

Coal Mining and the University of Illinois

By Helaine Silverman

A huge bed of bituminous coal underlies much of downstate Illinois. Explorers Jacques Marquette and Louis Joliet discovered coal outcrops along the Illinois River in 1673 during their remarkable investigation of *le Pays des Illinois*. In 1682, Sieur de La Salle also spotted coal along the banks of the Illinois River. Coal sources continued to be discovered throughout the 18th century, but this history is not well documented.

The commercial coal industry in Illinois can be said to have begun in 1830 near Belleville, with coal from drift mines being sold across the Mississippi River in St. Louis. It also was in Belleville that the first national labor union, the American Miners' Association, was formed, in 1861, by four English immigrant miners. The creation of that early union was a reflection of the surge in coal mining activity in Illinois, in large part related to railroad expansion with coal as the fuel of the steam engines that moved the trains and that fired the forges for making the iron for their cars and tracks. Coal also supplied the steam engines powering new machinery that made mining more efficient, such as enabling shaft mining. And coal powered steamboats on the Mississippi and Illinois Rivers before and during the Civil War. In 1864 coal production in Illinois surpassed one million tons.

Demand for marketable coal intersected the development of geology as a scientific and professional field, for it was important to identify and map the best areas for mining [Note 1]. The Illinois State Geological Survey was created by the Illinois General Assembly in 1851 as part of the initiative "to assist the nation in exploring and exploiting raw materials... there was growing awareness that industrial expansion was contingent on the identification and delineation of mineral and aggregate resources" [Note 2]. So important were coal and mineral resources to the State of Illinois that in 1868, a year after the University of Illinois was chartered, the university's



Figure 1. Wagner Coal Transfer and Storage, 301 S. Water, corner of Logan St., Champaign.

Photo: Helaine Silverman.

inaugural curriculum included courses in geology.

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A Department of Mining Engineering and Metallurgy was established at the University of Illinois in 1870 [Note 3]. Indeed, the website of today's Department of Materials Science and Engineering states that, when founded in 1867, "the University was required to have a mining program as part of its mission as a land-grant institution" (<https://matse.illinois.edu/about/matse-illinois>). The formalized 1872-73 academic year curriculum included mining engineering and metallurgy [Note 4].

The effective push for a mining program at the University occurred in 1885 because "economic interests [were] connected with the extractive industry in Illinois, which was particularly important as a coal producer" and these coal interests "exerted considerable pressure to have the University train students for mining operations"

[Note 5]. But in 1891 a professor's proposal that the University "specialize in a course in coal-mining" was rejected. The administration argued that "the location and surroundings of the University precluded large development of mining education" [Note 6]. There then ensued a lapse of sixteen years in the mining engineering program until the Department was re-established in 1909 due, again, to pressure from the state's coal mining interests as well as the amenability of a new Dean [Note 7]. And in 1912 the Department of Mining Engineering was occupying the entire second floor of the Transportation Building. Those years of the late 1800s and early 1900s coincided with the tremendous growth of coal production in the state [Note 8].

Although Urbana was not a coal mining town for lack of the natural resource, the University of Illinois came to play a vital role in the coal industry. A review of two early coal industry trade journals (*Coal and Coke*, *The Coal and Coke Operator* – available in the Oak Street repository of the University of Illinois Library) shows

that Urbana played a key role in the state's coal economy. In 1908 the University became the seat of the nation's first federally funded center for mine safety and rescue technology. Then the Illinois General Assembly created the Mine Rescue Commission, in response to the terrible disaster at the Cherry Mine in 1909. Mine rescue stations were established throughout the state in proximity to coal-mining areas. Urbana quickly established itself as a hub of scientific and technological innovation and information for the coal trade, to wit the three-day Illinois Fuel Conference, which was held in Urbana in March 1909 [Note 9]. The Urbana office of the U.S. Bureau of Mines (USBM) was established in 1910 [Note 10]. The first rescue teams were required to spend two weeks at the University of Illinois' federal mine safety and research center.

As coal operators competed with each other for profit, they manipulated the wages and employment conditions of their disposable, interchangeable miners to give themselves an edge over the other entrepreneurs. Extreme financial, physical and social hardships in the coal mines prompted a robust union movement and many strikes,

including in Illinois. An indication of the strikes can be gained from the May 23, 1912 issue of *The Coal and Coke Operator*, which reports that the United Mine Workers of America paid \$74,300 in strike relief to its members between 1900-1910.

Of particular interest, then, is that the University of Illinois also began to pay significant attention "to the business side of engineering and industry through sequences of courses in economics, money and banking, *labor problems*, etc." [Note 11]. The College of Engineering expanded its curriculum in General Engineering to "enable the students to take positions where they could be of immediate service to employers either in the engineering or the business divisions of productive enterprise" [Note 12]. Courses that would prepare them were "Econ. 35-Corporations" and "Business Law-Contracts etc." in the third year and, notably, "Econ. 41- Labor Problems" and "Econ. 42 – Labor Organizations and Employer Associations" in the fourth year [Note 13].

University of Illinois scholar-scientists working in the necessary related fields collaborated with the USBM. This relationship between the

University of Illinois and the USBM is made clear in several 1915 publications. The cover of Gilbert H. Cady's monograph about Illinois coal resources indicates that the publication was a "cooperative agreement" of Illinois Coal Mining Investigations [Note 14], the State Geological Survey, the U.S. Bureau of Mines, and the Department of Mining Engineering at the University of Illinois. S. C. Andros' monograph about coal mining in Illinois similarly indicates the same cooperative network [Note 15]. *The Coal and Coke Operator* of March 1915 noted a bulletin being published about mining in Illinois that could be obtained by writing to "Illinois Coal Mining Investigations, Urbana, Illinois."

As observed, there were no coal mines in the Urbana area. Rather, the nearest coalfields were located in Vermilion County, Sangamon County and Christian County. But the streets of Urbana and Champaign were dotted with almost two dozen coal *distributors*, located near the railroad lines since it was rail that transported bulk freight commodities [Note 16]. Evidence of that retail trade still can be seen in the trace lettering on a few remaining buildings that advertise their former function (Figure 1 on previous page).

Coal and the University of Illinois Today

As America's energy preference turned away from coal, the University's coal mining strength was dropped from the curriculum. Today, students with any interest at all in coal would pursue coursework in environmental sustainability, natural resources, environmental science and geology. It is the Metallurgy and Mining Building (Figure 2) and the Transportation Building on campus that attest to the early important role of the University of Illinois in the coal industry.

But, in a different way, the University of Illinois retains its preeminence in coal science. The Abbott Power Plant on campus is a state-of-the-art cogeneration energy supplier to the university community. It uses Illinois coal when that fuel is cheaper, and natural gas when its price is more advantageous. Through exceptionally



Figure 2. Metallurgy and Mining Building on the UIUC campus, 1304 W. Green Street, Urbana. Note the inscription above the doors saying METALLURGY AND MINING. Photo: Helaine Silverman

advanced engineering, Abbott's carbon dioxide emissions are ten percent lower than the proposed standard of the U.S. Environmental Protection Agency. Similarly, it betters EPA emission standards for nitrogen oxide and mercury levels. Abbott works closely with the University's Illinois Institute for Sustainability, Energy and Environment.

Just as the University of Illinois championed safe and reliable coal mining more than a century ago, today the University has repurposed that legacy for a different, sustainable future.

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Notes

1. Well, Keith and Alvin K. Grandys. *Illinois Coal Digest*. Springfield: Illinois Department of Business and Economic Development, Division of Energy, 1976, page 2.

2. Stumpf, Andrew, Richard C. Berg and B. Brandon Curry. "Changing roles of State Geological Surveys in the USA: Experiences from Illinois." In *The Changing Role of Geological Surveys*, edited by P.R. Hill, D. Lebel, M. Hitzman, M. Smelror, and H. Thorleifson. Special Publications, 499. London: The Geological Society of London, 2020.

3. Dobrovolny, Jerry S. *A History of the Department of General Engineering, 1868-1995*. University of Illinois at Urbana-Champaign, 1996, page 1.

4. Dobrovolny, *ibid*, page 11.

5. Solberg, Winton U. *The University of Illinois 1867-1894. An Intellectual and Cultural History*. Urbana: University of Illinois Press, 1968, page 260.

6. Solberg, *ibid*, page 261.

7. Solberg, *ibid*, page 262; Dobrovolny, *ibid*, page 12.

8. For example, Illinois produced 10.5 million tons of coal of 1883 (Lord 1883); 37,077,897 tons in 1904 (*Coal and Coke*, volume XII, number 2, page 14, dated January 15, 1905); 48,717,853 tons in 1910 (*Coal and Coke*, volume XVIII, number 4, dated February 5, 1911; and 100 million tons annually in the 1920s (Gunn 2018). Lord, John S. *Illinois Coal-Production: Statistics of Coal-Production in Illinois, 1883*.

Supplemental Report of the State Bureau of Labor Statistics. Springfield, Rokker pro. <<https://www.science.org/doi/10.1126/science.3.63.490>>

9. *Coal & Coke*, April 1, 1909.

10. Organic Act/Public Law 179, May 16, 1910, preceded by the Federal Department of Mines, created in 1896.

11. Dobrovolny, *ibid*, page 12, emphasis added.

12. Quoted in Dobrovolny, *ibid*, page 12.

13. Dobrovolny, *ibid*, page 13.

14. Cady, Gilbert H. *Coal Resources of District I (Longwall)*. Bulletin 10. Illinois Coal Mining Investigations. State Geological Survey. Department of Mining Engineering, University of Illinois. U.S. Bureau of Mines. In cooperation with U.S. Geological Survey. State Geological Survey. Urbana: University of Illinois, 1915. See also see also *The Coal & Coke Operator*, 1915(3): 539.

15. Andros, S.C. *Coal Mining in Illinois*. Illinois Coal Mining Investigations, Bulletin 13. State Geologic Survey, Department of Mining Engineering-University of Illinois, U.S. Bureau of Mines, 1915.

16. Olsen, Jay M. *Coal, Oil & Ice Distributors in Champaign & Urbana*. Manuscript in the Urbana Free Library, 1983.

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