State inspector of coal mines reports

Section 27, Pages 781 - 810

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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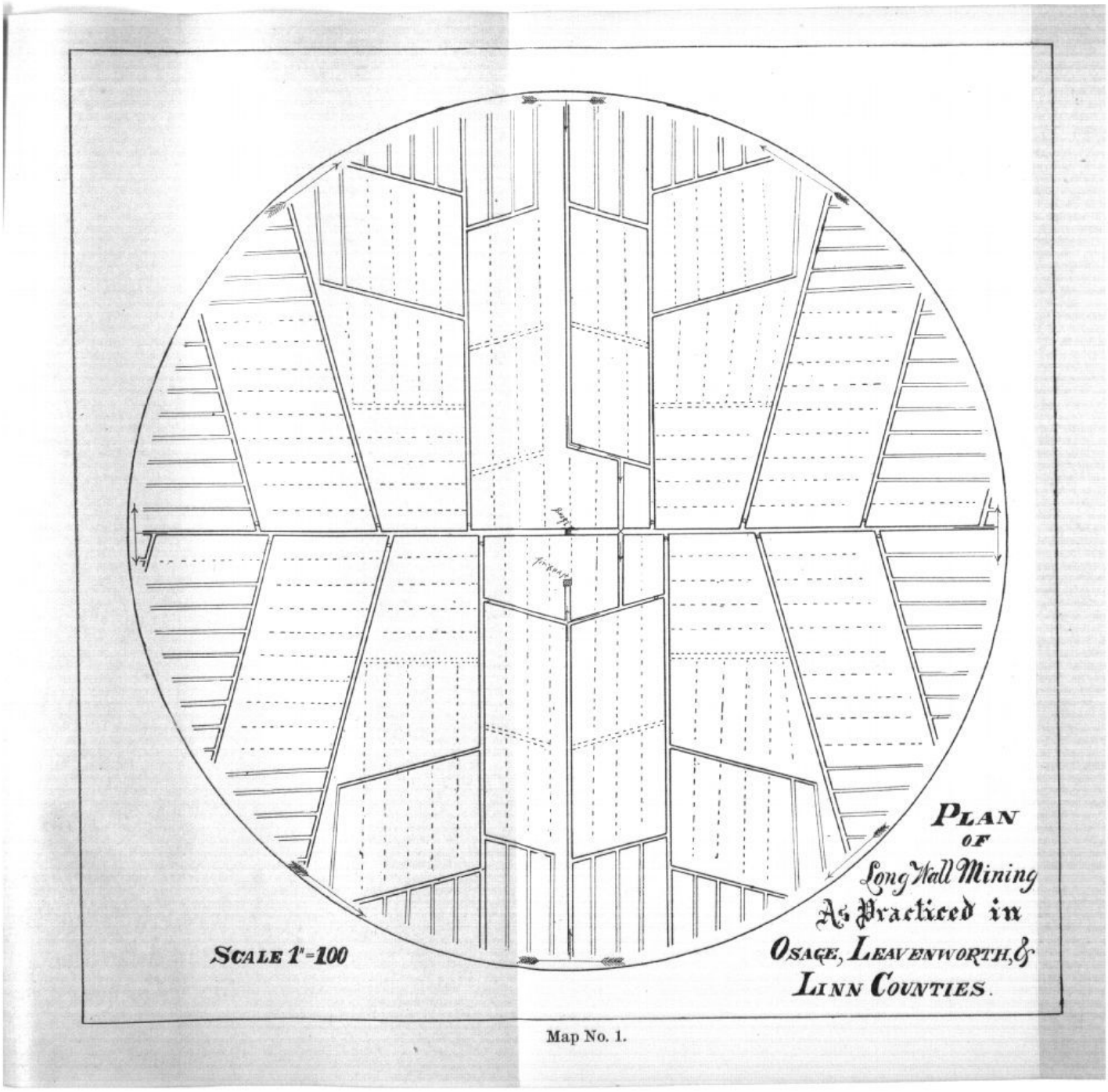
The Long-Wall System.

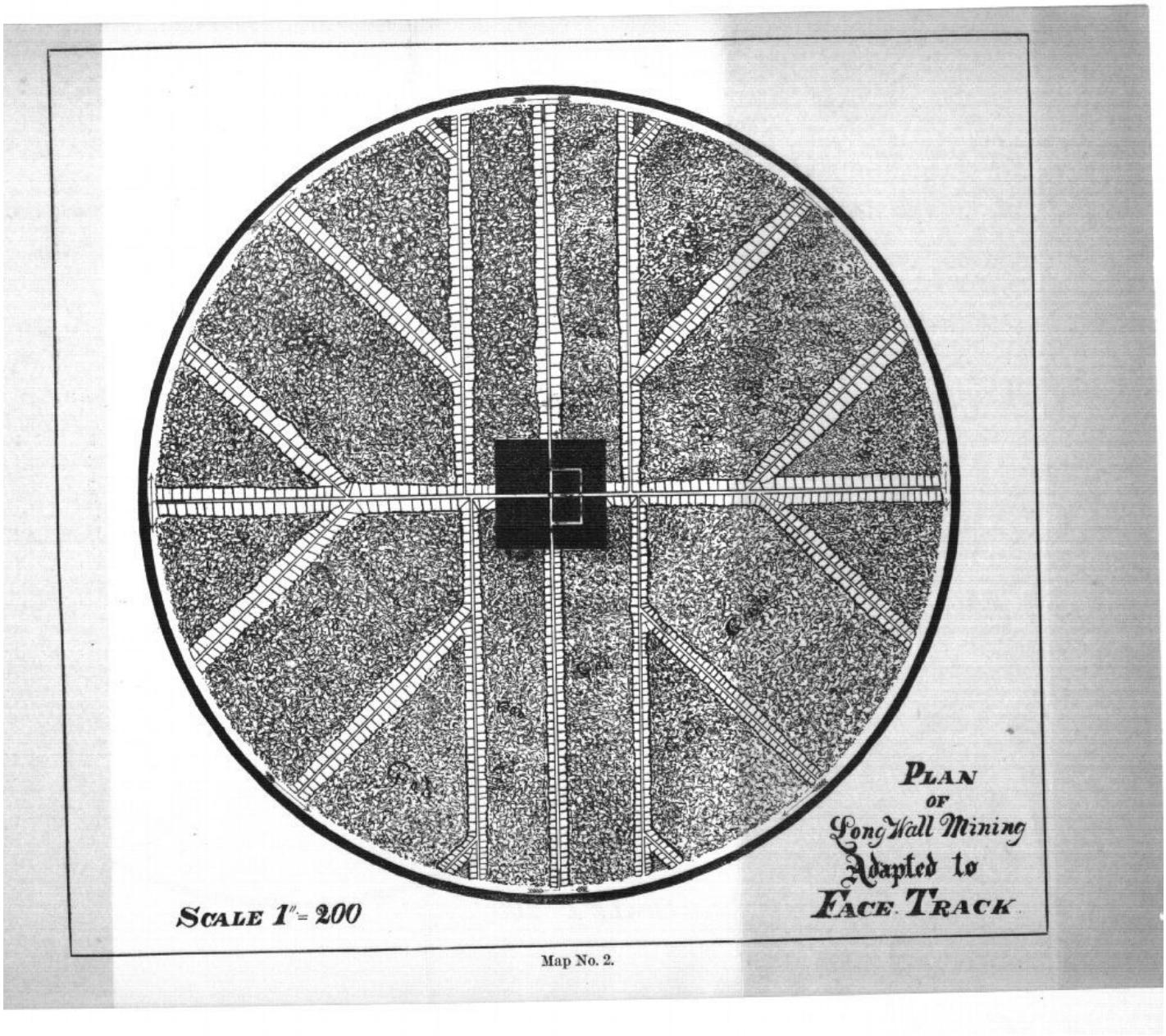
Long-wall, as practiced in Osage, Leavenworth, Linn, Atchison and other counties, is illustrated in map No. 1.* The method of procedure when the vein is opened by vertical shaft is as follows: When the shaft is sunk through the vein the coal is attacked on all sides and dug out in an ever-widening circle, radiating from the bottom of the shaft as a center. The entire space excavated by taking out coal is filled as compactly as possible with the debris of the mine, props being used temporarily to secure the roof over the heads of the workmen. Four openings are left just large enough to admit a small mine-car to take the coal from the face of the work to the cage at the bottom of the shaft—one on each end, and one on each side of the shaft opposite each cage.

When the face of the coal has been advanced 50 or 60 feet from the bottom four more small openings are left—one on each side of, and turned at right angles to, the openings running straight from the sides of the shaft (see dotted lines on plan). The work progresses in this manner until the pit has taken what is known among miners as the "first break"; that is, when the space excavated has reached such area or dimension that the weight of the superincumbent strata (roof) breaks the binding force (adhesiveness) of the rocks of which the roof is composed. The more even and circular the form of the coal face when this break occurs the more uniform and regular the break, because the roof always breaks on the face of the coal. All practical men know the necessity and value of having as few and as small openings in the mine as possible when this first break takes place, as the roof, instead of breaking up and falling in places to a great height, as it would were there large openings, quietly settles down in a solid and compact body. After this first settlement has taken place the roadways are gone over, opened out, brushed, and made a little larger than formerly, the face of the work is regained, and the work proceeds as before until the second break occurs; this is when area enough has been excavated to affect the strata further up toward the surface; then a heavier settlement takes place, covering a larger area. When this subsidence of the overlying strata has finally settled, the main roadways of the mine are opened out to a width of 10 or 12 feet, for 150 or 200 feet in length, brushed seven feet high, and cross-timbered with heavy beams of timber, measuring from 12 to 16 inches square, thus making a permanent, secure and roomy space to expedite the work of handling the product of the mine at the bottom of the

*This is virtually a copy of a plan furnished by Mr. Robert Craig, superintendent of the Osage Carbon Company, to his mine foremen as a guide to them in opening and working the mines of that company.

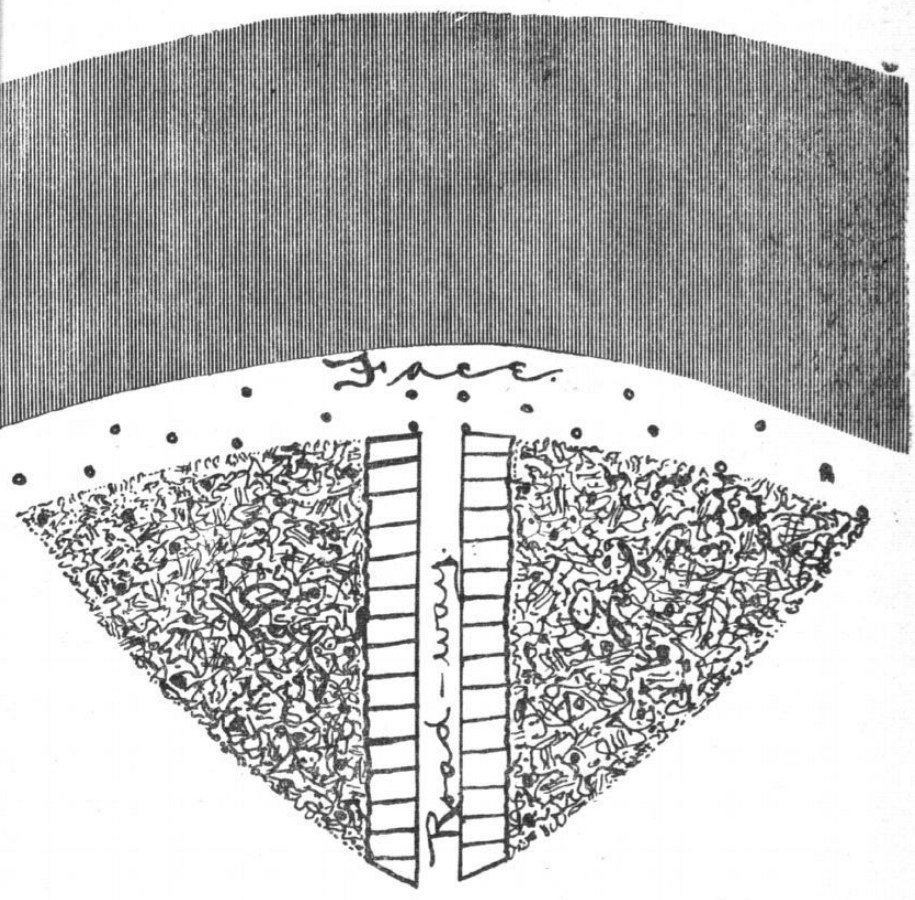

PLAN
OF
Long Wall Mining
As Practiced in
OSAGE, LEAVENWORTH, &
LINN COUNTIES.
SCALE 1"=100

Map No. 1.



Map No. 2.

Map No. 3.



Plan of Long-Wall

shaft. This plan is generally followed in veins of coal measuring from 12 to 24 inches.

"Long-wall" on what is known as the "face-track" system is adapted to veins of coal two feet and upwards in thickness. In this work, as the space excavated is wider, according to the thickness of the vein, the settlement or displacement of the overlying strata is much greater; to prevent injury to the shaft by this subsidence, a large block of solid coal (called pillar) is left on all sides of the shaft (see map No. 2).

When a distance has been reached, deemed sufficient to secure the shaft from all danger of ever being affected by the settlement of the strata, the coal is attacked on all sides, the excavation extending and expanding until an opening is made, and the face of the work connected all around the pillar; the work is then prosecuted on the same principle as above described in the other system, with the exception that no room roads are turned off the entries to take out the coal, the track for that purpose being laid along the working-face from entry to entry. The distance apart which these entries are turned is governed by local conditions; the strength of the roof, the height of the vein, etc. In order to show the principle the Inspector, upon the plan submitted, has limited the distance between the entries to 600 feet, the face track running 300 feet along the face on each side of the hauling roads or entries. Strong, wide walls are built along the sides of the roadways for their protection, and chokes or pillars of wood, rock or slate are built at intervals along the face between the floor and roof, far enough back not to interfere with the face track. Sometimes these chokes or pillars are built on a foundation of slack, loose rock, and fire-clay, to allow the roof to settle down without breaking by resistance from the choke or pillar; if of wood, these chokes are often withdrawn and used over and over again; when a fall of coal has been loaded out, the tracks are moved forward to the face and new chokes built close up to the track to prevent the roof from breaking.

As will be noticed on the maps, there are no difficulties to be overcome in ventilating mines worked on the long-wall principle, if sufficient power is provided to create a current, as the face of the working-place is the main course through which the air has to travel, and the only trouble in the state on account of insufficient ventilation in mines of this character, when proper means are provided to create a current, is caused by want of sufficient trade to keep the mine in continuous operation.

When mines worked on this system are allowed to stand idle a few days, the roof, breaking on the face of the coal, falls down and closes the room, thus obstructing the free passage of the air current around the work to the return upcast shaft.

DESCRIPTION OF KANSAS COAL-MINES.

CONDITION OF THE MINES.

In common with nearly every state in the union, the coal trade in Kansas, for the past year, has been in an extremely depressed condition.

This accounts for the number of mines standing idle at the time of the Inspector's visits, many of them having been temporarily abandoned, and many not working on the day the Inspector was in the vicinity. The number of mines he has to inspect, together with the great distance he has to travel to reach them, precludes the possibility of skipping a mine on the day it is idle and returning to inspect it on another day when it is working. Many of the mines in Kansas, in fact nearly all of them, have not worked to exceed 50 per cent. of the working days in the year, and as the Inspector commenced to visit and inspect the mines early in July, the dullest season of the trade, the idleness was more pronounced than it would have been at an earlier or later period.

It is only natural and proper that the miners and Inspector should meet and become acquainted with each other, so that the miners, in whose interest the law and office were created, could inform the Inspector of their local difficulties, perhaps infringements of the law they are working under, on the part of their employers. Because of the idleness before mentioned, preventing, to a great extent this opportunity, the Inspector had copies of the following letter distributed at many of the mines and published in the local papers:

"To the Miners and Mine Laborers: Owing to the extreme dullness of the trade, the Inspector on his visits finds many of the mines idle, and has no opportunity to advise with the miners and ascertain their opinions as to the manner in which the laws relative to their health and safety are being observed by the employers and their subordinates. As the Inspector will have to depend largely upon the assistance of the workingmen to see that the laws are complied with, he requests the miners to correspond with him and draw his attention to any violation thereof.

"The Inspector promises that all communications properly in-

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dorsed will be held inviolate and receive prompt attention, but no regard will be paid to those of an anonymous character."

The reason for this reservation on the part of the Inspector is obvious. Many—a great many, I am sorry to say—of the workingmen, in giving expression to their complaints, even verbally, do so in a hesitating, guarded and suspicious manner, looking carefully around and speaking in a low tone, as if they were afraid of being overheard, claiming that, were it known to the superintendent or the pit-boss that they had uttered a complaint, they would be instantly dismissed and lose their work, which they cannot afford, especially at this time when work is so scarce and hard to find.

Therefore, they claim that in writing letters they are afraid to sign their names for fear their employers might find it out. At the same time the Inspector requires some guarantee that the complaints made are legitimate, as he cannot afford to take the time necessary to investigate a grievance that may in 9 cases out of 10 prove to be imaginary when the complainant would refuse to identify himself with the complaint.

The present Inspector takes occasion to say here that no man need hesitate to write him in all confidence; that his name will never be divulged to any man, much less to his employer.

The reasons given above, viz., no demand for the coal, idleness, extreme competition in the business, therefore infinitesimally small profits, if any, account, in a great measure, for the poor sanitary condition of a large number of the mines. The usual excuse of the men in charge of the mines being, "We are only working one or two days in a week; the company is constantly urging upon us the necessity of keeping down expense, adjuring us not to spend one dollar more than is absolutely necessary to keep the mine open. Therefore, on idle days, when we should be at work repairing roadways, taking down loose and dangerous rocks on the same, filling up break-throughs, and going carefully over those already filled, to see that they are air-tight, stopping leaks if we find any, so as to keep the volume of air sweeping the face of the working-places, clearing up falls from the roof and sides, taking and keeping the water out of the mine, thus preventing it from overflowing the roadways, we are instructed to send all the men home and let the mine lie absolutely idle. We can, therefore, do little toward keeping the mine in good repair."

This is true. The average mine manager in the state of Kansas is anything but the ignorant, dishonest, unscrupulous, grasping tyrant some of our late reformers (?) have painted him. On the contrary, he is, as a rule, an exceedingly intelligent, hard-working,

painstaking, conscientious man; honest in all his dealings with the men under his charge; full of sympathy for his fellow workman, in what must, even under the most favorable circumstances, be a hard lot; harassed and worried to a degree unknown to most men, because of his sympathy for the miner, his loyalty to his emloyer, and his anxiety to mete out absolute justice to both.

It is not fear of losing his position, as some of my predecessors have so loudly proclaimed, that causes him sometimes to appear a little unjust to the men; for the fact remains that nearly always, in disputes as to what is due the miner for work that cannot be measured by rule, he is right; but a strong, rugged, honest, conscientious conviction that, whether he receives the favor of the one, or the adverse criticism of the other, it is his duty to do justice to both as he may happen to see it. There are of course exceptions, but they are so few as only to emphasize the rule.

This failure on the part of the companies to keep the mines in a good sanitary condition is much more pronounced on the part of the smaller operators than it is on that of the large companies, probably because the larger operators are now working their mines much more extensively, employing a greater number of men and extracting coal from a much larger area with one opening than was customary some years ago. This of necessity requires greater care in the laying off and working of the mine than if it was only intended to employ a few men and excavate a small area, as is the case with the smaller operators. However, the Inspector is glad to be able to say that most of the operators and mine managers of the state manifest a willingness to remedy any defects their attention is drawn to. The Inspector has every reason to hope and believe, if the miners themselves will only co-operate in a legitimate way, that before the end of the present year the safe and sanitary condition of the coal-mines of Kansas will compare favorably with those of any other state in the union or anywhere else.

ATCHISON COUNTY.

Coal is not very extensively mined in this county. Coal of superior quality is found in many places, but the veins are so thin and expensive to mine that the coal cannot be sold at competitive railroad points against the coal shipped from other fields—Iowa, Missouri, southeastern Kansas, and Colorado. Donald Bros., of Atchison, opened a mine on the Missouri Pacific railway, about three miles south of Atchison, in November, 1893, and have operated it with varying success continuously ever since that time. The mine is a drift opening, running in from the side of the river-

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bluff. The coal is 12 inches thick, and the work is prosecuted on the long-wall system.

The vein proving to be very expensive to mine by hand labor, in the fall of 1894 they introduced electric mining-machines of the Sperry pattern, with a view of reducing the cost of production. The machines did not prove to be the "open sesame" in the development and working of this vein anticipated; yet the firm has persevered in its operation, and perhaps, through improvement directed by experiment, mining-machines may at some time solve the problem, now being considered by a great many men, of how to open, develop and mine the thin veins of Kansas at such figures as will secure to them a portion of the trade in competition with the coal mined from thicker veins.

Donald Bros. provided an average of 15 men with fairly steady work, and produced 3,500 tons during the year. The coal is all loaded on Missouri Pacific cars and switched to Atchison, where it is sold to the local trade. The machines were operated by contract, they doing the mining or undercutting, and men were paid 50 cents per ton to follow the machines, break down, and load the coal. The pit-cars are taken from the entry-roads by mules and hauled to the railroad tipple.

The mine was not in first-class shape when visited; complaints were being made—with good reason—of the scarcity of air in the mine. Mr. Donald promised to improve it. There have been no complaints since.

The Challis mine, about two miles south of Atchison, is being operated as a local mine; it has no railroad connection, and the coal is hauled direct from the mine to the city; this mine produced 1,000 tons, and employed 12 men a part of the year. Several other small country banks are in operation in other parts of the county from which coal is taken for home use—winter fuel; several of these are located in the vicinity of Huron, on the Omaha & Kansas City branch of the Missouri Pacific railway. The entire production of the county is estimated at 7,000 tons, valued at $10,050, and the number of men employed, at 40. The Inspector is under obligation to O. E. Lee, city weighmaster of Atchison, for information regarding the coal industry in the county.

BROWN COUNTY.

There is but little coal mined in this county, only one shaft, a horse-power, being opened and in operation, which is run during the winter season to supply local trade. Its output depends largely on the severity of the winter. There is also a little coal stripped

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in various parts of the northeast portion of the county; the vein is 12 inches to 14 inches thick, of good quality. The total number of men employed is 25, and the product is 3,400 tons, valued at $5,850.

BOURBON COUNTY.

Bourbon, once the banner coal-producing county in the state, has sadly deteriorated in this respect. There is considerable coal mined in the county, but not in any well-defined or systematic manner, a great many farmers having strip mines on their places from which they take a little coal and haul it to Fort Scott when they desire to do a little trading. It is therefore well-nigh impossible to make an accurate estimate of the amount taken out. After careful investigation and numerous inquiries, even going over the books of the city weighmaster of Fort Scott, as it is in the vicinity of that city that nearly all the coal is mined in the county, I place the total product at 50,000 tons, compiled from the following sources:

Mrs. L. Couch, Fort Scott	3,600 tons.
Hydraulic Cement Company, Fort Scott	1,800 tons.
H. Wilkerson, Fort Scott	1,500 tons.
H. N. Messenger, Fort Scott	1,200 tons.
Thos. King, Fort Scott	1,200 tons.
L. Mabery, Fort Scott	1,000 tons.
E. Drum, Fort Scott	1,000 tons.
M. Clayborn, Fort Scott	1,000 tons.
H. B. Brown, Fort Scott	800 tons.
City of Fort Scott	400 tons.
Burnett & Coûts, Fort Scott	400 tons.
S. Johnson, Fort Scott	400 tons.
Chas. Pugh, Fort Scott	320 tons.
J. Zook, Fort Scott	280 tons.
A. Staden, Fort Scott	200 tons.
E. Parken, Fort Scott	160 tons.
N. Osborne, Fort Scott	120 tons.
R. Reinhardt, Fort Scott	80 tons.
Lyon & Stone, Fort Scott	80 tons.
Geo. Pellott, Godfrey	1,500 tons.
Wm. Jones, Godfrey	800 tons.
Kinney, Jones, Simons & Baker, Godfrey	800 tons.
Thos. Endicott, Godfrey	300 tons.
Wm. Simpson, Otto	700 tons.
Taken from books of the city weighmaster, other than names above	28,000 tons.
All other sources (estimated)	2,360 tons.
Total	50,000 tons.

Value, $75,000. Men employed, 175.

CHAUTAUQUA COUNTY.

Coal is not very extensively mined in this county. The vein is of good quality, but thin—from 12 inches to 16 inches—and expensive to mine. The contiguity of the thicker and therefore more cheaply mined veins of Cherokee county precludes the possibility of selling it at prices that would justify investment of capital and extensive operations. A few small drift mines are opened for the purpose of supplying local demand during the winter season, even this local trade being confined to small villages and farmers many miles from the railroad, where other coals are offered for sale. The extent and method of mining is very well described in the following quotation from a communication sent to the Inspector by Mr. James Elliot, one of the principal operators in the county:

> The openings are all slopes, clay mining. Each miner pushes his own coal to the mouth of the slope. The covering over the coal is from 30 to 50 feet, owing to the distance we drive in from the hillsides. Most of the coal that has been worked out was around the crop on the sides of the hills. We don't work much in summer but quite brisk in the winter. These mines are not run very extensively on account of the small demand for coal, they having no railroad connections.

The mines are all in the vicinity of Leeds, about nine miles north of Wauneta, on the Missouri Pacific railway. I estimate the total production at 3,000 tons; value, $6,000; and the number of men employed at 35, working 200 days. The price paid for mining is $1.75, and the selling price at the mine is $2.50 per ton. Names of operators: W. A. Swafer, Leeds; James Elliot, Leeds; Brewster & Noll, Leeds.

CHEROKEE COUNTY.

Cherokee county is the second largest coal-producing county in the state, ranking next to Crawford, and in the opinion of many will soon be the first. During the year 1895, 1,910 men and 90 boys were employed in connection with the mines, producing 1,014,212 tons, nearly 28 per cent. of the product of the state, valued at $1,014,212. The mines worked an average of 150 days. There were 52,745 kegs of powder used, or practically one keg of powder for every 19 tons of coal mined. There were no new developments in the county during the past year, except the new shaft sunk and equipped by the Southwestern Coal and Improvement Company. It is no secret that this company is backed by the Missouri, Kansas & Texas Railroad Company, and its operations will therefore add largely to the production of the county in the next year or two.

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Record of Inspection—Cherokee County.

No. 1. The Central Coal and Coke Company's No. 5 mine is located 1½ miles west of Weir City. This mine was visited on the 10th day of July. The pit-boss, Mr. Archie Fulton, requested me to postpone the examination of the inside of the mine until some future time, as the mine was practically closed for the present, and in no condition to examine and report. He and some members of his own family and a few intimate friends had a contract to put a little coal on the cars. He assured me that as soon as he received instructions to open the mine for the employment of labor he could and would put the mine in good condition and notify me, so that I could come and examine it. The mine has two openings 65 feet in depth, one for hoisting, the other for ventilation and escapement; equipped with good hoisting-engines, revolving screens, and mechanical ventilation by fan 14 feet in diameter. Buildings of a good and substantial character. Connected by switch with the Kansas City, Fort Scott & Memphis railroad. Twenty-five miners, employed 113 days, produced 26,320 tons; 10 men and 2 boys employed by the day underground worked 150 days, at $2 per day for men and $1 per day for boys; 5 men were employed above ground by the day 180 days, at an average of $2 per day. Archie Fulton, pit-boss.

No. 2. The Central Coal and Coke Company's shaft No. 6 is located about one mile south of Weir City. This is certainly a first-class mine in every particular, and worked with a greater degree of mathematical precision than any other mine in the county; it has double entries throughout, from bottom of shaft to face of workings; double-tracked on main entries from start to finish; the roadways are kept in perfect order, airways carefully examined and looked after by a thoroughly competent man; an abundance of sweet, pure air traveling to the face of all the entries and diffusing itself through the rooms; air divided into four currents, two overcasts, one on each side of the bottom, through which the air circulating around two divisions of the shaft passes over the main entries to the upcast shaft. Perfect discipline prevails, and the whole labor of the mine is performed without the slightest friction or delay, everything moving like clockwork. The colored brother, of whom we have many here, may thank his Maker that his lines have fallen in such pleasant places. There are two shafts 80 feet in depth, one for hoisting, the other for ventilation and escapement; equipped with good hoisting-engines, revolving screens, and mechanical ventilation by a fan 14 feet in diameter. This mine is connected by switch with the Fort Scott & Memphis railroad.

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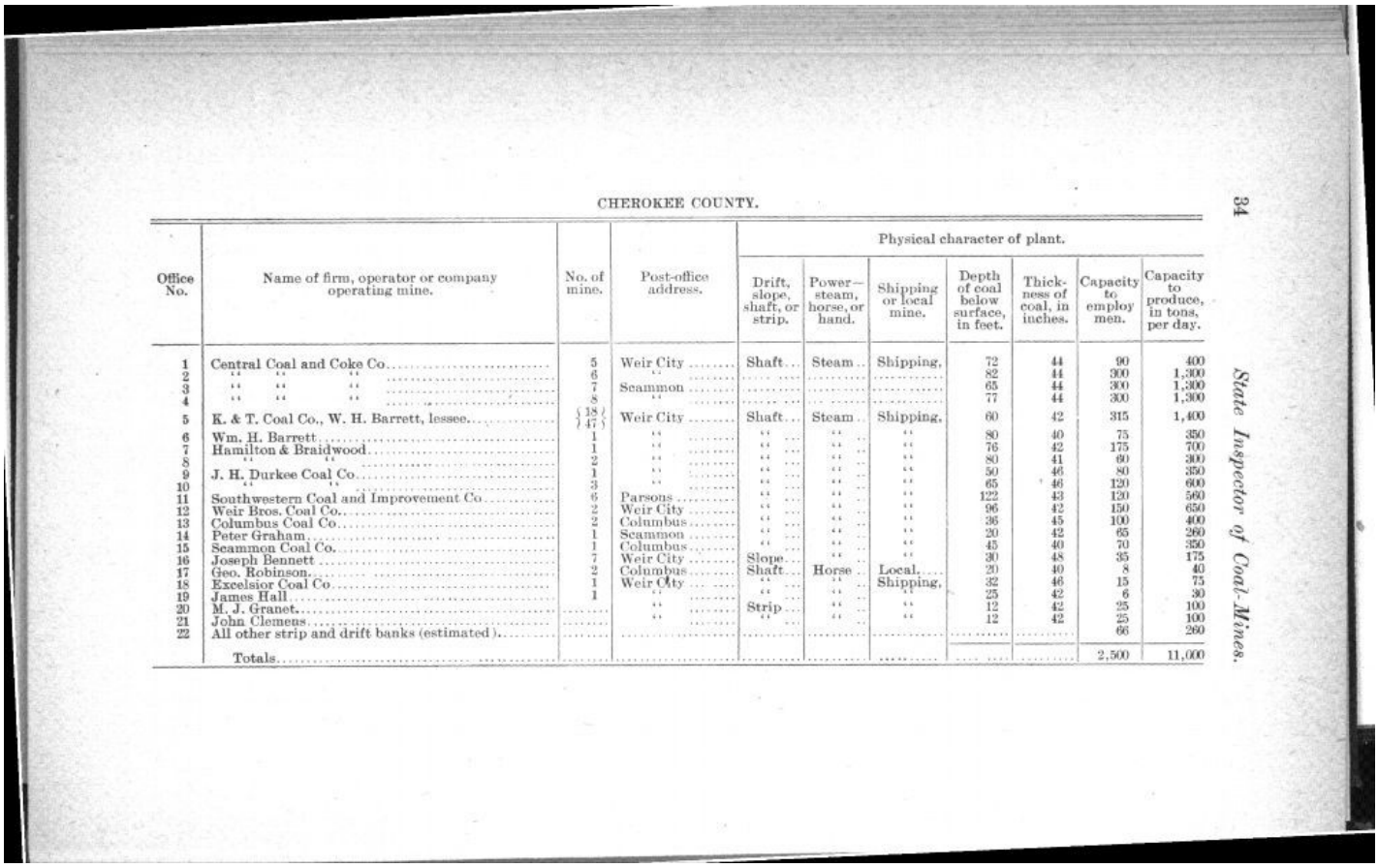

CHEROKEE COUNTY.

Office No.	Name of firm, operator or company operating mine.	No. of mine.	Post-office address.	Physical character of plant.						
				Drift, slope, shaft, or strip.	Power—steam, horse, or hand.	Shipping or local mine.	Depth of coal below surface, in feet.	Thickness of coal, in inches.	Capacity to employ men.	Capacity to produce, in tons, per day.
1	Central Coal and Coke Co	5	Weir City	Shaft	Steam	Shipping.	72	44	90	400
2	" " "	6	"				82	44	300	1,300
3	" " "	7	Scammon				65	44	300	1,300
4	" " "	8	"				77	44	300	1,300
5	K. & T. Coal Co., W. H. Barrett, lessee	18 47	Weir City	Shaft	Steam	Shipping.	60	42	315	1,400
6	Wm. H. Barrett	1	"	"	"	"	80	40	75	350
7	Hamilton & Braidwood	1	"	"	"	"	76	42	175	700
8	"	2	"	"	"	"	80	41	60	300
9	J. H. Durkee Coal Co	1	"	"	"	"	50	46	80	350
10	" "	3	"	"	"	"	65	46	120	600
11	Southwestern Coal and Improvement Co	6	Parsons	"	"	"	122	43	120	560
12	Weir Bros. Coal Co	2	Weir City	"	"	"	96	42	150	650
13	Columbus Coal Co	2	Columbus	"	"	"	36	45	100	400
14	Peter Graham	1	Scammon	"	"	"	20	42	65	260
15	Scammon Coal Co	1	Columbus	"	"	"	45	40	70	350
16	Joseph Bennett	7	Weir City	Slope	"	"	30	48	35	175
17	Geo. Robinson	2	Columbus	Shaft	Horse	Local.	20	40	8	40
18	Excelsior Coal Co	1	Weir City	"	"	Shipping.	32	46	15	75
19	James Hall	1	"	"	"	"	25	42	6	30
20	M. J. Granet		"	Strip	"	"	12	42	25	100
21	John Clemens		"	"	"	"	12	42	25	100
22	All other strip and drift banks (estimated)								66	260
	Totals								2,500	11,000

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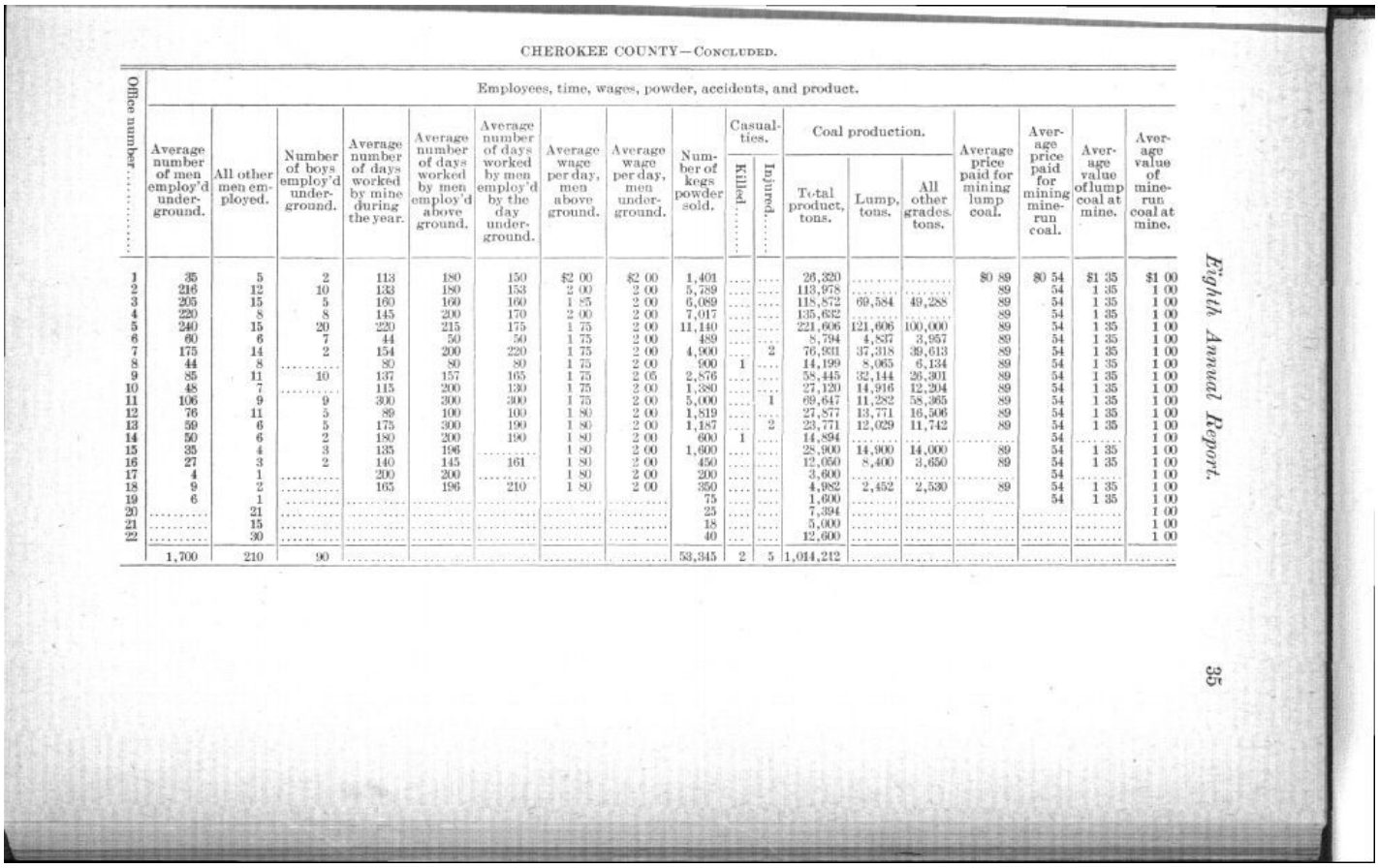

CHEROKEE COUNTY—CONCLUDED.

Office number.	Employees, time, wages, powder, accidents, and product.																	
	Average number of men employ'd under-ground.	All other men em-ployed.	Number of boys employ'd under-ground.	Average number of days worked by mine during the year.	Average number of days worked by men employ'd above ground.	Average number of days worked by men employ'd by the day under-ground.	Average wage per day, men above ground.	Average wage per day, men under-ground.	Num-ber of kegs powder sold.	Casual-ties. Killed.	Casual-ties. Injured.	Coal production. Total product, tons.	Coal production. Lump, tons.	Coal production. All other grades, tons.	Average price paid for mining lump coal.	Aver-age price paid for mining mine-run coal.	Aver-age value of lump coal at mine.	Aver-age value of mine-run coal at mine.
1	35	5	2	113	180	150	$2 00	$2 00	1,401	....	....	26,320	.....	.....	$0 89	$0 54	$1 35	$1 00
2	216	12	10	133	180	153	2 00	2 00	5,789	....	....	113,978	.....	.....	89	54	1 35	1 00
3	205	15	5	160	160	160	1 85	2 00	6,089	....	....	118,872	69,584	49,288	89	54	1 35	1 00
4	220	8	8	145	200	170	2 00	2 00	7,017	....	....	135,632	.....	.....	89	54	1 35	1 00
5	240	15	20	220	215	175	1 75	2 00	11,140	....	....	221,606	121,606	100,000	89	54	1 35	1 00
6	60	6	7	44	50	50	1 75	2 00	489	....	....	8,794	4,837	3,957	89	54	1 35	1 00
7	175	14	2	154	200	220	1 75	2 00	4,900	....	2	76,931	37,318	39,613	89	54	1 35	1 00
8	44	8	.....	80	80	80	1 75	2 00	900	1	....	14,199	8,065	6,134	89	54	1 35	1 00
9	85	11	10	137	157	165	1 75	2 05	2,876	....	....	58,445	32,144	26,301	89	54	1 35	1 00
10	48	7	.....	115	200	130	1 75	2 00	1,380	....	....	27,120	14,916	12,204	89	54	1 35	1 00
11	106	9	9	300	300	300	1 75	2 00	5,000	....	1	69,647	11,282	58,365	89	54	1 35	1 00
12	76	11	5	89	100	100	1 80	2 00	1,819	....	....	27,877	13,771	16,506	89	54	1 35	1 00
13	59	6	5	175	300	190	1 80	2 00	1,187	....	2	23,771	12,029	11,742	89	54	1 35	1 00
14	50	6	2	180	200	190	1 80	2 00	600	1	....	14,894	.....	.....	.....	54	.....	1 00
15	35	4	3	135	196	.....	1 80	2 00	1,600	....	....	28,900	14,900	14,000	89	54	1 35	1 00
16	27	3	2	140	145	161	1 80	2 00	450	....	....	12,050	8,400	3,650	89	54	1 35	1 00
17	4	1	.....	200	200	.....	1 80	2 00	200	....	....	3,600	.....	.....	.....	54	.....	1 00
18	9	2	.....	165	196	210	1 80	2 00	350	....	....	4,982	2,452	2,530	89	54	1 35	1 00
19	6	1	.....	.....	.....	.....	.....	.....	75	....	....	1,600	.....	.....	.....	54	1 35	1 00
20	.....	21	.....	.....	.....	.....	.....	.....	25	....	....	7,394	.....	.....	.....	.....	.....	1 00
21	.....	15	.....	.....	.....	.....	.....	.....	18	....	....	5,000	.....	.....	.....	.....	.....	1 00
22	.....	30	.....	.....	.....	.....	.....	.....	40	....	....	12,600	.....	.....	.....	.....	.....	1 00
	1,700	210	90	.....	.....	.....	.....	.....	53,345	2	5	1,014,212	.....	.....	.....	.....	.....	.....

State inspector of coal mines reports

198 miners and 10 boys, working 133 days, produced 113,978 tons; 18 men employed underground by the day worked 153 days, at $2 per day; 12 men employed above ground by the day, 180 days, at $2 per day. Wm. Scott, pit-boss.

No. 3. The Central Coal and Coke Company's mine No. 7 is located about one mile north of Scammonville, on the Kansas City, Fort Scott & Memphis railroad. There are two openings, 90 feet in depth, one for hoisting, the other for ventilation and escapement. This is also a good mine and kept in a fairly good condition. The air current is somewhat weak at the faces of some of the entries and rooms, caused by the mine, in development, meeting a serious and very extensive "fault," necessitating a divergence from the plan originally adopted by the management for opening the mine. This trouble, however, has now been nearly overcome, and better results may be confidently looked for in the future. There was another very bad practice in operation at this mine, and one I am sorry to report prevails at a great many others in the southeastern coal-mining district of the state, viz., stopping the fan, and of necessity the ventilating current, the moment the men have completed their day's labor and withdrawn from the mine. Of course the air current being stopped, the gases generated in the mine must necessarily remain therein and fill up all the vacancy made by excavating coal; especially is this so in the spring and fall of the year, when the temperature outside and inside of the mine is nearly equal, preventing any current from natural causes passing through the mine. The mine is thus filled with a poisonous atmosphere, which, if not withdrawn prior to the men going in to work, must be inhaled and absorbed into the system, to the great injury and discomfort of the miners. The writer ventures the opinion that to this practice alone may be attributed the cutting short of the years of the lives of a great many operatives and their premature incapacity to labor, by contracting that form of asthma generally known as coal-miner's consumption, viz., a filling up or closing of the bronchial tubes, rendering respiration difficult and painful, while at the same time the entire frame is racked with an irritating and constant cough. The Inspector requests and has requested that this practice be discontinued, and where it is not practicable to run the fan or keep the furnace burning constantly, they shall, at least, be started up long enough before the men enter the mine to have all foul atmosphere swept out of it. The mine-boss of this mine is a strong character, energetic and pushing, and there is no doubt in the mind of the Inspector that he has a thorough respect for the law and a manifest desire to run his mine so as to conform to it, as the following inci-

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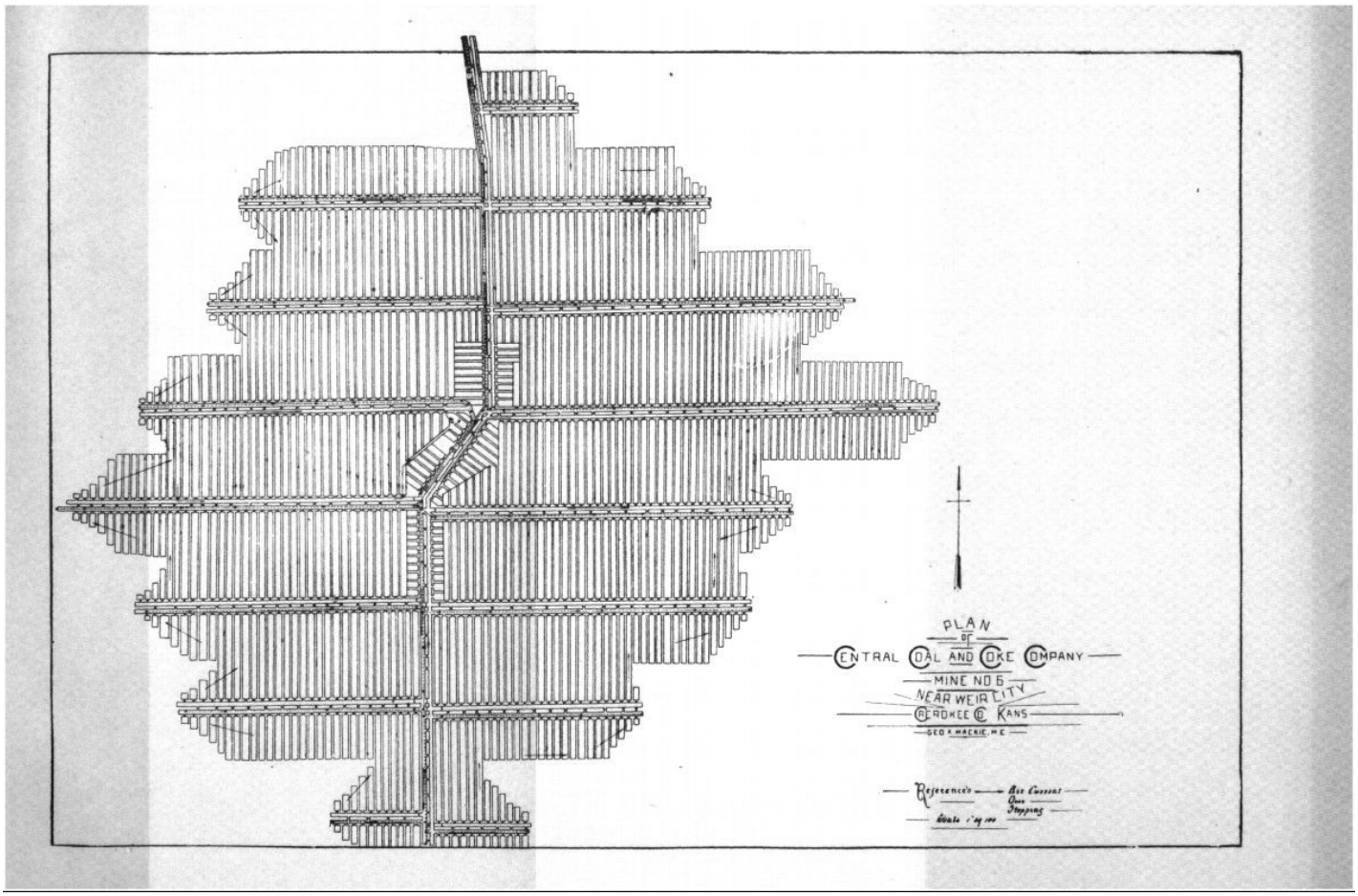

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dent will prove: There are many children employed in nearly every mine in the state, and it is no secret that the provision of the law regulating their employment was very generally winked at by the agents and mine-bosses of the different mines. This gentleman had, in common with others, a good many boys employed. When I asked him if he was aware that the law required that each boy between the ages of 12 and 16 years should have a certificate from his school-teacher, certifying that he had attended school for three months in each year, before he was eligible to employment, he said not a word, but quietly went to a cupboard in the engine-room, took out a file containing a lot of papers, and invited me to verify them with the number of boys he had in the mine, and satisfy myself that he was complying with the law in this respect, at the same time saying that he made this a matter of conscience. I was much gratified with this action, as it was the first time that my inquiries in this direction had met with a satisfactory answer, and I desire to record my appreciation of it and give honor where honor is due. This mine is equipped with the best hoisting-engines in the district, revolving screens, mechanical ventilation by fan, and good, substantial buildings. 185 miners and 5 boys, working 160 days, produced 118,872 tons; 20 men and 5 boys employed underground by the day worked 160 days, at $2 per day for men and 75 cents per day for boys; 15 men employed above ground by the day worked 160 days, at an average of $1.85 per day. Charles Elliot, pit-boss.

No. 4. The Central Coal and Coke Company's mine No. 8 is located about two miles northwest of Weir City, and connected by switch with the Kansas City, Fort Scott & Memphis railroad. There are two openings, one for hoisting, the other for ventilation and escapement. The mine was idle on the day of my visit; but it seemed to be in very good condition, roadways clean and dry, and an abundance of pure air sweeping through the mine and circulating to the faces of the rooms and entries. This mine is also equipped—as all the Central Coal and Coke Company's mines are—with good hoisting-engines, ample boiler capacity, mechanical ventilation by fan, revolving screens, and good, sound, strong, roomy and serviceable buildings. 185 miners and 5 boys, working 145 days, produced 135,632 tons; 35 men and 3 boys employed underground by the day worked 170 days, at $2 per day for men, and 75 cents per day for boys; 8 men employed above ground by the day worked 200 days, at $2 per day. John M. Jenkins, pit-boss. Mr. David Mackie is the general superintendent for all the mines operated by this company.

No. 5. The first mine visited by the present Inspector was the Kansas & Texas Coal Company's mine No. 47, located about two

miles north of Weir City, in Cherokee county. On the 6th day of July the newspapers contained a report to the effect that the mine had been inundated with water on the day previous; that the men employed therein had barely escaped with their lives, many having to leave their clothes behind and run to save themselves from being drowned, and that all of the mules in the mine were lost. The Inspector being aware that mines 47 and 18, belonging to the same company, were connected with each other, and knowing that when these mines were at work they gave employment to over 500 men, believing that an accident of this description could not occur in one without endangering the other, having in mind several catastrophes of the same character where great loss of life resulted, and realizing that any accident of this kind occurring once was liable to occur again, jeopardizing the lives of all the men employed, hastened to the scene with a view of requesting the company to take such precautions as would forever prevent a recurrence of this nature. On reaching the ground, I found that the danger to the miners and the loss of the mules had originated wholly, and existed only, in the brilliant imagination of the modern newspaper reporter. It was true that there had been a considerable inflow of water into the mine through a cave hole in a ravine, during a severe rain-storm; but at no time, I am glad to be able to say, were the lives of the men in any danger. There was not a single mule drowned, nor did the water rise at any point to the depth of 18 inches on the floor of the mine. About one-half of the mine could not be examined at this date, because of the water lying on the roadways; but the part of it that had not been affected by the inflow of the water was in fair condition, roadways good, air fair; but current weak at the face of the entries. No. 18 was idle, and had been temporarily abandoned, with the exception of two men employed to mine coal to keep up steam to drain the mine of water and supply a little coal for the railroad locomotives of that branch of the Frisco running between Pittsburg and Weir City. One of the two men at work in this mine was Hon. James Duffy, member of the legislature representing the twenty-fourth district, one of the most intelligent, conservative, practical and experienced miners in the state. Mr. Duffy informed me that the lessee of the mines, Mr. W. H. Barrett, manifested at all times an earnest desire to keep the mines in a safe and healthy condition, and when the mine was in operation he was engaged by Mr. Barrett to attend to the ventilation exclusively. There could be no better evidence than this action on the part of the operator to prove that he was anxious to comply with the law and keep his mines in good shape. Both mines are equipped with machinery

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of the most modern description: good hoisting-engines, mechanical ventilation by fan, shaker screens, and self-dumping cages. Each mine has an escapement-shaft with two stairways. No. 47 is located on and connected with the Pittsburg & Weir City branch of the St. Louis & San Francisco railroad. No. 18 is connected with the St. Louis & San Francisco and the Kansas City, Fort Scott & Memphis railroads. These mines are operated in connection with each other as one. 250 miners and 20 boys, working 157 days, produced 221,606 tons; 50 men and 4 boys employed underground by the day worked 175 days, at $2 per day for men and 75 cents per day for boys; 12 men employed above ground by the day worked 160 days, at an average of $1.75 per day. These mines were on strike 10 days during the year for an advance of 6 cents per ton on mine-run coal—from 50 cents to 56 cents. Work was resumed by the company altering their construction to weigh the coal after screening, and paying the district price, 95 cents per ton for screened coal. Pat. Welsh, pit-boss. Wm. Barrett, lessee and manager.

No. 6. The Wm. H. Barrett shaft No. 1 was formerly known as the "Daisy" shaft. This shaft was idle at the time I inspected the mines in that district. It resumed operations in October. 50 miners and 5 boys, working 44 days, produced 8,794 tons; 10 men and 2 boys were employed underground by the day, working 50 days, at $2 per day for men and 75 cents per day for boys; 6 men employed above ground by the day worked 50 days, at $1.75 per day. Dan. Thompson, pit-boss. W. H. Barrett, owner and manager.

No. 7. The Hamilton & Braidwood Coal Company's shaft No. 1 is located about one mile northwest of Weir City; it is connected with the Kansas City, Fort Scott & Memphis railroad. This mine, at the time of the Inspector's visit, was only in fair condition so far as ventilation was concerned; with abundance of air going into the mine, the current was very weak at the faces of most of the rooms and entries. There were two reasons for this: First, in developing the mine a "fault" of considerable magnitude had been encountered, causing it difficult to make quick connection between workings without incurring additional expense, which, the mine-boss informed the Inspector, they could not afford under the present condition of the trade. Second, the general system upon which the mine was worked, viz., that which has become known as "partial" double-entry system—a description of which, and the difficulty of ventilating on this principle, will be found in another part of this report. Otherwise the mine was in excellent shape, roadways dry and clean, doors and curtains having the appearance of receiv-

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ing careful attention. The mine is equipped with good machinery, mechanical ventilation by fan, revolving screens, and good and substantial buildings. Escapement shaft with good stairway. The general manager for this company, Mr. John R. Braidwood, was the second Mine Inspector of the state of Kansas, and is a gentleman of first-class attainments in every branch of the business. The mine-boss was Mr. James Hamilton, the gentleman who has since been selected by Warden Lynch to superintend the operation of the state mine, at Lansing. 125 men, working an average of 154 days, produced 76,931 tons; 20 men and 2 boys employed underground by the day worked 220 days, at $2 per day for men and 75 cents per day for boys; 14 men employed above ground by the day worked 200 days, at an average of $1.75 per day. This mine was on a strike two weeks during the year, the men requesting to be paid every two weeks, and a reduction in the price of powder. No concessions were granted and the men resumed work. Stewart Hamilton, pit-boss. John R. Braidwood, general manager.

No. 8. Hamilton & Braidwood Coal Company's shaft No. 2 is located about three-fourths of a mile west of their No. 1 mine. It is a comparatively new mine, having been in operation only a little over a year. It was opened in November, 1893, and closed early in 1895, on account of the dullness of the trade. This is a first-class mine in every respect so far as construction is concerned—good buildings, revolving screens, and mechanical ventilation by fan. There are two openings, 96 feet in depth, one for hoisting, the other for ventilation and escapement. The inside of the mine was not examined, on account of its having been temporarily abandoned and everything closed up. My predecessor, who inspected the mine just after it was opened, says: "This is one of the finest plants in the county, and everything is in first-class order and well equipped." This shaft is also connected with the Kansas City, Fort Scott & Memphis railroad. An average of 38 miners, working 80 days, produced 14,199 tons; 6 men employed underground by the day worked 80 days, at $2 per day; 8 men employed above ground by the day worked 80 days, at $1.75 per day. This mine was also on strike two weeks, for the same cause as that at No. 1. The result was also the same. John Dum, pit-boss. John R. Braidwood, general manager.

No. 9. The J. Durkee Coal Company's mine No. 1 is located within the limits of Weir City, connected with the Kansas City, Fort Scott & Memphis railroad. It has two openings, one used for hoisting, the other for ventilation and escapement. The depth is 55 feet. The mine, especially the north side of the shaft, was in a miserable

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condition at the time of my visit. No air, roadways covered with water, and the whole mine had a generally neglected appearance. The superintendent informed me that the north side of the mine would be worked out and abandoned inside of 10 days; so I did not think it worth while to make any complaint. The south side of the mine was comparatively dry; but the air current was very weak at the faces of the working-places here also. The mine was almost worked out, and it had been the intention to abandon it altogether, but just then they had secured a lease on 80 acres from the Bennett estate on the south, and the superintendent informed me they were now going to commence improvements on that side to enable them to take the coal from the new lease. They certainly cannot commence to improve too soon, not only in the interest of the health of their employees but also for their own financial benefit, because it is a well-known fact, in this day, that the better the physical conditions of the mine the less expense incurred in taking coal from it. 70 miners and 7 boys, working 137 days, produced 58,445 tons; 15 men and 3 boys employed underground by the day worked 165 days, at $2.05 per day for men and 80 cents per day for boys; 11 men employed above ground by the day worked 157 days, at $1.75 per day. Wm. Humble, pit-boss. Jos. Humble, superintendent.

No. 10. The Durkee Coal Company's mine No. 3 is located about one mile northwest of Scammon. There are two openings, 65 feet in depth; one used for hoisting, and the other for ventilation and escapement. Another shaft has been sunk near the face of the main south entry for the purpose of providing an opening to discharge the water from the mine. The shaft is connected by switch with the Kansas City, Fort Scott & Memphis railroad. The Durkee Coal Company was operating the mine under a lease from W. S. Norton, of Columbus, and the mine was subleased from the Durkee Coal Company by Hon. M. L. Walters & Company. Mr. Walters was the leading exponent of the miners in the house of representatives during the session of 1893-'94; was chairman of the committee sent out by that legislature to examine mines, miners, and operators, for the purpose of gathering information relative to their requirements, so as to enable that body to legislate intelligently thereon. Later, he was the leading adviser of the miners during the struggle that occurred over the adjustment of prices, made necessary to operate the mines in compliance with what has become known as the screen law. There could be no doubt, then, of this man having the interest and welfare of the miners at heart, and the Inspector was justified in supposing that a mine operated

under his direct supervision, as an operator, would be found as nearly perfect as human knowledge, integrity and sympathy for those employed therein could make it. There was also employed in this mine an ex-Mine Inspector of the state of Kansas and a number of the leading miners of the district; but, alas for the sophistry of human reasoning! at no mine in the state with any pretensions to mining coal by system did I find the law held in more contempt or more openly and flagrantly violated. The mine was in very bad condition. Entries and rooms were being driven hundreds of feet ahead of any air current; no pretension was made to cut break-throughs at proper or improper intervals; at points where curtains had been hung to turn air currents they were either torn to shreds or had disappeared altogether. At no point except on the main roadways, and that a long way back from the working-faces, could I find sufficient current to turn the vanes of the anemometer. Powder has been taken into the mine in whole kegs, in open violation of an act passed by the legislature of 1891-'92, said act making it a misdemeanor for any person to have more than 12½ pounds of powder in his possession in the mine at one time. In fact, so far as this mine was concerned, the law was a dead letter and might just as well never have been placed on the statute of the state. On speaking to Mr. Walters about this state of affairs, he informed me that the men made no complaint about anything, and that the reason that the powder was taken into the mine in full kegs was because the the miners preferred to take it in that way. I freely confess I did not have the heart to say much to him, as the terms upon which he and his associates had the mine leased precluded the possibility of money being spent on it to put and keep it in the condition required by law. He promised to make break-throughs, hang curtains, and stop the taking of powder into the mine in kegs. Steam hoist, revolving screens, mechanical ventilation by fan. Buildings fairly good. 42 miners, working 115 days, produced 27,120 tons; 6 men employed underground by the day worked 130 days, at $2 per day; 7 men employed above ground by the day worked—3 of them full time, the other 4, 130 days—at $1.50 per day. This mine was on strike two weeks, the miners requesting to be paid every two weeks. The request was not complied with and the men resumed work. M. L. Walters, pit-boss.

No. 11. The Southwestern Coal and Improvement Company's No. 6 shaft is located four miles west of Scammon, connected by switch with the Missouri, Kansas & Texas railroad at Parsons. The mine was in first-class condition at the time of inspection, being comparatively new, only beginning to ship coal March 20, 1895.

State inspector of coal mines reports

This mine is being opened and developed on the most-approved principle—double entry throughout—and before another year has gone past will be a large producer. The men employed at this colliery worked practically every day of the year. 90 miners and 6 boys produced 69,647 tons; 16 men and 3 boys were employed underground, at $2 per day for men and 80 cents per day for boys; 9 men were employed above ground by the day, at an average of $1.75 per day. This company has just sunk and equipped its No. 7 shaft. It is one of the most complete in the district. The mine is provided with the most speedy and powerful hoisting-engine in the district; self-dumping cages and shaker screen. Arrangements are made to weigh all the miners' product at the bottom of the shaft. This shaft is destined in the near future to be one of the largest coal producers in the state. The company has built a number of houses for the accommodation of its workmen. A large store building has been erected, filled with a stock of general merchandise; other business houses of a general character have sprung up as if by magic, until now there is a flourishing town of 2,000 inhabitants where the farmer drove his plow one short year ago. Joe Orris, pit-boss No. 1. Hugh Reed, local superintendent. Mr. I. M. Fleming is the general superintendent of all the mines owned and operated by this company.

No. 12. Weir Bros.' shaft No. 2 is located about 1½ miles west of Weir City; it is connected by switch with the Pittsburg & Weir City branch of the St. Louis & San Francisco railroad, or what may be termed a branch of the Santa Fe system, that company now operating the road. There are two openings, 96 feet in depth, one used for hoisting, and the other for ventilating purposes. The general condition of the mine was very poor; air at the faces and entries very impure; scarcely any current, simply a slight diffusion; some of the roadways covered with water, the whole mine having an appearance of neglect. This is very generally the case with mines owned by small and financially weak companies. They are generally started—as this one was—on what is known as the single-entry principle, as that is considered the cheapest and most economical method of extracting the coal from the mine; but even that method proving too expensive, they finally drift into a practice of turning rooms out of rooms, and gouging the coal out any way at all so as save the outlay of a dollar in driving entry, paying no regard to ventilation, sanitation, or anything else. Such was practically the manner in which this mine was operated at the time of my visit. There were only a few men working in the mine at the time, and Mr. L. S. Meyers, the superintendent, promised to improve the con-

dition of the shaft, prior to employing any more miners. The usual reasons were given for the state of the affairs at this mine, viz., no trade, no money; reduce, and keep down expenses to a point barely sufficient to keep the mine open and workable. This mine is equipped with hoisting-engine, revolving screens, mechanical ventilation by fans 12 feet in diameter, attached by a rope to an old thrasher engine. Buildings and tower very good and substantial. This family are pioneers in the coal-mining business of this (Cherokee) county, and founders of Weir City, the second coal-mining center of the state. 61 miners and 5 boys, working 89 days, produced 27,877 tons; 15 men employed underground by the day worked 100 days, at $2 per day; 11 men above ground worked 100 days, at an average of $1.80 per day. L. S. Meyers, pit-boss. Jack Weir, superintendent.

No. 13. The Columbus Coal Company's shaft is located at Sleppville, on the Kansas City, Fort Scott & Memphis railroad. The mine when visited was not in very good shape, owing to its having been flooded with water on the 5th day of July, and only partly drained at the time of inspection. This mine is worked on the partial double-entry system, and, like others worked on that plan, the air current is very weak at the face of the workings. The mine is subject to much annoyance and trouble from soft roof. The depth of the shaft being only 30 feet, and at many points inside the mine the cover from the coal to the surface is much less, thus rendering the mine liable to caves (falls) from the roofs which run to the surface of the ground. It was through one of those caves or openings to the surface that the water caused by the heavy rainstorm of the date above mentioned, which was general all over the southeastern part of the state, rushed into the mine and filled it up. The mine-boss informed me it required six weeks' time and an expenditure of $700 to free the mine of water and mud sufficiently to put the men to work mining coal. The mine is equipped with a tail-rope plant which pulls coal nearly half a mile. Owing to the mine being idle on the day of my visit I did not see it in operation, but was informed that it worked perfectly, gave good satisfaction, and reduced the cost of hauling considerably. The engine is located at the bottom of the shaft, and the two drums fitted with friction-clutch are suspended over the tracks. Steam is conveyed down the shaft from the boilers on the surface. Only the west side of the shaft is in operation, the east side having been worked out and abandoned. There is an escapement shaft with good stairway sunk nearly one-half mile east from the main shaft, through which the men travel to and from their work. The manager is working hard

State inspector of coal mines reports

to get all the water out of the mine, and when this is accomplished promised to fix it up in good shape. 50 miners and 5 boys, working 175 days, produced 23,771 tons; 9 men employed underground by the day worked 190 days, at $2 per day, and 6 men above ground 300 days, at an average of $1.75 per day. Christopher Newlands, pit-boss. J. W. Spencer, superintendent.

No. 14. Peter Graham's shaft is located about 1½ miles southwest of Scammonville. There are two openings, one for hoisting, the other for ventilation. This shaft was originally opened and operated by horse-power; but it is now transformed into steam hoist, by placing an old steam-thrasher engine to one side of a small drum and connecting the two with pinion wheels; a manway with stairway is partitioned off one side of the hoisting shaft. The mine was idle on the day I visited it, and was found in poor condition; the air current, where there was any, was very weak and the water had been allowed to accumulate and overflow the roadways. The usual excuse, "No money; keep down expenses." The mine foreman indicated several changes they were about to make, which, when completed, will better the condition of the mine a great deal. The coal is loaded on wagons and hauled to a switch on the Kansas City, Fort Scott & Memphis railroad. Ventilated by a furnace, which accounts for the air current being very weak and unsatisfactory, as it is simply impossible to produce a strong current by this means in shallow mines in the summer season of the year, when the temperature on the surface registers from 80 to 120 degrees. The tower and other buildings are crude and not very elaborate. 45 men and 2 boys, working 180 days, produced 14,894 tons; 5 men employed underground by the day worked 190 days, at $2 per day, and 6 men above ground worked 200 days, at $1.75 per day.

No. 15. Scammon Coal Company's shaft is located about 3½ miles north of Columbus. It is connected by switch with the Kansas City, Fort Scott & Memphis railroad. There are two openings, 47 feet in depth, one for hoisting, the other for ventilation and escapement. The general condition of the mine is good; the roadways kept clean and dry; the ventilation was fair, although the current was weak at the face of the work, as it always is when the single-entry principle is prosecuted, as it is at this mine. The mine foreman informed me that they are about to change to double entry, which will be beneficial so far as sanitation is concerned at least. The mine is well equipped with good machinery; engines, revolving screen, ventilation by fan; good and elaborate buildings. The mine was originally opened as a horse-power or gin shaft by the owners of the land, to supply local demand; was leased by the pres-

ent company in 1893, which equipped the mine on modern lines, built a switch from the Kansas City, Fort Scott & Memphis railroad, and developed the shaft into one of large shipping capacity. I have not been able to get the returns of the coal produced and number of men employed at this time during the year 1895; have repeatedly requested the superintendent, owner and operator to send them in, but while manifesting a perfect willingness, and promising to do so, he has failed to keep his word. The returns for this mine are estimated, from my personal knowledge of the condition and surroundings and from other sources: 35 miners, working 160 days, produced 28,900 tons; 5 men employed underground by the day 175 days, at $2 per day, and 6 men above ground 170 days, at $1.75 per day. John Judd, pit-boss. Clarence Atkinson, superintendent.

No. 16. The Bennett slope is a steam-power located in the southeast part of Weir City. It has no railroad connections. Coal is hauled in wagons to railroad switches for shipment. This mine, when first examined, was in an execrable condition, notwithstanding the fact that no part of the mine had progressed more than 400 feet from the bottom of the slope; there was not a breath of pure air in the mine; everything in or around the place had a neglected appearance. A run-off switch placed on the slope, at some future time to throw mine-cars off the track, in the event of their getting away from the top-man before being securely fastended to the rope, or in the event of the rope breaking, etc., and thus to prevent accident to men at bottom of or in the act of going down or coming up the slope, was rendered inoperative and useless because the wire by which it was manipulated by the top-man was broken, and the management was too careless or indifferent to repair the break. No means were provided for creating and circulating a current of air through the mine, the furnace being an old iron basket half buried in its own ashes; no earthly attention was being paid to putting up doors, hanging curtains, making or filling up breakthroughs, or keeping an air-course in the mine. Mr. Bennett was notified that the mine would have to be improved and attended to; otherwise the courts would be appealed to to restrain him from operating it at all. He manifested an entire willingness to do anything necessary to put it in good shape, which was finally accomplished after a great deal of trouble and ill feeling had been engendered. Break-throughs were made, doors and curtains were hung, and a new furnace was built. Some of the men notified me that six of their number had been discharged because they had complained of the bad air in the mine. I went to see Mr. Bennett in regard to this matter; he denied the charge, and said the men were

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discharged for other causes outside of my jurisdiction. I requested him to reinstate the men at their work, as that was the feeling abroad regarding their discharge. He flatly refused to do so. If these men were troublesome in another direction I have not a doubt that the impure air in the mine was the moving cause, as no man can be peaceable and reasonable breathing such an atmosphere as that in this mine at that time. 25 miners, working 140 days, produced 12,050 tons; 2 men and 2 boys worked underground by the day 160 days, at $2 per day for men and 75 cents per day for boys, and 2 men and one boy worked by the day above ground 145 days, at $2 and $1 per day, respectively. Wm. R. Lewis, pit-boss. Joseph Bennett, superintendent.

No. 17. The George Robinson mine is a horse-power located 2½ miles north of Columbus, and is only worked to supply local trade by wagon. It is not connected with any railroad and does no shipping business. This mine was also drowned out by the storm of July 5 and abandoned. Mr. Robinson has sunk another shaft about one-fourth of a mile east of the old one, and at the time of my visit was moving the tower and gin from the old location and erecting it over the new opening. 4 men, working 200 days, produced 3,600 tons; and 1 man worked on top 200 days, at $2 per day.

No. 18. The Excelsior Coal Mining Company's shaft, located just south of Weir City, is a horse-power. The mine has no railroad connection; coal is hauled in wagons from the mine to the railroads for shipment. The mine was idle at the time I visited and inspected the mines at Weir City; therefore the inside workings were not examined. 8 miners, working 165 days, produced 4,982 tons; 1 man employed underground by the day worked 210 days, at $2 per day, and 2 men above ground worked 196 days, at an average of $1.75 per day. Alex. Champbell, pit-boss. Wright Shaw, jr., superintendent.

No. 19. The James Hall shaft, located two miles southwest of Weir City, is a horse-power; no railroad connection; any coal shipped is hauled to railroad in wagons. There are two openings; ventilation natural. 4 miners, working 120 days, produced 1,600 tons; 2 men were employed above ground 125 days, at $1.75 per day.

CLOUD COUNTY.

The character of the coal is the same as that in Republic, Lincoln, Russell and Ellsworth counties, and is quite extensively mined for local trade. The vein is 22 inches thick. There are seven mines open, employing during the winter season between

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60 and 70 men, and producing 5,000 tons; value, $11,250. The price paid for mining is $1.50 per ton. The names of the operators are:

G. Barker, Minersville	1,500 tons.
Tom Struthers, Minersville	1,000 tons.
A. & J. Henderson, Minersville	400 tons.
Wm. Smith, Minersville	600 tons.
Nutzel & Vermetle, Minersville	800 tons.
James Murray, Minersville	300 tons.
Richardson & Co. (new mine), Minersville	400 tons.

I am under obligations to Mr. Thos. Lamay, county clerk, for information regarding the industry in this county.

COFFEY COUNTY.

Most of the coal mined in this county is taken from strip pits in the vicinity of Lebo. Mr. Tom Kelley operates a shaft near Hartford in which eight men are employed most of the time during the winter months. The vein is 12 to 14 inches thick, the price paid for mining is $1.25 per ton, and the coal sells for $2.25 per ton. Estimated product, 3,600 tons; value, $8,100. Number of men employed part of their time, 60.

CRAWFORD COUNTY.

Crawford is at present, and has been for years, by far the largest coal-producing county in the state. During the past year 3,645 men and 108 boys were employed in connection with the mines, producing 1,517,936 tons; a little over 42 per cent. of the entire product. The principal mines in the county worked an average of 160 days; 84,496 kegs, or 2,112,400 pounds, of powder were used, virtually one keg for every 19 tons mined. As the miner has to pay $2 per keg for powder, and receives an average of 62 cents per ton, yardage included, for mining coal, 17 per cent. of his gross earnings is spent on this luxury alone. To this fact also can be attributed the low value of Cherokee and Crawford county coal compared with that produced in other counties of the state, 30 per cent. of the entire product being reduced to slack coal by the excessive use of powder. This slack is of comparatively little value, and in many instances, during the busy season, thousands of tons are unloaded from the railroad cars and used as ballast for the road-beds.

Record of Inspection—Crawford County.

No. 1. The Cherokee & Pittsburg Coal-Mining Company's shaft No. 1, located at Frontenac, on the Girard & Pittsburg branch of the Santa Fe railway, is the largest coal-producing mine in the state. It is also, with the exception of the Leavenworth Coal Company's

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mine, the largest in area excavated. This shaft has been in operation a little over 10 years and has worked out over one mile square of territory. The vein averages 36 inches in thickness, and the amount of coal contained to the acre is 5,646 tons. Supposing 50 per cent. of the vein is put on the cars in merchantable shape—that is, in the form of lump and nut coal—and assuming that it costs on an average $1.25 per ton, in wages paid to labor of all kinds—superintendents, clerks, mine-bosses, engineers, day laborers, and miners—to do so, this company has paid in wages at this pit alone, in the last 10 years, nearly $2,000,000. This observation is made for the purpose of showing the source to which Crawford and Cherokee counties are indebted for their wealth and population, and the importance of protecting with the greatest care the source from which they are drawn, because it is by no means inexhaustible. This company manifests a commendable desire to keep its mines in a good, safe and healthy condition. The distance which the air has to travel in this mine, although it is divided into four separate currents, is so great that by the time the air reaches the last body of men on return it was very unclean and injurious to breathe.* On my drawing the attention of the superintendent to this feature, he immediately gave the mine foremen instructions to stop up securely all break-throughs leading to abandoned work, and so confine the air current to the proper and necessary channels, and on my return, about two months afterwards, the improvement was very marked and satisfactory to all concerned. The mine is well equipped with good, powerful hoisting machinery, fan, pumps, and four boilers. The tower, head-house and other buildings are strong and well built. This mine is equipped with the first self-dumping cages ever introduced into this district. 380 miners, working 155 days, produced 222,578 tons; 100 underground men and 20 boys employed underground by the day worked an average of 175 days, at $2 per day for men and 75 cents per day for boys; and 24 men employed by the day above ground worked 185 days, at $1.75 per day. R. Turner and Peter McCall, pit-bosses.

No. 2. The Cherokee & Pittsburg Coal-Mining Company's shaft No. 2, located at Frontenac, on the Santa Fe railway, is a duplicate, so far as construction is concerned, of No. 1. This is the mine that exploded with disastrous effect about 5 p. m., November 9, 1888. The mine has done very little since that time. The underground work is in good shape, well ventilated, and roadways kept dry and clean. 180 miners, working 180 days, produced 113,597 tons of coal; 26 men and 6 boys worked underground by the day 220

* For cause, see description of state penitentiary mine, Leavenworth county.

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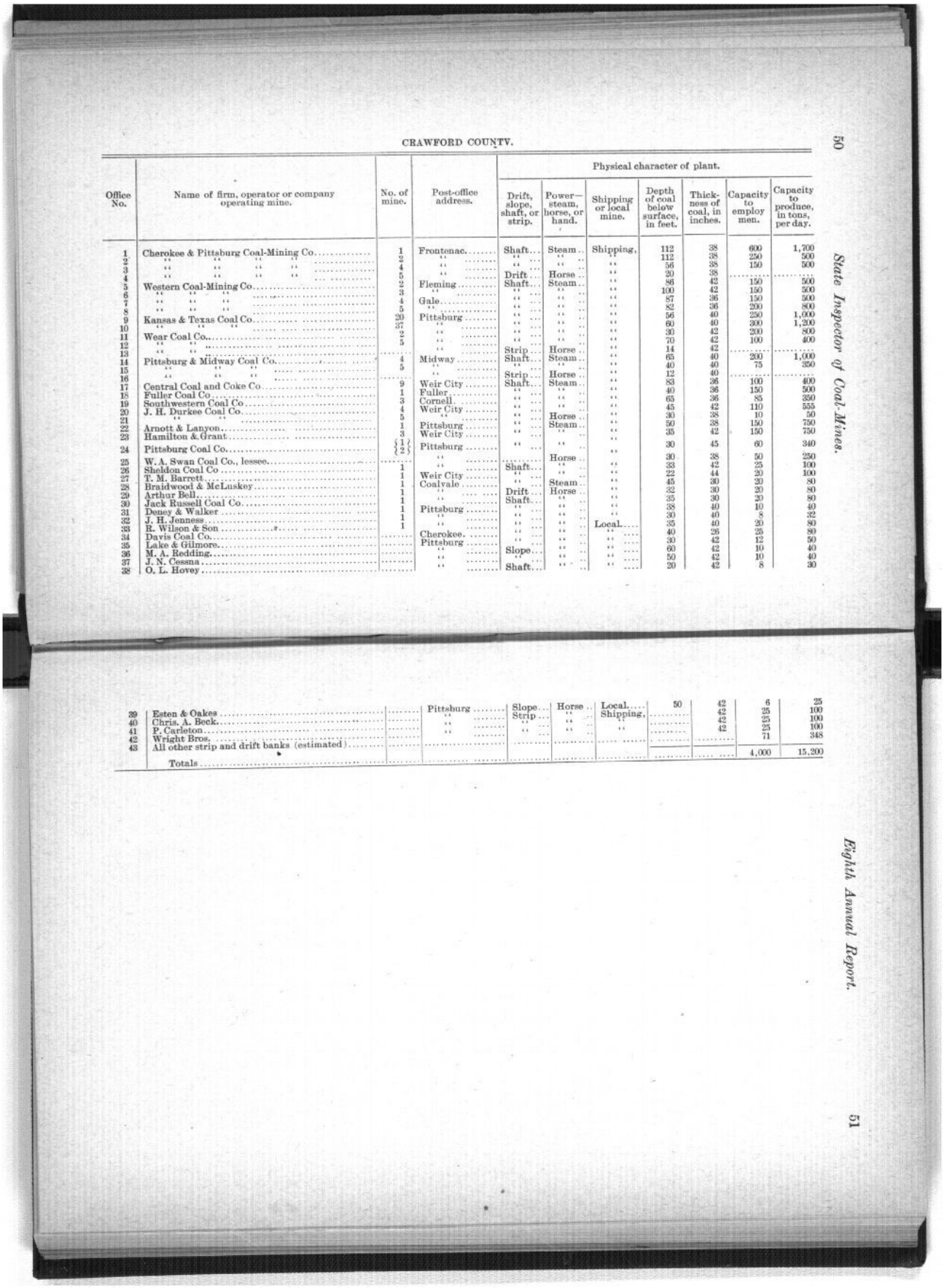

CRAWFORD COUNTY.

Office No.	Name of firm, operator or company operating mine.	No. of mine.	Post-office address.	Physical character of plant.						
				Drift, slope, shaft, or strip.	Power—steam, horse, or hand.	Shipping or local mine.	Depth of coal below surface, in feet.	Thickness of coal, in inches.	Capacity to employ men.	Capacity to produce, in tons, per day.
1	Cherokee & Pittsburg Coal-Mining Co.	1	Frontenac	Shaft	Steam	Shipping,	112	38	600	1,700
2	" " " " "	2	"	"	"	"	112	38	250	500
3	" " " " "	4	"	"	"	"	56	38	150	500
4	" " " " "	5	"	Drift	Horse	"	20	38		
5	Western Coal-Mining Co.	2	Fleming	Shaft	Steam	"	86	42	150	500
6	" " "	3	"	"	"	"	100	42	150	500
7	" " "	4	Gale	"	"	"	87	36	150	500
8	" " "	5	"	"	"	"	82	36	200	800
9	Kansas & Texas Coal Co.	20	Pittsburg	"	"	"	56	40	250	1,000
10	" " "	37	"	"	"	"	60	40	300	1,200
11	Wear Coal Co.	2	"	"	"	"	30	42	200	800
12	" " "	5	"	"	"	"	70	42	100	400
13	" " "		"	Strip	Horse	"	14	42		
14	Pittsburg & Midway Coal Co.	4	Midway	Shaft	Steam	"	65	40	200	1,000
15	" " "	5	"	"	"	"	40	40	75	350
16	" " "		"	Strip	Horse	"	12	40		
17	Central Coal and Coke Co.	9	Weir City	Shaft	Steam	"	83	36	100	400
18	Fuller Coal Co.	1	Fuller	"	"	"	40	36	150	500
19	Southwestern Coal Co.	3	Cornell	"	"	"	65	36	85	350
20	J. H. Durkee Coal Co.	4	Weir City	"	"	"	45	42	110	555
21	" "	5	"	"	Horse	"	30	38	10	50
22	Arnott & Lanyon	1	Pittsburg	"	Steam	"	50	38	150	750
23	Hamilton & Grant	3	Weir City	"	"	"	35	42	150	750
24	Pittsburg Coal Co.	1 2	Pittsburg	"	"	"	30	45	60	340
25	W. A. Swan Coal Co., lessee		"		Horse	"	30	38	50	250
26	Sheldon Coal Co	1	"	Shaft	"	"	33	42	25	100
27	T. M. Barrett	1	Weir City	"	"	"	22	44	20	100
28	Braidwood & McLuskey	1	Coalvale	"	Steam	"	45	30	20	80
29	Arthur Bell	1	"	Drift	Horse	"	32	30	20	80
30	Jack Russell Coal Co.	1	"	Shaft	"	"	35	30	20	80
31	Deney & Walker	1	Pittsburg	"	"	"	38	40	10	40
32	J. H. Jenness	1	"	"	"	"	30	40	8	32
33	R. Wilson & Son	1	"	"	"	Local	35	40	20	80
34	Davis Coal Co.		Cherokee	"	"	"	40	25	25	80
35	Lake & Gilmore		Pittsburg	"	"	"	30	42	12	50
36	M. A. Redding		"	Slope	"	"	60	42	10	40
37	J. N. Cessna		"	"	"	"	50	42	10	40
38	O. L. Hovey		"	Shaft	"	"	20	42	8	30

39	Esten & Oakes		Pittsburg	Slope	Horse	Local	50	42	6	25
40	Chris. A. Beck		"	Strip	"	Shipping		42	25	100
41	P. Carleton		"	"	"	"		42	25	100
42	Wright Bros.								71	348
43	All other strip and drift banks (estimated)								4,000	15,200
	Totals									