

EIGHTH BIENNIAL REPORT  
OF THE  
MINE INSPECTORS

TO THE  
GOVERNOR OF THE STATE OF IOWA

FOR THE  
TWO YEARS ENDED JUNE 30, 1897.

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JAMES A. CAMPBELL, District No. 1; JAMES W. MILLER, District No. 2;  
MORGAN G. THOMAS, District No. 3.

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BIENNIAL REPORT

OF THE

FIRST DISTRICT,

EMBRACING

Adams, Appanoose, Davis, Lucas, Monroe, Page, Taylor,  
Wapello, Warren, and Wayne Counties.

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JAMES A. CAMPBELL, INSPECTOR.

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## REPORT.

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*To the Honorable F. M. Drake, Governor of Iowa:*

SIR—In compliance with the law, I have the honor to present to you herewith my second biennial report on mines and mining for the First district for the two years ending June 30, 1897.

The following report gives the usual tabulated statements, showing the number of mines, shipping and local, and the kind of power used, also the system of working and how ventilated, the number of miners and other employees; a record is also made of fatal and non-fatal accidents.

The First district contains ten coal-producing counties, viz: Adams, Appanoose, Davis, Lucas, Monroe, Page, Taylor, Wapello, Warren, and Wayne.

Respectfully submitted,

JAMES A. CAMPBELL,  
*Inspector First District.*

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## FIRST DISTRICT.

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During the past two years, the mines in the First district have been visited as frequently as possible. With few exceptions the sanitary and safe conditions of the mines have been complied with, and it affords me great pleasure to say that up to the present time it has not been necessary to resort to legal proceedings to enforce any of the requirements of the mining laws. Whenever defects have been shown to operators or their agents, they have always been ready to repair or make the improvements as soon as possible, and in such cases it was more from neglect than any other cause. I have had some cases where I have had to take a portion of the men out to get improvements, but in such cases they would be out but a short time.

I appreciate the interest the miners have taken, as well as the operators, as it has lessened the burdens of work in this office.

One of the most important subjects claiming the attention of mine superintendents or bosses is that of the ventilation of the mines. On a suitable amount of air and the circulation of the same depends not only

the successful prosecution of the excavation of the mine, but also the lives and health of the miners and laborers who are employed inside. A well constructed fan or furnace is not all that is necessary for the ventilation of a mine. There must be large air-ways, stoppings well built, and good substantial doors well and carefully hung. A fan or furnace may be producing enough air to ventilate the mine, but on account of faulty stoppings, badly constructed doors, and small contracted air courses many places are not sufficiently ventilated. When a mine foreman imagines that when a good fan or furnace is furnished good air is the result, regardless of the surrounding conditions, he is certainly mistaken, for if he would take the trouble to investigate he would find of the amount of air circulating at the face of the working places, under such circumstances, not one-half reaching the working faces. We need more than a well constructed fan or furnace; we need a mine foreman who is thoroughly practical, and who will see that air-ways are kept open, doors properly hung and attended to, and the speed of the fan regulated according to the amount of air needed in the mine. Otherwise the miners cannot expect a proper current throughout the mine. Superintendents should never lose sight of this; it is one of the most important points in running a mine successfully. Doors will always be needed in the mines, but their number can be lessened by splitting the air current several times, and carrying the return over the intake by overcasts. Upon the ability and experience of the inside mine foreman depends largely the ventilation and proper management of the mine, as well as the health and safety of the miners. A mine foreman should be a man of sound judgment, ripe experience, and thorough knowledge, firm and decided in his manner, but at the same time he should be courteous and ever ready to instruct the men in his employ. It certainly seems to me that it is good business economy and a matter of prime importance to have competent men in charge of the mines.

I regret very much to make the statement that during the past two years many of the mines of the First district have not been in operation to exceed one-third time, and quite often visits have been made to these mines when inspections were impossible on account of their being closed.

From a commercial standpoint, both to the operators and miners, the past two years have not been very satisfactory, for a number of reasons, among the foremost of which have been the general depression in business, a shortage of railroad traffic, and close competition from neighboring states. It gives me great pleasure to state that these conditions have recently been materially improved, foreign competition has largely decreased, while railroad traffic has been greatly increased, and the outlook at present is very promising for the future.

TABLE No. 1.

Showing the number of mines, annual output of lump coal, number of miners and other employes, in District No. 1, for the year ended June 30, 1896.

NAME OF COUNTY.	Number of mines.	Number of tons of lump coal produced.	Number of miners employed.	Number of all other employes.	Average price per ton for mining.	Total amount paid to miners, not including yardage, etc.	Total amount paid to all other employes.	Ave. selling price per ton of lump coal at mines.	Expense of track, etc. at mines.
Adams .....	15	21,220	114	78	\$1.05	\$23,281	\$7,650	\$2.39	\$1,486
Appanoose .....	14	346,453	1,355	339	.80	297,349	104,170	1.33	6,700
Davis .....	7	2,600	21	8	.90	2,520	845	1.45	180
Lucas .....	7	5,500	27	10	1.00	5,500	8,115	1.55	328
Monroe .....	16	461,650	915	282	.72 1/2	391,296	198,520	1.24	10,885
Page .....	4	6,420	38	13	1.10	7,092	2,820	2.60	122
Taylor .....	6	10,100	48	21	1.05	10,605	4,760	1.40	224
Wapello .....	14	136,485	483	217	.85	101,275	56,860	1.04	3,972
Warren .....	11	12,110	68	20	.92	11,150	4,045	1.60	655
Wayne .....	8	50,100	158	52	.97	38,187	11,819	1.22	595
Total .....	100	989,768	3,329	1,119	.79	\$770,825	\$370,645	\$1.31	\$25,161

TABLE No. 2.

Showing the number of mines, annual output of lump coal, number of miners and other employes in District No. 1, for the year ended June 30, 1897.

NAME OF COUNTY.	Number of mines.	Number of tons of lump coal produced.	Number of miners employed.	Number of all other employes.	Average price per ton for mining.	Total amount paid to miners, not including yardage, etc.	Total amount paid to all other employes.	Ave. selling price per ton of lump coal at mines.	Expense of track, etc. at mines.
Adams .....	14	30,500	118	41	\$1.05	\$32,025	\$10,250	\$2.10	\$1,820
Appanoose .....	12	372,402	1,455	348	.85	318,541	128,150	1.25	7,820
Davis .....	4	3,120	23	6	.90	2,808	435	1.50	145
Lucas .....	6	9,005	47	14	1.00	9,005	2,835	1.60	278
Monroe .....	16	889,706	879	371	.75 1/2	382,535	178,125	1.22	6,545
Page .....	4	7,320	44	18	1.10	7,850	3,322	2.00	138
Taylor .....	4	12,200	62	20	1.00	13,200	3,642	1.70	218
Wapello .....	14	152,303	413	207	.70	109,542	57,180	1.10	2,114
Warren .....	11	16,130	62	17	.80	14,502	6,450	1.60	822
Wayne .....	8	32,120	132	28	.85	27,348	10,115	1.22	512
Total .....	154	1,025,706	3,275	1,039	.79	\$812,494	\$394,094	\$1.36	\$25,380



TABLE No. 3.

Coal output of the counties comprising District No. 1, for the past five years.

COUNTY.	1893.	1894.	1895.	1896.	1897.
Appanoose.....	631,875	628,640	350,000	346,453	372,402
Adams.....	18,925	30,640	33,000	21,220	30,900
Davis.....	2,220	2,520	2,600	2,800	3,120
Lucas.....	10,200	7,564	12,000	8,500	9,600
Monroe.....	641,805	612,240	313,354	401,650	380,706
Pase.....	1,450	43 6	5,450	7,250	13,300
Taylor.....	35,170	35,475	13,000	10,100	17,500
Wapello.....	279,160	186,748	305,000	170,465	122,900
Warren.....	14,575	25,414	12,000	12,120	10,150
Wayne.....	61,835	69,330	45,700	30,100	32,120
Total.....	1,697,215	1,397,631	904,054	980,768	1,025,706

## ACCIDENTS.

There have been twelve fatal and forty non-fatal accidents reported to this office since June 30, 1895. Of these seven were killed by falling slate, two by falling coal, one by a mule, one by an explosion of powder, and one by falling down a shaft.

Of the non-fatal accidents, twenty were injured by falling slate, nine by an explosion of powder, five by falling coal, one by cross head, one run over by a car, one caught between car and timber, and one caught between two cars of coal.

TABLE OF FATAL ACCIDENTS.

In District No. 1 for the two years ended June 30, 1897.

DATE.	NAME (F DECEASED).	CAUSE OF CASUALTY.	NAME OF COMPANY OR MINE.	WHERE LOCATED.
July 25, 1895	Albert M. Harris.	Fall of slate.	Black Coal company.	Small Appanoose county.
August 2, 1895	Andrew Jones.	Fall of slate.	Spring Hill Coal company.	Portsmouth Appanoose county.
August 31, 1895	William Pritchard.	Fall of coal.	Smoky Hollow Coal company.	Ottumwa Wapello county.
September 14, 1896	Andrew Johnson.	Fall of slate.	Smoky Hollow Coal company.	Ladysburg Wapello county.
September 14, 1896	Andrew Johnson.	Fall of slate.	Smoky Hollow Coal company.	Ladysburg Wapello county.
December 2, 1896	Richard Jones.	Fall of slate.	God work coal company.	Avery Monroe county.
December 12, 1896	Albert Gundy.	Fall of slate.	Ladysburg Coal company.	Ottumwa Appanoose county.
March 25, 1897	E. S. Johnson.	Explosion of powder.	Smoky Hollow Coal company.	Ladysburg Wapello county.
March 25, 1897	Frank Brown.	Fall of slate.	South Ottumwa Coal company.	Ottumwa Appanoose county.
June 12, 1897	Frank Brown.	Fall of slate.	South Ottumwa Coal company.	Ottumwa Wapello county.

# NON-FATAL ACCIDENTS.

## District No. 1.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.	RESIDENCE.
July 10, 1895	Frank Rely	Miner	Collar bone broken.	Fall of coal	Mystic.
July 15, 1895	Perdiana Behnke	Miner	Face and hands burned.	Explosion of powder.	Smoky Hollow.
Aug. 15, 1895	Thomas Baijman	Miner	Lip cut.	Fall of slate	Albia.
Sept. 23, 1895	John Richards	Miner	Leg broken	Fall of slate	Foster.
Oct. 24, 1895	George Kirkendall	Miner	Back injured	Fall of slate	Albia.
Nov. 2, 1895	John Quigley	Miner	Leg injured	Fall of slate	Centerville.
Nov. 14, 1895	Levis Jones	Laborer	Hip wrenched.	Fall of coal	Centerville.
Dec. 7, 1895	J. W. McManis	Miner	Back injured	Fall of slate	Centerville.
Dec. 11, 1895	Wm. Bishop	Miner	Spinal injuries	Fall of slate	Foster.
Dec. 15, 1895	Harry Cherry	Miner	Leg broken	Fall of slate	R. thum.
Dec. 16, 1895	Harry Bryant	Miner	Hand mashed	Fall of slate	Centerville.
Dec. 21, 1895	E. Edmunds	Miner	Right leg broken	Fall of slate	Foster.
Jan. 2, 1896	Wm. Pearson	Driver	Arm broken and spine injured	Fall of rock.	Centerville.
Jan. 6, 1896	Richard Williams	Miner	Back injured	Run over by car.	Centerville.
Jan. 15, 1896	Charles Fisher	Miner	Back injured	Fall of slate	Foster.
Mar. 10, 1896	John Pavetta	Night man	Thigh broken	Fall of slate	Smoky Hollow.
Mar. 20, 1896	George Kosliski	Miner	Thigh broken	Fall of slate	Foster.
Mar. 25, 1896	R. O. Heneman	Miner	Leg broken	Fall of rock	Foster.
April 2, 1896	S. S. Headis	Driver	Thigh broken	Fall of coal	Rathbun.
April 23, 1896	Wm. Slack	Miner	Thigh broken	Fall of coal	Soyonour.
June 28, 1896	Samuel Roberts	Miner	Ankle sprained.	Fall of slate	Foster.
July 15, 1896	Thomas Kirby	Miner	Compound fracture of ankle bones	Fall of slate	Laddsdale.
Aug. 17, 1896	Frank Ryan	Miner	Hip joint dislocated	Fall of rock	Fortush.
Aug. 21, 1896	W. J. Bennett	Miner	Head cut	Fall of rock	Fortush.
Aug. 23, 1896	Mathew Taylor	Miner	Upper jaw bone broken	Fall of rock	Smoky Hollow.
Aug. 25, 1896	Phillip Swanson	Miner	Left leg and back injured	Fall of slate	Laddsdale.
Oct. 17, 1896	John Shusburg	Cogger	Left leg broken	Fall of slate	Rathbun.
Oct. 22, 1896	W. S. Parks	Miner	Leg and arm broken	Fall of coal displaced.	Centerville.
Oct. 23, 1896	Ben O. Soud	Miner	Leg broken	Fall of coal	Foster.
Oct. 24, 1896	Richard Greenhouse	Miner	Chick bone broken	Fall of slate	Centerville.
Jan. 26, 1897	Martin McVetty	Miner	Face and hands burned	Fall of coal	Brazil.
Jan. 28, 1897	John Scott	Miner	Face and hands burned	Explosion of powder.	Foster.
Jan. 28, 1897	F. M. Connors, Jr.	Miner	Cut and burned on head.	Explosion of powder.	Foster.
Jan. 28, 1897	Richard Williams	Miner	Back hurt and hands burned	Explosion of powder.	Foster.
Jan. 28, 1897	Louis Fogarty	Miner	Face and hands burned	Explosion of powder.	Foster.
Jan. 28, 1897	John Pierson	Miner	Face and hands burned	Explosion of powder.	Foster.
Jan. 28, 1897	David Scott	Miner	Face and hands burned	Explosion of powder.	Foster.
Jan. 28, 1897	John Farrell	Miner	Face and hands burned	Explosion of powder.	Foster.
Feb. 17, 1897	James Robinson	Machine runner	Face and hands burned	Explosion of powder.	Foster.
May 18, 1897	B. Garischek	Miner	Thigh cut	Caught in cutter bar.	Mystic.
				Fall of slate	Cedar Mines.

## APPANOOSE COUNTY.

In Appanoose county there are seventy-eight mines. Of these sixty are commercial mines. They are situated as follows: Thirty-one on the Chicago, Milwaukee & St. Paul railroad, thirteen on the Keokuk & Western, seven on the Chicago, Rock Island & Pacific, six on the Chicago, Burlington & Kansas City, and three on the Iowa Central railroad. The others are local mines. The most prominent are located at or near Centerville. There are four mines in the county using coal mining machines. The Centerville Block Coal company's mines, Nos. 1, 3 and 9, are using the Legg & Harrison machines, operated by compressed air. The Peerless Coal company is using an electric machine at its No. 3 mine at Mystic. The vein of coal is suitable for machine mining, having a good fire clay bottom and a good roof.

In this county there is only one vein of coal worked, and this is the lower vein of the middle coal measures. It averages about thirty inches in thickness, underlying nearly three fifths of the county, and is very uniform for steam and domestic purposes. This coal is of superior quality and finds ready market in northern Iowa, Minnesota, and Nebraska.

Centerville, Cincinnati, Brazil, Numa, Mystic, Jerome, Rathbun, and Forbush are the principal places where coal is shipped from this county. The mines of this county, generally speaking, are equipped with the latest improved machinery and safety appliances. The most extensive business is done by the Centerville Block Coal company, of Centerville; Whitebreast Fuel company, of Forbush, and the Star Coal company of Rathbun.

When I have had occasion to call attention of operators or superintendents to any defect, they have always tried in all cases, to remedy the same in compliance with the law in the required time given.

On the line of the Chicago, Rock Island & Pacific railroad will be found the following mines: Centerville Block No. 1, Raven, Standard, and Anchor No. 2, located at Centerville; Eldon No. 2, at Bellair; Centerville Block No. 2 and Chicago No. 2, located at Numa.

The mines located on the Keokuk & Western are: Centerville Block No. 3 and Anchor No. 2, located at Centerville; Centerville Block Nos. 4, 5, 6, and 7, Columbia No. 3, Co-operative, Phoenix, Silknetter, and Peacock Coal company, located at or near Brazil.

The following mines are located on the Chicago, Burlington & Kansas City railroad: Appanoose, Stretor Block, Albert, Thistle, and Merchants, located at or near Cincinnati.

The Royal Coal company operates a mine near Exline. The mines located on the Iowa Central railroad are: Centerville Block No. 3, Centerville Block No. 9, and Whitebreast Fuel company's mine No. 19.

On the Chicago, Milwaukee & St. Paul railroad the following mines will be found: The Star No. 1 and Evans, located at Rathbun; the Darby Block and the Arctic Nos. 1 and 2, located at Darby; Orr Brothers' mine Nos. 1 and 2, Clark & Son,



Iowa Block, Peoria No. 3, Union Co-operative, C. L. Arnot, Lodwick Nos. 1 and 2, Iowa & Missouri, Lose Star, Co-operative No. 1, Mystic Fuel company, Mystic Coal company, Akora, Brown & Bowers, Walnut Creek, Twin Mining company, and Heel No. 1, Co. 1, Mystic Fuel company, Mystic Coal company, Columbia Nos. 1 and 2, and Hazelton's Coal company's mine, located near Diamond postoffice; Consumers Coal company's mine and Big Joe Nos. 1 and 2, located at Zerome.

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## ADAMS COUNTY.

Adams county has a number of mines in operation at Carbon and vicinity, Briscoe and Eureka and vicinity. The mines of this county, like those of Taylor and Page counties, are working the upper coal measure, which is about eighteen inches thick, and is worked on the long wall system. The coal is all sold at local sales, there being no railroad nearer than Corning, which is located on the Chicago, Burlington & Quincy. The mines are idle during the summer season, running from September until April. Horse power is used for hoisting. The mines employ from five to fifteen men.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of force used.	Shipping or local.
Cullen & Rees .....	J. Cullen .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Gibson & Company .....	G. W. Gibson .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Eftee McKee .....	Eftee McKee .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Brittisan Coal company .....	John Thomas .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Thomas Gible .....	Thomas Gible .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Kimpton Bros. ....	— Kimpton .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
John Wilds .....	John Wilds .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
William Chaffee .....	William Chaffee .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
H. Y. Jones .....	H. Y. Jones .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Lon Franklin .....	Lon Franklin .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Hartsborn Bros. ....	— Hartsborn .....	Carbon .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
William Spurrier .....	William Spurrier .....	Eureka .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
James Hason .....	James Hason .....	Eureka .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Henry Hudspeth .....	Henry Hudspeth .....	Eureka .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
W. R. Miller .....	W. R. Miller .....	Briscoe .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.
Thomas Nichols .....	Thomas Nichols .....	Briscoe .....	Shaft .....	Long wall .....	Furnace ..	Horse ..	Local.

## DAVIS COUNTY.

The mines in this county are located near Eldon, Laddsdale and Belknap, and are operated for local trade exclusively. The coal is from three to four feet thick. This county is bounded on three sides by counties that are among the best coal-producing counties in the state: Monroe, Appanoose and Wapello, and still it has not ranked as such. There is little room to doubt that most of the county is underlain by a good seam of coal, and there is no apparent reason why it should not rank among the best coal-producing counties in the district.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
G. W. Dye .....	G. W. Dye .....	Eldon .....	Slope ..	Room and pillar ..	Furnace ..	Horse ..	Local.
J. E. Fite .....	J. E. Fite .....	Eldon .....	Slope ..	Room and pillar ..	Furnace ..	Horse ..	Local.
J. Teesdale .....	J. Teesdale .....	Eldon .....	Slope ..	Room and pillar ..	Furnace ..	Horse ..	Local.
Thomas Dial .....	Thomas Dial .....	Laddsdale ..	Slope ..	Room and pillar ..	Furnace ..	Horse ..	Local.
John Jordan .....	John Jordan .....	Eldon .....	Slope ..	Room and pillar ..	Furnace ..	Horse ..	Local.

## LUCAS COUNTY.

Lucas county was at one time among the largest coal-producing counties in the First district, and is one of the pioneer counties in the coal trade of the state. At present it looks as though this county was coming to the front again. Mr. William Haven has 8,000 acres of land under option, and has already expended \$5,000 in prospecting. The land in question is in the vicinity of Chariton.

At the present time the only mines in operation are small local mines, except two which ship their output; the Lucas and Cleveland Co-operative, at Cleveland, and the Klondike, located at Lucas, on the Chicago, Burlington & Quincy. These two mines are operated by the same company. The local mines of the county are located near Chariton.



LUCAS COUNTY—CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Lucas and Cleveland Co-operative Coal company.	J. A. Evans	Lucas	Shaft.	Long wall.	Furnace.	Horse.	Shipping.
Klondike Coal company.	J. A. Evans	Lucas	Shaft.	Long wall.	Furnace.	Horse.	Shipping.
James Griffin.	James Griffin	Chariton					Local.
C. Robinson.	C. Robinson	Chariton					Local.
James Hall.	James Hall	Chariton					Local.
Thomas Smith.	Thomas Smith	Chariton					Local.
George N. Six.	George Six	Oakley					Local.
William Swanson.	William Swanson	Oakley					Local.

MONROE COUNTY.

Monroe county has twelve mines with railroad facilities for shipping their coal. They are located on the Chicago, Burlington & Quincy; Chicago, Milwaukee & St. Paul, and Iowa Central railroads.

Wapello Coal company's mines, Nos. 1 and 2, are located at Hiteman, on a branch line of the Chicago, Burlington & Quincy, running from the main line to Hiteman. This company owns a large coal-field, thoroughly prospected, and will do a large business for years to come. Their mines are equipped with the latest improved machinery. No. 2 is a new mine located one mile north of mine No. 1; operations were commenced the last of January, 1897. It has a capacity of about 400 tons per day at present, and expects in a short time to increase its capacity to 1,000 tons. About 450 men find employment in and around these mines, and later the number of men will be increased.

On a road running from the main line of the Chicago, Burlington & Quincy, at Avery, to Hynes City will be found the Smoky Hollow Coal company's mines, Nos. 1, 2 and 3. No. 3 is a new mine recently opened, and will be in shape by fall to produce a good tonnage. The mines of this company are excellently equipped, and they are at present doing a business that gives employment to 250 men.

On the main line of the Chicago, Burlington & Quincy railroad, three miles west of Albia, the Chicago and Iowa Coal company's mine is located. This is one of the pioneer mines of the county, and is still doing a good business. This mine is well equipped with good machinery and safety appliances.

The Deep Vein Coal company's mine is located on the Chicago, Milwaukee & St. Paul railroad, at Foster. This mine is equipped with modern machinery. They do a business that gives employment to 250 men.

The Whitebreast Fuel company's mine, No. 10, is located one mile from the main line of the Chicago, Burlington & Quincy railroad, at Chisholm. The coal is hauled by means of a tail-rope on the surface from the shaft to the dump at the railroad. This mine is well equipped with modern machinery.

On the Iowa Central railroad, at Hickory, is located mine No. 2 of the Black Diamond Coal company, and at Coalfield, on the same road, is mine No. 1. These mines are well equipped and are doing a good business.

The Central Coal company's mine is located one and one-half miles northeast of Hickory, and connects with the Iowa Central railroad by a switch. This is a new mine opened since our last report. It is equipped with the latest improved machinery and appliances.

The Frederick Coal company's mine is located one mile south of Frederick. Coal is hauled by wagon to the Chicago, Burlington & Quincy railway.

The Star Coal company's mine is located two and one-half miles northwest of Albia. It is well equipped. The coal is sold to local trade at Albia and vicinity. There are a number of small mines in this county that work from four to ten men in the winter season.

Monroe county as a coal producer is among the best counties in the state. The vein of coal that is being worked in this county is from four to six feet in thickness, and is the middle seam of the lower coal measures.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Wapello Coal company, No. 1.	P. H. Waterman	Hiteman	Shaft.	Room and pillar.	Fan.	Steam.	Shipping.
Wapello Coal company, No. 2.	P. H. Waterman	Hiteman	Shaft.	Room and pillar.	Fan.	Steam.	Shipping.
Smoky Hollow Coal company, No. 1.	P. Hynes	Avery	Slope.	Room and pillar.	Fan.	Steam.	Shipping.
Smoky Hollow Coal company, No. 2.	P. Hynes	Avery	Slope.	Room and pillar.	Furnace.	Steam.	Shipping.
Smoky Hollow Coal company, No. 3.	P. Hynes	Avery	Slope.	Room and pillar.	Fan.	Steam.	Shipping.

MONROE COUNTY--CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Deep Vein Coal company.....	Robert Hughes.....	Foster.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Chicago & Iowa Coal company.....	Wm. Richardson.....	Cedar Mines.....	Shaft.....	Room and pillar.....	Furnace.....	Steam.....	Shipping.....
Whitebreast Fuel company, No. 10.....	Richard Rosser.....	Chisholm.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Central Coal company.....	Wm. Evans.....	Lockman.....	Slope.....	Room and pillar.....	Furnace.....	Steam.....	Shipping.....
Diamond Coal company, No. 1.....	A. B. Little.....	Coalfield.....	Slope.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Diamond Coal company, No. 2.....	A. B. Little.....	Coalfield.....	Slope.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Frederick Coal company.....	J. W. Scovoy.....	Frederick.....	Shaft.....	Long wall.....	Furnace.....	Steam.....	Shipping.....
Gardner Coal company.....	George Sedwick.....	Frederick.....	Shaft.....	Long wall.....	Furnace.....	Horse.....	Shipping.....
Star Coal company.....	S. A. Flanders.....	Albia.....	Slope.....	Room and pillar.....	Fan.....	Steam.....	Local.....
Romey Bros.....	Wm. Romey.....	Albia.....	Slope.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
W. D. Russell.....	W. D. Russell.....	Albia.....	Slope.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Sentley Bros.....	Smiley Bros.....	Albia.....	Slope.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Harley Bros.....	Harley Bros.....	Albia.....	Slope.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
John R. Manley.....	John R. Manley.....	Albia.....	Slope.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
George Combs.....	George Combs.....	Albia.....	Slope.....	Room and pillar.....	Furnace.....	Horse.....	Local.....

PAGE COUNTY.

The coal in this county is thin and does not exceed twenty inches. The seam belongs to the upper coal measures. Page county is not one of the important coal counties of the state, although mining has been done for a long time. Mines are being operated in the vicinity of Clarinda and Shambaugh. William Turner and George Howard are the most prominent operators in the county. There are several mines that work four or five men in the winter season, but change ownership so frequently it is hard to enroll them.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
George Howard.....	George Howard.....	Shambaugh.....	Slope.....	Long wall.....	Furnace.....	Horse.....	Local.....
William Turner.....	William Turner.....	Shambaugh.....	Slope.....	Long wall.....	Furnace.....	Horse.....	Local.....
Charles Pierson.....	Charles Pierson.....	Clarinda.....	Slope.....	Long wall.....	Furnace.....	Horse.....	Local.....

TAYLOR COUNTY.

Taylor county has two mines with railroad facilities for shipping their output. They are the Anderson and Campbell mines, located at New Market, on the Humeston & Shenandoah railroad. The vein worked in this county is of the upper coal measures, and is from sixteen to twenty inches in thickness, and is worked long wall. Charles Adams and William Welch operate mines for local trade near New Market. There are several small mines in the western and northwestern parts of the county that employ from three to five men in the winter season.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Campbell Coal company.....	Richard Campbell.....	New Market.....	Shaft.....	Long wall.....	Furnace.....	Horse.....	Shipping.....
Anderson Coal company.....	William Anderson.....	New Market.....	Shaft.....	Long wall.....	Furnace.....	Horse.....	Shipping.....
Fowell & Lathrop.....	— Lathrop.....	New Market.....	Shaft.....	Long wall.....	Furnace.....	Horse.....	Local.....
Charles Adams.....	Charles Adams.....	New Market.....	Shaft.....	Long wall.....	Furnace.....	Horse.....	Local.....



## WARREN COUNTY.

A number of small mines are operated in this county. Three have shipping facilities. The others are worked exclusively for local trade. The coal in this county varies in thickness from twenty inches to three feet. With an outlet to the western markets, Warren county would become prominent as a coal producer. The mines at or near Sumner are working the middle coal measures, three feet thick. The coal is of a good quality. The mines at Ashworth and Milo are working in the upper vein of coal, which is from twenty to twenty-four inches in thickness. These mines are operated only during the winter months, and from four to eight men do the work at each mine.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Caldwell & Wishman.....	.....	.....	.....	.....	.....	.....	.....
D. K. Jones.....	D. K. Jones.....	Summerset.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Shipping.
Wm. Lumsden & Son.....	Wm. Lumsden.....	Summerset.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Shipping.
W. S. Bennum.....	W. S. Bennum.....	Summerset.....	.....	.....	.....	.....	Local.
D. S. Sayers.....	D. S. Sayers.....	Summerset.....	.....	.....	.....	.....	Local.
John Lannigan.....	John Lannigan.....	Summerset.....	.....	.....	.....	.....	Local.
Frank Murphy.....	Frank Murphy.....	Summerset.....	.....	.....	.....	.....	Local.
Grant Weston.....	Grant Weston.....	Indianola.....	.....	.....	.....	.....	Local.
Johnson & Son.....	Johnson & Son.....	Indianola.....	.....	.....	.....	.....	Local.
Jamison Bros.....	Jamison Bros.....	Ackworth.....	.....	.....	.....	.....	Local.
John Brown.....	John Brown.....	Milo.....	.....	.....	.....	.....	Local.
Sid Bryant.....	Sid Bryant.....	Milo.....	.....	.....	.....	.....	Local.

## WAYNE COUNTY.

Wayne county has eight mines in operation. The two shipping mines, the Chicago Coal company and the Seymour Coal company, are located at Seymour. The Chicago Coal company has facilities for shipping coal over the Chicago, Milwaukee & St. Paul and the Chicago, Rock Island & Pacific railroads. The Seymour Coal company ships its coal over the Chicago, Rock Island & Pacific railroad.

The coal in this county is thirty inches in thickness, and is the middle vein of the lower coal measures. It is good coal for both steam and domestic purposes.

There are six mines in the vicinity of Seymour, Confidence and Bethlehem that are operated for local trade only. There are several small mines in the county that work from three to five miners in the winter season.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Chicago Coal company.....	Peter Thomas.....	Seymour.....	Shaft.....	Long wall.....	Fan.....	Steam.....	Shipping.
Seymour Coal company.....	George Elmore.....	Seymour.....	Shaft.....	Long wall.....	Fan.....	Steam.....	Shipping.
Lewis Fry.....	Lewis Fry.....	Confidence.....	Shaft.....	Long wall.....	Furnace.....	Steam.....	Local.
William J. Roussin.....	William Roussin.....	Confidence.....	Slope.....	Long wall.....	Furnace.....	Horse.....	Shipping.
L. Atwell.....	L. Atwell.....	Confidence.....	Slope.....	.....	.....	.....	Local.
L. Brown.....	L. Brown.....	Confidence.....	Slope.....	.....	.....	.....	Local.
M. H. Roe.....	M. H. Roe.....	Confidence.....	Slope.....	.....	.....	.....	Local.
Aaron Radcliff.....	Aaron Radcliff.....	Confidence.....	Slope.....	.....	.....	.....	Local.
William Burns.....	William Burns.....	Confidence.....	.....	.....	.....	.....	Local.
B. F. Jared.....	B. F. Jared.....	Bethlehem.....	.....	.....	.....	.....	Local.

## WAPELLO COUNTY.

Wapello county has six commercial and fourteen local mines, all working in the lower coal measures. The vein is from four to five and one-half feet thick.

The Whitebreast Fuel company's mine No. 32, located at Keb, on a branch of the main line of the Chicago, Burlington & Quincy railroad, is one of the largest mines of the district. The mine is equipped with modern machinery and safety appliances.

The Phillips Fuel company's mines Nos. 3 and 4 are located on the Chicago, Milwaukee & St. Paul railroad, four miles northwest of Ottumwa. Coal is hauled from No. 3 mine, a distance of one mile, by means of a tram road to No. 4, where it is loaded for shipment. The mines are equipped with good machinery and safety appliances in accordance with the law. This company has done a great deal of prospecting during the past year with the intention of opening more new mines.



Two and one-half miles northwest of Ottumwa, on the same road, is located the Lumsden Coal company's Diamond mine No. 1. Besides doing a railroad business, this company has a good local trade. Their mine is equipped with good machinery and safety appliances according to law.

The Eldon Coal and Mining company's mine No. 1 is located on the Chicago, Rock Island & Pacific railroad, at Laddsedale. The mine is equipped with modern machinery, and has been doing quite a business during the depression in the coal trade.

The Appanoose Coal and Fuel company's mine is on the line of the Chicago, Milwaukee & St. Paul railroad, located at Willard, and is equipped with modern machinery.

The most prominent local mines are: Burch Fuel company's No 2, South Ottumwa Coal and Mining company, Daniels Coal company, Black-Hawk Coal company, Swede Valley Coal company, Robert Parker, Sweeney Bros., Baker Coal company, and Adams Coal company, located at or near Ottumwa.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	Kind of work- ing mine.	How venti- lated.	Kind of power used.	Shipping or local.
Whitebreast Fuel company, No. 22.....	T. J. Phillips.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Phillips Fuel company, No. 3.....	William Fowler.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Phillips Fuel company, No. 4.....	William Fowler.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Lumden Coal company, Diamond No. 1.....	John Lumden.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Eldon Coal company.....	Thomas W. Jones.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Appanoose Coal company.....	Charles McCarroll.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Hurch Bros. No. 2.....	E. T. Hurch.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
North Ottumwa Coal and Mining company.....	Elmer Brown.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Baker Coal company.....	W. J. Baker.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Local.....
Seelye & Munn.....	John Seelye.....	Ottumwa.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Local.....
Black Hawk Coal company.....	A. J. Coughlin.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Steam.....	Local.....
Adams Coal company.....	A. F. Adams.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Parling Valley Coal company.....	John Parling.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Sweeney Bros.....	Sweeney Bros.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
George Harrison.....	George Harrison.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
W. G. Davis.....	W. G. Davis.....	Kirkville.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
G. Smith.....	G. Smith.....	Kirkville.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
John Thompson.....	John Thompson.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Suede Valley Coal company.....	Gas Johnson.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
Robert Parker.....	Robert Parker.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
George Hall.....	George Hall.....	Ottumwa.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....

## MINE INSPECTORS

# IMPROVEMENTS MADE IN MINES DURING THE LAST TWO

APPANOOSE COUNTY.									
	NAME OF MINE.								
	Air shaft.								
	Second opening.								
	Stairway.								
	Cover on cages.								
	Safety catches.								
	Safety gates.								
	Brake on drum.								
	Fan.								
	Furnace.								
	Trailer or dog.								
	Safety block.								

  

LUCAS COUNTY.									
MORRIS COUNTY.									
MORRIS COUNTY.									
Total.....	1	1	1	1	1	1	1	1	1
Total.....	1	1	1	1	1	1	1	1	1

  

WAPELLO COUNTY.									
Burch Bros. Fuel company.	1	1	1	1	1	1	1	1	1
Burch Bros. Coal and Mining company.	1	1	1	1	1	1	1	1	1
Lundgren Coal company.	1	1	1	1	1	1	1	1	1
Total.....	1	1	1	1	1	1	1	1	1

There have been nine new mines opened in this district since my last report. Of these five are shafts and the remainder are slopes. The Chicago and Central coal company's mine No. 2, located at Numa, and the Co-operative Coal company's mine No. 2, located at Mystic, in Appanoose county. The Wapello Coal company's mine No. 2, located at Hickman; Smoky Hollow coal company's mine No. 3, located at Hayes City; Central Coal company's mine No. 1, located at Lockman; and the Star Coal company's mine, located three miles northwest of Albia, in Monroe county. The Black Hawk coal company, Swede Valley Coal company and the Burch Fuel company, located near Ottumwa, in Wapello county.

There have been four mines abandoned, viz.: The National Coal company, at Centerville; the Enterprise Coal company, and the Iowa and Wisconsin Coal company, west of Albia, and the Burch Fuel company, at Ottumwa.

## OIL AND SCALE LAW.

A mining law enacted by the Twenty-sixth General Assembly made it obligatory upon the state mine inspectors to inspect all oil used for illuminating purposes. I have made 105 inspections of oil at stores and mines in this district. All the operators were notified of this law, but there were merchants in various parts of the district who were not connected with the mines, but who were handling oil, and it was hard to get them to understand that they must comply with the mining law if they sold miners' oil.

I have had occasion to test seventeen sets of scales at different mines during the present term, and found them working in good order, with the exception of seven, which were weighing incorrectly, but when the operators or agents were notified of the defect they were always ready to have them adjusted as soon as possible.

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BIENNIAL REPORT

OF THE

## SECOND DISTRICT,

EMBRACING

Jasper, Jefferson, Keokuk, Mahaska, Scott and Van Buren  
Counties.

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J. W. MILLER, INSPECTOR.

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## REPORT.

*To His Excellency, F. M. Drake, Governor of Iowa:*

Sir—In conformity with the requirements of the mining laws, I have the honor to submit herewith to you the report of this district for the biennial period ending June 30, 1897. In it are included the usual statistical tables, a list of the improvements made during that time, a record of all accidents, both fatal and non-fatal, together with such other matters as I deemed of importance in this connection.

It affords me great pleasure to report that the condition of the coal trade has improved very materially in this district during the past year, and despite the fact that the prices paid for mining have not advanced the miners have earned considerable more money from the fact that they have had, at a great many of the mines, steady employment, and the pleasant prospect in view that if the present brisk demand continues prices are certain to advance.

J. W. MILLEN,  
*Mine Inspector Second District.*

## SECOND DISTRICT.

The Second district comprises the following counties: Mahaska, Keokuk, Jasper, Scott, Jefferson, Van Buren and Lee. During the past two years there have been opened and equipped five new shipping mines. The shipping mines of this district have worked during the last half of the biennial period nearly full time, some reporting 250 days' work from June 30, 1895, to June 30, 1897. There are about 100 mines in this district, with an output of 3,945,940 tons of coal for the two years ending June 30, 1897, an increase over the last biennial period of 238,484 tons.

### A WORD ON VENTILATION.

To properly understand the distribution of air through the mine is the science of ventilation. Even at this late date of modern improvement in ventilating machinery, ventilation is far from being thoroughly understood by a great many who have charge of mines in this state; yet there are



abundant opportunities which, if grasped and followed up, would enable the practical and progressive to thoroughly study and master the subject. In ventilating a mine, it is absolutely necessary that the air be carried up to the working places and properly distributed. To have the air come down one shaft and travel the air-ways and entries in a large volume, whilst at the working face there is scarcely sufficient air to support combustion for the light of a pit-lamp, is not ventilation. However efficient a fan or furnace may be, the combined efforts may be defeated by defective, incompetent management, or by other defects. As a miner spends a large portion of his life in the mine, his health, comfort and life are largely dependent upon good ventilation. If this is not properly furnished, he must breathe an atmosphere impregnated with the exhalation of the human, the animal, and the gases from lamps, powder and refuse throughout the mine. All of these tend incessantly to envelop him in an atmosphere unfit for respiration.

#### ARBITRATION.

The importance and value of arbitration has been fully recognized by different countries and classes. Why should not this be made a benefit to our own people of this state? If arbitration works well between nations, it should work well between individuals. Let a board of arbitration be created to be appointed by the governor, or elected by the senate, who shall be men having the qualifications to handle such important questions and who command the respect and confidence of all, both capital and labor. Such a commission would have access to all the information necessary to enable them to settle the different disputes that arise between employer and employee. This method, in my opinion, would save a great deal of unwritten misery that often exists during strikes, as well as the ill feeling that continues to exist after a strike is settled between employer and employee.

#### OILS.

The Twenty-sixth General Assembly passed a law requiring all oils used for illuminating purposes in our mines to be pure animal or vegetable oil or paraffine. This law, since going into effect, has been of great value to those working underground. It affords me great pleasure to say that I have every reason to believe that the law governing our oils used for illuminating purposes in our mines in this district is being properly complied with. While there has been quite a number of barrels of oil condemned for the reason that it would not stand the test, there has been no deliberate violation of the law, and I am gratified to know that the law is accomplishing all that was intended by its enactment.

#### STRIKES.

There have been only two strikes of any importance in this district during the past two years. The miners of the Jasper County Coal and Mining company came out in the early spring of 1896, to resist a reduction in the price of mining. They were out about eight weeks when the company imported about eighty colored men and put them to work. This broke up the strike, and in a short time most of the old miners were back at work. Since that time this mine has worked steadily.

About August 15, 1896, the miners employed in the mines at What Cheer came out on a strike. They had several small grievances which they sought to have adjusted. At the time they came out they were weighing coal on top before screening, but after the strike was settled, which lasted ten or twelve weeks, the coal was weighed after being screened.

TABLE No. 1.

Showing the number of mines, annual output of lump coal, number of miners and other employees in District No. 2 for the year ending June 30, 1896.

NAME OF COUNTY.	Number of mines.	Number of tons of lump coal produced.	Number of miners employed.	Number of other employees.	Average price paid for mining.	Amount paid miners including yardage, etc.	Total amount paid other employees.	Average selling price lump coal per ton at mine.	Average expense for trucking, timber, props, etc.	Capital invested.
Jasper.....	20	131,300	390	100	\$ .80	\$6,900	\$9,500	\$1.20	\$3,000	\$240,000
Jefferson.....	9	4,200	21	5	.80	1,750	610	1.75	900	5,000
Keokuk.....	14	222,900	410	185	.75	106,725	80,400	1.30	84,500	200,000
Nashua.....	38	1,100,000	1700	720	.75	825,075	261,250	1.25	120,000	950,000
Scott.....	5	18,100	46	15	1.00	15,180	1,500	1.00	700	18,400
Van Buren.....	7	18,100	39	10	.80	15,500	2,540	1.75	600	13,300
Total.....	96	1,478,700	2591	1036	.75	\$1119,740	\$274,750	\$1.22	\$160,500	\$1,513,700

TABLE No. 2.

Showing the number of mines, annual output of lump coal, number of miners and other employees in District No. 2 for the year ending June 30, 1897.

NAME OF COUNTY.	Number of mines.	Number of tons of lump coal produced.	Number of miners employed.	Number of other employees.	Average price paid for mining.	Amount paid miners including yardage, etc.	Total amount paid other employees.	Average selling price lump coal per ton at mine.	Average expense for trucking, timber, props, etc.	Capital invested.
Jasper.....	21	153,000	391	110	\$ .74	\$114,750	\$42,450	\$1.25	\$6,000	\$263,000
Jefferson.....	10	5,000	25	6	.80	2,000	3,300	1.75	35,000	5,000
Keokuk.....	15	200,000	390	180	.75	151,200	31,300	1.30	35,000	201,000
Nashua.....	40	1,184,840	1756	715	.75	988,620	271,600	1.25	186,000	1,305,000
Scott.....	5	13,500	47	16	1.00	12,500	2,700	1.00	600	13,400
Van Buren.....	8	14,300	39	10	.80	12,970	2,600	1.75	675	14,500
Total.....	100	1,572,240	2592	1046	.75	\$1105,430	\$274,450	\$1.22	\$160,500	\$1,784,900

NOTE.—The above tables do not contain the salaries of superintendents, mine foremen, or other officials; neither do they contain the royalty that the different companies pay on coal.

TABLE No. 3.

Output of coal of the counties comprising District No. 2 for the past five years.

COUNTY.	1891.	1892.	1893.	1894.	1895.
Madison	1,472,300	1,472,300	1,472,300	1,472,300	1,472,300
Monroe	172,100	172,100	172,100	172,100	172,100
Boone	202,700	202,700	202,700	202,700	202,700
Jefferson	202,700	202,700	202,700	202,700	202,700
Van Buren	1,400	1,400	1,400	1,400	1,400
Van Wert	25,000	25,000	25,000	25,000	25,000
Total	1,775,800	1,775,800	1,775,800	1,775,800	1,775,800

## JASPER COUNTY.

Jasper county has at present about twenty mines, located in different parts of the county. There are fifteen shaft mines. The balance are slope or drift mines.

In the early part of the year 1895, a strike at the Jasper County Coal company's mines, before mentioned, reduced the total tonnage for the biennial period a good many thousand tons, for their capacity at that time was from 700 to 850 tons of lump coal, and the mine was idle about eight weeks.

Jasper County Coal company's mines Nos. 3 and 4 are located on the Iowa Northern railway about half way between Colfax and Valeria, No. 4 being a new plant opened and equipped within the past six months. The coal from No. 4 is hauled by an endless rope system over a double track on top of ground to the tipple at No. 3 mine, a distance of 1,600 feet, where the coal is handled over the same chute as No. 3 coal. Little Diamond Coal company's mine is located two and one-half miles north of Colfax, delivering most of its product to Colfax. Thos. Hanson, Jno. Gunter, and several other local mines are located from two to three miles east of Colfax, and furnish a good supply of coal to brick yards in that locality. There are several local mines south of Newton, the largest being the Snook's coal mine, two and one-half miles south, French Coal company's mine, three and one-half miles south, and the Carson Coal company's mine, two and one-half miles southwest. Several have been abandoned within the last two years, and some three or four new openings have been made. South of Prairie City or near Vandalia there are some five or six local mines that furnish considerable coal during the year to Prairie City, Vandalia, and surrounding country.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How sent to market.	Kind of power used.	Kind of coal or products.
Jasper County Coal company	Henry Thomas	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping
Little Diamond Coal company	Henry Thomas	Colfax	Shaft	Room and pillar	Fan	Steam	Local
Thomas Hanson	Thomas Hanson	Colfax	Shaft	Room and pillar	Furnace	Horse	Local
John Gunter	John Gunter	Colfax	Shaft	Room and pillar	Furnace	Horse	Local
Brown & Brice	Robert Brown	Prairie City	Shaft	Room and pillar	Furnace	Horse	Local
Crawford & Shultz	John Crawford	Vandalia	Shaft	Room and pillar	Furnace	Horse	Local
Walker Mine	John Waddel	Vandalia	Shaft	Room and pillar	Furnace	Horse	Local

## JASPER COUNTY--CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Snook's Coal company.....	Wm. Snook.....	Newton.....	Shaft.....	Room and pillar.	Fan.....	Horse.....	Local.
Robert Carson.....	Robert Carson.....	Newton.....	Shaft.....	Room and pillar.	Furnace.....	Horse.....	Local.
T. F. Welsh.....	T. F. Welsh.....	Newton.....	Shaft.....	Room and pillar.	Furnace.....	Horse.....	Local.
Wm. Burgess.....	Wm. Burgess.....	Melo.....	Shaft.....	Room and pillar.	Furnace.....	Horse.....	Local.
Robert Marshall.....	Robert Marshall.....	Trapel.....	Shaft.....	Room and pillar.	Furnace.....	Horse.....	Local.
Wm. White.....	Wm. White.....	Vandalia.....	Shaft.....	Room and pillar.	Furnace.....	Horse.....	Local.
French Coal company.....	E. F. French.....	Newton.....	Shaft.....	Room and pillar.	Fan.....	Horse.....	Local.

## JEFFERSON COUNTY.

Coal has been mined in commercial quantities in Jefferson county for a greater period probably than any other similar district in the state. This is probably due to the early settlement and to the small expense it requires to open a mine in a great many places in the county, owing to the exposures of coal and coal measures in the hills. The vein of coal in a county is of very good quality and runs from three to four and one-half feet in thickness.

The largest mines worked in this county were located at Perlee, northeast of Fairfield, which are now worked out. The Brown mine has been in operation for years, and is located at Coalport, near the edge of the county line. Along Cedar creek south and west of Fairfield, coal has been worked for many years. Directly south of town and just west of where the Birmingham road crosses the creek, the Bates mine is located, shaft sixty feet deep, coal about four feet in thickness. Most of its coal is hauled to Fairfield.

South of Libertyville about three miles is the Zimmerman mine. West of this mine is the Beyer mine. Other country banks are in operation in this neighborhood.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
A. J. Zimmerman.....	A. J. Zimmerman.....	Libertyville.....	Room and pillar.	Furnace.....	Horse.....	Local.	
W. W. Laughlin.....	W. W. Laughlin.....	Libertyville.....	Room and pillar.	Furnace.....	Horse.....	Local.	
George Bates.....	George Bates.....	Fairfield.....	Room and pillar.	Furnace.....	Horse.....	Local.	
Thomas Russell.....	Thomas Russell.....	Fairfield.....	Room and pillar.	Furnace.....	Horse.....	Local.	
John Clark.....	John Clark.....	County Line.....	Room and pillar.	Furnace.....	Horse.....	Local.	
Beyer mine.....	Beyer mine.....	Libertyville.....	Room and pillar.	Furnace.....	Horse.....	Local.	
Snooks mine.....	Snooks mine.....	County Line.....	Room and pillar.	Furnace.....	Horse.....	Local.	

## KEOKUK COUNTY.

Keokuk county is one of the large coal-producing counties. The North and South Skunk rivers run diagonally across the county. The principal mines now being worked are north of North Skunk, within a radius of five miles of What Cheer. The Crescent Coal company's mine is located four miles northwest of What Cheer, on a switch from the Chicago & North-Western railway. The North Star Coal company's mine is located on the Burlington, Cedar Rapids & Northern, three miles north of What Cheer. What Cheer Coal company's mine, No. 4, is located on the Burlington, Cedar Rapids & Northern. The Pioneer Coal company's mine is located on a switch running up to the North Star Coal company's mine No. 1. The Thomas Bros. Coal company has opened up a new mine on the Chicago & North-Western railway, above the Crescent mine. The Tower Coal company has a mine two miles south of What Cheer, on the Chicago & North-Western railway. The Columbia Coal company's mine is located on a switch from the Chicago & North-Western railway, running over to Wapaluks; this mine is about worked out.

There are six railroads running through this county. With such railroad facilities there is bound to be a great deal of prospecting done, and no doubt a number of pockets of coal that now underlie this county will be discovered in the near future.

There are quite a number of good local mines throughout this county, having a good trade during cold weather only, except those located near a brick yard or some public works.



KEOKUK COUNTY—CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Crescent Coal company.....	James Chew.....	What Cheer.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
North Star Coal company.....	Robert Greenhaugh.....	What Cheer.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Pioneer Coal company.....	M. A. Hollingsworth.....	What Cheer.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
What Cheer Coal company.....	E. M. Trescut.....	What Cheer.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Thomas Bros. Coal company.....	John Thomas.....	What Cheer.....	Slope.....	Room and pillar.....	Furnace.....	Steam.....	Shipping.....
Toward Coal company.....	W. S. Toward.....	What Cheer.....	Shaft.....	Room and pillar.....	Fan.....	Steam.....	Shipping.....
Thomas Thompson.....	Thomas Thompson.....	What Cheer.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
E. Mayar.....	E. Mayar.....	What Cheer.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
William Blatt.....	William Blatt.....	What Cheer.....	Shaft.....	Room and pillar.....	Furnace.....	Horse.....	Local.....
O. W. Olive.....	O. W. Olive.....	Delta.....	Room and pillar.....	Furnace.....	Horse.....	Local.....	Local.....
Martin Fisher.....	Martin Fisher.....	Delta.....	Room and pillar.....	Furnace.....	Horse.....	Local.....	Local.....
Charles Cordis.....	Charles Cordis.....	Richland.....	Room and pillar.....	Furnace.....	Horse.....	Local.....	Local.....
Thomas Turnbull.....	Thomas Turnbull.....	Packwood.....	Room and pillar.....	Furnace.....	Horse.....	Local.....	Local.....

MAHASKA COUNTY.

From the earliest days of settlement of the Des Moines valley Mahaska county has ranked among the leading coal producing counties of Iowa. In the early forties coal was found within the limits of Mahaska, and along in the seventies there was announced to the world the existence of rich deposits of mineral fuel in central Iowa. Mining, therefore, early became an important industry in this section of the state.

If the shipping mines of this county were operated up to their fullest capacity they would produce 7,500 tons of lump coal per day, or, by working 300 days in the year, would produce 2,250,000 tons of lump coal, requiring 3,400 miners to mine this coal, and 1,100 day men in and around the mines.

Mahaska county has within her borders thirty-eight coal mines, eighteen of them being shipping mines, controlled by the following companies:

The Consolidation Coal company, of Muchaknock, located at the terminal of the Belle Plaine branch of the Chicago & North-Western railway, has four mines, Nos. 6, 7, 8, and 9. Nos. 6 and 7 are located on a branch running northwest from Mucha-

knock yard. No. 8 is located on the branch running northwest five miles from the yard. No. 9 is a new plant, the shaft being sunk and equipped with all modern improvements within the past year. Trains leave Muchaknock each morning with the men for the different mines, and return the men in the evening. This company has in its employ about 600 men.

The American Coal company, of Oskaloosa, has two mines, Nos. 3 and 4. They have within the past two years put in at their No. 3 mine a tail rope system to haul the coal from the inside partings to the endless rope parting, the endless rope then hauling it a distance of one and one-fourth miles to the bottom of slope. No. 4 shaft has been sunk and equipped within the past two years. No. 3 mine is located at Evans on the Chicago, Rock Island & Pacific railway. No. 4 mine is one mile west of No. 3 on the Chicago, Rock Island & Pacific railway. The American has in its employ 425 men.

Oskaloosa Coal company, of Oskaloosa, has three mines, Nos. 2, 3, and 4. No. 2 is located on switch from Chicago, Rock Island & Pacific railway, one mile west of Beacon. No. 3 is located on the Chicago, Rock Island & Pacific railway, two and one-half miles south of Beacon. No. 4 is one and one-half miles south of No. 3, and has in its employ 150 men. No. 4 is located on a branch of the Chicago & North-Western railway, running up to the Consolidation Coal company's No. 8 mine. The company employs all told 300 men.

Whitebreast Fuel company's mine No. 28, located at Pekay on the Iowa Central railway, employs 300 men.

Iowa Fuel company, of Oskaloosa, has a mine located on the Chicago & North-Western railway at Colon, and employs 245 men.

Lost Creek coal company, of Oskaloosa, employs 215 men. The company has one mine at Lost Creek on the company's railway running from the mine to Stark, and connecting with the Iowa Central railway and the Burlington & Western railway.

Garfield Coal company, of Oskaloosa, has a slope mine northwest of Beacon, on the Chicago, Rock Island & Pacific railway, employing 165 men.

M. B. Foster Coal company, of Des Moines, has a mine located on the Chicago, Rock Island & Pacific railway at Fishville. Employs 145 men.

Hoover's Coal company, of Carbonado, is located on the switch running from main line of Iowa Central railway up to Carbonado.

Long Brothers, of Oskaloosa, are located on switch off the Burlington & Western railway.

There are several local mines that haul coal to the cars on railroads by wagon. There have been several small mines opened during the last biennial period in different parts of the county.

# MAHASKA COUNTY—CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
Consolidation Coal company.....	R. C. Burton.....	Muchaknock.....	Sh. & S.	Room and pillar.	Fan.....	Steam.	Shipping.
American Coal company.....	W. A. McNeill.....	Oskaloosa.....	Slope.	Room and pillar.	Fan.....	Steam.	Shipping.
Oskaloosa Coal company.....	John H. Ramsay.....	Oskaloosa.....	Sh. & S.	Room and pillar.	Fan.....	Steam.	Shipping.
Excelsior coal company.....	George H. Ramsay.....	Carbonado.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Iowa Fuel company.....	E. C. Smith.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Whitebreast Fuel company.....	D. O. Campbell.....	Pekay.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Garfield Coal company.....	George H. Ramsay.....	Oskaloosa.....	Slope.	Room and pillar.	Fan.....	Steam.	Shipping.
M. H. Foster Coal company.....	B. F. Montgomery.....	Fishville.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Columbian Coal company.....	W. F. Durfee.....	Rose Hill.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Long Brothers.....	Henry Long.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Lost Creek Coal company.....	E. C. Smith.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Haworth Coal company.....	D. Haworth.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Economy Coal company.....	B. F. Evans.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Hoover Coal company.....	H. A. Hood.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Shipping.
Guthrie Coal company.....	C. A. Hoover.....	Carbonado.....	Slope.	Room and pillar.	Fan.....	Steam.	Local.
Cook Coal company.....	J. D. Guthrie.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Local.
D. O. Hoen.....	P. Cook.....	Oskaloosa.....	Shaft.	Room and pillar.	Fan.....	Steam.	Local.
Leone Coal company.....	D. O. Hoen.....	Oskaloosa.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
William Evans.....	J. Leone.....	Oskaloosa.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
William Paterson.....	William Evans.....	Oskaloosa.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
Mike Carey.....	William Paterson.....	New Sharon.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
R. C. Davis.....	Mike Carey.....	Rose Hill.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
Kennel Coal company.....	R. C. Davis.....	Leighton.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
	Andrew Love.....	Muchaknock.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.

## SCOTT COUNTY.

Scott county has some eight or ten coal mines. The coal is about three to three and one-half feet thick, and is of an excellent quality, underlying a splendid roof. They are all local mines, working from five to thirty miners, and depend on wagon trade, a great deal of which comes from Davenport and Buffalo. They also have considerable farming trade. Coal is sold at the mines in this county at from \$1.50 to \$1.75 per ton. The coal is screened below in the mine, and each miner

pushes his coal to the bottom of the shaft or slope and cages it himself—just the same way as all the miners did who mined coal in Iowa in years gone by.

The larger mines are those of James & Son, located three-fourths of a mile west of Jamestown; McKin & McKin, located at Jamestown; Penn Coal company, located one-half mile south of Jamestown; Theodore Couch, located one mile north of Buffalo, and Thomas Webster, located one and one-half miles north of Buffalo.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
McKin & McKin.....	James McKin.....	Jamestown.....	Shaft.	Room and pillar.	Furnace.	Steam.	Local.
Williams Coal company.....	Geo. Hoyt.....	Jamestown.....	Shaft.	Room and pillar.	Furnace.	Steam.	Local.
Penn Coal company.....	Ed. McCallough.....	Jamestown.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
Clipper Mine.....	Lewis Long.....	Jamestown.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
Theodore Couch.....	Theodore Couch.....	Buffalo.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
Big Star Coal company.....	William Fridley.....	Buffalo.....	Shaft.	Room and pillar.	Furnace.	Horse.	Local.
James & Son.....	Samuel James.....	Jamestown.....	Shaft.	Room and pillar.	Furnace.	Steam.	Local.

## VAN BUREN COUNTY.

Van Buren county is in the southeast corner and in the southern tier of counties. The Des Moines river runs diagonally through the county, and near it most of the mines are located. There are four or five within a radius of three miles of Doud's station, also several local mines near Farmington. There are several other local mines in different parts of the county that are operated during cold weather.

There has been some prospecting done in Lee county, and one or two local mines opened up within the past year.

## VAN BUREN COUNTY—CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORK— THE MINE.	How ventilated.	Kind of power used.	Shipping or local.
Farmington Coal company	James Rice	Farmington	Shaft	Room and pillar	Furnace	Horse	Local
James Turner	James Turner	Hillabury	Shaft	Room and pillar	Furnace	Horse	Local
Findley Bros	David Cox	Hillabury	Shaft	Room and pillar	Furnace	Horse	Local
W. R. Carson	George Findley	Douglas	Shaft	Room and pillar	Furnace	Horse	Local
	W. R. Carson	Douglas	Shaft	Room and pillar	Furnace	Horse	Shipping

IMPROVEMENTS MADE IN THE MINES OF DISTRICT No. 2 FROM  
JUNE 30, 1895 TO JUNE 30, 1897.

## JASPER COUNTY.

NAME OF MINE.	Air shaft	Sec and o. ening.	Stairways.	Cover on cages.	Safety catches.	Safety gates.	Furnaces.	Fan.
Jasper County Coal company	1	1	1	1	1	1	1	1
Smoke Coal company	1	1	1	1	1	1	1	1
William White	1	1	1	1	1	1	1	1
Robert Carson	1	1	1	1	1	1	1	1
Total	4	4	4	4	4	4	4	4

## KEOKUK COUNTY.

Crescent Coal company	1	1	1	1	1	1	1	1
Pioneer Coal company	1	1	1	1	1	1	1	1
Toward Bros	1	1	1	1	1	1	1	1
Thomas Bros	1	1	1	1	1	1	1	1
William Blatz	1	1	1	1	1	1	1	1
Total	5	5	5	5	5	5	5	5

## MAHASKA COUNTY.

American Coal company	1	1	1	1	1	1	1	1
Oskaloosa Coal company	1	1	1	1	1	1	1	1
Consolidation Coal company	1	1	1	1	1	1	1	1
Garfield Coal company	1	1	1	1	1	1	1	1
Whitebreast Fuel company	1	1	1	1	1	1	1	1
Excelsior Coal company	1	1	1	1	1	1	1	1
Carbonado Coal company	1	1	1	1	1	1	1	1
M. B. Foster	1	1	1	1	1	1	1	1
J. D. Guthrie	1	1	1	1	1	1	1	1
Hoover's Coal company	1	1	1	1	1	1	1	1
Total	9	9	9	9	9	9	9	9

## SCOTT COUNTY.

James & Son	1	1	1	1	1	1	1	1
McKin & McKin	1	1	1	1	1	1	1	1
Total	2	2	2	2	2	2	2	2

## CASUALTIES.

The man who works below in a mine is perhaps more exposed to unforeseen and improbable dangers than a person engaged at any other kind of labor or mechanical work. Therefore, it is certainly very important to every man following such occupation, or one having charge of men underground, never to take any unnecessary chances. There occurred during the past biennial period, fourteen fatal accidents. Thirteen of this number occurred below and one on top. There were two non-fatal, which afterwards proved fatal; M. C. White, a fireman, at Consolidation No. 6, who was internally injured by inhaling some of the flames while the boiler-room was on fire; J. W. Cook, who was injured by trip of coal while doing some repair work on the endless rope system, from which he afterwards died, at the North Star mine, What Cheer, Keokuk county.



TABLE No. 4.  
Showing list of fatal casualties occurring in mines in District No. 2, during the biennial period ending June 30, 1897.

DATE.	NAME OF DECEASED.	CAUSE OF CASUALTY.	NAME OF COMPANY OR MINE.	WHERE LOCATED.
September 17, 1906	Edgar W. Davidson	Fell off of logs in his room.	Consolidation Coal company	Michalickock, Mahaska county.
October 1, 1906	J. A. Brown	Run over by car in his room.	Consolidation Coal company	Michalickock, Mahaska county.
November 8, 1905	A. S. Swanson	Run over by car in his room.	Consolidation Coal company	Michalickock, Mahaska county.
November 10, 1905	Walter Whiting	Run over by switch engine.	Oaklands Coal company	Oaklands, Mahaska county.
December 1, 1905	T. J. Jones	Struck by coal from a pillar.	D. Haworth	Oaklands, Mahaska county.
January 1, 1906	John J. Jones	Struck by coal from a pillar.	D. Haworth	Oaklands, Mahaska county.
March 1, 1906	Donald Townsend	Shot blown through a shot.	Unimolodation Coal company.	Evans, Mahaska county.
October 26, 1905	W. L. Lewis	Fell under car in his room.	Unimolodation Coal company.	Michalickock, Mahaska county.
November 1, 1905	W. R. Jones	Fell off of a log in his room.	Oaklands Coal company	Michalickock, Mahaska county.
January 27, 1907	Rolla Shoemaker	Fell off of slate in his room.	Pioneer Coal company	Thornburg, Kookuk county.
February 27, 1907	Wm Hendrix	Fell off of slate in his room.	Pioneer Coal company	Thornburg, Kookuk county.
March 1, 1907	John W. Hollis	Fell off of slate in his room.	Carbonado Coal company	Carlisle, Mahaska county.

TABLE No. 3.  
Showing list of non-fatal casualties of the Second Mining District, for the biennial period ending June 30, 1897.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.	RESIDENCE.
July 11, 1905	Elmer Dean.	Driver.	Two ribs broken.	Thrown from his car.	Polay.
August 10, 1905	Chas. Feltgen.	Miner.	Seriously burned.	Explosion in mine.	Quakachuck.
August 20, 1905	Smith McKay.	Box car loader.	Arm injured.	Squeezed bet. door & apron.	What Cheer.
September 17, 1905	Chas. Johnson.	Miner.	Back badly hurt.	Slipped on coal and prop.	Quakachuck.
September 27, 1905	Eliza Johnson.	Miner.	Leg broken.	Fell of slate.	Polay.
October 4, 1905	Mike McGraw.	Miner.	Two ribs broken.	Fring a shot.	What Cheer.
October 11, 1905	J. Brown.	Miner.	Rib fractured.	Explosion of shot.	Quakachuck.
October 12, 1905	George Parker.	Miner.	Leg broken.	Fell of slate.	What Cheer.
October 13, 1905	Benjamin Randall.	Miner.	Leg broken.	Fell of slate.	Bascon.
November 1, 1905	John Johnson.	Miner.	Leg broken.	Fell of coal.	Bascon.
November 12, 1905	J. Warren Cook.	Miner.	Injured internally.	Fell of rock & tip.	Bascon.
November 22, 1905	Ed. Middleworth.	Track layer.	Back injured.	Fell of slate.	What Cheer.
November 23, 1905	Ed. Reeves colored.	Miner.	Back injured.	Fell of slate.	What Cheer.
December 1, 1905	James A. Balk.	Miner.	Arm broken.	Fell of slate.	Quakachuck.
January 1, 1906	Charles Blauquet.	Miner.	Back dislocated.	Caught bet. car and rib.	What Cheer.
January 1, 1906	James Burnett.	Miner.	Head and face cut.	Fell of shoddy.	What Cheer.
January 20, 1906	Joe Featherston.	Driver.	Ankle spr. & head.	Fell of slate.	Colton.
March 1, 1906	Hal Bedford colored.	Miner.	Leg broken.	Fell of slate.	Quakachuck.
August 1, 1906	J. Nelson.	Miner.	Back broken & spine fractured.	Struck by slate.	What Cheer.
September 1, 1906	John Swail.	Miner.	Back injured.	Powder from shot.	Quakachuck.
September 1, 1906	Wm. Hillon.	Miner.	Burned.	Powder from shot.	Bascon.
October 1, 1906	John Brown.	Miner.	Spinal chord injured.	Fell of slate.	Bascon.
October 1, 1906	M. C. White.	Miner.	Ribs broken.	Fell of slate.	Bascon.
November 1, 1906	Harry Barclay.	Day man.	Three bones in face broken.	Fell of coal.	What Cheer.
December 1, 1906	William Berger.	Miner.	Right leg broken.	Fell of slate.	Bascon.
December 1, 1906	Wm. King colored.	Miner.	Spine injured.	Fell of coal.	Bascon.
January 1, 1907	John Fanning.	Miner.	Carp bone and shoulder blade broken.	Fell of rock.	Quakachuck.
February 1, 1907	David Simpson.	Miner.	Back severely bruised.	Fell of coal.	Colton.
March 1, 1907	S. Thomas.	Miner.	Shot in eye.	Fring of slate.	Quakachuck.
April 1, 1907	John A. Hall.	Track layer.	Left arm broken.	Fring of slate.	Quakachuck.
May 1, 1907	J. W. Brier.	Driver.	Back leg broken.	Fell of slate.	Polay.
June 1, 1907	Mike Bokos.	Driver.	Thigh broken.	Fell of slate.	What Cheer.

## LIST OF FATAL ACCIDENTS.

On November 8, 1895, James Brown and A. S. Swanson were found dead in the entrance to room No. 3 on ninth D entry in the Consolidation Coal company's mine No. 6, Mahaska county. A. S. Swanson was working in No. 3 room two months previous to this accident. While so doing Mr. Swanson drove through into some old workings where fire existed. Therefore, in order to protect the workings on the ninth D entry, No. 3 room was bratticed up to prevent any air going in the room or damps coming out on the entry. Mr. Swanson discovered, after the room was bratticed up, that he had left part of his tools in the room. He went to work, however, in another part of the mine, and did not try to get them then. About two months afterward, on November 7th, during the day he arranged with Mr. James Brown, who was brattice man, and had in his charge the keeping air-tight of all the stoppings in the mine, to go with him to room No. 3 on ninth D entry, open the stopping in that room, and help him get his tools out. Mr. Brown spoke to the mine foreman, Daniel Reece, about opening this stopping and Mr. Reece told Mr. Brown not to open the stopping for the reason the room would be full of damps and dangerous to go into. Mr. Brown and Mr. Swanson on the evening of November 7th, after the men had quit working in that section of the mine, went over to said room and cut a hole in the stopping large enough to crawl through. Mr. Brown was found next morning about 7 o'clock inside of the stopping, with a cord tied around his body, the other end of the cord in Mr. Swanson's hand, who was on the outside of the stopping, with his head in the opening they had cut in the brattice. Mr. Brown, knowing he could not carry a light, tied this cord around his waist so that Mr. Swanson could guide him back to this opening after he had secured the tools. But he was overcome with damps in that room before he was aware of it. And Mr. Swanson, in the act of trying to get Mr. Brown out, was also overcome, for the damps were coming out through the opening they had cut. After a careful examination of the mine and due consideration given all the evidence relating the accident, I find that the unfortunate men who lost their lives by this accident were alone to blame. Their safety in this instance was sacrificed by their own acts in taking risks which were not only rash, but contrary to their own instructions, their duty, and practical mining.

The coroner's verdict was: "That the deceased came to their death from breathing black damp, the same being caused by their own carelessness."

November 11, 1895, at 9:15 A. M., Augustus Larson was killed while acting as weighman and dumper at Howarth coal mine, Mahaska county. Deceased was a single man, 25 years of age. His usual work consisted of screening coal, etc. On the morning of the 11th the regular weighman did

not come to work; the top foreman sent Mr. Larson up to do the weighing and dumping at 7 A. M. He continued until 9:15 when, in pulling an empty car back to the cage, he instead pulled it into the open shaft, stepping into the shaft and pulling the car with him. From the evidence given at the inquest the gates were working all right up until this time, but for the want of oil had become dry and did not follow the cage down to this landing, as he could not have stepped into the shaft if the gates had come down.

During the day, December 10, 1895, Walter Wilson, a top employe working in the capacity of car trimmer for the Oskaloosa Coal company, of Mahaska county, at mine No. 4, was killed by a switch train while putting empties above the chute. In the act of jumping on the cars he evidently slipped and fell between them; five cars passed over him before the train of empties was stopped. The coroner's verdict was carelessness on the part of the deceased, he having in no way anything to do with the cars while the engine crew was putting them above the chute.

T. J. Jones, a miner employed at Howarth coal mine in Mahaska county, was killed January 23, 1896, by a shot blowing through a pillar of coal while Mr. Jones and his brother were going by. I found, on examining this pillar, that it was about eight to ten feet thick. This pillar of coal was between the back west entry and a room running parallel to the entry. The coal was six to seven feet thick and a free coal; the shot being drilled from the room was gripping and blew the coal the reverse of what was expected it would do. The coroner's verdict was that deceased was killed by coal from said shot.

Adolph Schoondick, on the evening of February 17, 1896, at 6:10 o'clock, met his death by falling down the Jasper County Coal company's mine in Jasper county. Mr. Schoondick was working on the night shift in the mine with Eli Cross. He left Mr. Cross in the engine room, where he was putting a wick in his lamp, and went up to the tippie on top in the dump house to get on the cage in order to go down the shaft. From the evidence given at the inquest, the deceased had no light, and in the act of opening the swinging gate, leading, he supposed, to the cage, must have opened the wrong gate and stepped into the shaft, falling on top of the cage below at the bottom of the shaft, a distance of 128 feet, where he was found by his partner, Eli Cross. The coroner's verdict was accidental death.

A fatal accident happened to Dennis Townsend, a miner mining coal in Mahaska county for the American Coal company in mine No. 2, on March 23, 1896, between the hours of 12 and 1. The deceased was killed by a shot of coal blown from a pillar between his room and the one going parallel with his room. A break was being made through the pillar. According to the evidence given at the inquest, Mr. Townsend had fired a shot on that rib to help make the break through, leaving the shot drilled in the same pillar from the other side too weak to do its intended work, consequently it blew the coal into Mr. Townsend's room, killing him instantly. The coroner's verdict was that the company was in no way to blame.

On September 15, 1896, in the Consolidation Coal company's mine No. 6, Mahaska county, Oleif Sanderson, a miner, was instantly killed by a piece of slate falling from the roof at the face of his room, No. 3, on east parallel entry. Upon examination I found Mr. Sanderson's room well timbered, with



the exception of this piece of slate, which was six feet long and four feet wide, coming from a slip in the roof. It had evidently been cracked from the top down by putting a prop tight under it, owing to the heavy part of the slate projecting over the road where he was working. Mr. Sanderson had timber in the room, but, no doubt, thought the room was safe. The coroner's verdict was "accidental death."

W. R. Lewis, employed as a driver, was killed in the Consolidation Coal company's mine No. 8 on the morning of October 19, 1896, while pulling a two car trip down the first grade on the east side to the parting at the bottom of the shaft. After a careful and painstaking examination of the track and grade over which Mr. Lewis pulled coal, I think the unfortunate man must have slipped and fallen between the car and the mule on the track, the car passing over his body. The coroner's verdict attached no fault to any one, the same being an unavoidable accident.

William Middlesworth, a miner in the employ of the American Coal company at mine No. 2, was killed on December 31, 1896, at 3 o'clock in the afternoon in room No. 3 on N entry. The deceased was loading a car of coal at the face of his room when a piece of slate fell from the roof, pinning him down on the edge of the car and killing him instantly. His partner, Mr. Pratt, not being at work that day, he was working alone and was not found until the driver, Edgar West, went into his room for his car. The deceased was a single man. I noticed, while examining this room after the accident, that two slips met each other at the point where this slate fell from. There had been a plank under this piece of slate and a prop under the plank four feet from the end of the plank, which plank was broken off at the prop. The coroner's verdict was "unavoidable accident caused by fall of slate."

Rolla Shoemaker, a timber man in the employ of the Oskaloosa Coal company at mine No. 2, was killed about 8 A. M., January 8, 1897. The deceased and another day man were sent into a room to remove some slate and secure some that was loose. There was a boulder on the right hand rib of their room three or four feet in diameter, which could not conveniently be timbered so as to take it down easily. Mr. Shoemaker, therefore, began fixing a place to let it fall in out of the way of the track, which was not far from the rib. While in the act of removing the material from under the boulder it fell, catching him partially under it, and injured him so that he died within two hours. The deceased knew this boulder was loose, and was trying to keep himself safe in case it fell before he was ready for it. A prop under it would have made it safe to work under, but, like nine men out of ten, Mr. Shoemaker was in a hurry, and did not take the time to put one up. The coroner's verdict was accidental death.

William Hendrix, a miner, was killed at 9 A. M., February 27, 1897, in the Pioneer Coal company's mine, which is located three miles northeast of What Cheer. This mine is in the hands of a receiver, Mr. Holderman, of Thornburg, Keokuk county. Mr. Hendrix was driving entry. He was, when killed, in the act of lifting a prop out of a car on his entry fifty-five feet back from the face of the entry, when a piece of roof fell, eight feet long, six feet wide, and three to six inches thick, crushing him against the edge of the car and killing him instantly. When I arrived and examined this entry I found it timbered up in good shape, but could plainly see

where the slate fell from. On questioning some of the men working near this place I found they considered it unsafe previous to the accident. The coroner's jury gave the following verdict: "We do find the deceased came to his death by a fall of slate in the Pioneer Coal company's works in said county, the same being accidental."

In the Jasper County Coal company's mine, three miles north of Colfax, Robert Spence was killed at 2 o'clock on May 6, 1897. Deceased was working with Albert Trevethan, drawing a pillar. They did not consider the roof dangerous. There were props under the piece of slate. The piece of slate swung the timbers under it, and falling on Mr. Spence buried him completely, killing him instantly. The coroner's verdict was that deceased came to his death from having his skull crushed by accidental fall of slate.

John Hollis, a miner employed at Battle Creek slope, owned by the Carbonado Mining company, was killed at 11 o'clock on June 12, 1897, by a fall of slate from the roof in his room. The coroner's verdict was that deceased came to his death by roof falling on him, and that no one was to blame.

## THE QUESTIONS OF LAST EXAMINATION.

### RULES AND REGULATIONS GOVERNING THE EXAMINATION OF CANDIDATES FOR THE OFFICE OF STATE MINE INSPECTOR OF IOWA.

10 A. M., APRIL 21, 1898.

1. Each candidate, before entering upon the examination, will register with the secretary of the board of examiners, his name, age, residence, citizenship, experience in coal mining in Iowa, and whether or not he has been acting as agent or superintendent of any mine for at least six months prior to his appearance for examination.
2. The written examination will consist of twenty-eight questions, and will be given in four sections, the board holding two sessions daily, of three hours each. All the questions given for any one session must be answered during that session, and in no case will answers be received to questions given at a previous session.
3. The candidates will be called for the oral examination in the order of the number on their cards. The oral examination of each candidate will be made separately, and he will be required to answer before the board such questions as may be propounded to him.
4. Each candidate will be assigned to a separate desk, and be furnished with writing material and a printed list of questions to be answered in writing; each answer must be numbered to correspond with the number of the printed question.
5. Write your name upon the numbered card furnished you, inclose the same in the envelop and seal it, but write nothing on the envelop. Put the number of your card upon the top of each sheet of your examination paper.



6. Each candidate must interpret the meaning of the written questions according to his own judgment. No information of this kind will be given by the board.

7. No one will be permitted to use, or to have in his possession, any notes or memoranda, or books of any kind, as aids in answering the questions during the examination, and anyone desiring to leave the room must first obtain permission from the board, and before retiring surrender his examination papers to the secretary.

8. Questions not answered will count zero.

9. All candidates whose examination (written and oral) shall show an average of 80 per cent, and who shall have met the requirements of the law in other respects, will receive from the board of examiners a certificate of competency, enabling them to stand before the governor as candidates for the office of state mine inspector.

10. No applicant for examination will be registered or received after the date and hour above given.

FLOYD DAVIS,  
Secretary.

#### WRITTEN EXAMINATION (FIRST SESSION).

1. Enumerate the most essential parts of our mining laws which pertain to the health and safety of the workmen employed in the mines.

2. What weight of coal will an average horse lift out of a shaft 100 feet deep, if the diameter of gin drum is four feet and that of the track twenty-four feet, the horse having a traction of 120 pounds? And what would be the time of winding, the horse traveling at the rate of two and one-half miles per hour?

3. What is ventilation, and why is it required in coal mines?

4. If the length of the air-ways of a mine were doubled, other conditions remaining the same, in what proportion would you have to increase the ventilating pressure to produce the same volume of air?

5. How much does the atmospheric pressure vary by a difference of one inch in the reading of the barometer?

6. How much more resistance does an air current encounter when traveling at 600 feet per minute than at 500 feet per minute, size of air-ways being the same? If the water-gauge is .76 of an inch at the lower speed, what will it be at the higher?

7. What gases are met with in the mines of this state, and which are the most frequent?

8. In the absence of carbureted hydrogen gas, why should we have explosions in our mines?

#### WRITTEN EXAMINATION (SECOND SESSION).

9. What are the advantages and disadvantages of the long wall and the room and pillar systems of working coal mines?

10. Which system, long wall or room and pillar, has the greatest per cent of accidents to life? Explain fully.

11. Given two air-ways, each 400 feet long, and having passed through them under constant pressure 9,000 cubic feet of air per minute. If one of them be shortened to 100 feet and the other increased to 1,000 feet, how much air will pass through each?

12. What is the total ventilating pressure on an air-way 6x7 feet, the water-gauge being .5 of an inch?

13. Given 10,000 cubic feet of air per minute through an air-way 10x8 feet, with a pressure of ten pounds per square foot, what is the length of the air-way?

14. Describe black damp and give its characteristics, how produced, detected, etc.

15. Find the motive column when the temperature of air in the down-east is 40 degrees Fahrenheit, and that of the air in the upcast 78 degrees Fahrenheit, the depth of shaft being 1,000 feet.

16. If 9,000 cubic feet of air per minute will circulate through a regulator 30x20 inches, how much will pass through another regulator 30x30 inches, under the same pressure?

#### WRITTEN EXAMINATION (THIRD SESSION).

17. Describe white damp, and give its characteristics, how produced, detected, etc.

18. What are the principles involved in obtaining the constant number 5.3 in connection with the water-gauge?

19. The length of the arm of the safety-gauge of a boiler is thirty-two inches, and the distance between the valve and fulcrum is four inches. The diameter of the valve is 2.5 inches, and the weight at the end of the lever is 30½ pounds. To what pressure per square inch will the boiler be subjected before the safety valve will be opened?

20. If the indicated horse-power of an engine operating a fan be forty, and the horse-power of the air be twenty-eight, what is the percentage of useful effect?

21. If 100,000 cubic feet of air pass per minute through an air-way with a two-inch water-gauge, what are the units of work producing the ventilation?

22. What horse-power will an engine exert when yielding 60 per cent of duty to move 100,000 cubic feet of air per minute, the water-gauge standing at one inch?

23. If the water-gauge stands 1.02 inches when the ventilating fan revolves sixty-five times per minute, what will be its reading when the speed of the fan is increased to ninety-six revolutions per minute?

24. Show by a sketch a set of timbers to resist both top and side pressure.

#### WRITTEN EXAMINATION (FOURTH SESSION).

25. What is the safe working load and breaking strain of a 1¼-inch steel wire rope?

26. The entry of a certain mine runs north forty-five degrees west. It is desired to measure a portion of this, but it is obstructed with water. It is found, however, that by starting at a certain point in the entry which we will call A, and running sixty yards west, thence twelve yards north, thence forty yards east, the said entry is again reached at a point we will call B. What is the distance from A to B?

27. A mine is ventilated by three splits of air, A, B and C; A taking 2,500 cubic feet per minute, B 1,500 cubic feet per minute, and C 2,000 cubic

feet per minute, out of a total of 6,000 cubic feet. What will each split take if the total ventilation be increased to 75,000 cubic feet per minute?

28. Draw a plan of an ideal mine capable of producing 300 tons of coal per day, showing the system of ventilating doors, stoppings, etc.

#### ORAL EXAMINATION.

1. What are the principal indications that would warrant one in drilling for coal?
2. What is meant by the term bituminous coal?
3. What are the principal detrimental compounds found in Iowa coal?
4. What are the causes of gob fires?
5. What are the essentials of a well ventilated mine?
6. What are the chief points to be noticed in the inspection of a coal mine?
7. In opening a mine on the room and pillar plan, what size pillars should be left?
8. What are the three most important points to be considered in laying out a new mine?
9. What are the advantages of using a transit over a compass in making a survey of a mine?
10. What instruments are necessary to measure the ventilation of a mine and how is the quantity of air in it ascertained?
11. How can the number of doors in a coal mine be reduced?
12. What method would you adopt to obtain a large amount of air with a low water-gauge?
13. How much has the ventilating power to be increased to treble the quantity of air in a mine?
14. What effect will a contraction of an air-passage have upon the water-gauge and the quantity of air that passes through it?
15. In driving a single entry with brattice, should the narrow or the wide side be the intake?
16. Is iron or steel the best material for hoisting ropes? Why?
17. Is the use of mining machines operated by compressed air beneficial or detrimental to the ventilation of a mine?

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## BIENNIAL REPORT

OF THE

## THIRD DISTRICT,

EMBRACING

Adair, Boone, Dallas, Greene, Guthrie, Marion, Polk, Story  
and Webster Counties.

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MORGAN G. THOMAS, INSPECTOR.

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## REPORT.

*Hon. F. M. Drake, Governor of Iowa:*

SIR—In compliance with the requirements of the mining law of the state, defining the duties of state inspectors of mines, I herewith submit the report of the Third district for the biennial period ending June 30, 1897. Very respectfully,

MORGAN G. THOMAS,  
*Mine Inspector Third District*

## INTRODUCTION.

This report contains the annual and biennial compilation of statistics of this district for the two years, including the prominent features pertaining to the business during that period, and also embodying some propositions or opinions formed from a personal knowledge and a careful study of the situation relative to the condition of the mining industry which, I believe, if practically conformed with, would demonstrate the fact that they would be promotive of, and the means of producing, good results. Although there have been no strikes nor anything that was menacing to the trade arising from any friction or disagreements between operators and miners that were of any consequence, still the business is in a very unsatisfactory state at the present time on account of low prices and an inadequate demand for the amount of coal that could and should be produced if the trade were in a normal condition.

Close competition in our home markets is largely responsible for the former, while the general stagnation of business, inactivity of capital, and the uncertain prospects of the commercial future will reasonably account for the latter. This inanimation and lifelessness of the trade has unavoidably made competition so close between operators that prices have been sliding down until they have reached a point where they cease to be remunerative to either operator or miner, as the cost of production is about what it is selling for in the market.

There has been an increase in the output in this district of about 300,000 tons, bringing the total up to something over 2,000,000 tons for the last biennial period, but with the same number of men employed as at present,



and with a market that would require the operating of the mines 300 days in a year to supply the demand, they could produce three times as much coal as is produced under the present mode of operating. The mines have the capacity, and the coal, and the work would be of great advantage to the miner. The main thing, and the only thing lacking, is an appreciable and reliable market. A proposition that I believe would be expedient and ultimately successful is for the mining districts to encourage and co-operate in building factories of various kinds that are adapted to the natural resources of their territory, creating a home market for the consumption of the coal, and lifting the depressing burden of hard times, caused by the slackness of work, from the shoulders of the miners.

Under present conditions there is an over-supply of labor in the mining camps, and it grows worse instead of better as the miners and laborers are increasing in number each year, while the annual output of coal has varied very little in the last ten years; and unless there can be new life instilled into the industry, and the business built up until it would insure employment to this surplus idle labor, I believe it advisable that a part of them at least should seek other vocations in life, especially the younger element. There is no doubt that they would do as well, and perhaps better, and it would also alleviate the congestion of the labor market in and around the mines.

Despite the adverse circumstances that the trade has had to contend with in the last two years, and the unflattering outlook for the business, there have been nine new railroad mines opened up since my last report, operators basing their hopes of success presumably on the grounds of a probable return to more prosperous times. With only three mines worked out and abandoned, it leaves a gain of six railroad mines for the biennial period.

The law enacted by the Twenty-sixth General Assembly to prohibit the sale of impure oil for use in the mines has been very satisfactory in its results. The only difficulty we have to contend with in regard to it is there are so many firms that manufacture cheap impure oil that there are few brands that come up to the required standard, making pure oil in the market a rarity. In my frequent visits to the mines of this district, I have been fortunate in finding them generally in good, clean, workable order. My complaints are few in reference to any neglect of operators in keeping their mines within the confines of the law, and when my official duty made it necessary to call their attention to any defects there was an accepted willingness on their part to make the improvements that I believed essential for the betterment of the sanitary or safety condition of the mines. I feel grateful to both miners and operators for their kind and mutual assistance, and their hearty co-operation relative to keeping the mines in first-class shape, also for the contribution of material that was necessary for the compilation of this report. This has made the work less burdensome, more expeditious, and very gratifying.

TABLE No. 1.

Showing number of mines, annual output, number of miners employed, value of product, etc., in District No. 3 for the year ending June 30, 1896.

NAME OF COUNTY.	Number of mines.	Number of tons of coal produced.	Average price per ton for mining.	Number of miners employed.	Number of other employees.	Total amount paid miners.	Total amount paid all other employees.	Total value of products at mines.	Average selling price per ton at mines.	Expense of prop., tracking, etc., at mines.	
Adair.....	1	1,600	\$1.00	8	8	\$1,600	0.00	3,240	\$2.46	1,640	
Boone.....	20	395,781	.85	610	204	318,011	108,120	210,431	1.74	40,500	
Dallas.....	10	10,328	.78	63	36	13,505	2,500	20,173	1.66	4,600	
Greene.....	11	19,840	1.10	815	36	21,608	3,840	26,380	1.60	1,000	
Guthrie.....	13	109,554	.87	367	108	131,981	60,220	226,317	1.18	7,548	
Marion.....	4	415,008	.74	983	304	407,413	125,871	540,836	1.20	42,640	
Polk.....	1	10,440	1.90	2	8	12,440	3,440	16,537	1.82	1,500	
Story.....	16	104,311	.79	268	116	92,530	28,432	127,011	1.30	6,840	
Webster.....	1	1,000	.025	70	2470	997	8910,391	8396,735	\$1405,478	\$1.41	\$119,190
Total.....	99	1,000,025	.87	2470	997	8910,391	8396,735	\$1405,478	\$1.41	\$119,190	

TABLE No. 2.

Showing number of mines, annual output, number of miners employed, value of product, etc., in District No. 3 for the year ending June 30, 1897.

NAME OF COUNTY.	Number of mines.	Number of tons of coal produced.	Average price per ton for mining.	Number of miners employed.	Number of other employees.	Total amount paid miners.	Total amount paid all other employees.	Total value of products at mines.	Average selling price per ton at mines.	Expense of prop., tracking, etc., at mines.
Adair.....	1	2,500	\$1.10	9	8	2,750	0.00	5,000	\$2.00	1,900
Boone.....	22	392,208	.82	700	247	374,307	98,390	583,440	1.62	92,500
Dallas.....	10	18,751	.84	55	35	14,596	3,000	25,945	1.54	3,000
Greene.....	11	17,096	.95	70	35	14,523	8,300	25,281	1.69	4,000
Guthrie.....	13	11,340	1.20	71	23	13,008	7,000	25,514	2.25	2,121
Marion.....	4	126,019	.68	253	79	91,009	17,340	110,217	.90	6,740
Polk.....	1	572,405	.74	1151	402	435,400	118,800	756,211	1.32	55,640
Story.....	16	12,340	.87	87	10	10,454	4,140	18,975	1.55	2,400
Webster.....	17	101,643	.78	402	130	79,263	41,400	134,109	1.32	8,700
Total.....	108	1,361,358	.87	2867	912	8954,443	4300,170	\$1648,973	\$1.37	\$174,541

NOTE.—The above tables do not contain the salaries of superintendents, mine foremen or other officials of the mines; neither do they contain the royalty that the different companies pay on coal, which is from eight to eighteen cents per ton.

TABLE No. 3.

Showing coal output of counties comprising District No. 3, for the past five years, in tons.

COUNTIES.	1893.	1894.	1895.	1896.	1897.
Adair.....		2,500	2,643	1,600	2,200
Boone.....	185,916	189,000	191,973	286,793	332,325
Dallas.....	36,188	17,590	18,503	18,701	16,781
Greene.....	49,543	14,000	38,709	32,828	17,933
Guthrie.....	14,000	12,540	11,240	10,449	11,340
Marion.....	232,828	172,847	180,361	198,554	138,619
Polk.....	466,408	555,000	594,861	415,406	378,895
Story.....			4,020	10,340	191,643
Webster.....	145,274	330,547	191,430	156,201	12,340
Total.....	1,130,877	916,434	853,954	1,039,022	1,391,798

#### LOCATION AND SHIPPING FACILITIES OF MINES IN THIRD DISTRICT.

There are 103 mines in the Third district subject to the inspection laws. Sixty-two are shipping mines and forty-one local. The shipping mines are those located on a line of railroad, and sell the bulk of their production to the railroads direct, or ship it by rail to markets outside their immediate territory. The mines that are not accessible to railroad transportation and are dependent upon a limited market, or are compelled to sell their coal at the mine for domestic use or other purposes, or transport it by horse or mule power in wagons, are classed in the inspector's report as local. The material object in this part of my report is to make as reliable a record as possible relative to the mines of this district, especially the shipping mines, their facilities and advantages in the way of transportation. The following will show where they are located and on what line of road.

There are thirteen on the Chicago, Rock Island & Pacific; ten on a branch of the Chicago, Burlington & Quincy; fourteen on the Chicago & North-Western; three on the Chicago Great Western; one the Chicago, Milwaukee & St. Paul; nine on the Mason City & Ft. Dodge; eight on the Minneapolis and St. Louis, and four on the Wabash. The majority of these mines load almost their entire output direct from the mine to railroad cars on track ready for shipping. Six counties have railroad mines: Boone, Dallas, Greene, Marion, Polk and Webster.

Boone county has twelve shipping mines; nine are located west of Booneboro on a branch of the Chicago & Northwestern railway, owned and operated by the following companies: W. D. Johnson Coal Mining company, Milford Coal Mining company, Crow & Marshall Coal Mining company, Clyde Coal Mining company, Zimbelman Coal Mining company, Carpenter Coal Mining company, Riverside Coal Mining company and Garden Hill Coal Mining company. At Frasier, in the northern part of the county on a branch of the

Minneapolis & St. Louis railway, the Boone Valley Coal and Railroad company's mines No. 1, No. 2 and No. 3 are located. The local mines are situated in nearly all parts of the county from Madrid in the south to Pilot Mount north, and from Zencorville in the east to Ogden west.

Dallas county has only two shipping mines at the present time. The Van Meter Coal Mining company's mines are located at Van Meter on the Chicago, Rock Island & Pacific railway. The Dawson Coal Mining company's mine on the Chicago, Milwaukee & St. Paul, at Dawson, is the only mine of any note located on this line of road in this district. There are several other mines in the county, but their trade is merely local.

In Greene county, the Angus Coal company's mine is the largest and practically the only shipping mine in the county. The coal is shipped over the Chicago, Rock Island & Pacific railway, from Angus, where the mine is located, to different points over that road. They employ about seventy men the year around. The several local mines in this county do quite a lucrative business during the fall and winter, necessitating the employment of from ten to twenty men to the mine during the local trade season.

The Guthrie county mines are all purely local, situated promiscuously over the county. The coal is of a very good quality and meets with a ready market during the fall and winter months, when the demand is such that operators enjoy a short season of prosperity in that line and give steady work to from six to fifty men to the mine during the time they are operated.

Marion county has about twenty mines located within its borders that come under the laws of inspection. They are about evenly divided as to number between local and shipping. Some of them do both a local and a shipping trade especially in the vicinity of Hamilton, where there are six or eight local mines that ship considerable coal during the year. Outside of these there is quite a number of local mines scattered over the county working from five to twenty miners during the fall and winter. The majority of the mines that do almost an exclusive shipping business are located on a branch of the Chicago, Burlington & Quincy railway that runs from Albia to Des Moines. The Black Swan Coal Mining company, at Swan; the Hawkeye Coal Mining company, and the Rawlings mine, at Flagler; and the Bussey Coal Mining company, at Bussey, are the main shipping mines on this line of road. At Dunreath the Success Coal Mining company is located. It ships the principal part of its output via the Wabash railway. The Otley mines, at Otley, get transportation over the Keokuk and Des Moines division of the Chicago, Rock Island & Pacific railway.

Polk county has eleven large and well equipped shipping mines located on the different lines of railroad that lead to the city of Des Moines. These eleven mines sell the bulk of their coal to railroad companies, or ship it by rail to other markets. Six of these shipping mines: The J. M. Christy Coal Mining company, the Carbondale Coal company's No. 1 and No. 2 mines, the Gibson mines, the Van Ginkel mine, and the Manbeck mines—are on the Chicago, Rock Island & Pacific railway. The Des Moines and Eureka Coal Mining companies' mines are on the Chicago & North-Western road, the Maple Grove and Western Coal Mining companies are on the Chicago Great Western railway, the Acme Coal company's mines are located at Runnells, on the Wabash railway. There are also fourteen local mines,



making in all twenty-five mines in the county. The local mines employ from ten to sixty miners each. The principal part of their output is sold at the mine or transported by wagon to different parts of the county and into the city of Des Moines, and sold to the factories and shops and for domestic uses.

Webster county has thirteen shipping mines. The Crooked Creek Coal & Railway company operates several mines at Lehigh and also owns a short line of railroad connecting Lehigh with Webster City, over which it ships the most of its product, loading the cars direct from the mines. The Webster County Coal & Land company's mines and the Corey mines, at Lehigh; the Pleasant Valley mines, Collins Brothers' mines, and the McClure mines at Coalville; are all on a branch of the Mason City & Ft. Dodge railway. The Craig Coal Mining company's mines are located at Kalo on the Minneapolis & St. Louis railway. There are several other mines in the county that employ from five to ten men each that rely solely on the local trade for the disposition of the product, as they have no railroad connection. Consequently they are not in operation except during the fall and winter.

## BOONE COUNTY.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUPERINTENDENT.	POSTOFFICE ADDRESS.	Kind of mine.	PLAN OF WORKING MINE.	How ventilated.	Kind of power used.	Shipping or local.
W. D. Morgan	W. D. Morgan	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
John Keating	John Keating	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
O. M. Carpenter	O. M. Carpenter	Boone	Shaft	Room and pillar	Fan	Steam	Shipping.
O. M. Carpenter	O. M. Carpenter	Boone	Shaft	Long wall	Fan	Steam	Shipping.
O. M. Carpenter	O. M. Carpenter	Boone	Shaft	Long wall	Fan	Steam	Shipping.
O. M. Carpenter	O. M. Carpenter	Boone	Shaft	Long wall	Fan	Steam	Shipping.
George H. Bowman	George H. Bowman	Boone	Shaft	Long wall	Fan	Steam	Shipping.
Thomas Carpenter	Thomas Carpenter	Boone	Shaft	Long wall	Fan	Steam	Shipping.
John E. Jones	John E. Jones	Boone	Shaft	Long wall	Fan	Steam	Shipping.
William R. Ryke	William R. Ryke	Boonsboro	Shaft	Long wall	Furnace	Steam	Shipping.
J. B. Muller	J. B. Muller	Boonsboro	Shaft	Long wall	Furnace	Steam	Shipping.
John Hutchinson	John Hutchinson	Zenoreville	Shaft	Room and pillar	Furnace	Steam	Shipping.
James Wilson	James Wilson	Pilot Mount	Shaft	Room and pillar	Furnace	Steam	Shipping.
John Dawson	John Dawson	Madison	Shaft	Long wall	Furnace	Steam	Shipping.

## DALLAS COUNTY.

Dawson Coal and Mining company	Peter Thomas	Dawson	Shaft	Long wall	Fan	Steam	Shipping.
Van Meter Coal and Mining company	C. B. Fitt	Van Meter	Shaft	Long wall	Fan	Steam	Shipping.
James Taylor mine	James Taylor	Dawson	Shaft	Long wall	Furnace	Steam	Shipping.

## GREENE COUNTY.

Angus Coal and Mining company	Samuel Sheppard	Angus	Shaft	Room and pillar	Fan	Steam	Shipping.
Michael Polich mine	Michael Polich	Angus	Shaft	Room and pillar	Fan	Steam	Shipping.
Henderson & Tharp	Henderson & Tharp	Angus	Shaft	Room and pillar	Furnace	Steam	Shipping.
Bennett mine	John Bennett	Angus	Shaft	Room and pillar	Furnace	Steam	Shipping.



GUTHRIE COUNTY.

NAME OF COMPANY, FIRM OR OPERATOR.	NAME OF SUBSIDIARY- TRUSTEES.	POSTOFFICE ADDRESS.	Kind of mine.	PLANS OF WORK- ING MINE.	How venti- lated.	Kind of power	Shipping or local.
Clippert mine	A. Merchant.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
A. Winters mine.	A. Winters.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
Marshall mine	A. Winters.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
S. S. Briggs mine.	James Marshall.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
P. P. Briggs mine.	S. S. Briggs.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
P. P. Briggs mine.	S. S. Briggs.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
Great Briton mine	D. D. Rogers.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
W. F. Williams mine	D. D. Rogers.	Faulter	Shaft	Long wall	Purifiers	Horse	Local
W. F. Williams mine	W. F. Williams.	Ray and Parsons.	Drift	Long wall	Purifiers	Horse	Local
Higgins, Hoops & Morris.	J. Higgins.	Parsons.	Shaft	Long wall	Purifiers	Horse	Local

## MARION COUNTY.

Black Swan Coal and Mining company.	Thomas Beck	Stead	Shaft	Room and pillar	Pillar	Room	Shipping
Oak Hill Coal and Mining company	George Beck	Stead	Slope	Room and pillar	Pillar	Room	Shipping
Osley Coal and Mining company	Samuel Hollins	Frithworth	Shaft	Room and pillar	Pillar	Room	Shipping
Osley Coal and Mining company	F. C. Russell	Osley	Shaft	Room and pillar	Pillar	Room	Shipping
Osley Coal and Mining company	J. A. Roudinol	Osley	Shaft	Room and pillar	Pillar	Room	Shipping
Wart & York mine	William Clark	Hamilton	Shaft	Room and pillar	Pillar	Room	Shipping
William Garbath mine	William Garbath	Knoxville	Shaft	Room and pillar	Pillar	Room	Shipping
Bassay mine.	William Gamble	Bassay	Shaft	Room and pillar	Pillar	Room	Shipping
John Younger mine	J. A. Poyers	Bassay	Shaft	Room and pillar	Pillar	Room	Shipping
David Fry mine.	John Younger	Bassay	Slope	Room and pillar	Pillar	Room	Shipping
William Fry & Miller mine	David Fry	Marxville	Slope	Room and pillar	Pillar	Room	Shipping
Wright & Miller mine	Fry & Miller	Osley	Slope	Room and pillar	Pillar	Room	Shipping
Lowth Whitchurch mine	Hugh McNish	Monks	Slope	Room and pillar	Pillar	Room	Shipping
Buck Whitchurch mine	Lewis Whitchurch	Attica	Drip	Room and pillar	Pillar	Room	Shipping

## POLK COUNTY.

J. M. Christie Coal and Mining company, No. 1	Des Moines	Room and pillar	Shaft	Steam	Shipping
Carbide Coal and Mining company, No. 1	Des Moines	Room and pillar	Shaft	Steam	Shipping
Carbide Coal and Mining company, No. 2	Des Moines	Room and pillar	Shaft	Steam	Shipping
Des Moines Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Kureka Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Gilson Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Des Moines Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Van Grinkl Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Bloomfield Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
North Riverside Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Koystone Coal and Mining company, No. 1	Des Moines	Room and pillar	Shaft	Steam	Shipping
Koystone Coal and Mining company, No. 2	Des Moines	Room and pillar	Shaft	Steam	Shipping
Des Moines Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Flat Brick Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Esch Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Esch Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Marbeck Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Gilfulton Heights Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Des Moines Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Western Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Conservative mine	Des Moines	Room and pillar	Shaft	Steam	Shipping
Des Moines Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Ross Griffith mine	Des Moines	Room and pillar	Shaft	Steam	Shipping
Des Moines Coal and Mining company	Des Moines	Room and pillar	Shaft	Steam	Shipping
Rock City mine	Des Moines	Room and pillar	Shaft	Steam	Shipping

## STORY COUNTY.

North Star Coal and Mining company.....	H. E. Smith	Sunnah	Shaft	Boom and pillar	Fun.	Steam.	Shipping.
WEBSTER COUNTY.							
Goodrich Creek Coal and Mining company, No. 1	W. O. Wilson	Lehigh	Bope	Long wall	Pinnacle	Steam	Shipping
Goodrich Creek Coal and Mining company, No. 2	W. C. Wilson	Lehigh	Bope	Long wall	Pinnacle	Steam	Shipping
Corry Coal and Mining company, No. 1	Boose Stephens	Lehigh	Bope	Long wall	Pinnacle	Steam	Shipping
Wheeler County Coal and Land company, No. 1	John Sullivan	Lehigh	Rope	Long wall	Pan	Steam	Shipping
Wheeler County Coal and Land company, No. 2	John Sullivan	Kato	Rope	Long wall	Pan	Steam	Shipping
Crane Coal and Mining company, No. 1	Jerry Dawson	Kato	Shaft	Boom and pillar	Pan	Steam	Shipping
Crane Coal and Mining company, No. 2	Jerry Dawson	Kato	Shaft	Boom and pillar	Pan	Steam	Shipping
Collins Valley Coal and Mining company, No. 1	Thomas Collins	Coastville	Bope	Long wall	Pinnacle	Steam	Shipping
Collins Valley Coal and Mining company, No. 2	Thomas Collins	Coastville	Bope	Long wall	Pinnacle	Steam	Shipping
Collins Brothers Coal company, No. 1	Thomas Collins	Coastville	Bope	Long wall	Pinnacle	Steam	Shipping
Irwin & Ives Coal and Mining company, No. 1	Irwin & Baker	Kato	Rope	Boom and pillar	Pinnacle	Horse	Local
Irwin & Ives Coal and Mining company, No. 2	Irwin & Baker	Kato	Rope	Boom and pillar	Pinnacle	Horse	Local
Albert Snee mine	Albert Snee	Coastville	Bope	Long wall	Pinnacle	Horse	Local
Samuel McGlre mine	Samuel McGlre	Sunnahville	Shaft	Boom and pillar	Pinnacle	Horse	Shipping

# SCALES TESTED.

Fifteen sets of scales have been tested as required by law, with the result that all of these were found to weigh correctly except five, which took from 100 to 150 to deflect the beam. All were at once overhauled and put in adjustment.

## NEW MINES OPENED IN THE THIRD DISTRICT.

### BOONE COUNTY.

Boone Valley Coal and Railroad company, No. 3.  
Crow & Marshall, No. 2.  
Carpenter Coal company, No. 2.

### MARION COUNTY.

Hawkeye Coal Mining company.

### FOLK COUNTY.

Western Coal Mining company.  
Eureka Coal Mining company.  
Bloomfield Coal Mining Company.

### WEBSTER COUNTY.

Webster County Coal and Land company, No. 1.  
Webster County Coal and Land company, No. 2.  
McClure Coal company.

## MINES ABANDONED.

### BOONE COUNTY.

Carpenter Coal company, No. 1.

### FOLK COUNTY.

Eureka Coal Mining company.  
Great Western Coal Mining company.

# MINE ACCIDENTS.

I have been requested by a number of the miners of my district to publish in my report the coroner's inquest on a few of the fatal accidents that occurred in the mines, so that they and the public may learn the nature and methods of these investigations. Two of such inquests will be found on the following pages.

While improvements in the nature of material and appliances for the support of the roof and sides in the roadways, and the method of using them, must tend to the diminution of accidents from falls of coal and roof, there is no question that unremitting, careful, and intelligent inspection by mine foremen, and the continual devotion of skilled labor in placing and securing reliable supports even when their necessity may seem open to question, constitute the best safeguard against accidents.

We may pass unsurmountable acts for the protection of the miner, but we shall have to teach him how to take care of himself before accidents in mines will materially decrease, especially those arising from falls of coal and roof at the face of the workings.

*Inquest held on the body of Alex Bell, held before J. J. Moore, J. P., and acting coroner, on the 3d and 4th days of January, 1896:*

Dan Burke on oath says: I reside at Ninth and Allen streets. I am a coal miner and work at the Lake Park mine. I was in the mine at the time Bell was killed. I heard the fall of slate. I was called to come and help take the slate off of Bell. I went to where the accident occurred and helped take the slate off of him. Bell was still alive when we took the slate off. He did not speak, but only moaned. We put him on a car. I did not know much about the condition of the room he was killed in. The condition of the rooms in this mine is about the same as other mines. The place that fell on Bell was about six feet long and three feet wide.

DAN BURKE.

William Johnston on oath says: I reside at Lake Park and work in the Lake Park coal mine. I was in the mine when Bell was killed. I heard the fall of slate, and heard Sneedon call for help. I went to Bell's room and helped take the slate off of Bell. He was not yet dead. He never spoke, but groaned. He had his legs drawn up and his face down, and was lying sideways. I helped take him out. We took him to the office, and I remained with him until he died. Outside of the dross slate I consider this room as safe as any other. The miners are usually supposed to take the dross slate down. It usually comes down with the coal. The miner is supposed to look after the safety of his own room.

W. JOHNSTON.



Dan Shuhan on oath says: I reside at 1058 West Eighth street. Am a coal miner and work in the Lake Park coal mine. I was in the mine when Bell was killed. I heard the fall of slate. Bell had been in my room not more than ten minutes before to get a wedge to knock something down with. I did not know whether it was to knock down coal or slate. I afterwards heard him hammering. Mr. Sneddon called for help. I went as soon as I could and helped take the slate off of him. His head was down—face first. He was all covered over when I saw him. He was still alive and groaning. The other men put him on a car and took him out. I think the mine is in as good and safe shape as other mines are.

DANIEL SHUHAN.

John Sneddon on oath says: I reside at No. 1305 Capital avenue. Am a coal miner, and am one of the proprietors of the Lake Park coal mine. I was in the mine when the slate fell on Bell. I was at work at the mouth of the room. I had just been in his room and saw where he had been wedging this piece of slate—trying to get it down. I went back to my work in the entry and had worked about half an hour. I heard him commence to wedge, and then heard a fall. I called and said: "Sandy, are you on top?" He said he was. He said: "Come in and see the big chunk of coal I knocked down." I went back to his room and he had knocked down in one chunk probably a carload or more. While I was in I took the pick and sounded the slate where he had knocked the coal down. It sounded solid. After this he remarked he thought he could keep that piece of slate up by putting a few props under it. I went again to my work. I had not worked more than five minutes when I heard him halloo and heard something fall. I called for help and ran to the place where I heard the slate fall. It was about one minute before anyone else came. I tried to remove the slate and could not do so. When help enough came we took the slate off of him. We carried him out and took him up the shaft. He was not yet dead. He never spoke, and died in about half an hour. I have been mining about forty years. I would consider the room Bell was in as being safe. It is the miner's place to look after the safety of his own room, and they do their own propping.

JOHN SNEDDON.

Ed. Herdman on oath says: I reside at the Flint brickyard; work in the Lake Park coal mine, and am a coal miner by occupation. I was present at the mine when Bell was killed. I was told a man was killed or hurt in the mine. I went to the office and told the clerk to telephone for a doctor. I then went down the shaft. When I got down they had the man in a car. We took him on top and to the office. He was yet alive. He was dead when the doctor came. He died 9:30 A. M.

ED. HERDMAN.

Dr. McNaughton on oath says: I reside in Des Moines; occupation medical student. I was sent to Lake Park coal mine January 3, 1896, to see Mr. Bell, the deceased. Found him lying on the floor of the office. I made examination and found he was dead. The injuries from which he died were on the head and side of the face.

L. D. McNAUGHTON.

STATE OF IOWA, } ss.  
POLK COUNTY.

At an inquisition held at the city hall on the 3d and 4th days of January, 1896, before J. J. Moore, J. P., and acting coroner of Polk county, Iowa, we the jurors on our oaths do say:

That the deceased, Alexander Bell, then and there lying dead, came to his death by being crushed and injured by falling slate while at work in the Lake Park coal mine, and from which injuries he died, and that the cause of said death was accidental and not otherwise.

Sworn and subscribed to by the jury this 4th day of January, 1896.

G. T. YOUNG,  
ED. CAHAL,  
WM. FISHER,

Jurors

Attest:

J. J. MOORE, Justice of the peace and acting coroner, Polk county, Iowa.

Inquest on the body of James Murphy, held before Rollin V. Ankeny, coroner, August 18, 1896.

STATE OF IOWA, } ss.  
POLK COUNTY.

Thomas Knox, of lawful age, being duly sworn, testifies as follows: I am 49 years of age. I am superintendent of Carbondale mine, Four Mile township. I reside at the mine. James Murphy has been employed in the Carbondale mine No. 2 as a digger. This afternoon the pit boss told me James Murphy had been killed. I went down to the second west entry off the north room No. 3. I found a fall of slate in the room. I was told Murphy was under the slate. We went to work and got him out. It took us almost half an hour; he was dead when we got him out. The piece of slate that came down on Murphy was about twenty inches thick, about fifteen feet long and about twelve feet wide. The vein of coal at that place is about three feet and ten inches thick. The breast of coal was about fifteen feet from where the slate fell on Murphy. He had fired the shots at noon and had taken the car in to load when this slate fell. I was in that room last Monday forenoon. The roof was not in good or poor condition; it was what we call drawn a little, but I did not consider it dangerous. John Braniff was Murphy's partner. They worked together in the room where accident occurred. He is an experienced miner. I did not talk to Murphy in particular regarding roof, but I did to Braniff, and he knows as well as I do how to take care of a roof. When we got Murphy out from under the slate, we found that the front part of his skull was crushed, the right arm broken, the right shoulder crushed in the same manner over and into the right upper lung; all severe, and combined would cause death. Finding him dead, we did not call a physician. It is the duty of the miner to see that the roof of his room is properly propped. It is the duty of the company to furnish all props asked for by the miner, which we have on hand ready.

THOS. KNOX.

John Braniff, of lawful age, being duly sworn, testifies as follows: I am a coal miner in the employ of the Carbondale Coal company, working at mine No. 2. I have been a coal miner about eighteen years. Worked



for Carbondale company three weeks. Have known James Murphy. He has been a coal miner about fourteen years. He and I were partners for the past three weeks. We had a double room. Nos. 2 and 3, in second west off the north. To-day, August 19, at noon we fired two shots. I did not deem the piece of slate dangerous. We had about four props under it when the shots were fired. It knocked the props out. We went back after dinner (Murphy and I). I stopped at the tool box and put a cotton in my lamp. Murphy went into room No. 2 and commenced to clean the track. I went up to the car and said to Jim, "How did the shots do?" He said he didn't know. I went to the face to see, and Murphy followed me. Both of us went directly under the piece of slate that fell. When I was close to the face of the coal, heard something crack behind me, and ran towards the face of the coal. He was not quick enough; it fell on him. Charles Erickson was standing close by. I told him to run for help. He went and brought several men in. I showed them about where Murphy was lying covered up. We commenced to move the slate away, and I came out of the mine. I afterwards saw him lying dead at the top of the mine. He was about 42 years of age; born in Durham county, England. Has been in the United States fifteen years. Been in Iowa almost all that time. He was a single man. The company furnished us props when asked for. It is the duty of each miner to look after the condition and safety of the roof of his room. There were loose props lying in our room at the time.

JOHN BRANIFF.

William Peterson, being duly sworn, testifies as follows: I am a mule driver in Carbondale mine No. 2. After dinner to-day, August 19th, I went into the mine as far as the second west entry, off the north. Some one came out halloing, "There is a man under the slate." I went into where he was. I saw we needed more help, and went down the entry and got more help. We commenced breaking up the slate so we could get him out. We worked there quite a bit till we found him. The man was James Murphy. He was dead. We put him in the car and took him out. I was in that room this forenoon. I did not know whether the roof was safe or not.

WILLIAM PETERSON.

Robert Berry, of lawful age, being duly sworn, testifies as follows: I am 24 years of age. Am in the employ of the Carbondale Coal company as mule driver in mine No. 2. To-day, about fifteen minutes past 1, I had come out on to the bottom, when they told me there was a man killed. I ran up to room No. 2, off the second west. We found a fall of slate and commenced breaking it to get the man out. We found the man was James Murphy, and he was dead. We put him in a car and took him out of the mine.

ROBERT BERRY.

STATE OF IOWA, }  
POLK COUNTY, } ss.

At an inquisition holden at Carbondale mine, No. 2, in Four Mile township, Polk county, on the 19th day of August, 1896, before R. V. Ankeny, coroner of the said county, upon the body of James Murphy there lying dead, by the jurors whose names are hereunto subscribed. The said jurors upon their oaths do say that the said James Murphy came to his death in room No. 2, second west entry off the north, in Carbondale Coal mine, No.

2, situated in Four Mile township, Polk county, Iowa, about 1:15 o'clock p. m., August 19, 1896, at the place above described, by means of being crushed about the head and body by a fall of slate which caused his death. And we further find from the evidence before us that said accident, casualty, and death were purely accidental and not otherwise.

In testimony whereof we have hereunto set our hands this 19th day of August, 1896.

WILLIAM CHOWLEY,  
CHRIST SMITH,  
W. K. GATCHELL,  
Jurors.

Attest:

R. V. ANKENY,  
Coroner of Polk county, Iowa.

TABLE No. 4.

Showing the number and cause of all fatal casualties in District No. 3, for the biennial period ending June 30, 1897.

DATE.	NAME OF DECEASED.	CAUSE OF CASUALTY.	NAME OF COMPANY OR FIRM.	WHERE LOCATED.
August 8, 1896	Cornelius Jackson.....	Falling slate.....	Black Swan Coal company.....	Swan, Marion county.
October 9, 1896	John Phlips.....	Falling slate.....	West Riverside Coal company.....	Des Moines, Polk county.
October 11, 1896	Alfred Peterson.....	By suffocation.....	Story City Coal company.....	Summit, Story county.
October 11, 1896	Ingelbert Iage.....	By suffocation.....	Story City Coal company.....	Summit, Story county.
October 11, 1896	George Payne.....	By suffocation.....	Story City Coal company.....	Summit, Story county.
October 11, 1896	Axel Eastland.....	By suffocation.....	Story City Coal company.....	Summit, Story county.
January 3, 1896	Alex Bell.....	Falling slate.....	Lake Park Coal company.....	Des Moines, Polk county.
April 23, 1896	Louis Romant.....	Falling slate.....	Boone Valley Coal & R. R. Co.....	Fraser, Boone county.
May 29, 1896	John Greenlede.....	Falling slate.....	Success Coal company.....	Dunsmuir, Marion county.
August 6, 1896	Joseph Werschay.....	Blown out shot.....	Carbondale Coal company.....	Four Mile Tp., Polk county.
August 19, 1896	James Murphy.....	Falling slate.....	Carbondale Coal company.....	Four Mile Tp., Polk county.
September 12, 1896	Paul Maas.....	Blown out shot.....	Carbondale Coal company.....	Four Mile Tp., Polk county.
September 14, 1896	Paul Moles.....	Explosion of powder.....	Christy Coal company.....	Youngstown, Polk county.
December 12, 1896	John Fairgrave.....	Fell off the tail chain.....	Boone Valley Coal & R. R. Co.....	Fraser, Boone county.
December 17, 1896	J. E. Hazen.....	Falling slate.....	Black Swan Coal company.....	Swan, Marion county.
January 21, 1897	Peter McClellan.....	Falling coal.....	Pleasant Valley Coal company.....	St. Dodge, Webster county.
January 23, 1897	John Ray.....	Falling coal.....	Pleasant Valley Coal company.....	St. Dodge, Webster county.

TABLE No. 5.

Showing non-fatal casualties of the Third Mining District.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.	RESIDENCE.
July 31, 1896	Joseph Watan.....	Miner.....	Back wrenched.....	Fall of slate.....	Des Moines.
August 29, 1896	A. P. Johnson.....	Miner.....	Hand and leg bruised.....	Fall of slate.....	Des Moines.
September 11, 1896	C. E. Broth.....	Miner.....	Back injured.....	Fall of slate.....	Lehigh.
September 25, 1896	W. B. Ketchum.....	Miner.....	Leg broken.....	Struck by coal.....	Hamilton.
September 25, 1896	Edward Kosich.....	Miner.....	Injured internally.....	Fall of slate.....	Marquetteville.
July 31, 1896	Herbert Viggers.....	Miner.....	Body burned.....	Explosion of powder.....	Asas.
September 4, 1896	William Nicholas.....	Miner.....	Back hurt.....	Fall of slate.....	Dunsmuir.
September 8, 1896	J. Davis.....	Miner.....	Head bruised.....	Shot fired.....	Des Moines.
October 21, 1896	Ed. Stoner.....	Car trimmer.....	Cut about head.....	Fall of slate.....	Runnells.
November 27, 1896	Max Savage.....	Miner.....	Head slightly bruised.....	Struck by coal from chute.....	Carbondale.
November 28, 1896	William Johnson (col.).....	Miner.....	Face and head bruised.....	Struck by coal.....	Carbondale.
November 28, 1896	D. Fossin.....	Miner.....	Face burned.....	Struck by coal.....	Boonsboro.
December 7, 1896	Charles Otterbein.....	Miner.....	Injured internally.....	Fall of coal.....	Boonsboro.
December 22, 1896	Annie Walker.....	Miner.....	Injured internally.....	Slipped off of chain.....	Des Moines.
March 4, 1897	John Morris.....	Driver.....	Leg broken.....	Foot caught between car and coal.....	Runnells.
March 20, 1897	Oscar Straus.....	Driver.....	Broken ankle.....	Fall of slate.....	Runnells.
March 31, 1897	Charles Walkden.....	Miner.....	Arm broken.....	Fall of slate.....	Runnells.

## IMPROVEMENTS MADE IN MINES DURING THE LAST TWO YEARS.

## BOONE COUNTY.

NAME OF MINE.	Air shaft.	Second opening.	Stairways.	Cover on cages.	Safety catches.	Safety gates.	Brakes on drums.	Fan.	Furnace.
Crow & Marshall .....	1	1	1	1	1	1	1	1	1
Boone Valley Coal and Railroad company .....	1	1	1	1	1	1	1	1	1
Zimelman Coal Mining company .....	1	1	1	1	1	1	1	1	1
Carpenter Coal Mining company, No. 2 .....	1	1	1	1	1	1	1	1	1
Total .....	4	4	4	4	4	4	4	4	4

## MARION COUNTY.

Hawkeys Coal Mining company .....	1	1	1	1	1	1	1	1	1
Standard Coal company .....	1	1	1	1	1	1	1	1	1
Success Coal company .....	1	1	1	1	1	1	1	1	1
Total .....	3	3	3	3	3	3	3	3	3

## DALLAS COUNTY.

Dawson Coal Mining company .....	1	1	1	1	1	1	1	1	1
Total .....	1	1	1	1	1	1	1	1	1

## GREENE COUNTY.

Angus Coal Mining company .....	1	1	1	1	1	1	1	1	1
Total .....	1	1	1	1	1	1	1	1	1

## POLK COUNTY.

Carboedale Coal Mining company .....	1	1	1	1	1	1	1	1	1
Western Coal Mining company .....	1	1	1	1	1	1	1	1	1
Van Ginkel Coal Mining company .....	1	1	1	1	1	1	1	1	1
Boonsfield Coal Mining company .....	1	1	1	1	1	1	1	1	1
Eureka Coal Mining company .....	1	1	1	1	1	1	1	1	1
Total .....	4	4	4	4	4	4	4	4	4

## WEBSTER COUNTY.

Webster County Land and Coal company, No. 1 .....	1	1	1	1	1	1	1	1	1
Webster County Land and Coal company, No. 2 .....	1	1	1	1	1	1	1	1	1
Oraig Coal Mining company .....	1	1	1	1	1	1	1	1	1
Total .....	3	3	3	3	3	3	3	3	3

## HOME MARKET.

## THE KEY TO PROSPERITY.

How to found a market with a demand extensive enough to utilize the output of coal that could be produced by the mines of Iowa if steadily operated to their full capacity is a question as important as it is problematic. The embarrassing condition of the trade the last few years, and the instability that exists at present, are apparently attributable to the lack of an adequate demand in an appreciative market. These facts are so obvious that we must realize that a diversion is necessary to anticipate any improvement in this line of commerce in the future. It should be converted to a channel that would render it more healthy, tangible and lucrative, and one that would be more in conformity with the amount of interest that capital and labor have involved in the business. If some practical method for an explicit solution of this problem could be advanced, and in a manner that would tend to keep the mines in steady operation twelve months in the year, it would be of inestimable value to the industry, and the emoluments to the state would be marvelous.

Twenty-five counties have coal fields or are possessed with good beds of coal, many of them productive, and many of them undeveloped simply for the want of some comprehensive inducement to capital and enterprise. The majority of those that are operative do not work more than one-third or one-half of the time because of an insufficient market. As to the exhaustion of the coal, there are no indications that it will be any way soon, as the resources are seemingly unlimited and ample to last for many generations. When a mine is worked out, or abandoned, it does not signify that the field is entirely destitute of coal, as many imagine. For instance, in the year 1882, there were several mines worked out or abandoned in Polk county. At that time only fifteen mines were in operation, while in the same field, in 1895, there were twenty-five mines of much larger capacity, thereby demonstrating the fact that new beds and new fields of coal can and will be discovered whenever it becomes evident to enterprise that there is a substantial market and an exigent demand for the product. It is not a question as to whether the coal can be produced, but the vital question is where to find or furnish a place to burn it at a fair compensation to the producers.

The annual output of the mines in the state is something over 3,000,000 tons, and the works running only about one-third or one-half of the time. Now, if an engrossing market could be contrived for the product, it could be increased to 9,000,000 tons, as the present capacity of the mines, if kept in steady operation, would be capable of accomplishing this without incur-



ring any extra expense, and by adding more miners, and making a few certain changes in some of the mines at an expense that would be nominal, it would enlarge the capacity of the present number of mines to 12,000,000 tons. The value of the total product of 1895 was \$4,300,000. If the mines were worked steady and run to their full capacity, the value of the output would exceed \$12,000,000, a difference in the amount of revenue of nearly \$8,000,000 annually. There are about 10,000 miners and employes in the state that depend almost exclusively upon this branch of industry for their maintenance, and being employed only four or five months in the year necessitates the practice of strict economy in domestic affairs to insure a living, while if they could have steady work the year round their total income would amount to \$7,000,000 or \$8,000,000 instead of \$3,000,000 or \$4,000,000, as it does now. Practically there is not much more expense to the operator in keeping the mine running 300 days in a year than three months, for when idle it requires about as much attention and expense to keep up repairs as when in operation.

From 1870 to 1880 we had a market for all the coal we could mine, and statistics show that the annual output was equal to what it is at the present time with a less number of well-equipped mines and a less number of miners, but the demand was sufficient to keep the mines in almost steady operation. Kansas, Nebraska and the northwest were the markets we entered with but little competition; but of late years Kansas, Colorado and Wyoming are producing large quantities of coal, and they having some advantages in the way of freights, competition has become so close that there is but small inducement for Iowa to enter the field as a competitor. While, no doubt, we are receiving an equal share of the trade, it is perceptibly smaller than in former years, and then we have Missouri on the south and Illinois on the east, two extensive coal producing states that are crowding our markets on the outside and along the borders of our state with a cheaper fuel than we can produce. Even the railroads are purchasing less coal than they formerly did, as the companies have built larger engines with about double the capacity of work of the ordinary engine and requiring very little more fuel to run them. Consequently our markets have become so stringent, not because Iowa coal is inferior in quality, for it is the equal of any in the western markets for any and all purposes, but it is because the resources have become greater and the demand less. Evidently the only alternative that will relieve the stringency of the situation and promote vigor and prosperity to the state is by building up home markets, rather than be contentions, and largely dependent upon a foreign and competitive market. It would be conducive of better results to encourage and assist enterprise in building factories in the coal territory, as every manufacturing establishment, regardless of the kind, if it takes fuel to run it, is a direct benefit to the coal industry. Operators and miners should take an especial interest in this matter, as I believe the future success of the business is dependent upon this. Build creameries, canning factories, brick and tile plants, or any enterprise that would have a tendency to increase the demand for coal. The brick and tile industry is of vast importance not only for the coal it consumes, but it gives employment to many, and then we have all the material and as good as there is in the United States for that purpose, and good markets in the

state and outside of the state, for while western states may be fortunate enough to have plenty of coal, they have not the superior quality of clay that Iowa has for manufacturing brick and tile; hence, we can enter their markets with this product with but little competition and burn our coal at home. According to the last census, the total value of all brick and tile establishments in the state, in 1895, was \$1,706,338; the amount expended for wages and manufacturing, \$914,631; value of raw material furnished, \$51,070. Add 5 per cent interest on value of investment and the total expense or outlay would be \$1,109,518. The value of manufactured product was \$1,638,756, showing a balance in favor of the industry of \$529,238. This should be some inducement at least to build up and extend the business. Hundreds of tons of this manufactured product was shipped outside of the state. Some of it found a market as far west as Denver, Col., at a fair profit to the producer.

The counties of Boone, Polk, Mahaska, Marion, Monroe, Lucas, Appanoose and Wapello are especially adapted to this business, as they can furnish all the raw material. They have plenty of fuel and good shipping facilities, and are endowed with all the essentials necessary for making it a success. With a view to commercial advantages it seems to me there should be a more extensive interest taken in promoting this line of industry throughout the coal fields of the state. The benefit would be not only to the miner, the operator, and those identified with coal, but to every line of business or industry in the county. It would create a demand for other products, it would give employment to many hundreds outside of mining that would otherwise, perhaps, be unemployed. In fact, the material and commercial advantages evolving from this source are innumerable. Canned goods constitute another industry that should receive the indorsement of the residents of this district, as the propagation of factories of this kind would enhance the value of many products at home that otherwise are dependent upon an exterior market, and would be conducive to a more extensive cultivation of these supplies, as every coal county in the state is immensely rich in producing quantities of grain, fruit, vegetables, etc., and could supply, or be made capable of furnishing, all requisites for many establishments of this kind. The total value of all the plants in this line of business in the state in 1895 was \$267,500. Their manufactured products are valued at \$447,857, while their expense for material and wages, including 5 per cent on value of investment, only amounted to \$269,312, showing a balance in favor of investments of \$178,545, which is evidently conclusive that the business is fairly profitable. No doubt the bulk of these products could be disposed of in the markets of Iowa, for there are many thousands of dollars paid out annually for this class of goods, thereby compelling us to contribute to the revenue of other states for the manufacture of an article that could and should be manufactured at home.

This territory is also well adapted to dairy purposes, and the building of creameries is a matter that should be given due consideration, for there are unexceptionable advantages in the way of excellent pastures, fine rolling land, fertile soil, good water, and plenty of cheap fuel, with all the combined factors that would make it the equal of any country in the United States for the manufacturing of butter, cheese, and all perquisites connected with the creamery business.

The promotion of these three lines of the previously mentioned industries into this territory would be especially consistent with the surroundings, and should meet with approbation from at least a majority of the people of the coal district, for if all of the present establishments connected with these lines of industries were situated in any one of these coal counties they could easily furnish the raw material and supply every demand equal to what the whole state now is doing. These facts are practical and of more than ordinary significance, and if adhered to would enable these counties eventually to bring to a realization the objective points which I have endeavored to make manifest to the residents of this territory. Study these propositions considerably, let all become interested in this matter; operators, miners, farmers, mechanics, and business men of all classes. Invite capital to investigate these innumerable advantages. Give encouragement to enterprise, lend your assistance and aid as a unit in promulgating the object of the suggestions that will ultimately lead to prosperity, and when this is accomplished you will have built up a substantial market for the products of your country, a home market for the product of the mines, and a demand that will justify them in running to their full capacity; giving work to at least 10,000 miners 300 days in the year. The factory and the mine are undoubtedly subservient one to the other, and there should be a concerted action on behalf of both in accelerating the attainment of success. Let the two industries co-operate and establish a lasting mutuality, uniting their energies in the interest of home manufactures, and prosperity will shine on the rich, and apparently unlimited, coal belt of Iowa.

#### IOWA'S PIONEER COAL OPERATORS.

THOSE WHO WERE INSTRUMENTAL IN LOCATING AND DEVELOPING THE FIRST COMMERCIAL MINES IN THE STATE.

Dr. David Dale Owen, of the United States general land office, in his report made in 1852, was the first to attract the attention of the public to the fact that there were localities in Iowa where rich deposits of coal could be found, but it seems at that time, or prior to 1858, there was but little interest manifested in developing the coal fields of the state; at least there are no records or references either verbal or written wherein we can base calculations of any kind that would be reliable in regard to coal. There probably were some small mines—drifts or slopes, opened and coal dug for domestic use only, and it is presumed that the demand for coal at that time was of little consequence, as the majority of the early settlers of the state were former residents of a timbered country, consequently they sought localities near the timber, as they believed that to be the only reliable resource for fuel. But as the population increased the prairies were developed into farms, villages grew into towns, towns into cities, and factories and railroads were built. Then it was that the demand for fuel

made it necessary for them to either import or produce their own coal with the knowledge, therefore, that the state was blessed with material to do the latter. Hence, subsequent results show that enterprise and capital became convinced that the coal industry was destined to become an important factor in Iowa's future commerce.

The first attempt made in collecting and compiling statistics of coal produced in the state was in the eighth United States census report of 1860. This report shows the total number of short tons produced in 1859 to be 48,263 valued at \$92,180. This is the first historical record we have of the production of Iowa coal. The next was the ninth United States census report, of 1870, which gives the amount of coal produced in the year previous as 283,467 short tons, valued at a little more than \$500,000.

In collecting these notes and reminiscences of the early days when the production of coal was a rarity in Iowa, I have endeavored to select nothing from references or data but that which I believe to be authentic and reliable. There will be nothing included here in regard to mines and operators except the shipping mines in the different parts of the state that were opened and operated prior to 1875.

The Iowa state census report, made in 1875, gives the number of tons of coal produced at 1,231,547 tons, valued at \$3,500,140, showing a gain of five-fold in product and value in five years. I have no doubt that the bases of their statistics were collected from the local as well as the shipping mines, but there are no tables compiled giving names of operators or amount of coal each produced annually, so that we are compelled to seek information from different sources.

#### APPANOOSE COUNTY.

The first railroad mine opened in Appanoose county was in 1872, located on the southwest branch of the Chicago, Rock Island & Pacific railroad. The mine was known as that of the Watson Coal and Mining company, with C. O. Godfrey president, and James Brown superintendent. Mr. Godfrey came here from Boston and was engaged in several mining enterprises in the state at that time. At present he is a resident of St. Louis. Mr. Brown was experienced and had a practical knowledge of mining. He left Iowa in 1875, going to Brazil, Ind., and shortly afterward was killed by accidentally falling down a shaft while engaged in mining at that camp.

The next mine in the county, of any importance, was opened in 1873 by Cope & Glenn, of Bloomfield, Davis county, located near Cincinnati on a branch of the Chicago, Burlington & Quincy railroad. In the same year the third mine was opened by the Appanoose Coal and Mining company, located on old Missouri, Iowa & Nebraska road, known now as the Keokuk and Western Railway. J. W. Summers, of Keokuk, was president of the company at that time. The mine at the present time is owned and operated by the Centerville Block Coal company. In the following year Oliver and Dargavel opened what is known as the Diamond Coal company's mine, at Centerville, near the Chicago, Rock Island & Pacific railroad.

#### BOONE COUNTY.

There was some local mining done in Boone county prior to 1865, but in a very limited way. In that year the Chicago & North-Western railway



reached the county, opening transportation to other markets, and was an incentive to enterprise in developing the coal field. The first shipping mine in this county was a slope opened in 1867 by T. N. Canfield and C. S. Taylor just west of Boonesboro, but shortly afterward they sunk a shaft 242 feet deep, and the company with but one change in its organization has continued in business at this place for nearly thirty years, hoisting coal out of the same shaft, hauling the product to the railroad in wagons, a distance of three miles, for the first few years. In 1874 the company was reorganized with Delos Arnold, president; C. H. Sherman, manager, and T. N. Canfield, treasurer. The company then built a railroad at its own expense from the mine to Boone, connecting with the main line of the Chicago & North-Western. Eventually it was purchased, and is now operated by the railroad company. In 1867, the Moingona Coal company opened a mine at Moingona, on the Chicago & North-Western railroad; John Hall, of Cedar Rapids, president, and W. Blythe, superintendent; John I. Blair, of New Jersey, was also a stockholder. At one time this company operated six mines in this vicinity, and for several years did an extensive business, their output being from 800 to 900 tons per day. As soon as the Chicago & North-Western railroad reached Council Bluffs the company shipped the principal part of its product to that point, and sold it to the Union Pacific Railroad company. After the coal mines at Carbon, Wyo., were opened, the Moingona company had to seek other markets for its coal. At the present time there is but little mining done here, but in its palmy days it was a scene of great activity and one of the largest camps in the state.

In 1874 the Northwestern Coal and Mining company was formed, with the Hon. J. F. Duncombe, of Ft. Dodge, president; Oliver Ames, of Boston, and Gen. G. M. Dodge shareholders. I have been unable to ascertain who was the first superintendent of this plant. A few years after a reorganization of the company took place, when Gen. G. M. Dodge became president of the company, and W. D. Morgan, superintendent. The mine did quite a shipping business for a number of years. While mentioning the name of Gen. G. M. Dodge as president of this company, we wish to vary from coal business long enough to call the attention of those interested in relics of the late war to the fact that there is now in Boone county the desk that was used by General Dodge during the rebellion. It has the stamp of U. S. on it in several places. It was sent here for use in the company's office, and is still in the county. I believe it would be a valuable addition to the collection of relics in the State Historical Department.

#### HARDIN COUNTY.

There was a mine opened near Eldora, Hardin county, in the year 1868, by a company that had C. C. Gilman as president, and William Phillips as superintendent. The mine was successfully operated for some time, but the vein of coal was below the bed of the Iowa river, and the consequence was that water gave them a great deal of trouble and expense, especially when the river was high. Finally the company was compelled to abandon the mine and seek other coal fields in the state that could be operated to a better advantage and at less expense. Mr. Phillips was an experienced miner and came to Hardin county in 1867, from Maryland, where he had previously been a successful mine operator for many years.

#### JEFFERSON COUNTY.

The Jefferson County Coal company opened a mine at Perlee, on the Chicago & Southwestern railroad, in 1868. The Hon. James F. Wilson, of Fairfield, was president of the company, and R. H. Herfford, superintendent. The mine did quite a lucrative business for a number of years.

#### JASPER COUNTY.

The Watson No. 1 was the first shipping mine in Jasper county. A company was formed in 1871. They elected John Aberheardt president, and James Miller superintendent. In that year the company developed the above mine, located four miles east of Colfax and about three miles south of the main line of the Chicago, Rock Island & Pacific railroad. A switch was built connecting the mine with the road over which the principal part of the product was shipped to markets outside of the county. The mine had a good run, and the company did a prosperous business for a number of years. They eventually sold the mine to C. F. Godfrey & Company.

The Couch mine, located three miles south of Newton, was put in operation in 1873. F. S. Griggs and D. S. Couch were the owners and operators. A switch was built from the mine to the Rock Island railroad. D. S. Couch was the mine superintendent, and has been interested in mining in that county until recently.

#### MAHASKA COUNTY.

The first mine in this county of any importance, that we have any authentic account of was located about half way between Okaloosa and Beacon, on or near the public highway that connects the two towns. John and James Burduss opened the mine and put it in successful operation in the year 1863.

A co-operative company was formed at Beacon in 1864 by nine men, each subscribing \$500 as capital stock for the purpose of developing and operating a mine in the vicinity of Beacon (then called Okaloosa Station), located on the Keokuk and Des Moines branch of the Chicago, Rock Island & Pacific railroad. The following were the nine stockholders in the company: J. G. Jones, E. J. Evans, D. J. Evans, Watkin Price, D. S. Davis, Daniel Davis, J. S. Morgan, Thomas Griffith and J. W. Rodeffer. A tram road was built from the mine to the railroad. Mules were used as the locomotive power to deliver the coal on the track where it was dumped into cars ready for shipment. The company did a flourishing business for about two years, and then sold the mine to Thomas Haight, of Keokuk, and Wesley Redhead, of Des Moines, who gave it the name of the Iowa Oil and Coal Company mine. A short time after this, J. W. Rodeffer, of Keokuk, bought an interest in the mine again and was elected president of the company. In 1872 George Williams, of Keokuk, superintendent of the Des Moines Valley Railway company, bought out the stockholders, and became sole proprietor of the mine. Simon Phillips was appointed general manager. They made some improvements and in 1873 the mine had a capacity of over 400 tons per day, being at that time the largest mine in the state.

In 1864 Thomas Haight and E. J. Evans opened a mine near Given, and constructed a tramway connecting with the Des Moines Valley railway,



using mules in hauling the coal to the railroad. John Baxter, who was the superintendent of this mine, is still a resident of that vicinity.

In 1869 J. W. Huggins, of Ottumwa, and Dr. A. C. Pridue, opened the Coal Valley mine at Muchakinoek and built one mile and a quarter of railroad connecting with the Iowa Central at Given. Huggins was president and Pridue was general manager. The company did a fair business for several years.

Mine No. 1 of the Consolidation Coal and Mining company was opened in 1872, at Muchakinoek. The officials of the company when first organized were: C. C. Gilman, president; H. W. McNeill, general manager; and William Phillips, superintendent. Many changes have taken place in the company since its formation, but the camp developed into one of the most prosperous and largest camps in the state. A branch of the Chicago & North-Western railway connects Muchakinoek with the main line at Belle Plaine, and the bulk of the coal is sent out over this line.

In 1874 the Eureka Coal Mining company, composed of Robert Lowry, George L. Davenport, William Larabee, C. C. Cole and J. K. Graves, opened a mine one mile southwest of Beacon. They had for their superintendent H. H. Heard. The mine was connected by a switch from the Keokuk & Des Moines Valley railroad. They did an extensive business until they consolidated with the Consolidation mines at Muchakinoek, when the mine was abandoned.

#### MORRIS COUNTY.

This county played quite an important part in the early production of coal in the state, and does yet. In 1868, McBride, Clark & Pridue opened the Avery mines three miles west of Frederick and six miles east of Albion, on the Chicago, Burlington & Quincy railroad. They had two shafts in operation, one close to the railroad track, the other one mile away, from which they moved the coal to the railroad by means of an iron tramway, operated by mules. In 1870, McBride and Clark retired, and afterwards the firm was known by the name of J. W. and A. G. Huggins & Pridue. The Hugginses lived in Ottumwa, and Pridue in Oskaloosa.

In 1869 a mine was opened at Coalfield, on the Iowa Central railroad, four miles west of Eddyville, called the Black Diamond Coal company's mine. Thomas Haight, Keokuk; E. J. Evans, Beacon; Gov. S. J. Kirkwood and Ezekiel Clark, Iowa City, and Wesley Redhead, Des Moines, were the incorporators. It did a large business for a number of years.

In 1870, at the same place, another mine was opened, with H. W. McNeill, Oskaloosa, president; William Phillips, superintendent; and W. A. McNeill, secretary. They gave employment to about seventy-five miners at one time, but abandoned this mine when they opened the mines at Muchakinoek.

#### POLK COUNTY.

There were numerous small mines in Polk county, worked principally in the winter season for a small local trade only, up to the year 1871, when the Sypher mine, afterward known as the Polk County mine, opened up as the first shipping mine. Mr. Sypher and John Phillips were the first owners and operators. The location of this mine was one mile south of the state capitol. It had a connecting switch with the Rock Island rail-

road. Many changes took place, and the mine was operated by several different companies before it was abandoned.

In 1872, the Watson and Eclipse mines were opened. The former was located east of the state capitol. A switch connected the mine with the Chicago, Rock Island & Pacific railroad. For several years it was successful, and proved a good investment to its incorporators. C. O. Godfrey was president and James Brown superintendent. The mine has long ago been abandoned. The latter, or Eclipse mine, was located south of the Des Moines river and about one and a quarter miles south of the state capitol. Its first officers were J. B. Yeoman, president, and Thomas Beck, superintendent. They had quite an extensive trade, shipping their coal over the Chicago, Rock Island & Pacific.

In fact, these three mines were the only ones of commercial importance in the county prior to 1874. In that year the Pioneer and Eureka mines were established and became operative. Wesley Redhead was president and James Clark superintendent of the Pioneer company, which was located near the Seventh street bridge on the south side of the river. The location of the Eureka mine was one mile due south of the state capitol, and it was in active operation for over twenty years. Norman Haskins was president and James Cormac superintendent when the company was first organized. The originality of the company was changed numerous times before the mine was worked out or abandoned. These mines were dependent upon the Chicago, Rock Island & Pacific railroad for transportation of their product. John Walters, Daniel Rees and James Miller can be classed as among the pioneer operators, as they were closely identified with the early discovery and development of the coal fields in this county.

#### WAPELLO COUNTY.

This county was one of the earliest producers of coal in the state, and was destined at one time to continue to be so, but she fell behind in her production and other counties took the lead. In 1868 this county had shipped 52,000 tons of coal out of one mine, which was the largest mine in the state and had shipped more coal than any other mine up to that time. It furnished large quantities of coal for the Keokuk market, and the article was considered of first-class quality. This mine was opened in 1865 by C. J. Love, and was operated by him for a number of years. It was situated at Alpine station on the Keokuk & Des Moines Valley railroad.

The Union Coal company, consisting of O. C. Godfrey president, and James Brown superintendent, with others, opened a mine in 1867 four miles north of Ottumwa, which was connected by a branch from the main line of the Chicago, Burlington & Quincy railroad. At this mine J. C. Osgood received his first lessons in mining. He afterwards became one of the most successful mine operators in the state.

The Hawkeye Coal Mining company was formed, and the mine was opened in the year 1873, by the following stockholders: James Harlan, Christ. F. Blake, and L. W. Vale. This company was afterwards called the C. F. Blake Coal Mining company, and did considerable business for a number of years.

A company was formed in Ottumwa in 1871, called the Ottumwa Coal Mining company. The stockholders were James D. Ladd, W. W. Ladd, Thomas D. Ladd, Amos D. Moss, W. B. Bonifield, and W. M. Kind. It opened and operated a mine in the vicinity of Ottumwa for some time.

## WEBSTER COUNTY.

The Ft. Dodge Coal and Mining company opened a mine in Webster county in 1870. The president of the company was J. L. Platt; superintendent, Thomas Flemming. The mine was located on Holiday creek, and about three miles south of the Illinois Central railroad. They built a tramway the entire distance, utilizing mule power in delivering coal to the road. After a few years of prosperity, it became subservient to the company's interest to widen the track and substitute steam power for that of mule, as the latter was inadequate.

The Duncombe & Richards mine was opened in the latter part of 1870 by J. F. Duncombe and Mr. Richards. In 1871 W. C. Wilson, of Webster City, opened a mine at Lehigh, and subsequently formed the Crooked Creek Coal and Railroad company. J. L. Platt, Hon. J. F. Duncombe, and the Hon. W. C. Wilson are really the pioneers of the coal industry in Webster county, as to them belongs largely the credit of its development in its early history.

## LEGAL DECISIONS ON MINING QUESTIONS.

*Duty of mine operator cannot be escaped by delegation.*—No duty devolving upon the owner or operator of a coal mine, or other work of a dangerous character, can be delegated to an agent or employee, so as to relieve the owner or proprietor of his personal responsibility. No duty required of him for the safety and protection of his employees can be transferred to another so as to exempt him from his liabilities. He may, and often must, delegate the performance of such duties to his subordinates; but he assumes the responsibility to all his servants, for the acts of those subordinates in that particular capacity, to the same extent as if those acts were literally his own. And a duty enjoined, either at common law or by statute, which is omitted, and by reason thereof injury occurs to some of the employees in the service of the delinquent party, it is the direct negligence of the person owing the duty, and not of his employees. (*Cherokee and P. Coal and Mining Co. v. Britton*, 45 Pacific Reporter, 101. (Court of Appeals of Kansas.)

*Liability is based on knowledge and lack of ordinary care.*—Before the owner or operator of a coal mine can be held liable for the death of one of his employees engaged in mining coal caused by the falling of loose rock or earth from the roof of the mine, it must be shown that the owner or operator had previous knowledge of the defective condition of the roof, or by the exercise of ordinary care and caution he could have discovered the defective condition. The owner or operator is only held to the exercise of superintendents, and in the construction and skillful operators and make it reasonably safe for the protection of those employed therein. And it is not evidence of negligence, or that he had knowledge of the defective condition of a roof, when he makes repairs immediately after an accident has occurred. (*Cherokee and P. Coal and Mining Co. v. Britton*, 45 Pacific Reporter, 101. (Court of Appeals of Kansas.)

*Injury to employee by mule in mine.*—An employee of a coal and iron mining company lost his foot while leading a mule attached to a coal car in one of the underground corridors of the mine. He claimed that the mule was vicious to the knowledge of the company, and that he was negligently and carelessly assigned to lead the mule in the business of drawing coal from the place where it was mined to the shaft; that he was ignorant of its vicious disposition, and on the day in question it became ugly, bit at him, struck at him with the fore feet, broke away, got loose, and in endeavoring to control the animal his lamp went out, and he caught his foot in the switch, and one of the wheels of the car passed over it, smashing it, and requiring amputation. The evidence of knowledge on the part of the mining company was denied. The superintendent of the company testified that its witnesses, who were brought from a foreign state, did not discuss the facts, while witness admitted that he talked them over with the superintendent during the journey, and when asked if they all on the train agreed that the mule was one of the best answered: "If we did, I would not tell you." Some other matters to which they testified were rather improbable. The court on appeal held that the evidence justified a verdict against the mining company. (*Sastry v. Hillside and Iron Co.*, 37 N. Y. S. Reporter, 457. (Supreme Ct. App. Div. 3d Dept. N. Y.)

*Assumption of risk by coal miner.*—The supreme court of Indiana in a recent decision said: The occupation of coal mining, where the employee must go into, as it were, the very bowels of the earth, by means of shafts and tunnels made for that purpose, and to work in rooms made by the removal of earth, slate, and coal, is one of unusual peril, and those who engage in it necessarily assume great risks. The nature of the employment is in itself so very hazardous that those who engage in it must know that it is attended with risks against which human foresight and skill cannot guard. One of the dangers attendant upon mining is that from falling earth, stone, slate and coal. These dangers are greatest, perhaps, in the rooms where the miner works, while the tunnels or entry through which he may have to pass to and from his work can be more or less guarded and protected. That as to all of the dangers ordinarily incident to the employment the employee assumes the risks is elementary law; but to determine what are the risks naturally and ordinarily incident thereto is not always easily done, depending to a very great extent upon the nature of the employment. It may be safe to state, however, as a general proposition, that under the usual and ordinary contracts of employment between a master and a servant, whether the engagement be for services in a factory, on a railroad, or in a coal mine, the master undertakes to use reasonable care to see that his machinery is in good condition and repair and that the place where the servant is to work is free from dangers other than those which are naturally incident upon the work to be performed. Hence, when it is said that a master operating a coal mine shall furnish his servants a reasonably safe place to work, it is not intended that the place shall be so timbered and guarded that rock, slate, earth or coal cannot fall, because to so protect the working place must necessarily destroy the ability to operate the mine. And, if the place furnished by the master appears to the servant to be free from any dangers except those which are naturally incident to the work, a servant, unless he sees that it is not so, has a right



to assume that the master has performed his duty and that the place is as it appears. It other words, the servant is not bound to seek for latent defects or dangers which do not necessarily arise from the nature of the employment, and against which it is the duty of the master to use reasonable care to guard. And, when it is said that the servant assumes the risk of dangers of which he has knowledge, it is not meant that he assumes no risks except from dangers of which he has actual knowledge, or which are patent, for he does assume the risk of latent as well as patent dangers, which are a natural incident to the service, and which it is not the duty of the master to guard against; that is, dangers, whether visible or invisible, known or unknown, at the time of employment, if they are such as naturally arise from the nature of the work to be performed, he assumes. It is for this reason that he is required to exercise reasonable care to ascertain and know of dangers which may exist or even arise suddenly and confront him during his service. He cannot shut his eyes to dangers that are obvious to those engaged with him who are ordinarily prudent. Unless the servant by his contract of employment agrees to, or the nature of the services to be rendered requires, that he inspect the place where he has to work for hidden or latent defects which are simply the result of the master's inattention or negligence, he is not bound to do so. The duty of inspection to ascertain and guard against dangers and defects not naturally incidental to the work to be performed by the servant rests upon the master. But, as to dangers which are naturally incident to the service, the servant is bound to acquaint himself, even to the extent, if necessary to do so, of a minute and thorough inspection. Hence, those dangers which an experienced miner knows must and do threaten him at all times are an incident to the service, and are assumed by him. *Linton Coal and Mining Co. v. Persons*, 43 N. E. Rep., 652.

*Injury to coal miner.*—In an action for injury claimed to result from the illegal negligence of a coal mining company, the burden of proof is on the miner, and he must show that the negligence complained of was the proximate cause of the injury. Where he willingly encounters a danger which is known to him the employer is not responsible for the injury that may result. *Massie v. Peel Split Coal Co.* (Supreme Ct. App. W. Va.) 34 Southeastern Reporter, 644.

*Assumption of risk by mine employee.*—An employe was injured by falling through a hole in an unfinished platform placed across a section of a salt mineshaft, near the bottom of the shaft. He had been working for the mining company about nine months, in sinking the shaft, and adjusting the timber work, and in making platforms at intervals, had daily traveled up and down the shaft, and was perfectly familiar with the nature of the work. The accident occurred while he, with another employe, was working on a platform where it was dark, and after he, at the request of his companion, had blown out his miner's lamp, provided by the company, and while the platform was lighted only by the candle used by his companion. He testified that he did not know of the hole, but admitted that if he had placed the light near the floor of the platform he could have seen the opening. The court held that he assumed the risks. *Sharpesteen v. Livonia Salt and Mining Co.* (Supreme Ct. App. Div., 4th Dept.) 38 N. Y. S. Reporter, 49.

*Non-liability of coal company for injury to employee.*—An employer was not liable for the death of an employe by his falling after having been caught by a rope, part of a hoisting apparatus, which commenced to tighten up just as he was stepping over it, where the employe was fully acquainted with the apparatus, and it was working as usual on the day of the accident, and the employe had been forbidden and his duties did not require that he should cross the rope. *O'Brien v. Staples Coal Co.* (Sup. Jud. Ct., Mass.) 43 N. E. Reporter, 181.

*Fire in mine: contributory negligence of miner.*—Where a miner, after having been notified of the outbreak of a fire in a mine in time to permit him to reach the shaft in safety, unnecessarily lingered in the mine, without notifying the men on the surface of his intention to do so, and it appears it would have been proper to stop a fan, which caused a circulation of air in the mine, or keep it running according to the location of the fire, a nonsuit on the ground of contributory negligence should be granted in an action to recover for his death, as said miner had no right to assume that those in charge of the fan knew the location of the fire, though the jury also find that the negligence of the mining company in stopping the fan was one of the concurrent causes resulting in the death of such miner. *Pugh v. Oregon Imp. Co.* (Supreme Ct. Wash.) 44 Pacific Rep., 547.

#### COAL PRODUCTION OF THE WORLD.

The steady advance of the United States in industrial development is well illustrated by the following figures: In 1868 and 1869, when the total output of the world was about 225,000,000 tons, the United States yielded but 14 per cent. In 1893, 1894 and 1895 the world's output exceeded 500,000,000 tons each year, of which the United States contributed about 30 per cent, thus having doubled its percentage. Great Britain, whose mines yielded more than 50 per cent of the world's product in 1868, now barely exceeds the product of the United States.

The output of the coal mines of the United States in 1895 exceeded that of any previous year in the history of the country, aggregating 172,426,366 long tons, an increase of about 13 per cent over the product for 1894. How, in the face of such seemingly prosperous conditions, is the falling off in value to be accounted for?

The coal-producing states maintained their same relative positions in 1895 as in 1894, as follows:

Pennsylvania, 57 per cent of the total.
Illinois, 13 per cent of the total.
Ohio, 7 per cent of the total.
West Virginia, 6.9 per cent of the total.
Alabama, 4.2 per cent of the bituminous output.
Iowa, 3.1 per cent of the bituminous output.

The other states come in the following order: Maryland, Kentucky, Colorado, Kansas.



## DEEPEST HOLE IN THE WORLD.

BORING IN SILESIA REACHES A DEPTH OF MORE THAN A MILE.

[From The Scientific American.]

The deepest bore hole in the world is one of 6,571 feet below the surface of the soil, made at Parnschowitz, near Rybrick, Upper Silesia. The previous record for depth was the 5,733 foot hole drilled some years ago at Schladebach, near Leipzig. The later bore hole was made in a search for coal measures, and eighty-three separate seams, some of considerable thickness, were penetrated. The hole was twelve inches in diameter at the beginning, and this was lined with a tube, about four-tenths of an inch thick; at a depth of twenty feet the bore was reduced to eight and one-fourth inches in diameter, and thus continued for 351 feet. At this point the blue marl encountered became so compact that the diamond drill had to be used, and under the action of the water the marl swelled to such a degree that the diameter of the pipe had to be again reduced. The greatest difficulty encountered was the great weight of the boring rods as the depth increased. Though steel was used, at a depth of 6,560 feet the total weight of the tools reached 30,155 pounds.

## SUMMARY.

In order that a complete review of the mining industry may be had, we have summarized the reports of the three districts in the following tables:

TABLE No. 1.

Showing number of mines, number of tons of coal produced, number of miners and other employees, total amount paid miners and other employees, value of product at mines, etc., for the year ending June 30, 1896.

NO. OF DISTRICT.	Number of mines.	Number of tons of coal produced.	Number of miners and other employees.	Average price per ton paid for mining.	Total amount paid to all other employees.	Total value of product at mines.	Average selling price per ton at mines.	Expense of track-laying, props, etc., at mines.
District No. 1.....	160	999,768	3,226	1.119	\$ 3,226	\$70,648	\$1,206.360	\$ 1.31
District No. 2.....	96	1,476,700	2,521	1.036	\$ 2,521	\$74,750	\$1,867.032	\$ 1.32
District No. 3.....	90	1,690,022	2,479	.897	\$ 2,479	\$104,478	\$1,411.180	\$ 1.41
Total.....	346	3,366,490	8,226	1.017	\$ 8,226	\$249,876	\$1,491.572	\$ 1.33

TABLE No. 2.

Showing number of mines, output of coal, number of miners and other employees, amount paid miners and other employees, value of product at mines, etc., for the year ending June 30, 1897.

NO. OF DISTRICT.	Number of mines.	Number of tons of coal produced.	Number of miners and other employees.	Average price per ton paid for mining.	Total amount paid to all other employees.	Total value of product at mines.	Average selling price per ton at mines.	Expense of track-laying, props, etc., at mines.
District No. 1.....	154	1,028,706	3,373	1.000	\$ 3,373	\$12,494	\$26,004	\$ 1.31
District No. 2.....	100	1,572,240	2,552	1.040	\$ 2,552	\$18,450	\$19,440	\$ 1.32
District No. 3.....	106	1,801,788	2,737	.912	\$ 2,737	\$20,170	\$18,079	\$ 1.33
Total.....	360	3,402,734	8,662	1.017	\$ 8,662	\$51,114	\$19,523	\$ 1.32

TABLE No. 3.

Showing the grand total for the state for the biennial period ending June 30, 1897.

NO. OF DISTRICT.	Average number of miners in operation.	Number of tons of coal produced.	Number of miners and other employees.	Average price per ton paid for mining.	Total amount paid to all other employees.	Total value of product at mines.	Average selling price per ton at mines.	Total expense of track-laying, props, etc., at mines.
District No. 1.....	157	2,015,474	3,302	1.004	\$ 3,302	\$12,922,319	\$26,040	\$ 1.31
District No. 2.....	96	2,048,940	2,573	1.036	\$ 2,573	\$18,450	\$19,440	\$ 1.32
District No. 3.....	106	2,360,810	2,737	.912	\$ 2,737	\$20,170	\$18,079	\$ 1.33
Grand total.....	359	7,325,224	8,612	1.017	\$ 8,612	\$51,542	\$19,523	\$ 1.32

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IOWA MINING LAWS.

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## IOWA MINING LAWS.

### CHAPTER 9 OF THE CODE.

SECTION 2478. *Inspectors.* The governor shall appoint three mine inspectors from those receiving certificates of competency from the board of examiners hereinafter provided for, who shall hold their office two years and until their successors shall be appointed and qualified, subject to removal by him for cause, their term to commence on the first Monday of April of each even-numbered year. Any vacancies occurring shall be filled in the same manner, the appointee to hold for the unexpired term only. Each inspector shall be in no way connected with or interested in mines or mining in the state, and shall, before entering upon the discharge of his duties, take an oath, to be indorsed upon his bond, faithfully and impartially to perform the same, and also give a bond in the sum of two thousand dollars with sureties, to be approved by the secretary of state, conditioned in accordance with the tenor of the oath, which shall be filed and, with the oath and commission, recorded in the office of the secretary of state. [21 G. A., ch. 140, §§ 1, 3, 5; 20 G. A., ch. 21, §§ 1, 3, 5.]

SEC. 2479. *Board of examiners.* The executive council shall appoint a board of five examiners, two of whom shall be practical miners, two mine operators, and one a mining engineer, each of whom shall have had at least five years' experience in his profession, each of whom shall hold office for two years, and shall qualify by taking an oath to the effect that he will faithfully and to the best of his ability perform the duty of examining candidates for the office of mine inspector, and truly try any charges made against any such inspector, and that, in recommending candidates, he will be governed by the evidence of qualification to fill the position under the law, without fear, favor or political or personal considerations, and will grant certificates of competency to candidates according to their merits and the requirements of law. [22 G. A., ch. 52, § 22.]

SEC. 2480. *Meetings—compensation.* Said board shall meet in the office of the state mine inspectors in the capitol on the first Monday in March of each even-numbered year for the examination of applicants; notice of which examination shall be published in at least one newspaper in each mining district not less than fifteen days preceding the date of such examination; and shall be furnished with the necessary stationery and other material for the examination in the same manner as other state officers are provided with supplies. The members shall receive as compensation for their services the sum of five dollars per day for the time actually



employed, with necessary traveling expenses, which shall be audited and paid in the manner provided for the salaries of other state officers, but in no case shall the per diem exceed fifty dollars a session to each member. [Same, § 23.]

SEC. 2481. *Examination—qualification of candidates.* The examination shall consist of oral and written questions in theoretical and practical mining and mine engineering, on the nature and properties of noxious and poisonous gases found in mines, and on the different systems of working and ventilating coal mines. During the progress of the examination, books, memoranda or notes shall not be allowed or used, and the board shall issue to those examined and found to possess the requisite qualifications certificates of competency for the position of mine inspector; but certificates shall be granted only to persons of twenty-five years of age or over, of good moral character, citizens of the state, and with at least five years' experience in the practical working of mines, and who have not been acting as agent or superintendent of any mines for at least six months next preceding such examination. [Same, §§ 24, 25; 21 G. A., ch. 140, § 1; 20 G. A., ch. 31, § 1.]

SEC. 2482. *Inspection districts—powers and duties of inspector.* The governor shall divide the state into three inspection districts, and assign one inspector to each district, who shall devote his entire time to his work, and before entering thereon, procure, to be paid for by and to belong to the state, all instruments necessary for the discharge of his duties, including a complete set of standards, balances and other means of adjustment in testing any and all apparatus used in weighing, and shall examine, test and adjust, as often as occasion demands, all scales, beams and other apparatus used in weighing coal at the mines. He shall examine all the mines in his district as often as the time will permit, keep a record of the inspections made, showing date, the condition in which the mine is found, the extent and manner in which the laws relating to the government of mines and their operation are observed and obeyed, the progress made in improvements for the better security to health and life, number of accidents happening and their character, the number employed, and such other and further matters as may be of public interest and connected with the mining industries of the state. He shall have the right at all reasonable times, by night or by day, to enter any mine in his district, or any district to which he may be sent by the governor, for the purpose of ascertaining its condition and the manner of its operation, by making personal examination and inquiry in relation thereto, but not so as to unnecessarily obstruct or impede the working of the mines; and to this end the mine owner or person in charge shall furnish such mine inspector all assistance in his power, and forthwith, upon the happening of any accident to any miner in or about the mine by reason of the working thereof which causes loss of life, shall report the same, by mail or otherwise, to the mine inspector and the coroner of the county. Each inspector shall have and maintain, at some suitable place in his district, to be approved by the governor, an office, and shall reside in the district and remain there, unless otherwise engaged in the conduct of his official duties. [22 G. A., ch. 54, § 21; 21 G. A., ch. 140, §§ 1, 2, 3; 20 G. A., ch. 31, §§ 1, 2, 6.]

SEC. 2483. *General office—report to governor—compensation.* The three inspectors shall maintain a general office in the capitol, and keep therein

all records, correspondence, documents, apparatus, or other property pertaining to their office; they shall meet in said office biennially on or before August fifteenth preceding the regular session of the general assembly, and make report to the governor of their official doings, including therein all matters which by this chapter are specially committed to their charge, adding such suggestion as to needed future legislation as in their opinion may be important. Each inspector shall receive for his services the sum of twelve hundred dollars per annum and actual traveling expenses, not exceeding five hundred dollars yearly, the traveling expenses to be paid quarterly upon an itemized statement duly verified and audited by the state auditor. [22 G. A., ch. 52, § 1; 21 G. A., ch. 140, §§ 3, 4; 20 G. A., ch. 31, §§ 3, 4.]

SEC. 2484. *Removal of inspector.* Charges of gross neglect of duty or malfeasance in office against any inspector may be made in writing, sworn to and filed with the governor, and must be made by five miners, or one or more mine operators; they shall be accompanied with a bond in the sum of five hundred dollars, running to the state, executed by two or more freeholders, approved and accepted by the clerk of the district court of the holders of their residence, conditioned for the payment of all costs and county of their residence, conditioned for the payment of all costs and the expenses arising from the investigation of the charges, and thereupon the governor shall convene the board of examiners at such time and place as he may designate, giving the inspector and the person whose name first he appears in the charges ten days' notice thereof. The board, at the time and place fixed, shall proceed to hear, try and determine the matter, and for this purpose shall summon any material witness desired by either party, and may administer the proper oath to all witnesses. Evidence may also be taken by deposition as in other cases, and continuances of the hearing may be granted in the furtherance of justice and upon the application of either party. After the evidence has been fully heard, the board shall report to the governor the results of its investigation, and if the charges are sustained the inspector shall be forthwith removed by the governor, and in any event the costs and expenses of the hearing shall be awarded against the inspector or the bondsmen as the case may be. [21 G. A., ch. 43; 20 G. A., ch. 31, § 16.]

SEC. 2485. *Maps of mines—surveys—double damages.* The owner or person in charge of any mine shall make or cause to be made an accurate map or plan of the same, on a scale of not less than one hundred feet to the inch, showing all the area mined or excavated, and on or before the first day of September of each year cause to be made a statement and plan of the progress of the working of the mine up to date, which progress shall be clearly indicated upon the map hereinbefore required; a failure to comply with this provision for sixty days shall authorize the inspector of the district to cause the same to be done at the expense of the owner, which may be recovered in an action against him by the person doing the work, and the maps so made shall include and cover the entire mine. All maps shall be kept exposed in the office of the mine, and said maps shall be subject to public inspection. The owner of any mine which is worked out or abandoned, or his agent, shall deliver a correct map thereof to the inspector to be filed in his office. Upon affidavit of any adjoining land owner in the vicinity of said mine, or his agent, that it is necessary for the protection of his property to know how near his land the excavations in the mine

extend, the inspector shall make an examination, employing a surveyor therefor, if necessary, to determine the length and direction of entries leading toward the land of the applicant and the extent of excavation of same on all of his land, if any, and make report of the same to him. The necessary expenses, including compensation of five dollars per day each to the inspector and surveyor, shall be paid by the applicant, except when it shall be shown that said applicant's property has been undermined, in which case, the expense shall be paid by the mine owner or operator. Any owner or person operating a mine, who, without permission, takes coal from adjoining lands, shall be liable in double damages therefor and for all expenses caused thereby. [20 G. A., ch. 21, § 7.]

Sec. 2486. *Escape and air-shafts.* The owner or person in charge of any mine operated by shaft, or one having a slope or drift opening in which five or more men are employed, shall construct and maintain at least two distinct openings for each seam of coal worked, which in shaft mines shall be separated by natural strata of not less than one hundred feet in breadth, and in slope or drift mines not less than fifty feet in breadth, through which ingress and egress at all times shall be unobstructed to the employees, and in slope or drift mines shall be provided with safe and available traveling ways; all traveling ways and escapes to be kept free from water and falls of roof. All escape-shafts not provided with hoisting appliances as hereinafter provided shall have stairs at an angle of not more than sixty degrees in descent, kept in safe condition, with proper landings at easy and convenient distances apart. He shall provide all air-shafts where fans are used with working fans for ventilation, and those used for escapes with suitable appliances for hoisting underground workmen, at all times ready for use while the men are at labor, and no combustible material shall be allowed to be or remain between any escape-shaft and hoisting-shaft, save as it may be absolutely necessary in the operation of the mine. A furnace-shaft, if large enough, may be divided into an escape and a furnace-shaft, the partition to be of incombustible material for a distance of not less than fifteen feet from the bottom thereof, and so constructed throughout as to exclude the heated air and smoke from the side used as an escape-shaft. Where two or more mines are connected underground, the several owners, by joint agreement, may use the hoisting shaft or slope of the one as an escape for the other. In all cases where escape-shafts are constructed less than one hundred feet from the hoisting-shaft, there shall be built and maintained an underground traveling-way from the top of the escape-shaft, so as to furnish the proper protection from fire for a distance of one hundred feet from such hoisting-shaft. No escape-shaft shall be located or constructed without first giving notice to the district inspector, who shall determine the distance it shall be from the main shaft, and without his consent it shall not be less than three hundred feet, nor shall any building except the fan-house be placed nearer than one hundred feet of the escape; but the provisions of this chapter relating to escape-ways shall not apply to mines where the same are lost or destroyed by reason of the drawing of pillars preparatory to the abandonment of the mine, and in such mine not more than twenty persons shall be employed at one time. [20 G. A., ch. 55, §§ 1, 2; 20 G. A., ch. 21, §§ 8, 9.]

[These provisions appear to have been enacted for the protection of miners in case of accident, and to require open and unobstructed means

of escape. They do not require that all entries in the mines shall be propped or roofed with timber or other materials: *Fosburg v. Phillips Fuel Co.*, 61 N. W., 400.]

Sec. 2487. *Time for constructing outlets.* In all mines there shall be allowed one year to make outlets as provided for in section twenty-four hundred and eighty-six, but not more than twenty men shall be employed in such mine at any one time until the provisions of section twenty-four hundred and eighty-six are complied with; and after the expiration of the period above mentioned, should said mine not have the outlets aforesaid, it shall not be operated until made to conform to the provisions of section twenty-four hundred and eighty-six.

Sec. 2488. *Ventilation.* The owner or person in charge of any mine shall provide and maintain, whether the mine be operated by shaft, slope or drift, an amount of ventilation of not less than one hundred cubic feet of air per minute for each person, nor less than five hundred cubic feet of air per minute for each mule or horse employed therein, which shall be so circulated throughout the mines as to dilute, render harmless and expel all noxious and poisonous gases in all working parts of the same; to do this, artificial means by exhaust-steam, forcing-fans, furnaces, or other contrivances of sufficient capacity and power, shall be kept in operation. If a furnace is used, it shall be so constructed, by lining the up-cast for a sufficient distance with incombustible material, that fire cannot be communicated to any part of the works. When the mine inspector shall find the air insufficient, or the men working under unsafe conditions, he shall at once give notice to the mine owner or his agent or person in charge, and, upon a failure to make the necessary changes within a reasonable time, to be fixed by him, he may order the men out, to remain out until the mine is put in proper condition. [20 G. A., ch. 55, § 3; 20 G. A., ch. 21, § 10.]

Sec. 2489. *Safety appliances—competent engineers—boys not employed.* The owner or person in charge of any mine shall in all mines operated by shaft or slope, where the voice cannot be distinctly heard, provide and maintain a metal speaking-tube or other means of communication, kept in complete order from the bottom or interior to the top or exterior, also a sufficient safety catch and proper cover over head on all cages, and an adequate brake to all drums or other devices used for lowering or hoisting persons, an approved safety gate at the top of each shaft, springs at the top of each slope, and a trail attached to each train used therein. He shall not knowingly place in charge of any engine used in or about the operation of the mines any but experienced, competent and sober engineers, who shall not allow any one but those designated for that purpose to handle or in any way interfere with it or any part of the machinery, nor shall more than ten persons be allowed to descend or ascend in any cage at one time, or such less number as may be fixed by the district mine inspector, nor any one but the conductor on a loaded cage or car. He shall not allow a boy under twelve years of age to work in the mines, and, when in doubt regarding the age of one seeking employment, shall, before engaging him, obtain the affidavit of the applicant's parent or guardian in regard thereto. He shall at all times keep a sufficient supply of timber to be used as props, convenient and ready for use, and shall send such props down when required and deliver them to the places where needed. [20 G. A., ch. 21, §§ 11-13, 15.]



[As to an employe not chargeable with the duty of looking after the safety of the entries in which he is employed, the mine owner does not discharge his duty by simply providing props for use, but is responsible for the general safety of the entry: *Carson v. Coal Hill Coal Co.*, 70 N. W., 185.]

SEC. 2490. *Scales and weighers—records—payment in money.* The owner or operator shall, if the miners are paid by weight, provide the mine with suitable scales of standard make, and require the person selected to weigh the coal delivered from the mine to be sworn before some person authorized to administer oaths, to the effect that he will keep the scales correctly and truly balanced, and accurately weigh and a true record keep of each car delivered, which oath, with that of the check-weighman hereinafter provided for, shall be conspicuously displayed with record of weights at the place of weighing, which record shall carry the account of each miner by itself, be open to the inspection at all proper times of miners and all others having a pecuniary interest in the mine, and all damages sustained on account of a failure to weigh and credit to the proper person any coal mined shall be recoverable in an action brought within two years from the time the right thereto accrued, and a knowledge of a violation of this provision by the miner shall not be a defense thereto. The miners employed and working in any mine may furnish a competent check-weighman, who, before entering upon his duties, shall make and subscribe to an oath to the effect that he is duly qualified and will faithfully discharge his duties as check-weighman, and he shall at all proper times have access to and the right to examine the scales, machinery or apparatus used in weighing and seeing all measures and weights of coal mined and the accounts kept thereof; but not more than one person on the part of the miners collectively shall have this right, and such examination and inspection shall be so made as to create no unnecessary interference with the use of such scales, machinery or apparatus. The owner or agent shall, where the miner is by contract to be paid by the ton or other quantity, unless otherwise agreed upon in writing, weigh the coal before screening, and the miner shall be credited at the rate of eighty pounds to the bushel and two thousand pounds to the ton, but no payment shall be demanded for sulphur, rock, slate, black-jack, slack, dirt or other impurities which may be loaded or found with the coal. Where ten or more miners are employed, such owner or agent shall not sell, give, deliver or issue, directly or indirectly, to any person employed, in payment for labor due or as advances for labor to be performed, any script, check, draft, order or other evidence of indebtedness payable or redeemable otherwise than in money at the face value, and he shall not compel or in any manner endeavor to coerce any employe to purchase goods or supplies from any particular person, firm, company or corporation; but all wages shall be paid in money upon demand semi-monthly. A failure or refusal to make payment within five days after demand shall entitle the laborer to recover the amount due him, and one dollar per day additional for each day such payment is neglected or refused, not exceeding the sum due, and in any action therefor the court shall tax as a part of the costs a reasonable attorney fee to plaintiff's attorney. [25 G. A., ch. 93; 22 G. A., ch. 53, §§ 1-3; 22 G. A., ch. 54, §§ 1, 3; 22 G. A., ch. 55, § 1.]

SEC. 2491. *Penalties.* The owner or person in charge of any mine, who shall have or use any scales or other appliances for weighing the output of coal so arranged that false or short weighing may be done thereby, or

shall knowingly resort to or employ any means whatever by which the coal is not correctly weighed, reported and recorded as in this chapter provided, or any weighman or check-weighman who shall falsely weigh, report or record the weights of coal, or connive at or consent to such false weighing, reporting or recording, or any such owner or agent, who shall fail to comply with the provisions of this chapter, or either of them, or shall obstruct or hinder the carrying out of its requirements, or any one who shall, or shall attempt to, compel or coerce any employe of any owner or person operating a mine to purchase goods from any particular person, shall be punished by imprisonment in the county jail not exceeding sixty days, and by a fine not exceeding five hundred dollars; or if any miner, workman or other person shall knowingly injure or interfere with any air course or brattice, or obstruct or throw open doors, or disturb any part of the machinery, or disobey any orders given in carrying out the provisions of this chapter, or ride upon a loaded car or wagon in the shaft or slope, except as herein provided, or do any act whereby the lives and health of the persons or the security of the mines and machinery is endangered, or shall neglect or refuse to securely prop or support the roof and entries under his control, or neglect or refuse to obey any order given by the superintendent in relation to the safety of the mine in that part under his charge and control, he shall be punished by fine not exceeding one hundred dollars, or imprisonment in the county jail not exceeding thirty days. [22 G. A., ch. 53, §§ 4, 5; 22 G. A., ch. 55, § 2; 20 G. A., ch. 21, §§ 15, 19.]

[Under a prior statute making it criminal without exception for anyone to ride on a loaded car, *held*, that a conductor thus riding in the discharge of his duty was not to be held guilty of wrong in so doing: *Crabell v. Wapello Coal Co.*, 68-751.]

SEC. 2493. *Failure to provide for safety of employes.* In addition to any and all other remedies, if any owner or person in charge of any mine shall fail to provide any of the appliances herein required for the safety of the employes, or the appliances provided do not conform to the requirements herein specified, or such owner or agent shall neglect, for twenty days after notice given in writing by the district mine inspector of such failure, to remedy the same, such inspector may apply to the district court, or any judge thereof, in an action brought in the name of the state, for a writ of injunction to restrain the working of the mine with more persons at the same time than are necessary to make the improvements needed, save as may be required to prevent waste, until such appliances have been supplied, and in case an injury happens to those engaged in work because of such failure, the same shall be held culpable negligence. [22 G. A., ch. 56, § 4; 20 G. A., ch. 21, § 14.]

#### PROVISIONS AS TO ILLUMINATION.

SEC. 2493. *Purity of oil.* Only pure animal or vegetable oil, paraffine or electric lights shall be used for illuminating purposes in any mine in this state, and for the purpose of determining the purity of oils the state board of health shall fix a standard of purity and establish regulations for testing said oil, and said standard and regulations, when so determined, shall be recognized by all the courts of the state. [26 G. A., ch. 93, § 1; 26 G. A., ch. 93.]



SEC. 2494. *Penalty.* Any person, firm or corporation, either by themselves, agents or employees, selling or offering to sell for illuminating purposes in any mine in this state any adulterated or impure oil, or oil not recognized by the state board of health as suitable for illuminating purposes as contemplated in this chapter, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than twenty-five dollars nor more than one hundred dollars for each offense; and any mine owner or operator or employe of such owner or operator who shall knowingly use, or any mine operator who shall knowingly permit to be used for illuminating purposes in any mine in this state any impure or adulterated oil, or any oil the use of which is forbidden by this chapter, shall, upon conviction thereof, be fined not less than five dollars nor more than twenty-five dollars. [26 G. A., ch. 93, § 2.]

SEC. 2495. *Testing oil.* It shall be the duty of the state mine inspector, whenever he has reason to believe that oil is being used or sold, or offered for sale, in violation of the provisions of this chapter, to take samples of the same and have them tested or analyzed, and if they are found to be impure he shall make complaint to the county attorney of the county wherein the offense is committed, who shall forthwith commence proceedings against the offender in any court of competent jurisdiction. All reasonable expenses, incurred in testing or analyzing oil under the provisions of this section shall be paid by the owner of the oil whenever it shall be found that he is selling or offering to sell impure oil in violation of the provisions of this chapter. Such costs may be recovered in a civil action, and in criminal prosecutions such expense shall be taxed as part of the costs. [Same, §§ 3, 4.]

SEC. 2496. *Provisions applicable.* The provisions of this chapter shall apply only to coal mines. [Same, § 5.]