mine is located on a switch of the Nevada & Minden division of the Missouri Pacific railroad. John Byrne, superintendent; Peter McQuade, pit boss.

CHEROKEE AND PITTSBURG COAL AND MINING COMPANY.—Mine No. 1. Located on the Chanute and Pittsburg division of the Atchison, Topeka & Santa Fé railroad, one-half mile south of Frontenac. This is the largest mine in southern Kansas, having a capacity of 950 tons per day. The mine is well equipped in every way. At my last visit the cross-section entries were nearly all completed, thus shortening the



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air travel over four miles through the old workings, and giving high entries to pass through, thus bringing the air nearer the working-faces. Roads and ventilation in good condition. This is a dry mine, and requires the roadways to be watered at short intervals to allay the dust. This mine is equipped with one of "Ramsey's patent box-car loaders," with an engine to run the same apart from the other machinery at the mine. William Ellwood, assistant superintendent; John Cody, superintendent.

Mine No. 2. Located one mile northeast of Frontenac, on the same line of railroad as No. 1. There have been only a few men employed in this mine, making repairs and mining some coal, for the last two years. William Ellwood, assistant superintendent.

PITTSBURG AND MIDWAY COAL COMPANY.—Mine No. 2. Located on a switch of the Joplin and Girard division of the St. Louis & San Francisco railroad, near Midway. The shaft is in fairly good condition; only the roadways were muddy in some places, owing to caves to the surface which admitted considerable water. Some of the doors were needing repairs, which the pit boss promised to make as soon as possible. The mine will be worked out in a few months. Mine No. 1, belonging to this company, was worked out some months ago. John McLean, pit boss; T. R. Jones, superintendent.

WESTERN COAL AND MINING COMPANY.—Mine No. 2. Located at Fleming, on the Nevada and Minden division of the Missouri Pacific railway. The ventilation of this mine is supplied by a fan 10 feet in diameter and 4 feet in width of blade. The mine is worked partially on the single-entry system. The air is weak in many parts of the mine, as it has a long ways to travel, and many of the air-ways being small the friction is hard to overcome. The workings of the mine are very extensive, and to enlarge all the air-ways of the mine would be a useless expense, as it is nearly worked out. J. W. Gardner, pit boss; Josiah Lane, superintendent.

Mine No. 3. Located one mile northeast of Fleming, on the line of the same railway as No. 2. At my last visit this mine was in fair condition. It is worked on the partial double-entry system. The air was fair as a whole, but at the face of some of the entries, and the rooms adjoining the same, the air was dull. Roads in fairly good condition and mine comparatively dry. Some of the roadways required to be watered occasionally to allay the dust. Ventilation is maintained by a "Cole" fan, 10 feet in diameter and 4 feet face. Ed. Kelly, pit boss.

Mine No. 4. Located one mile east of the Missouri State line, on a switch connecting with the Nevada and Minden division of the Missouri Pacific railway. This mine was in good condition at my last visit. Ventilation good with few exceptions, where break-throughs were not completed. Roadways in good condition and dry. Ventilation is maintained by a "Cole" fan, 10 feet in diameter and 4 feet face. John Russell, superintendent; Wm. McGinnis, pit boss.

KANSAS AND TEXAS COAL COMPANY.—Mine No. 11. This mine was worked out early in 1891, and the machinery removed and placed at mine No. 37 of the same company.

Mine No. 17. Located one-half mile west of Litchfield, on a switch connecting with the Joplin and Girard division of the St. Louis & San Francisco railroad. This mine is worked partly on the double-entry system; in fact, it had recently been changed from the single to the double entry. Where some break-throughs had not been completed, some doors and curtains were required, which the pit boss promised to have attended to right away. One side of the mine was abandoned, being worked out. Roadways were generally in a fair condition, a ditch having been recently completed, carrying nearly all the water off the roads to a pump shaft,

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where it is lifted from the mine. Ventilation is maintained by a Crawford & McCimmin fan, 8 feet in diameter and $3\frac{1}{2}$ feet face. James Monahan, pit boss.

Mine No. 20. Located one mile west of the city of Pittsburg, on a switch of the Pittsburg and Weir City division of the St. Louis & San Francisco railroad. This shaft is being worked on the single-entry system, and at my last visit the air was in poor condition at the face of the fourth west entry, six men being at work inside the air. The pit boss promised to have the matter remedied immediately; but the single-entry system should not be tolerated in any mine, as it is in the end as expensive as the double-entry plan, and is always a source of trouble and dissatisfaction to all concerned. Ventilation is maintained by a fan 10 feet in diameter and 3 feet face. P. Comisky, pit boss.

Mine No. 22. Located one mile northwest of Litchfield, on a switch of the Joplin and Girard division of the St. Louis & San Francisco railroad. This mine is worked on the double-entry system, and the ventilation is good. The roadways and mine as a whole were in first-class condition. It is a dry mine, and requires to be watered on the roadways occasionally; but as a rule the dust and rubbish are cleaned up and taken away in mine cars on the days that the mine is not hoisting coal. Ventilation by a fan 10 feet in diameter and $3\frac{1}{2}$ feet face. John Barrowman, pit boss.

Mine No. 28. Located one mile north of Pittsburg, on a switch of the Joplin and Girard division of the St. Louis & San Francisco railroad. This mine is worked on the single-entry system, and the air as a rule was not carried up to the working-faces, as it is practically impossible to do so under this system. This mine is greatly troubled with "horseback" and clay veins, which adds to the difficulties in the way of good ventilation. This mine is comparatively dry, and the roadways are in fair condition. P. Shearman, pit boss.

Mine No. 37. Located one mile west of Litchfield, on a switch of the Joplin and Girard division of the St. Louis & San Francisco railroad. This is a new mine, worked on the single-entry system, and has the same fault as to ventilation as all mines worked on this plan—the air cannot be carried close enough to the face of the workings. The air was bad on the first south entry on the west, as the face of the entry was 100 feet ahead of the air. The pit boss promised to have this matter remedied immediately. Roadways dry and in good condition. Depth of shaft, 60 feet. Ventilation by fan 10 feet in diameter and 3 feet face. Vincent Gladdis, pit boss.

MINARD BROS.—This mine was opened in 1891, and is located on a switch of the Nevada & Minden division of the Missouri Pacific railway. The shaft is 40 feet deep, and is worked on the double-entry system. It is ventilated by a fan 10 feet in diameter and $3\frac{1}{2}$ feet width of blade. It has a good traveling-way; produces a good quality of coal. L. S. Minard, pit boss.

WEAR COAL COMPANY.—Mine No. 2. Located three miles southwest of Pittsburg, on the line of the Cherry Vale division of the Fort Scott & Memphis railroad. This is a new mine, 28 feet deep; ventilation and roadways in good condition. The top work of the mine was raised recently to facilitate the better handling of coal, and a new fan was erected, 10 feet in diameter and 5 feet face. A. B. Kirkwood, superintendent; John Kirkwood, pit boss.

CLOUD COUNTY COAL MINING.

ANALYSIS.—Kind of coal, lignite; average thickness of vein, 22 inches; average depth of coal from surface, 55 feet; total output for 1890, 170,000 bushels, or .30 per cent. of the total output of the State; total output for 1891, 176,000 bushels, or .25



per cent. of the total output of the State; estimated value of output: 1890, \$11,900; 1891, \$12,320. Number of employes in 1891, 80.

Record of Inspection.

The mines of this county are nearly all at or near Minersville. The coal mined here is consumed in the immediate vicinity. As the mines are not worked steadily, the condition of some of them is not of the best. Several complaints have reached me, and I have notified the owners to have the necessary changes made, and it has been promised that the work should be done immediately. I am sorry to say that while work on these improvements has been commenced promptly and enough done to keep within the law, yet the completion is too slow. However, I have reason to believe that the operators, as a rule, desired to obey the law.

BAKER & RICHARDSON.—About 12 men are employed in this shaft. A second opening or air shaft is now open. This mine is located at Minersville.

ALEX. HENDERSON.—Six men are employed here. It is worked only in the winter months. It has no escapement shaft.

FARMER & NEITZEL.—This mine is located at Minersville, and has no railroad connection. Eight men are employed. The mine has two openings, and is ventilated by furnace.

CURTIS MINE.—Although this mine is located just across the county line, the operator's address is Minersville. The mine has a good air shaft; seven men are employed.

JAMES MURRAY.—The old slope has been abandoned, and a new shaft sunk, about 300 feet north of the old opening. There is no air or escapement shaft yet. Six men are employed.

ELLSWORTH COUNTY COAL MINING.

ANALYSIS.—Kind of coal, lignite; thickness of vein, 8 to 22 inches; total output for year 1890, 125,000 bushels, or .20 per cent. of the total output of the State; output for the year 1891, 151,200 bushels, or .22 per cent. of the total output of the State; estimated value of output: 1890, \$10,000; 1891, \$12,096; number of employes, 1891, 71.

There are no shaft mines in operation in this county, the openings all being on the drift plan. The town of Wilson is the center of the coal field. The coal is almost entirely disposed of to local consumers. There is much room for improvement in the drifts of this county; although I have had no complaints, nor the record of any accidents, yet the ventilation and roadways when I visited were not in an entirely safe condition, but the pit bosses promised to make the needed repairs immediately. No powder is used in the mining here.

FRANKLIN COUNTY COAL MINING.

ANALYSIS.—Number of shaft, slope and drift mines, 14; kind of coal, bituminous; average thickness of vein, 14 inches; average depth of coal from surface, 20 feet; average number of days worked in 1890, 215, or 70 per cent. of working days; 1891, 223, or 72 per cent. of working days; total output for 1890, 779,350 bushels, or 1.25 per cent. of total output of the State; total output for 1891, 838,000 bushels, or 1.22 per cent. of the total output of the State; estimated value of output for 1890, \$66,834; 1891, \$71,907; total number of men employed for 1891, 196.

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COAL MINES, FRANKLIN COUNTY.

Office number.	NAMES OF OPERATORS.	POST-OFFICE ADDRESS.	Number of days mine worked.		Number bushels mined.		Estimated value of output.	
			1890.	1891.	1890.	1891.	1890.	1891.
1.....	John Bageley.....	Pomona.....	200	210	25,000	30,000	\$2,000	\$2,400
2.....	C. Bush.....	".....	200	205	10,000	11,000	800	880
3.....	John M. Dyer.....	".....	200	206	75,000	80,000	6,000	6,400
4.....	J. P. Lindsay.....	".....	200	210	20,000	21,000	1,600	1,680
5.....	Paynter & Chaland.....	".....	150	155	30,000	32,000	2,400	2,560
6.....	William Pyles.....	".....	160	200	20,000	25,000	1,600	2,000
7.....	John T. Morgan.....	Ransomville.....	260	265	20,000	23,000	1,600	1,840
8.....	Ransom & Co.....	".....	260	263	20,000	22,000	1,600	1,760
9.....	".....	".....	260	265	170,000	175,000	13,600	14,000
10.....	Richard Hodge.....	Williamsburg.....	220	222	21,000	24,000	1,995	2,280
11.....	Philip Hunt.....	".....	240	250	18,750	25,000	1,780	2,375
12.....	McKissick & Love.....	".....	200	210	20,000	25,000	1,900	2,375
13.....	Roberts Bros.....	".....	220	222	22,000	24,000	2,000	2,280
14.....	Price & Rusbatch.....	".....	243	250	37,000	37,500	3,515	3,562
	Strip banks.....				270,600	283,500	24,354	25,515
	Totals and averages.....		215	223	779,350	838,000	\$66,834	\$71,907

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COAL MINES, FRANKLIN COUNTY—CONCLUDED.

OFFICE NUMBER.	Number kegs of powder used.		Average number employes daily—1891.				Average price paid per bushel.		Mine opening.
	1890.	1891.	Miners.	Boys.	Others.	Total.	Summer.	Winter.	
1.....			5	1	2	8		6	Drift.
2.....			3		1	4		6	"
3.....			16	1	2	19		6	"
4.....			4		2	6		6	"
5.....			*		4	4			Shaft.
6.....			5		2	7		6	Drift.
7.....			4		1	5		6	"
8.....			4		1	5		6	"
9.....	50	60	25	3	28	28		6	"
10.....			5		2	7		8	"
11.....			4		2	6		8	"
12.....			5		2	7		8	"
13.....			5		2	7		8	"
14.....			6		2	8		8	"
Strip banks.....					75	75			
Totals.....	50	60	91	2	103	196			

* Machine mining; average four men.

Record of Inspection.

JOHN BAGSLEY.—This is a drift mine, run in from the bluff of the creek, and has only one opening. When these drift mines run in too far, they are generally stopped or abandoned, and a start made again in another place.

C. BUSH.—This drift is worked on the same principle as the John Bagsley drift, as are those mines worked by many others in the vicinity of Pomona, during the winter months of each year. They supply farmers and others in the vicinity with coal during the winter months.

JOHN M. DYER.—This coal drift is located on the side of a bluff, about three miles south of Pomona. It has no railroad connections, and only does a local business. It is ventilated by furnace; ventilation poor. Roads in good order; iron tracking being laid in the same. John M. Dyer, superintendent; William Ward, pit boss.

J. P. LINDSAY.—Another mine located in the bluff in the vicinity of Pomona, and working a few men in the winter months to supply local trade.

PAYNTER & CHALLAND.—This shaft is located about two miles south of Pomona. It has no railroad connections, and does a local and shipping trade. It is a distance of about 1½ miles from the railroad track of the Ottawa division of the Kansas Southern railway. There is a mining machine being operated for under-cutting the coal at this mine. It is the property and invention of J. P. Paynter, one of the owners of the mine. When I visited the mine, the machine was not in operation, so a careful description cannot be given of it. This mine has two openings.

JOHN T. MORGAN.—This drift is located one mile northwest of Ransomville, and has no railroad connections, doing a local business. It has two openings, and is ventilated by furnace. Ventilation and roads in good condition. J. T. Morgan, pit boss.

RANSOM & Co.—This mine is located at Ransomville, on the Ottawa and Burlington branch of the Southern Kansas railway, and is connected by a switch. Does a shipping business. It is ventilated by furnace, and has four currents. Ventilation poor. There is no second opening to this mine, and they employ from 2 to 16 men. James Simms, pit boss.

RANSOM'S DRIFT.—Located one mile from the railroad, at Ransomville. It is



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leased by George Clark. Does a local and shipping business. George Clark, pit boss.

Philip Hunt, McKissick & Love, D. E. Price, Roberts Bros., Richard Hodge, Price & Rusbatch, and many others, to a more or less number, mine coal in the winter season for local trade in the immediate vicinity. They have no regular system of mining, each party putting in a drift to suit himself at the most convenient place, without any regard to the mining law, or anything else.

LABETTE COUNTY COAL MINING.

ANALYSIS.—Kind of coal, bituminous; average thickness of vein, 18 inches; average depth of coal from surface, 10 feet; total output for 1890, 50,000 bushels, or .08 per cent. of the total output of the State; output for 1891, 62,000 bushels, or .09 per cent. of the total output of the State; estimated value of output: 1890, \$4,500; 1891, \$5,580; number of employes, 1891, 27.

Labette county coal is all obtained from strip banks, and comes from the vicinity of Oswego. The output is consumed by local trade.

LEAVENWORTH COUNTY COAL MINING.

ANALYSIS.—Number shaft mines, 5; kind of coal, bituminous; average thickness of vein, 22 inches; average depth of coal from surface, 720 feet; average number of days worked: 1890, 236, or 77 per cent. of working days; 1891, 228, or 74 per cent. of working days; total output for 1890, 6,676,070 bushels, or 10.60 per cent. of the total output of the State; total output for 1891, 7,479,406 bushels, or 10.60 per cent. of the total output of the State; estimated value of output: 1890, \$400,563; 1891, \$448,762; number of men employed, 1891, 887.*

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COAL MINES, LEAVENWORTH COUNTY.

Office number.	NAMES OF OPERATOR.	POST-OFFICE ADDRESS.	Number of days mine worked.		Number bushels mined.		Estimated value of output.	
			1890.	1891.	1890.	1891.	1890.	1891.
1.....	Brighton Coal Company.....	Harkness.....	1200	167	364,500	575,765	\$21,870	\$34,545
2.....	Home Mining Company.....	Leavenworth.....	250	260	715,325	1,228,823	42,919	73,729
3.....	Kansas and Texas Coal Company, Mine No. 34.....	".....	215	186	1,149,700	1,341,750	63,882	80,505
4.....	Leavenworth Coal Company.....	".....	207	217	2,676,123	2,700,000	100,567	162,000
5.....	State mine.....	Lansing.....	310	310	1,770,422	1,633,068	106,225	97,982
Totals and averages.....			236	228	6,676,070	7,479,406	\$400,563	\$448,762

¹ Worked in nine months.

OFFICE NUMBER.	Number kegs of powder used.		Average number employes daily -- 1891.				Average price paid per bushel.		Mine opening.
	1890.	1891.	Miners.	Boys.	Others.	Total.	Summer.	Winter.	
1.....	²	²	73	3	19	95	4½	5	Shaft.
2.....	16		120	8	25	153		4	"
3.....	²		200	20	33	253		4	"
4.....	72		300	46	40	386		4	"
5.....	1500					²			"
Totals.....	588		693	77	117	887			

¹ In sulphur-top.

² Convict labor.

³ Powder generally used for brushing sulphur-top; amount not reported.

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