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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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which, like the rest of its kind, assumed large proportions, and, spreading out into the valley, inundated the mine. So much of it came in that the roadways were covered with a deposit of slush after the water had been removed. Mr. Connors deserves a good share of credit for the ability he displayed in getting out the water and cleaning up the mine, to have it in the fine shape it is at present. The mine is well fitted up with machinery—self dumping cages, box-car loader, etc.

The Pittsburg Gas Coal Company's shaft is located on the Deets farm, two miles west of Pittsburg. Size of shaft, 5x10; depth, 101 feet; thickness of vein, 3 feet 4 inches. This mine was sunk in 1892, and at the period of my first visit employed 11 men. The shaft now operated is meant to serve as an airshaft, and entries are being driven toward the future location of main shaft, on 'Frisco railway. Late in the year the sinking of the main shaft was begun. Hoisting by steam power. Ventilation carried on by grate fire, and is fairly good, although at first the grate was by far too close to bottom of shaft. Some coal has been shipped, but has been hauled by wagon to the railroad. Miners are paid by the car; cars hold about 10 bushels, for which the men receive 20 cents; top is a good, strong slate; worked on the double-entry plan and system of room and pillar. The coal in this shaft is the best quality of gas coal in the state.

The Pittsburg & Midway Coal Company's shaft No. 2 is located six miles east of Pittsburg, and is connected with the Atchison, Topeka & Santa Fé railroad and the St. Louis & San Francisco railway. This mine worked 42 days in January and February of last year, producing 157,389 bushels of coal, but, being worked out, was abandoned March 1, 1893.

The Pittsburg & Midway Coal Company's mine, shaft No. 4, is located one-half mile north of Midway, on the Atchison, Topeka & Santa Fé and the St. Louis & San Francisco railroads. The shaft is operated by steam power, is 65 feet deep, and in size 8x15; coal is 3 feet 2 inches thick, and of a good quality; worked by double entry, on room-and-pillar plan. The airshaft is 8x8, with 4 feet partitioned off and supplied with escapement ladders. I wish to say that this mine has the best traveling over its escapement of any mine in the state that I have visited. Miners are not allowed to ride the cages at any time, and, owing to the fine condition of the stairway, I believe in this one instance this to be the safest plan. Ventilation by means of fan 12 feet in diameter; air divided into two currents. Measurement of air at intake on east side, 4,680 feet; in first south on west side, 4,320 feet. No registration could be obtained near the face of the entries, and on the main east there is a great leakage, caused by doors not fitting and properly attended. All over the pit I found the air wasted, instead of being driven into the workings. As a consequence air was very dull, caused by having curtains hung, which are only a temporary affair at best, as they are often torn down by cars or blown away by recoil of the blasting. I found the mine to be very dry and dusty. I called Mr.

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Jones's attention to this, and he agreed to have the dry roadways watered regularly. Miners are paid 50 cents in summer and 56 in winter per ton, mine run. There are about 130 men employed. A new five-ton scale has been put on the pit top, to comply with the screen law ordering coal weighed before being screened.

The Wear Coal Company's mine No. 2 is a steam power, located at Alston, commonly known as Kirkwood, two miles southeast of Chicopee, and four miles southwest of Pittsburg, on the Cherry Vale division of the Fort Scott & Memphis railroad. Depth of shaft, 30 feet; size, 7x12. There are three openings: Main shaft, air shaft, and a slope, which is used as a traveling way for men and mules. Ventilation by a fan 12 feet in diameter; partial double-entry system; average thickness of coal, 3 feet 5 inches; capacity of mine, about 600 tons per day. This mine commenced operation in July, 1890. There are two divisions in air current. Measurement of air at intake on east side, 6,480 feet per minute; measurement of air at last break-through in first south on east, 2,240; measurement of air at intake on west side, 8,940 feet per minute; total, 15,420 cubic feet per minute. This is about 80 cubic feet per man, as 190 men were employed, notwithstanding the torchlights, which were carried by mule drivers, all of which use coal oil, mixed with black oil. I found cross entries in this mine poorly ventilated, and a continual cloud of smoke rolled around, which could be very easily remedied, if only properly looked after by those in charge. Water on main east entry was allowed to stand and become stagnant, and miners had to walk through it morning and evening, unless they were fortunate enough to get a ride. This mine, as a whole, was in a deplorable condition. On my second visit, December 4, there was no change made, and the condition of the mine was worse, if any, as to ventilation. I notified Mr. Kirkwood, the superintendent, and he promised to have the necessary changes made. In this case I believe the mine boss was at fault, as the miners claimed he never went around the mine, except on measuring day. Miners are paid 50 cents per ton in summer and 56 cents in winter.

The Wear Coal Company's mine No. 5, commonly known as the "Minard shaft," is on the Missouri Pacific railway, 1½ miles northeast of Pittsburg. Size of shaft, 6½x14 feet; depth, 34½ feet; thickness of vein, 3 feet 4 inches; coal, good quality. Mine is operated by steam; has a capacity of about 360 tons daily; has three openings: main or hoisting shaft, airshaft, and an escapement shaft having a good stairway. Over the airshaft is an 8-foot fan, affording good ventilating power. The air is divided into two currents. Ventilation very fair, and roadways in good order. As a whole, the mine is in good order. The railway switches were lengthened over 200 feet, thus increasing capacity. The Wear Coal Company obtained possession of this mine in October, 1893, by purchase from Minard & Co.

The Minard & Co. shaft No. 1, now known as Wear No. 5, was sold to the Wear Coal Company in the latter part of October, and was operated by

the latter company 36 days in the year. Minard & Co. had put the shaft in good order, and prior to the strike worked 144 days, with a force of 80 men, and produced 435,133 bushels of coal. Only general repairs had been made prior to the sale.

The Utley & Donnell drift mine has been opened off the face of a strip bank located on the northeast corner of the Chaplin addition to Pittsburg. This mine commenced operation in July, 1893. Entries are driven parallel with face of strip bank. System, room and pillar and double entry; thickness of coal, 3 feet 8 inches; roof, average; natural ventilation; roadway, very wet, as the water flows into the mine from strip bank. This mine has no railroad connection; mostly local trade. Coal sells at mine for 6 cents per bushel.

The Kansas & Texas Coal Company's mine, shaft No. 17, is located one mile north of Litchfield, on the St. Louis & San Francisco railway. The mine was a steam shaft, ventilated by a fan. During the early part of the year the mine worked 80 days, with 98 men, and produced 670,800 bushels, but was worked out and abandoned in May, 1893.

The Kansas & Texas Coal Company's mine, shaft No. 20, is on the St. Louis & San Francisco railway, about 1½ miles west of Pittsburg; is operated by steam; shaft is 57 feet deep; escapement is partitioned off from the main shaft. Miners are compelled to travel up and down this stairway, for, by the company's rules, no one but pit bosses and mule drivers are allowed to ride on the cages. Traveling on stairs constructed as this one is, is very dangerous, as men have everything to carry down — dinner pails, picks, drills, powder, etc. Should a man happen to drop some of his tools, a man beneath would stand small chance of escaping injury; and there are often 10 or 15 men on these ladders at once. Besides the hoisting shaft, there are two openings, an airshaft and a pump shaft. Pump and main shafts are both used as upcasts. The workings are carried on partially by single and partially by double entry, and room and pillar, or, more properly speaking, gouge system. As a natural consequence, the mine is in a deplorable condition. The managers agreed to change to the double entry as rapidly as possible, which agreement they did not fulfill. The plan of ventilation in vogue is exceedingly poor. The chief object of the operators seems to be to save expense; consequently, to gain this end, the health and comfort of the miners are unscrupulously sacrificed. Doors are required on ninth east, on south side; and, also, in fifth west, south side. The third and fourth west, on south side, are in a *very* bad condition. As in several other places, men, to get to their work, must wade to their knees in stagnant water. This is also the case with the first and third east, on the north side, and the first north off second west, on north side. A blind entry, going south off the first east, on north side, has scarcely any air at all in it. Some of these blind entries are 120 feet ahead of the air, crosscuts not having been made between rooms. I wrote, early last May, to Mr. Doubleday, the superintend-

ent, who resides here, regarding the necessity of an overcast on the north side. I received no answer from him. I then wrote to Mr. Hobart, president of the company, but have received no answer from him either. I made the mine another visit, and tried to get measurements of the air. At bottom of downcast, the anemometer registered 6,450 feet per minute on the south side, and 3,670 on the north—a total of 10,120 feet; but within 30 feet of the bottom the air course was so stopped up by fallen stone that I could not crawl through it. I asked that these air courses be either cleaned out or enlarged; but nothing has been done. I have made my last request of this company, and shall at once take very active measures to enforce the law in this mine. About 80 men are employed at the shaft, and are paid 2 cents a bushel, mine run. There is no check weighman.

The Kansas & Texas Coal Company's mine No. 22 is a steam shaft, 50 horse power, located one mile northeast of Litchfield. Depth of shaft, 65 feet; size, 7½x15; airshaft, 7½x7½. Ventilation by a fan 12 feet in diameter; air divided into two separate currents. System, so-called double entry and room and pillar. This mine commenced operation in 1889. Capacity of mine, 600 tons per day. A stairway is partitioned off main shaft, by which miners travel into and out of mine, as employés are not allowed to ride on cage; stepladder in airshaft. Measurement of air at intake on south side, 7,200 cubic feet per minute; at face of south entry, 960 cubic feet; thus showing a loss of 6,240 feet per minute, on account of not having break-throughs properly filled and curtains or doors adjusted in proper place. Measurement of air at intake on north side, 13,200 cubic feet per minute; would not register at face of north entry; fourth west on south, air dull at face, and break-throughs left open. This mine could have been one of the best mines in the district, but the idea of the mine boss was that anything was good enough for those imported negroes, who were confined inside of a fortification nine feet high, and guarded by men devoid of principle, who were willing to shed blood, if necessary, for the nominal sum of $2 per day, in order that a greedy corporation might override honest labor and trample humanity in the dust. Humanity and Christianity were surely forgotten inside of this stockade, as the colored element which was imported to take the place of white labor was corralled inside this fort—Anderson prison. Some of these burly Africans were led to believe that Litchfield was not the "promised land," and said "slavery day" had come again. On the occasion of my first official visit to this mine, I was met at the gate by an ex-policeman of Pittsburg, Kas., who carried a 44-caliber revolver, and demanded of me to halt and make known my business. Mr. Wm. Galbraith accompanied me, and Mr. Crandell positively refused to have Mr. Galbraith enter inside the stockade. Since that time the great storm of indignation has subsided, and the colored element plods along, very often regretting that they ever left the sunny South, and now realizing that it is impossible for them to make a living, as the majority of

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them never mined any coal; consequently they are left to make the best of a bad job. They claim their coal is not properly weighed, and the necessaries of life are very often wanting, as due precautions are taken that they will not be allowed to overestimate their earnings. Credit is not given them at the company's store only in accordance with the amount of coal produced.

The Kansas & Texas Coal Company's mine, shaft No. 28, is located one mile north of Pittsburg, on a switch of the St. Louis & San Francisco railway. Mine was operated by steam power; was worked out and abandoned in March, 1893; worked only 42 days in the year, employing 77 men, and producing 231,625 bushels of coal; miners were paid 4 cents per bushel for lump coal.

The Kansas & Texas Coal Company's mine, shaft No. 37, is located 1½ miles north of Litchfield, on a switch of the St. Louis & San Francisco railway. It is operated by steam. The coal is but 3 feet thick, and is reached by a shaft 60 feet deep. Capacity, 400 tons daily; system of work, double entry and room and pillar; commenced operations early in 1891; ventilation is by a fan of 12 feet diameter, and air is divided into four currents, with overcast on west side; measurement of air at intake on west side, 7,800 feet; on east, 7,500 feet per minute, and return to upcast, 16,300 feet; ventilation, as a whole, fair; escapement partitioned off main shaft, and ladders were in fan shaft; about 140 men, mostly Alabama negroes, were employed at the period of my visit.

Arnott & Lanyon's shaft mine is a steam power, located two miles north and three-fourths east of Pittsburg, on a switch of the Atchison, Topeka & Santa Fé railroad. Depth of shaft, 50 feet; size, 8 x 16; ventilation by fan 10 feet in diameter, 3½ feet in blade; good stair in airshaft; two divisions in air current; system, double entry and room and pillar; capacity of mine, 300 tons per day. This mine commenced operations in July, 1892; average thickness of coal, 3 feet 3 inches; roads in good condition; roof, pretty fair; employs about 80 miners; air, very fair; measurement of air at intake on north, 6,300 feet per minute; measurement on south, 3,000 feet per minute; at face of south, only 1,500 feet—a leakage of one-half, on account of bad doors and stoppings not made air-tight. In way of improvements, 1,100 feet of railroad switch for empty cars, also hay barn, 16 x 24, have been built.

The Hamilton & Grant mine, shaft No. 3, is a steam-power shaft, located three-fourths of a mile north of Weir City Junction, on the Kansas City, Fort Scott & Memphis railroad. Size of shaft, 6½x12 feet; depth, 35 feet; thickness of vein, 3 feet 4 inches. It is operated by a combination of double and single systems, on room-and-pillar plan. This is a new mine, having been sunk in the fore part of the year, and began hoisting in September. Nothing but mine run was loaded in 1893. Miners were paid 56 cents per ton. No airshaft has been put down, but two feet have been partitioned off

the side of the main shaft for an airshaft and escapement. Hamilton & Grant lease from Mr. Sheward, paying one-half cent royalty for lump coal over a 14-foot screen. At close of the year, 24 men were employed.

James Keller's drift mine is located on the Cellie farm, 1½ miles southwest of Pittsburg; leases the coal on a royalty of 1 cent per bushel. Commenced operation in August, 1893. Thickness of vein, 3 feet 8 inches; has pretty fair roof, and coal of fairly good quality. Depends entirely upon local trade. Employed two men.

The drift mine of Durey & Walker is located one mile south of Pittsburg; connected with Missouri Pacific railway; ship a small amount of their coal, but sell most of it to local customers. Coal of fair quality; vein 3 feet 8 inches thick. Lease their coal for 1 cent per bushel royalty. Employ four men, and pay 2½ cents per bushel.

Taney Root's shaft mine is a horse power, located one mile southwest of Pittsburg and a little north of the Nash mine. Depth of shaft, 32 feet; size, 5x6; average thickness of coal, 3 feet 2 inches; capacity, 100,000 pounds per day; system, single entry and room and pillar. A good airshaft has been sunk, and connections made with main shaft; ventilation by a pot fire. Coal is of a good quality. Entries are not brushed, this being a new shaft. Commenced operation July, 1893. This mine was well equipped, at a cost of $1,000. Coal was hauled in wagons to the railroad, at a cost of 45 cents per 100 bushels. The price realized was an average of $1.50 per ton —only a margin of 5 cents per ton, not sufficient to cover contingent expenses; consequently this mine was forced to close down at the close of 1893.

Hooper slope is located 1½ miles west of Pittsburg; does some shipping, but the most of his trade is local; vein, about 3 feet 10 inches; leases for 1 cent per bushel royalty.

Samuel Cartwright's shaft mine is located 1½ miles from the town of McCune, on the K. C. Ft. S. & M. railroad. Shaft is 25 feet deep, with a vein 1 foot 10 inches in thickness, and of fine quality coal. Mr. Cartwright has persevered against great difficulties in sinking this shaft. He so aptly named it the "Hurry" mine, as he said it hurried him to get it finished. He began operations just at the close of the year.

The Durkee Coal Company's mine No. 4 is a shaft mine, located on the farm of John Schwab, and generally known as the "Schwab" mine, 2½ miles north of Weir City, on a branch of the K. C. Ft. S. & M. railroad. Depth of shaft, 50 feet; coal 3 feet 2 inches thick; steam power; operated by single entry; system, room and pillar. A new airshaft, 6 x 8 feet in size and 50 feet deep, has been sunk. Ventilation by fan; air in two currents. At face I could find no air, and, in fact, nowhere where the single-entry system is in vogue have I found ventilation in a healthful condition.

The Akehurst & Richey mine is a drift on the Ridgeley farm, one-half mile northwest of Pittsburg. Their trade is entirely local. Commencing operations in December, they put out over 10,000 bushels, for which they

found ready sale. The coal is of a fine quality, but they labor under the disadvantage of having a very poor roof.

The Little Four Coal Company, of Pittsburg, during the earlier part of he year, operated a slope one mile southeast of the Kansas City, Memphis & Gulf depot, employing 7 miners, 2 pushers, weighman, and trackman, working 54 days, paying in the summer 50 cents per ton and in the winter 56. In December the slope was abandoned, and a main shaft and airshaft were sunk, one-half mile south of the old slope. The shafts are 30 feet in depth, and the coal averages about 44 inches in thickness. A new tipple and gin were erected, with screens 8 feet long and 4 feet wide. The mine has no railroad connection, but considerable coal is shipped, being hauled by wagon to the railroad. This company also stripped a small amount of coal early in the fall. The men who compose this company are to be congratulated upon the perseverance and pluck they have exhibited, as upon the conclusion of the mining troubles last summer they could obtain no employment, and being thus driven to coöperation, they made the best possible use of a bad state of affairs and went to work with a will. Being all skillful and practical men, each did his best in the labor of production, under the direction of Mr. Halliday, whom they had elected as pit boss. They mined and sold upon the car quantities of coal to the large companies, but met a staggering blow in delivering several hundred dollars' worth to one of the corporations (now in the hands of a receiver), which they have been unable to collect. However, they stuck to their work, and now are a fair evidence of what coöperation can do.

The slope operated by W. C. Beck is located one-half mile southwest of Pittsburg. His coal is mined for shipping, and is of a fair quality. Produced 12,000 bushels; worked out and abandoned.

The Fuller Coal Company has sunk a new shaft 2½ miles west of Mulberry station, on the Waterman farm, and connected it with the Kansas City, Pittsburg & Gulf railway. Depth of shaft, 40 feet; size, 7x15 feet; system, double entry and room and pillar; coal is about 3 feet thick; miners work by the day, at the rate of $2 per diem; and everything, so far, is in first-class order. Mr. G. W. Elliott, the underground superintendent, has laid off the mine in a manner deserving of credit. He denounces the single-entry system in the strongest terms, is intending to supply the mine with plenty of fresh air, and lays down an example for some of our brilliant mine bosses to follow. The mine is fitted with approved machinery.

The Central Coal and Coke Company's mine No. 9, Yale, is a steam power, located four miles northeast of Pittsburg, on a switch of Kansas City, Pittsburg & Gulf railroad. Depth of shaft, 83 feet; size, 7x16; system, double entry and room and pillar; average thickness of coal, 3 feet. This is a new mine, and commenced operations in December, 1893. An airshaft has been sunk, and a fan 14 feet in diameter will be erected to ventilate this

mine. Miners were paid by the day, as they were making the necessary preparations by brushing and lifting of bottom, etc.

The slope operated by King & Capron lies one-half mile south of the Kansas City, Fort Scott & Memphis railroad depot, at Arcadia. This slope has been recently opened, and employs but seven hands, though the management hopes to increase the capacity materially. The coal is of very good quality, about 2½ feet thick.

The W. J. Lanyon Coal Company's slope is located one-half mile south of the Lanyon smelting works, at Pittsburg. Most of the coal mined was used in the smelting works, though some was hauled by wagon to railroad switch and loaded for shipment. There were two openings besides airshaft; ventilation by natural power. Mine was leased to the Little Four Coal Company, and by them worked out, and was abandoned in December.

J. C. Santifer's shaft mine is a horse power, located two miles north and one west of Pittsburg, on T. O. Bevin's place. There are two openings, but the airshaft is sunk directly over and down into the main entry. As a natural consequence, the air rushed up or down one or the other of the shafts, as they were about 80 feet apart, leaving the rest of the mine in a terrible condition as to ventilation. I ordered an air shaft sunk and the necessary improvements made. Mr. Santifer did not comply, and I caused the mine to suspend operation. Up to date they have not made any changes.

The E. C. Sheldon, or the Sheldon Coal Company's shaft, is situated about 1¼ miles north of the city of Pittsburg, and has no railroad connections. Coal is 3 feet 4 inches thick; shaft, 33 feet deep; size of shaft, 6x14 feet. Hoisting is by horse power; no mules in mine, and entries not brushed. Ventilation by grate fire. Very fair system, partial double entry. Coal is hauled in wagons 1¼ miles to railroad switch.

The Black Diamond shaft mine is situated about one-fourth of a mile southwest of Pittsburg, on a switch of the Missouri Pacific railway, and is 25 feet deep; hoisting by horse power. There are no mules in the mine. The men are paid 20 cents for a 10-bushel car. The mine is operated by W. A. Wimmer, who has sunk an airshaft and put in a furnace.

The Geo. Watkins slope is located a little over a mile southwest of the city of Pittsburg, on the Playter farm. Mr. Watkins pays to Mr. Playter 1 cent a bushel royalty. Commenced operation August, 1892; thickness of coal, 3 feet 8 inches; sells coal at mine to local trade; employs four men.

Robert Nash's shaft is a horse power, and is located one mile south of Pittsburg. Depth of shaft, 24 feet; size, 5x6; thickness of coal, 3 feet 2 inches; two openings; natural ventilation. This man Nash caused more agitation than any other operator in the district, as he was not willing to do anything toward improving the condition of the mine, which was in a horrible condition when I first inspected it, having no system of ventilation. Miners carried old tablecloths and sheets into the mine, hanging

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them at break-throughs and crosscuts. When his mine boss made known my first and second visit to Mr. Nash, and informed him what changes had to be made, otherwise I would enjoin him, Mr. Nash discharged Mr. Curry, the boss. However, a change has been made, and the mine is now operated by Mr. Calhon, who understands how a mine should be ventilated and operated.

T. M. Barret's slope mine is located at the 'Frisco crossing, four miles south of Pittsburg. A shaft has been sunk close to the railroad track, and the coal will be hoisted by horse power. I did not inspect this mine. I made two visits and found the mine idle on each occasion.

Analysis of the Earnings of the Crawford County Miners for 1893.

This is the banner county of the state, both in the production of coal and the number of employés. During the year, 28,907,375 bushels were produced, and 2,558 men were employed as miners, averaging 11,300 bushels for the year for each miner. The average price paid for mining in the county was 2½ cents per bushel. We find, by a reference to the table, that the mines of Crawford county worked a total of 4,939 days, an average of of 114¾ to the mine, or about 36.78 per cent. of the working days of the year. We also find that 3,665 men were employed in and about the mines, and directly dependent upon them as a means of subsistence. Calculating that enough of those so employed are the heads of families to make the proportion of unemployed 3 to 1 who are thus dependent (I believe this to be the rule), there are 14,660 people directly dependent on this industry, or about 40 per cent. of the population of the county. Consequently, believing that an industry upon which this large proportion of people depend must be of highest interest to the people of the state, and merits from our legislators the most just and careful attention, I herewith submit this analysis. Let us begin, then, by carefully examining the foregoing table, which has been compiled from reports furnished me by the operators of the mines. The average production of each miner is 11,300 bushels, for which he is paid 2½ cents per bushel. We find his earnings to be $242.14. To this we will add one-fifth, to pay for the piecework done by the miners, and for which no regular day hands are employed. One-fifth of $242.14 is $48.42; add $242.14, and his earnings reach the sum of $290.56 for 114¾ days' work, or about $2.53 per day. Pretty fair wages, one would say at the first glance; but let us go a little further. It is an established custom among miners that upon days when there is no hoisting the miner goes into his place to get as much coal loose and ready to load as possible, in preparation for the next day upon which the mine hoists. It is safe to say that for every day's work shown in the table the miner has worked 1½ days, or 172 days, instead of 114¾, for the year.

Another great item to be taken into account when calculating the miner's earnings is his expense account, and of which persons unfamiliar with

the mining industry know nothing. The table shows that 65,291 kegs of powder were used in the county, an average of 25½ kegs to the miner. For this powder the miner pays $2 per keg, or $51 a year for powder. He has worked 172 days, in which time he has used seven gallons of lard oil, for lighting purposes, as a gallon will last just about 25 days. The average price of his light for the year has been $5.25. For having his tools sharpened, the miner pays $1 per month, if the mine hoists more than half time; if less than half time, 50 cents. The table shows that the miner worked 4½ months, of 26 days each; hence his blacksmithing would be $4.50 for the year.

The companies furnish the shot firers with squibs with which to fire all shots, but every miner is charged 25 cents a month for the proportion of squibs his shots are supposed to require. Thus, his squibs for the year were $1.12. As in most cases the shots must remain at least three hours after being tamped before they are fired, and the majority of the coal in this county is, to say the least, damp, then it follows that the miner must make his cartridges of paper that will resist moisture. To make these cartridges requires waterproof paper and no small quantity of soap. These will cost fully $1 per month; hence, here is another item of $4.50.

A miner's outfit of tools in this county consists of drilling machine, shovel, sledge, wedges, four or five picks, and powder and oil cans. These are to be kept in repair, and, as the dampness of the mine soon eats out the cans and shovels, his expense in this line is at least $4.50 more. Here, then is quite a nice little sum to be taken from the earnings before a computation can be made.

It has been freely circulated, and is considered almost an indisputable fact by men not conversant with the mining industry, that miners, particularly those of Cherokee and Crawford counties, earned wages averaging from $2.50 to $4 per day. No doubt some one or more may have done so at intervals, and for a limited time. But this analysis is based on the miner's production, and I deem it my duty to give the facts as they are, without favor to anyone. Perhaps the following table may be of some use in that direction:

Earnings		$290 56
Expense:		
Powder	$51 00	
Lard oil	5 25	
Smithing	4 50	
Squibs	1 12	
Paper, soap, and cotton	4 50	
Repair of tools	4 50	
Total		70 87
Balance, or net earnings due the miner		$219 69

Which is, in reality, the earnings of 172 days, though credited to only 114¾.

This earning of $219.69 gives a net daily earning for the 114¾ days

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which the mine worked of $1.91 4/10; for the 172 days which the miner really worked, a trifle over $1.27; for the 312 working days of the year, 70 1/10 cents; and for the 365 days of the year, 60 7/10 cents. Unfortunately, but very few miners of this county own their homes, and it is safe to say fully 90 per cent. live in rented houses, paying, on an average, $5.25 a month rent, or about 17 cents per day. This rent, of course, must be paid for every day. After subtracting this 17 cents rent money from the 60 7/10 cents, we find the tenant miner possessor of the munificent sum of 43 7/10 cents for a daily income. Calculating, as we have, that a family comprises four persons, they must be fed at a cost of 2½ cents per head for each meal, or 30 cents a day for the family. This would leave the miner 13 7/10 cents with which to provide the necessaries of life, such as furniture and bedding, fuel, lights, soap, dishes, etc. From this same 13 cents must come clothing, medical attendance, and the educational necessaries of his family, books, slates, etc.

Another thing which is not understood by the people who are not conversant with actual mining is the system in vogue by which boys are worked in the mine, but do not appear on the companies' books. Herein lies the explanation of the wonderful earnings alleged to have been earned by individual miners. In many instances there may be a boy in the family of 15 or 16 years of age. This boy goes to work with his father. Each miner is given a numbered check, and his name is entered on the company's books opposite that number. One of these numbered checks must accompany each car of coal coming out of the mine, that the weighman may know to whom to credit the weight of the car. The father goes to the weigh boss and is given a number, and not only what he mines himself, but the product of the boy's labor also, appears with it, and as if one man alone had done the work. Indeed, I have known of cases where a father and two or three sons have occupied two or three places in the mine, but whose product all appeared upon one number; and I have also known officials of the corporation to willfully mislead by showing the account of that number as the earnings of one man alone. The average price of the county is given as 2½ cents per bushel, which is the fact, though one or two places pay considerable more. As, for instance, the Cherokee & Pittsburg Coal and Mining Company pays 50 cents a ton for unscreened coal, and adds a premium of 5 cents for every 100 pounds of lump coal the miner can produce in excess of 50 per cent. of his output. Thus, if a ton of unscreened coal produces 1,000 pounds of lump coal after being screened, the miner is paid 50 cents; if it produces 1,100 pounds, he receives 55 cents; if 1,200 pounds, 60 cents; and rising thus to $1 for 2,000 pounds of lump coal; and this system is claimed to be equal to 2½ cents per bushel, or 62½ cents per ton.

TABLE SHOWING EARNINGS OF MINER IN CRAWFORD COUNTY FOR 1893.

Average number of days mine worked	114½
Average number of bushels produced per miner in the county	11,300
Average price paid per bushel for unscreened coal	$0 02½
Average earnings per miner for the amount of coal produced	$242 12
Adding one-fifth of miner's earnings for yardage, room turning, and cutting faults	48 42
Miner's total earnings	$290 64

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MINER'S EXPENSE FOR THE TIME WORKED.

Powder	$51 00	
Lard oil	5 25	
Blacksmithing	4 50	
Squibs	1 12	
Paper, soap, and cotton	4 50	
Repair of mining tools	4 50	
Total expense		70 87
Balance, or net earnings due the miner		$219 69
Average daily earnings for 114½ days mine worked, less expense		$1 91
Average earnings for 312 working days of the year		70 4/9
Average earnings for 365 days of the year		60 2/9
Average daily rent to miner, 17 cents, leaving		43 7/9
Calculating four persons to each family, at a cost of 2¼ cents each per meal, or 7½ cents per diem, is 30 cents, leaving		13 2/9

ELLSWORTH COUNTY.

This county is situated in nearly the center of the state, and while it is probably a fine agricultural section, such cannot be said of it as a mineral producer. The vein found there is only about 12 inches in thickness, and I could find but two small drifts in the county. The coal is of the lignite variety. These two mines are operated by lease, on a royalty of 1 cent per bushel; however, one-fourth of that amount would be sufficient, considering the surroundings. No coal is shipped, but sold on the dump to teamsters. I found 30 men and boys employed, who produced about 60,000 bushels, or .083 per cent. of the entire output of the state, the estimated value of which is $7,800. Miners are paid 8 cents per bushel for mining, and coal is sold at mine for 13 cents per bushel.

TABLE OF ELLSWORTH COUNTY.

ITEM.	C. W. Kelly, Smoky Hill mine, Wilson.	W. S. Waterbury, Waterbury mine, Wilson.	Total.
Number of days worked in 1893	150	160	310
Number of bushels mined in 1893	40,000	20,000	60,000
Estimated value of output	$5,200	$2,600	$7,800
Average number of miners employed	18	9	27
Average number of day hands	2	1	3
Average number of all employés	20	10	30
Average price paid per bushel	8	8	.....
Kind of opening — shaft, drift, or slope	Drift.	Drift.	.....
Has mine two separate openings?	Yes.	Yes.	.....
Kind of coal	Lignite.	Lignite.	.....
Thickness of vein, in inches	12	12	.....
System — room and pillar or long wall	Long wall.	Long wall.	.....
By what power operated?	Man.	Man.	.....
By what power ventilated?	Furnace.	Natural.	.....
How many divisions of air in mine?	2	1	.....
Has mine railroad connections?	No.	No.	.....

Record of Inspection.

C. W. Kelly's drift mine is located three miles south and one-half mile west of Wilson. Most of the coal produced is sold at the mine. This mine has been in operation since 1891. System, long wall; ventilation by a furnace; average thickness of coal, 12 inches; price paid for mining, 8 cents

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per bushel; selling price at mine, $3.25 per ton. There were 16 men employed when I visited this mine; miners have to push their coal from the face to the dumping place on tipple; coal is not weighed until loaded into the wagon of the purchaser, every miner having a place set apart for his coal near the entrance to the mine. The miners aim to equalize the amount sold by each, as near as possible. Entries are from 2½ to 4 feet in height, and an average miner mines about from 10 to 12 hundred weight per day. A great portion of the miner's time is taken up in pushing coal from 500 to 700 feet in small cars, averaging 2½ hundred weight per car; mine was in a very fair condition; and in the way of improvements, 270 feet have been driven.

The drift operated by W. S. Waterbury is situated a short distance from the Kelly mine, and works the same vein of coal. Mouth of the drift is in Russell county, but the workings are in Ellsworth. Miners are paid $2 per ton the year around. Coal is lignite, and about 12 inches thick, of poor quality, but sells readily for $3.25 per ton at the dump. No accidents have been reported from this mine. The mine was in fair condition at the time of my visit.

FRANKLIN COUNTY.

Kind of coal, bituminous. Average thickness of coal, 1 foot 2½ inches. There are 2 shafts and 13 drifts in Franklin county, which last year produced 405,590 bushels, valued at $32,447.20. In addition to this, the strip mines produced 145,700 bushels, valued at $11,656; making a total of 551,290 bushels, or .765 per cent. of the total output of the state. Estimated value, at 8 cents per bushel, $44,103.20. The mines worked, on an average, 173 days, or 55 1/10 per cent. of the working days in the year. Average number of men employed daily, 150. Most of the mines in this county produce but very little coal in the summer time. The apparent reason for this lies in the fact that, outside of the Ransom & Simms mine, and a few around Pomona who haul by wagon to the railroad, no shipping is done, but they depend upon the local trade for the disposal of their coal. At all mines in the county, except the Ransom & Simms works, a miner not only digs the coal, but must deliver it on the tipple, having, in some instances, 400 yards to push the coal. Very little attention is paid to the mining law in this district, and none whatever to the health of the miner, in the majority of instances. Men will open a drift, and, making no calculation of substantial improvement looking to the futurity of the mine, or to their own health, drive as far into the bank as their imperfect ventilation will allow them to go, and then, when choked out by bad air, abandon the place, only to open up and butcher a new one. As a consequence, there are a great many irregular-shaped pieces of coal left among these old workings, of which perhaps but very few would pay to work out, but which, in the aggregate, entail an enormous loss to the mineral wealth of our state. Legislation should carefully and wisely look after this matter, as sometime the limit of our resources

in this direction will be reached. As regards the strip-coal industry, it is carried on very much as is the drift system. I found it almost impossible to collect reliable data. Between my predecessor's report of this county and my own there is a great discrepancy, but I have here reported every mine, also every bushel of output, of which I could obtain anything like a reliable account.

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TABLE OF FRANKLIN COUNTY FOR 1893.

Office number	OPERATOR.	MINE.	POST OFFICE.	Number of days mine worked	Number of bushels mined	Estimated value of output	Average number of miners	Average number of day hands	Average number of all employés	Av. price pd. per bu. for unscreen'd coal, in cts.	Kind of opening — shaft, drift, or slope	Has mine two surface openings?	Depth of shaft from surface, in feet
1	Ransom & Simms	Ransomville	Ransomville	240	150,000	$12,000 00	20	8	28	6	Shaft	Yes	80
2	George Caple & Bros	Caple	"	200	14,000	1,120 00	4	1	5	7	Drift	"	
3	D. E. Price	Price	Williamsburg	205	13,940	1,115 20	4	1	5	7	"	"	
4	Morris & McKissick	Allen	"	205	20,750	1,660 00	6	1	7	7	"	"	
5	Wm. Ward	Lindsay	Quenemo	122	21,000	1,680 00	10	2	12	6	"	"	
6	B. F. Alexander	Allen & Lindsay	Williamsburg	100	5,100	480 00	4	2	6	6	"	"	
7	F. E. Dyer	Dyer No. 1	Pomona	210	86,500	6,920 00	15	3	18	5	"	"	
8	" "	Dyer No. 2‡											
9	B. F. Reridon	Grabendike	Pomona	150	40,500	3,240 00	12	2	14	6	Drift	Yes	
10	W. E. Bray	Bagly	Williamsburg	120	29,150	2,332 00	9	1	10	6	"	"	
11	— Rusbatch	Rusbatch	"	150	7,650	612 00	3		3	7	"	"	
12	Moore Bros	Moore	"	200	17,000	1,360 00	5	1	6	7	"	"	
13	Paynter & Challand *										Shaft		
14	Wickham †												
15	Cass †												
	Strip banks				145,700	11,656 00			35				
	Totals			1,902	551,290	$44,103 20	93	22	150				
	Averages			173						$6\frac{4}{11}$			

State inspector of coal mines reports

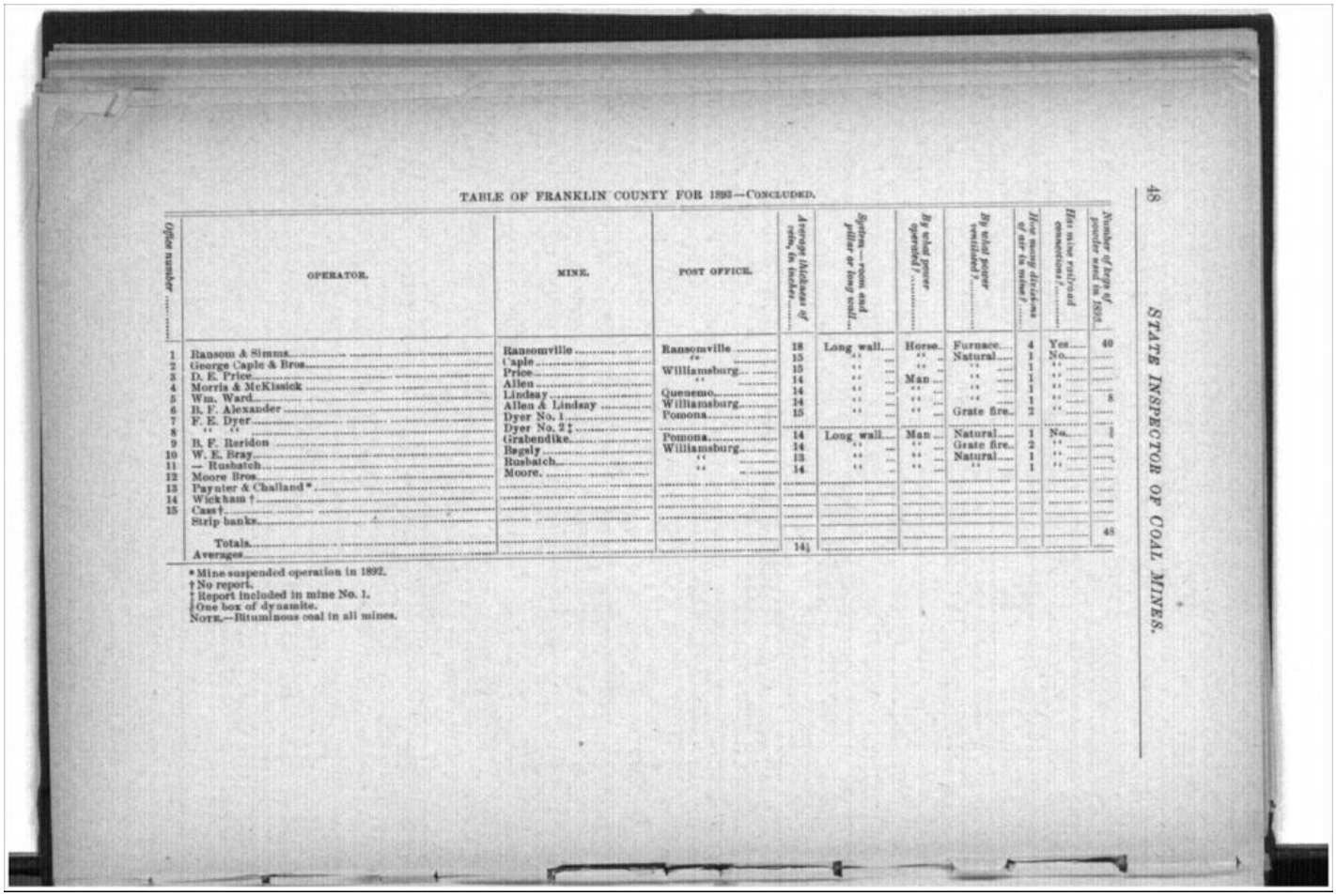

TABLE OF FRANKLIN COUNTY FOR 1893—CONCLUDED.

Office number	OPERATOR.	MINE.	POST OFFICE.	Average thickness of vein, in inches	System—room and pillar or long wall	By what power operated?	By what power ventilated?	How many divisions of air in mine?	Has mine railroad connections?	Number of kegs of powder used in 1893.
1	Ransom & Simms	Ransomville	Ransomville	18	Long wall	Horse	Furnace	4	Yes	40
2	George Caple & Bros	Caple	"	15	"	"	Natural	1	No	
3	D. E. Price	Price	Williamsburg	15	"	"	"	1	"	
4	Morris & McKissick	Allen	"	14	"	Man	"	1	"	
5	Wm. Ward	Lindsay	Quenemo	14	"	"	"	1	"	8
6	B. F. Alexander	Allen & Lindsay	Williamsburg	14	"	"	"	1	"	
7	F. E. Dyer	Dyer No. 1	Pomona	15	"	"	Grate fire	2	"	
8	" "	Dyer No. 2‡								
9	B. F. Reridon	Grabendike	Pomona	14	Long wall	Man	Natural	1	No	
10	W. E. Bray	Bagaly	Williamsburg	14	"	"	Grate fire	2	"	
11	— Rusbatch	Rusbatch	"	13	"	"	Natural	1	"	
12	Moore Bros	Moore	"	14	"	"	"	1	"	
13	Paynter & Challand *									
14	Wickham †									
15	Cass †									
	Strip banks									
	Totals			14½						48
	Averages									

* Mine suspended operation in 1892.
† No report.
‡ Report included in mine No. 1.
§ One box of dynamite.
NOTE.—Bituminous coal in all mines.

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In 1893, the miners of this county produced 405,590 bushels, exclusive of the strip-bank output, making an average per miner of 4,361 bushels yearly. As the table of the county shows 93 miners employed, averaging 173 days worked in the year, the average annual earning per miner is $277.51, or 1.60\frac{4}{10}$ per day for time worked, or 88$\frac{5}{10}$ cents for 312 working days in the year, making an average of 76 cents for every day in the year. The above statement shows the miner's gross earnings, making no deduction for the necessary mine expenses.

Record of Inspection.

The Ransom & Simms Coal Company's shaft is a horse power, located on the Burlington branch of the Atchison, Topeka & Santa Fé railroad, west of the Ransomville depot. Depth of shaft, 80 feet; size, 5 x 10 feet; airshaft is 6 x 8 feet; ventilation by furnace; air current divided into four sections; overcast on north side; average thickness of coal, 18 inches. Price paid for mining, 6 cents per bushel; selling price in winter, $2.50 per ton at mine. The roadways in this mine were in a very fair condition; no escapement in the way of a stair; long-wall system. This mine has been in operation since 1886. An average of 40 men are employed in winter. On the occasion of my first visit, I found the air very dull, and some of the miners informed me they were very often compelled to go home through the day, on account of bad air, as those in charge very often neglected the furnace. This mine has no means of egress in case of fire at main shaft, which frequently occurs, particularly when located near a railroad over which several trains pass daily. On my return home, I sent the company the following notice:

Mr. James Simms, Superintendent Ransom Coal Company:

SIR—After a careful consideration of the location of your company's shaft, being located so near the railroad, which adds additional danger, not speaking of non-compliance on your company's part in reference to an escapement, I believe it is absolutely necessary to sink another shaft. I do not consider your furnace shaft an escapement; also, the necessary amount of air, viz., 100 cubic feet per man per minute, is not and cannot circulate at face, as the furnace is too far from face of workings, and not attended to. In conclusion, I consider the life of one miner, whose daily avocation necessarily compels him to work in such mines, worth all the mines and minerals in Franklin county. By not complying with my demands, which I now make, by having another shaft sunk as soon as possible, I call your attention to that part of the law which prescribes a fine of from $100 to $1,000. Hoping you will start immediately; otherwise I will enjoin your company.

A. C. GALLAGHER, *Inspector.*

Shortly after the shaft was located and sunk, and, in the way of improvements, chutes were built for coaling railroad locomotives and new bridle chains put on cages. I have no reports of accidents at this mine. Mr. Simms, the mine boss, is a practical miner, and diligently watches the working places, to see that they are properly timbered.

The "Caple Bank," as it is commonly called, is a leased mine on the

Ransom coal farm, situated one mile north of Ransomville, and operated by Geo. Caple & Bros. The mine is a drift, opening into a 15-inch vein of coal, worked on the long-wall plan; has two openings; ventilation, natural; has no railroad connection; employs an average of four men the year round; mine began operations in 1887; pays 7 cents per bushel for mining.

D. E. Price's drift mine, a lease of the Hardache place, is located one mile south of Williamsburg. Vein, 14 inches; has no railroad connection; only local trade; employs four men; has two openings; natural ventilation; system, long wall; pays 7 cents per bushel for mining.

H. Allen's drift mine is located three-fourths of a mile south of Williamsburg; leased by Wm. Morris and Charles McKissick; employs an average of about six men. Local trade. Price paid for mining, 7 cents per bushel. System, long wall; height of coal, 13 inches. There are three openings; natural ventilation. This mine was in fine condition when I visited it. They work very little in summer.

The Lindsay mine is located about five miles north of Williamsburg; is a drift mine, without railroad connection, and has been leased for five years to Wm. Ward, for 1 cent per bushel royalty. Drift is 350 feet long to face of workings. Natural ventilation, as there are several openings. Average thickness of coal, 14 inches. Miners are paid 6 cents a bushel for mining; selling price at pit, 8 cents per bushel. At the time of my visit, July 29, four men were employed, but in winter about a dozen men are given work. Roof good.

Benjamin F. Alexander operates a drift mine on land belonging to Messrs. Allen & Lindsay, 3½ miles southwest of Williamsburg. The mine is known as the Allen & Lindsay mine. Average thickness of coal, 14 inches; has two openings, but natural ventilation; no railroad connection; depends on local trade; employs four men, and pays 6 cents per bushel for mining.

The Dyer drift mines, Nos. 1 and 2, are located three miles south of Pomona. System, long wall; thickness of vein, 15 inches; good roof. At the time of my visit, Mr. Dyer was making extensive preparations for winter trade. He pays ½ cent royalty per bushel. Both drift mines were in very fair condition; miners are paid 5 cents per bushel.

The Grabendike mine is a drift, located 3½ miles southwest of Pomona, and is operated by B. F. Reridon on a lease from the Grabendike Land Company, on royalty of 1 cent per bushel. Coal is 14 inches thick, and worked on the long-wall system. There are two openings. Ventilation is natural; employs 12 men; has no railroad connection; local trade; pays 6 cents a bushel for mining; men push their coal out of the drift, which is over 300 feet in length.

The Bagsly drift mine is located five miles northeast of Williamsburg; is leased and operated by W. E. Bray, who pays 1 cent per bushel royalty. Two openings; ventilation by grate furnace; air in two divisions; depth of airshaft, 20 feet; size, 4 x 4 feet. Vein about 14 inches. Employs nine men and pays 6 cents per bushel. Only local trade.

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The Rusbatch drift mine is situated one-half mile west of Williamsburg. Thickness of coal, 13 inches. Operated on the long-wall plan. Only local trade. Two openings; natural ventilation. Employs three men, paying 7 cents per bushel for mining.

The Moore Bros.' drift mine is a lease on the Roberts farm, located three miles southwest of Williamsburg; employs five men, paying 7 cents a bushel for mining. Local trade. Two openings. Natural ventilation.

Paynter & Challand's shaft mine is located two miles south of Pomona. This mine was not in operation in 1893. Mr. Paynter is experimenting, and perfecting a long-wall mining machine, at the "Santa Fé" mines at Toluca, Ill., and intends operating the Paynter & Challand mine in the near future.

Wickham & Coss have opened two drift mines on the Morgan farm, near Hacket hill, northwest of Ottawa and northeast of Pomona. I did not inspect these mines, as they were idle when I was making my rounds.

LABETTE COUNTY.

Coal is bituminous. Thickness, about 15 inches, being about 10 feet from the surface. There are no shafts in the county, and I believe neither drift nor slope. The output for the year is very hard to determine, as there were so many employed and at such disconnected intervals. L. Baker operates some works 1½ miles southeast of Oswego. Near him are J. Stice, operating on his own farm, A. Stice on his, and C. Pufferberger and G. Bickel, besides a dozen or two more, none of whom has kept a record of his work except Mr. Barker. To the best of my judgment, I should say there were about 100,000 bushels, or .139 per cent. of the entire output of the state, produced in the county last year, valued at $9,000. Mr. Baker has the most extensive works in the county, and turned out 15,509 bushels, using 30 kegs of powder. At this proportion, there were about 210 kegs of powder burned. Number of men employed, 40. No coal is shipped, and the work is carried on chiefly in the winter, by farmers who own the land, and thus employ their time when not busy in their fields.

In December, 1893, a Mr. McKinstry went into the county prospecting, and I lately received a letter, of which the following is a portion:

> Since I last wrote you, I have been prospecting on the farm of Mr. C. C. Kenisem, n this county, 3½ miles south and one-half mile east of Dennis, for coal. At 93 feet from the surface I struck a 3½-foot vein, and in the same drill hole, at 98 feet, found a 4½-foot vein of "cannel" coal. There is no other coal nearer than Thayer, 15 miles away.

If the above is true, the find is a bonanza, and will materially increase the mineral wealth of the state, as there are only a very few small fields of this coal discovered in the United States. A good quality of cannel coal will sell at about three times the value of bituminous.

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LEAVENWORTH COUNTY.

There are five shaft mines in Leavenworth county, averaging 721 feet in depth. The coal is a fair quality of bituminous; average thickness of vein, 20 inches. In 1893, four of these mines worked an average of 211¾ days, or 67¾ per cent. of working days in the year, producing 6,509,463 bushels, or 9.035 per cent. of state output. The estimated value of output, state mine included, is $423,115.09. During the year, an average of 1,188 men were employed, 300 of whom were convicts.

The Brighton Coal Company's mine is not tabulated in my report, as I was unable to obtain the amount of coal, or the number of days worked. I wrote on several occasions, but received no answer; therefore, I cannot make a statistical report of the output. This mine suspended operations in July, 1893, and has not resumed operations since. I notified the superintendent on several occasions that an airshaft or escapement would have to be perfected; otherwise I would enforce the law relating to second openings. This may have been the cause of the company's refusal to furnish statistics relating to their production and the number of days worked. I considered it my duty to enforce this law, as the object and intent of our mining laws in this and all other states are for the health and safety of those employed. Reason must, therefore, convince any man who is conversant with mining in deep shafts that it is absolutely necessary to have an escapement in connection with the Brighton mine. Should the engine room or pit top take fire, it would almost be impossible to save those in the mine. The breaking of a hoisting rope, which frequently occurs in Leavenworth county, would also endanger miners and others employed, as the descending cage, in a case of this kind, is liable to tear out the partition which divides the upcast and downcast. Natural consequence would follow: Those employed at the face of working places, and in many other parts of the mine, would suffer or suffocate for want of air; and, in such deep shaft mines as are in Leavenworth, a certain amount of natural gas would be liable to accumulate, which might prove destructive to life and property. The company, no doubt, may have guarded against all dangers herein enumerated; nevertheless, I value the life of the most insignificant miner more than the cost of sinking an airshaft or escapement. It will be remembered that a few years ago the pit top and engine room at the Brighton mine burned to the ground. Fortunately for all concerned, it was in the evening or at night, when all employés were out of the mine. What would have been the result of this burning were it during working hours? Undoubtedly all the men in the mine would have perished of suffocation. The mining law has been a bone of contention in Leavenworth county for the past six or eight years. Complaints, on several occasions, have been made, even to the honorable speaker and members of the legislative body, when assembled in Topeka, demanding the enforcement of that part of the mining law relating to safety catches on all cages used in shafts 100 feet or over. However, after a protracted

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struggle, by a resolute determination, I caused the Leavenworth County Home Mining Company and the state mine to comply. The Riverside mine No. 34, Kansas & Texas, has had safety appliances attached to their cages since they commenced operation.

This statement, no doubt, will be subject to a certain amount of criticism as to the valuation of the coal in Leavenworth county; also, the remarks relating to the Brighton mine, and the mention of safety catches. However, I deem it my duty to make a true statement, and present the facts in every instance, no matter whose displeasure I may incur. I made several inquiries as to the price of coal, and 7 cents per bushel is supposed to be the estimated value in Leavenworth county. The selling price of coal at the state mine I know very little about; but, in my judgment, it should not be put onto the market to undervalue the products of the free miner. The state mine, or Penitentiary shaft, has been the instigation of reducing the free miners' wages in Leavenworth and Osage counties, which can be clearly evidenced. How can the other operators pay their free miners a fair price when they have to compete in the same market with the products of an institution operated by convicts, who are paid at the rate of 3 cents per day? I will treat this subject more fully on another page. I feel justified in declaring that the Brighton Coal Company, or any other company in the state, should be restrained when they do not show a willingness to comply with the spirit of the law. I have been credibly informed that the superintendent of the Brighton mine claimed he would operate the mine as usual, with only one opening, as soon as my term of office expired. Mr. Brown, the superintendent, never told me so; but whatever coloring it may have, I sincerely

TABLE OF COAL MINES OF LEAVENWORTH COUNTY FOR 1893.

ITEM.	Leavenworth Coal Company's mine, Leavenworth	Kansas & Texas Coal Company, Riverside mine, No. 34, Leavenworth	Home Mining Company, Leavenworth	State of Kansas, Lansing, or Penitentiary mine, Lansing	Total
Number of days mine worked	200	158	180	309	847
Number of bushels mined in 1893	2,096,879	1,458,625	1,429,920	1,524,048	6,509,463
Estimated value of output for 1893	$136,296 55	$94,810 62	$92,944 80	$99,063 12	$423,115 09
Average number of miners	307	182	200	[5]300	989
Average number of day hands	84	40	52	[6]23	199
Average number of all employés	391	222	252	323	1,188
Average price paid per bushel [1]	[3]4	[4]3½	3½	[7]3	
Kind of opening—shaft, drift, or slope	Shaft.	Shaft.	Shaft.	Shaft.	
Has mine two surface openings?	Yes.	Yes.	Yes.	Yes.	
Depth of shaft from surface, in feet [2]	710	730	712	732	
Kind of coal: Bituminous, all mines.					
Average thickness of vein, in inches	29	20	20	20	
System	Long wall.	Long wall.	Long wall.	Long wall.	
By what power operated?	Steam.	Steam.	Steam.	Steam.	
By what power ventilated?	Fan.	Fan.	Fan.	Fan.	
How many divisions of air in mine?	4	4	4	4	
Has mine railroad connections?	Yes.	Yes.	Yes.	Yes.	
Number of kegs of powder used in 1893	300				

[1] Average, 3½ cents per bushel.
[2] Average, 721 feet.
[3] Screened.
[4] Unscreened.
[5] Convicts
[6] Officers.
[7] Convicts are paid 3 cents per day.

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trust that my successor, regardless of any political proclivity to any party or individual, will never consent to overlook the law in this case. I also hope that our legislators will give the miners of Leavenworth county more protection.

The Brighton Coal Company, Brighton mine, Harkness, suspended operations in July, 1893, and refused to furnish any report.

Record of Inspection.

The Leavenworth Coal Company's shaft mine is located at the southeast corner of the government reservation. Depth of shaft, 710 feet. The air-shaft or escapement in connection with this mine has a pair of first-class hoisting engines, in case of accident to the main shaft. This mine is operated on the long-wall system. A fan 25 feet in diameter surmounts the air-shaft, and furnishes ventilation. The mine has a capacity of 500 tons daily. This mine commenced operation in 1871, and, on the occasion of my last visit, employed 350 men. On the north side, an electric motor is in operation, and, by the aid of an endless rope, the coal is hauled a distance of 4,000 feet, and on the west side, 260 feet. A northeast entry has been driven a distance of 1,200 feet through old gob; and coal will be hauled by electric power over this entry from the face of workings in that quarter. To make the circuit of the mine along the working face, one must travel over five miles. Three mining machines, of the Sperry make, are operated by electricity, and are supposed to do the work of 120 men. All pumping is done by electric power, and the shaft bottom is lighted by electric lamps. Some of the entries in this mine are over one mile in length. Measurement of air at intake on north side, 14,000 feet per minute. Would not register at face of main north entry. This leakage was explained by the distance it had to travel, and by many of the cross entries, where they broke from main north, being supplied with curtains instead of having doors. These were never known to be air-tight. In consequence of this, the north side of the mine is very close and warm, and I found the roadways very dry and dusty. They are closely attended to, and watered at frequent intervals. This is necessary, as all the deep mines in Leavenworth county generate large quantities of gas. Fire bosses also examine the mine every morning, and, as proof of their visit, register day of the month at the face. Measurement of air on south side showed 8,200 cubic feet per minute. Total intake, 22,200 feet per minute. As a whole, this mine is in very fair condition. Miners are paid at the rate of $1 per ton, after the coal has passed over a screen 12 feet long, with one inch space between the bars. A new cable line, 1,400 feet long, on a single track, has been put in on the north, with a grip car capable of hauling 20 pit cars to the bottom at a trip. After a long and tedious controversy, safety catches were put on the cages.

The Kansas & Texas No. 34, known as the Riverside mine, is located two miles south of Leavenworth city, on a switch of the Union Pacific rail-

way. Depth of shaft, 730 feet; size, 10 x 16; ventilation by fan 12 feet in diameter; upcast or airshaft is partitioned off main shaft, which is 4 x 10 feet; long-wall system; air is divided into four separate currents; an overcast is constructed on west side. This mine commenced operations in 1887. Capacity of mine, 600 tons per day. Coal is weighed in mine, then dumped into a self-dumping hopper, which has been constructed under the cage. This has materially assisted in the increase of production. Miners are paid 80 cents per ton, mine run. There were 230 men employed when I visited this mine. Measurement of air at intake on east side, 8,520 cubic feet per minute; measurement at intake on west side, 7,100 feet per minute; a total of 15,620 cubic feet per minute, which I considered insufficient, taking into consideration the area of the mine and the number of employés. The return near upcast was in a bad condition, requiring to be properly timbered. The escapement or tunnel between this mine and the Home mine was in very good condition, excepting where it had taken a squeeze, which was being properly timbered. It must have been a regular custom at this mine to send timber down when miners are ascending on opposite cage. My first experience led me to believe such was the case, as the top hands put a load of props on cage at the lower landing when I was on the cage on my way to the top. I gave Mr. Braidwood strict orders to comply with that part of the law in the future, as I consider such a very dangerous practice. This mine, as a whole, was in a fair condition. However, I consider the present fan inadequate to supply the necessary amount of air.

The Home Mining Company's mine is located within the limits of Leavenworth city. Depth of the shaft is 712 feet; size, 9x12 feet. The upcast, or airshaft, is 4x9 feet, partitioned off one end of main shaft. A fan 20 feet in diameter furnishes the ventilation. The air is divided into four sections, with an overcast on east side. Thickness of coal, 20 inches. Long-wall system of operation. Measurement of air at intake on east side, 6,600 cubic feet per minute; at face of main east, 3,780 feet per minute; at intake on west side, 6,750 cubic feet per minute; at face of main west, 3,600 feet per minute. Many improvements have been made at this mine since my first visit: Main air course remodeled and well timbered; a first-class overcast made, and the air courses leading to it much shortened; and the escapement way, or tunnel, connecting with the Riverside mine put in good condition. I examined this tunnel on two occasions, and found it free of gas and water, and well timbered. About 175 men were employed, and paid at the rate of 80 cents per ton, mine run. After a good deal of strife, safety catches were put on cages. As a whole, this mine was in a very fair condition.

The State mine or Penitentiary shaft is located inside the walls of the Penitentiary, at Lansing, Leavenworth county. Depth of shaft, 732 feet; size, 10 x 16 feet; an airshaft or an escapement is in connection with main shaft; size of airshaft, 8 x 14 feet; has a pair of engines and cages, by which

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considerable coal is hoisted; ventilation by fan 16 feet in diameter; an air current is divided into four sections or spiles; overcast on north side of shaft bottom. Distance between bottom of main shaft and airshaft, 200 feet; distance from bottom of main shaft to face of north, east and west main entries is about one-half mile; distance from bottom of shaft to face of south entry, 1,351 feet. The area or excavations of this mine are supposed to be more than 180 acres at present; long-wall system; average thickness of coal, 20 inches; slate roof, which is very fair, as a whole, all over the mine. The working places in this mine are examined every morning by fire bosses before employés enter their respective working places. The superintendent informed me that the air current was measured every morning, and a proper record kept of same. However, he failed to report such measurements to my office, which, according to the mining law, should be done once a month. On the occasion of my first visit, I learned that the law relating to safety catches was violated. Mr. Robert Lamm, who was then superintendent, claimed that "a good, strong rope was the best safety catch that could be applied." This may be true; but, in my judgment, the institutions of the state should be the first to comply with the laws as enacted; therefore, I notified the superintendent and warden to comply with that part of the law relating to safety catches on cages in Leavenworth county, which has been done. Mr. Lamm did not show any desire to evade any part of the law, and immediately proceeded to make the necessary preparations. In a short time he perfected his undertaking, putting a substantial safety appliance on cages at the escapement shaft. Mr. Bunn, the present superintendent, Mr. Lamm's successor, has made several improvements in the way of changing air courses and remodeling the same. At my last visit, in December, I inspected the escapement shaft and main shaft; both required new cribbing, particularly the escapement shaft. I reported the condition to the governor, and he promised me they should receive immediate attention. Mr. E. Simpson has succeeded Oscar Lamm as mine boss, and has devoted a great portion of his time in making improvements, particularly in ventilation. In 1893, this mine produced 1,524,048 bushels, and employed an average of 323 employés; estimated value of output, at 6½ cents per bushel, $99,063.12. This may not be the price; however, I value it the same as the production of the other mines in the county.

Analysis of the Miners' Earnings in Leavenworth County for 1893.

In giving an estimate of miners' earnings in Leavenworth county, it would not be fair to include the State mine or the Leavenworth Coal Company's mine, as convicts produce all the coal mined at Lansing, or Penitentiary mine, and are employed every day, except Sundays and legal holidays, and the Leavenworth Coal Company use electric mining machines, by which a large portion of the output is mined. Therefore, an average of the Home

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and Riverside mines is considered a fair basis upon which to compute the earnings of the Leavenworth county coal miner.

The Kansas & Texas Coal Company's Riverside mine No. 34 worked 158 days, employing an average of 182 miners, and producing 1,458,625 bushels of coal. The Home Mining Company's mine worked 180 days, employing an average of 200 miners daily, and producing 1,429,920 bushels of coal for the year 1893. The Riverside mine worked 22 days less than the Home mine, and employed 18 less miners, yet the Riverside mine produced 28,705 bushels more coal than the Home mine.

The Riverside mine and Home mine both produced 2,888,545 bushels, and employed 382 miners. Both mines worked an average of 169 days. (See table.) This would be an output of 7,561 $\frac{9}{10}$ bushels, or 302 tons and 928 pounds for each miner for the year 1893; thus making a daily average of 44 $\frac{3}{4}$ bushels for each miner for the time employed. As the price paid for unscreened coal was 3 $\frac{1}{2}$ cents per bushel, or 80 cents per ton, the aggregate annual earnings of the Leavenworth county coal miner was $241.97. To this we will add one-tenth of the miner's average annual earnings, which is $24.19, to pay for work, such as room turning, brushing, etc., which is 8 cents per ton in excess of the mining price for every ton mined in the county. This does not include any other necessary expense to the company, except that paid the miner. One-tenth of $241.97 equals $24.19; making a gross earning of $266.16.

The necessary expense must, therefore, be deducted from the gross earnings. For blacksmithing, the miner of Leavenworth county pays 1 $\frac{1}{2}$ cents per ton. As the average output per miner was 302 tons for 1893, therefore the cost for blacksmithing would be $3.62. Lard oil costs 60 cents per gallon. A gallon of oil will last the miner for lighting purposes an average of 25 days. As the average number of days the mine worked was 169, the cost for oil would be $4.20. This is not making an allowance for the time the miner worked when the shaft was not hoisting. The average annual cost to the miner for keeping mining tools in repair would be about $2.50, making a total expense of $10.32, which cannot be avoided. Thus leaving the miner $255.84 for his yearly earnings, or $21.32 for every month in the year, or $1.51 $\frac{3}{4}$ per day for an average of 169 days mine worked; 82 cents per day for the 312 working days of the year, or an average of 70 cents for the 365 days of the year.

We find that the average house rent paid by the miners of Leavenworth county is $7.20 per month, or 24 cents per day, leaving the miner 46 cents per day, with which he is supposed to feed and clothe his family. Allowing four persons to each family in Leavenworth county—as in Cherokee, Crawford and Osage counties—and calculating at the rate of 2 $\frac{1}{2}$ cents each per meal, and three meals per day, we find that it would cost the miner 30 cents a day for food. This leaves the enormous sum of 16 cents, with which the miner has to buy fuel, clothing, boots and shoes, and the necessaries

pertaining to a home. If the average miner of Kansas partakes of any of the luxuries of life, his family is deprived of the munificent allowance based upon his annual earnings.

The foregoing statement may be criticised by those who have not given the matter their careful attention and study. Nevertheless, the preceding figures, in the table of Leavenworth county, which were given by the mine operators, will bear out my statement for the year 1893 as being true.

TABLE SHOWING EARNINGS OF MINER IN LEAVENWORTH COUNTY FOR 1893.

Average number of days mine worked		169
Average number of bushels produced per miner in the county		7,561½
Average price paid per bushel for unscreened coal		$0 03½
Average earnings per miner for the amount of coal produced		241 97
Adding one-tenth of the miner's earnings for room turning, brushing, etc		24 19
Miner's total earnings		$266 16
MINER'S EXPENSES FOR TIME WORKED IN 1893.		
Blacksmithing	$3 62	
Lard oil	4 20	
General repair of mining tools	2 50	
Total expense		10 32
Balance, or net earnings due the miner		$255 84
Average daily earning for the 169 days mine worked, less expense		$1 51½
Average daily earning for the 312 working days of the year		82
Average daily earning for the 365 days of the year		70
Average daily rent to miner in Leavenworth county, 24 cents, leaving		46
Calculating four persons to each family, at a cost of 2½ cents each per meal, or 7½ cents per diem, is 30 cents, leaving		16

LINCOLN COUNTY.

There are six mines in this county—five shaft and one slope, only four of which produced coal in 1893; output, 60,000 bushels, or .083 per cent. of entire output of the state; estimated value, $7,800. My predecessor, in his published report, says of this county: "Number shaft mines, 8; total output for 1891, 169,200 bushels; estimated value, $13,536." I visited this county, and cannot conceive where this amount of coal was produced. I received my figures from the operators' books. The miners of this county receive 9 cents per bushel for mining, as it is an inferior quality of lignite and very hard to mine. This price has been in vogue for years. My predecessor values the coal at 8 cents per bushel, or 1 cent less than the digging price, while I believe the coal belongs to the operator when the cost of mining is paid; therefore, I valued it at the selling price to the consumer, which is 13 cents per bushel, or $3.25 per ton at the mine. I find that this rule applies to our reports all the way through. In addition to the six mines already mentioned, three mines are being opened on the Elkhorn river. All of these mines are operated by horse power, and have no railroad connections. All the coal is sold to local consumers. The coal is a very poor quality, yet it is considered a great blessing by the residents of the county, who were formerly compelled to haul their fuel a distance of 10 and sometimes 15 and 20 miles from the Union Pacific railway, and in winter paid as high as $10 and $12 per ton.

People who live there told me that the price of coal at the railway stations fell at once to $5 per ton upon the discovery and production of this coal, poor as it is. It takes a fairly good miner to mine an average of 1,350 pounds of coal a day in this vein, which averages over the whole field about 15 inches. Some mines are worked on the long-wall system, some on the room and pillar, while some, combining both systems, work two or three rooms abreast, taking out intervening pillars as they go. In some places the mining is done in a band of clay about the middle of the vein; at others the mining is in the bottom coal. No powder is used, but all coal is loosened with the wedge. Average number of employés, 30. The floor or bottom is a smooth, solid rock, and the miner pushes his car upon this. No tracks are laid in the mine. Most of the owners and miners are either Swedes or Danes, and came into the county as home takers on government land. They appear to be a very industrious class of people, but are in a poor condition. Many live in dugouts, the earthen floor serving as a bedstead, with but very few bed clothes. Farmers, in many instances, haul this coal 15 miles, and claim to save considerable money by so doing, as bituminous coal sold at railway points last fall at an average price of $7 per ton.

Record of Inspection.

A. F. Buseman has a shaft mine, 50 feet deep and 5x8 feet in size, located two miles south of Denmark. System, room and pillar. The coal is about 18 inches thick, and, as there is no intention of putting mules in the mine, the entries are not over three feet high. This shaft was sunk in 1889, but has no airshaft as yet. At the time of my visit, they had drilled a two-inch hole from the surface, coming down at face of the main entry, and were about to place a pair of ordinary bellows, attached to a windmill, over the same, for the purpose of ventilating the mine. I ordered an airshaft sunk, or I would be compelled to close the shaft down on account of bad air. From four to eight men are employed in this mine, who are paid $2.25 a ton for mining. Coal sells at pit head for $3.25 per ton. The bottom is a smooth, hard rock, and no track is laid in the mine, but cars are pushed along on the stone. These cars hold about 250 pounds of coal, and each man pushes his coal to the bottom, and cages it. Michael Corcoran has this mine leased, on royalty of 1 cent per bushel.

The T. B. Alley shaft mine is located at Allamead, seven miles north of Denmark, on Spillman creek. Depth of shaft, 60 feet; average thickness of coal, 14 inches. In this mine the mining is done in a thin clay band in the middle of the vein. From 12 to 16 miners are employed, varying at seasons of the year. Natural ventilation; air pretty good. Mining price, $2.50 per ton; coal sells at pit head for $3.25 to $3.50 per ton.

The Peter Brooks mine is a slope, situated on Spillman creek, two miles north of Pottersburg. Coal is about 18 inches thick. This is a new slope, and but very little coal has been taken out. All work done so far has been for the purpose of getting the mine in good shape for future operations.

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The Little Timber mine, operated by L. P. Nelson, is situated 2½ miles north of Denmark. A shaft mine, 46 feet deep, opening a vein of 22 inches in thickness. Mining is mostly done in middle of vein. No regular system is employed. Floor of solid rock, and no track in mine; rock roof. Mine began operation in 1890; started out on the single-entry system. No separate airshaft, but an upcast has been partitioned off end of the main shaft. Mining price, $2.25, delivered on cage at bottom of shaft; selling price, $3.25. I condemned both cages and ropes, forbidding the miners to ride up or down on same until necessary changes were made. Mr. Nelson, who appears to be a very sensible and fair-minded man, made the improvements at once. Entry is brushed to a height of 3½ feet. From 6 to 8 miners are employed, who work only in winter.

The Nigger Creek, or Spiers mine, is 3½ miles north of Pottersburg; a horse-power mine, employing three to four men; system, long wall. Miners receive $2.25 per ton for mining; coal sells at $3.25 and $3.50. Natural ventilation; air very good.

The Nelson mine, operated by Andrew Nelson, is located two miles north and one-half mile west of Vesper. It is a shaft mine, 45 feet deep. This is a new shaft, only just down to the coal, and all work has been in the nature of development. The coal is 22 inches thick.

LINN COUNTY.

There are 12 mines in this county, which worked an average of 127 days in 1893. Average depth of coal from surface, 65 feet; average thickness of vein, 2 feet 10 inches; number of employés, 264, of whom 20 worked in strip mines; total output for the county, 1,852,119 bushels, or 2.571 per cent. of the product of the state; estimated value, $92,605.95.

About all the known systems of workings are pursued in Linn county. One or two mines, working by single entry and room and pillar, occasionally driving two or three rooms abreast, thus being partially long wall; while others, again, work by long wall alone. At the Bradley & Vernon mine is the only face track in the state, and it is claimed to give first-class satisfaction.

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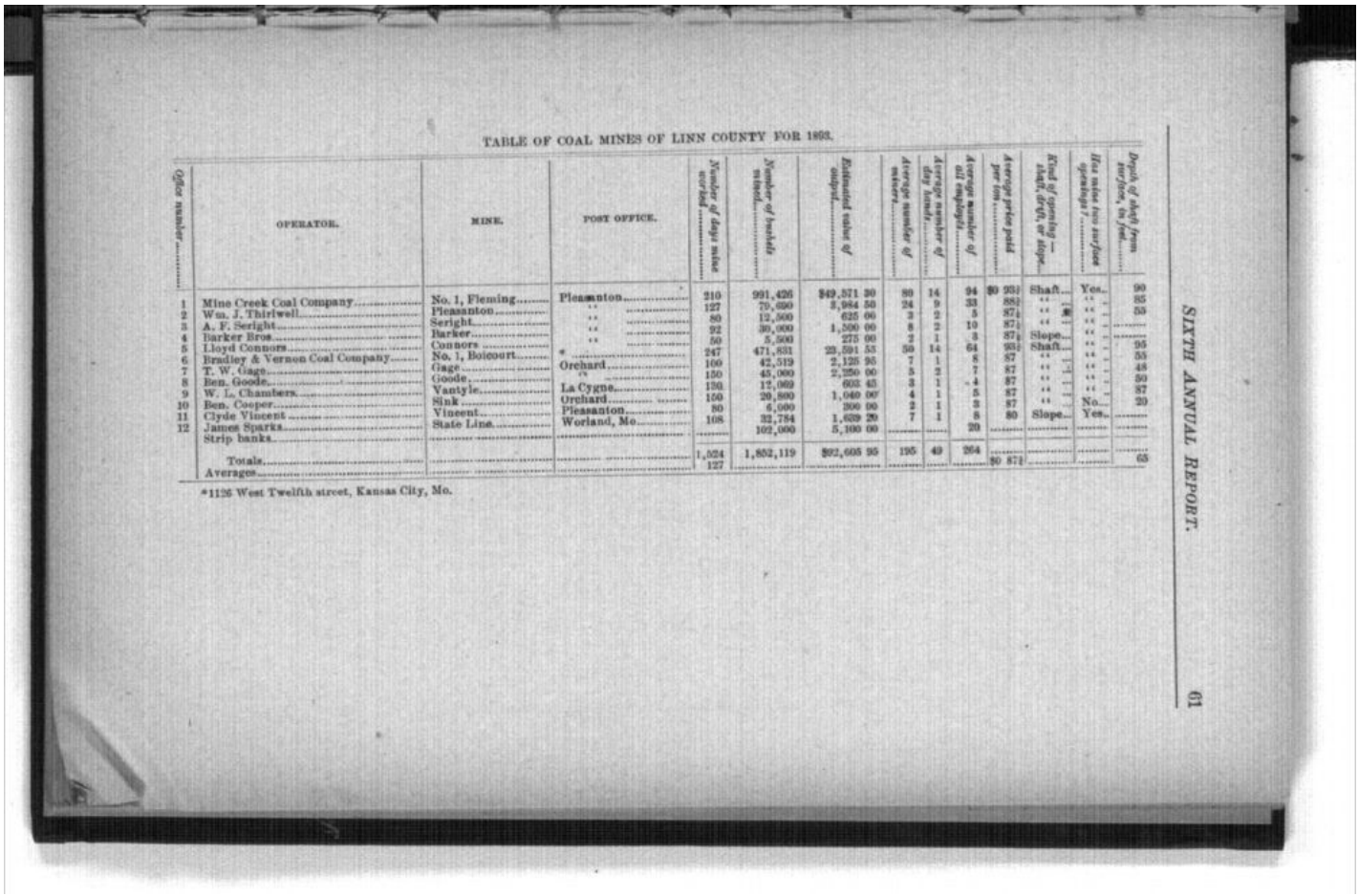

TABLE OF COAL MINES OF LINN COUNTY FOR 1903.

Office number	OPERATOR.	MINE.	POST OFFICE.	Number of days mine worked	Number of bushels mined	Estimated value of output	Average number of miners	Average number of day hands	Average number of all employés	Average price paid per ton	Kind of opening—shaft, drift, or slope	Has mine two surface openings?	Depth of shaft from surface, in feet
1	Mine Creek Coal Company	No. 1, Fleming	Pleasanton	210	991,426	$49,571 30	80	14	94	$0 93½	Shaft	Yes	90
2	Wm. J. Thirlwell	Pleasanton	"	127	79,690	3,984 50	24	9	33	88½	"	"	85
3	A. F. Seright	Seright	"	80	12,500	625 00	3	2	5	87½	"	"	59
4	Barker Bros	Barker	"	92	30,000	1,500 00	8	2	10	87½	"	"	.....
5	Lloyd Connors	Connors	"	50	5,500	275 00	2	1	3	87½	Slope	"	.....
6	Bradley & Vernon Coal Company	No. 1, Boicourt	*	247	471,831	23,591 55	59	14	64	93½	Shaft	"	95
7	T. W. Gage	Gage	Orchard	160	42,519	2,125 95	7	1	8	87	"	"	55
8	Ben. Goode	Goode	"	150	45,000	2,250 00	5	2	7	87	"	"	48
9	W. L. Chambers	Vantyle	La Cygne	130	12,069	603 45	3	1	4	87	"	"	59
10	Ben. Cooper	Sink	Orchard	150	20,800	1,040 00	4	1	5	87	"	"	87
11	Clyde Vincent	Vincent	Pleasanton	80	6,000	300 00	2	1	3	87	"	No	29
12	James Sparks	State Line	Worland, Mo	108	32,754	1,629 20	7	1	8	80	Slope	Yes	.....
	Strip banks	.....	.....	.....	102,000	5,100 00	.....	.....	20	.....	.....	.....	.....
	Totals	.....	.....	1,524	1,852,119	$92,605 95	195	49	264	.....	.....	.....	.....
	Averages	.....	.....	127	.....	.....	.....	.....	.....	$0 87½	.....	.....	65

*1126 West Twelfth street, Kansas City, Mo.

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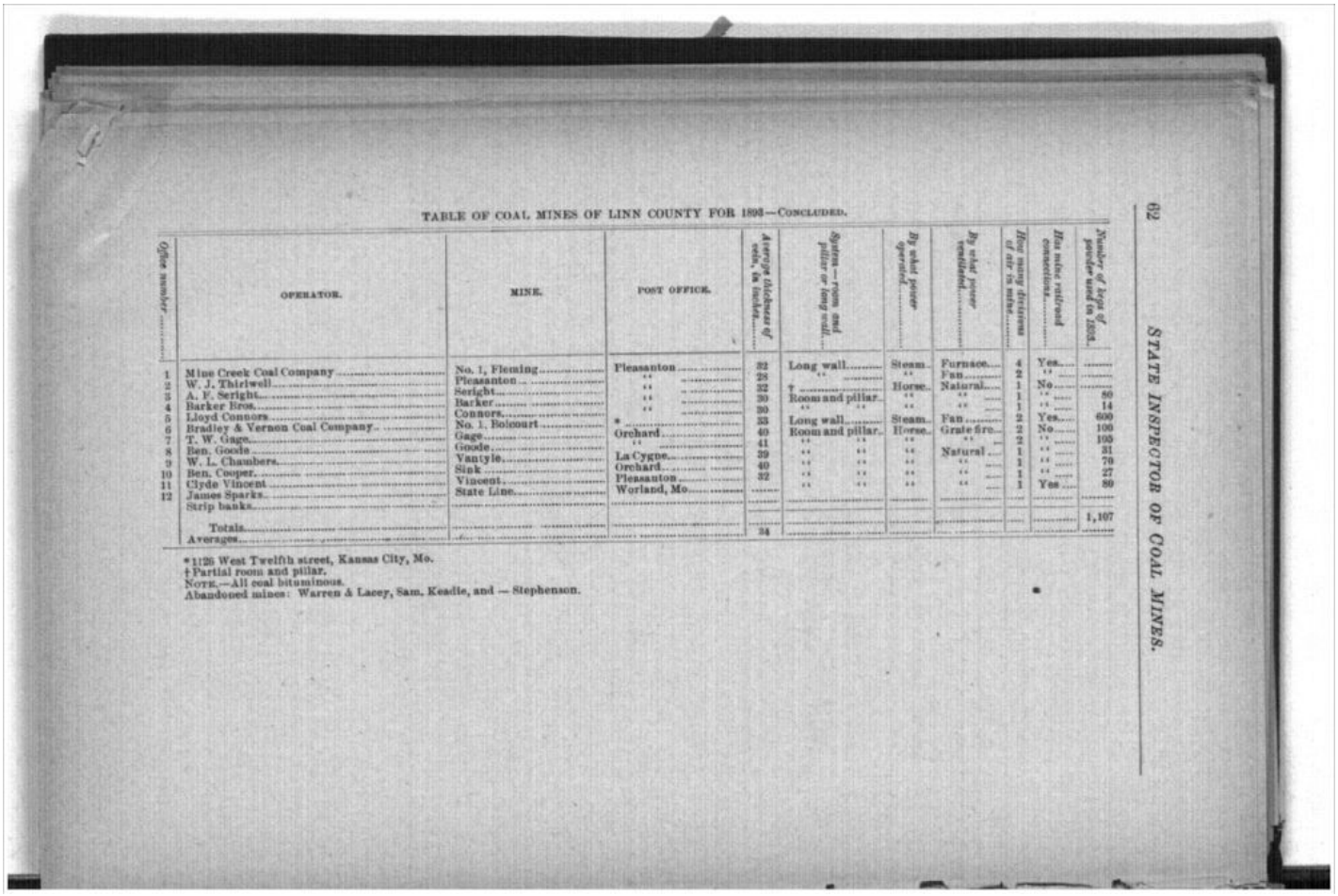

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TABLE OF COAL MINES OF LINN COUNTY FOR 1903—CONCLUDED.

Office number	OPERATOR.	MINE.	POST OFFICE.	Average thickness of coals, in inches.	System—room and pillar or long wall.	By what power operated.	By what power ventilated.	How many divisions of air in mine.	Has mine railroad connections.	Number of keys of powder used in 1903.
1	Mine Creek Coal Company	No. 1, Fleming	Pleasanton	32	Long wall	Steam	Furnace	4	Yes	
2	W. J. Thirlwell	Pleasanton	"	28	"	"	Fan	2	"	
3	A. F. Seright	Seright	"	32	†	Horse	Natural	1	No	
4	Barker Bros.	Barker	"	30	Room and pillar	"	"	1	"	80
5	Lloyd Connors	Connors	"	30	"	"	"	1	"	14
6	Bradley & Vernon Coal Company	No. 1, Bolcourt	*	33	Long wall	Steam	Fan	2	Yes	600
7	T. W. Gage	Gage	Orchard	40	Room and pillar	Horse	Grate fire	2	No	100
8	Ben. Goode	Goode	"	41	" "	"	"	2	"	105
9	W. L. Chambers	Vantyle	La Cygne	39	" "	"	Natural	1	"	31
10	Ben. Cooper	Sink	Orchard	40	" "	"	"	1	"	70
11	Clyde Vincent	Vincent	Pleasanton	32	" "	"	"	1	"	27
12	James Sparks	State Line	Worland, Mo		" "	"	"	1	Yes	80
	Strip banks									
	Totals									1,107
	Averages			34						

*1126 West Twelfth street, Kansas City, Mo.
†Partial room and pillar.
NOTE.—All coal bituminous.
Abandoned mines: Warren & Lacey, Sam. Keadle, and — Stephenson.