

WILL THE ILLINOIS WATERWAY BENEFIT THE ILLINOIS COAL INDUSTRY?

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Some definite progress has been made on the Illinois Waterway which will connect the Illinois River with Lake Michigan. Eventually, it will connect two of the world's greatest inland waterway systems, the Mississippi System and the Great Lakes-St. Lawrence System. It is properly called the Great Inland Waterway System.

The section of this waterway which concerns Illinois will occupy the Des Plaines and Illinois Rivers between Lockport and La Salle, Illinois, a distance of approximately 63 miles. Five locks and dams which will generate 60,000 horse power are to be constructed at the following points: first, Lockport; second, Brandon Road, the southwest limits of Joliet; third, Dresden Island, below the mouth of the Kankakee River; fourth, Belle Island, two miles east of Marseilles; and fifth, Starved Rock.

From Starved Rock to La Salle, the Illinois River will be dredged to an eight foot depth, and it is expected the present seven foot depth of the Illinois River will be dredged to a depth of eight or nine feet between La-Salle and the Mississippi River by the Federal government. The present locks and dams in the Illinois River will be removed since they will not be needed, provided the present diversion into the Chicago Drainage Canal of 10,000 cubic feet of water per second from Lake Michigan for sanitary purposes is continued.

The question arises, "What will the Illinois Waterway do for the state to justify this expense of \$20,000,000?"

Of the numerous commodities which will be affected by the Waterway as a means of transportation, the only one we are interested in here is the reported benefits of the Waterway to the cheap transportation of Illinois coal. Let us investigate the trend of coal production in Illinois and estimate approximately the amount of coal which will be available for transportation by the Illinois Waterway.

Fig. 1. Diagram Showing Coal Production in Illinois 1881-1923.

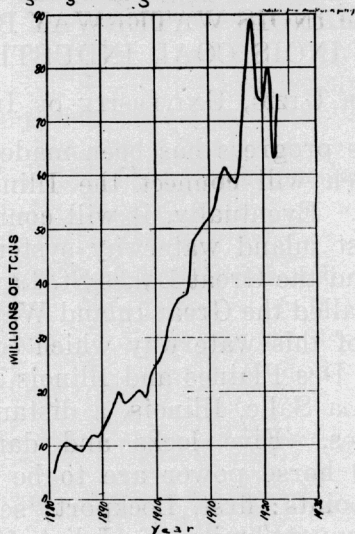


Fig. 1.

Continuous records of Illinois coal production for fiscal years ending in June, from 1881 to 1923 inclusive, are available. These show (Fig. 1) that a maximum increase in production was attained in 1918 during the war period, and the anticipated reaction came in 1919 following the armistice. The Illinois coal miners' strike of 1922 accounts for the low point of production in the state during the last decade.

Illinois produces twice as much coal as she uses, and of this consumption, four-fifths is Illinois coal. No other coal-producing state consumes so large a portion of its annual production essentially within its own borders and exports so small a proportion.¹

In 1923, only 16,655 tons of coal from the Lancaster Mine in Peoria County, situated three-fourths mile from the Illinois River, was shipped by boat; the rest of the production used the railroads for transportation.² The Lancaster Coal Company uses the Illinois River for two reasons. One is that they have no rail connections closer than four miles and the other is that their business is that of supplying steam boats, dredges, the pumping

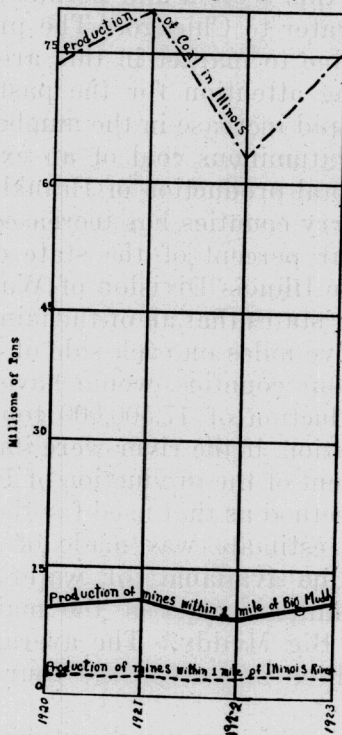
¹O. H. Barrett; Mineral Resources in Illinois.

²Illinois Annual Coal Report, 1923, p. 60.

plants of drainage districts, and towns that have no rail connections.³

When the Waterway is completed, how much coal will be directly available for water transportation on the main Waterway? No definite figures are available to indicate how much coal will be shipped over the proposed Illinois Waterway.⁴ Although we cannot know the production of mines along the Waterway in the future, nevertheless, we can form some estimate of the amount available in the future, by getting the total of the present production of every mine within a short distance, let us say one mile, of the Waterway.

Fig. II Production of Illinois Coal Compared with Production of mines one mile from main channel of Illinois River and Big Muddy System



The accompanying graph (Fig. II) shows the total production of these coal mines within one mile of the

³Letter received from Lancaster Coal Co., Feb. 5, 1925.

⁴Letter from R. W. Putnam, Major Corps of U. S. Engineers, Feb. 5, 1925.

Illinois River, compared to the total production of Illinois coal for the same years. The average production of all these mines is 1,500,000 tons. As can readily be seen, this amount directly available for water transportation on the Illinois Waterway is insignificant, however, in comparison to the average annual production in Illinois. It does not seem probable that any of the large coal fields in southern Illinois will benefit by cheap water transportation which the Waterway in its present proposed form will afford.

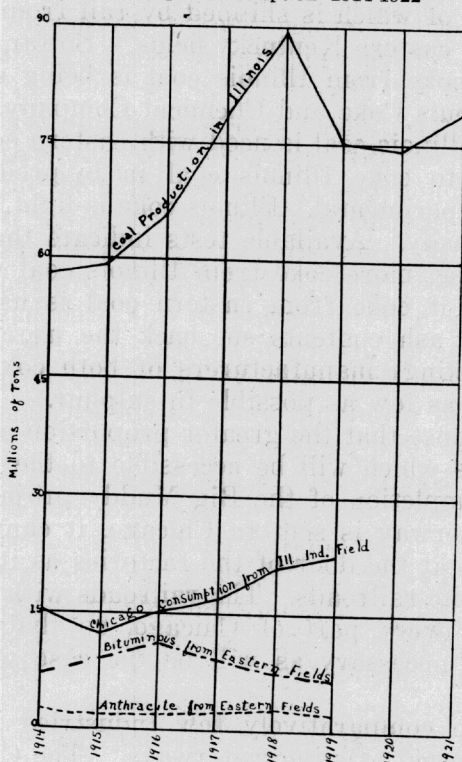
Mr. William L. Sackett, late superintendent of the Division of Waterways of the State of Illinois, has made a report recommending the development of the Big Muddy River in southern Illinois as a means of opening up coal fields of this section and permitting transportation of coal by water to Chicago. The problem of moving coal from mine to market in this area has been receiving increasing attention for the past sixteen years because of the rapid increase in the number of mines and their output of bituminous coal of an excellent quality. Since 1910, the total production of Franklin, Williamson, Jackson, and Perry counties has increased from twenty-one to thirty-four percent of the state output in 1923. The report of the Illinois Division of Waterways on the Big Muddy River states that all of the mines within a belt ten miles wide, five miles on each side of the Big Muddy River in these four counties, would have practically all of the 1921 production of 17,500,000 tons available for water transportation, if the river were improved. This is twenty-one per cent of the production of Illinois for 1921.

By the same method as that used for the Illinois River, an approximate estimate was made of the amount of coal which will be available for water transportation from mines within one mile of the main channel and branches of the Big Muddy. The average total annual production of these mines for the four-year period is 10,000,000 tons.

Thus we see that a very rough estimate of 11,500,000 tons may be made for the amount of coal produced near the Illinois and Big Muddy Projects.

Chicago is unquestionably the largest consumer of Illinois coal, which has access to the Waterway⁵, consuming approximately twenty-three per cent of the total average production of coal in Illinois. The graph (Fig. III) shows the sources of Chicago consumption from

Fig. III Production of Illinois Coal and Sources of Chicago Consumption 1914-1922



1914 to 1919 inclusive. The curve of consumption of anthracite coal has remained practically on the same level, while the curve of bituminous from the Illinois-Indiana field shows an increasing consumption.

If Chicago's consumption of coal from Illinois is increasing, that does not necessarily mean all the coal will be transported to Chicago by means of the Waterway, since, as I have tried to show, the total production of mines near the Waterway and Big Muddy is approxi-

⁵Letter from Major R. W. Putnam, Major Corps of Engineers, War. Dept. Feb. 5, 1925.

mately 11,500,000 tons, while Chicago's consumption is over 16,000,000 tons of Illinois coal.⁶

It does not appear likely that Chicago will greatly increase her consumption of Illinois coal in comparison with that from eastern fields since it is of a poor grade not suited to coking purposes. The Chicago By-Products Coke Company consumes 720,000 tons of coal annually, all of which is shipped by rail from the West Virginia and eastern Kentucky fields.⁷ So far as known, commercial coke from Illinois coal is being made only at the St. Louis Coke and Chemical Company, where 80 per cent of Illinois coal is used with eastern coal.⁸

Attempts to coke Illinois coal in by-products oven have been experimental. Illinois coke is light, and tends to shatter easily. Available tests indicate that for any given purpose, more coke from Illinois coal will be required than if coke from eastern coal is used. High sulphur and ash contents set back the use of Illinois coals for coking; manufacturers of both coke and gas desire coals as low as possible in sulphur.

If we suppose that the greater proportion of this coal from Illinois which will be accessible to the Waterway after the completion of the Big Muddy project and the Illinois Waterway is sent to Chicago, it cannot be unloaded right at the door of the factories as it can when shipped on the railroads. The railroads with their spur lines go to every part of Chicago, so that no transshipment is necessary as will be the case with water-borne coal.

There are comparatively few industries located on rivers or present existing waterways.⁹ The Chicago By-Products Coke Company, located on the Drainage Canal and South Crawford Avenue, one of the large consumers of coal in Chicago, was not located on the Drainage Canal because it would have easy access to water-borne coal, but because the Canal supplied the large amount of water necessary in the manufacture of gas.¹⁰

⁶Dr. R. C. Honnold, Sources of Chicago's Coal Consumption.

⁷Interview with G. F. Mitchell, Vice-Pres. Peoples Gas, Light & Coke Co., Chicago.

⁸Interview with Prof. S. W. Parr, University of Illinois.

⁹Letter from Dr. R. C. Honnold, Nov. 19, 1924.

¹⁰Interview with G. F. Mitchell, Vice Pres. Peoples Gas, Light & Coke Co., Chicago.

Any handling of coal means breakage. To get from a mine, by rail to a given waterway, to again unload from the boat into a railroad car for movement to ultimate destination would mean the development of a great deal of breakage and consequent degradation of such coal.

Chicago has no facilities for unloading and storing waterborne traffic. The entire water front from Calumet Harbor on the south to the northern limits of the city has now been given over to park projects. The Chicago and Northwestern Railroad has one spur track running over to within 1,000 feet of the pier, but the cost of haul by truck from the pier to the commercial center of Chicago is so great that the pier will never be of use as a Chicago terminal, unless connected up to railroads.

The Chicago River from Chicago Avenue on the north to 22nd Street on the south is now seventy-five per cent owned and controlled by railroads. The other twenty-five per cent is occupied largely by industries.¹¹ The portion south of 22nd Street is being filled and taken away from the water interests as rapidly as possible. The South and West Forks of the South Branch of the Chicago River were abandoned by acts of Congress in 1923.

The only places available for handling of freight after having used the lake front for park purposes, and the Chicago River for railroad and private industries, is a place south of Chicago known as the Calumet or Lake George district. The work cannot be done for a few thousands; it will cost the State of New York over \$25,000,000 for their terminals on the New York State Barge Canal and it is going to cost Chicago and Illinois a large sum.

A climatic factor which is disadvantageous to the Waterway is the freezing during the winter months. It is said that on the average, the river will remain closed from Christmas to Inauguration Day, a total of 70 days.¹²

The percentage of the coal tonnage produced each month for a ten year average, 1914 to 1923, is shown

¹¹Putnam, Maj. R. W., J. W. Soc. Eng. S '23, Chicago's Need for a Comprehensive Water Terminal.

¹²Cooley, L. E., Ice on the Illinois Waterway.

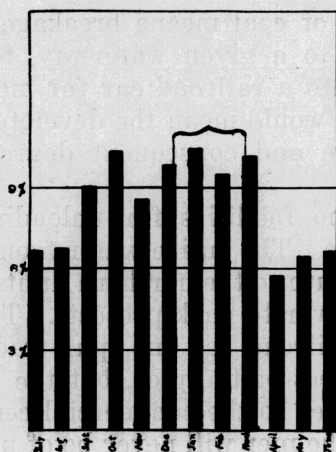


Fig. 4.

in the graph (Fig. IV)¹³. The two highest producing months are October and January, the latter being one of the months during which the Waterway is closed by ice.

No matter how many canals were built from mines to the Waterway, coal produced from the end of December to the beginning of March would have to seek rail transportation, or the production during the ice-free months would have to be increased to care for the normal winter production in order to ship all coal to points of consumption for shortage before ice closed the Waterway. The mines would be idle during the winter months unless coal were stored at the mines. It isn't possible that there will be no demand for coal production during these months, since all users, domestic and commercial, will not have an adequate supply of coal on hand to last for the season.

The circumstances and conditions of coal production in Illinois do not as yet permit the beneficial use of any Waterway now in prospect within the state for coal haulage. The amount of coal which is produced in mines near the Illinois and Big Muddy rivers is small in comparison to the total coal produced in Illinois. Thus we can conclude that the rest of the coal in Illinois can only

¹³Illinois Annual Coal Report, 1923.

be transported over the Waterway by the added expense of building spur canals to mines, or using rail haulage from mine to the river, which means development of a great deal of breakage and degradation of coal.

Dr. R. C. Honnold of the Honnold Coal Bureau at Chicago sums up the situation when he says: "When our present waterways as well as, let us hope, the St. Lawrence Waterway, shall be developed, and as a result we shall have an increasing number of our manufacturing and other industrial enterprises located near present canals and rivers, and there shall, as a result, have been developed a substantial movement of freight that is not seriously damaged by repeated handling, it will then be time to consider the development of canals to coal fields for the purpose of providing the loading of Illinois coal directly from tipples onto barges and its entire movement from mine to factory by water."¹⁴

¹⁴Letter from Dr. R. C. Honnold, Nov. 19, 1924.