1938

History of the Iowa coal industry

Manzella Groth Stahlman
Iowa State College

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HISTORY OF THE IOWA COAL INDUSTRY

BY

MANZELLA GROTH STAHLMAN

A Thesis Submitted to the Graduate Faculty for the Degree

MASTER OF SCIENCE

Major Subject Economic History

Signatures have been redacted for privacy

Iowa State College
1938
# TABLE OF CONTENTS

| Location and Kind of Iowa Coal | 3 |
| Discovery and Early Mining of Coal in Iowa | 7 |
| Organization and Development of the Coal Mining Business | 12 |
| Production | 12 |
| Employment | 20 |
| Mining Methods | 25 |
| The Business of Mining | 28 |
| Investment | 28 |
| Expenses of Operation | 30 |
| Labor Legislation | 34 |
| History of Mine Inspection | 34 |
| County | 34 |
| State | 36 |
| District | 37 |
| Other Legislation Protecting the Mine Worker | 40 |
| Marketing Iowa Coal | 42 |
| Efforts to Improve the Iowa Coal Industry | 45 |
| Citations | 50 |
| Bibliography | 53 |
HISTORY OF THE IOWA COAL INDUSTRY

LOCATION AND KIND OF IOWA COAL

The Iowa coal fields embrace an area of about 25,000 square miles, the width east and west being 200 miles, and north and south, 140 miles. Coal is found in a broad belt on either side of the Des Moines River from Webster County to the Missouri line. A smaller field underlies parts of Taylor, Page, Adams, and other counties in southwestern Iowa. It is estimated that the deposits would total about thirty billion tons. Of this amount about 280,000,000 tons have been mined, so that the coal deposits at this rate of use should be good for 3,000 years to come. The seams of coal average about 18 inches in thickness, and the deepest mines range from 200 to 400 feet in depth. However, because of the general character of the coal deposits in Iowa, most of the mines have horizontal or sloping openings rather than shafts.

Iowa coal is bituminous and is admittedly of a lower rank than most of the bituminous coals of the Appalachian or Eastern Province. It is high in ash, and slightly higher in sulfur than most of the other coals sold in the state.
In general the coal is hard, slabby, or blocky, weathers quite rapidly upon continued exposure, and forms smoke and soot when improperly burned. It can be burned without serious clinking if care is taken in the firing. As for heat value, the coal averages better than 12,000 British thermal units on a dry basis and 10,046 on a wet basis or as received. The rank of the coal product in heat units per dollar is high, an argument used by Iowa coal boosters in favor of home consumption.

Coal is successfully mined in more than twenty Iowa counties, although occurring in some quantities in many of the others. In the north central part of the area, Humboldt, Webster, Hamilton, Hardin, Greene, Boone, Story, and Marshall have at various times been producers to some extent. Of this group Boone and Greene rank highest. In the central area, Guthrie, Dallas, Polk, Jasper, Poweshiek, Madison, Warren, Marion, and Mahaska are the chief producers. The southeast producing counties are Keokuk, Lucas, Monroe, Wapello, Jefferson, Henry, Wayne, Appanoose, Davis, and Van Buren, these also being large producers. In the southwest part of Iowa, Adams, Page, and Taylor lead among about fifteen coal counties. In eastern Iowa along the Mississippi River, Iowa, Johnson, Scott, Muscatine, Washington, Louisa, Des Moines, and Lee produce a considerable quantity, although this is not
specifically a coal region. The movement of the industry in Iowa has been from north to south and westward from the Mississippi. It has for some years been concentrated in the Des Moines Valley.
IOWA

Legend:
- outlined - principal coal area
- blue - most productive counties; number - rank in 1935.

Fig. 1 - Iowa Coal Regions and Production
Iowa had not yet become a territory when the occurrence of coal within her area was discovered. The first distinct mention of the presence of the mineral coal in Iowa appears to be that of Featherstonebaugh who in 1835 descended the Mississippi River in a canoe from Dubuque to St. Louis. At the mouth of the Rock River he reported the occurrence of bituminous coal deposits on both sides of the Mississippi River. The same year Albert Lea investigated for the Federal Government the resources of the Blackhawk Purchase, comprising eastern Iowa, and he noted the presence of coal in many places. In the Des Moines Valley he recorded large coal deposits existing between the mouth of that river and the Racoon forks. The early settlers mined coal for local use only. Public attention was first directed to Iowa coal fields by D. D. Owens who made a geological reconnaissance of the state in 1847 under the auspices of the Federal Land Office.

The first real coal mining operations in this state were carried on by Lem Brattain near Farmington, on the Des Moines River in the extreme southeast corner of Van Buren County in 1840. The output of Mr. Brattain's mine was mostly sold to his neighbors and nearby villagers who learned that they
could gain in valuable farming time by buying their coal ready for use. Some of this coal was hauled by team and wagon as far as Keokuk, twenty-five miles away. Some he sold to steamboats on the Des Moines River. By 1850 the New York Coal Company owned the mine. This company employed forty to fifty men, and paid them five cents a bushel or $1.25 a ton for digging. Coal at this time sold to the consumer for from $2.00 to $2.50 per ton.

The Farmington district early proved to be a productive one. In 1857, more than 100,000 bushels of coal were taken from two banks near Farmington. The average value at the coal bank was six and one-half cents per bushel, while thirty miles distant the same coal sold for from eighteen to twenty cents per bushel.

In the 1840's mining was carried on in Scott, Polk, Jasper, and Boone counties, but not on a commercial scale. In Scott County, the first mine was opened up near Jamestown by a Mr. Wright in 1840. In 1860 systematic mining began in this county under the direction of John Morris who was the first man in the district to sink shafts and raise coal from them by horsepower.

The soldiers stationed at Fort Des Moines mined the first coal in Polk County in 1843, burning it in their camp stoves at first experimentally. In 1856 Polk County had as
yet only four miners, producing a coal product of around $300.00 value during a year's time. Six years later Polk County miners produced 35,468 bushels, a total that was each year bettered so that by 1866 the figure reached 332,769 bushels.

Boone County produced enough for the use of local blacksmiths in the 1840's, but it was only with the advent of the Chicago Northwestern Railroad in 1866 that coal mining was really taken up. The next year saw the opening of a shipping mine in that county, and the rise of the Moingona Coal Company, operating six mines with an output of 800 to 900 tons a day.

Marion County became a mining region in 1856 with the building up of the town of Coalport, which was the most important coaling point for the river steamers between Eddyville and Des Moines. Lack of a railroad here, however, kept Marion County from ranking very high in the early years of the industry in Iowa.

Commercial mining in Jasper County began in the 1870's with Newton and Colfax the chief producing centers. Dallas County got its start in 1878 with the organization of the Chicago and Van Meter Coal Company. Mahaska was one of the first in which coal was known to exist. In 1875 Mr. McNeil of Oskaloosa organized the Iowa Central Coal Company, one
of the largest coal producing companies Iowa has ever known. The first mine opened in Appanoose was in 1857 by A. M. Elgin. The first large mine in that county was opened the next year by Isaac Fuller. Mining on a commercial scale did not begin until 1887 in Appanoose. Lucas County was launched into the coal mining industry in 1874 when William Haven organized the Whitebreast Fuel Company. Monroe had fewer mines in these early years but led the others for some years as a producer. Taylor, Page, Adams, and Wapello counties were slower in mining development, but have since taken high rank.

In 1850 only 1500 tons were produced in the entire state, but from 1860 onward, the development was rapid. By 1860 the product had become important enough to be mentioned in the United States Census. The total output for 1860 exceeded more than forty-eight thousand tons, and was produced by twenty-five counties, but chiefly in Monroe, Polk, and Appanoose. The value of this product was over one-half million dollars. The production and value of the product by counties for 1860 is shown in Table I.
TABLE I

Production and Value of Coal in Iowa in 1860 by Counties*

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>TONS</th>
<th>VALUE</th>
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<tr>
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<td>Guthrie</td>
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<td>550</td>
</tr>
<tr>
<td>Hardin</td>
<td>262</td>
<td>500</td>
</tr>
<tr>
<td>Jasper</td>
<td>2,336</td>
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</tr>
<tr>
<td>Jefferson</td>
<td>6,143</td>
<td>11,750</td>
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<tr>
<td>Keokuk</td>
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<td>900</td>
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<tr>
<td>Lee</td>
<td>315</td>
<td>600</td>
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<tr>
<td>Lucas</td>
<td>945</td>
<td>1,800</td>
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<td>Mahaska</td>
<td>3,412</td>
<td>6,500</td>
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<td>Marion</td>
<td>1,548</td>
<td>2,950</td>
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<tr>
<td>Monroe</td>
<td>2,756</td>
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<td>Polk</td>
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<td>Van Buren</td>
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<td>17,052</td>
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</table>

THE ORGANIZATION AND DEVELOPMENT OF THE
COAL MINING BUSINESS

Production

By 1865 Iowa coal mining was well established. In that year thirty-one counties produced a total of 66,667 tons. Wapello, Mahaska, and Jefferson led in the tonnage produced. In five year's time, Iowa produced one and one-half per cent of the coal mined in the entire country.

The decade between 1870 and 1880 was one of advance in production. Twenty-five counties had profitable mines whose output totaled three and one-half per cent of that of the entire country. By this time the state was producing 37.01 per cent of its maximum capacity, indicating that the industry was in fact young and had great possibilities for expansion.

Remarkable advance in production began in 1880, reaching a high of more than three million tons in 1883 and 1884. The Third Biennial Report of the State Mine Inspectors indicated that the coal trade was good at this time, and that the outlook for the industry was favorable, considering the new market that was opening up with the advent of more
railroads into Iowa. It was expected that the railroads would aid the industry both by consuming large quantities of the Iowa product and by providing better transportation facilities for shipping coal to non-producing regions.

Figure 2 indicates a drop and leveling off of production beginning in 1885 and continuing to 1890. Mild winters during this period were responsible for a part of the decrease. Strikes were also a factor because they lowered the output enough to encourage the importation of Illinois coal.

After 1890 the industry began a slow, steady increase in the volume of coal output, so that by 1900 production reached the highest mark to date, 5,000,000 tons. The coal trade was brisk. Iowa's industries were developing, many of which were large consumers of her coal. Production continued to increase until 1907 marked a new high in the history of the industry in the state, 7,574,322 tons. A major reason for this increased tonnage in 1907 was the absence of strikes. In 1910 strikes in the Illinois coal field greatly stimulated Iowa's production.

Production advanced to 7,933,120 tons in 1911, a level which was not again reached until 1917. The number of counties producing dropped in 1912, a year in which production was the lowest in four years. Many mines were shut
down in April and May pending the settlement of the wage scale. Then too, there was a great shortage of cars.

In only two instances in the history of coal production in Iowa, 1907 and 1911, had the tonnage produced in any one year been greater than that of 1915. The industry was undergoing a natural expansion.

From the fall of 1916 to the spring of 1917, the demand for Iowa coal greatly exceeded production. Wholesale and retail prices advanced. Production in 1917 was the largest ever recorded, 8,965,830 tons. This remarkable increase between 1916 and 1917 was due to the greatly increased demand for fuel by manufacturing and allied industries connected with the production of war materials. Besides this, state consumption was greater because the United States Fuel Administration had divided Iowa and the nation into zones, and no coal mined east of Illinois could be shipped into the state, with the single exception that any coal coming from the Great Lake docks could be shipped into northern Iowa. Southwestern Iowa could buy only Iowa coal. An additional factor was that the Administration set up quotas of production for the states, thus stabilizing it, and giving Iowa a larger territory to supply with her coal.

After 1917 and 1918 the industry's production fell rapidly. In 1919 production decreased to 5,624,692 tons, the
lowest figure since the beginning of the century. Strikes of the miners were responsible.

The industry enjoyed a short revival in production in 1920, but fell 42 per cent in 1921. The coal industry felt the effect of the general industrial depression of 1921. An additional drop occurred in 1922, tonnage for the year being the lowest since 1896. The mines were shut down for five months during the year, a factor to be considered in decreased production.

In 1923, production was not yet up to the standard of former years; yet there was a noticeable increase. One of the main causes of this depression in the coal industry was that during the World War Iowa had been zoned as to coal shipments, giving her a greater market. During the war new mines had been opened in Illinois and Kentucky to supply the greater demand. Now that the war was over, the natural outlet for these new mines was the territory furnished by Iowa in war times. Thus the depression of the industry in Iowa was not due to a general decreased consumption of coal. There was an increased use of higher priced but cleaner coals from states farther east; in fact two-thirds of the coal used in Iowa in these years was shipped in.

In 1926 and 1927 the bituminous fields of the United States and Iowa were in the throes of an industrial struggle of
miners versus operators. Iowa production for this period was the lowest in thirty years. A slight increase in production occurred in 1928, marking the beginning of a laborious climb out of the situation in which the strike of 1927 had left it. Prospects brightened. However, J. H. Lees, Assistant State Geologist, in the reports of the Iowa Geological Survey for 1928 stated "that unless the coal industry could settle its differences in less mutually disastrous fashion, than by strikes, it was doomed to eclipse by eastern states" which had the advantage of Iowa both in methods of mining and labor scales, and quality of output. Iowa was still a laggard in the use of machinery.

Although production increased slightly in 1929, it was still far below normal. The volume on Mines and Quarries of the Fifteenth Census of the United States makes comparisons in the industry between 1929 and 1919. There was a 21.7 per cent decrease in production in Iowa in that period.

The nation-wide depression beginning in 1929 partially accounts for a drop in production in 1930 and 1931. Since that time, the coal output of the state has remained low, with periodic spurts of increase on a small scale. Consumption in Iowa has been fair, due to the demand for a low priced fuel. This has kept production from dropping further. Production in the mines in the winters of 1937 and 1938 was
far below normal. In eight of the nation's soft coal states production tumbled more than 50 per cent between 1917 and 1937. The state with the largest reported decrease was Iowa, where production in 1937 totaled 2,896,000 tons, a decrease of 67 per cent from the 1917 total. This decrease, of course, must be considered on the basis of the extraordinary situation which existed in 1917, a situation which was abnormal and could not have been of long standing.
<table>
<thead>
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<td>Taylor</td>
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<td>Cass</td>
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<tr>
<td>Van Buren</td>
<td>17,456</td>
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<td>Jefferson</td>
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<tr>
<td>Hamilton</td>
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</table>

*Report of the State Mine Inspectors for biennial period ending December 31, 1935. (1936) Des Moines, p. 7*
Employment

It was estimated that there were 563 miners employed in 1860. By 1870 this number had more than doubled. The average yearly earnings of a man engaged in mining at this time were $316.45. He worked 69.52 per cent of the year, and was idle 6.34 per cent from strikes and 24.14 per cent for other reasons. Each man on the average raised 1.41 tons per day or about 293.57 tons per year.

There was a gradual increase in the employment, as shown in figure 3, up to 1888 and 1889, when more than twelve thousand men and boys received nearly $4,000,000 yearly. The average earnings had now increased to $424.36.

About this time the number of mines in operation decreased from 460 to 300, the number of miners decreasing proportionately. The drop was of short duration, however, and hovered near the ten thousand mark till the end of the century.

The first year of the new century saw the number of employees reach the high mark of 13,000. The demand for coal was good at this time, and the miners worked 228 days out of the year. After a drop in the number employed in 1902, employment increased to a point where in the years completing the decade, the figures kept in the 17,000 rank.
By 1910 the total had reached 18,000.

It was reported in 1914 that between eighty thousand and one hundred thousand people, the families of employees and employers, were dependent upon the coal industry of the state for their living. Approximately $15,000,000 were now being paid annually to more than fifteen thousand employees working in connection with about two hundred and fifty operating mines.

New industrial conditions in 1917, caused by the World War, brought an advance in mining wages due not only to higher living standards but a need for more adequate labor supply. In that year the 256 mines operated on an average of 251 days during the year and employed 15,464.

There was a shortage of workers for the mines in 1918 since many Iowans joined the United States forces engaged in the World War. Total employment dropped. The Iowa miners struck in 1919, causing the total numbers to decrease further. A few mining enterprises worked as little as 75 days.

In 1921 there were no strikes or lockouts, but the days of work during the year were fewer than normal due to the general depression. Employment increased with production in 1922, but quickly fell again. Demand was slack.

The number employed continued to decrease to a low point of 7,000 in 1928. Since that year the trend of employ-
ment has been slightly upward. By this time the output per
day per man had increased to 3.02 tons, so that it took less
time to mine the output of the industry. The years of the
recent depression took toll from the Iowa miners, not parti­
cularly in their total numbers but in the number of days
worked. The total production per man per year fell to 86 tons
in 1936, a sorry figure compared to the average of 525 tons
in 1929. In the winter of 1937-1938, many of the Iowa mines
worked but two days a week.

Employment reached its peak about 1910 when the coal
industry was in a healthy, prosperous condition due to a
good demand for Iowa coal. Since that time it has tapered
off, due partially to the importation of out-of-state coals,
and partially to decreased coal consumption brought about
by substitute fuels and more efficient steam generation.
Fig. 3. Employment, 1860-1936

Thousands of Persons
TABLE III

Total Employees in the Coal Industry 1935*

<table>
<thead>
<tr>
<th>COUNTY</th>
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<td>Hamilton</td>
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</table>

*Report of the State Mine Inspectors for biennial period ending December 31, 1935 (1936) Des Moines, p.8-9
Mining Methods

One criticism often made of Iowa mining methods is that they continue behind many of the eastern states in mechanical equipment. The Iowa miner began working back in the 1840's with a pick in his hand, and although some changes have taken place since that time, he still holds to his pick as one of his most necessary tools despite the vast improvements that have been made in machine mining.

As late as 1909, 99 per cent of Iowa coal was mined by pick, but one per cent mined by machine. Shaft mines produced 74.3 per cent of the total production, while slope and drift mines yielded 2.9 per cent and one per cent, respectively. In 1914 there began a tendency toward machines and electrification, though this was by no means general.

In 1919, 20.4 per cent of Iowa's coal product was mined by hand with a pick, 65.9 per cent was shot off the solid by explosives, and 11.7 per cent was mined by machine. Of the total number of mining enterprises in the state at this time, twenty-three used machines while one hundred and forty-four did not.

Since then there has been a further decrease in the amount of coal mined by hand. In 1925, 19.1 per cent was mined by hand, 59.0 per cent was shot off the solid, and
19.6 per cent was machine cut. In 1928, the amount of hand mining was reduced to 8.4 per cent, that shot off the solid remained about the same, and that which was machine cut increased to 29.4 per cent. Although the amount of machine cutting in Iowa mines is not yet great, there is, as a result, some displacement of the miners by machines. At present in most mines the coal is broken down with explosives before the miners begin their work.
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<td>Webster</td>
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*Report of the State Mine Inspectors for biennial period ending December 31, 1935 (1936) Des Moines, p.15
The Business of Mining

Investment

In 1870 it was estimated that $618,332 was invested in the mining business of Iowa. Ten years later, 1880, the total capital employed and invested more than doubled, reaching the figure of $2,778,937. The value of the plants was $860,672, and of the real estate, $1,644,915. Working capital amounted to $273,350. The per cent of capital used for working capital in 1880 was 9.84 per cent, used in the plant, 30.97 per cent, and used for real estate, 59.19 per cent. The average amount left per ton for royalty, profit, and the like after paying for materials, wages, and the other operation costs was $0.46.

In order to gain an idea of the capital invested at this time in particular mines, a survey of a few mines in various counties is in order. One mine in Monasqua County had a capital investment of $100,000, employing fifty miners who mined 150 tons per day. Another mine in this county had invested capital of $80,000, and employed 130 miners who raised 500 tons per day. In Polk County mine investments ranged from $6,000 to $25,000 at various mines; in Jefferson County the two largest mines represented capital investments of $12,000 and $20,000; and in Lucas County the one important
mine had $150,000 invested in it. The average investment of nineteen typical mines was $37,000.

Upon the advent of the railroads in Iowa, smaller mines representing small investments gave place to larger mines and greater investments. In 1892 a total of $4,112,050 was invested in Iowa mines, while in 1893 the mining investment increased to $6,113,300.

According to the Thirteenth Census of the United States, 1909, in the volume on Mines and Quarries, the 311 mines in Iowa represented a capital investment of $6,806,418. This census brings also the first information as to the types of business organization existing most commonly in the mining industry in Iowa. Of all the operators in the business 31.4 per cent operated as individuals, 30.6 per cent in firms, and 38 per cent as corporations. The value of the product per operator averaged $49,155, the individual operator's share being $7,744, the firm's $8,095, and the corporation's $116,483. The corporations of Iowa received 90 per cent of the total value of the coal product and employed 85 per cent of the wage earners. In fact, one-fourth of all the wage earners in the coal industry in the state were employed in the six bituminous coal enterprises, corporations, employing over 500 wage earners each.

In 1919, after the great increase in prosperity due to
the World War was no longer felt by the Iowa coal industry, the operators still had invested a total of $13,628,805 in Iowa mines. Of the one hundred and sixty-seven coal enterprises in 1919, eighty-four were organized as corporations, fifty-six as firms, and twenty-seven as individual businesses. The corporations hired 9,746 wage earners out of a total of 10,584 for the state.

At the present time there are a few coal companies in Iowa, representing several millions of dollars in investment. Most of the companies are either firms or corporations. There still exist, of course, the independent coal operators who own their mines and sell small quantities of their product locally or to truckers.

Expense of operation

Mining establishments, like any other business enterprise, have as their main items of expenditures wages and salaries and materials. Besides these, royalties, rents, taxes, and miscellaneous expenses must be met.

In 1870 mining establishments spent $73,102 for materials and $580,157 for wages. Ten years later wages amounted to $1,554,696, while materials cost $249,820. The machinery used in the mines at this early date was valued at $126,218. In addition to these items, explosives for the year cost
The average cost of labor per ton was $1.08 for coal selling at the mines for $1.71. The average cost of material per ton was $0.17, while the total royalty paid for 684,754 tons of coal mined amounted to $160,157, or an average per ton of $0.23.

By the end of the decade the cost of labor per ton of coal mined in Iowa had been reduced to $0.96, and the price of coal at the mines was but $1.33. In 1891 the total wages were $3,903,291. In 1892 the average price for mining was $0.82 per ton, the total amount paid to miners being $6,272,389.76. The next year saw a like total paid out to miners, but meantime the price paid out for mining per ton had increased to $0.91. The expense of tracking, props, and other maintenance equipment within the mines totaled $115,575.37 in but one of the three inspection districts for the two years, 1892 and 1893.

The new century brought increased importance to the coal industry in the state, but likewise more expenses of operation. The cost of supplies and materials for 1902 was $841,506, the cost of contract work was $48,046, and miscellaneous expenditures amounted to $341,191. Add to this 6,688,560 paid for wages and salaries, and the total sum paid out by mine operators for expenses for the year was $7,919,303 compared with the total value of production at the mines.
Royalties paid out for coal rights in 1909 amounted to $182,743, or an average per ton mined of $0.08. Of the mines in the state 178 were operated on leased land, 76 on partly owned and partly leased land and 57 on land owned by the operator. Thus the item for rent of leased land and taxes on land owned is a part of the expenses of the mining business. The greatest production came from land partly owned and partly leased. Of the total acres of land used for coal mining in 1909, 77,796 acres, the operators owned 26,771 acres and leased 51,025. Twenty years previously, 1889, the situation was reversed, operators owning 24,239 acres of a total of 38,682 acres, and leasing 14,443 acres.

The expenses of operation and development exceeded the value of the products, a result which indicated either that certain enterprises operated at a loss, or that a considerable sum was expended for developmental work which added to the permanent value of the mining properties, or both.

The total value of the coal produced was $12,682,106, while the expenses of operation and development were $12,816,076. These expenses were divided as follows:

- Salaried officers, superintendents, and managers: $280,146.00
- Clerks and other salaried employees: $188,023.00
- Wage earners: $10,382,672.00
- Supplies: $1,205,222.00
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel and rent of power</td>
<td>$125,214.00</td>
</tr>
<tr>
<td>Royalty and rent of mines</td>
<td>$322,673.00</td>
</tr>
<tr>
<td>Taxes</td>
<td>$38,484.00</td>
</tr>
<tr>
<td>Contract work</td>
<td>$38,266.00</td>
</tr>
<tr>
<td>Rent of offices, etc.</td>
<td>$234,376.00</td>
</tr>
</tbody>
</table>

The average expense per ton of coal produced was $1.60; divided for salaries $0.07, for wages $1.29, for supplies $0.15, for royalties $0.05, and for miscellaneous $0.04.

Royalty paid for coal in 1917 was $96,257.25. In 1919 the expense item of royalties and rents amounted to $299,194, an average of $0.09 per ton mined. Supplies, fuel, and purchased electric power cost Iowa mine operators $2,326,368 in 1919. Contract work cost $33,464.

Expenses of operation of Iowa coal mines has greatly decreased along with production in the last decade. The last information on this phase of the industry comes from the Mines and Quarries volume of the Fifteenth Census. Supplies, fuel, and purchased electric energy cost $1,337,606, 42 per cent less than was expended in 1919, ten years previously. Contract work amounted to 93.5 per cent less than in 1919. The average wages paid out per ton in 1929 were $1.81, while the average cost per ton of supplies, fuel, and electricity was $0.31.
LABOR LEGISLATION

History of Mine Inspection

Except for the miners' lien law extending from 1838 to 1851, mine labor legislation did not begin in Iowa until 1872. Now, however, it forms the largest and most complete body of laws applicable to any one group of laborers in the state. There are two groups of laws, one which seeks to protect lives and limbs, the other to secure miners full control of their wages.

County inspection

The Fourteenth General Assembly of Iowa passed the mine act of 1872 which provided for the protection of life and health of miners. By this act the board of supervisors in each county where coal or other minerals were being mined was required to appoint a competent mine inspector each year. The duty of this inspector was, on the written application of the owner, operator, or employee of a mine, to examine the mine and apply scientific tests to ascertain the condition of the atmosphere as affecting the life and the health of the employees. The inspector's compensation, in each county,
was to be $4.00 per day, to be paid by the owners or operators of the mine except where inspection was found to be unnecessary. In that case, the applicant was to pay the inspector. Those owners or operators of mines found defective who did not follow the inspector's recommendations were held liable in case of accident.

At the next General Assembly in 1874, the law providing for county inspection was somewhat modified. It was made the duty of the county inspector to inspect at least twice a year all mines in his county which employed ten or more. In addition to this, the inspector was required to examine promptly any mine upon the written application of five miners or the owner, providing the parties applying had deposited with the county clerk a sufficient sum to defray the expenses of inspection. The inspector was to be paid $3.00 per day (of active duty) out of the county treasury unless a mine was found not to comply with the law, and then the owner or operator paid. This law also provided that no female nor person under ten years of age should be employed in the mine.

Under this law, mine inspectors were appointed in Polk, Mahaska, Monroe, Wapello, and Appanoose counties. The inspectors were practical miners with little theoretic knowledge of their profession. Their methods were crude, their
powers limited. The system of county mine inspection was a makeshift, and it was abandoned in 1880.

State inspection

In 1880, the Eighteenth General Assembly passed a new act to regulate mines and mining. By this act, the governor, with the advice and consent of the senate, appointed a state mine inspector with a two year term at a salary of $1500 per year. He was given an office in the Capitol and was furnished all necessary instruments by the state. He was subject to removal by the governor for malfeasance in office or gross neglect of duty after a hearing and conviction by a board consisting of two practical miners, one mining engineer, and two operators.

The state mine inspector had to have theoretical and practical knowledge of the different systems of working and ventilating coal mines, and of the nature and properties of the noxious and poisonous gases. He could not, while in office, act as agent, manager, or mining engineer, or be interested in operating a mine. He had to give his whole time and attention to the duties of his office, and examine, as often as possible, all the mines of the state which employed fifteen or more. The inspector reported annually to the governor the conditions and operations of the mines in the
state, and an enumeration of accidents and other pertinent information.

The same act provided that the owner or agent of every coal mine should make an accurate map of the workings of the mines, which was to be available to the inspector at any time. No boy under twelve years of age could work in a mine. An additional section of the act provided that the miners had the right of access to scales, machinery, or apparatus, this right to be invested in one person who would check this equipment on behalf of the miners. The mine inspector was an administrative agent. While he was charged primarily with the responsibility for the safety of the miner and needed the qualifications of an engineer, he was required to make examinations directly affecting the health of the miner.

The law was amended in 1884 to require a biennial report to the governor; the inspector's salary was raised to $1700 per year plus $500 per year for necessary stationery and actual traveling expenses. Mr. Park C. Wilson was the only state mine inspector appointed under these laws.

District inspection

It was found that one inspector could not handle inspection trips to the 500 mines in Iowa efficiently, so in 1886 an act passed the Assembly providing for three inspectors
of equal rank to be assigned to districts by the governor. The method of appointment, the term, the qualifications, and duties were the same as in the law of 1880. They were to be full-time inspectors with $1200 salary and $500 expenses. The office in the Capitol was retained for the use of the three men.

In 1888, in an attempt to get away from politics, the office was put on a merit basis. It was decided by law that the executive council should appoint a board of examiners composed of two practical miners, two operators, and one mining engineer with five years of professional experience. The term of this board was two years; they met biennially, and received $5 per day for time actually employed at their duty, not to exceed $50. Their duties were to examine candidates for mine inspectors, mine foremen, and hoisting engineers, and to issue certificates of competency. Appointments to the office of mine inspector were then made from those holding the certificates. The certificates of competency were granted only to citizens of the United States and of Iowa at least twenty-five years of age, with five years experience in the mines. The law stated that the examination of the candidates for the office of State Mine Inspector should consist of oral and written questions in theoretical and practical mining and mining engineering,
and on gases and ventilation.

The assembly, in 1902, passed a law requiring inspection at least once every six months of mines having an output of fifty tons or more per day.

Since 1902 all members of the board of examiners except the mining engineer must hold certificates of competency as mine foremen, and one must be a certified hoisting engineer. All must have five years practical experience.

It is the duty of the mine inspectors in their respective districts to see that the operators and miners obey the mining laws set up by the State Legislature. In 1872-1874 the inspector was to determine the number and capacity of additional entrances or shafts necessary. Since 1880, it has been the duty of the mine operators to keep in their offices for inspection, maps of each mine worked, for reliable maps are necessary to the proper discharge of the mine inspectors' duties. If the operator fails to have the proper maps, the inspector may have them made at the operator's expense. The mine inspector may have an injunction served on a mine operator who does not live up to the Iowa mining laws in operating his mines, or who, after a reasonable length of time, does not carry out the mine inspector's orders to bring the mine up to the standards set by law and good mining practice.
The term of the mine inspectors was made six years in 1913, but reduced to four years in 1915. The Legislature in 1917 provided that a secretary and general assistant for the mine inspectors be appointed to perform services designated by the executive council. His salary was to be $1500 per year.

Other Legislation Protecting the Mine Worker

Besides those laws concerning mines which have already been mentioned, the State Legislature made laws for the safety of miners in signaling, in safeguards on hoisting machinery, the repair of mine timbers, in mine ventilation and illuminants, shot firing, conveyance and storage of explosives, and with relation to the operator's liability for damages resulting from neglect or violation of the mining laws.

Miners are paid by the weight of the coal they mine, thus providing operators the opportunity to defraud employees. In 1888 the General Assembly passed a law providing that the owner where miners were paid by weight should provide suitable scales of standard make, a weigh master sworn in, and the records of the coal mined by each miner available for his inspection at reasonable hours. In this year also a law was passed to protect workmen in the management and control
of their wages. By this act, script, checks and drafts, which are not redeemable at their face value in money were made unlawful. It forbade coercion in matters of purchase of goods or supplies from a particular person or company.

By 1890 the law was passed requiring escape shafts in the mines. At the same session the legislature passed a law giving miners a lien upon all property of the person, firm, or corporation owning, constructing, or operating for the value of labor performed for the full amount.

The Twenty-fifth General Assembly by an act, in 1894, established a school of mines for the State of Iowa. Such school was to be a department of and under the control of the State College. The school was to give a thorough course in theoretical and practical mining. Likewise this assembly passed a law requiring that miners be paid in lawful money of the United States on the first and third Saturdays of each month.

In the intervening years the state legislature passed no laws regulating mine labor, but in 1935, the Forty-sixth General Assembly passed a law providing workmen's compensation for coal mines.

As a general rule, the state has pursued a let-alone policy with reference to the mining industry and the conservation of resources. It is only in very recent years that it has attempted to encourage the industry.
MARKETING IOWA COAL

In 1889, sixteen per cent of Iowa coal was marketed elsewhere, bringing into the state from one to two million dollars. A considerable portion of the coal did not even leave the county in which it was mined. The local market for the coal product had been the most prevalent since the very early stages of the mining industry. That coal which was exported went north and west to Kansas, Nebraska, South Dakota, and Minnesota. Some went to Missouri and Illinois. Nebraska usually took more coal than any other state. In these consuming regions Iowa coal had to compete with that from Illinois, Kansas, Missouri, and the eastern producers.

The new century witnessed a modification in the distribution of the product in that less coal was consumed locally. Causes for this change came from the fact that production was increasing at such a rate that the mining community was not using as high a per cent of the total product, even though they used as much as usual, and that railroads and industries encouraged coal shipment.

Iowa coal was purchased for the use of state institutions on bids, the analysis of the coals being considered and the awards made to the mines furnishing the greatest
number of B.T.U.'s for one cent. By 1915 it was used in
two-thirds of the institutions of Iowa at the rate of
150,000 tons per year. Railroads, cement, brick, and tile
plants were large users.

In 1917 most of the coal was used in the state or by
railroads. Of the coal mined in that year 43.4 per cent
was used in the state by Iowa consumers, five per cent was
shipped to other states, and 51.6 per cent was used by
railroads. The extension of the market was due to the zon-
ing system established by the Fuel Administration which
prohibited shipments of eastern coal west of the Mississippi.

In the 1920's competition in the sale of Iowa coal was
keen, not only among Iowa dealers but with foreign coals.
In 1924 and 1925, two-thirds of the amount of coal used in
Iowa was shipped in. The coal consumers in the state
favored the cleaner and higher priced coals of Kentucky,
Illinois, and West Virginia.

The depression years brought about some increase in
home consumption of Iowa coal. The average consumer started
buying locally produced coal because his dollar would buy
more heat units. By 1935, 2,841,318 tons were used at some
place within the state, 900,937 tons were sold to railroads,
and 45,350 tons were shipped to points outside the state.

In 1937 it was reported by the secretary of the Iowa
Coal Institute that 1,860,906 tons of coal were sold at the mines to truckers, who with required licenses, sold coal independently. In the same year 1,131,141 tons were shipped by railroad to points within the state, 34,641 tons to points out of the state, and 899,817 tons were sold to railroads. In 1938 it was estimated that the amount sold to the railroads would be about six hundred thousand tons.
EFFORTS TO IMPROVE THE IOWA COAL INDUSTRY

Iowans for the past several years have been spending $50,000,000 for coal from other states and for competitive fuels. Consumption per year is 16,000,000 tons of which Iowa mines have produced in recent years about one-fourth. The 335 mines of the state could supply all of the fuel requirements.

Iowa coal has a poor reputation. The complaint is not in the quality of the product so much as in the lack of preparation of the coal for the market. Throughout the reports of the mine inspectors are references to the fact that Iowa coal is known to be of good quality but that it must be cleaned, screened, and sized in order to compete with foreign coals.

In 1914 a coal washing plant was established at Lakonta, Iowa, and in that year washed 25,706 tons of coal. This attempt to improve the preparation of the product was successful as far as it went, but no other washing plant was ever established in the state.

Since a part of the criticism of the coal was that it did not store well, an attempt was made to educate the people in the proper methods of storage. In 1917 the state mine
inspectors, in their report, published rules for storing Iowa coal. Likewise effort was made to teach the people how to burn it to avoid clinkering, smokiness, and the necessity for too frequent firing. No great progress was made, however, in winning the consumer at this time.

In 1928 there was a gradual increase in the consumption of Iowa coal for domestic purposes due to efforts to produce clean coal, and to the successful campaign, aided by Governor John Hammill, to increase the sale of Iowa coal. In 1925 Governor Hammill had appointed a commission known as the "Agricultural and Industrial Commission of Iowa." Its study of Iowa coal did much to remove some of the prejudice.

In 1929 the Commercial Club of Albia, Iowa, initiated a state wide meeting to promote the sale of Iowa coal. Out of this meeting the Iowa Coal Institute was organized in May, 1930. The Institute is a non-profit organization of certain public-spirited citizens in Iowa to encourage the use of Iowa coal. Its headquarters are in Albia. None of its officers are connected financially with the industry. The work of the Institute has been successful enough to warrant the Forty-fourth General Assembly's appropriating $4,500 annually to aid the work of the organization, with the stipulation that the mining department of Iowa act as
custodian of the funds.

As a part of their campaign to stimulate the use of Iowa coal, the Institute, through various channels such as advertising in newspapers, on the radio, and in bulletins to coal dealers and other interested persons, has publicized the uses and advantages of Iowa coal. According to their reports Iowa coal is being used in pulverized form in a number of the largest boiler installations in the state. It is also used by the packing industries, cement and ceramic kilns, and by Iowa’s public utilities. Domestic stokers present a possibility of increased demand for Iowa coal. Altogether the Iowa Coal Institute is doing an excellent job of making Iowans Iowa coal conscious.

There are three factors which are reducing consumption of coal in Iowa as well as in other states. One is the great increase of hydro-electric power generation. The second is the greater use of petroleum and natural gas for fuels. The third is the improved efficiency of the combustion of coal and the generation of steam. More energy is being gained from a given amount of coal than formerly. The latter factor relates in Iowa particularly to the consumption of coal by railroads. Railroads are using 3,000,000 tons a year less of Iowa coal than they did in 1920 because of more efficient steam engines, as well as the facts that there is less
 locomotion because of motor transportation, and that they use much cheap coal from other states.

The Forty-Seventh General Assembly of Iowa, in 1937, made an effort to aid the ailing coal industry of Iowa. It passed during its sessions a law called the "Preference of Domestics Products and Labor" law. This law, though it contains many details as to what may constitute an exception to the requirement, makes it unlawful for any commission, board, county, officer, or any other governing body of the state or of any county, township, school district, city, or town to purchase or use any coal except that mined or produced within the state of Iowa by producers who are at the time such coal is purchased and produced, complying with all the workmen's compensation and mining laws of the state. Users whose needs exceed $3,000 per year shall call for bids for coal by advertising in an official newspaper published in the county of the purchaser's office. No bids are to be considered from companies who do not give the name of the producer and the location of the mine, and who do not have a certificate from the secretary of the State Mine Inspectors of their compliance with the compensation and mining laws. This law does not apply if the purchaser has equipment that is not reasonably adapted to the use of the coal product within the state, nor if the use of Iowa coal would lessen
efficiency or increase the cost of operating the purchaser's plant. Nor does it apply to municipally owned and operated public utilities nor to school township and rural independent districts.

The salvation of the coal industry in Iowa, according to some, lies in the direction of still greater efficiency and cleanliness in the use of its product. The facility and cleanliness of its handling and use must be increased to protect it from further inroads by other forms of fuel or power generation. The industry is advised to expand in times of prosperity when the consuming public demands a quality based on something more than heat content alone. The only seeming alternative of the Iowa coal industry is to make a marked improvement in the grade of the product by raising the standards of preparation. Scientific analysis has proven that Iowa coal excels much of the coal that outsells it in units of heat; but the consumer who carried out the ashes prefers a coal with less impurities. A problem of major importance therefore is that of determining the technical possibilities of applying cleaning methods to Iowa coal.
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12. Ibid.
38. Ibid.
40. Downey, E. H. History of labor legislation in Iowa. p. 36.

42. Downey, op. cit., p. 37.


45. Downey, op. cit., p. 38.

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52. Iowa Industrial Survey, op. cit., p. 156.


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57. Ibid.

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