

STATE OF IOWA  
1917

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REPORT OF THE  
**State Mine Inspectors**

FOR THE  
Biennial Period Ending December 31, 1917

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INSPECTORS

W. E. HOLLAND, Albia, Iowa  
RHYS T. RHYS, Ottumwa, Iowa  
EDWARD SWEENEY, Des Moines, Iowa  
L. E. STAMM, Secretary, Des Moines, Iowa

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Published by  
THE STATE OF IOWA  
Des Moines

## LETTER OF TRANSMITTAL

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*Hon. W. L. Harding, Governor of Iowa:*

Sir—We have the honor to submit herewith, for your consideration and approval, our report of mining conditions in the State of Iowa for the biennial period covering the calendar years 1916 and 1917.

Very respectfully submitted,

W. E. HOLLAND,

R. T. RHYS,

EDWARD SWEENEY,

*Iowa Mine Inspectors.*

DES MOINES, IOWA, JUNE, 1918.

## REPORT OF IOWA MINE INSPECTORS

### MINE INSPECTION IN IOWA.

#### State Inspectors—

District No. 1—W. E. HOLLAND, Albia.  
District No. 2—R. T. RHYNS, Ottumwa.  
District No. 3—EDWARD SWEENEY, Des Moines.  
Secretary—L. E. STAMM, Des Moines.

The coal producing counties of Iowa are divided into three inspection districts with an inspector living in each district. The duties of the inspectors are to inspect the different mines of the state, and to see that mining operations are conducted in conformity with the mining laws of the state, as regards safety to the employes therein, proper ventilation, etc.

A general office for the inspectors is maintained in the state house, Des Moines, wherein is kept a complete record of all matters pertaining to the coal industry of the state, including maps of all abandoned mines. A secretary elected by the inspectors has charge of all the books and general correspondence of the office, as the duties of the inspectors keep them almost constantly in the inspection field.

The mine inspectors are appointed by the governor for a term of four years. The terms of the present inspectors expire July 1, 1919.

### STATE BOARD OF EXAMINERS

E. M. GRAY, President, 1323 24th Street, Des Moines.  
R. H. SHIVERS, Secretary, 3209 School Street, Des Moines.  
T. L. EVANS, Lockman, Monroe County.  
DAVID ANDERSON, Bidwell, Wapello County.  
JOHN CALDWELL, Centerville, Appanoose County.

The Board of Examiners for mine inspectors, mine foremen and hoisting engineers is composed of five members: Two coal operators, two miners, and one engineer. An examination for state mine inspectors is held the first Monday in March of even numbered years in the office of the state mine inspectors in the state house. Examinations for mine foremen and hoisting engineers are held at various times during the year in sections of the state where coal mining is done. A fee of two dollars for registration to take the examination is required. To those passing the examination as mine foremen or hoisting engineers, an additional two dollars is required when certificate is issued by the board. The law requires that each certificate issued by the board shall be recorded in the office of the examining board and shall show the name, age, residence and years of experience of the person to whom it was issued.

The Board of Examiners are appointed by the State Executive Council for a period of two years. Terms of the present officers expire January 25, 1920. Compensation of members of the board \$5.00 per day and necessary expenses.

Notwithstanding that the production of coal in the year 1916, in this state, was less than in any of the three preceding years, nevertheless, the increased production in the year 1917, made the total production of coal for that year, and also for the biennial period ending December 31st, 1917, the largest ever recorded in Iowa.

In the twenty-two (22) coal producing counties of this state there were 7,217,979 tons of coal produced from two hundred and forty-three (243) mines, and an average of 15,198 men employed in and around them in the year 1916; and 9,049,806 tons of coal produced from two hundred and fifty-six (256) mines and an average of 15,464 men employed in and around the mines in the year 1917.

Shipping mines were in operation on an average 212 days in the year 1916, and 240 days in 1917. Local mines were in operation on an average 151 days in 1916, and 157 days in 1917.

In the year 1916 there were 31 fatal accidents, and 291 non-fatal accidents. In 1917 there were 36 fatal accidents and 230 non-fatal.

As the last biennial report made by this department covered a period of only one and one-half years, so that it would conform with the changes made in the mining laws by the Thirty-sixth General Assembly, no accurate comparison can be made between the two periods. It is safe to say, however, that in this biennial period ending December 31st, 1917, about 1,000,000 tons more coal was produced from about the same number of mines, with an average of about 500 less men employed than in the two years ending December 31st, 1915. Also the number of fatal and non-fatal accidents in this biennial period show a small increase, but not, however, out of proportion to the increased number of days the mines were in operation, and the increased out-put of coal. It is our opinion that the increase in the number of non-fatal accidents recorded for this biennial period, as compared with former biennial periods, should be attributed mainly to the more complete and accurate records made and kept of them by the mine operators because of the requirements of the Compensation Law, and that their number is not altogether due to their increased happenings.

During the spring and summer of the year 1916, the demand for Iowa coal was very light, and for this reason the mines of this state were able to operate on an average only about one-half time,

and this resulted in reduced production of coal for the above year. It was not until in the fall of 1916 that the mines of Iowa were affected by the great demand and the shortage of coal that had prevailed for some time in some of the eastern states. For the remainder of the year the demand for coal most of the time was in excess of the production, and it continued to be so until the spring of 1917. In the spring and summer of 1917 the demand for coal was again not urgent, and most of the mines of the state during these months worked less than full time. The year 1917, however, was the banner year in the history of the coal industry of Iowa, both in the average number of days the mines were in operation, and in the total number of tons of coal produced.

As the demand for Iowa coal was increasing, and the shortage of fuel in many parts of the state, and of the country, was becoming more acute, the wholesale and the retail prices of coal was great advanced in the fall and winter of 1916 over what they were during the same period in 1915. Mining wages, however, remained the same from April 1st, 1916, to April 16th, 1917, and it is to the lasting credit of the miners of Iowa, and their state officials, that they adhered faithfully to their contract with the mine operators during the above time. Contracts of this kind have been repudiated more than once under less trying circumstances than the miners of Iowa were placed in the later part of the year 1916.

The above contract referred to was made by and between the operators and miners of this state April 1st, 1916, and was to be effective until April 1st, 1918. Nevertheless, the mine operators of this state, and those of the competitive states, realized the injustice and the harmful effect it would have on the coal mining industry of the country if they would hold the miners to the full terms of the above contract. Since the contract was made, the cost of living had climbed much higher. Labor was in great demand everywhere, and high wages were paid in practically all other industries throughout the country. The new industrial conditions brought about by the great war necessitated an advance in mining wages, for the purpose not only to enable the miners to earn a living wage, but in order also to induce enough men to follow the occupation of mining to supply the need of our state and country with abundance of coal; hence, a voluntary advance was granted to the miners of this state April 16th, 1917.

The granting of this advance, however, did not settle the whole fuel question in this state, nor, in the country at large. The lack

of an equitable distribution of coal, and the price charged for it, especially to the small consumer, disturbed the public to such a degree that President Wilson, August 21st, 1917, appointed Dr. Harry A. Garfield, as Fuel Administrator, and also fixed a provisional maximum selling price of coal per ton F. O. B. mines, throughout the United States. The prices named for Iowa were as follows: Run of mine \$2.70. Prepared Lump Coal \$2.95, and Slack or Screenings \$2.45.

Shortly after the above prices went into effect, the Fuel Administrator advanced the selling price of coal at mine in the low coalfields of Appanoose, Wayne, and Boone Counties, forty-five cents (45 cents) per ton, and soon afterwards he allowed a general advance to the whole state of forty-five cents (45 cents) per ton at mine; making the selling price of coal at mine in this state on November 1st, 1917, and for the remainder of the year as follows: Appanoose, Wayne, and Boone counties for Prepared Lump \$3.85. Other parts of the state for Prepared Lump Coal \$3.40. Run of Mine \$3.15, and Slack and Screenings \$2.90. After the above last advance was granted to the mine operators, the miners also received a substantial advance in wages effective November 1st, 1917, and to be extended during the continuation of the war, and not to exceed two years from April 1st, 1918.

Not since the present incumbents have held the office of state mine inspectors, have they received so much inquiry, and from so many people, concerning the coal mining business, as they have in the last few months. People came to us with their inquiries because they believed that the state empowered the mine inspectors to collect from the mine operators the data on the coal business they were seeking, and had it on file in their office for public inspection. But when they learned that all the state mining laws required of the mine operators to report in their annual report to this department was the quantity of coal they produced; the number of men they employed below and above ground, and the number of accidents in and around their mines, they were surprised and disappointed.

In view of these many inquiries, and our inability to answer them, because no data was furnished this department by the mine operators to make it possible for us to do so, we acted upon your advice, and prepared a blank form for the mine operators to report their annual report for 1917 (a copy of which is incorporated in



this report), which when filled out properly and compiled would give, in our opinion, a very complete and valuable information to the state, of the coal mining industry within its borders. These blank forms were mailed to every coal mine operator in the state, and practically all the operators of small local mines filled them out completely, or, nearly so; but we regret to report that all operators of shipping mines, with the exception of ten refused to fill out said blanks in full. They gave as a reason for refusing that they were advised by legal authorities that the state mining laws did not require them to answer questions Nos. 11 to 14, and Nos. 30 to 45 inclusively in said above report. Because of their refusal it will be impossible for us to give a full and complete report on many questions that were asked; hence, in order to avoid confusion, and for the sake of accuracy this biennial report contains only that data on which all the mine operators of the state have made report. At this time of our national crisis, when the success of our arms and those of our allies is dependent so much upon an adequate supply of coal for all purposes, we are exceedingly pleased to report that the mine operators and miners of Iowa have proved themselves true patriots. Never was the relation between them more harmonious than it is at the present time, and the time lost because of disagreements is very small. They are prepared, and are anxious to carry out the wishes of the government to increase the production of coal, so as to reduce the danger of a coal famine that threatens our country, if the people of Iowa would only let them.

It is estimated that this country will need 85,000,000 tons more coal in 1918 than it produced in 1917. The Iowa mines are expected to contribute their share of the increase needed. It will be impossible for them to do so unless the people of this state will buy the coal so as to keep the mines in steady operation the year around. To help to prevent the shortage of coal is just as much our patriotic duty as it is to prevent the shortage of wheat. One is just as essential as the other to winning the war. The coal consumer who can, and does not buy his winter's coal as early as he can obtain it, is just as much of a slacker as the man who can and will not buy a Liberty Bond. And the one who will require his government to transport coal for him from far away states in this time of stress, when he can buy Iowa coal close at hand, is helping the enemy to defeat his own country. It is no less our patriotic duty to go "Over the top" with our quota of coal production than

it is to go "Over the top" with our quota of Liberty Bonds. This department, therefore, earnestly appeals to the people of this state to buy and store Iowa coal as early as they can obtain it, so that the mines of this state may be kept in operation, and thus be able to produce their full quota of coal expected of them by the federal government.

#### FORM OF BLANK USED FOR COLLECTION OF COAL STATISTICS.

Coal Report for the Year 1917, ..... County.

Name of Operator, Firm or Corporation.....

If more than one mine is operated in the county by the same operator, firm or corporation, please give output of each mine, number of miners employed and other statistics asked for separately.

OUTPUT OF MINE.		Mine No.	Mine No.
1.	Number of tons of prepared lump coal.....	.....	.....
2.	Number of tons of run of mine coal.....	.....	.....
3.	Number of tons of slack coal.....	.....	.....
4.	Total output of mine in tons in 1917.....	.....	.....
AVERAGE NUMBER OF MINE EMPLOYES			
5.	Average number of miners and loaders employed in 1917.....	.....	.....
6.	Average number of all other underground employees employed in 1917.....	.....	.....
7.	Average number of surface employees employed in 1917.....	.....	.....
AVERAGE NUMBER OF DAYS EMPLOYED			
8.	Average number of days miners and loaders were employed in 1917.....	.....	.....
9.	Average number of days all other underground employees were employed in 1917.....	.....	.....
10.	Average number of days surface employees were employed in 1917.....	.....	.....
GROSS EARNINGS OR MINE EMPLOYES.			
11.	Gross amount paid for mining and loading coal in 1917.....	\$.....	\$.....
12.	Gross amount paid for yardage and room turning in 1917.....	\$.....	\$.....
13.	Gross amount paid for day work and salaries in 1917.....	\$.....	\$.....
14.	Gross amount paid for dead work and all other mine labor in 1917.....	\$.....	\$.....
EXPLOSIVES, MINING MACHINES, MULES, HORSES, ETC.			
15.	Number of kegs of powder used in the mine in 1917.....	.....	.....
16.	Number of pounds of dynamite used in the mine in 1917.....	.....	.....

OUTPUT OF MINE		Mine No.	Mine No.
17. Number of pounds of permissible explosives used in the mine in 1917			
18. Number of mining machines in operation in 1917			
19. Average number of mules and horses worked in the mine in 1917			
LOSS OF TIME, RAILROAD CARS, ACCIDENTS, ETC.			
20. Number of days the mine was closed down or partly closed down because of strikes or disagreements with employes in 1917			
21. Estimate of the curtailment of the output of coal in tons, because of such strikes, or disagreements with employes in 1917			
22. Number of days mine was idle for lack of railroad cars in 1917			
23. Estimate of the loss of output of coal in tons because of the lack of railroad cars in 1917			
24. Number of days mine was idle for lack of orders or sales in 1917			
25. Estimate of the total number of tons of coal the mine would produce the days it was idle in 1917 for lack of orders or sales			
26. Number of fatal accidents in and around the mine in 1917			
27. Number of non-fatal accidents causing disability for 15 days or more in 1917			
28. Number of non-fatal accidents causing less than 15 days disability in 1917			
29. Number of tons of coal used at the mine for mine purposes in 1917			
30. Estimate of the market value of coal used at mine for mine purposes in 1917	\$	\$	
31. Total royalty paid in 1917	\$	\$	
IMPROVEMENTS, SUPPLIES AND POWER.			
32. Capital invested in improvements developments and betterment of property, such as air and escape shafts, houses, machinery, etc., in 1917	\$	\$	
33. Estimated cost of all mine supplies actually used in 1917	\$	\$	
34. Cost of electrical power purchased in 1917	\$	\$	

COAL SALES OF THE OPERATOR, FIRM OR CORPORATION FROM MINES WITHIN THE ABOVE COUNTY, ETC.

Grade of Coal	Sold to local trade in 1917	Average selling price at mine shipped to state in 1917	Average selling price at mine shipped to points outside the state in 1917	Average selling price at mine shipped to railroad in 1917	Average selling price at mine
35. Tons of Prepared Lump Coal		\$	\$	\$	\$
36. Tons of Run of Mine Coal		\$	\$	\$	\$
37. Tons of Slack Coal		\$	\$	\$	\$
38. Total		\$	\$	\$	\$

CAPITAL INVESTED, TAXES, INSURANCE, OFFICE EMPLOYEES, ETC.

39. Total selling price at mine of all coal sold from mines within the county in 1917	\$
40. Total amount of capital invested in the coal mining industry in the above county	\$
41. Total amount of taxes paid on all mining property within the above county in 1917. (Exclude income and excess profits)	\$
42. Total amount of insurance, liability or compensation paid chargeable to coal mining within the above county in 1917	\$
43. Total amount of fire insurance paid on mining property within the above county for 1917	\$
44. Average number of office employees, salesmen, officers and all other employees not included in Nos. 8, 9 and 10 of this report, employed in mine and coal offices within the county in 1917	
45. Total office expense, including office supplies of all kinds, wages and salaries and expenses of officers, salesmen, office employees and all other employees not included in Nos. 11, 12, 13 and 14, in 1917	\$

Signed.....

Superintendent.

## COAL PRODUCTION OF IOWA.

For the Calendar Years 1916 and 1917.

## FIRST DISTRICT.

Counties	1916		1917	
	Tons of all grades of coal produced	Average of employees	Tons of all grades of coal produced	Average of employees
Appanoose .....	1,195,898	4,172	1,675,060	4,902
Monroe (part) .....	235,412	1,192	540,360	728
Lucas .....	619,455	848	619,250	887
Wayne .....	90,684	345	90,178	286
Adams .....	14,508	90	15,190	85
Pott .....	7,500	28	8,408	51
Taylor .....	6,500	43	18,142	89
<b>Total</b> .....	<b>2,467,047</b>	<b>6,722</b>	<b>2,955,061</b>	<b>6,977</b>

## SECOND DISTRICT.

Monroe (part) .....	1,284,787	2,277	1,009,526	2,328
Marion .....	554,947	692	518,646	942
Wapello .....	236,185	603	376,509	627
Jasper .....	245,245	470	306,398	490
Mahaska .....	170,446	379	181,212	276
Warren .....	37,855	72	67,433	96
Van Buren .....	9,683	31	8,501	31
Keokuk .....	1,801	8	9,952	24
Jefferson .....	800	6	355	4
Davis .....	.....	.....	1,425	7
<b>Total</b> .....	<b>2,431,809</b>	<b>4,534</b>	<b>3,345,097</b>	<b>5,050</b>

## THIRD DISTRICT.

Polk .....	1,007,197	2,692	1,880,812	2,681
Dallas .....	466,691	745	581,891	969
Boon .....	138,058	855	247,845	687
Webster .....	15,217	78	25,508	71
Guthrie .....	5,700	32	6,950	29
Greene .....	5,280	28	10,002	27
Scott .....	980	8	.....	.....
<b>Total</b> .....	<b>2,319,123</b>	<b>3,969</b>	<b>2,749,958</b>	<b>4,384</b>

## TOTAL BY DISTRICTS AND YEARS.

First District .....	2,467,047	6,722	2,955,061	6,977
Second District .....	2,431,809	4,534	3,345,097	5,050
Third District .....	2,319,123	3,969	2,749,958	4,384
<b>Totals for 1916 and 1917</b> .....	<b>7,217,979</b>	<b>15,195</b>	<b>9,049,806</b>	<b>15,464</b>

## TONS OF COAL OF DIFFERENT SIZES MINED IN IOWA 1916-1917.

## 1916.

Districts	Number of tons of coal of all kinds mined by hand in 1916	Number of tons of coal of all kinds mined by machines in 1917	Total output of coal mined in 1916
First District .....	2,227,000	239,087	2,467,047
Second District .....	2,136,767	195,042	2,331,809
Third District .....	2,135,088	184,115	2,319,123
<b>Totals</b> .....	<b>6,498,735</b>	<b>618,244</b>	<b>7,217,979</b>

## 1917.

Districts	Number of tons of prepared coal produced in 1917	Number of tons of run of mine coal produced in 1917	Number of tons of slack coal produced in 1917	Total number of tons of coal produced in 1917
First District .....	2,181,117	545,205	278,722	2,955,061
Second District .....	2,170,108	296,975	872,829	3,345,097
Third District .....	1,969,211	506,517	273,950	2,749,698
<b>Totals</b> .....	<b>6,860,521</b>	<b>1,437,794</b>	<b>1,745,491</b>	<b>9,049,806</b>



## MINES, OUTPUT AND EMPLOYEES, BY COUNTIES.

1916

Counties	Number of mines	Tons of coal produced	Miners and loaders employed	Other underground employees	Surface employees	Total number of employees
Monroe	35	1,539,199	2,479	672	315	3,466
Polk	3	1,697,197	1,823	649	330	2,802
Appanoose	65	1,193,898	3,065	723	374	4,162
Lucas	4	619,436	508	174	75	757
Dallas	4	466,691	500	187	63	750
Wapello	13	354,947	433	165	84	682
Marion	122	226,185	468	135	70	673
Jasper	12	245,245	280	142	54	476
Mahaska	21	170,446	269	71	39	379
Boone	3	126,056	263	59	33	355
Wayne	7	99,664	200	64	81	345
Warren	4	37,835	64	8	10	72
Webster	3	15,217	43	27	8	78
Adams	8	14,096	69	11	10	90
Van Buren	2	9,683	24	1	6	31
Page	3	7,000	27	3	2	32
Taylor	3	6,569	39	8	5	42
Guthrie	4	5,790	54	3	6	63
Greene	2	5,286	21	4	3	28
Kokuk	3	1,801	6	0	2	8
Scott	2	980	4	2	2	8
Jefferson	1	880	4	0	2	6
Totals	243	7,217,979	10,084	2,695	1,418	15,196

1917

Monroe	32	2,450,029	2,148	772	354	3,304
Polk	32	1,880,812	1,761	689	321	2,681
Appanoose	67	1,672,000	2,832	806	374	4,012
Lucas	3	610,230	506	120	61	687
Dallas	4	581,391	602	246	80	928
Wapello	18	513,646	615	210	118	943
Marion	27	376,699	412	138	87	637
Jasper	8	306,258	262	146	52	460
Boone	3	247,843	265	121	51	437
Mahaska	22	153,212	177	58	41	276
Wayne	6	90,178	218	43	34	295
Warren	4	67,433	67	19	9	95
Webster	3	22,598	43	19	9	71
Adams	4	18,142	48	6	6	60
Taylor	7	15,500	68	6	9	83
Greene	3	10,002	21	5	8	34
Kokuk	4	9,082	15	2	7	24
Van Buren	3	8,551	18	5	8	31
Page	3	8,408	37	5	9	51
Guthrie	2	6,000	30	3	6	37
Davis	2	1,425	5	1	2	7
Jefferson	1	353	3	1	1	5
Total	246	9,049,806	10,223	3,000	1,561	15,484

## STATISTICS OF IOWA MINING

## AVERAGE DAYS OF EMPLOYMENT.

1916

Counties	Miners and Loaders		Other Under-ground		Surface Em-ployees	
	Average days in shipping mines	Average days in local mines	Average days in shipping mines	Average days in local mines	Average days in shipping mines	Average days in local mines
Monroe	182 1-2	175	201 1-2	175	190 1-2	200
Polk	141	228	200	175	258	201
Appanoose	154	139	163	140	162	146
Lucas	148	146	146	146	170	146
Dallas	237	248	248	243	243	165
Marion	209	147	209	212	230	165
Wapello	209	161	234	169	263	163
Jasper	216	155	216	181	292	132
Mahaska	216	156	229	179	259	165
Boone	224	274	274	230	230	130
Wayne	179	187	198	122	215	141
Warren	207	156	207	210	207	187
Webster	222	220	232	232	232	130
Adams	173	173	174	174	175	175
Van Buren	147	144	144	144	169	169
Page	222	222	222	222	222	222
Taylor	126	126	126	126	126	126
Guthrie	178	178	178	178	178	178
Greene	142	142	142	142	142	142
Kokuk	118	118	118	118	118	118
Scott	130	130	130	130	130	130
Jefferson	202	202	202	202	202	202

1917

Monroe	269	85	272	65	272 3-4	109
Polk	267 7-8	181	267 7-8	188 6-7	278 1-2	202 2-7
Appanoose	233 1-6	134	246 1-2	167 3-4	214 1-2	158 7-8
Lucas	258	250	280 1-2	280	292 1-2	250
Dallas	249	257	257	257	258 3-5	257
Marion	258 1-3	161	264	174 1-4	272 2-3	202 1-2
Wapello	261 1-3	186 1-3	206 5-5	195 2-3	256 2-3	202 1-2
Jasper	263 1-2	188 1-2	272 1-2	169	210 1-2	178 1-2
Mahaska	262 1-2	148 1-3	279 1-2	149 2-3	272 1-2	180 1-2
Boone	164	65	235 2-3	65	251 1-3	151
Wayne	155	155	155	155	155	155
Warren	230	143 1-3	230	195	230	143 1-3
Webster	252	151 1-2	256	151 1-2	256	151 1-2
Adams	157	157	157	157	157	157
Van Buren	166 1-3	166	166	166	166	166
Page	210	210	210	210	210	210
Taylor	151	151	151	151	151	151
Guthrie	255	255	255	255	255	255
Greene	154 1-3	154	154	154	154	154
Kokuk	181 3-4	181	181	181	181	181
Davis	101 1-2	101	101	101	101	101
Jefferson	115	115	115	115	115	115



## LOCAL OR WAGON MINE IN IOWA.

1916

Counties	Wagon mines	Tons of coal produced	Miners and loaders employed	Other underground employes	Surface employees	Total number of employees
Monroe	2	9,394	23	3	2	28
Polk	9	131,113	201	79	24	244
Appanoose	24	65,607	229	36	36	303
Lucas	1	1,644	8	1	1	10
Dallas	0	0	0	0	0	0
Marion	9	27,923	38	3	3	49
Wapello	19	31,148	90	13	22	125
Jasper	10	34,381	47	11	14	72
Mahaska	17	23,363	51	8	11	70
Boone	0	0	0	0	0	0
Wayne	3	7,484	27	5	34	66
Warren	3	19,835	19	3	3	23
Webster	1	1,700	5	0	2	7
Adams	8	14,798	69	11	16	96
Van Buren	7	9,683	24	1	6	31
Page	2	7,500	27	3	2	32
Taylor	4	2,500	10	0	2	12
Guthrie	3	5,760	24	2	6	32
Greene	2	5,780	21	4	3	28
Keokuk	2	1,801	6	0	2	8
Scott	2	960	4	2	2	8
Jefferson	1	880	4	0	2	8
	131	409,439	967	182	173	1,314

1917

Counties	Wagon mines	Tons of coal produced	Miners and loaders employed	Other underground employes	Surface employees	Total number of employees
Monroe	2	963	5	0	2	7
Polk	8	142,030	210	61	44	315
Appanoose	27	92,140	237	41	50	328
Lucas	1	2,250	6	0	1	7
Dallas	0	0	0	0	0	0
Marion	14	29,880	66	13	15	94
Wapello	24	69,518	122	20	24	156
Jasper	6	28,366	35	11	10	56
Boone	1	2,250	16	4	2	22
Mahaska	19	28,880	59	14	19	92
Wayne	4	5,122	24	0	4	28
Warren	3	5,250	27	4	4	36
Webster	2	5,650	13	1	2	21
Taylor	3	8,142	13	1	3	17
Adams	7	10,500	68	6	9	83
Greene	3	10,082	21	2	2	29
Keokuk	4	9,902	15	2	2	34
Van Buren	5	8,551	16	6	8	31
Page	3	8,408	27	3	9	32
Guthrie	2	6,900	30	3	5	37
Davis	2	1,425	8	0	2	7
Jefferson	1	855	2	1	1	4
	141	825,112	1,031	207	238	1,474

## STATISTICS OF IOWA MINING

## TONNAGE USED AT THE MINES, MARKET VALUE, ETC.

1917

Counties	Tons of coal of all grades produced	Tons of coal used at mines for mine purposes	Estimated market value of coal used at mines	Royalty paid for coal in 1917
Monroe	2,450,029	70,608	\$ 63,200.44	\$ 14,850.05
Polk	1,880,812	33,200	18,368.00	17,204.02
Appanoose	1,672,000	44,200	30,840.00	21,106.13
Lucas	610,230	12,870	450.00	
Dallas	581,391	4,370	10,481.54	
Marion	275,782	2,720	2,885.20	
Wapello	378,569	9,965	3,915.70	6,183.26
Jasper	306,368	12,686	2,462.00	3,363.64
Mahaska	151,212	5,863	2,568.00	
Boone	247,845	6,900	6,300.00	11,661.01
Wayne	50,178	3,026	1,966.00	2,642.20
Warren	67,433	2,974	8,840.00	4,142.14
Webster	22,508	750	1,125.00	963.70
Adams	115,900	115	157.50	684.75
Van Buren	8,551	22	71.50	1,163.76
Page	8,408	6	30.00	1,238.75
Taylor	18,142	22	88.00	1,712.00
Guthrie	6,900	70	237.00	328.75
Greene	10,082	100	120.00	1,705.00
Keokuk	9,902	250	425.00	800.00
Davis	1,425			265.95
Jefferson	855	15	50.00	
Totals	9,019,806	234,074	\$307,960.73	\$ 96,257.25

## MINING MACHINES, POWDER, DAYS IDLE, ETC.

1916

Counties	Mining machines in operation	Kegs of black powder used at mines	Pounds of permissible explosives used at mines	Pounds of dynamite used at the mines	Days mines were closed down on account of strikes or disagreements with employees	Average number of employees idle because of such strikes or disagreements
Monroe	4	92,297		64,200	23	496
Polk	14	77,098	36	38,600	14	664
Appanoose	19	119	20	4,565		
Lucas	2	26,657		18,000		
Dallas	2	22,784		4,390	25	465
Marion	0	20,481		5,690	77	723
Wapello	2	17,949		2,491	8	261
Jasper	3	16,863		75	3	48
Mahaska	2	13,751	200	3,731		
Bouie	0		1,500	2,000		
Wayne	0			1,400		
Warren	0	1,365				
Webster	0	860	200	700		
Adams	1		159	1,125		
Van Buren	0	714		100		
Pago	0			940		
Taylor	1			1,675		
Guthrie	0	20		82		
Greene	0	499		20		
Kiokuk	0	117		700		
Scott	0					
Jefferson	0	78		4		
Totals	12	281,004	2,270	149,168	189	2,007

## STATISTICS OF IOWA MINING

## POWDER, DYNAMITE, MACHINES, ETC.

1916

Counties	Kegs of powder used in mines of Iowa	Pounds of dynamite used in mines	Pounds of permissible explosives used in the mines	Mining machines in operation	Mules and horses used in the mines
Monroe	117,004	148,470		4	261
Polk	103,298	36,299		14	234
Appanoose	251	8,706	1,505	21	517
Lucas	25,639	6,000			30
Dallas	20,720	7,300		4	62
Marion	19,472	19,327			67
Wapello	22,996	18,151	609		33
Jasper	12,141	330			38
Mahaska	7,456	6,652			32
Bouie	5	5,275			45
Wayne					27
Warren	4,325	12,793			10
Webster	1,363	470			4
Adams		855			
Van Buren		204			3
Pago		1,650			
Taylor	1	3,475			1
Guthrie	13	37			
Greene	205	10			5
Kiokuk	330	1,500			1
Davis	122	123			1
Jefferson	24	3			
Totals	364,609	290,888	1,925	65	1,171

## ACCIDENTS RELATED TO TONNAGE.

Fatal and Non-Fatal accidents in the mines of Iowa during the calendar years 1916 and 1917, with relation to coal produced for each accident, and number of employees for each accident.

District	Number of Accidents		Tons of all grades produced	Tons of Coal Produced for Each Accident		Number of employees	Number of Employees for Each Accident	
	Fatal	Non-fatal		Fatal	Non-fatal		Fatal	Non-fatal
1916								
District No. 1	11	131	2,467,047	224,277	18,832	6,722	611	53
District No. 2	11	47	2,431,809	221,073	61,740	4,334	412	196
District No. 3	9	113	2,319,123	237,680	70,253	3,959	437	342
Total	31	291	7,217,979	222,828	24,804	15,195	450	591
1917								
District No. 1	10	56	2,905,051	265,505	32,7694	6,077	607	1094
District No. 2	15	83	3,545,097	232,006	40,7903	5,623	2223	602
District No. 3	11	92	2,749,568	249,903	79,8863	4,324	394	471
Total	36	230	9,049,800	252,383	29,347	15,464	437	67

<sup>1</sup>One-ninth.  
<sup>2</sup>Eight-ninths.

## MINES, OUTPUT AND EMPLOYES IN IOWA.

Number of Mines in Each District, Their Coal Output, Number of Miners and Other Employees for Calendar Years 1916 and 1917.

Districts	Number of Mines	Tons of coal of all grades produced	Number of miners and employees	Number of other inside employees	Number of outside employees	Total number of employees
First District, 1916.....	96	2,467,047	4,915	1,181	626	6,722
Second District, 1916.....	97	2,431,809	3,961	986	457	5,304
Third District, 1916.....	50	2,319,133	2,678	926	335	3,939
Totals for 1916.....	243	7,217,979	10,554	3,093	1,418	15,165
First District, 1917.....	95	2,965,061	4,301	1,309	567	6,077
Second District, 1917.....	108	3,345,097	3,250	1,178	625	5,053
Third District, 1917.....	43	2,749,656	2,812	1,128	394	4,334
Totals for 1917.....	246	9,049,806	10,363	3,615	1,586	15,494

## MINES, OUTPUT AND EMPLOYES, DISTRICT NO. 1.

Number of mines, output of coal, number of miners and other employees for full calendar years 1916 and 1917.

Counties	Mines in county	Amount of coal of all grades produced	Number of miners employed	Number of other inside employees	Number of outside employees	Total number of employees in mines
1916						
Appanoose.....	65	1,196,898	2,065	733	374	4,172
Monroe (part).....	7	525,412	866	198	128	1,192
Lucas.....	4	619,455	898	174	76	1,148
Wayne.....	8	99,484	260	54	31	345
Adams.....	8	14,968	69	11	10	90
Page.....	10	7,900	27	8	8	43
Taylor.....	10	6,800	30	8	8	46
Total.....	96	2,467,047	4,915	1,181	626	6,722
1917						
Appanoose.....	67	1,672,800	2,833	556	274	4,663
Monroe (part).....	5	540,503	471	173	84	728
Lucas.....	3	610,230	326	230	61	617
Wayne.....	6	90,178	218	43	24	285
Adams.....	6	15,590	69	9	9	87
Page.....	10	8,408	37	6	6	49
Taylor.....	4	18,142	48	6	6	60
Total.....	95	2,965,061	4,301	1,309	567	6,077

## MINES, OUTPUT AND EMPLOYES, DISTRICT NO. 2.

Number of Mines, Output of Coal, Number of Miners and Other Employees for Full Calendar Years 1916 and 1917.

Counties	Mines in county	Amount of coal of all grades produced	Number of miners employed	Number of other inside employees	Number of outside employees	Total number of employees
1916						
Monroe (part).....	15	1,284,787	1,613	474	190	2,277
Marion.....	18	354,947	433	265	84	682
Wapello.....	37	329,183	498	125	70	693
Jasper.....	12	245,215	280	142	54	476
Mahaska.....	21	179,446	289	71	29	379
Warren.....	4	37,835	64	8	10	72
Van Buren.....	2	3,663	31	1	3	35
Kookuk.....	2	1,801	6	0	2	8
Jefferson.....	1	880	4	0	1	5
Total.....	97	2,431,809	3,661	986	437	5,094
1917						
Monroe (part).....	17	1,099,526	1,677	399	300	2,376
Marion.....	18	512,646	615	210	118	943
Wapello.....	37	379,500	412	188	87	687
Jasper.....	8	306,308	302	146	62	510
Mahaska.....	22	131,212	177	58	41	276
Warren.....	4	67,438	67	19	9	95
Kookuk.....	4	9,402	18	3	7	28
Van Buren.....	5	8,531	18	5	2	25
Davis.....	2	1,435	5	0	1	6
Jefferson.....	1	855	2	1	1	4
Total.....	108	3,345,097	3,250	1,178	625	5,053

## MINES, OUTPUT AND EMPLOYES, DISTRICT NO. 3.

Number of Mines, Output of Coal, Number of Miners and Other Employees for Full Calendar Years 1916 and 1917.

Counties	Mines in county	Amount of coal of all grades produced	Number of miners employed	Number of other inside employees	Number of outside employees	Total number of employees
1916						
Polk.....	25	1,097,197	1,828	649	226	2,693
Dallas.....	5	496,691	500	183	62	745
Boone.....	8	128,008	263	59	33	355
Webster.....	4	18,217	43	27	8	78
Guthrie.....	3	5,790	24	5	2	31
Greene.....	5	5,289	21	4	2	27
Scott.....	2	980	4	2	1	7
Total.....	50	2,319,133	2,678	926	335	3,939
1917						
Polk.....	23	1,886,812	1,761	689	231	2,681
Dallas.....	4	581,571	592	252	81	925
Boone.....	8	247,845	365	121	61	547
Webster.....	3	22,898	43	19	9	71
Guthrie.....	3	6,950	29	2	5	36
Greene.....	3	10,693	21	5	2	28
Total.....	43	2,749,656	2,812	1,128	394	4,334

## ACCIDENTS RELATED TO TONNAGE.

Showing Tonnage in Iowa, Accidents and Employees for Period of Twenty-two Years.

Year	No. of accidents	Tons of coal produced	Tons of coal per accident	No. of employees	Fatality rate per 1,000 employees
1906	22	3,325,490	150,254	11,431	2.
1907	21	3,790,784	180,466	11,676	1.8
1908	26	4,897,722	188,374	10,350	2.5
1909	28	5,843,759	208,706	11,929	2.3
1910	25	5,117,263	204,691	12,941	2.2
1911	27	5,441,803	201,550	13,175	2.2
1912	15	5,514,305	367,620	13,002	4.2
1913	21	6,183,734	294,464	13,195	1.6
1914	21	6,314,279	300,660	16,215	1.9
1915	24	6,806,011	283,584	17,624	1.4
1916	27	7,017,833	259,921	16,825	2.2
1917	35	7,509,425	214,713	17,945	2.0
1918	38	7,156,484	188,301	17,315	2.2
1919	38	7,346,253	193,322	18,002	2.1
1920	39	7,222,489	185,192	18,000	2.1
1921	36	7,729,674	214,713	16,800	2.1
1922	30	6,820,825	227,361	16,215	1.8
1923	24	7,415,757	308,989	15,685	1.5
1924	31	7,312,734	235,890	15,749	2.1
1925	34	7,530,988	221,473	16,369	2.07
1926	21	7,217,979	343,888	15,195	2.04
1927	36	9,040,806	251,383	15,464	2.22

TONNAGE, DISTRICT NO. 3, FOR SEVENTEEN YEARS, RELATED TO ACCIDENTS.

Year	No. of fatal accidents	Tons of coal mined each year	No. of employees	Tons of coal mined per accident	No. of employees per accident
1901	7	1,697,690	3,904	242,670	558
1902	12	1,652,132	2,828	137,678	236
1903	5	1,825,456	5,091	365,091	718
1904	10	1,846,398	4,989	184,639	499
1905	11	2,010,101	5,380	182,736	489
1906	8	2,010,242	5,368	251,282	669
1907	14	2,386,092	5,340	169,721	388
1908	14	2,749,900	5,664	196,713	404
1909	11	2,546,545	6,514	231,476	592
1910	16	2,635,692	6,523	164,725	407
1911	14	2,355,621	4,768	168,258	342
1912	8	2,614,682	4,770	326,511	368
1913	5	2,394,360	4,763	478,832	912
1914	12	2,377,973	4,761	198,164	379
1915	11	2,379,538	4,862	216,048	386
1916	9	2,319,123	3,929	257,690	437
1917	11	2,749,568	4,334	249,900	394

STRIKES, LOSS OF OUTPUT, DAYS IDLE, COAL USED AT MINES, ETC.

Showing Days Mines Were Idle, Loss of Output, and the Amount of Coal Used at the Mines for Mine Purposes in 1917.

Counties	Number of days mines were closed because of strikes or disagreements with employees in 1917	Estimate of curtailment of output in tons because of such strikes or disagreements with employees in 1917	Number of days mines were idle because of lack of railroad cars in 1917	Estimate of loss of output in tons because of lack of railroad cars in 1917	Number of days mines were idle because of lack of orders or sales in 1917	Estimate of the total number of tons of coal mines would produce the days idle because of lack of orders or sales in 1917
Monroe	17	7,820	72	43,175	1803	82,740
Polk	30	10,875	47	14,000	294	79,750
Appanoose	130	37,335	484	77,713	1,790	166,114
Lucas	9	10,500	4	4,371		
Dallas			253	10,850	32	21,300
Marion	35	9,120	663	28,430	111	26,520
Wapello			11	6,043	606	35,119
Jasper	32	10,518	6	2,450	436	29,592
Mahaska	30	3,000	10	1,500	75	7,850
Boon	4	315	393	3,712	414	62,675
Wayne	5	790	37	12,000		15,900
Warren			8	2,460	74	4,630
Webster					40	3,000
Adams	14	120				
Van Buren						
PAGE			10	250	10	100
Taylor						
Outch						
Green						
Knox						
Davis						
Jefferson						



FATAL ACCIDENTS—DISTRICT NO. 1.  
1916 and 1917.

Date and Hour of Accident	Name, Age, Nativity and Occupation	Married or Single	Number of children	Cause of Death	Employing Company and County
Jan. 10, 10:00 a. m.	Harold Nichol, 16, English, graver....	Single.....	.....	Caught in shaft wheel.....	Wapello Coal Co., No. 5, Monroe.
Jan. 14, 12:30 p. m.	James T. La Mar, 60, Amer., top man.....	Married.....	2.....	Fell down shaft.....	Wapello Coal Co., No. 5, Monroe.
Jan. 24, 10:30 a. m.	R. O. McDonald, 21, Amer., driver.....	Single.....	.....	Fell down shaft.....	Wapello Coal Co., No. 5, Monroe.
Feb. 28, 8:30 a. m.	R. L. Kelly, 19, English, top man.....	Single.....	.....	Fall of slate.....	Snooky Hollow Coal Co., Monroe.
Aug. 1, 1:00 p. m.	Paul Bosovich, 25, Austrian, miner.....	Single.....	.....	Ran over by R. R. car.....	Central Iowa Fuel Co., No. 1, Lucas.
July 25, 7:00 a. m.	Wm. Golden, 61, American, miner.....	Married.....	.....	Dropped and.....	Central Iowa Fuel Co., No. 35, Monroe.
Sept. 11, 10:00 a. m.	Wm. Mackett, 20, Amer., miner.....	Married.....	.....	Fall of slate.....	Central Iowa Fuel Co., No. 1, Lucas.
Nov. 28, 2:30 p. m.	W. W. Fox, 42, American, miner.....	Single.....	.....	Fall of slate.....	Central Iowa Fuel Co., No. 4, Wayne.
Dec. 1, 2:30 p. m.	Ernest Webb, 36, American, engin.....	Married.....	.....	Fall of slate.....	Central Iowa Fuel Co., Lucas.
Feb. 21, 2:30 p. m.	Fred Pearson, 40, Swed., miner.....	Married.....	.....	Fell down shaft.....	Shuridan Coal Co., Monroe.
Feb. 28, 2:30 p. m.	Chas. Robinson, 16, English, switching.....	Single.....	.....	Run over by trip.....	Hocking Coal Co., Monroe.
May 10, 10:00 a. m.	Henry Hayward, 25, English, miner.....	Married.....	.....	Caught by post.....	Iowa Block Coal Co., Appanoose.
June 14, 10:00 a. m.	Emory Heckathorn, 41, Amer., top man.....	Married.....	.....	Fall of slate.....	Iowa Block Coal Co., Appanoose.
Aug. 1, 10:00 a. m.	Joe Burt, 25, Italian, miner.....	Divorced.....	.....	Fall of coal.....	Parish Coal Co., Appanoose.
Aug. 20, 8:30 a. m.	W. A. Smith, 10, American, miner.....	Married.....	4.....	Fall of rock.....	Parish Coal Co., Appanoose.
Oct. 9, 2:00 p. m.	Angelo Siboni, 22, Italian, miner.....	Married.....	4.....	Fall of roof.....	Parish Coal Co., Appanoose.

FATAL ACCIDENTS—DISTRICT NO. 2.  
1916 and 1917.

Date and Hour of Accident	Name, Age, Nativity and Occupation	Married or Single	Number of children	Cause of Death	Employing Company and County
Jan. 12, 2:00 p. m.	Andrew Mesko, 26, Slav, miner.....	Married.....	5.....	Fall of slate.....	Ridwell Coal Co., Wapello.
Feb. 1, 8:00 a. m.	John Clark, 19, American, miner.....	Single.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Feb. 2, 8:00 a. m.	Frank Compton, 28, Irish, timber man.....	Married.....	4.....	Fall of slate.....	Collax Coal Co., Jasper.
Mar. 7, 2:30 p. m.	Charles E. Harkins, 41, Amer., miller.....	Married.....	.....	Fall of slate.....	Ridwell Coal Co., Wapello.
May 15, 9:30 a. m.	Ed. Nichols, 30, English, miner.....	Married.....	.....	Fall of slate.....	English Creek Coal Co., Marion.
July 20, 8:30 p. m.	William Fox, 20, Amer., miner.....	Single.....	.....	Fall of slate.....	Ridwell Coal Co., Wapello.
Sept. 2, 4:30 p. m.	Ben Davison, 26, Amer., shot firer.....	Married.....	.....	Gas and smoke.....	Ridwell Coal Co., Wapello.
Sept. 15, 7:15 a. m.	Mike Kundlach, 34, Aust., entry man.....	Married.....	.....	Fall of slate.....	Spring Hill Coal Co., Warren.
Sept. 27, 11:00 a. m.	John Bonanza, 26, Italian, Co. man.....	Single.....	.....	Fall of slate.....	Crescent Coal Co., Monroe.
Oct. 1, 11:00 a. m.	Edw. Fehrer, 65, Slav, timber man.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Jan. 4, 11:15 a. m.	Levi Patterson, 22, Amer., miner.....	Single.....	.....	Fall of slate, Nov. 27, 1916.....	Collax Coal Co., Jasper.
Feb. 27, 2:30 p. m.	Levi Patterson, 22, Amer., miner.....	Single.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Mar. 27, 7:45 a. m.	Frank Compton, 28, Irish, timber man.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
May 20, 8:00 a. m.	John Clark, 19, English, miner.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
June 8, 8:30 a. m.	D. D. Cook, 45, American, miner.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Aug. 7, 10:30 a. m.	Alison Robinson, 21, Amer., top man.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Sept. 1, 10:00 a. m.	Jas. Langelid, 55, English, miner.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Sept. 4, 9:30 a. m.	G. W. Hull, 60, American, miner.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Oct. 11, 11:30 a. m.	G. W. Brooks, 47, Amer., miner.....	Married.....	.....	Fall of slate.....	Collax Coal Co., Jasper.
Nov. 25, 2:30 p. m.	Eric Sackerson, 21, Swed., driver.....	Single.....	.....	Fall down shaft.....	Collax Coal Co., Jasper.
Dec. 1, 2:30 p. m.	Corn Chulkins, 39, American, miner.....	Single.....	.....	Fall of slate.....	Collax Coal Co., Jasper.

## FATAL ACCIDENTS—DISTRICT NO. 3.

1916 and 1917.

Date and Hour of Accident	Name, Age, Nativity and Occupation	Married or Single	Number of children	Cause of Death	Employing Company and County
May 12, 12:00 m.	Otis Griffen, 45, negro, miner.....	Divorced.....		Fall of slate.....	Saylor Coal Co., Polk.
June 30, 3:20 p. m.	Henry Green, 35, Swede, miner.....	Married.....	1	Fall of slate.....	Norwood-White Coal Co., Polk.
July 15, 12:00 m.	Cresca Cretti, 45, Italian, miner.....	Married.....	1	Fall of slate.....	Saylor Coal Co., Polk.
Oct. 15, 10:00 a. m.	Ben Miller, 24, American, driver.....	Married.....	2	Fell under trip.....	Norwood-White Coal Co., Polk.
Oct. 31, 1:30 p. m.	Robert Nicholas, ... Negro, miner.....	Married.....		Fall of slate.....	Scandia Coal Co., No. 1, Dallas.
Nov. 22, 3:15 p. m.	John Conturba, 35, Italian, miner.....	Married.....		Fall of slate.....	Norwood-White Coal Co., Polk.
Nov. 28, 8:20 a. m.	Wm. Peterson, 45, Swede, miner.....	Married.....		Fall of slate.....	Maple block Coal Co., Polk.
Dec. 4, 1:30 p. m.	Geo. Sabusky, 51, Austrian, miner.....	Married.....	1	Fall of slate.....	Scandia Coal Co., No. 2, Dallas.
Dec. 15, 4:00 p. m.	Carl Lind, ... Swede, company man.....	Married.....		Fall of rock.....	Boone Block Coal Co., Boone.
April 11, 2:00 a. m.	Tony Kaulzicki, 30, Aust., water hauler.....	Married.....	3	Caught between cross bar and water car.....	Enterprise Coal Co., No. 1, Polk.
May 9, 8:30 a. m.	Frank Woodyard, 45, Amer., miner.....	Married.....	8	Fall of slate.....	Norwood-White Coal Co., No. 5, Polk.
May 31, 9:00 a. m.	Actor Molina, 25, Italian, miner.....	Single.....		Fall of slate.....	Scandia Coal Co., No. 2, Dallas.
May 31, 3:00 p. m.	Thos. Jones, 23, American, driver.....	Married.....	1	Caught by car.....	Norwood-White Coal Co., Polk.
June 4, 7:50 a. m.	Wm. Roberts, 50, American, miner.....	Married.....		Fall of slate.....	Scandia Coal Co., No. 2, Dallas.
June 19, 1:00 p. m.	Guseppi Rossa, 50, Italian, miner.....	Married.....	5	Fall of slate.....	Wright Coal Co., Polk.
June 28, 8:30 a. m.	John Augustus, 50, Swede, timber man.....	Single.....		Fall of roof.....	Smiley & Heaps C. Co., No. 2, Boone.
Sept. 25, 9:00 a. m.	Guseppi Ramuel, 43, Italian, miner.....	Single.....		Fall of slate.....	Bennett Bros. Coal Co., Polk.
Oct. 4, 2:30 p. m.	Freid Johnson, 52, American, miner.....	Married.....	4	Fall of slate.....	Bloomfield Coal Co., Polk.
Dec. 8, 8:00 a. m.	Holla Robbins, 28, American, miner.....	Married.....	2	Fall of slate.....	Beck Coal & Mining Co., Polk.
Dec. 8, 11:00 a. m.	G. E. Hull, 67, American, miner.....	Married.....		Fall of slate.....	South Das Moines Coal Co., Polk.

## FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 1.

Classified by Cause of Accident and Occupation of the Injured.

1916.

Causes (U. S. Bureau of Mines Classification.)	Fatal						Serious														Total	
	Miners	Drivers	Company men	Top men	Cagers	Machine runners	Miners	Drivers	Entry men	Timber men	Cagers	Shot fire	Trailers	Check pullers	Trappers	Machine runners	Machine shoveller	Loaders	Couplers	Motormen		Trip riders
Falls of roof (rock, slate, etc.)																						
At working face.....	3						3	15									1	2				18
1 Falls of roof (rock, slate, etc.)																						
In room or chamber.....	2						2	30		1						1						32
Falls of roof (rock, slate, etc.)																						
On road, entry or gangway.....	1						1	5	3	1					1			1				11
3 Mine cars and locomotives																						
(b) Coupling cars.....									7						1				2			10
(c) Falling from trips or cars.....									10											1		11
(d) Run over by car or motor.....	1						1	4	6					1								11
(e) Caught between car and rib.....								1	7													8
(f) Caught between car and roof while riding.....									4													4
(h) Miscellaneous.....											1			1							1	3
6 Explosives																						
(a) Handling and transportation.....								1														1
(f) Blownout shot.....												1										1
8 Electricity																						
(c) Contact with mining machines.....							1	1						1								1
9 Animals																						
Kicked by mule, etc.....									1													1

## FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 1—Continued.

Causes (U. S. Bureau of Mines Classification)	Fatal						Serious																
	Miners	Company men	Top men	Charters	Machine runners	Total	Miners	Drivers	Entry men	Timber men	Charters	Shot fires	Trailers	Check pullers	Trappers	Machine runners	Machine shoveller	Loaders	Couplers	Motor men	Trip riders	Total	
10 Mining machines (other than S).....																1							12
11 (a) Machinery (other than 10).....																							
12 (d) Falling timbers.....																							
(f) Hand tools, axes, bars, etc.....																							
(h) Miscellaneous.....																							
13 Falling down shafts or slopes.....																							
14 Objects falling down shafts.....																							
15 (a) Struck by cage.....																							
(b) Breaking of cables.....																							
16 Machinery (surface).....																							
19 Railway cars and locomotives.....																							
(b) Fall of person.....																							
(c) Hand tools, axes, bars, etc.....																							
Totals.....	6	1	1	1	1	11	11	20	10	4	1	1	1	1	1	1	1	1	1	1	1	1	131

FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 1  
Classified by Cause of Accident and Occupation of the Injured, 1917.

Causes (U. S. Bureau of Mines Classification)	Fatal			Serious							
	Miners	Motor men	Company men	Total	Miners	Drivers	Company men	Trailers	Timber men	Machine runners	Total
Falls of roof (rock, slate, etc.) At working face.....	4			4	7						7
1 Falls of roof (rock, slate, etc.) In room or chamber.....					15	1					16
Falls of roof (rock, slate, etc.) On road, entry or gangway.....	3			3	1	1	2		1		5
2 Falls of face or pillar coal.....					1						1
3 Mine cars and locomotives (a) Switching and spragging.....						1					1
(b) Coupling cars.....						3					3
(c) Falling from trips.....								1			1
(d) Run over by car or motor.....	1		1	2	3						4
(e) Caught between car and rib.....	1	1	1	3							3
(f) Caught between car and roof while riding.....					1	3					4
(g) Runaway car or trip.....						2					2
(h) Miscellaneous.....						2					2
10 Mining machines (other than S).....										1	1
11 Machinery (surface).....						1					1
12 Railway cars and locomotives (sur- face).....		1	1	2							2
22 Tools, axes, bars, etc.....					1						1
Totals.....	8	1	1	10	29	22	2	1	1	1	66

FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 2.  
Classified by Cause of Accident and Occupation of the Injured, 1916.

Cause (U. S. Bureau of Mines Classification)	Fatal				Serious					
	Miners	Tramp riders	Shot fire	Entry men	Rock men	Total	Miners	Drivers	Timber men	Company men
Falls of roof (rock, slate, etc.)..... At working face.....	5			1		6	7			
1 Falls of roof (rock, slate, etc.) In room or chamber.....	5			1		6	7			
Falls of roof (rock, slate, etc.) On road, entry or gangway.....	1				1	2	1	1	1	1
2 Falls of face or pillar coal.....							1			
3 Mine cars or locomotives (a) Switching or spragging..... (b) Coupling cars..... (c) Falling from trips..... (d) Run over by car or motor..... (e) Caught between car and rib..... (f) Miscellaneous.....							1	1	1	1
4 Explosives (k) Exhaustion and gaseous smoke.....				1		1				
5 Animals Kicked or squeezed by mule.....							1			
6 Mining machines (other than 8).....										1
7 (a) Fall of person..... (b) Miscellaneous.....							1	1	1	1
8 (c) Hand tools, axes, bars, etc.....							1			
Total.....	1	1	1	1	1	5	11	14	8	1

FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 2.  
Classified by Cause of Accident and Occupation of the Injured, 1917.

Cause (U. S. Bureau of Mines Classification)	Fatal				Serious											
	Miners	Drivers	Timber men	Track layers	Coal. workers	Total	Miners	Drivers	Timber men	Couplers	Top men	Machine helpers	Day men	Mine foreman	Entry men	Tramp riders
Falls of roof (rock, slate, etc.) At working face.....																
1 Falls of roof (rock, slate, etc.) In room or chamber.....				1		1										
Falls of roof (rock, slate, etc.) On road, entry or gangway.....																
2 Falls of face or pillar coal.....																
3 Mine cars and locomotives (a) Coupling cars..... (b) Run over by car or motor..... (c) Caught between car and rib..... (d) Caught between car and roof, while riding..... (e) Miscellaneous.....	4	5				9	1	1	5	10	1				1	1
4 Animals Kicked or squeezed by mule.....																
5 Machinery (other than 10) (A) Miscellaneous.....																
6 Falling down shafts or slopes.....																
7 Machinery (surface) (a) Fall of person..... (b) Caught between axes, bars, etc..... (c) Nails, splinters, etc.....																
Total.....	10	1	2	1	1	15	45	19	6	2	1	1	1	1	1	1



## FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 3.

Classified by Cause of Accident and Occupation of the Injured, 1916.

Causes (U. S. Bureau of Mines Classification)	Fatal			Serious													Total
	Miners	Drivers	Total	Miners	Drivers	Company men	Timber men	Day men	Transfers	Machine runners	Cagers	Engineers	Motormen	Shot examiners	Top men	Mine foreman	
Falls of roof (rock, slate, etc.)																	
At working face	1		1	9													9
1 Falls of roof (rock, slate, etc.)																	
In room or chamber	3		3	36		1	1	1									39
Falls of roof (rock, slate, etc.)																	
On road, entry or gangway	2		2	12			2	1									15
5 Mine cars and locomotives														1			1
(b) Coupling cars																	
(c) Falling from trips		1	1		5												5
(d) Run over by car or motor				4	4	1											9
(e) Caught between car and rib				2	5	1									1		9
(f) Caught between car and roof while riding							1										1
(g) Runaway car or trip																	0
Miscellaneous				6	1			1									8
9 Animals																	
Kicked or squeezed by mule				1	3									1			5
10 Mining machines (other than 5)																	
12 (b) Machinery (other than 10)																1	1
(d) Falling timbers				1			1										2
13 Falling down shafts or slopes																	
14 Objects falling down shafts																	
15 Struck by cage																	
19 Machinery (surface)					1						1						1
20 Valve broke or blow pipe (scalded)																	1
22 (b) Fall of person					1				1			1					1
(c) Hand tools, axes, bars, etc.							1			1					1		3
Total	8	1	9	73	13	3	6	3	1	1	1	1	1	1	2	1	113



FATAL AND SERIOUS ACCIDENTS, DISTRICT NO. 1.  
Summary for year 1916.

Cause of Injury (U. S. Bureau of Mines Classification)		Fatal	Permanent total disability	Permanent partial disability	Temporary disability	Total
Falls of roof (rock, slate, etc.).....0.....		3	1		15	19
At working face .....						
1 Falls of roof (rock, slate, etc.) In room or chamber.....		2			22	24
Falls of roof (rock, slate, etc.) On road or entry .....		1		1	10	12
2 Mine cars and locomotives					10	10
(a) Coupling cars .....					11	11
(b) Falling from trips or cars .....		1		1	10	12
(c) Run over by car or motor .....					3	3
(d) Caught between car and rib.....					4	4
(e) Caught between car and roof while riding.....					2	2
(f) Miscellaneous .....				1		1
6 Explosives					1	1
Handling and transportation .....					1	1
Blowout shot .....					1	1
8 Electricity. (Contact with mining machines).....		1			1	2
9 Animals. (Kicked or squeezed by).....					1	1
10 Mining machines (other than S).....					2	2
(d) Falling timbers .....					1	1
(e) Hand tools, axes, bars, etc. ....					0	0
(f) Miscellaneous .....					1	1
13 Falling down shafts .....		1				1
14 Objects falling down shafts .....					1	1
15 (d) Struck by cage .....					3	3
16 (b) Breaking cables .....					1	1
19 Machinery (Surface) .....		1				1
21 Railway cars and locomotives .....		1				1
22 (b) Fall of person .....					3	3
(c) Hand tools, axes, bars, etc. ....					1	1
Totals .....		11	1	2	128	142

FATAL AND SERIOUS ACCIDENTS, DISTRICT NO. 1.  
Summary for Year 1917.

Cause of Injury (U. S. Bureau of Mines Classification)		Fatal	Permanent partial disability	Temporary disability	Total
Falls of roof (rock, slate, etc.) At working face .....		4		7	11
1 Falls of roof (rock, slate, etc.) In room or chamber.....				16	16
Falls of roof (rock, slate, etc.) On road or entry .....		3		6	9
2 Falls of face or pillar coal.....				1	1
3 Mine cars or locomotives				1	1
(a) Switching and spragging .....			1	1	2
(b) Coupling cars .....				4	4
(c) Falls from trips or cars .....				4	4
(d) Run over by car or motor.....			1	4	5
(e) Caught between car and rib.....			1	3	4
(f) Caught between car and roof while riding.....				4	4
(g) Runaway car or trip .....				2	2
(h) Miscellaneous .....				4	4
10 Mining machines (other than S) .....				1	1
19 Machinery (surface) .....			1		1
21 Railway cars and locomotives (surface) .....		1			1
22 Hand tools, axes, bars, etc. ....				1	1
Total .....		10	2	54	66

## REPORT IOWA MINE INSPECTORS

FATAL AND SERIOUS ACCIDENTS, DISTRICT NO. 2.  
Summary for year 1916.

Cause of Injury (U. S. Bureau of Mines Classification)	Fatal	Permanent partial disability	Temporary disability	Total
Falls of roof (rock, slate, etc.) At working face .....	3	7	10	
1 Falls of roof (rock, slate, etc.) In room or chamber .....	5	7	11	
Fall of roof (rock, slate, etc.) on road or entry .....	1	4	5	
3 Mine cars and locomotives (a) Switching and spragging .....	1	4	5	
(b) Coupling cars .....	1	1	2	
(c) Falling from cars or trips .....	1	6	7	
(d) Run over by car or motor .....	1	2	3	
(e) Caught between car and rib .....	1	2	3	
(h) Miscellaneous .....	1	2	3	
6 Explosives (k) Exhaustion and gaseous smoke .....	1	1	2	
9 Animals. (Kicked or squeezed by) .....	1	1	2	
10 Mining machines (other than S) .....	1	1	2	
12 (a) Fall of person .....	1	4	5	
(h) Miscellaneous .....	1	1	2	
22 (c) Hand tools, axes, bars, etc. ....	1	1	2	
Total .....	11	5	42	58

## STATISTICS OF IOWA MINING

FATAL AND SERIOUS ACCIDENTS, DISTRICT NO. 2.  
Summary for Year 1917.

Cause of Injury (U. S. Bureau of Mines Classification)	Fatal	Permanent partial disability	Temporary disability	Total
Falls of roof (rock, slate, etc.) At working face .....	5	1	6	
1 Falls of roof (rock, slate, etc.) In room or chamber .....	7	1	28	36
Falls of roof (rock, slate, etc.) On road or entry .....	1	17	18	
2 Falls of face or pillar coal .....	2	2	4	
3 Mine cars or locomotives (a) Switching or spragging .....	1	1	2	
(b) Coupling cars .....	1	2	3	
(d) Run over by car or motor .....	2	7	9	
(e) Caught between car and rib .....	2	2	4	
(f) Caught between car and roof while riding .....	1	1	2	
(h) Miscellaneous .....	7	7	14	
9 Animals (Kicked or squeezed by) .....	3	3	6	
12 (a) Machinery (other than 10) .....	1	1	2	
(h) Miscellaneous .....	1	1	2	
13 Falling down shafts .....	1	1	2	
19 Machinery (Surfaces) .....	3	3	6	
22 (a) Fall of person .....	1	1	2	
(c) Hand tools, axes, bars, etc. ....	1	1	2	
(f) Nails, splinters, etc. ....	1	1	2	
Total .....	15	9	78	97



FATAL AND SERIOUS ACCIDENTS, DISTRICT NO. 3.  
Summary for Year 1916.

Cause of Injury (U. S. Bureau of Mines Classification)		Fatal	Permanent par- tial disability	Temporary dis- ability	Total
Falls of roof (Block, slate, etc.) At working face .....	1	9	20		
1 Falls of roof (rock, slate, etc.) In room or chamber .....	5	29	46		
Falls of roof (rock, slate, etc.) On road or entry .....	2	1	14	17	
3 Mine cars and locomotives .....			1	1	
(b) Coupling cars .....			9	5	
(c) Falling from car or trip .....	1	1	8	29	
(d) Run over by car or motor .....			9	9	
(e) Caught between car and rib .....			1	1	
(f) Caught between car and roof while riding .....			9	9	
(h) Miscellaneous .....			5	1	
9 Animals. (Kicked or squeezed by) .....			1	1	
12 (b) Machinery (other than 10) .....			2	2	
(d) Falling timbers .....			1	1	
15 Struck by cage .....			1	1	
19 Machinery (Surface) .....			1	1	
20 Valve broke on blow pipe (sealed) .....			1	1	
22 (b) Fall of person .....			3	3	
(c) Hand tools, axes, bars, etc. ....			1	1	
Total .....	9	4	109	121	

FATAL AND SERIOUS ACCIDENTS, DISTRICT NO. 3.  
Summary for Year 1917.

Cause of Injury (U. S. Bureau of Mines Classification)		Fatal	Permanent par- tial disability	Temporary dis- ability	Total
Falls of roof (rock, slate, etc.) At working face .....	4	11	15		
1 Falls of roof (rock, slate, etc.) In room or chamber .....	4	1	29	34	
Falls of roof (rock, slate, etc.) On road or entry .....	1		16	17	
2 Falls of face or pillar coal .....			2	2	
3 Mine cars and locomotives .....					
(a) Switching and spragging .....		1		1	
(c) Falling from car or trip .....			1	2	
(d) Run over by car or motor .....			1	8	
(e) Caught between car and rib .....			1	4	
(f) Caught between car and roof while riding .....			1	1	
(g) Runaway car or trip .....			1	1	
(h) Miscellaneous .....			1	1	
6 Explosives .....					
(a) Spark from miner's lamp .....			1	1	
9 Animals. (Kicked or squeezed by) .....			5	5	
10 Mining machines (other than 8) .....			1	1	
12 Falling timbers .....			2	2	
17 Mine cars and locomotives (Surface) .....			1	1	
22 Hand tools, axes, bars, etc. ....			2	2	
22 Miscellaneous .....			1	1	
Total .....	11	4	88	103	

NON FATAL ACCIDENTS, DISTRICT NO. 1.  
1916.

Date and Hour of Accident	Name and Occupation	Cause of Accident	Nature of Injury	Employing Company and County
Jan. 4, 4:00 P. M.	Frank Dowell, miner.	Caught by car.	Foot injured.	Centerville Block Coal Co., Appanoose
Jan. 5, 3:15 P. M.	Wm. Jenkins, driver	Caught by car.	Back bruised.	Wapello Coal Co., Monroe
Jan. 5, 9:30 P. M.	John Waters, cager	Powder explosion.	Face, hands burned.	Hocking Coal Co., Monroe
Jan. 5, 11:00 A. M.	Oscar Graves, miner.	Fall of coal.	Sprained ankle.	Consolidation Coal Co., Monroe
Jan. 6, 1:00 P. M.	Ed Sparks, miner.	Fall of slate.	Face, body bruised.	Consolidation Coal Co., Monroe
Jan. 8, 1:00 P. M.	T. O. Gordon, shot firer.	Lifting.	Blow on head.	National Union Coal Co., Monroe
Jan. 10, 7:20 A. M.	Carl Anderson, miner.	Face burned.	Back sprained.	Center Coal Co., Appanoose
Jan. 10, 10:30 A. M.	Wm. Arasaworth, miner.	Falling coal.	Broken wrist.	Center Coal Co., Appanoose
Jan. 12, 10:00 A. M.	B. Merdion, miner.	Fall of coal.	Tools bruised.	Center Coal Co., Appanoose
Jan. 12, 8:00 A. M.	Alfred Wagnall, driver.	Caught by car.	Body bruised.	Smoky Hollow Coal Co., Lucas
Jan. 15, 10:00 A. M.	George Reid, driver.	Caught by car.	Broken wrist.	Central Iowa Fuel Co., Lucas
Jan. 15, 3:30 P. M.	Frank Snow, driver.	Caught by car.	Broken knee.	Central Iowa Fuel Co., Lucas
Jan. 19, 1:30 P. M.	Lawrence Bryant, trailer.	Falling timbers.	Leg fractured.	Consolidation Coal Co., Monroe
Jan. 21, 1:30 P. M.	W. B. Wilson, driver.	Fall of coal.	Leg fractured.	Central Iowa Fuel Co., Lucas
Jan. 22, 12:30 P. M.	Ben Voyce, driver.	Caught by car.	Ankle bruised.	Fowler & Wilson Coal Co., Appanoose
Jan. 22, 1:00 P. M.	John Zoster, driver.	Caught by car.	Hand bruised.	Central Iowa Fuel Co., Lucas
Jan. 25, 10:00 A. M.	Charles Bell, driver.	Dirt from cave.	Fingers mashed.	Central Iowa Fuel Co., Lucas
Jan. 27, 10:30 A. M.	Thos. Richardson, trailer.	Fell down.	Hand fractured.	Hocking Coal Co., Monroe
Jan. 27, 10:00 A. M.	Frank Magill, miner.	Fall of coal.	Collar bone broken.	Phillips Coal Co., Monroe
Jan. 31, 10:00 A. M.	Glede Nicollito, entryman.	Fall of slate.	Two ribs broken.	Centerville Block Coal Co., Appanoose
Feb. 1, 2:30 P. M.	Bruce Lippi, miner.	Fall of slate.	One finger cut off.	Carbon Block Coal Co., Appanoose
Feb. 4, 1:30 P. M.	Carl Farnito, miner.	Fall of slate.	Arm broken.	Consolidation Coal Co., Monroe
Feb. 7, 1:30 P. M.	David Phillips, miner.	Fall of slate.	Legs bruised.	Consolidation Coal Co., Monroe
Feb. 7, 2:30 P. M.	Wm. Haderty, miner.	Fall of rock.	Leg broken.	Central Iowa Fuel Co., Lucas
Feb. 13, 11:00 A. M.	Robert Millman, timberman.	Fall of coal.	Hand bruised.	Central Iowa Fuel Co., Lucas
Feb. 17, 11:00 A. M.	Hubert Dayton, check puller.	Chunk of coal.	Finger cut off.	National Union Coal Co., Monroe
Feb. 18, 11:30 A. M.	Geo. Watkins, driver.	Caught by car.	Hand bruised.	Consolidation Coal Co., Monroe
Feb. 21, 9:00 A. M.	Willie Strawn, driver.	Caught by car.	Foot mangled.	Smoky Hollow Coal Co., Monroe

Feb. 22, 10:30 A. M.	Ed Barken, miner.	Fell of slate.	Back injured.	Wapello Coal Co., Monroe
Mar. 2, 9:30 A. M.	Charles Brinker, driver.	Kicked by mule.	Leg broken.	Fowler & Wilson Coal Co., Appanoose
Mar. 2, 10:00 A. M.	H. A. Hafford, miner.	Fell of slate.	Leg bruised.	Consolidation Coal Co., Monroe
Mar. 2, 2:00 P. M.	Ed Gilles, Jr., trapper.	Fall of slate.	Finger broken & ankle hurt.	Wapello Coal Co., Monroe
Mar. 2, 2:00 P. M.	Albert Polke, driver.	Fall of slate.	Head bruised.	Central Iowa Fuel Co., Lucas
Mar. 2, 11:00 A. M.	Chas. Mathewson, miner.	Fall of slate.	Head cut, toe mangled.	Central Iowa Fuel Co., Lucas
Mar. 2, 2:30 P. M.	A. P. Ebb, miner.	Caught by car.	Leg and hip bruised.	Central Iowa Fuel Co., Lucas
April 2, 9:30 A. M.	Ira Hall, driver.	Caught by car.	Back hurt.	Hocking Coal Co., Monroe
April 2, 9:45 A. M.	John Zoster, driver.	Caught by car.	Neck, shoulders hurt.	Consolidation Coal Co., Appanoose
April 21, 10:00 A. M.	John Millard, miner.	Fall of coal.	Finger broken.	Consolidation Coal Co., Appanoose
April 21, 3:00 P. M.	Dave Roland, miner.	Fall of coal.	Hand cut.	Centerville Block Coal Co., Appanoose
April 21, 1:00 P. M.	W. W. Richards, timberman.	With axe.	Back hurt.	Central Iowa Fuel Co., Lucas
May 1, 10:00 A. M.	John Smidder, driver.	Fell from trip.	Body bruised.	Central Iowa Fuel Co., Lucas
May 17, 2:30 P. M.	R. J. Maine, trapper.	Fell from trip.	Head and arms bruised.	Central Iowa Fuel Co., Lucas
May 17, 9:30 A. M.	Ve Young, timberman.	Fell of slate.	Foot mangled.	Consolidation Coal Co., Appanoose
May 27, 11:15 A. M.	Wm. Noland, driver.	Fell of slate.	Ankle bruised.	Consolidation Coal Co., Appanoose
May 31, 9:30 A. M.	Lewis Noland, driver.	Fell of slate.	Back bruised.	Consolidation Coal Co., Appanoose
June 3, 10:45 A. M.	Ike Stricker, loader.	Fell from trip.	Face and arms burned.	Central Iowa Fuel Co., Lucas
June 3, 10:45 A. M.	Vance Stricker, driver.	Went back on trip.	Face and arms burned.	Central Iowa Fuel Co., Lucas
June 15, 12:30 P. M.	Richard Owens, driver.	Powder explosion.	Body bruised.	Hocking Coal Co., Monroe
June 15, 10:30 A. M.	Robert Shelton, driver.	Between car and rib.	Body bruised.	Consolidation Coal Co., Monroe
June 17, 10:00 A. M.	Robert Sternum, trailer.	Caught by car.	Back bruised.	Consolidation Coal Co., Monroe
June 27, 8:30 A. M.	Tom Eason, driver.	Caught by car.	Back bruised.	Central Iowa Fuel Co., Lucas
July 3, 2:30 P. M.	Ben Mason, driver.	Fall of slate.	Ankle dislocated.	Consolidation Coal Co., Monroe
July 6, 1:30 P. M.	George Henry, miner.	Fall of slate.	Brained foot.	Smoky Hollow Coal Co., Monroe
July 10, 10:00 A. M.	James McGarren, mach. runner.	Fall of slate.	Hand bruised.	Consolidation Coal Co., Monroe
July 15, 10:30 P. M.	Harry Delahunt, miner.	Fall of slate.	Ribs broken.	Smoky Hollow Coal Co., Monroe
July 15, 10:30 A. M.	Cecil Bridges, coupler.	Compiling cars.	Mashed thumb.	Smoky Hollow Coal Co., Monroe
July 27, 1:00 P. M.	John Reupation, trailer.	Falling timbers.	Wrist fractured.	Hocking Coal Co., Monroe
Aug. 3, 10:00 A. M.	John Anshury, miner.	Fall of slate.	Hand bruised.	Consolidation Coal Co., Monroe
Aug. 7, 10:00 A. M.	James Anshury, miner.	Fall of slate.	Leg bruised.	Consolidation Coal Co., Monroe
Aug. 8, 2:30 P. M.	Howard Ashby, driver.	Fall of slate.	Leg bruised.	Consolidation Coal Co., Monroe
Aug. 12, 2:00 P. M.	Harry Coddling, driver.	Caught by car.	Foot mangled.	Hocking Coal Co., Monroe
Aug. 14, 2:40 P. M.	Frank Banks, driver.	Caught by car.	Foot mangled.	Smoky Hollow Coal Co., Monroe
Aug. 16, 2:00 P. M.	Frank Mink, driver.	Caught by car.	Hand mangled.	Smoky Hollow Coal Co., Monroe
Aug. 17, 3:00 P. M.	Joe Montgomery, miner.	Fell from trip.	Ankle dislocated.	Central Iowa Fuel Co., Lucas





## NON-FATAL ACCIDENTS, DISTRICT NO. 1-1917-Continued.

Date and Hour of Accident	Name and Occupation	Cause of Accident	Nature of Injury	Employing Company and County
July 17, 7:20 P. M.	Win Wilson, miner, driver	Fall of slate	Ribs broken	Sheldahl Coal Co., Monroe
Aug. 7, 10:30 A. M.	Dick Wheaton, miner	Coal slip	Broken leg	Hocking Coal Co., Monroe
Aug. 21, 8:30 A. M.	Alex. Watts, driver	Fall of slate	Broken leg	Central Iowa Fuel Co., Lucas
Aug. 21, 8:30 A. M.	O. D. Sparks, miner	Run over by car	Back and legs hurt	Hocking Coal Co., Monroe
Sept. 1, 1:00 P. M.	Charles Anderson, driver	Caught between cars	Spinal column	Exline Coal Co., Appanoose
Sept. 1, 1:00 P. M.	Rudolf Anderson, driver	Caught between cars	Spinal column	Exline Coal Co., Appanoose
Sept. 12, 9:30 A. M.	C. H. Lotridge, miner	Fall of coal	Collar bone broken	Winfield Coal Co., Monroe
Sept. 12, 9:30 A. M.	Joe Kautzlarich, miner	Caught hand in hull wh.	Three fingers off	Perless Coal Co., Appanoose
Sept. 12, 9:30 A. M.	Joe Kautzlarich, miner	Fall of coal	Broken leg	Perless Coal Co., Appanoose
Oct. 6, 10:50 A. M.	A. Angren, miner	Fall of coal	Bones in foot broken	Hoover Fuel Co., Monroe
Oct. 20, 3:30 P. M.	O. Wilson, company man	Fall of roof	Leg bruised	Hoover Fuel Co., Monroe
Oct. 20, 3:30 P. M.	Ed. Fred, miner	Fall of slate	Right leg broken	Hoover Fuel Co., Monroe
Nov. 1, 1:00 P. M.	Ed. Fred, miner	Fall of slate	Right leg broken	Hoover Fuel Co., Monroe
Nov. 21, 9:30 A. M.	Joe Edmond, driver	Fall of coal and roof	Ribs dislocated bone	Hoover Fuel Co., Monroe
Nov. 21, 9:30 A. M.	Andy Bell, driver	Caught by car	Foot crushed	Hoover Fuel Co., Monroe
Nov. 21, 9:30 A. M.	Harley Murphy, driver	Caught between cars	One finger cut off	Hoover Fuel Co., Monroe
Dec. 19, 9:15 A. M.	Dave Johnson, driver	Between car and roof	Head bruised	Hoover Fuel Co., Monroe

NON-FATAL ACCIDENTS, DISTRICT NO. 2.  
1916.

Jan. 5, 9:45 A. M.	Ed. Farrow, miner	Fall of slate	Hand cut and bruised	Hoover Fuel Co., Monroe
Jan. 19, 3:30 P. M.	Matt Brown, miner	Coal slip	Right leg broken	Hoover Fuel Co., Monroe
Jan. 20, 3:30 P. M.	Fred Dr. Godman, miner	Fall of slate	Right leg broken	Hoover Fuel Co., Monroe
Jan. 20, 3:30 P. M.	Ernest Miller, miner	Fall of slate	Hip dislocated	Hoover Fuel Co., Monroe
Feb. 3, 9:30 A. M.	Charles Greer, driver	Caught by car	Four ribs broken	Hoover Fuel Co., Monroe
Feb. 11, 4:45 P. M.	George Sinks, miner	Run over by car	Ankle dislocated	Hoover Fuel Co., Monroe
Feb. 17, 8:40 A. M.	James Thomas, driver	Caught by car	Left foot bruised	Hoover Fuel Co., Monroe
Feb. 17, 8:40 A. M.	Tony Pless, driver	Car jumped track	Back injured	Hoover Fuel Co., Monroe
Mar. 7, 3:30 P. M.	Frank Williams, miner	Fall of slate	Slightly bruised	Hoover Fuel Co., Monroe
Mar. 13, 3:30 P. M.	Frank Mediat, miner	Fall of coal	Fractured bone in leg	Hoover Fuel Co., Monroe

## STATISTICS OF IOWA MINING

Mar. 26, 9:00 P. M.	Harry Nicholas, miner	Fall of slate	Ankle sprained, rib	English Creek Coal Co., Marion
Mar. 26, 9:00 P. M.	Robt. Southern, mach. runner	Mining machine	Finger cut off	English Creek Coal Co., Marion
Mar. 26, 9:00 P. M.	John Powers, driver	Between car and rib	Leg bruised	English Creek Coal Co., Marion
Apr. 21, 3:15 P. M.	Joe H. Strafe, miner	Lifting slate	Toe mangled	Maple Coal Co., Monroe
Apr. 21, 3:15 P. M.	George Lear, miner	Fall of coal	Back injured	Maple Coal Co., Monroe
May 15, 9:30 A. M.	F. H. Allers, timberman	Fall of slate	Back bruised	Maple Coal Co., Monroe
June 5, 2:55 P. M.	Steve Nash, miner	Between car and rock	Finger mangled	Maple Coal Co., Monroe
June 5, 2:55 P. M.	Frank Loebe, miner	Caught by cars	Four fingers cut off	Maple Coal Co., Monroe
June 5, 2:55 P. M.	Ed. Lawrence, miner	Caught by cars	Acute injured	Maple Coal Co., Monroe
June 5, 2:55 P. M.	Joe Haddor, driver	Compling cars	Fingers mangled	Maple Coal Co., Monroe
July 19, 1:00 P. M.	John Brace, miner	Fall of slate	Side injured	Maple Coal Co., Monroe
July 19, 1:00 P. M.	Wm. Sedgewick, miner	Fall of slate	Leg and back injured	Maple Coal Co., Monroe
Aug. 5, 10:30 A. M.	Frank Young, driver	Struck by car	Leg broken	Maple Coal Co., Monroe
Aug. 5, 10:30 A. M.	James Stone, trapper	Struck by car	Leg broken	Maple Coal Co., Monroe
Sept. 10, 8:30 A. M.	Leo Wright, company man	Fell from trip	Broken arm	Maple Coal Co., Monroe
Sept. 10, 8:30 A. M.	John Jenkins, driver	Fall of slate	Head bruised and cut	Maple Coal Co., Monroe
Sept. 26, 8:30 A. M.	Wm. Loyal, driver	Caught by car	Head bruised and cut	Maple Coal Co., Monroe
Sept. 26, 8:30 A. M.	Pete Michels, trapper	Caught by car	Ankle sprained	Maple Coal Co., Monroe
Oct. 12, 2:30 P. M.	Geo. Kerkendall, Jr., miner	Flying coal	Leg bruised	Maple Coal Co., Monroe
Oct. 12, 2:30 P. M.	Geo. Kerkendall, Jr., miner	Caught by car	Eye injured	Maple Coal Co., Monroe
Oct. 12, 2:30 P. M.	Glover C. Rattan, driver	Squeezed by mine	Ribs broken	Maple Coal Co., Monroe
Oct. 12, 2:30 P. M.	Joe MacRae, miner	Fall of coal	Leg broken	Maple Coal Co., Monroe
Oct. 12, 2:30 P. M.	Joe MacRae, miner	Fall of coal	Ribs broken	Maple Coal Co., Monroe
Oct. 12, 2:30 P. M.	Joe MacRae, miner	Fall of coal	Ribs broken	Maple Coal Co., Monroe
Nov. 1, 1:00 P. M.	Frank Smith, top man	Run over by car	Fingers mangled	Maple Coal Co., Monroe
Nov. 1, 1:00 P. M.	Charles Bacon, driver	Run over by car	Right leg broken	Maple Coal Co., Monroe
Nov. 22, 2:15 P. M.	William Muck, miner	Fall of slate	Broken arm	Maple Coal Co., Monroe
Dec. 6, 9:30 A. M.	H. M. Muck, miner	Caught between cars	Hand bruised	Maple Coal Co., Monroe
Dec. 15, 9:15 A. M.	Levi Kerkendall, driver	Caught by car	Finger mangled	Maple Coal Co., Monroe
Dec. 15, 9:15 A. M.	Leo Capman, top man	Stairway of chute	Fell off stairway	Maple Coal Co., Monroe
Dec. 26, 2:00 P. M.	Vern Cottrill, miner	Fall of slate	Foot mangled	Maple Coal Co., Monroe





NON-FATAL ACCIDENTS, DISTRICT NO. 3.  
1916.

Date and Hour of Accident	Name and Occupation	Cause of Accident	Nature of Injury	Employing Company and County
Jan. 1, 11:30 A. M.	M. B. Harris, teamster.	Pulling bale of hay.	Slipped, rib broken.	Des Moines Coal Co., Polk
Jan. 2, 10:30 A. M.	Janes Price, machine runner.	Jack slipped.	Marbled thumb.	Beck Coal Co., Polk
Jan. 6, 4:30 P. M.	Nick Komlidos, miner.	Fall of slate.	Elbow fractured.	Saylor Coal Co., Polk
Jan. 8, 1:00 P. M.	E. Garzes, miner.	Fall of rock.	Ankle fractured.	Norwood-White Coal Co., Polk
Jan. 10, 10:30 A. M.	C. G. Sandelin, miner.	Fall of slate.	Head cut, leg bruised.	Ribbons Coal Co., Polk
Jan. 15, 10:45 A. M.	Claf Seward, miner.	Fall of slate.	Broken leg.	Wright Coal Co., Polk
Jan. 17, 10:30 P. M.	Eric Colmark, miner.	Fall of slate.	Bruised back.	High Bridge Coal Co., Dallas
Jan. 17, 11:00 A. M.	John Smith, miner.	Fall of slate.	Practured back and side.	High Bridge Coal Co., Dallas
Jan. 26, 12:15 P. M.	John Rida, miner.	Fall of slate.	Bruised foot.	High Bridge Coal Co., Dallas
Feb. 4, 4:00 P. M.	G. W. Palmer, miner.	Hand caught bet. cars.	Lacerated finger.	Norwood-White Coal Co., Polk
Feb. 6, 10:30 P. M.	Art Teller, cager.	Cought by cage.	Three toes cut off.	South Des Moines Coal Co., Polk
Feb. 10, 10:30 A. M.	Robert Brown, company man.	Cought by car.	Right hand crushed.	Norwood-White Coal Co., Polk
Feb. 10, 11:30 A. M.	A. Berg, miner.	Cought by car.	Finger mangled.	Barnett Coal Co., Polk
Feb. 17, 11:40 P. M.	A. Johnson, miner.	Struck by car.	Leg broken.	Norwood-White Coal Co., Polk
Feb. 17, 11:40 P. M.	John J. Hughes, dayman.	Struck by car.	Leg broken.	Heaps Coal Co., Boone
Feb. 19, 9:30 A. M.	Ed Brown, miner.	Beck and rib.	Compartment broken.	Norwood-White Coal Co., Polk
Feb. 26, 9:30 A. M.	John Dubokovich, timberman.	Lifting coal.	Ruptured.	Norwood-White Coal Co., Polk
Feb. 26, 10:30 A. M.	P. Trammell, miner.	Struck by axe.	Finger crushed.	Norwood-White Coal Co., Polk
Feb. 26, 1:45 P. M.	P. Trammell, miner.	Fall of slate.	Hip crushed.	Des Moines Coal Co., Polk
Mar. 7, 8:30 A. M.	Aug. Johnson, miner.	Fall of rock.	Scraped hand.	Norwood-White Coal Co., Polk
Mar. 6, 12:30 P. M.	John Crettle, miner.	Fall of slate.	Calf bone broken.	Sandus Coal Co., Dallas
Mar. 7, 11:00 A. M.	Wm. Taylor, driver.	Pell from trip.	Bruised knee and hip.	Saylor Coal Co., Polk
Mar. 10, 11:00 A. M.	Ed Grini, miner.	Fall of slate.	Marbled toe.	Saylor Coal Co., Polk
Mar. 12, 1:30 P. M.	P. Crettle, miner.	Fall of slate.	Leg broken.	Staple Mill Coal Co., Dallas
Mar. 12, 10:30 A. M.	Pete Tschewich, miner.	Fall of slate.	Leg broken.	Norwood-White Coal Co., Polk
Mar. 12, 10:30 A. M.	Sandy Sadowski, miner.	Fall of coal.	Foot and side injured.	Norwood-White Coal Co., Polk
Mar. 12, 10:30 A. M.	Joe Vautin, miner.	Leading coal.	Back bruised.	Saylor Coal Co., Polk
Mar. 16, 9:30 A. M.	Wm. Crettle, miner.	Fall of slate.	Ruptured.	Saylor Coal Co., Polk
Mar. 16, 7:30 A. M.	Thomas Wines, foreman.	Fall of slate.	Fractured ribs.	Beck Coal Co., Polk
Mar. 26, 1:45 P. M.	Thomas Wines, foreman.	Beck and prop.	Finger mangled out.	Beck Coal Co., Polk
Mar. 26, 1:45 P. M.	Thomas Wines, foreman.	Fall of slate.	Finger mangled out.	Wright Coal Co., Polk

STATISTICS OF IOWA MINING

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April 1, 2:30 P. M.	Wm. Cooper, miner.	Squeezed by mule.	Shoulder injured.	Seawood Coal Co., Polk
April 19, 2:00 P. M.	Joe Stephens, miner.	Squeezed in eye.	Eye bruised.	Wright Coal Co., Polk
April 19, 2:00 P. M.	F. Taraska, miner.	Fall of slate.	Drained shoulder.	Norwood-White Coal Co., Polk
April 20, 8:30 A. M.	Wm. Garfield, miner.	Fall of slate.	Head cut on head.	Seawood Coal Co., Polk
April 25, 4:00 P. M.	Carl Thoren, miner.	Cought by car.	Leg broken.	High Bridge Coal Co., Dallas
April 25, 4:00 P. M.	Daniel Williamson, miner.	Fall of slate.	Head cut and bruised.	Enterprise Coal Co., Polk
May 4, 8:30 A. M.	John Lechner, driver.	Cought by car.	Beck and leg.	Enterprise Coal Co., Polk
May 11, 9:15 A. M.	P. Smith, miner.	Fall of coal.	Four bruised.	Seawood Coal Co., Polk
May 16, 10:30 A. M.	Virgil Brown, driver.	Beck car and timbers.	Collar bone broken.	Wright Coal Co., Polk
May 22, 7:00 P. M.	Joe Comynski, driver.	Kicked by mule.	Broken finger.	Saylor Coal Co., Polk
May 23, 1:45 P. M.	P. K. Ogden, engineer.	Broken valve.	Leg scalded.	Gilson Coal Co., Polk
June 4, 11:00 A. M.	John Williams, miner.	Fall of coal.	Crushed ankle.	Norwood-White Coal Co., Polk
June 10, 1:00 P. M.	John Shain, matorman.	Fall of slate.	Arm and hand bruised.	Enterprise Coal Co., Polk
June 19, 1:30 P. M.	Joe Vignoli, miner.	Fall of slate.	Back and hips bruised.	Enterprise Coal Co., Polk
June 20, 3:20 P. M.	John Grigolinos, miner.	Fall of slate.	Thumb crushed, amputated.	Norwood-White Coal Co., Polk
July 1, 11:00 A. M.	John Lechner, miner.	Cought by car.	Leg and collar bone.	Wright Coal Co., Polk
July 20, 3:00 P. M.	A. H. Barker, driver.	Kicked by mule.	Leg broken, dislocated hip.	Norwood-White Coal Co., Polk
July 21, 10:30 A. M.	Frank Taraska, miner.	Fall of slate.	Practured finger.	Norwood-White Coal Co., Polk
July 22, 4:00 P. M.	N. Bragonio, miner.	Between car and timber.	Practured hip.	Norwood-White Coal Co., Polk
Aug. 2, 10:30 A. M.	F. L. Davis, miner.	Fall of coal.	Fractured hand.	Norwood-White Coal Co., Polk
Aug. 2, 12:00 A. M.	Wm. Ludgren, shot examiner.	Kicked by mule.	Lacerated hand.	Heaps Coal Co., Boone
Aug. 2, 1:00 P. M.	Robert Fischer, miner.	Fall of rock.	Back bruised.	Norwood-White Coal Co., Polk
Aug. 4, 9:30 A. M.	D. Farnett, miner.	Beck and timber.	Practured hip.	Norwood-White Coal Co., Polk
Aug. 17, 2:30 P. M.	George Flockhart, miner.	Fall of slate.	Ankle bruised.	Norwood-White Coal Co., Polk
Aug. 19, 2:00 P. M.	John Thomas, timberman.	Fall of slate.	Collar bone broken.	Norwood-White Coal Co., Polk
Aug. 20, 2:00 P. M.	Wm. Lechner, miner.	Fall of slate.	Collar bone and rib broken.	Norwood-White Coal Co., Polk
Aug. 22, 9:15 A. M.	John Lechner, miner.	Fall of slate.	Collar bone and rib broken.	Seawood Coal Co., Dallas
Sept. 2, 1:30 P. M.	Jules Baxan, foreman.	Filling prop.	Finger broken.	Wright Coal Co., Polk
Sept. 2, 1:30 P. M.	Albert Ronkey, miner.	Filling prop.	Hand and arm injured.	Saylor Coal Co., Polk
Sept. 9, 9:45 A. M.	John Fletcher, miner.	Fall of slate.	Practured hip.	Wright Coal Co., Polk
Sept. 10, 9:30 A. M.	Jas. Parenti, timberman.	Cought by crossbar.	Back bruised.	Norwood-White Coal Co., Polk
Sept. 11, 2:00 P. M.	Tom Anderson, miner.	Fall of coal.	Leg broken.	Norwood-White Coal Co., Polk
Sept. 15, 8:00 A. M.	Tom Anderson, miner.	Fall of coal.	Leg broken.	Norwood-White Coal Co., Polk
Sept. 15, 8:00 A. M.	Tom Anderson, miner.	Fall of coal.	Leg broken.	Norwood-White Coal Co., Polk
Sept. 23, 1:45 P. M.	James Mappin, driver.	Cought by car.	Broken leg.	High Bridge Coal Co., Dallas
Sept. 26, 9:00 A. M.	James Mappin, driver.	Cought by car.	One finger cut off.	Seawood Coal Co., Polk
Sept. 26, 10:30 A. M.	Wm. Lechner, driver.	Squeezed by mule.	Rib broken.	Seawood Coal Co., Polk
Sept. 26, 10:30 A. M.	Wm. Lechner, driver.	Squeezed by mule.	Rib broken.	Norwood-White Coal Co., Polk





# NON-FATAL ACCIDENTS, DISTRICT NO. 3—1917—Continued.

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REPORT IOWA MINE INSPECTORS

STATISTICS OF IOWA MINING

Date and Hour of Accident	Name and Occupation	Cause of Accident	Nature of Injury	Employing Company and County
May 29, 10:00 A. M.	Chas. E. Stonefelt, miner.	Fall of slate.	Chest bruised.	High Bridge Coal Co., Dallas
June 6, 10:30 A. M.	V. Manyani, driver.	Car caught foot.	Great toe broken.	Wright Coal Co., Polk
June 7, 1:00 P. M.	G. E. Smith, negro.	Fall of slate.	Bruised back.	Wright Coal Co., Polk
June 15, 1:00 P. M.	E. A. Peterson, miner.	Fall of slate.	Injury to left knee.	Norwood-White Coal Co., Polk
June 20, 2:00 P. M.	Harry Stone, miner.	Fall of slate.	Badly injured back.	Norwood-White Coal Co., Polk
June 25, 8:00 A. M.	James Williams, miner.	Fall of prop.	Side badly hurt.	Norwood-White Coal Co., Polk
June 28, 3:30 P. M.	John Lynd, driver.	Kicked by mule.	Collar bone broken.	Blount-Evans Coal Co., Polk
July 6, 12:30 P. M.	Adolph Pratt, miner.	Fall of coal.	Right foot bruised.	Saylor Coal Co., Polk
July 9, 2:00 P. M.	Ben Davis, miner.	Fall of slate.	Fractured bones in foot.	Norwood-White Coal Co., Polk
July 11, 11:25 A. M.	Paul Castellina, miner.	Fall of slate.	Dislocated hip.	Norwood-White Coal Co., Polk
July 16, 2:00 P. M.	S. Jackson, driver.	Fell from trip.	Bruised face and back.	Saylor Coal Co., Polk
Aug. 7, 3:50 P. M.	Mason Pugh, driver.	Between car and rib.	Left foot injured.	Norwood-White Coal Co., Polk
Aug. 14, 9:00 A. M.	Ed Edmunds, miner.	Fall of slate.	Bruised right hip.	High Bridge Coal Co., Polk
Aug. 15, 9:00 A. M.	John Jefferson, driver.	Falling timber.	Bruised right thigh.	Norwood-White Coal Co., Polk
Aug. 18, 10:30 A. M.	Earl J. Otto, miner.	Fall of coal.	Broken leg.	Norwood-White Coal Co., Polk
Aug. 17, 12:00 P. M.	R. Oliver, miner.	Fall of slate.	Right arm broken.	Roane Block Coal Co., Boone
Aug. 24, 12:30 P. M.	Jake Williams, miner.	Fall of slate.	Leg hurt.	Des Moines Coal Co., Polk
Sept. 7, 11:00 A. M.	H. Miller, miner.	Fall of slate.	Cut over left eye.	Norwood-White Coal Co., Polk
Sept. 13, 8:30 A. M.	Joe Obearo, miner.	Fall of slate.	Left leg broken.	Norwood-White Coal Co., Polk
Sept. 15, 8:00 A. M.	R. M. Cettim, miner.	Fall of coal.	Leg and foot bruised.	Saylor Coal Co., Polk
Sept. 15, 10:00 A. M.	Mike Vegas, entryman.	Fall of coal.	Ruptured bowel.	Heaps Coal Co., Boone
Sept. 17, 11:00 A. M.	Henry Quigley, driver.	Between car and rib.	Leg bruised.	Bennett Bros. Coal Co., Polk
Sept. 17, 11:00 A. M.	D. R. Burnsbaugh, timberman.	Fall of slate.	Bone in foot broken.	Maple Block Coal Co., Polk
Sept. 21, 11:00 A. M.	J. G. Frith, miner.	Fall of slate.	Bruised shoulder.	Norwood-White Coal Co., Polk
Sept. 29, 9:00 A. M.	Steve Todovich, miner.	Fall of slate.	Broken leg.	Des Moines Coal Co., Polk
Sept. 29, 9:00 A. M.	John Ashburg, miner.	Fall of slate.	Head and shoulder injured.	Saylor Coal Co., Polk
Oct. 1, 1:30 P. M.	John Tapinelle, miner.	Loading coal in car.	Wright Coal Co., Polk	
Oct. 1, 1:00 P. M.	Pat Gordon, driver.	Fall of slate.	Large toe mashed.	Maple Block Coal Co., Polk
Oct. 5, 3:00 P. M.	Evan Reese, miner.	Caught by car.	Cut about eye.	Norwood-White Coal Co., Polk
Oct. 8, 11:30 A. M.	Robert Brown, driver.	Fall of slate.	Bruised hip and back.	High Bridge Coal Co., Dallas
Oct. 13, 11:30 A. M.	John Rales, miner.	Caught by car.	Leg and ribs hurt.	Scandia Coal Co., Dallas
Oct. 15, 3:00 P. M.	John Bales, miner.	Fall of slate.	Foot bruised.	Norwood-White Coal Co., Polk
Oct. 19, 2:00 P. M.	William Titch, miner.	Fall of slate.	Head cut, ankle injured.	Wright Coal Co., Polk
Oct. 19, 2:00 P. M.	Joe Shorne, miner.	Fall of slate.	Body badly bruised.	Norwood-White Coal Co., Polk
Oct. 20, 2:00 P. M.	C. Horick, timberman.	Fall of slate.	Back strained.	Norwood-White Coal Co., Polk
Oct. 26, 10:30 A. M.	Albert Saunders, company man.	Cut with ass.	Thumb cut.	Scandia Coal Co., Dallas
Oct. 31, 1:00 P. M.	Joe Cecil, miner.	Fall of slate.	Right leg bruised.	Maple Block Coal Co., Polk
Nov. 1, 1:00 P. M.	E. Palmetti, cager.	Fall of slate.	Right leg injured.	Norwood-White Coal Co., Polk
		Coal falling down shaft.	Hip bruised.	Dallas Coal Co., Dallas

Nov. 2, 7:45 A. M.	Charles Hutchings, miner.....	Caught by car.....	Leg hurt.....	Beck Coal Co., Polk.....
Nov. 3, 12:30 P. M.	Robt. Mouthurpe, miner.....	Fall of slate.....	Thumb cut off.....	Norwood-White Coal Co., Polk.....
Nov. 9, 3:30 P. M.	W. G. Lloyd, entryman.....	Struck from pick point.....	Ulcers of eye.....	Maple Block Coal Co., Polk.....
Nov. 12, 8:30 A. M.	Samuel Parks, miner.....	Fall of slate.....	Bruised hips.....	Blount-Evans Coal Co., Polk.....
Nov. 14, 2:30 P. M.	Jas. Armer, miner.....	Fall of slate in car.....	Broken leg.....	South Des Moines Coal Co., Polk.....
Nov. 16, 10:00 A. M.	Charles Barry, miner.....	Fall of coal.....	Foot badly bruised.....	Roane Block Coal Co., Boone.....
Nov. 17, 12:00 P. M.	Frank Teroski, miner.....	Fall of slate.....	Badly bruised hand.....	Maple Block Coal Co., Polk.....
Nov. 21, 2:30 P. M.	Chas. Pendini, miner.....	Fall of slate.....	Four toes crushed.....	Maple Block Coal Co., Polk.....
Nov. 21, 2:00 P. M.	Jas. Gallotti, machine helper.....	Moving mining machine.....	Wrist wrenched.....	Wright Coal Co., Polk.....
Nov. 24, 8:45 A. M.	Uno Nelson, miner.....	Fall of slate.....	Leg broken.....	Saylor Coal Co., Polk.....
Nov. 24, 2:00 P. M.	Albert Elliott, miner.....	Caught by car.....	Wrist broken.....	Wright Coal Co., Polk.....
Dec. 10, 11:30 A. M.	S. C. Cary, miner.....	Fall of slate.....	Bruised leg.....	Wright Coal Co., Polk.....
Dec. 7, 11:00 A. M.	Clyde Davenport, miner.....	Fall of coal.....	Bruised legs.....	South Des Moines Coal Co., Polk.....
Dec. 10, 1:00 P. M.	Earl South, driver.....	Run over by car.....	Back and hips hurt.....	Des Moines Coal Co., Polk.....
Dec. 17, 1:00 P. M.	A. Somenza, driver.....	Struck machine post.....	Elbow bruised.....	Saylor Coal Co., Polk.....
Dec. 20, 1:00 P. M.	Sam Southall, motorman.....	Caught by car.....	Bruised finger.....	Saylor Coal Co., Polk.....
Dec. 26, 3:30 P. M.	Tom Knox, trip rider.....	Caught between cars.....	Foot bruised.....	Scandia Coal Co., Dallas.....

## LIST OF COAL COMPANIES, SUPERINTENDENTS, ETC., IN FIRST DISTRICT.

### APPANOOSE COUNTY.

Name of Company	Superintendent	Postoffice Address	Shift on Slope	Plan of Working	How Ventilated	Power Used	Shipping or Local
Acken Coal Company, No. 1.	William Porter.	Mystic	Slope.	Longwall.	Fan.	Steam.	C. M. & St. P.
Acken Coal Company, No. 2.	William Porter.	Mystic	Shaft.	Longwall.	Fan.	Steam.	C. M. & St. P.
Anchor Coal Company, No. 2.	M. E. Serat.	Centerville	Shaft.	Longwall.	Fan.	Steam.	C. R. I. & P.
Appanoose Coal & Fuel Co.	L. D. Lockwick.	Mystic	Shaft.	Longwall.	Fan.	Steam.	C. M. & St. P.
Armstrong Coal Company.	W. D. Ketchum.	Cincinnati	Shaft.	Room and pillar.	Fan.	Steam.	C. B. & E. C. Ry.
Beggs Coal Company.	Wm. Beggs.	Mystic	Shaft.	Longwall.	Furnace.	Horse.	C. M. & St. P.
Burton Coal Company.	J. A. Burton.	Mystic	Shaft.	Longwall.	Furnace.	Horse.	Local
Carbon Block Coal Company.	A. D. Crawford.	Centerville	Shaft.	Longwall.	Fan.	Steam.	C. R. I. & P.
Callwell Coal Co.	David Ewan.	Felice	Shaft.	Longwall.	Natural.	Horse.	Local
Center Coal Company.	Louis Anderson.	Centerville	Shaft.	Room and pillar.	Fan.	Steam.	C. R. I. & P.
Centerville Block Coal Co., No. 1.	Alex. Dargavell.	Centerville	Shaft.	Longwall.	Fan.	Steam.	C. R. I. & P.
Centerville Block Coal Co., No. 2.	Alex. Dargavell.	Centerville	Shaft.	Longwall.	Fan.	Steam.	C. R. I. & P.
Centerville Block Coal Co., No. 3.	Alex. Dargavell.	Centerville	Shaft.	Room and pillar.	Fan.	Steam.	C. M. & St. P.
Centerville Block Coal Co., No. 4.	Alex. Dargavell.	Centerville	Slope.	Room and pillar.	Furnace.	Steam.	K. & W. Ry.
Centerville Block Coal Co., No. 5.	Alex. Dargavell.	Centerville	Shaft.	Not operating.			
Centerville Block Coal Co., No. 10.	Alex. Dargavell.	Centerville	Shaft.	Room and pillar.	Fan.	Steam.	C. R. I. & P.
Citizens Coal Company.	H. G. Graham.	Centerville	Shaft.	Longwall.	Furnace.	Electricity.	C. A. & S. Ry.
Clark Coal Company.	Daniel Clark.	Centerville	Shaft.	Longwall.	Furnace.	Steam.	Local



## LIST OF COAL COMPANIES, SUPERINTENDENTS, ETC., IN FIRST DISTRICT—Continued.

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REPORT IOWA MINE INSPECTORS

STATISTICS OF IOWA MINING

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Name of Company	Superintendent	Postoffice Address	Shaft or Slope	Plan of Working	How Ventilated	Power Used	Shipping or Local
Dewey Coal Company	Ed. Clemis	Centerville	Shaft	Longwall	Fan	Steam	Local
Diamond Block Coal Co., No. 12	David Lodwick	Mystic	Shaft	Longwall	Fan	Steam	C. M. & St. P. Ry.
Diamond Block Coal Co., No. 29	David Lodwick	Mystic	Shaft	Longwall	Fan	Steam	C. M. & St. P. Ry.
Dixon & Frost Coal Company	John Frost	Mystic	Slope	Longwall	Natural	Horse	Local
Domestic Coal Company	W. H. Cary	Cincinnati	Shaft	Room and pillar	Fan	Steam	Local
Eagle Coal Company	T. Lungren	Centerville	Shaft	Room and pillar	Fan	Electricity	Local
Elgin & Barrett Coal Co.	Jan. Barrett	Mystic	Slope	Longwall	Furnace	Electricity	C. M. & St. P. Ry.
Egypt Coal Company	A. B. Dudley	Mystic	Slope	Longwall	Furnace	Steam	C. M. & St. P. Ry.
Espy Coal Company	Wm. Espy, Rt. 1	Centerville	Slope	Longwall	Furnace	Horse	Local
Exline Coal Company	A. M. Johnson	Exline	Shaft	Room and pillar	Fan	Steam	C. B. & K. C. Ry.
Felley Coal Company	Thos. Felley	Brazil	Slope	Longwall	Furnace	Mule	Local
Fowler & Wilson Coal Co., No. 1	D. E. Cushing	Rathbun	Shaft	Longwall	Fan	Steam	C. M. & St. P. Ry.
Fowler & Wilson Coal Co., No. 2	D. E. Cushing	Rathbun	Slope	Longwall	Fan	Steam	C. M. & St. P. Ry.
Globe Coal Company	Oscar Bergstrom	Centerville	Shaft	Longwall	Fan	Horse	Local
Guinn Coal Company	Ira Guinn	Coal City	Slope	Room and pillar	Furnace	Horse	Local
Harkle Coal Company	Robert Hunter	Jerome	Shaft	Longwall	Fan	Steam	C. M. & St. P. Ry.
Harris Coal Company	C. E. Harris	Mystic	Shaft	Longwall	Natural	Horse	Local
Wm. Hooten Coal Company	Wm. Hooten	Mystic	Slope	Room and pillar	Furnace	Horse	Local
Hower Coal Company	A. Strapparen	Seymour, Rt. 1	Shaft	Longwall	Furnace	Horse	Local
Intercean Coal Company	Jas. Horridge	Mystic	Shaft	Longwall	Fan	Steam	C. M. & St. P. Ry.
Iowa Block Coal Company	Lars Johnson	Exline	Shaft	Room and pillar	Fan	Steam	C. B. & K. C. Ry.
Judy Coal Company	W. H. Judy	Centerville	Shaft	Longwall	Fan	Electricity	Local
John Kountz Coal Company	John Kountz	Centerville	Shaft	Longwall	Fan	Horse	Local
Wm. Lowe Coal Company	Wm. Lowe	Brazil	Slope	Longwall	Furnace	Horse	Local
Maddalozza Coal Company	Tony Maddalozza	Mystic	Slope	Longwall	Furnace	Horse	Local
McVey Bros Coal Company	Henry McVey	Rathbun	Shaft	Longwall	Furnace	Horse	Local
McConville & Sons Coal Co.	Ed. McConville	Centerville	Shaft	Longwall	Fan	Electricity	C. A. & S. Ry.
Monitor Coal Company	John Hitchens	Centerville	Shaft	Room and pillar	Furnace	Horse	Local
Mystic Coal Company	Jas. Horridge	Mystic	Shaft	Longwall	Fan	Steam	C. M. & St. P. Ry.
New Walnut Block Coal Company	Jacob Ritter	Centerville	Slope	Longwall	Furnace	Steam	K. & W. Ry.
North Hill Coal Company	Frank Atkinson	Centerville	Slope	Longwall	Furnace	Horse	Local
Peerless Coal Company No. 5	T. E. Lee	Mystic	Shaft	Longwall	Furnace	Steam	C. M. & St. P. Ry.
Peerless Coal Company No. 6	T. E. Lee	Mystic	Slope	Longwall	Fan	Steam	C. M. & St. P. Ry.
Peacock Coal Company	R. S. Lawton	Brazil	Slope	Longwall	Furnace	Horse	K. W. Ry.
Prairie Block Coal Co., No. 1	A. G. Widmer	Centerville	Shaft	Longwall	Fan	Electricity	Local
Prairie Block Coal Co., No. 5	A. G. Widmer	Centerville	Shaft	Longwall	Fan	Steam	Railroad
Raney Coal Company	J. A. Raney	Centerville	Shaft	Longwall	Natural	Horse	Local
Risher Coal Company	David Risher	Mystic	Slope	Longwall	Natural	Mule	Local
Rock Valley Coal Company	Geo. Ruesenburg	Centerville	Shaft	Longwall	Fan	Horse	Local

Royal Block Coal Company	P. N. May	Exline	Slope	Longwall	Fan	Steam	C. B. & K. C. Ry.
Sacco Coal Company	Jac. Sacco	Brazil	Slope	Longwall	Fan	Steam	K. & W. Ry.
Scandinavian Coal Company	Claus Johnson	Centerville	Shaft	Room and pillar	Furnace	Horse	Local
Robert Staton Coal Company	Robert Staton	Coal City	Slope	Room and pillar	Fan	Horse	Local
Star Coal Company	Frank Atkinson	Centerville	Shaft	Longwall	Natural	Electricity	Local
Sterling Coal Company	All. Burkland	Centerville	Shaft	Longwall	Fan	Steam	K. & W. Ry.
Sunshine Coal Company	R. A. McKee	Centerville	Shaft	Longwall	Fan	Steam	Railroad
Southern Iowa C. & M. Co.	H. N. Rodgers	Coal City	Shaft	Room and pillar	Fan	Gas eng.	Local
Sunden Coal Company	Gas. Sunden	Centerville	Shaft	Room and pillar	Fan	Steam	C. B. & K. C. Ry.
Thistle Coal Company No. 2	David Dinning	Cincinnati	Shaft	Room and pillar	Fan	Steam	C. B. & K. C. Ry.
Thistle Coal Company No. 4	David Dinning	Cincinnati	Shaft	Room and pillar	Fan	Steam	C. B. & K. C. Ry.
Thistle Coal Company No. 5	David Dinning	Cincinnati	Shaft	Room and pillar	Furnace	Horse	Local
Walker Coal Company	Earl Walker	Brazil	Slope	Longwall	Fan	Electricity	Local
Walnut Block Coal Company	John Archibald	Centerville	Shaft	Room and pillar	Fan	Steam	C. M. & St. P. Ry.
White Oak Coal Company	R. A. McKee	Centerville	Shaft	Room and pillar	Fan	Steam	C. M. & St. P. Ry.
Winifred Coal Company	T. E. Williams	Mystic	Shaft	Room and pillar	Furnace	Horse	Local
Woodland Coal Company	A. Lofgren	Centerville	Shaft	Room and pillar	Furnace	Horse	Local

## MONROE COUNTY.

Albia Coal Company No. 2	Homer H. Harris	Ottumwa	Shaft	Room and pillar	Fan	Steam	M. & St. L.
Hocking Coal Company No. 1	W. D. Hodge	Hocking	Shaft	Room and pillar	Fan	Steam	M. & St. L.
Hocking Coal Company No. 2	W. D. Hodge	Hocking	Slope	Room and pillar	Fan	Electricity	M. & St. L.
Hocking Coal Company No. 3	W. D. Hodge	Hocking	Shaft	Room and pillar	Fan	Steam	C. M. & St. P.
Phillips Mining Company No. 11	Andrew Erskine	Avery	Shaft	Room and pillar	Fan	Steam	C. B. & O.
Sheridan Coal Company	Victor Stark	Avery	Shaft	Room and pillar	Fan	Steam	C. B. & O.

## LUCAS COUNTY.

Central Iowa Fuel Co., No. 1	Wm. Abrams	Chariton	Shaft	Room and pillar	Fan	Steam	C. R. I. & P.
Central Iowa Fuel Co., No. 2	Wm. Abrams	Chariton	Shaft	Room and pillar	Fan	Steam	C. R. I. & P.
Central Iowa Fuel Co., No. 3	Wm. Abrams	Chariton	Shaft	Room and pillar	Fan	Steam	C. R. I. & P.
Goben Coal Company	G. W. Goben	Lucas	Shaft	Longwall	Fan	Steam	Local
Skidmore Coal Company	D. T. Evans	Lucas	Shaft	Longwall	Fan	Horse	Local

## WAYNE COUNTY.

Prairie Block Coal Co., No. 2	Peter Thomas	Seymour	Shaft	Longwall	Fan	Steam	C. M. & St. P.
Prairie Block Coal Co., No. 4	Peter Thomas	Seymour	Shaft	Longwall	Fan	Steam	C. M. & St. P.
Hayhurst Coal Company	John Hayhurst	Promise City	Shaft	Longwall	Furnace	Horse	Local
Green Coal Company	H. G. Cherry	Promise City	Shaft	Longwall	Furnace	Horse	Local
Simms Coal Company	Chas. Simms	Promise City	Shaft	Longwall	Furnace	Horse	Local
Nicholson Coal Company	Wm. Nicholson	Plano	Shaft	Longwall	Furnace	Horse	Local

## LIST OF COAL COMPANIES, SUPERINTENDENTS, ETC., IN FIRST DISTRICT—Continued.

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## PAGE COUNTY.

Name of Company	Superintendent	Postoffice Address	Shaft or Slope	Plan of Working	How Ventilated	Power Used	Shipping or Local
Anderson Coal Company	C. A. Anderson	Clarinda	Shaft	Longwall	Furnace	Horse	Local
Pearson Coal Company	Chas. Pearson	Clarinda	Shaft	Longwall	Furnace	Horse	Local
Hughes Coal Company	Bert Hughes	Clarinda	Shaft	Longwall	Furnace	Horse	Local

## TAYLOR COUNTY.

New Market Coal Company	James Pullen	New Market	Shaft	Longwall	Furnace	Electricity	K. & W. R. R.
Millison Coal Company	F. M. Millison	New Market	Shaft	Longwall	Furnace	Horse	Local
Baker Coal Company	John Baker	New Market	Shaft	Longwall	Furnace	Horse	Local
Bean Coal Company	John Bean	New Market	Shaft	Longwall	Furnace	Horse	Local
Campbell Coal Company	John Campbell	New Market	Shaft	Longwall	Furnace	Horse	Local

## ADAMS COUNTY.

Nodaway Coal Company	Frank Eastlock	Nodaway	Shaft	Longwall	Furnace	Steam	Local
Hathaway Coal Company	Robt. Hathaway	Nodaway	Shaft	Longwall	Furnace	Horse	Local
Baker & Tyndall Coal Co.	M. Baker	Carbon	Shaft	Longwall	Furnace	Horse	Local
Henton Coal Company	A. J. Henton	Carbon	Shaft	Longwall	Furnace	Horse	Local
Porter Coal Company	Chas. Porter	Cumberland	Shaft	Longwall	Furnace	Horse	Local
Ruth & Howe Coal Co.	D. Ruth	Carbon	Shaft	Longwall	Furnace	Horse	Local
Lantz Coal Co.	O. D. Lantz	Carbon	Shaft	Longwall	Furnace	Horse	Local
McKee Coal Company	Andy McKee	Carbon	Shaft	Longwall	Furnace	Horse	Local

## LIST OF COAL COMPANIES, SUPERINTENDENTS, ETC., IN SECOND DISTRICT

## WAPELLO COUNTY.

Name of Company	Superintendent	P. O. Address	Shaft or Slope	Plan of Working	How Ventilated	Power Used	Shipping or Local
Bidwell Coal Company	W. T. Ramsay	Bidwell	Shaft	Room and pillar	Fan	Steam	C. M. & St. P. Ry.
Phillips Coal Company, No. 2	A. T. Haskins	Ottumwa	Shaft	Room and pillar	Fan	Steam	C. M. & St. P. Ry.
Anchor Coal Company	W. R. Daum	Ottumwa	Shaft	Room and pillar	Fan	Steam	C. & R. I. Ry.
Styre Coal Company	G. E. Styre	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local
Union Coal Company	John Genocchio	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local

Howell Price Coal Company	Howell Price	Ottumwa	Shaft	Room and pillar	Fan	Horse	Local
Fairview Coal Company	W. G. Richards	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local
Ackers Coal Company	W. Ackers	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local
Rutledge Coal Company	Frank Erskine	Ottumwa	Slope	Long wall	Natural	Horse	Local
McCoy Coal Company	A. McCoy	Ottumwa	Slope	Long wall	Natural	Horse	Local
Manuel Arandus Coal Company	Manuel Arandus	Ottumwa	Slope	Long wall	Natural	Horse	Local
L. Cooper Coal Company	L. Cooper	Ottumwa, R.F.D.	Slope	Room and pillar	Furnace	Horse	Local
Elm Grove Coal Company	Jas. Speers	Ottumwa	Shaft	Room and pillar	Fan	Horse	Local
Robert Smith Coal Company	Robert Smith	Kirkville	Slope	Room and pillar	Furnace	Horse	Local
E. J. Guilick Coal Company	E. J. Guilick	Kirkville	Shaft	Room and pillar	Natural	Horse	Local
Jas. Newell Coal Company	Jas. Newell	Kirkville	Shaft	Room and pillar	Fan	Horse	Local
Lon Henshaw Coal Company	Lon Henshaw	Eldon	Shaft	Room and pillar	Natural	Horse	Local
Robert Appleby Coal Company	Robert Appleby	Eldon	Shaft	Room and pillar	Fan	Horse	Local
Moore Coal Company	Chas. A. Moore	Eldon	Shaft	Room and pillar	Fan	Horse	Local
Job Carter Coal Company	Job Carter	Eldon	Shaft	Room and pillar	Fan	Steam	Local
Harry McCarty Coal Company	Harry McCarty	Eldon	Shaft	Room and pillar	Fan	Steam	Local
River Bottom Coal Company	J. F. Faulds	Ottumwa	Shaft	Long wall	Natural	Horse	Local
J. F. Faulds Coal Company	J. F. Faulds	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local
Brown Coal Company	Lincoln Brown	Ottumwa, R.F.D.	Shaft	Room and pillar	Fan	Steam	Local

## MAHASKA COUNTY.

Rex Fuel, No. 2	John LaCost	Lovilia	Shaft	Room and pillar	Fan	Steam	C. & N. W. Ry.
W. B. Reed Coal Company	W. B. Reed	Lovilia, R.F.D.	Shaft	Room and pillar	Natural	Horse	Local
C. D. Williams Coal Company	C. D. Williams	Beacon	Slope	Room and pillar	Natural	Horse	Local
Will Davis Coal Company	Will Davis	Oskaloosa	Slope	Room and pillar	Furnace	Horse	Local
Richard Owens Coal Company	Richard Owens	Beacon	Slope	Room and pillar	Furnace	Horse	Local
Evans Bros. Coal Company	Glewyn Evans	Eddyville	Slope	Room and pillar	Furnace	Horse	Local
Jas. Lawrence Coal Company	James Lawrence	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Local
Equality Coal Company	G. B. Morris	Oskaloosa	Slope	Room and pillar	Natural	Horse	Local
Morris Coal Company	Jas. Boggs	Given, R.F.D.	Slope	Room and pillar	Furnace	Horse	Local
James Boggs Coal Company	A. Ahweller	Oskaloosa	Slope	Room and pillar	Natural	Horse	Local
H. Ahweller Coal Company	Mike Fedro	Given, R.F.D.	Shaft	Room and pillar	Fan	Steam	C. & N. W. Ry.
Mike Fedro Coal Company	W. Braniger	Oskaloosa	Shaft	Room and pillar	Natural	Horse	Local
Hoynick Coal Company	William Kramer	Beacon	Shaft	Room and pillar	Fan	Horse	Local
Bolton-Hoover Coal Company	Albert Woodward	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local
Levi Coal Company	Ralph Hart	Oskaloosa	Slope	Room and pillar	Fan	Horse	Local
Ralph Hart Coal Company	Thos. Lewis	Beacon	Slope	Room and pillar	Fan	Horse	Local
Thos. Lewis Coal Company	William Griffiths	Beacon	Slope	Room and pillar	Fan	Horse	Local
William Griffiths Coal Company	Willard Andrews	Oskaloosa	Slope	Room and pillar	Natural	Horse	Local
Willard Andrews Coal Company	Hugh Scott	Oskaloosa	Slope	Room and pillar	Natural	Horse	Local
Scott & Richardson Coal Co.	R. L. Dixon	Lakota	Shaft	Room and pillar	Natural	Horse	Local
R. L. Dixon Coal Company							



## LIST OF COAL COMPANIES, SUPERINTENDENTS, ETC., IN SECOND DISTRICT—Continued.

## MARION COUNTY.

Name of Company	Superintendent	P. O. Address	Shaft or Slope	Plan of Working	How Ventilated	Power Used	Shipping or Local
English Creek Coal Co., No. 3.....	Edward Rowley.....	Knoxville.....	Shaft.....	Room and pillar.	Fan.....	St. & Elec.	C. & R. I. Ry.
H. H. Fennema Coal Company.....	H. H. Fennema.....	Utley.....	Shaft.....	Room and pillar.	Fan.....	Gasoline.	Local
Alex Knox Coal Company.....	Alex Knox.....	Knoxville.....	Shaft.....	Room and pillar.	Fan.....	Steam.	Local
Anderson Coal Company.....	William Evans.....	Knoxville.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & R. I. Ry.
C. Duhaime Coal Company.....	C. Duhaime.....	Knoxville.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
Stewart Mulky Coal Company.....	Stewart Mulky.....	Knoxville.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
Hays & Crawford Coal Company.....	Harve Hays.....	Knoxville.....	Slope.....	Room and pillar.	Natural.	Horse.	Local
Consolidated Indiana Coal Co.....	Harry Evans.....	Melcher.....	Shaft.....	Room and pillar.	Fan.....	Electricity	C. & R. I. Ry.
Red Rock Coal Company.....	Charles Anderson.....	Melcher.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & R. I. Ry.
Vernon Bros. Coal Company.....	Leo R. Vernon.....	Melcher.....	Slope.....	Room and pillar.	Fan.....	Gasoline.	Local
Swanson & Sons Coal Company.....	G. Swanson.....	Dallas.....	Slope.....	Room and pillar.	Furnace.	Horse.	Local
John Ogden Coal Company.....	John Ogden.....	Dallas.....	Slope.....	Room and pillar.	Furnace.	Horse.	Local
G. L. Butterfield Coal Company.....	G. L. Butterfield.....	Knoxville.....	Slope.....	Room and pillar.	Furnace.	Horse.	Local
Charles Fortner Coal Company.....	Charles Fortner.....	Knoxville.....	Slope.....	Room and pillar.	Furnace.	Horse.	Local
Phil Bishop Coal Company.....	Phil Bishop.....	Knoxville.....	Slope.....	Room and pillar.	Furnace.	Horse.	Local
Mammoth Vein Coal Co., No. 12.....	D. A. Lee (Rec.).....	Centerville.....	Slope.....	Room and pillar.	Fan.....	Electricity	Wabash Ry.
Mammoth Vein Coal Co., No. 11B.....	D. A. Lee (Rec.).....	Centerville.....	Slope.....	Room and pillar.	Fan.....	Electricity	Wabash Ry.
Pella Coal Company.....	Godfrey Bevan.....	Harvey.....	Shaft.....	Room and pillar.	Fan.....	Horse.	Local

## MONROE COUNTY.

Consolidation Coal Co., No. 18.....	E. F. Brown.....	Buxton.....	Shaft.....	Room and pillar.	Fan.....	St. & Elec.	C. & N. W. Ry.
Consolidation Coal Co., No. 19.....	E. F. Brown.....	Buxton.....	Shaft.....	Room and pillar.	Fan.....	St. & Elec.	C. & N. W. Ry.
Smoky Hollow Coal Co., No. 10.....	William Jones.....	Hiteman.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. B. & O. Ry.
Smoky Hollow Coal Co., No. 11.....	William Jones.....	Hiteman.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. B. & O. Ry.
National Union Coal & Min. Co.....	G. W. Hartsuck.....	Ward.....	Shaft.....	Room and pillar.	Fan.....	G. & Elec.	C. B. & O. Ry.
Gold Goose Coal Co., No. 1.....	G. A. Morrow.....	Albia.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. B. & O. Ry.
Rex Fuel Company, No. 4.....	John LaCost.....	Lovilla.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
Rex Fuel Company, No. 5.....	John LaCost.....	Lovilla.....	Shaft.....	Room and pillar.	Fan.....	Electricity	C. & N. W. Ry.
Sheriff Coal Company.....	William Sullivan.....	Lovilla.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
Maple Coal Company, No. 1.....	H. M. Shuler.....	Des Moines.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
Maple Coal Company, No. 2.....	H. M. Shuler.....	Des Moines.....	Shaft.....	Room and pillar.	Fan.....	Electricity	C. & N. W. Ry.
Regal Coal Company.....	John Jones.....	Oakaleosa.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
Central Coal Company, No. 3.....	T. L. Evans.....	Lockman.....	Slope.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
Central Coal Company, No. 5.....	T. L. Evans.....	Lockman.....	Slope.....	Room and pillar.	Fan.....	Steam.	M. & St. L. Ry.
Thos. Smith Coal Company.....	Thos. Smith.....	Coalfield.....	Slope.....	Room and pillar.	Furnace.	Horse.	Local
Crecent Coal Company, No. 7.....	William Ross.....	Whiteburgh.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
Hoover Fuel Company, No. 2.....	E. M. Baysoar.....	Albia.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & N. W. Ry.
John Banks Coal Company.....	John Banks.....	Lakota.....	Shaft.....	Room and pillar.	Natural.	Horse.	Local

## WARREN COUNTY.

Oakdale Coal Company.....	T. D. Davis.....	Carlisle.....	Shaft.....	Room and pillar.	Fan.....	Steam.	Local
E. E. Bishop Coal Company.....	E. E. Bishop.....	Lacoma.....	Shaft.....	Long wall.	Natural.	Horse.	Local
Spring Hill Coal Company.....	E. Harris.....	Spring Hill.....	Shaft.....	Room and pillar.	Fan.....	Steam.	C. & R. I. Ry.
E. Harris Coal Company.....	E. Harris.....	Ford.....	Shaft.....	Room and pillar.	Natural.	Horse.	Local

## DAVIS COUNTY.

E. Crow Coal Company.....	E. Crow.....	Laddale.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
M. Strilberg Coal Company.....	M. Strilberg.....	Eldon.....	Slope.....	Room and pillar.	Natural.	Horse.	Local

## JASPER COUNTY.

Colfax Consolidated Coal Co., No. 8.....	John Pearson.....	Colfax.....	Shaft.....	Room and pillar.	Fan.....	St. & Elec.	Colfax & N. Ry.
Colfax Consolidated Coal Co., No. 9.....	John Pearson.....	Colfax.....	Shaft.....	Room and pillar.	Fan.....	Steam.	Colfax & N. Ry.
Hopkins Coal Company.....	R. E. Hopkin.....	Colfax.....	Shaft.....	Room and pillar.	Fan.....	Steam.	Local
Summers Grove Coal Company.....	F. M. Bloomquist.....	Colfax.....	Shaft.....	Room and pillar.	Natural.	Horse.	Local
Bear's Grove Coal Company.....	Jas. M. Good.....	Colfax.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
Anderson Coal Company.....	C. J. Anderson.....	Monroe.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
Geo. W. Lust Coal Company.....	Geo. W. Lust.....	Monroe.....	Shaft.....	Room and pillar.	Fan.....	Steam.	Local
Newton Coal Company.....	U. G. Brown.....	Newton.....	Shaft.....	Room and pillar.	Fan.....	Steam.	Local

## KEOKUK COUNTY.

Carson Bros. Coal Company.....	Thos. Carson.....	What Cheer.....	Slope.....	Room and pillar.	Natural.	Horse.	Local
Creamery Coal Company.....	J. T. Holliday.....	What Cheer.....	Shaft.....	Room and pillar.	Natural.	Horse.	Local
Coghlan & Turner Coal Co.....	H. A. Turner.....	Delta.....	Shaft.....	Room and pillar.	Natural.	Horse.	Local
Henry Van Patten Coal Co.....	H. Van Patten.....	Rose Hill.....	Slope.....	Room and pillar.	Natural.	Horse.	Local

## JEFFERSON COUNTY.

Cross Coal Company.....	John R. Cross.....	Fairfield.....	Slope.....	Room and pillar.	Natural.	Gasoline.	Local
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## VAN BUREN COUNTY.

William Phillips Coal Company.....	William Phillips.....	Doubs-Leando.....	Slope.....	Room and pillar.	Natural.	Horse.	Local
Ratchiff Coal Company.....	H. L. Ratchiff.....	Doubs-Leando.....	Shaft.....	Room and pillar.	Furnace.	Gasoline.	Local
Bayer & Turner Coal Company.....	Noah Bayer.....	Farmington.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
P. P. Cahill Coal Company.....	P. P. Cahill.....	Farmington.....	Shaft.....	Room and pillar.	Furnace.	Horse.	Local
Grant See Coal Company.....	Grant See.....	Farmington.....	Slope.....	Room and pillar.	Natural.	Horse.	Local

LIST OF COAL COMPANIES, SUPERINTENDENTS, ETC., IN THIRD DISTRICT.  
POLK COUNTY.

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REPORT IOWA MINE INSPECTORS

Name of Company	Superintendent	P. O. Address	Shaft or Slope	Plan of Working	How Ventilated	Power Used	Shipping or Local
Norwood-White Coal Co., No. 4.	J. D. Phillips.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Norwood-White Coal Co., No. 5.	J. D. Phillips.	Des Moines.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping
Eagle Coal Co., No. 1.	E. A. Sayre.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Local
South Des Moines Coal Co.	Thos. Carpenter.	Des Moines.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping
American Coal Co.	Isaac Evans.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Wright Coal Co.	C. T. Carney.	Des Moines.	Shaft.	Room and pillar.	Natural.	Steam.	Shipping
Saylor Coal Co.	K. G. Carney.	Des Moines.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping
Economy Coal Co.	Peter Reynolds.	Des Moines.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping
Beck Coal Co.	Thos. Beck.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Keystone Coal Co.	George Heaps.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Local
Swanwood Coal Co.	J. D. Phillips.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Acme Coal Co.	John McKay, Jr.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Des Moines Coal Co.	E. M. Gray.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Local
Bennett Bros. Coal Co.	John Bennett.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Maple Block Coal Co.	John Shuler.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Local
Gilson Coal Co.	Wm. R. Gilson.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Enterprise Coal Co., No. 1.	C. W. Carpenter.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Enterprise Coal Co., No. 2.	C. W. Carpenter.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Bloomfield Coal Co.	Geo. Van.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Jos. Raplinger Coal Co.	Jos. Raplinger.	Des Moines.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping
Clover Leaf Coal Co.	E. O. Clark.	Des Moines.	Shaft.	Room and pillar.	Natural.	Horse.	Local
X-L Coal Co.	David Griffith.	Des Moines.	Shaft.	Room and pillar.	Natural.	Horse.	Local
West Side Coal Co.	Chas. Carlson.	Des Moines.	Shaft.	Room and pillar.	Fan.	Steam.	Local

WEBSTER COUNTY.

Lehigh C. & M. Co.	T. Chance.	Lehigh.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Dayton Coal Co.	Frank Dayton.	Lehigh.	Shaft.	Room and pillar.	Fan.	Steam.	Local
Riverside Coal Co.	W. H. Friend.	Clayworks.	Shaft.	Long wall.	Natural.	Steam.	Local

BOONE COUNTY.

Smiley & Heaps Coal Co., No. 1.	Robert Heaps.	Boonesboro.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Smiley & Heaps Coal Co., No. 2.	Sam'l. Smiley.	Boonesboro.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Boone Black Coal Co.	George Heaps.	Boonesboro.	Shaft.	Long wall.	Fan.	Steam.	Shipping
W. D. Johnson Coal Co., No. 3.	H. H. Canfield.	Boonesboro.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Heaps Coal Co.	Robert Heaps.	Boonesboro.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Ogden Consolidated Coal Co., No. 1.	Walter R. Dyer.	Boone.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Ogden Consolidated Coal Co., No. 2.	Walter R. Dyer.	Boone.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Ogden Consolidated Coal Co., No. 3.	Walter R. Dyer.	Boone.	Shaft.	Long wall.	Fan.	Steam.	Shipping
Prospect Coal Co.	Malcom Reid.	Facer.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping

DALLAS COUNTY.

High Bridge Coal Co., No. 1.	John Lindbloom.	Madrid.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Scandia Coal Co., No. 2.	H. Zook.	Madrid.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Scandia Coal Co., No. 3.	H. Zook.	Madrid.	Shaft.	Room and pillar.	Fan.	Steam.	Shipping
Scandia Coal Co., No. 4.	Owen Reese.	Madrid.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping
Dallas Coal Co.	John Lindbloom.	Granger.	Shaft.	Room and pillar.	Fan.	Electricity.	Shipping

GUTHRIE COUNTY.

Matt Mallon Coal Co.	Matt Mallon.	Guthrie Center.	Shaft.	Long wall.	Fan.	Horse.	Local
Edgar Lewis Coal Co.	Edgar Lewis.	Guthrie Center.	Shaft.	Long wall.	Fan.	Horse.	Local
Mansell Bros. Coal Co.	John Mansell.	Guthrie Center.	Shaft.	Long wall.	Fan.	Horse.	Local

GREENE COUNTY.

Buckeye Coal Co.	Michael Feith.	Rippey.	Shaft.	Room and pillar.	Natural.	Horse.	Local
Keystone Coal Co.	James Bennett.	Rippey.	Shaft.	Long wall.	Furnace.	Horse.	Local
Willow Groves Coal Co.	H. A. McKibben.	Angus.	Shaft.	Long wall.	Fan.	Steam.	Local

STATISTICS OF IOWA MINING

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## IOWA COAL.

By W. E. HOLLAND, Inspector First District.

In view of the present crisis in the coal situation the mine inspection department of the State of Iowa, decided that instead of giving the usual comments on each coal producing county as heretofore; that it would be more expedient and profitable to give the following prepared article on Iowa coal, its constitution, qualities, how to store, together with the proper method of firing to obtain the best results, by so doing we will help both the State and Federal Fuel Administrations in their campaigns to get the people to buy and store their coal now for the coming winter, and thus prevent if possible the shortage and subsequent suffering that was almost universally experienced last winter.

The information contained in the following papers is based upon facts gathered from actual tests, experiments and analyses made by the Iowa State College at Ames, and also the Bureau of Mines and are authentic, and absolutely reliable in every particular.

## THE CONSTITUTION OF COAL.

All naturally occurring solid fuels are modifications of cellulose or woody fiber brought about by great pressure and heat in the strata of the earth's crust. Cellulose, which may be regarded as the raw material of coal contains Carbon, Hydrogen and Oxygen. It contains about 44 per cent of Carbon by weight. From a scientific standpoint some of the constituents that are most important factors in the buying of coal are (1) moisture, (2) ash, (3) the combustible matter. The moisture in coal varies from 3 to 15 per cent. As delivered in coal it is worthless to the consumer, and is often the cause of absolute loss, hence, its percentage is a very important factor in the valuation of a ton of coal. The ash varies from 5 to 20 per cent and is made up of silica, calcium, and iron, in combination with sulphur and certain other impurities of the coal that will not burn. So that coal with a low percentage of ash is desirable and more valuable, because it not only yields a greater amount of heat, but there is less blocking of the air passages through the grates in the furnace by this incombustible matter and a more complete combustion is therefore attained. The combustible matter in coal is made up of volatile hydrocarbon gases, which are distilled by heat; and of fixed carbon which burns away

more slowly on the bars of the grate. Considered singly this element (fixed carbon) is of vastly more importance than any of the others, for coal having a high percentage of fixed carbon (and especially when there is a low percentage of volatile matter at the same time) is more easily burned so as to yield its maximum efficiency. Coal on the other hand having a high percentage of volatile matter, and a correspondingly low percentage of fixed carbon is apt to lead to the escape of the partly consumed hydrocarbon gases through the stack or chimney, thus not only causing a positive loss of heat; but at the same time it will allow the formation of a greater amount of soot, and smoke, both of which are a hindrance to complete combustion, and thus cause more coal to be consumed for the amount of work performed.

All of these constituent parts can be definitely determined by laboratory examination of the samples submitted if they are taken by men who have been properly trained for this particular class of work. Every producer, and every dealer should have available the analysis, and approximate percentages of the moisture, ash and thermal value of the different coals he has for sale, then the intelligent consumer can by careful comparison easily determine the kind of coal that will be the most practical and economical for his purpose.

## DEFINITION OF UNITS.

In the metric system of measurement, which is generally used by chemists, the heat units are the gram calorie, and the kilogram calorie. The gram calorie is the amount of heat required to raise the temperature of one gram of water 1 degree C. at 15 degrees C. The kilogram calorie is the amount of heat required to raise the temperature of one kilogram of water 1 degree C. at 15 degrees C. In the English system of measurement, which is generally used by engineers the heat unit is the "British thermal unit" or, B.t.u. The British thermal unit is the quantity of heat required to raise the temperature of one pound of water 1 degree F. at 60 degrees F. Calorific values given in calories per gram may be converted into British thermal units per pound by multiplying by 1.8 the ratio between the Centigrade and Fahrenheit degree.

The following list taken from Part 1, of Bulletin No. 22 "Analyses of Coals" in the United States, by the Bureau of Mines; gives the highest rating found by the analysis made from the coal submitted in the States mentioned.

	Hydrogen	Carbon	Nitrogen	Oxygen	Calories	B.t.u.'s
Iowa .....	5.59	84.56	1.33	8.61	8,562	15,384
Illinois .....	5.45	82.75	1.77	10.03	8,495	15,129
Indiana .....	5.82	84.18	1.42	8.58	8,474	15,253
Kentucky .....	7.13	82.59	1.33	7.57	8,778	15,890
Tennessee .....	5.55	87.42	1.58	5.45	8,776	15,797

By consulting the above table you will see that *Iowa Coal* has more carbon than any of the states compared except Tennessee, and a higher calorific value and more B.t.u.'s per pound than either Illinois or Indiana. As the analyses was made by the Bureau of Mines without fear or favor of any particular state or its coal, it should have more weight and be given more consideration than a mere passing glance or thought; because properly cleaned *Iowa Coal* will give just as much heat pound for pound whether used for steam or domestic use as any bituminous coal shipped into the state, and can be bought for less money thus making a great saving to the home-consumer.

#### STORING IOWA COAL

The two bugaboos that have been so fluently elaborated upon by dealers having other coals for sale (and that have caused the Iowa consumer to have untold but unnecessary hallucinations in the past), are *deterioration* and *spontaneous combustion*. These have been proven by actual experiment, and by testimony from reliable dealers to exist more often in the fanciful imagination of the individual than in reality. As positive proof of this statement we desire to say that a number of the Insurance Companies of the State of Iowa have stated that they will accept the risk (from storing Iowa coal) along with the articles classed as household furniture and supplies, without making any added charge for this protection.

The causes of deterioration are chemical and physical. In regard to the chemical changes it has been shown conclusively by the Bureau of Mines that the chemical deterioration (in stored coal) has been greatly overestimated and that with most coals in the United States this is an almost entirely negligible quantity. The physical state of the coal in storage is changed by surface oxidation causing fissures which sometimes extend through the coal causing the size of the large lumps to decrease. As the majority of Illinois coal is far more friable than Iowa coal there would of necessity be more physical deterioration in storing it than Iowa coal.

Spontaneous combustion is brought about by oxidation in an air supply that will support it, but insufficient to carry away all the heat thus formed. The area of surface exposed to oxidation by a mass of coal determines largely the amount of oxidation that takes place in the mass; it depends upon the size of the particles, and increases rapidly as the fineness approaches that of dust. Spontaneous combustion will not take place if the coal is stored in large lumps, or in layers of mixed coal not exceeding certain heights depending upon the nature of the coal and the degree to which it is broken up. The Fuel Administration of the State of Iowa has issued the following instructions for storing Iowa coal now for the coming winter.

#### NO TROUBLE TO STORE IOWA COAL! OBSERVE THESE PRECAUTIONS.

1. Store only screened lump coal if possible.
  2. Store on a dry concrete floor if possible.
  3. Coal for storage should be put in only when dry.
  4. Handle carefully to avoid breakage.
  5. Do not pile over four or five feet high.
  6. If there is much fine coal or dust keep this separate and use it first.
  7. See that the windows are shut tight, so it cannot rain on the coal, as alternate wetting and drying causes slacking.
- If these directions are faithfully carried out sufficient coal for one year's use can be stored with absolute safety in cellars or outside bins without loss or danger from deterioration, or spontaneous combustion.

#### INSTRUCTIONS FOR FIRING SOFT COAL—COMBUSTION OF COAL

It will be necessary first of all, to give some of the chemical changes that take place when coal is being consumed so as to lay an intelligent foundation for what follows.

Combustion of coal is a chemical process, in which the combustible substance unites with the oxygen of the atmospheric air. The combustible part of coal consists mainly of Carbon and Hydrogen. Air is a mixture of gases, the two most important being Nitrogen and Oxygen. Only the oxygen, which forms about a fifth part of the volume of any given quantity of air takes part in the combustion; the nitrogen is inactive. Carbon and hydrogen are not destroyed by burning, but are merely changed. The carbon forms carbon dioxide (or black damp), and the hydrogen forms water



vapor, which like carbon dioxide is a colorless and invisible gas. The weight of carbon in the carbon dioxide formed by burning coal is exactly equal to the weight of carbon in the coal burned; also, the weight of hydrogen in the water vapor is exactly equal to the weight of the hydrogen in the coal. The fact that carbon dioxide and hydrogen are invisible has made people think that combustion is complete destruction.

The coal and wood disappear as they burn and the resulting gases, the invisible products of combustion pass away unnoticed.

When carbon burns completely, 12 pounds of carbon unites with 32 pounds of oxygen to form 44 pounds of carbon dioxide. When hydrogen burns completely 2 pounds of hydrogen combine with 16 pounds of oxygen to form 18 pounds of water vapor. As the oxygen of the air is mixed with four times its weight of nitrogen (5 pounds of air containing only 1 pound of oxygen) to burn 12 pounds of carbon completely, requires 5 times 32, or 160 pounds of air. Similarly, to burn 2 pounds of hydrogen takes 5 times 16 or 80 pounds of air. In reality, for the complete combustion of carbon and hydrogen in coal it is necessary to supply somewhat more air than the above figures show. When a pound of carbon combines with oxygen and is completely burned to carbon dioxide the amount of heat produced is 14,500 heat units, called British thermal units (B.T.U.), but if there is not enough air supplied the carbon burns to carbon monoxide (or white damp) and the amount of heat generated is only 4,500 heat units per pound of carbon, or a total loss of exactly 10,000 heat units.

These figures will show conclusively the paramount importance of a sufficient supply of fresh air at all times so as produce complete combustion. For any substance to burn two things are necessary: (1) the substance must be in contact with free oxygen, (2) while thus in contact the substance must be at least as hot as its ignition temperature. When a charge of fresh bituminous coal is spread over the fuel bed in a furnace the coal is heated to about 2,400 degrees F. in from two to five minutes. This heating distills from the coal the combustible matter which the coal contains, and continues whether sufficient air is supplied or not; but to burn volatile matter completely air must be intimately mixed with it and the mixture kept above the ignition temperature, which is about 1,200 degrees F., or a dark red. The residue left after the distillation is ended is what is known as fixed car-

bon. It is mostly in the form of coke and is the chief constituent of the fuel bed. This coke burns completely, or partly, as it comes in contact with the air supplied through the bars of the grate. The more rapidly the air is supplied the faster the coke burns, therefore, for a complete or high rate of combustion a large quantity of air must pass through the fuel bed.

#### FIRING SOFT COAL.

When bituminous coal is burned the best results are obtained if the fires are kept level and rather thin. The best thickness of the fires has been found to be from 5 to 10 inches, depending on the character of the coal used and the strength of the draft. The coal should be fired in small quantities and at short intervals. In firing endeavor to place the coal over any thin spots that may be in the fuel bed, as the rate of combustion is much faster in these places than in places where the flow of air through the fuel bed is less. The cause of these thin places in different parts of the fuel bed may be the difference in the size of the coal, the fusing of the coal to a hard crust, or the accumulation of clinker on the grates. With small and frequent firings the fuel supply is at all times more nearly in proportion to the air supply, so that better and more complete combustion is thus obtained, and at the same time considerable fuel is saved.

If the coal that is being used has a tendency to fuse and form a crust at the surface of the fuel bed, this must be broken up and the coke thus formed leveled over the fuel bed. This is often the result when slack or large quantities of small coal is used, and more skill is required in such cases to get the proper mixture of air for complete combustion. Where slack or small coal is used in large quantities a much stronger draft is required.

#### CLINKERING.

Anything that causes the ash in the coal to be heated to its fusion temperature causes clinker, and any coal will form clinker if the ash in it is so heated. The exact effect of each constituent on the melting point of ash is not yet definitely known, but it is certain that the nature of the atmosphere in which the ash is heated has a marked effect on the melting point.

For instance, if the ash be heated in an oxidizing atmosphere (an atmosphere that supplies oxygen) its melting point is higher than if the ash is heated in a reducing atmosphere (an atmosphere

that removes oxygen) such as hydrogen or carbon monoxide. The difference between the melting point in an oxidizing atmosphere and a reducing one is for some coals over 140 degrees C. or 251 degrees F. The ash of some coals is so fusible that it is difficult to burn it without heating it to its fusion temperature. However, with most of the coals mined in the United States this can be avoided by proper firing and care of the fire.

The most common cause of clinker are thick fire, excessive stirring of the fires, too much slack in the coal, burning coal in the ash pit, and the preheating of the air admitted under the grates.

#### REMEDIES FOR CLINKERING.

To prevent trouble from clinker the first and most important step should be to find if possible which of the above mentioned causes are responsible for the formation of it, then it will be a much easier matter to avoid or remove the cause.

The following general suggestions are given for the prevention of clinker troubles from ordinary causes.

Use thin fires and keep the fuel bed level by placing the fresh coal on the thin spots in the fire.

Avoid disturbing the fuel bed more than is absolutely necessary with the rake or poker.

Fire in small charges, thus reducing the formation of a crust on the surface of the fuel bed.

Be specially careful to use small charges if the coal contains much slack.

Avoid burning coal in the ash pit.

Keep the ash pit doors open at all times; regulate the draft with a damper.

If possible, keep water in the ash pit at all times.

If not possible use any steam (either exhaust or live steam) that may be available, introducing it under the grates.

If the above rules are carefully observed, and carried out, there will be very little trouble from clinker with coal of average quality under ordinary circumstances.

#### DES MOINES AGREEMENT.

This contract, made and entered into by and between District No. 13 of the U. M. W. of A. and each member thereof, party of the first part, and the Iowa Coal Operators Association and each member thereof, party of the second part. Witnesseth: That it is understood and agreed that all of the terms and provisions herein contained are for the exclusive joint use and benefit of District No. 13 of the U. M. W. of A. and each member thereof, and each and every member of the Iowa Coal Operators Association, and this agreement is entered into with the hope and belief that the advance in wages will result in the increased production of coal and that the good relations existing between the members of the two Associations will continue without the interruption of local strikes called in violation of this Agreement which is not countenanced by either Association.

It is agreed that said contract shall take effect November 1, 1917, and be extended during the continuation of the war, and not to exceed two years from April 1, 1918.

Agreement Made by the Operators of Iowa and the United Mine Workers of District No. 13, Effective November 1, 1917, Until March 31, 1920, both inclusive.

The prices to be paid for pick mined coal in the various sub-districts named below, of said District 13, during the period commencing April 1, 1917, and ending March 31, 1920 shall be as follows per ton of two thousand pounds mine run or lump coal, as hereinafter provided in the various sub-districts.

#### SUB-DISTRICT NO. ONE.

The mines in Sub-district No. 1, will operate on a screened coal or handpicked basis at the option of the operator, and the screens shall be flat bars of not less than five-eighths (5/8) of an inch surface, and not to exceed one and one-quarter inches (1 1/4) between the bars, and not to exceed seventy-two (72) square feet of superficial area, free from obstruction, and the bars of each screen shall rest upon a sufficient number of bearings to hold the bars in proper position. No screens provided for in this agreement shall be more than twelve (12) feet in length, except those now in use, nor have anything on or near them which will impede the progress of the coal over the screen and all screens shall have a sufficient pitch to clear themselves of all coal under ordinary conditions.

Hand picked coal, per ton .....	\$1.4778
Screened lump coal, per ton .....	1.4778
Eight foot entry, per yard .....	2.32
Twelve foot entry, per yard .....	1.79
Fourteen foot entry, per yard .....	1.74
Room turning, 12 to 14 foot doorway .....	3.00

Double shifting entries, 25 cents per yard extra. This is construed to mean where entry men are employed two separate shifts of eight hours each in twenty four hours.



## ROOM TURNING.

Where the neck is required to be cut a greater depth than 9 feet on either side, the entry yardage price shall apply.

## TURNING BOOMS OFF OF SKIP ENTRIES AND LAYING OF SWITCHES.

It is agreed the company shall furnish extra cars on demand when needed, by the miners, driving skip entries, for the purpose of handling their dirt, and such cars will not be counted on the coal turn. It is also understood the above shall not apply when the miner has reasonable space in his place to gob his dirt. And switch must be laid by the company not later than the day following after pit boss has been notified that branch is ready, and on failure to comply with the above provision said miner will have just cause for complaint, and be entitled to compensation for such loss.

It is understood that the miner is not entitled to compensation for the day he demands the switch, nor on the day the switch is laid. The miner has no claim for compensation for the intervening times, unless he applies to the foreman for work, and is refused.

SCALE FOR LONG WALL CHAIN MINING MACHINES IN SUB-DISTRICT NO. 1.  
DUTIES OF MACHINE CREW.

a. The machine crew shall mine in the clay as near the coal as practicable to clear the ditchman, remove the dirt cut by the machine from under the coal and gob same and leave not less than 2½ feet of space between gob and face of coal, provided that if there is not enough space to hold dirt cut by machine as stated above then company will furnish cars at first switch and if cars are not furnished as agreed, machine crew shall throw machine dirt in roadway to be removed at the expense of the company.

They will also clean up, prop, and sprag the places ready for the loaders.

b. They shall make connection of machine wire to main wire on entry and remove and replace all picks used for undercutting the coal, deliver dull picks to blacksmith shop on mine premises and receive sharpened ones once each day if necessary, the machine crew shall exercise reasonable care of tools.

c. Should the machine require the attention of the machinist, the machine crew shall notify the mine foreman, and if the machinist should require a helper to repair said machines, then one or more of the machine crew shall assist him at the rate of \$5.00 per day.

d. Should the machine crew fail or neglect to perform any of the duties, cares, or responsibilities set forth in Paragraph 'a' the mine foreman shall be notified by the aggrieved party who shall make such arrangements with the loader so as to cause him no loss of time and if they agree as to the time required in cleaning up the place the loader shall receive \$1.25 per hour and the amount agreed upon shall be deducted from the machine crew's account and paid to the party doing such work. Provided further that if they fail to agree either party may call on the pit committee or the loader be given another place.

e. They are to remove and load all bump coal and check same to their credit. If the machine cuts up to the coal at any time, the ma-

chine crew can load out the coal, clean up the place same as a loader, and check the coal to their credit to be equally divided between runner, shoveller and helper.

## DUTIES OF THE LOADER.

a. The loader shall have the same care and responsibility of the place as a pick miner. If a loader fails to clean up and make his place ready for the machine crew, or prop his place within three feet of the face, or neglects to prop as directed by the mine foreman, or to build his roadwall within three feet or gob within four feet of the working face, provided he has the material to gob with, and a fall occurs through such carelessness, he shall immediately clear his place of such fall, and refusing or failing to do so, the company may do such work and charge the expense thereof to the loader's account.

b. In any mine where the company does the brushing, the loader shall deliver his coal and receive his empty car at the switch.

## WORKING RULES.

a. The places shall be taken on the rule of "first out, first in."  
b. Two men may work on one road under this agreement.  
c. That general resolutions applying to Sub-District No. 1 shall govern machine mines in said district.

d. In all machine mines the company shall lay the track.

e. The pit boss to furnish mule or pony and driver to move machine when necessary.

f. That all roads shall be kept high enough to permit the loading of the top coal less the flag coal, provided that no operator be compelled to brush in the cap rock, or rebrush a roadway when it has less than twenty feet to go. Rebrushing as used in this resolution is defined to mean brushing in the cap rock.

g. In the case of any deficiency arising in the place where the loader and pit boss cannot agree as to the price to be paid for same, the matter shall be taken up at once by the pit boss and one or more members of the pit committee and their decision shall be final. Should they fail to agree on a price for same by the ton, lump sum or day wage, the place can be loaded out by the day men, machine crew or the pit boss can make an agreement with any other loader by the ton, lump sum, or day wage, and the loader to be given the first vacant place.

h. When a loader, through no fault of the company, is absent from his working place which he has started to load out, the mine foreman may direct a loader, under rule of "first out, first in" to load out and clean up such unfinished place, and such loader must take such place. Should he demand any extra payment for loading out and cleaning up such place, the mine foreman and one member of the pit committee shall determine the amount thereof, and the company shall deduct such amount, if any, from such loader's account and pay same to the party doing the work, and their decision shall be final. In case of accident causing injury to the loader, the deduction specified above, if any, shall not be made; nor in case where proper notice is not given within one-half hour after quitting time that there will be work.

i. Should a loader take a boy in with him, they shall be considered as one loader.

j. When a fall occurs on the roadway outward from the end of the roadwall, while the loader is at work in said room, exceeding one car load, the pit boss upon being notified, shall see that such fall is removed as soon as possible, or the loader shall remove same at 16 cents per car, and he shall be given extra cars to load out such fall. The word "Possible" is defined to mean that the loader shall not lose any time on account of such fall. When a loader is assigned to a room, if there is a fall on the roadway at that time, the company shall remove the same upon being notified or the loader shall remove same at 16 cents per car.

k. When a machine is about to overtake unloaded coal in a room, the mine foreman may call upon another loader to help load out this coal, and five cents per ton extra shall be paid for each ton of coal loaded out of such place after the second loader enters same. It is understood that if the place carries a deficiency settled with the first loader, the second loader will also receive the same deficiency price. In connection with this rule it is understood that machine work in longwall mines is single work, except in the emergency above provided. The second loader who enters the place shall be first out.

l. The machine may run double shift or it may run one shift each twenty-four hours, whether it is during the time the mine is running coal or not, provided one machine crew does not run a machine to exceed 48 hours per week when a mine runs every day, or as many hours as the mine runs coal and the machine crew may work overtime repairing their machines.

m. Fourteen loaders shall follow a single shift machine. If fourteen loaders are not enough to keep a machine in cutting, this number may be increased by one man at a time, provided the men are given a fair turn. If fourteen men are too many, the loading force shall be reduced in like manner.

If after six days' operation of the machine, the record shows that the loaders after it have not had an average turn amounting to nine cars for each day's operation of the machine, then it shall be considered that a fair turn has not been given, provided the loader or loaders raising the question of turn can show that he could have loaded more cars, with coal, than he received.

n. Longwall chain machine shall be placed on a differential basis of twenty-five cents per ton.

o. Prices to be paid for

Machine runners, per ton	\$2.1100
Machine shovellers, per ton	.1100
Machine helpers, per ton	.0888
Loaders, per ton	.3210

#### RULES AND PRICES GOVERNING THE CENTERTVILLE MACHINES.

The company may run the machines double shift, or it may run one shift each twenty-four (24) hours, whether it is during the time the mine is running coal or during the intervening time, provided that one machine

crew work not to exceed 48 hours in one week when the mine runs every day, and when the mine is not working full time they may run the machines as many hours as the mine runs each week.

The Legg machine shall mine in the clay, and shall cut as thin as practicable to clear the dutchman, and the company shall clean the place and gob the machine dirt from both machines in the same manner as required to be done by the loader. The company shall lay all track and the loader will deliver his loaded car and receive his empty car the same as the pick miner.

Rules applied in the general resolutions to pick miners and operators shall apply also to machine loaders and machine operators.

Legg machine runners and shovellers, 40 foot room, per foot	.....\$0.3233
Entry, per foot	.....1080
Extra cuts, per foot	.....1215
Harrison runner and shoveler double rib, per foot	.....1393
Loader, per ton	.....794
Harrison runner and shoveler when working by the day, per day	5.40

The Legg machine runner and shoveler cannot work by the day in normal work, but when used by the day in abnormal work, they shall receive per day, \$5.40 each.

#### PRICES GOVERNING UNDERGROUND DAY LABOR.

That any company man, not a regular track layer, working at laying iron track or switches will receive \$5.00 per day for the time so employed.

Head track layers, per day	.....\$5.00
Pipe men, per day	.....4.92
Drivers and trip riders, per day	.....4.86
Motormen, per day	.....6.15
Cagers, per day	.....4.86
Boy couplers, per day	.....3.36
Oilers and trappers, per day	.....2.65
Pushers and all other inside adult labor, per day	.....4.75

Boy drivers may be used between partings, but when used at regular switching they shall be considered as men and receive men's wages.

#### RULES GOVERNING UNDERGROUND LABOR.

That in accordance with the state law the company shall furnish all the necessary timbers and the miner shall keep his room securely propped. If the miner working in the room fails to securely prop the same, or neglects to prop as directed by the pit foreman or to build his road-wall within three feet, or gob within four feet of the working face, provided he has material to gob with, and a fall occurs through such carelessness he shall immediately clear his place of such fall, and if he refuses or fails to do so, the company may do such work and charge the expense thereof to such miner.

In any mine where the company does the brushing the miner shall deliver his coal and receive his empty car at his switch; it is also further agreed that two men may work on one road under this agreement. It is further agreed that the miner shall be responsible for his working face

up to the cap rock, except falls caused by slips or on account of mines being idle, and falls caused by first break in circle work, and in front of the roadway outward to the inside corner of his last road-wall, and when a fall occurs on the roadway from the end of the road-wall, exceeding one car load, the pit boss shall, upon being notified, see that such fall is removed, as soon as possible, or the miner shall remove the same at 16 cents per car, and he shall be given extra cars to load out such fall. The word "possible" is defined to mean that the miner affected shall not be required to lose any time on account of such fall.

All roads shall be kept high enough to permit the loading of the top coal less the flag coal, provided that no operator be compelled to brush in the cap rock or rebrush a roadway when it has less than 20 feet to go. Rebrushing as used in this resolution is defined to mean brushing in the cap rock.

#### BLACKSMITHING.

The company shall do the sharpening, which means only the sharpening of picks and wedges, and the price of same shall be one per cent (1%) of the gross earnings, and miners' tools shall be given preference over all other work done by the blacksmith, and be sharpened in a workmanlike manner.

There shall be a suitable place provided for the miners to deliver and receive their tools. At shaft mines, in accordance with the state law, the company shall hoist the tools and return the same to the bottom.

The company shall exercise reasonable precautions in the care of tools.

#### TOP LABOR.

The wages of dumpers, chunkers, screening car men, box car men, outside drivers for outside work only, mine teamsters and all other common top labor shall be \$4.23 per day, provided those now receiving a higher rate of wages shall not be reduced.

Motormen, per day .....	\$4.63
Spraggers and couplers, per day .....	2.36
Boy slate pickers and oilers, per day .....	2.65

#### CORNER CUTTING.

Corner cutting on longwall shall be 83 cents per yard; and corner cutting in semi-longwall shall be 83 cents per yard for all permanent corners. What is considered a permanent corner is a corner next to the main entry, and the corner next to head of cross entry. Should a room at any time be more than 7 feet ahead of the inside room, the miner shall be given a place to work until the inside room is caught up.

#### IRON TRACK.

There shall be iron track and switches in all mines in Sub-District No. 1, and where the miner lays the track the company shall furnish flat or sawed ties. Joint ties shall be flat on both sides, the side where rails are joined shall have sufficient flat surface to properly connect the rails. Center ties shall have at least one flat side. The company shall also

furnish one pair of short rails, length not to exceed ten feet long, for temporary use.

In all room and pillar mines the company will drill or punch the rails and furnish suitable spikes.

In room and pillar work the miner is to deliver his loaded car and receive his empty car as heretofore.

The depth of rooms in room and pillar work shall not be more than 150 feet; in longwall work not more than 125 feet, except by mutual consent, but a miner cannot be compelled to drive a place more than 125 feet. In the event that such work is done by mutual consent, the miner shall receive 13 cents per ton extra for the first twenty feet and 19 cents per ton extra over 145 feet, and in room and pillar this rule and price shall apply when driven more than 150 feet.

#### BRUSHING.

The minimum price for brushing 8-foot entries shall be 71 cents per yard and width of bottom brushing in longwall entries shall be 5 feet.

#### CRIB BUILDING.

The price for building cribs from clay to slate shall be 83 cents each, the company to have the option of doing same, but where built by the company the miners shall not be delayed in their work.

#### BLACK BATS.

Black bats over three inches thick shall be considered as deficient work and paid for according to Resolution No. 10.

#### PAY DAYS.

Pay days during the six summer months of the year shall be considered holidays, and for the six winter months of the year the mines shall operate full eight hours. Holidays, it is understood, are to begin the first pay day in March.

#### SUB-DISTRICT NO. TWO.

All mines in Sub-District No. 2 shall operate on an absolute mine run basis, except that all mines now operating on the double standard shall be allowed to continue on that basis until they are finished.

Mine run coal, per ton .....	97 cents
Screened lump coal, per ton .....	\$1.38 1/2

#### ENTRY PRICES.

Eight foot entry, per yard .....	\$3.32
Twelve foot entry, per yard .....	2.27

The yardage prices provided above are made on the condition that the entry men must cut all normal entries, top and bottom, before they are shot. This shall not prevent the firing or practical lifting shots.

Agreements on the price of deficient eight-foot entry work:



Entry, 3½ to 4 ft. vein, deficient by having rock or other impurities, price, including coal, per yard .....	\$ 7.16
Entry, 3½ to 4 ft. vein, deficient by having rock or other impurities, not sufficient coal to cut, price including coal, per yard .....	7.83
Entry, 4 to 5 ft. vein, deficient by having rock or other impurities, price including coal, per yard .....	7.83
Entry, 4 to 5 ft. vein, deficient by having rock or other impurities, not sufficient coal to cut, price including coal, per yard .....	8.59
Entry, 5 to 6½ ft. vein, deficient by having rock or other impurities, price including coal, per yard .....	8.51
Entry, 5 to 6½ ft. vein, deficient by having rock or other impurities, not sufficient coal to cut, price including coal, per yard .....	9.26
Entry, 6½ to 8 ft. vein, deficient by having rock or other impurities, price including coal, per yard .....	9.71
Entry, 6½ to 8 ft. vein, deficient by having rock or other impurities, not sufficient coal to cut, price including coal, per yard .....	10.11

Note: The above prices shall be in full payment, both for the yardage and mining.

Where the vein is under three and one-half feet or over eight feet in thickness, or where jumpers have to be used, entries shall be worked by the day, or at such price per yard as may be agreed upon between the entry men and the pit boss.

If by the day, the wages shall be \$5.15 per day, the company to furnish tools and supplies.

In deficient entries entrymen to load out rock or other impurities.

It is understood that the intent of this agreement is that the entrymen shall do the cutting in the same manner as he would if paid no deficiency, to wit: when cutting in the bottom, to extend the cut upwards until an actual obstruction is encountered, and if the same is such that it can be readily broken with the sledge, the same shall be done and the cut carried to the top of the vein.

No top shots to be used except to break down the coal that lies above an actual obstruction. If the obstruction be near the bottom and the cutting is done in top coal, the same rule to apply to bottom coal as above stated for top coal.

Whenever any entry that is now deficient becomes normal by the disappearance of bands of impurities or other obstructions which prevent cutting, the entrymen must square up and proceed to work it as a normal entry.

The occurrence of a sulphur ball or lump of other impurities which does not extend to a greater width than the cut, and which can be readily broken out, or a thin band of impurity which can be readily broken, will not be considered as preventing the cutting the full height of the vein.

At any mine in lieu of the above scale for deficient entries, such work may be paid for \$4.38 per yard and the coal. The miner to load out the impurities.

The adoption of the above deficient entry scale does not prevent individuals from doing this class of work with such allowance above the normal scale as may be agreed upon between the men concerned and the mine foreman. In case they disagree the gross yardage scale for deficient entries shall apply.

## ROCK IN ROOMS.

Whenever a miner has rock shot down in his room that is in his way and which prevents him loading his coal, the company shall remove the large rock or pay the miner for doing the same at the rate of 62½ cents per hour. Resolution No. 4, Section C, to govern as to notification of foreman and time of waiting.

But, in the event the rock is mixed with the miner's coal, the miner shall separate the same and throw all small rock into the gob.

## ROOM TURNING.

Room turning with neck 8 feet wide not to exceed 9 feet deep, \$6.76. Rooms shall be considered turned when they are 18 feet deep and 18 feet wide at the face.

Where neck is required to be cut more than 3 feet on one side, \$3.09 additional shall be paid.

The company cannot require the miner to turn the rooms for the pick mining room turning price and then mine the rooms with machines after machines have once been installed in the mine.

## DOUBLE SHIFTING.

Double shifting in entries, 25 cents per yard extra.

## BREAK-THROUGHS.

Break-throughs between rooms and entries shall be made in accordance with the state law as to distance, and in rooms where break-throughs are required to be cut at entry widths they shall be paid at entry prices.

## BRUSHING—WIDTH OF ROOMS—UNLOADING SLATE.

Brushing by taking up bottom or taking down top shall be 7.23 cents per inch, measured from the top or bottom of the vein as the case may be, and of sufficient width for roadway not to exceed 5 feet. This to apply to top and bottom of ordinary slate or clay material, but if of an unusually hard material, then the price to be agreed upon locally, and falling to agree, the company to do the brushing, in which case the said brushing shall be kept up to within 15 feet of the face. The minimum width of any room shall be 20 feet. Loading or unloading slate done by the miner, 23 cents per car, provided if there is any change in the capacity of the car there can be a readjustment of the price but there shall be no change in existing local agreements on the subject.

## BLACKSMITHING.

The company shall do the sharpening, which shall mean only the sharpening of picks, augers and wedges, the buttoning of scrapers and cutting off of augers, and the price of the same shall be 1.13 per cent of gross earnings, and the miners' tools shall be given preference over all other work done by the blacksmith, and be sharpened in a workmanlike manner.

It is further agreed that the operator will furnish a suitable place or places for the miners to receive their tools, and in first class mines, where it can be shown that it is necessary for the proper regulation of the tool



question, to have them separated or handed out, the operator will furnish some one to do the work, and the question of wages and duties shall be left to the operator.

## DAY WAGE SCALE.

Track layers, timbermen, cagers, per day.....	\$5.00
Drivers, trip riders and water haulers, per day.....	5.00
Track layers and timber men helpers, per day.....	4.75
Boy couplers, per day.....	3.25
Trappers, per day.....	2.50
Motormen, per day.....	5.15
Others, per day.....	3.25
Spike team drivers, per day, when engaged in regular switching.....	5.15
Drillers and shooters, per day.....	5.00
All other inside adult labor, per day.....	4.75

Stable men to receive \$2.00 per day increase over wages for month of April, 1915.

Boy drivers may be used between partings, but when used at regular switching they shall be considered as men and receive men's wages.

## ELECTRIC MINING MACHINE SCALE FOR SUB-DISTRICT NO. 2.

Loading, drilling, shooting and furnishing of explosives, mine run coal, per ton.....	\$ .75
Machine runner, per day.....	5.41
Machine helper, per day.....	5.15

It is understood that the day wage fixed for machine crew shall not prevent them from agreeing on a price per ton and yardage and room turning; provided, the earnings be not less than the above day wage scale.

## NARROW WORK.

Eight foot entry, loaders, per yard.....	\$1.325
Twelve foot entry, loaders, per yard.....	.905
Room necks, same measurements as pick mining, loaders.....	2.704

Break-throughs between rooms and entries shall be paid for at same rate as entries of equal widths.

Loaders in narrow work and room turning to have the option of accepting tonnage and yardage rates, or being paid at the rate of \$5.15 per day, this to include use of miners' tools. The company to have the right to select loaders for this work who may be transferred at the company's option to a normal place to load or mine coal without loss of time. Blacksmithing shall be  $\frac{3}{4}$  of 1% of the loaders' gross earnings.

## DUTIES OF MACHINE CREW.

The company shall furnish all parts and supplies to keep machines in repair. The machine crew shall perform the necessary labor for repairs, not exceeding 30 minutes at any one time, without extra compensation, all excess time shall be paid for at the rate of 62½ cents per hour. The machine crew shall cut the coal within four (4) inches of the bottom unless prevented by physical conditions; if they fail to do so and a loader is required to do extra work the mine boss and one member of the pit committee shall agree on the amount due the loader for this work, and

this amount shall be deducted from the machine crews' earnings at the rate of 12½ cents per hour.

The machine crew shall connect the machine wires to entry wires and take proper care of the machine and perform the necessary labor in moving from place to place. The machine crew shall receive and deliver bits and supplies at the same point at which pick miners receive their tools. Machines may run double shift or they may run one shift each twenty-four hours whether it is during the time the mine is running coal or not, provided one machine crew does not run a machine to exceed forty-eight hours a week when the mine runs every day, or as many hours as the mine runs coal; but the machine crew may work overtime in repairing their machines.

## DUTIES OF LOADERS.

The loaders shall have the same care and responsibility of the working place as the pick miner; he will take up to and including four inches of bottom coal left by the machine when the same is ordinary; (what is meant by ordinary is where it can be taken up in from 40 to 60 minutes across the room). If it takes more time, or if at any time the machine crew leaves more than four inches of bottom coal, whether caused by impurities or otherwise, the loader shall do the work at 62½ cents per hour. No restrictions shall be placed on the amount of coal which machines may mine, or upon the number of places in which machines may cut, or upon the number of loaders who may work after one machine, provided loaders shall have a sufficient number of places to keep them employed regularly while the mine is in operation and there shall not be more loaders employed at any time than can be given a fair turn. Where pick and machine miners are employed in the same mine the turn shall be made equal in earnings. Should any operator employ more loaders than machine can cut for, they shall be employed at 62½ cents per hour until loading places can be furnished. Where required, the loader shall snub the coal before being shot and leave the place in proper condition for the machine crew. The loader shall not be held responsible for conditions beyond his control.

## GENERAL PROVISIONS.

Any special work, such as making man holes, partings, mule barns, etc., can be done by the day at the wages guaranteed above. It is understood that the loader in timbering his place shall set props so as to clear the machine when practicable; if props are set as to interfere with the machine on account of safety the machine crew shall remove and re-set such props without compensation. The width of rooms shall be not less than twenty feet. The company shall have the right, whenever any loaders are absent, to place other loaders in the vacant places, either by the ton or by the day, at the option of the loader, in order that said machine crew will not be deprived of the use of said places. If at any time there is any dispute as to loading out of any place, the case shall be taken up as provided by Resolution VIII of the Des Moines Agreement, and said

loaders shall continue at work loading out said places pending settlement of same. All settlements shall date from the time question was raised.

Rules in the General Resolutions and Underground Working Conditions governing pick miners and operators shall also apply to machine loaders and crews and operators of machine mines.

#### LADSDALE MACHINE SCALE.

The Laddsdale agreement for machine mining shall remain the same as last year, plus the advances given in the New York and Washington Agreements.

#### TOP LABOR.

The wages of dumpers, chunkers, screening car men, box car men, outside drivers for outside work only, mine teamsters and all other common top labor shall be \$4.23 per day, provided those now receiving a higher rate of wages shall not be reduced.

Car repairers, \$2.00 per day increase over wages for month of April, 1916.

Motormen, per day .....	\$4.61
Boy slate pickers, per day .....	2.65

#### SUB-DISTRICT NO. THREE.

All mines in Sub-District No. 3 shall operate on an absolute mine run basis, except that all mines now operating on the double standard shall be allowed to continue on that basis until they are finished.

Mine run, per ton .....	\$ .394
Screened lump coal, per ton .....	1.434
Eight foot entry, per yard .....	2.65
Twelve foot entry, per yard .....	2.58

The yardage prices provided above are made on condition that the entrymen must cut all normal entries, top and bottom, before they are shot. This shall not prevent the firing of practical lifting shots.

#### ROOM TURNING.

Room turning, 9 foot neck, 8 feet wide, each, \$5.76.

Rooms shall be considered turned when they are 15 feet deep and 15 feet wide at the face.

Each additional yard or fraction thereof to be paid at the rate of \$2.25 per yard.

Where the neck is required to be cut more than 3 feet on one side, \$3.00 additional shall be paid.

The company cannot require the miner to turn the rooms for the pick mining room turning price and then mine the rooms with machines after machines have once been installed in the mine.

#### DOUBLE SHIFTING.

Double shifting in entries, 25 cents per yard extra. This is construed to mean where entrymen are employed two separate shifts of eight hours each in twenty-four hours.

#### BREAK-THROUGHS.

Break-throughs between rooms and entries shall be made in accordance with the state law as to distance, and in rooms where break-throughs are required to be cut at entry widths they shall be paid at entry prices.

#### BRUSHING.

Brushing by taking up bottom or taking down top shall be 7 2-3 cents per inch, measured from the top or the bottom of the vein, as the case may be, and of sufficient width for roadway not to exceed 5 feet. This to apply to top and bottom of ordinary slate or clay material, but if of an unusually hard material, then the price to be agreed upon locally, and failing to agree the company to do the brushing, in which case the said brushing shall be kept up to within 15 feet of the face.

#### WIDTH OF ROOMS.

The minimum width of any room shall be 20 feet.

#### UNLOADING SLATE.

Loading or unloading slate, when done by the miner, 23 cents per car, provided if there is any changes in the capacity of the car there can be a readjustment of the price but there shall be no change in existing local agreements on the subject.

#### BLACKSMITHING.

The company shall do the sharpening, which shall mean only the sharpening of picks, augers and wedges, the buttoning of scrapers and cutting off of augers, and the price of the same shall be 1 1-3 per cent of gross earnings, and miners' tools shall be given preference over all other work done by the blacksmith, and be sharpened in a workmanlike manner.

It is further agreed that the operator will furnish a suitable place or places for the miners to receive their tools, and in first class mines, where it can be shown that it is necessary for the proper regulation of the tool question, to have them separated or handed out, the operator will furnish some one to do the work, and the question of wages and duties shall be left to the operator.

#### DAY WAGE SCALE.

Track layers, timber men, cagers, per day .....	\$5.00
Drivers, trip riders and water haulers, per day .....	5.00
Track layers and timber men helpers, per day .....	4.75
Boy couplers, per day .....	3.36
Oilers, per day .....	3.24
Trappers, per day .....	2.65
Motormen, per day .....	5.15
Drillers and shooters, per day .....	5.00
Spike team drivers when engaged in regular switching, per day .....	5.15
All other inside adult labor, per day .....	4.75

Stable men to receive \$2.00 per day increase over wages for month of April, 1916.

Boy drivers may be used between partings, but when used at regular switching they shall be considered as men and receive men's wages.

## TOP LABOR.

The wages of dumpers, chunkers, screening car men, box car men, outside drivers for outside work only, mine teamsters and all other common top labor shall be \$4.23 per day, provided those now receiving a higher rate of wages shall not be reduced.

Motormen, per day .....	\$4.50
Boy slate pickers, per day .....	2.65

## ELECTRIC MINING MACHINE SCALE FOR SUB-DISTRICT NO. 2.

Loading, drilling, shooting, and furnishing of explosives, mine-run coal, per ton .....	\$ 7.74
Machine runner, per day .....	5.41
Machine helpers, per day .....	5.15

It is understood that the day wage fixed for machine crew shall not prevent them from agreeing on a price per ton and yardage and room turning; provided, the earnings be not less than the above day wage scale.

## NARROW WORK.

Eight foot entry, loaders, per yard .....	\$1.00
Twelve foot entry, loaders, per yard .....	1.60

Room necks, same measurement as pick mining, loaders, ..... 2.70  
Break-throughs between rooms and entries shall be paid for at the same rate as entries of equal widths.

Loaders in narrow work and room turning to have the option of accepting tonnage and yardage rates, or being paid at the rate of \$5.15 per day, this to include use of miners' tools. The company to have the right to select loaders for this work who may be transferred at the company's option to a normal place to load or mine coal without loss of time.

Blacksmithing shall be  $\frac{3}{4}$  of 1% of the loaders' gross earnings.

## DUTIES OF MACHINE CREW.

The company shall furnish all parts and supplies to keep machines in repair. The machine crew shall perform the necessary labor for repairs, not exceeding 30 minutes at any one time, without extra compensation; all excess time shall be paid for at the rate of 62½ cents per hour. The machine crew shall cut the coal within four inches of the bottom, unless prevented by physical conditions; if they fail to do so and a loader is required to do extra work the mine boss and one member of the pit committee shall agree on the amount due the loader for this work, and this amount shall be deducted from the machine crews' earnings at the rate of 62½ cents per hour.

The machine crew shall connect the machine wires to entry wires and take proper care of the machine and perform the necessary labor in moving from place to place. The machine crew shall receive and deliver bits and supplies at the same point at which pick miners receive their tools. Machine may run double shift, or they may run one shift each twenty-four hours, whether it is during the time the mine is running coal or not, provided one machine crew does not run a machine to exceed

forty-eight hours a week when the mine runs every day, or as many hours as the mine runs coal, but the machine crew may work over time in repairing their machines.

## DUTIES OF LOADERS.

The loader shall have the same care and responsibility of the working place as the pick miner; he will take up to and including four inches of bottom coal left by the machine when the same is ordinarily (what is meant by ordinary is where it can be taken up in from 40 to 50 minutes across the room.) If it takes more time, or if at any time the machine crew leaves more than four inches of bottom coal, whether caused by impurities or otherwise, the loader shall do the work at 62½ cents per hour.

No restrictions shall be placed on the amount of coal which machines may mine, or upon the number of places in which machines may cut, or upon the number of loaders who may work after one machine, provided loaders shall have a sufficient number of places to keep them employed regularly while the mine is in operation, and there shall not be more loaders employed at any time than can be given a fair turn. Where pick and machine miners are employed in the same mine the turn shall be made equal in earnings. Should any operator employ more loaders than machine can cut for, they shall be employed at 62½ cents per hour, until loading places can be furnished. Where required, the loader shall snub the coal before being shot and leave the place in proper condition for the machine crew. The loader shall not be held responsible for conditions beyond his control.

## GENERAL PROVISIONS.

Any special work, such as making man holes, partings, mule barns, etc., can be done by the day at the wages guaranteed above. It is understood that the loader in timbering his place shall set props so as to clear the machine when practicable; if props are set as to interfere with the machine on account of safety the machine crew shall remove and reset such props without compensation. The width of rooms shall be not less than twenty feet. The company shall have the right, whenever any loaders are absent to place other loaders in the vacant places, either by the ton or by the day, at the option of the loader in order that said machine crew will not be deprived of the use of said places. If at any time there is any dispute as to the loading out of any place the case shall be taken up as provided by Resolution VIII of the Des Moines Agreement, and said loaders shall continue at work loading out said places pending settlement of same. All settlements shall date from the time question was raised.

Rules in the General Resolutions and Underground Working Conditions governing pick miners and operators shall also apply to machine loaders, and crews, and operators of machine mines.



## SUB-DISTRICT NO. FOUR.

## SCREENS.

In Boone county the screens shall be of diamond bars, with  $\frac{3}{4}$  of an inch between the bars.

Screened lump, per ton .....	\$1.5278
Mine-run, price 10% less than screened lump price.	
Entry driving, per yard .....	3.00
Room turning, not to exceed 9 foot neck, each .....	7.54

## DOUBLE SHIFTING.

Double shifting entries 25 cents per yard extra. This is construed to mean where entrymen are employed two separate shifts of eight hours each in twenty-four hours.

Coal at Boone less than 27 inches thick shall be considered deficient work.

## DAY WAGE SCALE.

Head track layer, per day .....	\$5.00
Head timberman, per day .....	5.00
Drivers, cagers, trip riders, per day .....	4.88
Boy couplers, per day .....	3.38
Drillers and shooters, per day .....	5.00
Oilers, trappers, per day .....	2.65
All other inside adult labor, per day .....	4.75

## TOP LABOR.

The wages of dumpers, chunkers, screening car men, box car men, outside drivers for outside work only, mine teamsters, and all other top labor shall be \$4.23 per day, except those now receiving a higher rate of wages shall not be reduced.

Motormen, per day .....	\$4.82
Boy slate pickers, per day .....	2.65

## BLACKSMITHING.

The company shall do the sharpening, which shall mean only the sharpening of picks, augers and wedges, buttoning of scrapers and the cutting off of augers, the price of same shall be 1 1/3 per cent of the gross earnings. Miners' tools shall be given preference over all other work done by the blacksmith and sharpened in a workmanlike manner.

It is further agreed that the operator will furnish suitable place or places for the miners to receive their tools.

RULES AND CONDITIONS GOVERNING SUB-DISTRICT NO. 4, UNLESS OTHERWISE

## PROVIDED.

1st. Pushing not to exceed 150 feet and no miner shall be required to push beyond the second switch from face of entry; if required to push more than 150 feet, 10 cents per ton extra shall be paid for the first 30 feet. Beyond that distance the price to be agreed upon locally.

2d. All track on entry and room roads to be iron and laid at the expense of the company.

3d. Brushing not to be more than 9 feet back from face of coal, company to build roadside buildings in entries and roadways. The miner shall leave the usual space on either side of track for said buildings, but in cases where the gob is entirely filled, the miner shall not be required to load out any dirt unless suitably compensated for so doing.

4th. Skips driven along old gobs shall be paid for at the rate of ten cents per ton extra where it is necessary for the miner to move crushed coal or loose dirt.

## MINING MACHINE SCALE FOR LONGWALL WORK—4TH SUB-DISTRICT.

Loaders, per ton, screened lump coal .....	\$ .9511
Mine-run, price 10% less than screened lump price.	
Machine runners, per day .....	5.41
Machine shovelers, per day .....	5.15
Machine helpers, per day .....	5.00

It is understood that the day wage fixed for machine crew shall not prevent them from agreeing on a price per ton, provided their earnings be not less than the above day wage scale.

## DUTIES OF THE MACHINE CREW.

They shall mine in the clay as near the coal as is practical, leaving not more than four inches of clay above the cutter bar. In case the runner leaves more than four inches of clay above the cutter bar, the company shall handle the clay so left, and in case it is the fault of the runner the amount so paid shall be deducted from the wages of the machine crew, if the crew is working by the ton. Any black jack or other impurities between the coal and clay shall be considered a part of the vein. They shall remove the dirt cut by the machine from under the coal and gob the same, clean up, sprag the coal, and prop the place ready for the loader. Make connection of machine wire to main wire on entry, remove and replace all picks used for undercutting the coal, deliver dull picks to blacksmith shop on mine premises and receive the sharpened ones once each day if necessary.

Blacksmithing to be  $\frac{1}{4}$  of 1% of gross earnings of loaders.

Should the machine require the attention of the machinist, the machine crew shall notify the mine foreman, and if the machinist should require a helper to repair said machine, then one or more of the machine crew shall assist him at the rate of 62½ cents per hour.

They are to remove and load all bump coal and check same to their credit. If the machine cuts up to the coal at any time, the machine crew can load out the coal, clean up the place same as a loader, and check the coal to their credit to be divided equally between runner, shoveler, and helper. When the machine crew is working by the day all coal loaded by them shall be credited to the company. When necessary the company shall furnish mule and driver to move the machine.

The machine crew shall have the same care and responsibility of places as the pick miner. Should the machine crew fail or neglect to perform any of the cares, duties or responsibilities as set forth above, and it is necessary for the loader to perform such work, the mine foreman shall

be notified by the party finding this condition, and in the absence of the interested party he shall call a member of the pit committee and the two shall agree on a price for such work, and the amount so agreed upon shall be deducted from the machine crew's account and paid to the party doing such work.

#### LENGTH OF CUTTER BARS ON MACHINE

It is agreed that the length of the cutter bars on the machines in Boone shall not exceed three feet; in Ogden, four feet.

#### DUTIES OF THE LOADERS.

They shall have the same care and responsibility of places as the pick miners. The places shall be taken on the rule of "first out, first in," and no restriction shall be placed on the number of loaders loading after a machine, but in case there are more loaders on the crew than there are places for them to load out, when requested by the loader, the company shall employ such loaders at company work at the rate of 62½ cents per hour, until places are cut for them to load coal. This guarantee of work shall not apply in cases of accident to machines or machinery or unavoidable causes or delay, nor for the last hour of the day or where the loader leaves his working place before quitting time the preceding day.

Should they fail to clean up their places ready for the machine crew, the pit boss and one member of the pit committee shall investigate the matter, and shall agree on the price for cleaning same and the amount so agreed upon shall be deducted from the pay of the loader leaving the place in bad condition, and paid to the party cleaning same.

Where cap rock breaks with the coal the loader shall handle same for the loading price up to and including eight inches in thickness. When it exceeds this thickness the company shall handle the same, provided it cannot be left up.

At Boone, coal below 27 inches in height shall be considered deficient. In case the loader and the pit boss fail to agree on a price for loading out a deficient place, the loader can appeal the case to the local president and superintendent of the mine or their representatives whose decision shall be final and the loader shall continue at work pending a settlement.

#### RUNNING TIME.

A machine may run double shift or it may run one shift each twenty-four hours whether it is during the time the mine is running coal or not, provided one machine crew does not run a machine to exceed 48 hours a week when the mine runs every day, or as many hours as the mine runs coal, but the machine crew may work over time in helping to repair machines.

#### GENERAL RULES.

Rules in the General Resolutions and Underground Working Conditions governing pick miners and operators shall also apply to machine loaders and crews and operators of machine mines.

If at any time it becomes necessary to load coal by the day the rate shall be \$5.10 per day, this to include the use of miners' tools.

### GENERAL RESOLUTIONS APPLYING TO DISTRICT NO. 13.

#### RESOLUTION NO. ONE.

##### DEFINITION OF EIGHT HOUR WORK DAY.

(a) The above is based upon an eight hour work day and it is definitely understood and agreed that an eight hour day means eight hours' work in the mine at the usual working places for each individual employee, six days a week when required by the operator (Sundays and the following holidays excepted: New Year's Day, Washington's Birthday, April First, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day, second Tuesday in December, 1918, and Christmas Day. The above named holidays shall be the only holidays under this agreement except as herein-after provided regarding pay days.) This shall be exclusive of the time required in reaching said working places in the morning and returning from same at night.

##### PAY DAYS AND STATEMENT OF ACCOUNT.

(b) On pay days work will be discontinued at the end of five consecutive hours of the operations of the mines (except in Sub-District No. 1) and the operator shall commence paying as soon as practicable after the mines have ceased operation.

The operators shall pay all wages earned during the first fifteen days of each month, not later than the first Saturday after the twentieth of said month; and for wages earned after the fifteenth of said month not later than the first Saturday after the 5th of the following month (except should pay day fall on any of the above mentioned holidays the operator agrees to pay on the preceding day in conformity with the provisions made for pay days), and statement properly dated shall be issued to employees before day payment is made.

The shorter work day is granted employees on pay day with the express understanding that each individual employee will faithfully observe the rules of working eight hours, each working day and six days a week, as provided in clause (a) of this resolution. And all local unions and the individual members thereof shall adhere strictly to this rule, and in case the employees of any mine shall show a disregard for the same, the operator affected may file his complaint with the Joint Board, who shall deprive the local union so offending of the privilege extended in this resolution.

##### RULES GOVERNING DRIVERS.

(c) Drivers shall take their mules to and from the stables and the time required in so doing shall not include any part of the day's labor, their work beginning at the place where they receive empty cars; but in no case shall a driver's time be docked while he is waiting for cars at the point named. And in no case shall the drivers be required to put in more than ten minutes extra time on the road each way with their mules from the stables to the place where they receive their empty cars, without compensation for the entire time, and the custom of harnessing and unharnessing the mules shall remain the same at each mine as hereto-

fore. Where it is the practice to haul men in the trip, the latter shall leave the bottom at such time as the company may determine to be necessary for employees to reach their working places in time to begin work at the hour fixed. It is further agreed when the day men go down into the mine in the morning they shall have at least two hours' work. This not to apply in case of accidents occurring where the men would have to be called out of the mine through a violation of the state mining law.

#### RESOLUTION NO. TWO.

##### STARTING TIME.

The eight hour work day shall commence at 7 a. m. from April 1 to October 1, and 8 a. m. from October 1 to April 1, except when otherwise agreed locally, with one-half hour for noon where firing but once a day occurs, and one hour for noon where it is necessary to fire twice a day. In neither case shall such nooning be counted a part of the eight hour day.

#### RESOLUTION NO. THREE.

##### PENALTIES FOR LOADING IMPURITIES.

(a) Both the miners and operators realizing the importance of getting clean coal, to insure the sale of same, it is mutually understood and agreed that the miners and loaders will produce their coal in such a manner as not to increase the percentage of fine coal either by carelessness or reckless shooting, and will load the coal free from impurities as nearly as possible.

(b) It is the duty of the miner and loaders to clean his coal in his working place and load it as nearly as possible free from slate, sulphur, and other impurities, and if any miner be docked for sending out dirty coal, he shall be notified by the mine foreman; if he be docked a second time, he shall be fined fifty cents (50 cents); if he be docked a third time within fifteen days from the time of the first offense, or if he at any time sends out large quantities of impurities, in any one car, he shall be fined \$1.00 or discharged at the option of the operator. But before discharge the pit committee and superintendent shall investigate such case, and if found guilty the discharge penalty may be enforced. It is understood local agreements shall govern the amount that constitutes a dock or large quantity at each mine. When there is no local agreement the local officers and superintendent of the company shall make such an agreement.

(c) It is hereby agreed that the local officers shall cooperate with the coal company to insure clean coal.

#### RESOLUTION NO. FOUR.

(Applies to Sub-Districts 2, 3 and 4.)

##### RESPONSIBILITIES, TIMBERING AND CARE OF PLACES.

(a) In accordance with the state law, the company shall furnish all necessary timbers and the miner shall keep his room securely propped. If a minor working in a room fails to securely prop the same, or neglects to prop as directed by the mine foreman, or carelessly shoots down the

props or timbers, and a fall of slate occurs through such failure, neglect, or carelessness, he shall immediately clear his roadway of such falls of slate and do all necessary retimbering, and in case of his neglect to do so, the company may do such work and charge the expense thereof to such miner.

##### DOUBLE TIMBERING.

(b) In case the room has been properly timbered as above set forth and the roof from any cause becomes dangerous so as to require double timbering the company shall, when notified by the miner, do the necessary work to protect the roadway.

##### FALLS, ETC.

(c) When a fall of slate occurs between the inside props and the face of his room of an average thickness not to exceed three inches, he shall immediately remove such fall, and in case of his neglect to do so, the company may do such work and charge the expense thereof to such miner. If of a greater thickness he shall notify the mine foreman, and if the mine foreman or his representative fail to visit the miner's room within two hours after notification, the miner shall clean the fall at the rate of 62½ cents per hour, but if, upon visiting the miner's room within the time specified above, the mine foreman and miner affected can agree on a price for cleaning said fall either by the inch, hour, or lump sum, they shall do so; if by the inch, it shall be 7 2-3 cents per inch per running yard; if by the hour it shall be 62½ cents per hour; if they fail to agree on the lump sum or hour basis, the miner may remove same at 7 2-3 cents per inch. If he refuses to do this he shall immediately notify the mine foreman who shall furnish the necessary labor to make such removal. If the fall is not removed and the place properly secured within twenty-four hours, the miners affected thereby shall be given employment until the same is removed.

##### MINERS' RIGHT OF APPEAL.

(d) If any miner is dissatisfied with any decision of the mine foreman, an appeal may be taken to the superintendent and the president of the local union, who shall decide the question, and their decision shall be final, but the miner shall continue at work pending decision.

#### RESOLUTION NO. FIVE.

##### RIGHT TO HIRE AND DISCHARGE—COMPENSATION.

The right to hire and discharge, the management of the mine and the direction of the working force, are vested exclusively in the operator and the U. M. W. of A. shall not abridge this right. It is not the intention of this provision to encourage the discharge of employees or the refusal of employment to applicants because of personal prejudice or activity in matters affecting the U. M. W. of A., nor on account of creed, color or nationality. If any employee shall be suspended or discharged by the company, and it is claimed that an injustice has been done him, an investigation to be conducted by the parties and in the manner set forth in



Resolution No. 8. of this agreement, shall be taken up promptly, and if it is proven an injustice has been done, the operator shall reinstate said employe and pay him full compensation for the time he has been suspended and out of employment; provided, that if no decision shall be rendered within five days, the case shall be considered closed in so far as compensation is concerned, except, in cases going to arbitration the compensation limit is extended to ten days.

#### RESOLUTION NO. SIX.

##### FATAL ACCIDENTS AND FUNERALS.

In the event of an instantaneous death by accident in the mine, the miners and the underground employes shall have the privilege of discontinuing work for the remainder of that day, but work at the option of the operator shall be resumed on the day following and continue thereafter. In case the operator elects to operate the mines on the day of the funeral of the deceased as above, or whether the death has resulted from an accident in the mine, or from any other cause, individual employes may at their option absent themselves from work for the purpose of attending such funeral, but not otherwise. In the event that the operator shall elect to operate the mine on the day of such funeral caused by instantaneous death in that mine, then from the proceeds of such day's operation each member of the U. M. W. of A. employed at the mine at which the deceased member was employed shall contribute 50 cents and the operator \$25.00 for the benefit of the family of the deceased or his legal representatives, to be collected through the office of the company. Except in fatal accidents as above the mine shall in no case be thrown idle because of any death or funeral; but in case of the death of any employe of the company, or member of his family, any individual employe may at his option absent himself from work for the purpose of attending such funeral, but not otherwise. Where the local union fails to prevent the abuse of the above resolution by parties absenting themselves from work and not attending the funeral the Joint Board shall impose proper penalties.

#### RESOLUTION NO. SEVEN.

(Applying to Shooting Coal Mines.)

##### TRACK LAYING BY THE MINER.

It is agreed that the miner shall lay the track in his working place, and the operator shall have the option of furnishing either wooden or iron track, provided, that if iron track is furnished the rails will be drilled and ready for use. Ties may be of wood or steel; if wood, they must be sawed or flat, and if steel they must be provided with suitable and convenient fastenings. The length of rails furnished by the operator shall not exceed twelve feet. Whenever necessary for temporary use, the miner shall be furnished short length rails.

#### RESOLUTION NO. EIGHT.

##### SETTLEMENT OF DISPUTES—DUTIES AND LIMITATIONS OF PIT COMMITTEES.

(a) The duties of the pit committee shall be confined to the adjustment of disputes between the pit boss and the miners or mine laborers arising out of this agreement or any local agreement made in connection herewith, where the pit boss and said miners or mine laborers have failed to agree, the pit committee and the pit boss are empowered to adjust, and in case of their disagreement it shall be referred to the superintendent of the company and the president of the local union, or local executive board, of not more than five members, either the superintendent or the local president having the right to demand the local executive board. The meeting of said board not to be held while the mine is in operation; and should they fail to adjust it, it shall be referred in writing to the president of the Iowa Coal Operators' Association and the president of District No. 13, U. M. W. of A., who may decide the matter, either in person or by representatives; their decisions shall be subject to the review and approval of the presidents; should the presidents fail to agree, they must either submit the matter to arbitration or convene the Joint Board and submit in writing the question in dispute.

No case of discharge shall be submitted to the Joint Board, and in all cases of the miners or mine laborers and parties involved (except discharged employes) must continue at work until a final decision is reached in the manner above set forth.

(The Joint Board shall consist of the executive committee of the Iowa Coal Operators' Association and the Executive Board of District No. 13, U. M. W. of A.)

(b) If any employe doing day work shall cease work because of a grievance which has not been taken up for adjustment in the manner provided herein, and such action shall seem likely to impede the operation of the mine, the pit committee shall assist the company in obtaining a man or men to take such vacant place or places at the scale rate in order that the mine may continue at work. In case the mine is shut down in violation of these agreements, or any of them, the organization will at all times furnish all the men required by the operator at the scale rate to properly care for the mine.

#### RESOLUTION NO. NINE.

##### FALSE TOP OR BOTTOM AND HOW PAID.

All false top or bottom, in shooting coal mines of an average thickness of over three inches, shall be paid 7 2-3 cents an inch per running yard; provided when the top can be left up, or the bottom left down, then the company shall not be required to pay the same.

#### RESOLUTION NO. TEN.

##### ADJUSTMENT OF DEFICIENT WORK.

That all deficient work not covered by this agreement shall be paid for at a price to be mutually agreed upon between the mine boss and the party triet—Lump coal, per ton \$2.75 at shipping mines, and \$3.00 at all local

concerned; if they cannot agree in any other manner, they may agree on a price per day, and failing to agree the matter shall be referred to the superintendent of the mine and the president of the local union for adjustment; and in case they fail to agree it shall be referred for final settlement to the operator of the mine (or his representative), and the miners state president (or some one designated to represent him); the miner shall continue to work pending an investigation and whatever settlement is made shall date from the time the question of deficiency was raised; if the company decide to stop the place no investigation shall be made, but the miner shall be given another place.

#### RESOLUTION NO. ELEVEN.

##### PRICE OF HOUSE COAL.

The price of house coal furnished employees for their own use in the several districts shall be as follows, per ton of 2,000 pounds at the mine. First District—Screened or hand picked lump coal, per ton, \$2.75. Second District—Lump coal, per ton, \$2.50, nut coal, \$1.55 per ton. Third District—Lump coal, \$3.00 per ton; steam coal through regulation screen, \$1.65 per ton.

#### RESOLUTION NO. TWELVE.

##### PRICES FOR DEAD WORK.

All labor and dead work not covered in this agreement shall be paid an advance of 15 per cent.

#### RESOLUTION NO. THIRTEEN.

##### ENGINEERS' DUTIES AND WAGES.

(a) Engineers, first class, lump coal 300 tons and over, mine run 425 tons and over, \$148.16 per month; second class, lump coal 200 to 300 tons, mine run 285 to 425, \$141.15 per month; third class, lump coal 200 tons or less, mine run 285 tons or less, \$128.32 per month. Tail rope engineers' wages to be \$4.61 per day or \$128.32 per month, nine hours to constitute a day's work. Sunday work without extra pay shall be confined to customary care, but not operation of machinery or boilers, and such work shall not exceed four hours per day.

##### TONNAGE.

(b) The tonnage shall be determined by the average of the mine for the month of November of each year effective the following April, based on screened or mine run coal and computed on the basis of the number of hours the mine operates. This scale of wages only applies to mines in operation at least one year, and in all new mines the wages of the engineer shall be advanced with the increased tonnage each month until the maximum rate is reached. In no case shall the engineers, firemen, or pumpers, be interfered with or asked to cease work by any local committee or local union official during the life of this agreement.

#### RESOLUTION NO. FOURTEEN.

##### RULES AND WAGES—FIREMEN, PUMPERS, BLACKSMITHS AND NIGHTWATCHMEN.

(a) Firemen and pumpers shall be permitted to work such hours as may be mutually agreed upon between them and the operators, provided that the minimum rate shall be .52825 cents for firemen, and the minimum wages for inside pumpers shall be .585 cents per hour.

(b) Twelve hours for night watchmen, eight hours for blacksmiths, and mechanics shall constitute a day's work, and their wages shall be advanced \$2.00 per day over wages for month of April, 1916, but no night watchman now working less than twelve hours shall be required to work more than present hours. All other company men shall be permitted to work 56 hours per week when necessary, but no company men, except those necessary to get men in and out of the mine, shall be compelled to work regularly more than eight hours per day. In case of emergency, mechanics, blacksmiths and other necessary men to make repairs may work longer.

#### RESOLUTION NO. FIFTEEN.

##### CHECK OFF.

The operators agree to check off all dues, initiation fees, assessments and hospital dues from the miners and mine laborers when desired and this agreement is their authority therefor. The U. M. W. of A., District No. 12, agrees to protect the operators where such checking is done, but no compensation shall be charged for such deductions; provided that not more than \$3.00 be deducted in any one pay from any one person.

#### RESOLUTION NO. SIXTEEN.

##### PAYMENTS AND DEDUCTIONS.

This agreement is based upon cash payments after deducting mine expenses, organization and hospital dues, accepted orders, house rent and fuel. No discrimination shall be made against any employee refusing to deal in the company store or live in a company house.

#### RESOLUTION NO. SEVENTEEN.

##### WAGES OF MINERS TAKEN FROM FACE.

Miners taken from the face shall be paid \$5.00 per day and will be given their turn of cars for one day. Any one refusing to do day work may have his turn stopped; provided he is qualified by experience to do such work; and provided further that no one shall be required to do such day work two consecutive days and such qualified men shall be called upon in their turn.

Boys cannot be compelled to leave the face to do day work, but if so used they shall be paid the rate of wages provided for that class of work performed, and be given the turn for that day.

## RESOLUTION NO. EIGHTEEN.

## FRACTIONAL TIME.

When a mine works part of the morning the miners may continue at work until noon; when a mine works part of the afternoon the miners may continue at work for the balance of the day. The operator must notify men as soon as practicable after the mine shuts down.

No miner shall be permitted to work at the face on idle days to make coal ready and shall only be permitted to do work with permission of the mine committee the same to be in urgent cases.

This resolution to mean that no miner can work at the face to make ready or perform any other labor or do timbering on idle days in his place without the consent of the mine committee, and in harmony with the above resolution it must be in urgent cases, and it is further understood that this resolution does not provide that where the company desires to secure miners to perform extra work that they must gain the consent of the mine committee and that when such extra help is needed that they can call upon such competent help in their turn as long as they are not displacing any of the regular day men who are qualified to do such work.

## RESOLUTION NO. NINETEEN

## RULES GOVERNING FOREMAN DOING DAY WORK.

The foreman may lend a hand when working a crew, but the company cannot lay off a man and fill his place by working a foreman or boss.

It is not the intent of this resolution that the foreman will be prevented from doing anything that is necessary to keep the mine in operation.

## RESOLUTION NO. TWENTY.

## DOUBLE SHIFTING OF ROOMS.

There shall be no double shifting of rooms without the consent of the miner or miners affected.

## RESOLUTION NO. TWENTY-ONE.

## SHOT EXAMINERS' DUTIES AND QUALIFICATIONS.

(a) In all mines where coal is blasted from the solid, competent persons shall be employed by the company to examine all shots before they are charged. Said examiners shall have the power to prohibit the charging or firing of any shot, which, in their judgment is unsafe. Before entering upon the discharge of their duties, said examiners shall receive certificates of competency from the state mine inspector in the district in which the mine where they are employed is located. No mine foreman employed by the company shall be permitted to act as shot examiner. The state mine inspector shall have the power to refuse to give a certificate to any person to act as shot examiner who, in his judgment, is not sufficiently competent, or he may revoke the certificate granted should it appear that a shot examiner is negligent or careless in the performing of his work.

## WHEN SHOT EXAMINERS MAY ACT AS SHOT FIRERS.

(b) Whenever a majority of the miners in any mine so decide, they may employ shot firers for said mine, and whenever satisfactory arrangements can be made between the miners and the shot examiners for the same persons to act as shot examiners and shot firers, the same may be done.

## RULES GOVERNING SHOT FIRING.

(c) The operator shall decide as to the necessity of firing twice a day in mines that have been in operation less than one year, and a majority of the miners employed in any mine shall decide as to the necessity of firing twice a day in all mines that have been in operation more than a year; provided, that in all mines where the majority of the miners decide to fire but once a day, they shall give the operator sufficient time to develop his mine so that the same working force and output per miner per day, shall not be reduced; and provided, further, that if after changing from twice to once a day firing the majority of the miners in any mine shall decide to return to twice a day firing, or, if after trying once a day firing for a period of thirty days that the mine is in operation, it shall be proven that the output per miner per day is less than when shooting twice a day, on account of the miner not being able to produce the coal, the operator shall have the right to return to twice a day firing.

## SAFETY OF EMPLOYEES AND DUTIES OF THE MINE FOREMAN.

(d) The miner shall keep his working place and the operator the entries as free from dust as practicable, and the entries shall be sprinkled as often as necessary to keep them in damp condition.

(e) In accordance with the state law only sand, soil, or clay shall be used for tamping which shall be placed in, or near each cross cut in entries, when rooms are being turned continuous. Where the block system is used it shall be placed in the center cross-cut on the entry between the rooms, and the shot holes shall be tamped solidly from the powder to the mouth of the hole, whether squibs or fuse are used to ignite the powder. Any shot having blown the tamping shall not be recharged and fired the second time.

(f) The wages of the shot examiners shall be \$5.94 per day, and they may be employed on fractional time at the above mentioned rate.

The operator shall have the privilege of installing electric shot firing machines, provided the expense of firing will be no greater on the miner than the present system.

(g) No person shall interfere with the shot examiner or shot firer in discharge of his duties, except those who have a right to do so, under the state law.

## RESOLUTION NO. TWENTY-TWO.

## CONDITIONS OF WORKING PLACES.

(a) The company shall as far as practicable keep the water off the road and out of the working place. When a miner has to leave his working place on account of water through the neglect of the company, it shall



employ said miner at company work; provided that said miner is competent to do such work, or he will be given another working place until such water is taken out of his place.

(b) Where it is an established condition or agreement that the track shall be laid by the company, and a miner has to leave his working place on account of such track not being laid through the neglect of the company, it shall employ said miner at company work when practicable, provided said miner is competent to do such work, or he shall be given another place until such time as such track is laid in his place. In shooting coal mines, it is understood that under ordinary conditions, the miner can demand his switch when his place is in fifteen feet.

#### RESOLUTION NO. TWENTY-THREE.

##### SIGNALS.

In all mines when the men are going to and from their work at regular starting and quitting time, the company shall employ men at the top and bottom of the shaft, whose duty shall be to attend to signal bells.

#### RESOLUTION NO. TWENTY-FOUR.

##### PRICE AND QUALITY OF POWDER.

The price of powder shall be \$2.00 per keg, and powder and other explosives shall be delivered at the miners' working places as early as practicable and to be of standard grade and quality.

REGULATING CHARACTER OF POWDER TO BE USED IN COAL MINES AND TO CONFORM TO THE FOLLOWING SPECIFICATIONS.

(a) It shall have a specific gravity of not less than 1.74 nor more than 1.90.

(b) It shall have a moisture content of not to exceed one per cent at the time when shipped by the manufacturer or his agent.

(c) Said powder shall be sold for use in coal mines only in seven sizes of granulation to be determined as follows:

CCC shall be powder which shall pass through a screen having round hole perforation of 40-64 of an inch in diameter and remain on a screen having round hole perforation of 32-64 of an inch in diameter.

CC shall be powder which shall pass through a screen having round hole perforations of 26-64 of an inch in diameter and remain on a screen having round hole perforations of 20-64 of an inch in diameter.

C shall be powder which shall pass through a screen having round hole perforation of 27-64 of an inch in diameter and remain on a screen having round hole perforations of 18-64 of an inch in diameter.

F shall be powder which shall pass through a screen having round hole perforations of 20-64 of an inch in diameter and remain on a screen having round hole perforations of 12-64 of an inch in diameter.

FF shall be powder which shall pass through a screen having round hole perforations of 14-64 of an inch in diameter and remain on a screen having round hole perforations of 7-64 of an inch in diameter.

FFF shall be powder which shall pass through a screen having round hole perforations of 9-64 of an inch in diameter and remain on a screen

having round hole perforations of 3-64 of an inch in diameter.

FFFF shall be powder which shall pass through a screen having round hole perforations of 3-64 of an inch in diameter and remain on a screen having round hole perforations of 2-64 of an inch in diameter.

In testing powder for size of granulation as herein required, it shall be permissible for a given size to contain not to exceed 7½ per cent by weight of grains of the size next larger and 7½ per cent by weight of grains of the size next smaller.

When there is any complaint against the brand of powder in use in any mine a joint investigation shall be made under the authority of the Joint Board and their decision shall be final.

#### RESOLUTION NO. TWENTY-FIVE.

##### SINKING AND DEVELOPMENT OF NEW MINES.

Sinkers per day of eight hours, \$5.15. This rate of wages shall apply to men employed in opening new slopes and retimbering shafts or enlarging same. Sinkers may be continued at the above wage to complete the bottom partings and any other work in connection therewith, and if the mine is not prepared by that time to operate under the terms of this agreement and the development of entry work begins under this condition, the tonnage and yardage prices, as provided for in this agreement to govern the various sub-districts, shall prevail, and twenty-seven (27) cubic feet shall be the basis for measuring a ton of mine run coal.

This to apply to normal entries. In case the entries should be abnormal, then extra compensation for such deficiency shall be allowed, the same to be determined as herein provided for the government of deficient work.

#### RESOLUTION NO. TWENTY-SIX.

##### REGARDING MAX TRAIN.

It is hereby agreed that this agreement does not in any way govern the operation of railroad trains, and where such are operated for the purpose of hauling men to and from the mine, all questions affecting the same must be settled without interfering with the operation of the mine. If any disagreement occurs locally, the question shall be referred to the district presidents of the two associations.

#### RESOLUTION NO. TWENTY-SEVEN.

##### AMBULANCES, BANDAGES, ETC.

At all mines the operator shall keep a supply of blankets, oil, bandages, and stretchers, and in case of accidents, shall furnish a suitable conveyance to care for and convey the injured persons to their homes.

The Joint Board shall encourage "First-Aid to the Injured" work.

#### RESOLUTION NO. TWENTY-EIGHT.

##### RAILROAD CAR QUESTION.

It is understood that an operator shall not ask the miners to go to work when he has no assurance of cars, or less than enough to provide two hours' work, but when the operator has the assurance that cars will be

received within two hours from the starting time, the men shall go to their working places.

If cars are not received at the end of two hours, the operator must notify the men immediately, and the miners shall not be required to go to work the next work day, unless enough cars are at the mine for at least one-half day's continuous operation. If an operator abuses this resolution he shall be fined \$25.00 for each offense.

#### RESOLUTION NO. TWENTY-NINE.

##### SQUARE TURN.

In all mines, the mine foreman must keep a square turn as nearly as possible, and the turn must be made even once each day or oftener, if practicable.

#### RESOLUTION NO. THIRTY.

##### PENALTIES FOR VIOLATION OF AGREEMENT.

(a) Should any local union or its members employed at any mine cause the mine or a part of the mine to shut down, in violation of this agreement (where the state mining law is not being violated) each member of the U. M. W. of A. employed at said mine, except those who continue at work, shall be fined two dollars (\$2.00) for each day or part of a day the mine is thus thrown idle.

When the miners shut a mine down, or part of the mine, because they claim the state mining law is being violated, and the above fine is assessed, and it should be proven upon investigation that said law was being violated, as they claimed, then the operator shall be fined two dollars (\$2.00) per day per man affected; provided that the miners have handed to the operator or his representative a written statement, signed by officers of the local union at the time of said shut down and before they leave the premises, setting forth why the shut down occurred, also how and wherein the said law was being violated.

(b) Should any operator, or his representatives, cause the mine or a part of the mine to shut down in violation of this agreement, where the state mining law is not being violated, he shall be fined two dollars (\$2.00) per man affected, for each day or part of a day the mine is thus thrown idle.

(c) Any U. M. W. of A. officer or committeeman who shall advise or encourage any employee to refuse or cease work, where he has a right to work under this agreement, may be discharged.

(d) Any operator, who, through his mine foreman or any other representative, refuses to live up to this agreement, as interpreted by joint authority or refuses to redeem any written promise he makes an employee, or causes any employee to lose work that he is entitled to under this agreement shall be fined five dollars (\$5.00) for each offense.

(e) Whenever at any mine one or more men regularly employed at day work refuse or fail to work, because of any grievance he or they shall be fined two dollars (\$2.00) for each day or part of a day.

(f) Not more than five days' fine can be assessed, by either party for any one shutdown in violation of this agreement.

(g) All fines assessed against employees under this agreement shall be collected by the operator from the pay for the half month in which the violation of the agreement occurred, or the first money due thereafter, and the operator shall remit the same to the treasurer of the Joint Board within twenty days after collection. A failure on the part of the operator to do so shall make him liable to a penalty of 50 per cent of the amount involved.

(h) All fines assessed against the operator shall be remitted to the treasurer of the Joint Board within twenty days after official notice is given in writing. Said notice shall be given within two weeks from the alleged violation, stating the cause of the fine from the local union to the operator affected.

All fines provided for in this agreement shall be automatically collected and any operator failing to collect such fine shall pay a penalty of \$2.00 for each employee subject to be fined, the same to be collected and retained in the Miners District Organization. And in no case shall any fine be refunded except by mutual agreement of the accredited representatives of the operators and the miners.

It is further agreed that where any employee enters suit in the civil courts to recover any fine collected in accordance herewith the District Organization shall reimburse the operator for expense incurred on account of such suit.

The Joint Board may use all the monies received from fines for such worthy purposes as it may deem proper.

##### RIGHT OF APPEAL.

If any local union or operator claims that a fine has been collected contrary to the terms of this agreement, they shall have the right of appeal to the Joint Board. Any appeal not settled within thirty (30) days must be arbitrated.

#### RESOLUTION NO. THIRTY-ONE.

##### LABOR SAVING MACHINERY.

The operators have the right to install labor saving machinery in any mine, and such machine work not now covered by this agreement, shall be governed by such scale as the Joint Board may determine, and until such scale is made by Joint Board the machines shall be operated on the following basis by the day:

Runner, per day .....	\$5.41
Shoveler, per day .....	5.15
Loader, per day .....	5.15

Loader to furnish his own tools for the above prices.

#### RESOLUTION NO. THIRTY-TWO.

In all new shooting coal mines opened during the term of this agreement there shall be end doors in mine cars. This shall not prevent the use of open end cars for the handling of dirt.

## REPORT IOWA MINE INSPECTORS

## RESOLUTION NO. THIRTY-THREE.

## DISTRICTS.

The district provided for in this agreement shall be understood as follows: District No. 1, all mining coal mines in Appanoose and Wayne counties, Iowa. District No. 2, all shooting coal mines in Wapello, Marion, Monroe, Davis, Warren, Lucas, Mahaska and Keokuk counties. District No. 3, all shooting mines of Polk, Jasper, Dallas and Boone counties. District No. 4, all mining coal mines of Boone and Webster counties.

When a new mine is opened and there is any question as to which district it should be placed in, the Joint Board shall decide as to the district, or if it is found necessary to have a special scale for said mine, the Joint Board shall make such scale as to them seems just and proper.

## RESOLUTION NO. THIRTY-FOUR.

## TIME LIMIT IN WHICH CASES SHALL BE TAKEN UP AND DISPOSED OF.

It is understood that all cases arising out of this agreement shall be taken up for investigation and settlement, within the time limits herein specified.

(1) All discharge cases must be taken up and settled within one week from date discharge occurs.

(2) All deficiency cases must be disposed of within two weeks from date case was placed in the hands of the officers.

(3) All other cases arising out of this agreement shall be disposed of within thirty (30) days including cases going to the Joint Board.

## RESOLUTION NO. THIRTY-FIVE.

## LOCAL DEMANDS.

There shall be no demands made locally which are in conflict with this agreement and all established working local agreements and customs heretofore existing not in conflict with the present agreement, shall remain in force, unless changed by mutual consent.

Signed on behalf of the Operators.

DAN CUSHING, President.

L. P. LOVE, Secretary.

Signed on behalf of the Miners,

J. C. LEWIS, President.

JOHN GAY, Secretary.