

State inspector of coal mines reports

Section 11, Pages 301 - 330

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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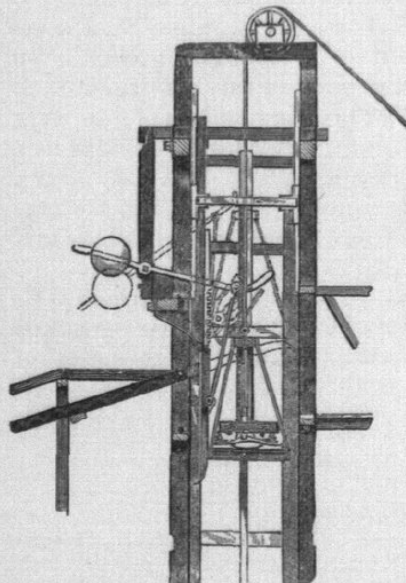
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AUTOMATIC DUMPING CAGE.

The apparatus shown by the illustration is for the purpose of dumping coal or any kind of ores raised from mines. It is equally well adapted to the purpose of raising and dumping coke, lime and other materials for cupolas of blast furnaces. It has been found of great importance when used for the purpose of raising and dumping corn, oats, or any kind of grain in



stores, elevators, or any other purpose where material must be raised from a lower level to be delivered into chutes, railroad cars, or hoppers. It is a revolving tippie and cage combined, all other automatic cages being one-half tipples. It is entirely under the control of the engineer, who performs all the work but the weighing of the coal after it is dumped. With this apparatus one engineer can raise and dump over a screen, with ease, 1,000 tons of lump coal per day of 10 hours, without any assistance, the pit cars each holding one ton of coal. The pit cars used in connection with this apparatus do not require end gates to open for letting the coal out. Cars with solid ends only are required, which, in addition to the

cost being much less, can be made much lighter and stronger, and avoid the frequent repairs and trouble caused by the ordinary cars by frequent "break-downs" while in the mine, spilling coal, etc.

To screen coal properly, too much should not be delivered on the screen at one time. With all one-half tippie cages the coal is delivered on the screen in one body. If it is soft, or of a gummy nature, it passes over the screen without being properly sifted. Coal delivered from a car upon a one-half tippie cage attains considerable velocity at the start, which effectually prevents it from being thoroughly screened. With the revolving tippie cage, shown in the illustration, coal can be delivered on the screen slowly and in small quantities. It attains no velocity from being dumped, other than what its own weight gives it after coming to a halt when it strikes



the chute after being dumped from the car. Twenty-five per cent. more slack can be taken out of coal with this revolving tip than can be done by any one-half tip yet invented. It is especially designed to prevent accidents arising from overwinding. This is a new feature, and is one of the special points of excellence not found in any other cage. With these improvements, having a capacity of 1,000 tons, \$12 per day, or \$3,600 per year, can be saved, for the reason that no dumpers are required, the whole action being automatic and controlled entirely by the engineer. There are many minor advantages in this invention, which will be fully explained by the inventors, Messrs. Braidwood & Oswalt, of Leavenworth, Kas.



FOURTH REPORT
OF THE
STATE INSPECTOR OF COAL MINES,

TO THE
GOVERNOR OF THE STATE OF KANSAS.

FOR THE YEAR ENDING DECEMBER 31, 1890.

TOPEKA.
KANSAS PUBLISHING HOUSE: CLIFFORD C. BAKER, STATE PRINTER.
1891.



COMPLIMENTS OF

JOHN T. STEWART,

STATE INSPECTOR OF COAL MINES.



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REPORT.

OFFICE STATE INSPECTOR OF COAL MINES, }
SCAMMON, KAS., December 31, 1890. }

HON. LYMAN U. HUMPHREY, *Governor of Kansas*:

DEAR SIR—In accordance with section 4, chapter 143, Laws of 1885, I have the honor to herewith submit the Fourth Report of the State Inspector of Coal Mines, which gives an account of my duties since appointed, August 5, 1889.

This report contains a description of the condition of the mines, and statistics in relation to the output of coal, for 1889. Over half of the statistics were gathered by personal visitation, as they could not be obtained in any other manner. The output of coal for 1890 could not be obtained in time for publication in this report; but from personal knowledge and observation it is thought that the quantity mined will not exceed the output of 1889 in any appreciable extent. Owing to the very mild weather of the first four months of 1890, the demand for coal was very limited for that season of the year, and the output was correspondingly small. The total output for 1889 was 53,819,149 bushels, of which the estimated value at the mines was \$3,233,398.

From August 5, 1889, to January 1, 1890, there were reported to me four non-fatal and four fatal accidents. The records of the office for the first seven months of 1889 give accounts of seven fatal and no non-fatal accidents. For the year ending December 31, 1890, I have reports of twenty non-fatal and eight fatal accidents. Assuming the output of 1890 to be the same as that of 1889, this would give one fatal accident to each six and one-half million bushels of coal mined, and one non-fatal accident to each two and one-half million bushels of coal mined. From this statement it is evident that in 1889 the law was not complied with requiring the reporting of non-fatal accidents.

There have been many complaints from different mines about defective ventilation. I have found on investigation that the complaints were generally well founded. When the attention of mine bosses and superintendents was called to the defects, assurances were given me that the necessary improvements would be made. In many cases the promise was only to the ear, for on my next visit I would find but little change for the better. Ignorance of the law would sometimes be given as an excuse, some saying they "could not purchase the statutes of the State to get the law," and others claimed



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they did not know where the law could be obtained. In order to overcome this difficulty, I applied to the Executive Council and received an order for 2,000 copies of the mining laws in pamphlet form. These I distributed to the superintendents of mines for the use of mine bosses and workmen under them. I also gave copies of the law to many of the miners and others working in and about the mines. Most of the large producing mines are in a fair condition, and have ample ventilating facilities.

As a rule the roof-slate in the mines of this State may be classed as safe, yet the majority of all accidents occur from falls of roof and coal. Such seems to be the case in every State where mining is carried on. In visiting the face of workings, I sometimes ask the miner in regard to the condition of his roof, and he will reply that the "condition is good." When sounded, the roof will be found to be "not so good" as the miner thought, and immediate propping becomes necessary. There is no one who should know the condition of the roof so well as the miner who works in the place, and who tests it daily; but often, for want of proper care, and in order not to be delayed with his work, the miner neglects his own safety.

There have been no serious explosions in the mines during the last two years. Many of the operators had adopted the system of employing "shot-firers" before the passage of "An act to provide for the protection of life and property in and about coal mines," at the last session of the Legislature. In all my conversations with the miners, there has been only one man who did not express his appreciation of the value of the above law as to the safety and comfort of the men who work in mines. Men employed as shot-firers should be men of experience in mine work, and familiar with the handling and use of explosives; men who will take ample time to do their work intelligently.

On investigation, I found that the law defining how much powder should be taken into a mine at one time by any miner or other person was a dead letter, with the exception of the Cherokee & Pittsburg coal and mining companies mines.

I sent the following letter to each of the operators in the State at whose mines powder was used:

DEAR SIR: I would call your attention to the mining laws of this State, relative to the handling of explosives used in mines. Section 20, chapter 143, Laws of 1885, reads as follows: "No miner, workman or other person shall take into any mine more than five pounds of powder at one time, and this shall be used before taking any more into the mine; and all powder or other explosive substance shall be kept in a tight, close vessel." Hoping you will see that the above section of the law is complied with not later than April 1, 1890, I remain, yours respectfully,

JOHN T. STEWART, *State Mine Inspector.*

This request was promptly complied with at all mines, with the exception of Nos. 18 and 23, Kansas and Texas Coal Company, Weir City. This company provided a house where the miners could fill their five-pound cans, and leave the remainder of the large kegs or cans until needed. The miners objected to filling their own cans, pointing very emphatically to the loss of three

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lives at Litchfield, Crawford county, in July, 1889. These three lives were lost by the carelessness of one miner, who filled his five-pound can at a powder-house similar to the one provided at Weir City. I saw the superintendent in person about the matter, and he promised to go to Weir City and see what could be done. Nothing has been done, and the miners are still taking down the twenty-five-pound kegs of powder. Before entering into litigation, I preferred to wait the action of the Legislature which meets this winter, hoping that the law will be made more clear and definite.

I am glad to state that an earnest effort as a rule has been made to comply with the law in the majority of the mines throughout the State.

I am, sir, very respectfully yours,

JOHN T. STEWART,
State Inspector of Coal Mines.



PART I.

STATISTICS AND DESCRIPTIONS OF MINES AND STRIP BANKS, BY COUNTIES.

On entering upon the duties of my office I found the data concerning output of coal, number of employés, working-time, etc., were very meager. The names of operators and their postoffice addresses were incomplete and incorrect, except in the few counties where the large companies operate, and no report had been issued from the office since December 31, 1887. I at once sent out schedules, requesting answers as soon as possible. The replies came in very slowly, and in many instances no answer was received. Not a few to whom blanks were sent had gone out of the mining business, and of course could not give the desired information. Others did business in such a way as not to have the details requested; and still others entirely neglected the matter. As rapidly as possible, I corrected the list of operators and owners, and sent the second schedules with a more urgent request for a prompt reply. In all, I sent out 500 schedules. Of this number, I have received about 200 replies, and the balance of the statistical information has been obtained by personal solicitation.

The tables presented in the first part are as complete as the means at my command would permit, and are submitted as a result of unremitting effort to present one of the most important of Kansas industries in such manner that the facts concerning it may be known, not only as it relates to the State, but also to the counties where carried on.

The question of wages, etc., I have not handled, as this subject has been thoroughly and ably presented in the reports of the Commissioner of Labor and Industrial Statistics.

I am under many obligations to those who by their prompt reports have aided me in this matter, and trust the pages following will prove of interest and value.

BOURBON COUNTY COAL MINING.

ANALYSIS.—Number of drift mines, 2; number of strip banks, 67; kind of coal, bituminous; average thickness of vein, 18 inches; average depth of coal from surface, 8 feet; average number of days mines worked, 190, or 61



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per cent. of working-days; average number of days banks worked, 42, or 12 per cent. of all working-days; total output for year, 467,436 bushels, or .85 per cent. of total output of State; estimated value of output, \$31,589.

COAL MINES, BOURBON COUNTY.

Office No. . . .	Names of operators.	Post-office address.	No. days mine worked.	No. bushels mined in 1889.	Estimated value of output for 1889.	Av. No. bushels mined per day worked.
1	J. H. Smallwood	Fort Scott	180	50,000	\$3,500	277
2	H. H. Lyon	Lyonville	200	55,086	3,856	275
	Totals and average		190	105,086	\$7,356	.....

COAL MINES, BOURBON COUNTY—CONCLUDED.

Office number.	Average number daily employes.				Av. No. bushels mined per cent. daily.	Av. price paid per bu.		Number kegs powder used.	Accidents.		Mine opening.		
	Miners.	Boys.	Others.	Total.		Win-ter.	Sum-mer.		Fatal.	Non-fatal.	Shaft.	Drift.	Slope.
No. 1	7	.....	1	8	34	4½	4½	10	.....	.....	.....	1	.....
No. 2	8	.....	.....	8	32	4½	4½	20	.....	.....	.....	1	.....
Totals	15	.....	1	16	.....	.....	.....	30	.....	.....	.....	2	.....

STRIP BANKS, BOURBON COUNTY.

Name of operator.	Post-office address.	No. days worked.	Output for 1889. (Bus.)	Value of output.	No. emp-loyees.
White & Wilson	Azna	60	5,500	\$385	2
George Ater	Cato (Crawford county)	25	4,000	280	2
E. J. Boring	Cato (Crawford county)	20	2,000	130	2
S. G. Frease	Clarksburg	20	1,000	60	1
William Large	Cato (Crawford county)	32	9,000	630	2
John Bishop	Clarksburg	73	7,000	420	2
O. Dodge	Clarksburg	16	1,500	105	2
M. M. Daubin	Clarksburg	50	11,000	770	3
John Free (No. 1)	Clarksburg	65	6,000	420	2
Francis Free (No. 2)	Clarksburg	55	5,000	325	2
William Hoover	Clarksburg	22	2,000	120	2
William Hughes	Clarksburg	20	1,000	60	1
William Humphrey	Devon	30	3,000	210	2
S. Ferris (Katt's bank)	Fort Scott	210	55,000	3,575	6
E. K. Kennison	Fort Scott	50	10,000	700	3
Matt. Mayberry	Fort Scott	130	25,000	1,625	4
Jacob May	Clarksburg	16	1,500	90	2
John Pellett	Clarksburg	16	1,600	112	2
John Rives	Devon	35	3,000	210	2
S. T. Runnion	Clarksburg	15	1,500	90	2
W. A. Wells	Clarksburg	32	3,000	180	2
James Wooten	Clarksburg	20	1,500	90	2
Fred. Bedell ¹	Fort Scott	100	12,000	960	4
N. Chase	Fort Scott	41	4,000	260	2
Frank McConville ²	Fort Scott	75	7,400	592	3
E. V. Holding	Fort Scott	55	5,000	300	2
William Huffins	Fort Scott	32	3,000	180	2
John Morgan ²	Fort Scott	30	1,000	80	1
William Peerman	Fort Scott	22	2,000	120	2
P. Peterson	Fort Scott	17	1,500	97	2
Jeff. Richards ¹	Fort Scott	40	2,000	160	1
G. W. Ward	Fort Scott	15	1,500	90	2
William Launsburg	Fulton	78	10,000	600	3

¹ From city lots. ² From street grading.



STRIP BANKS, BOURBON COUNTY—CONCLUDED.

Name of operator.	Post-office address.	No. days worked	Output for 1889. (Bus.)	Value of output.	No. em- ployees
W. H. Clyburn	Garland	30	3,000	\$180	3
William Clyburn	Garland	22	2,000	140	2
W. J. Ewing	Garland	23	2,100	126	2
Eli Johnson	Garland	30	4,000	260	3
J. H. Lookinbill	Garland	15	1,500	90	2
Mead Bros.	Garland	65	6,500	422	2
S. B. Moore	Garland	18	1,650	115	2
Sylvanus Painter	Garland	30	3,000	210	2
Sims & Anderson (Perry's bank)	Garland	70	10,800	756	4
G. W. Pellett	Garland	120	20,000	1,400	4
Isaac Runion	Garland	33	3,000	180	2
Waldron Scott	Garland	55	6,000	420	2
N. B. Tweedle	Garland	25	4,000	240	2
N. D. Curtis	Godfrey	12	1,500	105	2
Thomas Endicott	Godfrey	90	17,000	1,020	3
Sam Endicott	Godfrey	27	3,000	180	2
John Johnson (Humphrey's bank)	Godfrey	20	1,800	126	2
H. A. Johnson	Godfrey	30	4,000	240	2
Thomas Koons	Godfrey	20	2,000	140	2
R. Mayberry	Godfrey	25	2,500	175	2
E. H. Norton	Godfrey	30	3,000	210	2
John Smith (Pettit's bank)	Godfrey	80	3,500	245	1
M. James (Pettit's bank)	Godfrey	22	2,000	140	2
William Portwood	Godfrey	25	3,000	180	2
T. D. Stroud	Godfrey	20	2,000	140	2
Goodwin & Messick (Van Meter's bank)	Godfrey	33	3,000	210	2
G. W. Walker	Godfrey	40	5,000	350	2
Amos Coghill	Godfrey	45	8,000	520	2
E. B. Dennison	Pawnee	35	4,000	280	2
G. Londquist	Pawnee	15	1,000	70	2
Sam Hardwicke	Woodland	65	6,000	420	2
Thomas Hill	Woodland	75	7,000	490	2
H. McCorkle	Woodland	35	3,000	210	2
J. N. McKinney	Woodland	35	3,000	210	2
Totals			362,350	\$24,233	158

RECORD OF INSPECTION.

SMALLWOOD'S SLOPE.—Located two miles east of the city of Fort Scott; owned and operated by Mr. Smallwood; does a local trade, having no railroad connection. Fort Scott furnishes a very good market for all he can produce. Employs three or four men, with himself, nearly all the year round. This mine is in good condition, having a good air shaft, with furnace ventilation. The coal is of a good quality for household use, eighteen inches thick, and is what is termed the Fort Scott red coal. J. H. Smallwood, pit boss.

LYON'S MINES.—These are several drift-openings on the land of H. H. Lyon, Lyonville, two and one-half miles northeast of Fort Scott. Mr. Lyon leases the coal to miners at one-half cent per bushel royalty, and they run drifts or slopes to suit themselves, and get the most coal possible. Under such a system no good mine will ever be opened in this place. The coal is of good quality, and there is as a rule plenty of demand for it during the greater part of the year. No railroad connection; trade all local. Of course there are no bosses, and no responsibility seems to rest on anyone, each doing the best possible for himself. A very unsatisfactory system of mining.



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CHAUTAUQUA COUNTY COAL MINING.

Names of operators, Budd & Muncey (Conner's slope); postoffice address, Leeds; number days worked, 200; output for 1889, 36,600 bushels; estimated value of output, \$3,294; number miners employed, 5; others, 1; total, 6; price paid for mining, 6 cents.

ANALYSIS.—Number slope mines, 1; average thickness of vein, 16 inches; average number days mine worked, 200, or 64 per cent. of all working-days; total output for year, 36,600 bushels, or .06 per cent. of total output of State; estimated value of output, \$3,294.

CHEROKEE COUNTY COAL MINING.

ANALYSIS.—Number shaft mines, 18; number strip-banks, 14; kind of coal, bituminous; average thickness of vein, 42 inches; average depth of coal from surface, 82 feet; average number days mines worked, 154, or 50 per cent. of working-days; average number days banks worked, 75, or 24 per cent. of all working-days; total output for year, 13,184,184 bushels, or 24.5 per cent. of total output of State; estimated value of output, \$659,863.

COAL MINES, CHEROKEE COUNTY.

Office No.	Names of operators.	Post-office address.	No. days mine worked.	No. bushels mined in 1889.	Estimated value of output for 1889.	Av. No. bushels mined per day worked.
1	Peter White.....	Cherokee.....	275	511,450	\$25,572	1,859
2	Columbus Coal Co.....	Columbus.....	170	387,417	19,370	2,280
3	Oothoff Bros.....	Columbus.....	209	42,592	2,129	203
4	Geo. Robinson.....	Columbus.....	180	46,000	2,760	255
5	Kansas and Texas Coal Company, mine 23 ¹	Weir City.....	136	832,953	41,647	6,124
6	Keith & Perry (No. 2 shaft).....	Scammon.....	170	1,614,300	80,715	9,495
7	Keith & Perry (No. 3 shaft).....	Scammon.....	147	815,188	40,759	5,540
8	Keith & Perry (No. 4 shaft).....	Scammon.....	96	388,465	19,423	4,046
9	Norton Coal Co.....	Scammon.....	235	1,100,000	55,000	4,681
10	John J. Welch.....	Scammon.....	100	104,500	5,225	1,045
11	Wm. Theobald.....	Sherman City.....	100	40,000	2,000	400
12	James Dennis ²	Weir City.....	180	920,000	46,000	5,111
13	J. H. Durkee.....	Weir City.....	80	308,000	15,400	3,850
14	Keith & Perry Coal Co.....	Weir City.....	180	1,447,579	72,378	8,042
15	Keith & Perry Coal Co.....	Weir City.....	180	1,654,734	82,736	9,193
16	Kansas and Texas Coal Company, mine 16 ¹	Weir City.....	472	463,369	23,168	6,435
17	Kansas and Texas Coal Company, mine 18.....	Weir City.....	100	1,614,506	80,725	16,145
18	Weir Bros.....	Weir City.....	168	423,319	21,165	2,519
	Totals and average.....		154	12,714,372	\$636,172	.....

¹David Ramsey, superintendent.

²One-quarter year ending December, 1889.

³Receiver Parsons Coal Co.

⁴Shaft operated six months; worked out and abandoned in June, 1889.

⁵The shaft shut down about four months of the year.



COAL MINES, CHEROKEE COUNTY—CONCLUDED.

Office number.	Average number daily employees.				Av. No. bushels mined per employee daily.	Av. price paid per bu.		Number kegs powder used.	Accidents.		Mine opening.		
	Miners.	Boys.	Others.	Total.		Win-ter.	Sum-mer.		Fatal.	Non-fatal.	Shaft.	Drift.	Slope.
No. 1.....	30	3	10	43	43	4½	3½	1,300	1		1		
No. 2.....	50	3	11	64	35	4	3½	557			1		
No. 3.....	3	1	2	6	35	3½	3	106			1		
No. 4.....	3		2	5	51	4	4	90			1		
No. 5.....	52		19	71	86	4	3½	1,487			1		
No. 6.....	114	5	33	152	62	4	3½	4,200			1		
No. 7.....	50	2	20	72	77	4	3½	1,680			1		
No. 8.....	66	2	18	86	47	4	4	805			1		
No. 9.....	40	10	14	64	73	4	3½	1,560			1		
No. 10.....	10	1	3	14	74	3½	3½	100			1		
No. 11.....	6		2	8	50	4½		100			1		
No. 12.....	55		17	72	71	4	3½	1,150			1		
No. 13.....	60	3	5	68	56	4	3½	700			1		
No. 14.....	86	6	32	124	65	4	3½	3,000			1		
No. 15.....	100	10	30	140	65	4	3½	3,500			1		
No. 16.....	44		17	61	105	4	3½	827			1		
No. 17.....	150		24	174	92	4	3½	2,883			1		
No. 18.....	27		7	34	74	4	3½	890			1		
Totals.....	946	46	324	1,316				24,055	1		18		

STRIP BANKS, CHEROKEE COUNTY.

Name of operator.	Post-office address.	Number days worked.	Output for year 1889. (Bushels.)	Value of output.	No. employees.
W. E. Fernback.....	Cheney.....	60	20,000	\$1,000	2
Wm. Hamlin.....	Cheney.....	100	30,000	1,500	3
Philip Reese (Shepard's bank).....	Cheney.....	90	25,000	1,250	3
Ellis Davidson.....	Hallowell.....	12	1,000	70	2
J. R. Westervelt.....	Hallowell.....	50	15,000	750	2
Gilbert Allen.....	Scammonville.....	80	26,300	1,578	4
W. H. Hunsinger.....	Star Valley.....	110	30,000	1,500	3
J. A. Roberts.....	Star Valley.....	55	15,000	650	4
R. H. Stott.....	Star Valley.....	60	22,000	1,100	4
J. H. Durkee Coal Co.....	Weir City.....	100	96,000	4,800	12
Grant & Bevins.....	Weir City.....	110	97,455	4,872	12
Mink & Co.....	Weir City.....	90	56,590	2,829	6
M. V. B. Saller.....	Weir City.....	90	26,099	1,304	3
Saller & Hubert.....	Weir City.....	45	9,368	488	2
Totals, and average.....		75	469,812	\$23,691	61

RECORD OF INSPECTION.

THE COLUMBUS COAL COMPANY.—Abandoned their old shaft during the summer of 1889, and going about one-half mile further north, on the west side of the Fort Scott & Memphis Railroad, sunk a new shaft, removing their engine and boiler from the old shaft to the new one. They sunk an air-shaft, putting a furnace at the bottom of it for ventilating purposes. They also put down a shaft and put a stairway in the same, to be used as an escapement shaft.

THE KEITH & PERRY COAL COMPANY.—Abandoned their No. 3 shaft, one mile west of the city of Scammon, and removed all the machinery to a new shaft, which they sunk in August, 1889, close to the city limits of the city of Scammon, on the west. At this shaft, No. 4, they have built and

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have in operation a new fan, fourteen feet in diameter by four feet width of blade, capable of giving ample ventilation to a large number of workmen. A new stairway has been put in on one side of the hoisting-shaft, for the use of the workmen, when the cages are engaged in hoisting coal. There is also an iron ladder in the fan shaft, making an escapement according to the mining law.

THE WOODS & NORTH COAL COMPANY.—No. 2 shaft, formerly the Cherokee Coal Mining Company, have put in a new stairway in their shaft, also a new pump to take the water from the top vein, where it accumulates, to the top of the shaft. This pump keeps the water from falling down to the bottom of the shaft, as it formerly did, when it had to be hoisted out by boxes attached to the bottom of the hoisting cages.

THE WEIR CITY COAL COMPANY, OF WEIR CITY, have abandoned the old shaft near the city limits on the west, and have sunk a new slope one mile west of Weir City. Instead of a shaft, this company put down a slope, and put on an endless-rope system of hoisting, intending as the work advances to extend the rope, and thus save mule-power. This is an innovation on the recognized system of hoisting in this coal field, and will be watched by all those interested in mining operations.

THE J. H. DURKEE COAL COMPANY, a new coal company in this field, have leased the coal on the "Baker" land, close to Weir City; have sunk a new shaft, and have it in working order. They have also put up a new fan, twelve feet in diameter and four feet in width of blade, for the purpose of ventilation.

THE KEITH & PERRY COAL COMPANY have sunk a new shaft one mile west of Weir City, and have put up new head-frame and engines larger than any the company had before. They also have a new fan, fourteen feet in diameter and four feet in width of blade, and have sunk an air-shaft. They have everything fitted up in good order, and will be prepared to get a large output of coal in the future.

WILLIAM HAMILTON & SONS have sunk a new shaft, one mile and a half northwest of Weir City, putting in good machinery, and everything of the best, and will be ready to ship coal in a short time.

THE DAISY SHAFT, OF THE PARSONS COAL COMPANY, have put in a pair of new hoisting engines, and put an addition of four feet to the width of their fan, increasing its ventilating power considerably.

THE NORTON COAL COMPANY have sunk a new shaft, northwest of their No. 1 shaft; put in new hoisting engines, a new fan, twelve feet in diameter and four feet in width of blade, and a new engine to run the revolving screen and fan by a series of shaftings. Everything has been put in good order, making an entire new plant from top to bottom.



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LOCATION AND CONDITION OF MINES.

GEORGE ROBINSON'S SHAFT.—Located three and one-half miles north of Columbus; operated by horse-power; furnace ventilation; all the output is sold to local trade, as it has no railroad connection. Employs about four men on an average. Air and roadways in fair condition. Nearly all the labor is performed by members of the family, who are practical miners, understand their business, and are able to keep the mine in good working order.

OSTHOFF BROS. MINE.—A horse-power plant, one-half mile north of Robinson's shaft. The mine is ventilated by a furnace. One or two miners are employed outside of their family during the winter months.

KEITH & PERRY COAL COMPANY.—*Mine No. 2.*—Operated under contract by William Hamilton & Sons, is located on the western limits of the city of Weir, on a switch of the Cherryvale division of the Fort Scott & Memphis Railroad. This mine is nearly worked out, most of the coal now being mined in one section only. They use a "tail rope" for the greater part of the haulage of coal from the face to the bottom. The ventilation is by a fan, twelve feet in diameter and three feet in width of blade. The air was not carried up to the face of the rooms or entries, as some of the doors were defective, and the screens were torn down. The pit boss promised to have these defects remedied right away. The steps of the stairway used as a traveling-way by the workmen were badly worn away on the edge, making them rather unsafe to walk down. This the boss also said he would have repaired. This mine is worked on the single-entry system. William Hamilton, sr., superintendent; William Hamilton, pit boss.

Mine No. 3.—The mine is located on a switch of the Cherryvale division of the Fort Scott & Memphis Railroad, one mile north of Weir City. It is ventilated by a fan, ten feet in diameter and three feet in width of blade. This mine was sunk at or near the shallowest part of the field in which it is located, and as a consequence in a few years the coal was worked out on one side of the shaft. At present all the coal is worked on the west or dip side of the shaft, and it has to be hauled up-grade to the hoisting-shaft. In June, 1889, a new pump was put in the mine, in the lowest part where all the water accumulated; and it is now able to keep the mine comparatively dry, with a few hours running each day. It throws the water to the surface, where it is located by a pipe placed in a bore-hole made for the purpose. A new engine was put up in June, 1890, to run the ventilating fan, which had hitherto been run by an engine which had also to run the revolving screen used for separating the nut and slack. This has greatly improved the ventilation. The mine is worked on the single-entry system. D. Mackie, sr., superintendent; William Scott, pit boss.

Mine No. 4.—This is a new mine, started in August, 1889. It is operated by steam, and ventilated by a fan, fourteen feet in diameter, with a blade width of four feet, giving ample air for all the workmen. This shaft is

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worked partially on the double-entry system, but ventilation is made difficult sometimes, on account of the number of horse-backs. It is located west of the city of Scammon, on a switch from the Joplin division of the Fort Scott & Memphis Railroad. D. Mackie, sr., superintendent; Thomas B. Scaife, pit boss.

Mine No. 5.—Is located one mile west of Weir City, on a switch connecting with the Cherryvale division of the Fort Scott & Memphis Railroad. This is an entirely new plant, just in operation about two months. It is ventilated by a new fan, fourteen feet in diameter and four feet in width of blade. They expect a large output of coal from this mine in the future. David Mackie, sr., superintendent; Archie Fulton, pit boss.

Mine No. 2, B.—Located one mile and a half northeast of Scammon, on a switch connecting with the Joplin division of the Kansas City, Fort Scott & Memphis Railroad. This was one of the largest producing mines in the county until July 7th, 1889, when it was flooded with water, filling the mine and drowning eleven mules. It being about 2 o'clock in the morning when the accident occurred, there was no one in the mine at work. It took two months to get the water pumped out and to clean up the mine so a few men could get to work. It has never reached its previous producing capacity since, as some of the workings were so badly wrecked; and as it was only a short distance from the boundary-line of the mine it would not have paid to clean them up and put them in condition to work again. When I visited the mine after it started, the air was in bad condition. The air-courses had been damaged as well as the rest of the mine, so that the air was all going around one way, until that morning of my visit when they had just tried to split it, and send it around the workings in two separate currents. Some obstruction had occurred in the return air-way on the west side of the mine, and as a consequence there was little or no air on the north side of the shaft. The air was fairly good on the south side of shaft, but was greatly injured by the heating of the gobs composed of fire clay, sulphur, slack coal, and all kinds of débris which had been drifted into them by the force of the water. This heated condition, gradually worked off, and with increased air, the mine is now in fair working condition. It is ventilated by a fan, fourteen feet in diameter with four feet width of blade. D. Mackie, sr., superintendent; James Hisle, pit boss.

Mine No. 3, B.—This mine, located one mile southwest of Scammon, was abandoned in July, 1889, it being worked out.

NORTON COAL MINE, No. 2.—This is a new mine, with new hoisting engines, new top work, and a new fan, twelve feet in diameter and four feet in width of blade. The mine is well conducted, partially on the double-entry system. It has not a second opening yet, but they are very close to breaking through into their No. 1 mine, which is intended to be used as an escape-shaft. This mine 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. W. S. Norton, superintendent; John Zimmerman, pit boss.

COLUMBUS COAL COMPANY.—*Mine No. 2.*—This mine was sunk in 1889, and the machinery, engines, and boilers removed from their No. 1 mine (which was abandoned) and placed here. The shaft is ventilated by a furnace, and worked on the single-entry system. When I visited it, the air was poor in several places, for want of curtains to force it into the entries and faces of the rooms. The boss promised to have the matter remedied as soon as possible. This mine is located four miles north of Columbus, on the Joplin division of the Fort Scott & Memphis Railroad. John Spencer, superintendent; Chris. Newland, pit boss.

WILLIAM HAMILTON & SONS have sunk a new shaft northwest of Weir City, on a switch connecting with the Cherryvale division of the Kansas City, Fort Scott & Memphis Railroad. It is an entirely new plant, and will be ready to ship coal in a few weeks. William Hamilton, sr., superintendent.

KANSAS AND TEXAS COAL COMPANY.—*Mine No. 16.*—Located within the city limits of Weir, was abandoned in 1889, having worked out all the coal in its territory. The plant was removed to another locality.

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. This is a large plant, capable of a good output of coal. The shaft is ventilated by two fans—one ten feet in diameter, and three feet in width of blade; the other eight feet in diameter, and same width of blade. There is plenty of air in the mine, but it was not conducted up to the face of the working as well as it ought to have been, for want of enough doors and curtains to carry it forward. Many of the break-throughs on rooms and entries were not properly closed. The air was bad on the first east entry on the south side; and also in an entry turned off east the air was very bad. While at the face of this entry, they drilled a hole through with a drill, showing it to be about three feet from being through, to make a connection with the first east entry on north side of the shaft, which made the air all right in that section. A large section of roof has come down on the south side of the shaft, closing two entries and damaging this side of the shaft to a considerable extent. D. Ramsey, superintendent; W. H. Barrett, pit boss.

Mine No. 23.—This mine is located two miles northeast of Weir City, on a switch connecting with the Pittsburg and Weir City division of the St. Louis & San Francisco Railway. This shaft was in fair condition, and the air reasonably good, considering the bad roof and the many horse-backs to contend with. On the first and second east entries the air was dull at the face. It was also poor on the first west entry on the north side; two rooms of the same entry which had only a few feet to go to connect with the other side of the shaft, would make the air good in those places. Ventilation is kept up by a ten-foot-diameter fan, one of Crawford & McCrimmin's make, and is



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amply sufficient for the needs of the mine for some time yet. D. Ramsey, superintendent, P. Walsh, pit boss.

WOODS & NORTH COAL COMPANY.—*Mine No. 2*, (formerly owned by the Cherokee Coal and Mining company.)—Located about 400 feet south of the Crawford county line, and within one-half mile of the city of Cherokee, on a switch connected with the Joplin division of the Kansas City, Fort Scott & Memphis Railroad. It was purchased by Woods & North, of Kansas City, Mo., in 1889, who made some improvements, having the air-way well cleaned up and put in good working order, thereby aiding in bringing the air up to the face of the workings. This is the deepest shaft in the Cherokee-Crawford coal field, being about 140 feet deep. The coal is rather thinner than in many other parts of the above coal field. The shaft is equipped with a good fan, ten feet in diameter, and three feet in width of blade, which is able to furnish plenty of air. On the 1st of September, 1890, the miners asked for an advance of one-half cent per bushel for mining, owing to the vein being thinner than in other parts of this field. As this was a half-cent more than the price paid by any other operators in the district, the company shut the mine down until the 10th of November, 1890, when they started up at four and one-half cents per bushel, the price asked by the miners. There was no strike, nor any trouble, the company telling the workmen they could not afford the price so early in the season. E. Williamson, pit boss.

THEOBALD'S SHAFT.—A horse-power plant ten miles west of Scammon, and one-half mile from Lightning creek, in the western part of Cherokee county. It is sunk to a depth of ninety feet, to a 24-inch vein of good quality of coal, but it is difficult to mine, as both the bottom and top slate is of a hard nature, necessitating the blasting of the coal from the solid. It has no second opening, and only employs a few men in the winter months for local trade. Mr. Theobald claims to have a three and one-half foot vein of coal sixty feet below the one he is now working. Wm. Theobald, pit boss.

HAMLIN'S SHAFT.—A horse-power plant, located on Cherry creek, six miles west of Scammon, and four miles west from Folsom station, on the Nevada and Minden division of the Missouri Pacific Railway. It is a new shaft, eighteen feet deep, thirty-two inch vein of good coal, with very little sulphur in it. It does a local trade only. Natural ventilation. Works only in the winter months. W. H. Hamlin, boss.

WELSH'S MINE.—This mine is owned and operated by John J. Welsh. It is a horse-power plant, and was sunk in 1889. It is located about two miles southeast of Scammon. It has no railroad connection, the coal being hauled by teams and wagons about one mile, where it is loaded into railroad cars, at the Stilson siding of the Joplin division of the Fort Scott & Memphis Railroad. The ventilation is maintained by a furnace at bottom of the air-shaft, about two hundred feet from the hoisting-shaft. The air is fairly well circulated around the faces of the working. J. J. Welsh, superintendent; A. Welsh, pit boss.



GOSNEY'S SHAFT, three miles south of Scammon, has been idle for the greater part of the last two years.

WEIR BROS.' SHAFT.—This is a horse-power plant, located within the city limits of Weir City on the south. It has connections with the Cherryvale division of the Kansas City, Fort Scott & Memphis Railroad. It will be all worked out in a few months, as all the coal belonging to the company is exhausted except one small section in the southeastern part of the mine. This company is at present sinking a new shaft, two miles west of Weir City, where they will put in a new steam plant for hoisting and ventilating purposes. Louis Myers, 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 a switch connection with the Cherryvale division of the Kansas City, Fort Scott & Memphis Railroad. Furnace ventilation has been used so far. Complaint was made to me of the traveling-way, which was by a stairway up the same shaft that was used by the furnace, only a partition of planks separating them, and the smoke of the furnace being very annoying and hurtful to the men when passing up or down. I saw Mr. Durkee about it, and he has commenced to put up a fan for ventilating purposes, and abandoned the furnace, and when completed it will give them better air in the mine, and free the traveling-way from any obstruction. The fan is twelve feet in diameter and four feet in width of blade. The output of this shaft has been leased to the Parsons Coal Company for some time. Peter H. White, superintendent; Joseph Humble, pit boss.

WEIR CITY COAL COMPANY.—*Mine No. 1.*—Has been worked out, and was abandoned in February, 1890.

Mine No. 2.—This is a slope, with an endless-rope system of hoisting instead of the shaft plan. It has been in operation about one year. I have visited this mine several times, and could never find good air in it. The first time there was no air-shaft, a temporary system of ventilation being kept, or attempted to be maintained, by a partition in the slope and a hole on top of one side with a lamp or grate hanging in it, which was of very little use as a ventilator. I told Mr. Bennett, the owner, to get an air-shaft sunk right away. After some time he succeeded in getting the air-shaft sunk, and then placed a few bars of iron on some rests to serve as a furnace. This kept a small current of air in circulation. I was called there and examined the east and west entry on the main south, and found there was no air for a long distance from the faces. The air-ways not being up with the entries, as a consequence no air could get to the face of rooms or entries so far ahead of the air-ways. I requested them to put the entrymen to work and drive up the air-ways; also, to put up curtains to put the air to the workmen, and have the break-throughs closed up. This brought temporary relief; but soon my attention was again called to the condition of the air at this mine, and I found that nothing ever had been done to bring the current of air to the men, except some

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that was driven through the entries by mine cars going in and out, which kept a little air moving, but no current could be observed fifty yards from bottom of slope. I found only one door, and it was in bad repair, being broken and out of line so it would not shut close. There were two light curtains on the east and west entries to send the air in the main south where it should have been to reach the working-faces. I debated with myself whether to invoke the law and close the mine until it was fit for men to work in without injuring their health, or not. In this frame of mind I entered the room where a miner was at work. He could hardly be seen for smoke. I asked him if he was not ashamed to undermine his health working in such a place. He told me he had a large family to support, and could not afford to move around much. I then decided to give Mr. Bennett another chance, and requested him to put a fan for ventilating purposes up as soon as possible, and put up three new doors, all of which he promised to have done as soon as he could get them made. Richard Bennett, superintendent; John Gibson, pit boss.

PARSONS COAL COMPANY.—Mine located two miles northwest of Weir City, and connected by switch with the Cherryvale division of the Fort Scott & Memphis Railroad. This mine has put two new hoisting engines up during last summer, and also added four feet in width to its fan, increasing its power in ventilating purposes a great deal. The air was very good in this mine during my visit, and there have been no complaints since then. This mine is very dry in some places, but the pit boss keeps it watered when it gets dusty. The roof is very good here, but the miners depend too much on its goodness for their own safety. James Dennis, receiver; Peter H. White, superintendent; David White, pit boss.

There is a good deal of stripping of coal done by farmers and farm-laborers during the winter season, all of which output will be found noticed in the statistics of strip coal on another page.

CLOUD COUNTY COAL MINING.

ANALYSIS.—Total number shaft and slope mines, 10; number strip banks, 1; kind of coal, lignite; average thickness of vein, 22 inches; average depth of coal from surface, 55 feet; average number days mines worked, 146, or 47 per cent. of all working-days; average number days banks worked, 120, or 38 per cent. of all working-days; total output for year, 162,825 bushels, or .32 per cent. of total output of State; estimated value of output, \$14,650.



COAL MINES, CLOUD COUNTY.

Office No.	Names of operators.	Post-office address.	No. days mine worked.	No. bushels mined in 1889.	Estimated value of output for 1889.	Av. No. bushels mined per day worked.
1	Thos. Wrong.....	Concordia.....	51	11,800	\$1,062	231
2	Barker & Richardson.....	Minersville.....	130	16,050	1,444	123
3	Chas. Cessna.....	Minersville.....	180	15,060	1,355	83
4	C. C. Cousland.....	Minersville.....	154	13,770	1,239	89
5	Alex. Henderson.....	Minersville.....	150	17,500	1,575	116
6	James A. Kennedy.....	Minersville.....	200	14,850	1,336	74
7	James Murray & Co.....	Minersville.....	210	21,095	1,898	100
8	John Parmer.....	Minersville.....	186	13,675	1,230	73
9	John Richardson.....	Minersville.....	100	8,750	787	87
10	Underwood & Bartlett.....	Minersville.....	100	19,500	1,755	195
	Totals and average.....		146	152,050	\$13,681	

COAL MINES, CLOUD COUNTY—CONCLUDED.

Officer number.	Average number daily employes.				Av. No. bushels mined per employee daily.	Av. price paid per bu.		Number kegs powder used.	Accidents.		Mine opening.		
	Miners.	Boys.	Others.	Total.		Win-ter.	Sum-mer.		Fatal.	Non-fatal.	Shaft.	Drift.	Slope.
No. 1.....	10	1	2	13	18	7	7	.....	.....	.....	1	.....	.....
No. 2.....	4	1	2	7	17	7	7	.....	.....	.....	1	.....	.....
No. 3.....	4	.....	2	6	14	7	7	.....	.....	.....	1	.....	.....
No. 4.....	5	.....	2	7	12	7	7	.....	.....	.....	1	.....	.....
No. 5.....	6	.....	2	8	14	7	7	.....	.....	.....	1	.....	.....
No. 6.....	4	1	2	7	10	7	7	.....	.....	.....	1	.....	.....
No. 7.....	7	.....	2	9	11	7	7	.....	.....	.....	.....	.....	1
No. 8.....	4	.....	2	6	12	7	7	.....	.....	.....	1	.....	.....
No. 9.....	3	.....	2	5	17	7	7	.....	.....	.....	1	.....	.....
No. 10.....	6	1	2	9	21	7	7	.....	.....	.....	1	.....	.....
Totals.....	53	4	20	77	.....	.....	.....	.....	.....	.....	9	.....	1

ONE STRIP BANK.—Name of operator, James Springstead; postoffice address, Aroma; number men employed, 4; output, 10,775 bushels; value, \$969; number days worked, 120.

RECORD OF INSPECTION.

C. C. COUSLAND, MINERSVILLE.—This mine is located one-half mile west of Minersville, and has no railroad connection. It has only one opening. I received considerable complaint in regard to this mine, visited it, and found it to be in a really bad condition. The shaft is 112 feet deep, 6 by 4½ feet in diameter. It has only one hoisting cage, without bridle chains, no chutes, slides in bad order, second opening only down 40 feet; in fact, the whole plant constructed on top of shaft was nothing but an apology for a plant. Since the above was written, I have again visited this shaft, and while it is not yet in good condition, two men are at work sinking an air-shaft, new rope has been provided, and other repairs are being made.

WALTER RICHARDS SHAFT.—This mine is located in Minersville; has a depth of 48 feet, and is 6 by 4 feet in diameter. It has no railroad connections. This is a new shaft, just down to coal.

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FARMER & NEITZELL.—This mine is located in Minersville, and has no railroad connections; does a local business, has two openings, and is ventilated by furnace. Ventilation not very good. Roads in fair order. William Neitzell, superintendent.

CHARLES F. CESSNA.—This mine is located in Minersville, and has no railroad connections; it does a local trade. It is ventilated by furnace, and has two openings. I did not go into this mine, as the pump was broken, and the water was deep in the bottom of shaft. C. F. Cessna, superintendent.

Since the above report was written, this mine has been abandoned.

THOMAS WRONG.—This mine is also located in Minersville, but is worked out; at least, it was shut down when I was there, and I was informed to that effect. Mr. Wrong resides in Concordia.

JAMES SPRINGSTEAD.—These strippings are located about one and one-half miles from Aroma, in the southeastern part of the county. I did not visit them.

BARKER & RICHARDSON.—This mine is located in Minersville, and when I visited it it was shut down. Some say it is worked out.

JAMES MURRAY.—This slope mine is located one-half mile southeast of Minersville. It is put down on the face of a bluff. It has no railroad connections, and has two openings. Ventilation and roads are in good condition. It does a local business. James Murray, superintendent.

ALEX. HENDERSON.—This mine is located in Minersville, and when I visited it it was not working. The farmers and miners that work here had not commenced to come in. A. Henderson, superintendent.

The coal in Minersville, Cloud county, is lignite coal, and varies in thickness one and one-half to two and one-half feet, and generally has a very soft top.

COFFEY COUNTY COAL MINES.

ANALYSIS.—Number strip banks, 29; thickness of vein, 12 to 16 inches; depth of coal from surface, 8 to 14 feet; average number of days banks worked, 71, or 23 per cent. of all working-days; total output for year, 427,114 bushels, or .79 per cent. of the total output of State; estimated value of output, \$38,435; total number employes, 107 men, 107 teams.

STRIP BANKS, COFFEY COUNTY.

Names of operators.	Post-office address.	No. days worked.	Output for 1889. (Bush'ls.)	Estimated value of output.	No. employes.
Wm. Boostead.....	Lebo.....	80	12,000	\$1,080	3
Thos. Briggs.....	Lebo.....	40	6,500	585	3
Dora Brown.....	Lebo.....	60	8,750	787	3
J. L. Darling.....	Lebo.....	60	8,800	792	3
Vic. Dawson.....	Lebo.....	70	12,300	1,107	4



STRIP BANKS, COFFEY COUNTY—CONCLUDED.

Names of operators.	Post-office address.	No. days worked.	Output for 1889. (Bush'ls.)	Estimated value of output.	No. em- ployes.
Peter De Frain	Lebo	50	8,000	\$720	2
Wm. Disher	Lebo	85	22,180	1,996	5
A. O. Farmer	Lebo	105	15,840	1,425	3
Hugh Jones	Lebo	60	5,680	511	2
Lew. Jones	Lebo	60	8,800	792	3
D. K. Jones	Lebo	65	9,864	887	4
Leninon & McLeeun	Lebo	144	43,300	3,897	6
Lewis Liebuhr	Lebo	105	14,896	1,340	3
Lees Lloyd	Lebo	80	19,000	1,710	5
Oscar Lyon	Lebo	55	8,400	756	2
Geo. McGaffey	Lebo	70	11,700	1,053	4
J. Mimix	Lebo	40	5,600	504	3
Moses & Burton	Lebo	80	19,800	1,782	5
Wm. Phiney	Lebo	85	13,500	1,215	4
Geo. Reid	Lebo	40	6,344	570	3
Wm. Ransom	Lebo	85	15,000	1,350	4
Rice & Elder	Lebo	80	14,000	1,260	4
Alex. Richardson	Lebo	40	6,500	585	3
Thos. Robinson	Lebo	90	23,580	2,122	5
Griffith Williams	Lebo	50	8,000	720	2
James Wise	Lebo	120	36,440	3,279	6
R. R. Woodworth	Lebo	55	8,000	720	2
Michael Glennan	Waverly	115	34,360	3,092	6
J. T. Ingleman	Waverly	85	19,980	1,798	5
Totals and average		71	427,114	\$38,435	107

RECORD OF INSPECTION.

There were no mines in operation in Coffey county when I visited it. They have put down several shafts around Lebo, and have tried several drifts along Coal creek, but could not get miners to mine the coal at a price to compete with strip operators. The mining underneath the coal is a sort of sandstone, and is hard to mine. The coal here varies from 12 to 16 inches, and the cover on top of coal is from 8 to 14 feet. In some places the bed-rock, which is about 14 inches thick, runs out altogether, and leaves nothing on the top of coal but surface and soapstone. Where this occurs the strip operators have to pay from one-fourth to one-half cent per bushel more for royalty—the regular price paid for royalty in Coffey county being one cent per bushel. Above will be found a list of the strip operators, and their output for the year.

CRAWFORD COUNTY COAL MINING.

ANALYSIS.—Number shaft mines, 13; number strip banks, 40; kind of coal, bituminous; average thickness of vein, 42 inches; average depth of coal from surface, 70 feet; average number of days mines worked, 183, or 59 per cent. of working-days; average number days banks worked, 59, or 19 per cent. of all working-days; total output for year, 21,145,492 bushels, or 39.30 per cent. of total output of the State; estimated value of output, \$1,057,542.



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COAL MINES, CRAWFORD COUNTY.

Office No.	Names of operators.	Post-office address.	No. days mine worked.	No. bushels mined in 1889.	Estimated value of output for 1889.	Av. No. bushels mined per day worked.
1	Bell Bros.	Coalville...	150	59,600	\$3,270	397
2	Western Coal & Mining Co. ¹	Fleming...	290	4,900,718	245,035	16,899
	Cherokee & Pittsburg Coal & Mining Co.:					
3	Mine No. 1.	Frontenac...	271	3,625,181	181,259	13,377
4	Mine No. 2.	Frontenac...	265	2,331,238	116,561	8,797
5	Mine No. 3.	Frontenac...	196	745,281	37,264	3,802
6	Mine No. 4.	Frontenac...	257	2,700,427	135,021	10,506
7	Franklin Coal Co.	Pittsburg...		⁷ 158,800	7,940	
8	K. & T. Coal Co. (mine No. 11) ²	Pittsburg...	125	⁶ 690,646	34,532	5,481
9	K. & T. Coal Co. (mine No. 13) ³	Pittsburg...	56	⁸ 261,529	13,076	466
10	K. & T. Coal Co. (mine No. 17)	Pittsburg...	141	⁹ 1,207,154	60,357	8,561
11	K. & T. Coal Co. (mine No. 20)	Pittsburg...	180	⁹ 1,188,180	59,409	6,601
12	K. & T. Coal Co. (mine No. 22)	Pittsburg...	122	⁹ 1,105,384	55,265	9,060
13	Pittsb'g & Midway Coal Co. (mine No. 1) ⁴	Midway...	144	969,250	48,462	6,731
14	Pittsb'g & Midway Coal Co. (mine No. 2) ⁵					
	Total and average.....		183	19,943,388	\$997,451	

¹ Report includes shafts Nos. 2, 3, and 4. ² D. Ramsey is superintendent of all Kansas and Texas Coal Company mines. ³ Mine worked out and abandoned in May, 1889. ⁴ John T. Morrison is secretary of Pittsburg and Midway Coal Co. ⁵ Includes 40 per cent. added to amount of lump coal reported, to cover nut and slack. ⁶ Not in operation during year. ⁷ Strip and shaft coal; no data given as to days worked, employes, etc.

COAL MINES, CRAWFORD COUNTY—CONCLUDED.

Office number.	Average number daily employes.				Av. price paid per bu.		Number bags powder used.	Accidents.		Mine opening.		
	Miners.	Boys.	Others.	Total.	Win-ter.	Sum-mer.		Fatal.	Non-fatal.	Shaft.	Drift.	Slope.
No. 1.....	6		2	8	49	3	3	145		1		
No. 2.....	230	15	63	298	56	4	3	8,000		1		
No. 3.....	180	2	30	212	63	4	3	6,475	1	1		
No. 4.....	140	1	22	163	54	4	3	4,718	1	1		
No. 5.....	50		11	61	62	4	3	1,612		1		
No. 6.....	140	1	24	165	64	4	3	4,776		1		
No. 7.....						4	3	198		1		
No. 8.....	51		17	68	80	4	3	1,233		1		
No. 9.....	60		17	77	6	4	3	467		1		
No. 10.....	81		20	101	84	4	3	2,155		1		
No. 11.....	98		19	117	56	4	3	2,121		1		
No. 12.....	76		18	94	96	4	3	1,973		1		
No. 13.....	60		17	77	9	4	3	1,600		1		
Totals.....	1,162	19	260	1,441				35,473		13		

STRIP BANKS, CRAWFORD COUNTY.

Names of operators.	Post-office address.	No. days worked.	Output for 1889. (Bushels.)	Estimated value of output.	No. employes.
Jacob Niehart (Allen's bank).	Arcadia.....	100	46,000	\$2,300	3
S. Buckman	Arcadia.....	60	10,000	500	2
Webb Campbell	Arcadia.....	125	20,000	1,000	3
Wm. Dinsmore	Arcadia.....	65	10,000	500	3
W. C. Franklin	Arcadia.....	25	5,000	250	2
S. E. Marshall	Arcadia.....	35	8,000	400	2
Jack Nelson	Arcadia.....	40	8,000	400	2
Joseph Wisdom	Arcadia.....	100	40,000	2,000	3
H. Germain ¹	Cherokee.....	90	48,724	2,436	5
G. W. Beasley ¹	Litchfield.....	100	41,398	2,069	4
L. G. Bishop ¹	Litchfield.....	25	2,708	135	1

¹ Kansas and Texas Coal Co., David Ramsey, superintendent.



STRIP BANKS, CRAWFORD COUNTY—CONCLUDED.

Names of operators.	Post-office address.	No. days worked.	Output for 1889. (Bushels.)	Estimated value of output.	No. employees.
Frank Gray ¹	Litchfield.....	5	255	\$12	1
.....	Litchfield.....	.....	11,253	562	.....
Jasper Graham ¹	Litchfield.....	120	169,690	8,484	14
E. A. Graham ¹	Litchfield.....	30	6,004	300	2
John Spicer ¹	Litchfield.....	40	7,498	374	2
Pittsburg & Midway Coal Co.....	Midway.....	270	352,800	17,640	180
Robert Ratliff ¹	Pittsburg.....	250	174,264	8,713	7
Row Bros. ¹	Pittsburg.....	45	8,997	449	2
J. E. Polhemis ¹	Pittsburg.....	100	30,764	1,538	3
Davidson & Delarder ¹	Pittsburg.....	4	343	17	1
Gray & Freck ¹	Pittsburg.....	46	4,525	226	2
J. H. Miner ¹	Pittsburg.....	4	360	18	1
Gray & Walters ¹	Pittsburg.....	75	23,620	1,181	3
Jasper Graham ¹	Pittsburg.....	94	37,300	1,865	4
S. D. Lane ¹	Pittsburg.....	45	9,274	463	2
A. S. Warren ¹	Pittsburg.....	12	1,135	56	1
—Leonard ¹	Pittsburg.....	5	435	21	1
John Dunkerly ¹	Pittsburg.....	117	46,872	2,343	4
G. L. Brown ¹	Pittsburg.....	18	1,739	86	1
Robert Williams ¹	Pittsburg.....	29	2,924	146	1
Lance & Craine ¹	Pittsburg.....	5	502	25	1
Tompson & Co. ¹	Pittsburg.....	17	1,679	83	1
Perry Row ¹	Pittsburg.....	8	783	39	1
James M. Row ¹	Pittsburg.....	18	1,821	91	1
John McNally ¹	Pittsburg.....	33	7,111	355	2
Graham & Freck ¹	Pittsburg.....	116	46,387	2,319	4
J. B. Moore ¹	Pittsburg.....	7	694	34	1
R. Kuhn ¹	Pittsburg.....	43	4,241	212	1
Ratliff & Miner ¹	Pittsburg.....	30	3,068	153	1
Charles Stotts ¹	Pittsburg.....	60	5,936	296	1
Totals and average.....	.....	59	1,202,104	\$60,091	227

¹ Kansas and Texas Coal Co., David Ramsey, superintendent.

² Stripped by various parties, and sold to Kansas and Texas Coal Co.

RECORD OF INSPECTION.

KANSAS AND TEXAS COAL COMPANY.—This company sunk a new shaft, No. 22, near Litchfield, and put it in operation at the beginning of 1889. They have also sunk a new shaft, No. 28, two miles north of the city of Pittsburg.

THE FRANKLIN COAL COMPANY.—Have sunk a new shaft, put up new hoisting machinery, also new fans, and sunk an air-shaft. They have everything in good order to make a first-class mining plant.

LOCATION AND CONDITION OF MINES.

WESTERN COAL AND MINING COMPANY.—*Mine No. 2.*—Located at Fleming, on the Nevada and Minden division of the Missouri Pacific Railway. This mine has been very extensively worked, but a vast amount of the work was very expensive. The coal in many of the entries was not capable of being worked by rooms on account of thin coal, bad top and horse-backs, which troubles were far above the average in this coal field. The coal has been getting better as the mine extends to the east and south. As a consequence of the condition of the mine, it has been very hard to keep the ventilation in good condition. On my last visit I found the air was deficient in the third north entry, on east side, for the number of men then employed

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in it. I requested the superintendent to have some of the miners removed from this section until he could increase the volume of air, which he complied with as soon as places were ready for them in another section of the mine. The mine is getting so extensive that more power will soon be required to keep the ventilation up to the proper requirements. No efforts have been spared by those in charge to keep everything in as good condition as possible. The fan at this mine is ten feet in diameter and four feet in width of blade. It was manufactured by Cole & Co., of Brazil, Indiana. This mine is worked partially on the single-entry system. P. F. Comisky, superintendent; Francis Fern, pit boss.

Mine No. 3.—Located one mile northeast of Fleming, on the line of the Nevada & Minden division of the Missouri Pacific Railway. This mine had been worked only about half-time during the last two years. When visited, it was in very good condition. The air was good as a whole, though in some entries it was a little dull, as the break-throughs were not made near enough to each other. This was always a dry mine until July 7, 1889. During a flood at that time, a good deal of water ran into the shaft, and there have been no complaints of dryness, or dust since. The coal in this mine is better, with less horse-backs, than No. 2. The partial single-entry system prevails at this mine also. It is equipped with a fan ten feet in diameter, and four feet in width of blade, manufactured by Cole & Co. A good stairway for traveling purposes is partitioned off on one end of the air-shaft. P. F. Comisky, superintendent; Ed. Kelley, pit boss.

Mine No. 4.—Located one mile west of the Missouri State line, on a switch connecting with the Nevada & Minden division of the Missouri Pacific Railway. When I first visited this mine the air-ways were in poor condition, having a good deal of loose slate lying in some parts; this has been remedied, considerably improving the air. Ventilation is maintained by one of the "Cole" fans ten feet in diameter by four feet in width. When last there, the door on the first east entry was leaking. The attention of the boss was called to it, and he had another door put up inside, making two doors on that entry; so that when one would be opened, the other, being shut, prevented the air from escaping or leaking. The roof in some parts of this mine is full of slips, requiring very careful work in propping. Plenty of props and caps are always at hand when needed. John Russell, superintendent; William McGinnis, pit boss.

KANSAS AND TEXAS COAL COMPANY.—*Mine No. 22.*—This mine is owned and operated by the Kansas and Texas Coal Company, and was put in operation early in 1889. When visited, the mine was in good condition, having a fan ten feet in diameter and three feet face. All the break-throughs were first built up close with inch plank, and then faced up with slate, and packed well to the roof with other debris and slack of the mine, thus preventing in a great measure the usual leakage occurring at break-throughs built with the slate and refuse of the mine alone. A good stairway was partitioned off one end



of the hoisting-shaft for the workmen engaged therein to travel down and up; also, an iron ladder in the air-shaft, making an escapement according to law. D. Ramsey, superintendent; John Barrowman, pit boss.

Mine No. 17.—Owned and operated by same coal company as No. 22. This mine is more extensive, and employs more men. It had been troubled a good deal with water on the roadways, but it was being gradually overcome, as the boss had all the entries floored close with prop timber, generally termed corduroy work. It makes a good traveling-way for the men and also enables the mules to do double work in hauling coal. The air was in fair condition as a whole. Some entries were too far ahead of break-throughs, and some of the break-throughs were too small; while others had timbers and tool-boxes placed in them, which impeded the passage of the air. A stairway is placed in this shaft for traveling purposes, and there was also another place of exit at a slope driven to the surface where a cave-in had been. It is ventilated by a ten-foot diameter fan, three-foot face, giving ample air for all employed in the mine. D. Ramsey, superintendent; William Eggley, pit boss.

Mine No. 11.—Owned and operated by the same company as No. 22. This shaft is an old one, and was nearly worked out when visited. The air was very good, considering the distance it had to travel and the awkward shape of the mine, being scattered in two or three sections far apart from each other. The roads were in fair condition. In fact, the mine was all in good shape, considering the difficulties to be surmounted. The ventilation was maintained by a fan ten feet in diameter and three feet in width of face. This mine has recently been abandoned as worked out, and the machinery moved to a new shaft in process of sinking, northeast of it. D. Ramsey, superintendent; Vincent Gladdis, pit boss.

The last-named three mines are located on switches connecting with the Litchfield branch of the St. Louis & San Francisco Railroad, and are distant about three-fourths of a mile each from the town of Litchfield, four miles northeast of Pittsburg.

Mine No. 28.—Owned and operated by the Kansas and Texas Coal Company, and is located about two miles north from the center of the city of Pittsburg, and connected by switch with the Joplin & Girard division of the St. Louis & San Francisco Railroad. This is a new mine, sunk in 1889, but they did not mine any coal until the present year. When visited, the cross-entries, on each side of the shaft, were only in a short distance, as none of the rooms had got break-throughs made. The coal was of a very soft nature around the shaft, but it was expected that it would be better as the workings advanced. A good fan, Crawford & McCrimmen's make, was used for ventilation. D. Ramsey, superintendent; Peter Sherman, pit boss.

Mine No. 20.—Owned and operated by the same company, is located two miles southeast of the city of Pittsburg, and connected by switch with the Pittsburg & Weir City division of the St. Louis & San Francisco Railroad. When visited, this mine was in fair condition; only air was dull in some of

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the entries, owing to break-throughs being too far apart, and in some entries owing to horse-backs. The break-throughs in some places were too small, thus impeding the air-current materially. The greatest fault or horse-back met with in this coal field is in this mine. It is about sixty feet thick where it has been cut through, and the coal is generally of good quality on each side of it. On one entry there has been a considerable crush, or squeeze, the weight of the superincumbent strata forcing the bottom of fire clay to rise up to nearly the thickness of the coal vein. Men were at work lifting the bottom, to make the roadway of proper height. D. Ramsey, superintendent; David Arnott, pit boss.

PITTSBURG & MIDWAY COAL COMPANY.—Mine No. 1.—Located one-half mile south of Midway, on a switch connecting with the Cherryvale division of the Kansas City, Fort Scott & Memphis Railroad. When visited, the mine was in fair condition, except that the roadways were very wet and muddy. The mine had been idle for some time previous, and the drainage had run into it from the surface through falls. The air was dull in several places, inside of horse-backs, where no break-throughs could be made. There was an air-shaft, but no escapement in it. The boss was working at a traveling-way to the surface, which has been completed since. The pit boss was doing all in his power to put the mine in a safe and healthy condition. John T. Morrison, superintendent; Thomas Jones, pit boss.

Mine No. 2.—This mine is owned by the Pittsburg and Midway Coal Company, and is located three-fourths of a mile northeast of No. 1 mine, and is connected with the same railroad by a switch. It has been idle for the past two years, but is getting ready to start up soon again. The Joplin & Girard division of the St. Louis & San Francisco Railroad has recently built switches to mines Nos. 1 and 2, giving them an outlet by that system. John T. Morrison, superintendent.

FRANKLIN COAL COMPANY.—Shaft located southwest of the city limits of Pittsburg, and connected by switch with the Joplin & Girard Division of the St. Louis & San Francisco Railroad. This is an entirely new plant. A good deal of entry work has been done, but the coal here has not proved profitable, owing to the prevalence of horse-backs and thin coal. The company have abandoned operations for the present, the mine being wholly unprofitable with present developments. — Rombauer, superintendent.

LONE OAK SHAFT.—This mine has been idle, on account of litigation, for most of the past two years. Hamilton Bros., who owned an interest in the mine, started it some months ago. My attention was called to its condition, and I visited it. I found the hoisting-shaft in a dangerous condition for want of timber. Mr. A. Hamilton, who had charge, said if the parties who owned the other interest would furnish the timber, he would be glad to do the work. I wrote to the principal shareholder to send the timber, but some other legal difficulties arose, and it was abandoned again for some months. Recently Messrs. Henning & Beadle have obtained control of the mine and are repair-



ing it in good shape. It is located about four miles west of Pittsburg, on the line of the Joplin & Girard division of the St. Louis & San Francisco Railroad. C. S. Henning, superintendent; Thomas Mawson, pit boss.

BAIRD & SON'S SHAFT.—This is a horse-power plant, located northwest of the city limits of Cherokee. Very little work has been done within the last year at this shaft. It was only sunk to the upper vein of coal, which gives a large amount of water, and the shaft was not arranged to facilitate its drainage. As a consequence, it has been abandoned for the present. It has no railroad connections.

RATCLIFFE'S SLOPE.—Located about three-fourths of a mile northwest of the city of Pittsburg. Mr. Ratcliffe had a lease to mine the coal, from the Kansas & Texas Coal Company, to whom the coal is delivered by teams and wagons, having no railroad connections. The air was bad in the mine when visited—a room having caved in and closed the air-way. The boss promised to have it remedied as soon as possible. Oscar McCoy, pit boss.

There are several other drifts, or slopes, in the vicinity of the above, where quite a local trade is done during the winter months. I did not inspect them, however, as they were not doing business when I was there.

CHEROKEE AND PITTSBURG COAL AND MINING COMPANY.—*Mine No. 1.*—Located on the Chanute & Pittsburg division of the Atchison, Topeka & Santa Fé railroad, near the village of Frontenac, and four miles northeast of Pittsburg. This shaft has a capacity of 950 tons of coal per day, and is equipped with a pair of engines 15 by 18-inch cylinders, geared second motion to a drum 6 feet in diameter, with 1½-inch steel ropes for hoisting, attached to single cages, which are self-dumping and self-acting. When the cage with its loaded car of coal arrives at the top of shaft, by a movement of the engine the load is dumped out of the car while it still remains on the cage, thus saving time and labor. The shaft is 116 feet deep, and is worked on a complete system of double-entry work. The main entries are driven east and west from the bottom of the shaft. Double cross-entries are driven north and south from main entries, each pair of entries being turned about 400 feet apart, leaving the rooms off each entry about 200 feet long. The main entries are made wide enough for a double line of track, which is generally kept up to the last pair of cross-entries. In March, 1890, a second section of east and west entries was started, and will soon be completed, giving greater advantages in ventilation, and will facilitate the getting out of coal. For some time after commencing operations in this mine the brushing of roadways was done by lifting the under-clay; but in a short time it had to be stopped, owing to the weight of the superincumbent strata forcing the clay from under the coal, filling the roadway again. A change was made, taking the height for roadways and entries out of the top slate, or roof, and enlarging the pillars between the entries from 12 to 20 feet in thickness. The room-pillars were also enlarged, rooms being turned 64 and 96 feet apart on the entry. When