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Section 34, Pages 991 - 1020

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.

Creator: Kansas. Inspector of Coal Mines

Date: Between 1884 and 1956

Callnumber: SP 622 K13

KSHS Identifier: DaRT ID: 210191

Item Identifier: 210191

www.kansasmemory.org/item/210191

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shaft and attempted to get on the ascending cage to ride to the upper landing, with the above result. The cause of the accident was so clear that the coroner thought it unnecessary to hold an inquest.

STATE OF KANSAS, CRAWFORD COUNTY, SS.

At an inquest held in the city of Pittsburg, county of Crawford, state of Kansas, on May 30, 1896.

We, the undersigned jurors, duly impaneled and sworn, after hearing the testimony and viewing the body of Joseph Chambretti, find as follows: That deceased came to his death in the first double room in the first east entry off of the first south entry on the east side of the shaft at mine No. 3, Fleming, Crawford county, Kansas, between the hours of 8 o'clock P. M., May 28, 1896, and 1 o'clock A. M., May 29, 1896, by reason of gross carelessness on the part of the deceased, Joseph Chambretti, while acting in the capacity of shot-firer in the above-described mine, and we hereby exonerate the Western Coal and Mining Company from any and all blame in the accident, as shown by the testimony.

(Signed) A. B. KIRKWOOD, *Foreman*. JOHN CONGDON.
J. W. HUGHES. JOHN W. BREWER.
J. H. TANGUE. J. M. ADAMS.

Attest: J. W. PORTER, *Coroner*.

Chambretti had fired two shots in one room, and it was evident that, before he could reach a safe distance after igniting the squib of the second shot, the first went off and he was struck and killed by the flying debris. This accident was similar to that of Robson at the Hamilton & Braidwood shaft, March 10.

PAT. FAHERTY was killed by asphyxiation in mine No. 18 of the Kansas & Texas Coal Company, leased by W. H. Barrett, Weir City, on the night of the 17th of August. He was employed as a shot-firer. That evening he had fired a number of shots in rapid succession in an entry, and returning to the face of the entry to fire a shot, in the brushing evidently missed his way in the dense smoke and staggered into a room that had just been turned off the entry, where he was found some time afterward, dead. This is another case where there might have been no loss of life if he and his comrade, who was employed to assist him in firing the shots, had kept together, but anxiety to get through with the work as quickly as possible caused them to separate, which has resulted in many accidents and much loss of life.

On the 24th day of July JAMES DAVIDSON was instantly killed and Henry Kretchner very seriously injured in the Western Coal Company's slope, located one mile north of Pittsburg, while in the act of tamping a shot. It appears, according to the statement of the survivor, that the cartridge was too large for the drill hole, and it struck while they were pushing it back. Davidson told Kretchner to give it a good, hard blow with the end of the tamping bar, which was of iron, and drive it back. He did so, and both were blown out of the place. This can scarcely be considered an accident. The same thing has

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occurred under the same conditions so often, and men have been warned, until there is hardly a miner who is not aware of the probable result of such action; this is simply a case of death and injury through foolhardiness.

JOHN BASOM was killed in the Arnold & Lanyon shaft, two miles northeast of Pittsburg, September 5, by falling off the cage. This man had stopped in the mine beyond the usual time for the regular miners to come out, and coming to the bottom of the shaft, signaled the engineer to raise him on the cage to the top. The engineer did so, but when the cage came to the surface there was no man on it. Some men who were loitering around the top of the shaft went down and found him lying in the cage seat, unconscious, from which comatose state he never recovered, dying shortly afterward. Just how this accident occurred, and the manner in which this man met his death, will never be accurately known, as there was no positive evidence by which to determine the cause. All that can be said is, that he was on the cage while it was ascending the shaft, and was in some manner caught between the cage and the timbering of the shaft, forced off the cage, and fell to the bottom.

PETER NORDLING was killed in the Granstrom mine at Osage City on the 13th day of October, while working in his room, by a fall of rock from the roof. This vein is very thin and the workings low, not more than 18 inches in height. Nordling was about 15 feet from the roadway when he became alarmed by sounds from the roof and tried to get out, but was caught by a falling rock and the life crushed out of him. The cause of this accident was a slip in the roof, beginning at the edge of the gob and running at an angle until it connected with a break along the face, which, on being cleared by the coal being taken down, allowed the rock to fall with but little warning.

SAMUEL HERZOG was killed on the 23d day of October, in mine No. 6, belonging to the Southwestern Coal and Improvement Company, at Mineral, while working in his room, by a fall of rock from the roof. His back was broken and chest crushed in. This was one of those unfortunate accidents in mines which it is impossible to wholly guard against — an undiscernible slip destroys the binding force or adhesiveness of the stratum of which the roof is composed, and it falls without the slightest warning upon the unfortunate victim. This accident, and that by which John McCaslin lost his life, are identical.

FRANK VOKE, while at work in his room in No. 3 shaft, at Fleming, November 7, was so severely injured by a fall from the roof that he died on the 9th.

HENRY QUINCHENE was killed in the same mine November 11, while

knocking out a prop which stood in the way of his laying some track. A slip in the roof was the cause of this accident also. When the prop was knocked out the rock fell instantly, striking him on the head and shoulders, crushing his head and chest.

NON-FATAL ACCIDENTS.

There were 26 non-fatal accidents reported during the year, of which nine were caused by falls of roof — one very serious.

Andrew Guhl, of Jewett, Linn county, while at work in the mine owned by the Mine Creek Coal Company, was struck by a large rock which fell from the roof, fracturing his spine, breaking three ribs, and badly crushing him on the breast. One man had a leg broken and ankle dislocated by fall of roof while working in his room, and another had his skull fractured by a fall of rock while at work in his room.

The others were not serious. One man had his leg broken by a trip of cars. One man had a finger broken and body bruised by a mule forcing him against the side of the roadway. Two men were injured, one having a toe mashed off, through being caught by the machinery on top of the mines.

One man had a hand fractured through letting a mine-car door fall upon it, while another had a rib broken by a piece of timber falling upon him.

Two men had a leg broken each, and two men had one foot each crushed by falls of coal, while in the act of mining, preparatory to taking the coal down.

Three men were slightly bruised at the state mine through the cage landing on the bottom with too much force, and five men were injured while firing shots.

One man, named John Baker, was so badly burned by powder on November 16 that he died on the 25th of the same month. The shot-firer had failed to get his shot of the night previous, and Baker drilled it out; while he was scraping the powder out of the hole a spark fell from his lamp and ignited it.

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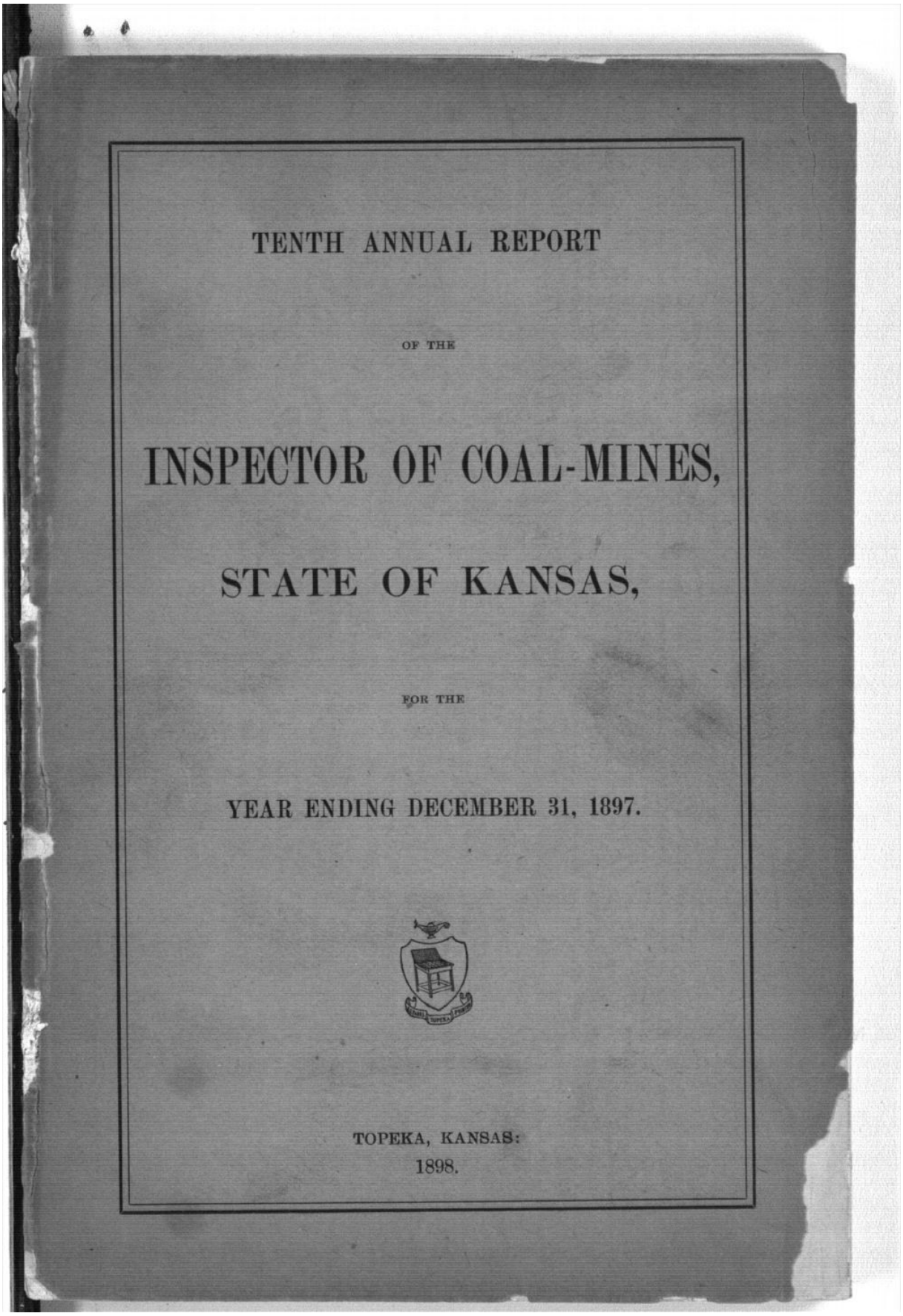

TENTH ANNUAL REPORT

OF THE

INSPECTOR OF COAL-MINES,

STATE OF KANSAS,

FOR THE

YEAR ENDING DECEMBER 31, 1897.

TOPEKA, KANSAS:
1898.

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AD ASTRA PER ASPERA

LETTER OF TRANSMITTAL.

WEIR CITY, KAN., February 1, 1898.

Hon. J. W. Leedy, Governor:

SIR — Herewith, in compliance with section 18, chapter 149, General Statutes of 1897, relating to mines and mining, I hand you the Tenth Annual Report of the State Coal-Mine Inspector, for the year ending December 31, 1897. Very respectfully,

GEO. T. McGRATH, *Inspector.*

INTRODUCTION.

DURING the year 1897, 8,494 men and 205 boys, employed in and around the coal-mines of Kansas, produced 3,291,806 tons of coal, valued at the mine at $3,488,380.71. This indicates an increase of the production of coal in Kansas over the years 1895 and 1896; in fact, this is the largest production of coal, except the year 1894, when the big strike was on in the East, that ever was produced in this state. The average selling price of coal at the mine is an increase of six cents per ton over 1896. A glance over the summary and wage table will show some very convincing facts, in connection with the miners and mine laborers of Kansas, as to the number of days worked and amount of wages earned during that time, and the average wages per miner and laborer for 310 days during the year in each county; it also shows the production of coal by counties, the value of all the mines as returned by the companies, the amount of powder used, the total amount of wages earned by all miners in the state and all under-ground day men and all over-ground day men, and much other matter of interest.

It will also be seen by the number of days the miners and mine laborers worked during the year that their wages are far too low to properly clothe and educate their children; not only is this true, but another fact, the more difficult it becomes for him to earn a livelihood and feed those dependent upon him, the more suspicious and jealous of his fellow workman he becomes, and as a result, in many instances, one man will take advantage of his fellow workman to increase his earnings, which gradually works injury to all. In addition, this report contains all the valuable information that the Mine Inspector was able to gather in connection with the mines, and it is so compiled as to make it as plain as it was possible to do; and one more very important fact, and one that is very gratifying to the Inspector, is the large per-centage of decrease in fatal and non-fatal accidents as compared with other years and the number of employees and amount of coal produced. Also, some recommendations that I hope will not be overlooked.

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PRODUCTION OF COAL BY COUNTIES.

Counties.	*Short tons.*	*Per cent.*
Crawford	1,590,620	48.32
Cherokee	1,061,409	32.24
Leavenworth	367,141	11.84
Osage	181,857	5.52
Brown	2,300	.07
Chautauqua	1,200	.03
Labette	2,000	.06
Republic	1,300	.04
Bourbon	28,483	.86
Lincoln	750	.02
Shawnee	804	.02
Franklin	6,452	.11
Lyon	835	.02
Ellsworth	1,427	.04
Elk	320	+
Russell	181	+
Atchison	5,152	.15
Linn	26,775	.81
Cloud	2,800	.08
Coffey	10,000	.30
Total	3,291,806	

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IMPORTS AND EXPORTS.

The following tables have been compiled from official returns to the bureau of statistics of the treasury department, and show the imports and exports of coal from 1867 to 1896, inclusive. The values given in both cases are considerably higher than the average "spot" rates by which the values of the domestic production have been computed.

The tariff from 1824 to 1843 was 6 cents per bushel, or $1.68 per long ton; from 1843 to 1846, $1.75 per ton; 1846 to 1857, 30 per cent. ad valorem; 1857 to 1861, 24 per cent. ad valorem; 1861, bituminous and shale, $1 per ton; all other, 50 cents per ton; 1862 to 1864, bituminous and shale, $1.10 per ton; all other, 60 cents per ton; 1864 to 1872, bituminous and shale, $1.25 per ton; all other, 40 cents per ton. By the act of 1872 the tariff on bituminous coal and shale was made 75 cents per ton, and so continued until the act of August, 1894, changed it to 40 cents per ton. On slack or culm the tariff was made 40 cents per ton by the act of 1872, was changed to 30 cents per ton by the act of March, 1883, and so continued until the act of August 1894, changed it to 15 cents per ton. Anthracite coal has been free of duty since 1870. During the period from June, 1854, to March 1866, the reciprocity treaty was in force, and coal from the British possessions in North America was admitted into the United States duty free.

The exports consist both of anthracite and bituminous coal, the amount of bituminous being the greater in the last few years. They are made principally by rail over the international bridges and by lake and sea to the Canadian provinces Exports are also made by sea to the West Indies, to Central and South America, and elsewhere.

The imports are principally from Australia and British Columbia to San Francisco, from Great Britain to the Atlantic and Pacific coasts, and from Nova Scotia to Atlantic coast points.

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MINERAL RESOURCES.

Coal imported and entered for consumption in the United States, 1867 to 1896.

Year Ending—	Anthracite.		Bituminous and shale.	
	Long tons.	Value.	Long tons.	Value.
June 30, 1867	.....	.....	509,802	$1,412,597
1868	.....	.....	394,021	1,250,513
1869	.....	.....	437,228	1,222,119
1870	.....	.....	415,729	1,103,965
1871	973	$4,177	430,508	1,121,914
1872	390	1,322	485,063	1,279,686
1873	2,221	10,764	460,028	1,548,208
1874	471	3,224	492,063	1,937,274
1875	138	963	436,714	1,791,601
1876	1,428	8,560	400,632	1,592,846
1877	630	2,220	495,816	1,782,941
1878	158	518	572,846	1,929,660
1879	488	721	486,501	1,716,209
1880	8	40	471,818	1,588,312
1881	1,207	2,628	652,963	1,988,199
1882	36	148	795,722	2,141,373
1883	507	1,172	645,924	3,013,535
1884	1,448	4,404	748,995	2,494,228
1885	4,976	15,848	768,477	2,548,432
Dec. 31, 1886	2,039	4,920	811,657	2,501,152
1887	14,181	42,983	819,242	2,609,311
1888	24,093	68,710	1,085,647	3,728,060
1889	20,652	117,434	1,001,374	3,425,347
1890	15,145	46,695	819,971	2,822,216
1891	37,607	112,722	1,363,313	4,561,105
1892	65,058	197,583	1,143,304	3,744,862
1893	53,768	148,112	1,082,993	3,623,892
1894	90,068	234,024	1,242,714	3,785,513
1895	141,337	328,705	1,212,023	3,626,623
1896	101,689	237,717	1,211,448	3,453,742

COAL.

Coal of domestic production exported from the United States, 1867 to 1896.

Year Ending—	Anthracite.		Bituminous and shale.	
	Long tons.	Value.	Long tons.	Value.
June 30, 1867	192,912	$1,333,457	92,189	$512,742
1868	192,291	1,082,745	86,367	433,475
1869	283,783	1,553,115	.....	.....
1870	121,098	803,135	106,820	503,223
1871	134,571	805,169	133,380	564,067
1872	259,567	1,375,342	141,311	586,264
1873	342,180	1,827,822	242,453	1,086,253
1874	401,912	2,236,084	361,490	1,587,666
1875	316,157	1,791,626	203,189	828,943
1876	337,934	1,869,434	280,144	850,711
1877	418,791	1,891,351	321,665	1,024,711
1878	319,477	1,006,843	340,661	1,352,624
1879	396,916	1,427,886	276,000	891,512
1880	392,626	1,362,901	222,634	695,179
1881	462,208	2,091,928	191,038	739,532
1882	553,742	2,589,887	314,320	1,102,898
1883	557,813	2,648,033	463,051	1,593,214
1884	649,040	3,053,550	646,265	1,977,959
1885	588,461	2,586,421	683,481	1,989,541
Dec. 31, 1886	667,076	2,718,143	544,768	1,440,631
1887	825,486	3,469,166	706,364	2,001,966
1888	969,542	4,325,126	860,462	2,529,472
1889	857,632	3,636,317	935,151	2,783,592
1890	794,335	3,272,697	1,280,930	4,004,995
1891	861,251	3,577,610	1,615,869	5,104,850
1892	851,639	3,722,903	1,645,869	4,999,289
1893	1,333,287	6,241,007	2,324,591	6,009,801
1894	1,440,625	6,359,021	2,195,716	4,970,270
1895	1,470,710	5,937,180	2,211,983	4,816,847
1896	1,350,000	5,925,506	2,276,202	5,072,818

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WORLD'S PRODUCT OF COAL.

In the following table is given the coal product of the principal countries for the years nearest the one under review for which figures could be obtained. For the sake of convenience, the amounts are expressed in the unit of measurement adopted in each country and reduced for comparison to short tons of 2000 pounds. In each case the year is named for which the product is given.

THE WORLD'S PRODUCT OF COAL.

Country.	Usual unit in producing country.		Equivalent in short tons.[3]
Great Britain, 1896	Long tons[1]	195,361,260	218,804,611
United States, 1896	"	171,416,390	191,986,357
Germany, 1896	Metric tons[2]	112,437,741	123,906,391
France, 1896	"	29,310,832	32,300,537
Austria-Hungary, 1895	"	32,654,777	35,985,564
Belgium, 1895	"	21,213,000	23,376,726
Russia, 1896	"	9,079,138	10,005,210
Canada, 1896	Short tons[3]	3,743,234	3,743,234
Japan, 1893	"	3,400,000	3,400,000
India, 1895	Long tons	4,441,890	4,974,917
New South Wales, 1895	"	3,737,536	4,186,040
Spain, 1896	Metric tons	1,878,399	2,069,996
New Zealand, 1894	Long tons	719,546	805,892
Sweden, 1895	Metric tons	223,652	246,464
Italy, 1895	"	305,321	336,563
Transvaal, 1895	Long tons	1,152,206	1 290,471
Queensland, 1895	"	322,977	361,734
Victoria, 1895	"	194,171	217,472
Natal, 1895	"	153,951	172,425
Cape Colony, 1895	"	87,985	98,543
Tasmania, 1895	"	36,856	41,279
Other countries			2,240,000
Total			660,550,426
Percentage of the United States			29.06

1. Long ton=2,240 pounds, United States.
2. Metric ton=2,204.6 pounds, United States.
3. Short ton=2,000 pounds, United States.

In the pages following will be found a statement of the production of coal in the more important producing countries since 1868. This statement is interesting as showing the remarkable development of the industry in the United States. In 1868 this country produced only 14.35 per cent. of the world's total. Great Britain's output was more than 3.6 times that of the United States, and more than half of the world's total. Germany's product was nearly 15 per cent. more than that of this country, and more than 15 per cent. of the total output in the world. France produced nearly half as much as the United States.

The table shows that in 1896 this country produced 29.06 per cent.

of the world's total, while Great Britain's output was only 14 per cent. more than that of the United States. Great Britain's percentage of the total in 1896 was 33. Germany increased her percentage from 15 in 1868 to 19 in 1896, but her total was only 65 per cent. of that of the United States. The output of France was only 5 per cent. of the total in 1896, and about one-sixth of that of the United States.

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KANSAS COAL-MINES.

CRAWFORD COUNTY.

This county is at present, and has been for years, by far the largest coal-producing county in the state. During the past year it gave employment to 3138 men and 48 boys. All of the mines produced 1,590,620¾ short tons, valued at the mine at $1,566,761.44, or about 49 per cent. of the entire product produced in the state. There are 36 mines in actual operation in this county, and about 20 strip pits. All mines in the county worked an average of 120 days, and used 87,272 kegs of powder, or 2,181,800 pounds of powder, valued at $174,544. Now when you add expenses for blacksmithing, oil, and tools, it runs the individual miner's expense in the county up to $93.38 or 25.55 per cent. of his gross earnings for expenses, leaving him an average of $226.83 for the days the mine worked, and an average for the year of 310 days of 87.8 cents per day. The mines loading railroad coal worked more days than the mines loading commercial coal. This average reduces the wages of the miner in the mine that loads railroad coal, and raises the wages of the miner who works where they load only commercial coal. Also, I want to add that the miners work many days preparing coal and doing other work, when the mine is not hoisting coal, getting ready for the day that the mine does hoist coal. Underground day men earned an average of $240 for the number of days the mine worked, and an average for the 310 days of 77.4 cents per day. Over-ground men earned an average of $177.60 for the number of days worked, or an average for the 310 days of 57.29 cents per day. Now, as seen from the above figures, and the number of days worked, and the amount of money earned by the miners and the day men, it is very plain to the average man that the miner and the day man, in order to pay rent and support a family, must necessarily practice the most rigid economy or go in want a part of the year, as many families do.

INSPECTION OF MINES.

Mine No. 1 belonging to the Mt. Carmel Coal Company is located at Frontenac and connected with the A. T. & S. F. railway. This is one of the largest mines in the state. It is equipped with the very best machinery, and plenty of steam power. Size of main shaft is 15 x 7 feet; size of air-shaft is 7 x 11 feet; size of fan is 5 x 15 feet; number of revolutions fan is run per minute, 70; manway in air-shaft

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and a good traveling road leading to the bottom of the mine. This mine gave employment to 335 miners, 83 day men, and 3 boys; worked 263 days during the year and produced 315,695 tons of coal. Mine is opened up on what is known as the double-entry system; main entries are opened east and west, cross-entries north and south, and every 1200 feet parallel east and west entries are made and north and south entries turned off of them; and as fast as these parallel entries cut off the cross-entries they are then made the air-course, throwing the air on the face of the new workings, leaving the air in a better condition for the health of the miners than if it had continued passing through all the old workings. This method of working a mine shortens the distance the air has to travel many thousands of feet, and is a saving of hundreds of feet of tracking, and also a shortening of their haulage roads, as against traveling through and hauling coal on all of the cross-entries, and is an improvement over other methods for taking coal out where the mine is large and the worked-out area is large. A small volume of air is taken from the main volume and allowed to pass through the old blocks of work cut off by the new parallel entries, which carries back to the returning air-course all black damp and gases generating in the old workings, and keeps the same from mixing with the air going into the face of the new workings. The average thickness of the coal-vein is 3 feet 6 inches. The number of men employed at the time the Inspector visited the mine was, miners, 400; day men, 57; boys, 4; number of men working above ground, 18. Buildings are all in good condition. Kind of screens used, gravity and revolving; a good large run-around for men and cars at bottom of shaft; self-dump cages; blacksmith shop on bottom of mine for sharpening miners' tools and shoeing mules; stables for mules on both sides of the shaft. All boys who are given work in the mines must furnish a certificate showing that they have attended school three months out of the year. The main shaft is a downcast. Main volume of air is divided into four quarters at the face of main east and west entries. As this mine contains about twenty cross-entries on each side of the main entry, a small amount of air is taken from the main volume at each of these cross-entries and allowed to pass through the interior of the mine, along the brushed roadway to the face of the workings, and then returns back through the old workings to the air-course leading to the upcast. The area of this mine is large; it is opened up for over one and one-half miles. The men in charge of this mine manifest a commendable desire to keep the mine in a good and healthy condition. While the current of air at the working-face was not as strong as the Inspector would like to have seen it, what air was passing was pure, all the black damp and gases that accumulated in old works being carried back to return air-course,

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and not allowed to mix with fresh air going to working-face. The reason the air was not as strong at working-face as it is in newer mines was, a large per cent. of air going into the mine had to be used through the old workings, to dilute and carry off all black damp and gases that accumulated in the old works. All roads in this mine are in good condition. The mine is entirely dry. The company uses two men watering entry roads every night. In fact, it would be better if it were not so dry. This mine could use mechanical haulage on west side of mine to a good advantage, for they have double track and good roads. Henry Wilson, superintendent; Edward Flynn, mine boss. Joseph Fletcher, successor to Henry Wilson.

Mine No. 4 belonging to the same company is located at Chicopee and connected with the A. T. & S. F. railway. This mine was abandoned and closed down indefinitely in January, but gave employment a part of the year 1897 to 150 miners, 21 underground day men, and 10 men above ground. Number of days mine worked, 10; produced 5022¼ tons. All machinery and buildings have been taken down and moved away.

Mine No. 5 of the same company is located at Chicopee and connected with the A. T. & S. F. railway. This is a new mine, and is one of the best-equipped and opened-up mines in the state. Main shaft is 9 x 24 feet; air-shaft, 9 x 14 feet; depth of shaft, 90 feet; size of fan, 5 x 15 feet; number of revolutions fan was run at time of Inspector's visit, 51; manway in air-shaft. It has a large and roomy traveling way for the miners to ascend and descend. This mine gave employment to 200 miners, 26 underground day men, 18 men above ground, and 3 boys; worked 222 days during the year and produced 154,799 tons of coal. It is opened up on the latest improved system of room-and-pillar double-entry work; main entries open east and west; cross-entries north and south; brushed air-course on each side of main entries east and west; parallel entries to main east and west entries every 1200 feet; main shaft is downcast. The air in the mine is quartered at the head of the main east and main west, making four fresh currents of air passing through the mine, or a separate current for each quarter of the mine. Average thickness of coal-vein, 3 feet 6 inches; number of men employed at the time of the Inspector's visit, 210 miners, 15 day men, 4 boys. Buildings were all of the latest and substantial pattern, and all well spaced off — a good protection against fire. This mine is equipped with gravity and revolving screens; slack is elevated up into a separate building and dumped into a revolving screen. Also, this mine is equipped with the best machinery, and a large double hoisting engine of 400 horse-power; three large boilers, 30 feet long, 5 feet in diameter, single flues, cold-water pressure 150 pounds. The Inspector traveled through this

mine accompanied by Joseph Fletcher, who was at that time inspector of mines for the Mt. Carmel Coal Company, and found all roads in good condition and the mine well ventilated, except a couple of entries where break-through had not been connected up, on account of fault in the coal in that particular place. These places were being worked double, in order that connections might be sooner made, and Mr. Fletcher stated that in a few days they would be connected. Also, this mine passed through a fault of 650 feet on the west side, which was very expensive to drive through, and made it hard to make break-throughs until after they got beyond the fault, which they had just passed through, and were making the last break-through inside of the same, making all connections then complete in the mine, and the mine in good sanitary condition. Pete McCall, mine boss. Henry Wilson, superintendent.

An explosion took place in this mine No. 5, belonging to the Mt. Carmel Coal Company, upon the evening of January 8, 1898. This catastrophe took the lives of three of the six shot-firers, who were at work in the mine firing shots at the time of the explosion, and also completely wrecked the mine under ground as to overcasts, stoppings and doors for a distance around the center of the interior of the mine of about 750 feet, and tore the roof off the fan house and spread the sides of the same; also, more or less wrecked and damaged the pit head of the shaft. This same catastrophe was made the subject of the most rigid and thorough inquiry by men of every kind and degree — men of scientific attainments and men of lifelong experience in the practical workings of a coal-mine; also, the search-lights of three coroners and a jury were turned upon many witnesses in the witness-box, to show, if it was possible, the cause of the catastrophe that caused the loss of the three men's lives who were shot-firing the night of the explosion. After a careful examination of this mine on the Monday morning after the explosion, the Inspector, accompanied by a number of others, was not able to find any fire-damp in the mine, though he traveled in and out of many rooms in different parts of the mine, and into most likely places for fire-damp to accumulate. After working with a safety-lamp for some time he abandoned the use of it, and finished the examination with naked light. Now, I invite all intelligent and unprejudiced miners to carefully read the testimony of the men who testified at the coroner's inquest, which was held on the 9th and 10th of January, 1898, at Chicopee, and then let them judge as to the cause of the explosion; and if they will stop and think they will see that all of the catastrophes that have occurred in the mines in Kansas occurred about the same time in the year, and in new mines, where ventilation was of the best, and when the barometer was low; and, in all cases where practical miners and experienced men were

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able to trace it, the explosion started from a gunning shot, or, as some say, a blow-out shot. In proof of this, I will take the mines where the area mined out is large, and the temperature of the mine at working-face about even. I quite often hear of a shot-firer getting slightly burned or getting a good scare from a windy shot or blow-out shot. Now, it is the opinion of the Inspector, based upon practical results, that the low barometer and extreme temperatures which the windy or blow-out shot comes in contact with has a great deal to do with the explosions, intensified by the coal-dust gathered as the explosion spreads. The Inspector and the witnesses who testified before the coroner's jury at Chicopee have been criticized by men who never were in the mine up to the time of the explosion; in fact, did not live in the county at the time that it occurred. This explosion occurred in 1898, and is not by law expected to be in this report; but it may be of great importance in getting the shot-firing law amended, that the public get all the details in connection of the same, and so help guard against a recurrence of the same. Also, for the benefit of those interested, the map facing page 16 will explain the underground workings of the mine up to the date of the explosion.

Mine No. 2 of the Wear Coal Co. is located south of Pittsburg, in a mining camp known as Kirkwood. This mine gave employment to 110 miners, 19 underground day men, 10 men above ground, and 2 boys; worked 225 days during the year and produced 87,461 tons of coal. This mine is a shaft opening, equipped with mechanical ventilation; good double engine for hoisting coal. Size of main shaft, 6 x 14 feet; size of air-shaft, 5 x 5 feet; size of fan, 4½ x 12 feet; speed of fan, 70 revolutions per minute. Two large boilers furnish steam for the plant. This mine has three pump shafts, sunk on three different sides of the mine, for the purpose of pumping water out of it, and uses what is known as the Chinese belt pump. The air-shaft of this mine is too small to properly ventilate the mine. This mine is equipped with a slope, which is used as a traveling road for men and mules. This mine is opened up on the double-entry system; main entries run east and west, cross-entries north and south. Average thickness of coal-vein, 3 feet 6 inches; number of miners employed at the time of the Inspector's visit, 125; number of day men under and above ground, 24. All buildings around this mine are in good condition; mine equipped with self-dumping cages, gravity and revolving screens. No boys under twelve years of age allowed to work in the mine; all boys over twelve and under sixteen years must furnish mine boss with certificate showing that they have attended school three months during the year. Roads in this mine are poor on account of the mine making so much water; the only way roads can be kept up is by corduroying with props and ditching alongside of the road,

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which was being done with first south off of first east entry at the time of Inspector's visit. Air in this mine was fair in most of the entries; a few short slants and a couple of short single entries in which air was a little light. Mr. Kirkwood said he would see to it that the air in those places would be made equal to the rest of the mine. Fifth north entry off of main west had taken a squeeze for a distance of six rooms or about 200 feet. This was being brushed through and timbered at the time of the Inspector's visit. The cause of this squeeze was a horseback running parallel with the entry for that distance, cutting the roof off on the entry pillar, and room pillars were too small to support the weight. There was one bad system practiced at this mine, which is also practiced in many others: the miners go into the mines through these pump shafts upon idle days and fire their own shots. Mr. Kirkwood stated that he never gave them any authority to do so; that he furnished shot-firers on the days that the mine worked, and if they did not produce coal enough for him he would then furnish them on idle days; but as he usually had more coal in the mines loose than they got out on the days that the mine hoisted, and they did not need extra coal, consequently they did not need shot-firers on idle days; and the men who usually fired shots on idle days were men who had difficult places or were brushing up entries. I brought this violation of law very strong on Mr. Kirkwood, and told him that he could stop it if he would do so, which he did by writing a notice, notifying all men working in the mine that the first man that fired his own shot would be discharged; also notified his day men to report to him any violation of that law; and from then on it put a damper on the violation of the shot-firing law. This is one of the best laws the miner ever had; it cost the miners hundreds of dollars and several small strikes, and the sacrifice of a number of their fellow men's lives, before they were able to have a law passed compelling all coal companies to furnish shot-firers to fire the shots, and the miner ought to be the last man to violate the law. In all cases the Inspector has made no exception in this matter, but has talked with the men and urged the companies where the men continue to do so to take a hand in this matter and see that the law was enforced; they could put an end to the violation of the shot-firing law at once. But in many instances the companies' officials, not directly but indirectly, are parties to the practice of the violation of the shot-firing law, by leaving squibs in the engine-room and other convenient places, and know that the men are carrying them off and using them, and do not protest againt it. The Inspector is glad to state that Mr. Kirkwood did put a stop to that practice in his mine. J. T. Kirkwood, mine boss. Archie Kirkwood, superintendent.

Mine No. 5 belonging to the same company is located northeast of

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Pittsburg and connected with the Mo. Pac. and A. T. & S. F. railways. This mine is a shaft opening, equipped with good machinery and mechanical ventilation, and gave employment to 110 miners, 15 underground day men, 2 boys, and 12 men above ground; produced 83,535 tons of coal and worked 234 days during the year. Size of main shaft, 10 x 5 feet; size of air-shaft, 8 x 8 feet; size of fan, 3 x 10 feet; speed of fan, 100 revolutions per minute; depth of shaft, 48 feet. There are two other shafts, and a manway in all three of them; the principal manway in first air-shaft. The mine was opened up on the single-entry system, but, after becoming the property of this company, changed to the double-entry system; main entries were formerly opened east and west, but changed to the north. Average thickness of coal-vein, 40 inches; number of miners employed at the time of Inspector's visit, 107; day men under and over ground, 24; boys, 2; buildings all in good condition; shaker screen for screening coal; run-around at bottom of shaft for employees to pass from one side to the other without crossing the cage. Roads all in good condition except two entries upon west side, and they are about up to boundary line. Straight cages in use. No boys hired under twelve years of age, and all boys over twelve and under sixteen years must furnish certificates showing that they have attended school three months out of the year. Inspector traveled through this mine accompanied by the mine boss, Wm. McKinley, and expected to find it in poor sanitary condition, as the Inspector had been informed that the mine was poorly ventilated, and that the miners were suffering from lack of proper ventilation; so he made a close and careful examination, and found the mine in fair condition. There were a couple of short entries along the boundary lines that were being driven upon the single-entry plan, one coming to meet the other; in these the air was poor. The miners who worked in there said they would come together in about thirty feet more; that would then make a straight air-course along that side of the mine and shorten the traveling of air several hundred feet. The miners informed the Inspector that had he visited the mine two months earlier he would have found the sanitary condition of the mine poor, as it had been formerly worked upon the single-entry system, and until they got connected up and the change made the sanitary condition undoubtedly was poor. Inspector told the miners that two months earlier was ahead of his time. The change for the better was brought about by the untiring work of Wm. McKinley, mine boss, who labored against many disadvantages until he got connections made and the air up to the working-face. Wm. McKinley, mine boss. Archie Kirkwood, superintendent.

Mine No. 6 belonging to the same company is located north of

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Pittsburg and connected with the A. T. & S. F. railway. This mine gave employment to 70 miners, 12 underground day men, 2 boys, and 9 men above ground; worked 78 days during the year and produced 20,482 tons of coal. This is a shaft opening with mechanical ventilation; depth of main shaft, 50 feet; size of main shaft, 6 x 13 feet; size of air-shaft, 6 x 12 feet; sixe of fan, 4 x 14 feet. This mine has a model fan, one of the best in use, but it is set square over the air-shaft, which is a very poor plan; a good and roomy manway in air-shaft. This mine was employing 65 miners and 2 boys, and 20 day men under and above ground, at the time of the Inspector's visit. The Inspector traveled over the mine accompanied by John Kirkwood, mine boss, and found the sanitary condition of the mine on the west side poor, on account of return air-ways being too small. This mine had been idle for a long time, and the back entries' air-course was not brushed, and had heaved up until it was too small to receive the volume of air necessary to ventilate the mine. Mr. Kirkwood is an aged man, and felt badly because the sanitary condition of his mine was so poor, but stated to the Inspector that in one week he would have the south side connected, and in two weeks the west side connected, as he was pushing an air-course through and intended to brush the same, so that when I came back again I would not find his mine in such poor condition. When these connections are made he will have no trouble in ventilating his mine. Inspector requested Mr. Kirkwood to change the men working in the head of the main west entry until south side connections were made, which he agreed to do. Roads were all in good condition except two entries on the north; these were dry and dusty. Mr. Kirkwood stated he had ordered them cleaned up and watered, and that he would see that it was done. Average thickness of coal, 38 inches. The mine is equipped with gravity and revolving screens; straight cages in use. No boys hired under twelve years of age; all boys over twelve and under sixteen years of age must furnish a certificate showing that they have attended school three months out of the year. Machinery all in good condition; a light double hoisting engine of about 34 horse-power; one large shell boiler, 40 feet long by 4 feet in diameter, which furnishes ample steam to run all machinery. Buildings all in good condition. John Kirkwood, sr., mine boss. Archie Kirkwood, superintendent.

Mine No. 2 of the Western Coal and Mining Co. is located at South Fleming and connected with the Mo. Pac. railway. It gave employment to 116 miners, 13 boys, 18 underground day men, and 10 day men above ground; worked 174 days during the year and produced 75,307 tons of coal. This is an old and very extensive mine, the worked-out

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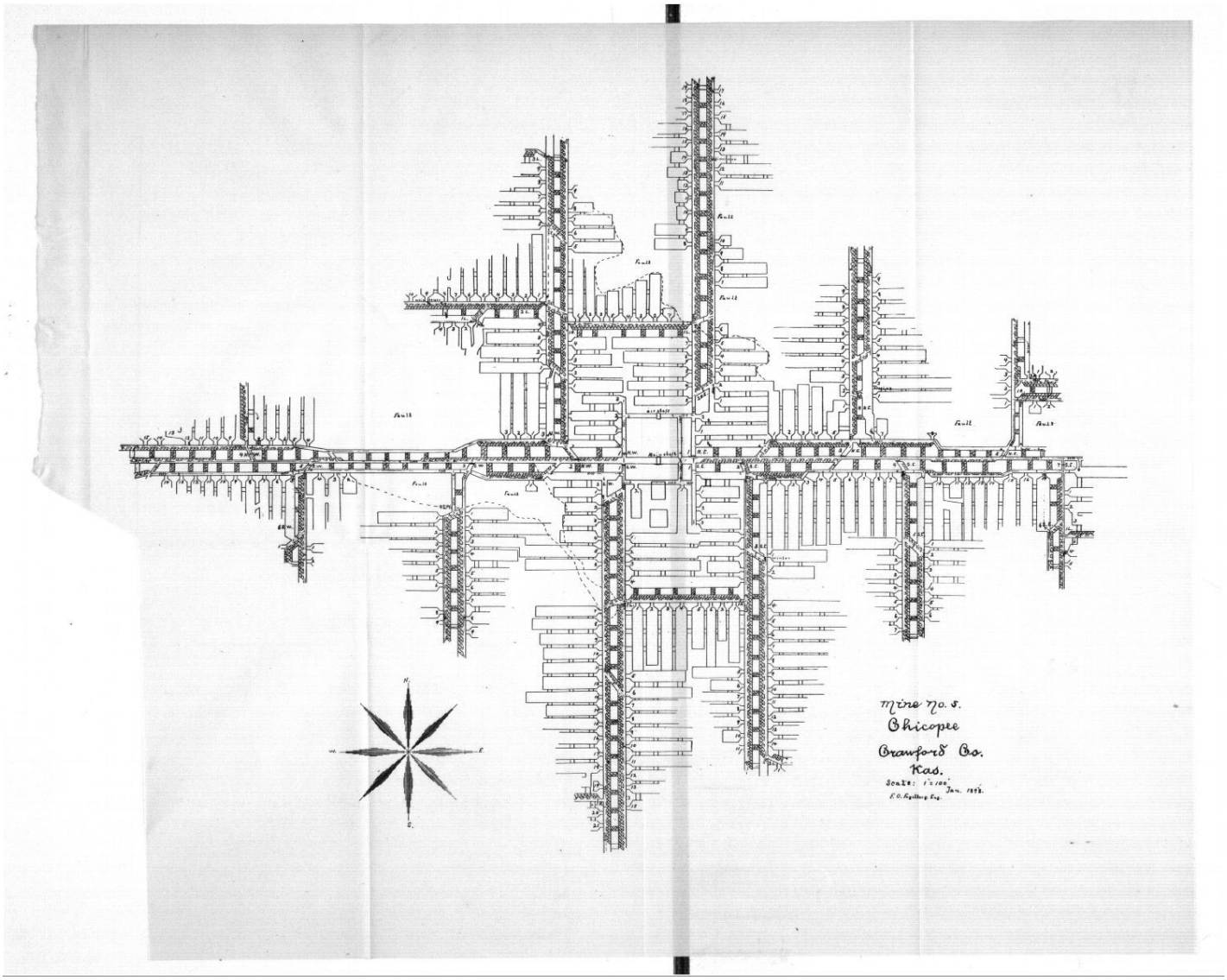

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area being very large. Size of main shaft, 6 x 10 feet; size of air-shaft, 5 x 5 feet; size of fan, 3½ x 10 feet. This air-shaft is too small to handle the volume of air that is necessary to properly ventilate the mine, or, in other words, bring it up to the standard that it ought to be. Philip Roeser, mine boss, stated to the Inspector that it was the intention of the company, if they continued to work this mine, to make the sanitary condition of the mine all right by sinking a new air-shaft, and, beginning at bottom of main shaft, to brush two main roads east and west to working-face, and cut off all of the old workings and open up new in the solid face, and also put in mechanical haulage. As the underground workings of this mine are large, and the air is poor in many places at working-face, it is necessary that something should be done to place this mine in a proper sanitary condition. Since the Inspector visited the mine I am told that these changes will be made. This mine is equipped with good machinery; a light double engine of about 50 horse-power; one brace of boilers; buildings all in fair condition; gravity and revolving screens in use. No boys hired under twelve years of age; all boys over twelve and under sixteen years of age must furnish a certificate showing that they have attended school three months out of the year. Philip Roeser, mine boss. Archie Craig, superintendent.

Mine No. 3 belonging to the same company is located at Fleming and connected with the Mo. Pac. railway. It gave employment to 40 miners, 6 underground day men, and 7 day men above ground; worked 30 days and produced 5884 tons of coal during the year. The work done in this mine was done early in the season, and then it was closed down, but is again being put in operation. John Mooney, mine boss. Archie Craig, superintendent.

Mine No. 4 belonging to the same company is located northeast of Yale and connected with the Mo. Pac. railway. It gave employment to 138 miners, 17 underground day men, 2 boys, and 10 day men above ground; worked 155 days and produced 87,574 tons of coal during the year. This mine is opened by shaft; steam power; mechanical ventilation. Size of main shaft, 12 x 6½ feet; size of air-shaft, 9½ x 6 feet; depth of shaft, 6 feet; size of fan, 4 x 12 feet; speed of fan, 70 revolutions per minute; manway in both main and air-shafts. This mine is opened up on the double-entry system; main entries run north and south, cross-entries run east and west; buildings were all in good condition; gravity and revolving screens in use; run-around at bottom of shaft for employees and pit cars to pass from one side to the other without passing under the cage. Average thickness of coal vein, 34 inches. Roads in good condition. Mine equipped with self-dumping cages. No boys allowed to work in the mine under

twelve years of age, and all boys over twelve and under sixteen years of age must furnish a certificate showing that they have attended school three months out of the year. The air is divided into four quarters in this mine. The Inspector found that in the west quarter upon south side of mine the air was light; also, in east quarter upon north side. This was caused by making or extending a parting or double track, and taking out all of the pillar for about 200 feet, and the filling in and building a wall of loose rock, from the roof that had been brushed down. The air was losing through this loose and open wall and returning back to the upcast shaft. Mr. Roberts, mine boss, satisfied the Inspector that in about two or three weeks he would have a connection through from second to third east entries, and that would cut this leakage off and carry the air through its new connections. The trouble on the southwest quarter was caused by east quarter being shorter to upcast and more roomy than west quarter for the air to travel in. This Mr. Roberts agreed to have regulated at once. The Inspector also finds air light at the face of some of the other entries; cause, not being connected up close enough to working-face by break-throughs. This Mr. Roberts agreed to take care of just as soon as the miners could make connection. The Inspector suggested to Mr. Roberts that he had better stop work on the face of those entries and throw all the work on the break-throughs until they were connected, and see that all connections in the future were made in proper distances, or something close to it. This mine is also equipped with mechanical haulage in the way of a tail rope, which is laid in the main north entry 940 feet; then into east cross-entry 1620 feet, west cross-entry 1740 feet; making the length of the haulage from bottom of main shaft to the end of east cross-entry 2560 feet; to the end of west cross-entry, 2680 feet. Main rope is three-eighths of an inch thick, of steel wire; cross-entry rope half inch thick. A trip is made to either end of cross-entries in seven minutes, with twenty-five loaded mine-cars, an electric bell being used as a signal to start and stop the same. A switch-board is used for connecting cross-entries with main-entry haulage rope. Everything in connection with this haulage rope seemed to work smoothly and give good satisfaction. Edward Roberts, mine boss. Archie Craig, superintendent.

Mine No. 6 belonging to the same company is located north of Yale. At the time of the Inspector's visit it was closed down indefinitely, and had been since October, 1896. Rails and iron all pulled out. Archie Craig, superintendent.

Mine No. 7 belonging to the same company is located southeast of Fleming and is connected with the Mo. Pac. railway. It gave employment to 176 miners, 2 boys, 9 underground day men, and 9 over-

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ground day men; worked 184½ days and produced 72,084 tons during the year. This is a new mine, and is equipped with all the latest improved machinery; buildings are all new and are of the best; all spaced off a good, reasonable distance, which is a great protection against fire. This mine is also equipped with a large double hoisting engine of about 170 horse-power; mechanical ventilation; also a machine-shop, with lathes, drills and saws for making all of their own iron and sawing out lumber, making everything ready for putting up a mine-car at the mine. Size of shaft, 8 x 13 feet; size of air-shaft, 8 x 13 feet; size of fan, 4 x 16 feet; depth of shaft, 75 feet; a large and roomy manway in air-shaft; brushed road for miners to travel from east and west side of main shaft to the air-shaft. This mine is opened up on the double-entry system; main entries east and west, cross-entries north and south. Average thickness of coal-vein, 42 inches. Number of miners employed at the time of the Inspector's second visit, 170; day men combined, 18. This mine is also equipped with self-dumping cages, gravity and shaker screens, a large and roomy run-around in bottom of shaft for employees, mules and mine-cars to pass from one side of the shaft to the other without crossing over or under the cage. Roads in this mine all in good condition. No boys hired under twelve years of age; all boys over twelve and under sixteen years of age must furnish a certificate showing that they have attended school three months out of the year. This mine is equipped with two large steel boilers, 60 inches in diameter, 23 feet long. Each boiler has 18 six-inch flues; also, there are four separate fresh currents of air passing through the mine. On my first visit doors in this mine were not up, for the reason that it was so close to the working-face that the shots would jar them to pieces, and curtains were substituted instead. On my second visit all doors were up in good shape, all connections made, and the sanitary condition of the mine was practically good. Overcasts at bottom of mine large and roomy; traveling roads for the employees leading to the manway brushed 6 feet high. In fact, this is one of the best manways for miners to descend into and ascend out of the mine that there is in the state at the present time. In addition, this mine has a large warehouse and a granary stationed off at a reasonable distance from other buildings; also water-pipes, and water plugs stationed at irregular places among the buildings and upon the top of the pit heads; these are all connected and attached to their water pumps; also, the same are run down into the mine and into the mule stable. Every precaution is taken to guard against fire. Fan house at this mine is one of the best in the state; it is so constructed that in case of an explosion one side of the fan house would become detached without injuring the fan or fan house, and could be boarded

up again in a few minutes in case of accident from explosion, so as to be able to start ventilation into the mine. Taking everything into consideration from a practical standpoint, this is one of the best-equipped and systematized mines in the state. Also, they have sunk an artesian well, and are piping the water over the mining camp, so that the miners and their families will have pure and healthy water, instead of, as is done in many camps, having to use water for two or three months in the dry season of the year out of strip pits and old ponds, which are full of decayed vegetable matter and very injurious to the miners and their families, causing a great deal of sickness. J. C. Gardner, mine boss. Archie Craig, superintendent.

Mine No. 20 belonging to the Kansas & Texas Coal Company is located one and one-half miles south of Pittsburg, on the St. L. & S. F. railway. It gave employment to 91 miners; all other employees, 20; worked 190½ days and produced 80,168 tons of coal during the year. This is a shaft opening with mechanical ventilation; machinery in fair condition; buildings were only in fair condition. Size of main shaft, 7½ x 15 feet; size of air-shaft, 8 x 8 feet; size of fan, 3½ x 12 feet; speed of fan, 100 revolutions per minute; manway in main shaft. Mine opened up on double-entry system; main entries north and south, cross-entries east and west. Average thickness of coal-vein, 40 inches. Gravity and shaker screens in use, constructed for making five different grades of coal; run-around in bottom of shaft, for employees and mules to pass from one side to the other without crossing under or over the cages; this mine is also equipped with a light double hoisting engine; three shell boilers, 44 inches in diameter; two of them 28 feet long and one of them 24 feet long. General sanitary condition of this mine poor. Inspector found the roads in this mine in very poor condition, many of them being covered with mud and water from one end of the mine to the other. Mr. Barrowman stated to the Inspector, as the reason of this bad condition of roads, that the mine was making a large amount of water by leaks from breaks from the surface; also, that they were getting ready to close down the mine indefinitely, and they were only finishing up the small pieces of coal in the extreme parts of the mine. Air in this mine over the parts that were being worked was in fair condition. Inspector found that in two places the air was poor on account of brattice being down. Mr. Barrowman gave orders to have this attended to at once; also stated that the mine would be worked out before the end of the year, as it was becoming too expensive from an oversupply of water, which was destroying every road in the mine, and it would not pay to continue it on; from present indications it will not be worked out until fall. John Barrowman, mine boss. Floyd Doubleday, superintendent.

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Mine No. 37 belonging to the same company is located northwest of Litchfield and connected with three different railroads — St. L. & S. F., K. C. & F. S. & M., and Mo. Pac. This mine gave employment to 114 miners, and 39 day men under and above ground; worked 127 days and produced 76,916 tons of coal during the year. This is a shaft opening; mechanical ventilation; equipped with a light double hoisting engine; gravity and shaker screens for cleaning coal. Size of main shaft, 8 x 16 feet; size of air-shaft, 8 x 10 feet; depth of shaft, 65 feet; size of fan, 3½ x 12 feet; speed of fan, 100 revolutions per minute; manway in main shaft. This mine, at Inspector's visit, was in operation and one-half of the employees were colored. This mine was opened up on the single-entry system, but changed to double-entry system. Main entries are supposed to run east and west, but they are so crooked that it is hard to tell how they do run. Coal-vein averages 38 inches in thickness; buildings are in fair condition; run-around at bottom of shaft for employees to pass from one side to the other; part of the roads in this mine are in fair condition, and in the other part of them the mules can hardly find the bottom, they are so muddy. The sanitary condition of the mine is poor at all working-faces. William Edgely, mine boss, stated to the Inspector that he had a dozen day men at work on the air-courses, and in a couple of weeks he expected to have the ventilation in the mine in good condition. The cause of this poor sanitary condition was that the mine had been opened up on the single-entry system, and at the time of the Inspector's visit was changing to double-entry system and connections were not made, and return airways were too small. The Inspector finds that two of the mining laws were entirely ignored at this mine; namely, the shot-firing law and the law regulating the amount of powder that shall be taken into the mine at one time, which is 12½ pounds. At this mine whole kegs were taken in by nearly every miner in the shaft. The Inspector examined twenty of the miners' tool-boxes, and found squibs in bottles in nearly every box, and in some full kegs of powder. These squibs were used for the purpose of firing shots upon idle days. Some of the white miners seemed to be honest in the matter in connection with the full kegs of powder. They stated to the Inspector that powder was given out to them by the full keg; and while they had a separate building spaced off for each man to leave half of his keg of powder in, whenever they did so and went back after the remainder of their powder it was usually gone, and nobody knew who took it. That being the case, the Inspector did not feel like blaming them very much. The general indication was it was a kind of go-as-you-please shaft; few rules enforced, and a general all-around violation of the general customs and rules. The Inspector came out on top at noon, knowing that powder

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would be given out, and requested Mr. Edgely, mine boss, to say nothing as to his presence, and to proceed with the usual method of handing out powder, as they did when the Inspector was not there. About thirteen miners got powder, all a full keg each, and went over to the miners' powder house, made a hole in the keg, put a corn cob or some old hay into it, and then started to carry it down into the mine, when the Inspector met them and stopped them, by calling their attention to the mining law that prohibited the taking of more than 12½ pounds of powder at one time into the mine; then they went back, hunted up old rusty powder cans and kegs, and tried to divide up their powder, and managed to get the bulk of it into the mine, by getting disinterested parties who did not come out for powder to carry a part of it into the mine for them. Now, Mr. Edgely knew that he had a crowd of men that were dishonest with each other; they would steal each others' tools, also each others' dinners, as many come to the mine without any dinner; in fact, they would steal anything that was loose. This being the case, the Inspector told Mr. Edgely that if he could not protect the honest men with their powder he had better make arrangements to only give out 12½ pounds at one time; also that squibs were left in the engine-room, and it was a well-understood fact that the miners were carrying them off and using them; and when I called Mr. Edgely's attention to that fact he said he could not help it, as the miners would steal the squibs. In answer the Inspector stated, "Yes, and when one box of squibs was stolen you managed to have another box put in the same place," and it was generally understood that they could get squibs whenever they wanted them, and nobody protested against them taking the squibs. The Inspector told Mr. Edgely that this all-around, go-as-you-please violation of the mining law had to cease, and that if he did not attend to it, and put a stop to it wherever he could, the Inspector would have the whole outfit arrested, including the mine foreman, as a party to the violation of the mining laws; since then Mr. Edgely has done better. Wm. Edgely, mine boss. Floyd Doubleday, superintendent.

Mine No. 1 belonging to Arnott & Co. is located northeast of Pittsburg and is connected with the A. T. & S. F. and K. C. P. & G. railways. This mine gave employment to 75 miners; underground day men, 11; over-ground day men, 10; worked 227 days and produced 55,361 tons of coal during the year. This is a shaft opening; mechanical ventilation; size of main shaft, 7 x 14 feet; size of air-shaft, 8 x 8 feet; depth of shaft, 50 feet; size of fan, 3 x 10 feet; speed fan operated, 65 revolutions per minute; manway in air-shaft. Mine opened up on the double-entry system; main entries north and south. Average thickness of coal-vein, 40 inches. Buildings were all in fair condition; gravity and revolving screens in use; all machinery in good condition;

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light double engine, of about 60 horse-power; one boiler, 44 inches in diameter by 18 feet long. All roads in the mine were in good condition but two; these were wet and very muddy. Mr. Arnott, mine boss, stated to the Inspector that these haulage roads were about to the line, and in a few weeks the track would be pulled out of them and they would be abandoned. The Inspector traveled through this mine, accompanied by Mr. Arnott, and found the air light in many places. The cause was poor curtains where there ought to have been stoppings, and in other places curtains where there ought to have been doors. When Mr. Arnott's attention was called to the fact he agreed to have it attended to at once, and have all connections made and air conducted to working-face. No boys hired under twelve years of age; all boys over twelve and under sixteen years have to furnish a certificate showing that they have attended school three months out of the year. Since writing the above the Inspector has learned that the sanitary condition of the mine is better. David Arnott, mine boss and superintendent.

Mine No. 4 belonging to the Pittsburg & Midway Coal Company is located one-half mile northwest of Midway and connected with the St. L. & S. F., A. T. & S. F., and K. C. F. S. & M. railways. This mine gave employment to 150 miners, 4 boys, 16 underground men, and 11 over-ground men; worked 176 days and produced 100,036 tons of coal during the year. This mine is a shaft opening; mechanical ventilation; equipped with a large double hoisting engine, self-dumping cages, and all the latest improvements for handling coal rapidly. Size of main shaft, 8 x 13½ feet; size of air-shaft, 8 x 8 feet; depth of shaft, 75 feet; size of fan, 3½ x 12 feet; speed of fan, 70 revolutions per minute; manway in air-shaft Mine opened up on the double-entry system; main entries east and west, cross-entries north and south. Average thickness of coal-vein, 38 inches. Buildings were all in good condition; gravity and shaker screens in use; run-around at bottom of shaft for employees to pass from one side of the shaft to the other without going over or under the cages. All roads but one in the mine are straight, roomy, and in good condition. The Inspector traveled all over this mine, accompanied by Mr. Jones, mine boss, and found the mine in good sanitary condition. Three of the back entries needed doors where curtains were hanging. Mr. Jones stated that he had the doors already made, and had the Inspector been about three days later in visiting his mine, or should he come back in three or four days he would find the doors where the curtains were now hanging. This mine is in fine shape to produce a large amount of coal. The first north entry upon the east side of shaft is in a good distance, and has a great deal farther to go, and is as straight as a line could be drawn. Mr. John Morrison, superintendent for this company, stated