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REGIONAL SHIFTS IN THE BITUMINOUS
COAL INDUSTRY
With Special Reference to Pennsylvania

PITTSBURGH, PENNSYLVANIA

1935

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REGIONAL SHIFTS IN THE BITUMINOUS COAL INDUSTRY

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by

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AND

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DIRECTOR'S PREFACE

Although this study is primarily an analysis of markets served by Pennsylvania bituminous coal producers and of changes in those markets, its emphasis is directed toward those problems of instability that have characterized the entire soft coal industry in the United States during the past two decades. The difficulties that have beset the industry in western Pennsylvania in recent years have not had their origins solely in western Pennsylvania; rather they have been part and parcel of the whole complex of problems that have come to be known as "The Chaos of Coal." It is only because of the dominant significance of bituminous coal in the economic and social life of western Pennsylvania and because of the vulnerability of the industry in this section to dislocating changes in comparative production and marketing costs (owing to the relatively older age of the fields and to the greater prevalence of organization among the miners) that these problems seem to be peculiar to western Pennsylvania. In truth, they are peculiarly acute, but they are not unique.

The first eight chapters are devoted to exposition and analysis of markets, of changes in those markets, and of causal factors operating in the industry. This analysis is summarized and integrated and related to the national problem of bituminous coal in Chapter 9. Chapters 10, 11, and 12 are given over to a consideration of (1) a statement of the basis for public interest in the bituminous coal industry, (2) an examination of remedial proposals for the industry, and (3) an outline of what seem to be the essentials of a national policy for the industry.

It will be seen from a reading of the final chapters that Federal regulation of the bituminous coal industry is a central point in these essentials. To this extent the conclusions reached have a close bearing on the recent experiment represented by the Code of Fair Competition for the Bituminous Coal Industry and on the forthcoming experiment represented

by the Bituminous Coal Conservation Act of 1935 (commonly referred to as the Guffey-Snyder Coal Act). It will be noted, however, in the discussions of these measures that in important respects their provisions do not conform to the essentials outlined in the concluding chapter. If the Guffey-Snyder Coal Act escapes the fate of the Bituminous Coal Code (and other National Recovery Administration codes) on grounds of constitutionality, we shall see in the light of experience whether this type of regulatory measure can cope with the problems of over-capacity (in mines and in men) and of regional competition.

This study of the soft coal industry is part of a long-term program in regional economic research at the University of Pittsburgh, under a grant from The Buhl Foundation supplemented by funds from the University. The purpose of this program is to lay a basis for constructive action in the solution of the economic problems of the Pittsburgh district through the objective analysis of those problems. The Bureau of Business Research offers this report on the soft coal industry with the hope that it may contribute toward solution of the difficult problems of an industry basic to Pittsburgh's welfare as well as to the welfare of the nation.

RALPH J. WATKINS
Director

October, 1935

ACKNOWLEDGMENTS

This study is the product of much cooperation, not only of members of the Bureau of Business Research staff but also of many other agencies. Special acknowledgment is due Dr. J. P. Watson, whose careful editorial work and penetrating criticism have contributed in large measure to the form and substance of the study. Mr. Emmett H. Welch, formerly a member of the Bureau staff, now with the State Emergency Relief Administration of Pennsylvania, initiated the study and collected some of the data. Statistical work was done in the Bureau's statistical laboratory, mainly by Messrs. Wayne F. Daugherty and Emil G. Punzak. The graphic presentations were prepared in the drafting unit under the supervision of Mr. Charles W. Hammers, the maps by Mr. Theodore L. Pryor and the other charts by Mr. Frank W. Surovec.

Among outside organizations, the cooperation of the following persons has been especially helpful: Dr. W. H. Young, of the United States Bureau of Mines, who supplied unpublished data needed to fill gaps in the record and read and criticised the original draft of certain chapters and the first proof of the monograph; Mr. A. S. Boden, of the Coal Control Association of Western Pennsylvania, Mr. H. M. Griggs, of the Ore and Coal Exchange, and Mr. Roy S. Kern, of the Ohio Bureau of Coal Statistics, who furnished much needed data and answered many troublesome questions. It is scarcely necessary to say that these officials are in no wise responsible for the interpretations and conclusions drawn in this study.

WILBERT G. FRITZ
THEODORE A. VEENSTRA

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APPENDIX A

Miscellaneous Exhibits

Exhibit A

BITUMINOUS COAL RESOURCES IN PENNSYLVANIA
BY COUNTIES
(Thousands of Net Tons)

| County | Original Deposit | Mined Out or Lost to and Including 1926 | Recoverable End of 1926 |
|------------------------------------|-------------------|---|-------------------------|
| Allegheny..... | 3,194,820 | 969,200 | 1,498,948 |
| Armstrong..... | 3,750,700 | 107,290 | 2,491,100 |
| Beaver..... | 1,261,797 | 7,650 | 651,517 |
| Blair..... | 78,516 | 23,900 | 36,508 |
| Bradford..... | 44,440 | 14,500 | 15,514 |
| Broad Top Field ^a | 414,954 | 41,850 | 252,918 |
| Butler..... | 4,154,807 | 39,300 | 2,257,511 |
| Cambria..... | 5,385,000 | 466,900 | 3,638,080 |
| Cameron..... | 61,560 | 235 | 33,561 |
| Centre..... | 514,485 | 75,250 | 275,076 |
| Clarion..... | 2,042,800 | 60,000 | 1,262,300 |
| Clearfield..... | 3,992,000 | 308,210 | 2,165,400 |
| Clinton..... | 114,380 | 17,221 | 54,580 |
| Elk..... | 559,781 | 54,775 | 300,473 |
| Fayette..... | 5,229,734 | 899,544 | 2,604,400 |
| Greene..... | 9,464,215 | 42,390 | 6,276,251 |
| Indiana..... | 6,339,400 | 299,200 | 4,288,700 |
| Jefferson..... | 3,334,900 | 279,400 | 2,123,400 |
| Lawrence..... | 1,007,866 | 16,445 | 484,020 |
| Lycoming..... | 72,000 | 7,000 | 40,000 |
| Mercer..... | 499,680 | 80,000 | 224,540 |
| McKean..... | 422,865 | 1,615 | 226,303 |
| Somerset..... | 6,091,800 | 187,384 | 3,986,900 |
| Tioga..... | 155,432 | 48,000 | 55,660 |
| Washington..... | 10,526,023 | 557,763 | 5,481,680 |
| Westmoreland..... | 6,381,504 | 1,218,141 | 3,297,500 |
| Total..... | 75,093,459 | 5,823,163 | 44,022,840 |

Source: Pennsylvania Geological Survey, Fourth Series, Bulletin M6, 1928, *Bituminous Coal Fields of Pennsylvania*, Part III, p. 7.

^a Consists of a small area centering at the juncture of Huntingdon, Bedford, and Fulton counties.

Exhibit B
BITUMINOUS COAL FIELDS INCLUDED IN EACH
ORIGINATING AREA

(The areas described are those used in connection with the data compiled by the Ohio Bureau of Coal Statistics)

1. Western Pennsylvania district includes the Butler-Mercer, Freeport, Reynoldsville (1934 only), Pittsburgh, and Connellsville fields. The tonnage for Reynoldsville was very small and does not appreciably affect the comparability of the data for 1934 with those for prior years.
2. Central Pennsylvania-Meyersdale district includes the Altoona, Clearfield (1934), and Meyersdale fields. The tonnage for Clearfield was negligible—less than 1,000 tons were shipped in 1934 to the combined westward destinations.
3. Cumberland-Piedmont district includes only the Cumberland-Piedmont field.
4. Northern West Virginia district includes the Fairmont, Moundsville, Elk River (1933 and 1934 only), and Junior (1933 and 1934 only) fields. Shipments from the Elk River and Junior fields were of minor importance and have little effect on the comparability of 1933-1934 data with 1919-1932 data.
5. Ohio district includes the Massillon, Leetonia, Deerfield, Middle, Ohio No. 8, Cambridge, Crooksville, Hocking, Shawnee, Pomeroy, and Jackson fields.
6. Eastern Kentucky district includes the northeastern Kentucky, Big Sandy, Hazard, Harlan, and McRoberts fields.

7. Southern West Virginia district includes the Kenova, Thacker, Gauley, Kanawha, New River, Virginian (1925-1934 only), Tug River, and Pocahontas fields. Although the tonnage for the Virginian field increased rapidly after the reporting service for the field began, it was probably small in the previous years.
8. Tennessee district includes the South Jellico and Oakdale fields.
9. Virginia district includes the Clinch Valley, Stonega, and Virginia (1931-1934 only) fields. Although the tonnage for the Virginia field increased rapidly after the reporting service for the field began, it was probably small in the previous years.

Exhibit C
BITUMINOUS COAL SHIPPED TO ATLANTIC PORTS, BY
ORIGIN AND BY DESTINATION OR USE
1917 AND 1918
(Thousands of Net Tons)

| Year and Destination or Use | Originating District | | | | | | |
|--------------------------------|---------------------------|--|--|------------------------------------|---|------------------------------|---------------|
| | Central Penn- sylvania | Western Penn- sylvania ^a | Somerset and Cumber- land- Piedmont | Fair- mont, West Virginia | Southern West Virginia ^b | Other Fields ^c | All Fields |
| 1917 | | | | | | | |
| Shipped as cargo to: | | | | | | | |
| Pennsylvania..... | 739 | 179 | 300 | 259 | 0 | 0 | 1,477 |
| New York..... | 3,592 | 432 | 764 | 551 | 436 | 20 | 5,795 |
| New Jersey..... | 594 | 0 | 116 | 71 | 300 | 13 | 1,095 |
| New England..... | 894 | 1,134 | 1,036 | 1,247 | 7,537 | 421 | 12,268 |
| Maryland..... | 133 | 115 | 632 | 32 | 744 | 4 | 1,656 |
| Delaware..... | 60 | 20 | 44 | 40 | 0 | 0 | 164 |
| Florida..... | 0 | 0 | 0 | 0 | 65 | 0 | 65 |
| Unspecified..... | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total..... | 6,013 | 1,880 | 2,891 | 2,200 | 9,083 | 454 | 22,520 |
| Coastwise Bunker..... | 900 | 169 | 926 | 279 | 1,001 | 23 | 3,299 |
| Foreign Trade | | | | | | | |
| Cargo..... | 235 | 331 | 136 | 155 | 4,634 | 52 | 5,543 |
| Bunker..... | 2,402 | 95 | 1,174 | 66 | 2,168 | 141 | 6,045 |
| Grand Total..... | 9,550 | 2,476 | 5,128 | 2,699 | 16,885 | 670 | 37,408 |
| 1918 | | | | | | | |
| Shipped as cargo to: | | | | | | | |
| Pennsylvania..... | 720 | 111 | 236 | 300 | 0 | 0 | 1,367 |
| New York..... | 4,146 | 871 | 2,378 | 382 | 139 | 2 | 7,918 |
| New Jersey..... | 618 | 0 | 126 | 83 | 0 | 0 | 827 |
| New England..... | 1,600 | 1,210 | 1,195 | 2,578 | 8,673 | 394 | 15,651 |
| Maryland..... | 120 | 91 | 330 | 96 | 1,004 | 7 | 1,649 |
| Delaware..... | 23 | 0 | 19 | 0 | 0 | 0 | 42 |
| Florida..... | 3 | 0 | 14 | 0 | 79 | 11 | 108 |
| Virginia and South Carolina | 0 | 0 | 0 | 0 | 340 | 20 | 361 |
| Total..... | 7,231 | 2,281 | 4,299 | 3,439 | 10,237 | 435 | 27,922 |
| Coastwise Bunker..... | 1,791 | 103 | 1,249 | 174 | 3,403 | 21 | 6,742 |
| Foreign Trade | | | | | | | |
| Cargo..... | 57 | 19 | 44 | 112 | 3,558 | 70 | 3,859 |
| Bunker..... | 2,489 | 45 | 574 | 17 | 1,306 | 67 | 4,498 |
| Grand Total..... | 11,566 | 2,448 | 6,167 | 3,742 | 18,504 | 594 | 43,021 |

Source: *Mineral Resources of the United States* (Part II), 1917, p. 1209; and 1918, p. 1320. Totals are based on exact figures, not on rounded numbers.

^a Includes the Pittsburgh, Greensburg, Westmoreland, Latrobe, Ligonier, Conneville, northern Pennsylvania, and Panhandle of West Virginia fields.

^b Includes the Pocahontas, Tug River, Thacker, Kenova, New River, and Kanawha fields.

^c Includes the Ohio Number 8, southwestern Virginia, southeastern Kentucky, Tennessee, and Clinch Valley fields.

^d Less than 500 tons.

APPENDIX B

Interstate Shipments of Bituminous Coal

Bituminous coal entering interstate commerce has constituted, in the past two decades, an increasing part of the total bituminous coal output among the most important eastern states. The four states, Pennsylvania, West Virginia, Ohio, and Kentucky, account for approximately two-thirds of the total bituminous coal produced in the United States. In 1915, production in the four states amounted to nearly 279,000,000 tons, of which 145,000,000 tons, or almost 52 per cent, was shipped out of the states of origin and therefore became interstate commerce. Another 54,000,000 tons—a little less than 20 per cent, the bulk of which was used for fuel by the railroads—became partially interstate (or international) commerce. The remaining 80,000,000 tons, amounting to less than 29 per cent of the total, was consumed in the respective states in which it was produced. In 1929, almost 61 per cent of the total production in the four-state area was wholly interstate commerce, and another 18 per cent was at least partially interstate tonnage. The remaining tonnage—only 21 per cent of the total—was used within the states in which it was mined. In other words, the proportion of bituminous coal used locally in the four largest soft coal mining states declined appreciably both on a percentage basis and in actual tonnage from 1915 to 1929.

The change in the percentage of coal entering interstate shipments between 1915 and 1929 in the four states, however, is by no means uniform. In Pennsylvania and West Virginia the proportion of wholly interstate shipments was almost the same in 1929 as in 1915, whereas the proportion in Ohio and in Kentucky increased decidedly. Interstate shipments accounted for 41.6 per cent of total production in Pennsylvania in 1915 and for 41.4 per cent in 1929; in West Virginia the percentages were 79.9 and 79.4, respectively. Interstate shipments from Ohio rose from 21.7 per cent in 1915 to 26.2 per cent in 1929, and in Kentucky out-of-state tonnage increased from 57.5 per cent in 1915 to 79.5 per cent in 1929. The pro-

portion of partially interstate shipments was about the same in 1929 as in 1915 in Pennsylvania; in West Virginia, the proportion increased somewhat. On the other hand, the proportion of partially interstate tonnage in Ohio and in Kentucky declined substantially from 1915 to 1929. The larger part of the coal designated as "partially interstate commerce" represents railway fuel. Since most of the railroads are interstate carriers, they are subject to regulation by the Federal Government; consequently, a large part—probably the larger part—of the proportion labeled "partially interstate commerce" either moves in interstate commerce or is used as fuel by interstate carriers subject to Federal regulation.

Ohio depends to a larger extent on intrastate markets than any of the other three states. In 1929, 43 per cent of the coal produced in Ohio was sold locally, whereas only 4.8 per cent of the total output in West Virginia and 8.3 per cent of the production in Kentucky was used within the state borders. In 1915, 7.8 per cent of the output in West Virginia and 20.7 per cent in Kentucky moved to local markets. In Pennsylvania about 38 per cent of the tonnage moved to local markets both in 1929 and in 1915.

Only fragmentary data with respect to interstate shipments of coal from the four states are available for the years since 1929; but the data which are available indicate that there have been significant changes in trends in the past four or five years. Undoubtedly the most important shift has been the increasing percentage of Pennsylvania coal leaving the state. In 1929, combined shipments from Pennsylvania to tidewater, to the Great Lakes, and all-rail shipments to western states and Canada comprised 26.3 per cent of the total output of the state; in 1934, tonnage to the same markets was 32.4 per cent of the total production. The largest percentage gain was in shipments to the Great Lakes. The combined all-rail westward shipments and shipments to the lakes from Ohio fell from 37.3 per cent of total production in 1929 to 26.4 per cent in 1934; in West Virginia, from 68.9 per cent to 67.2 per cent. There was a slight gain in the proportion of these shipments from Kentucky between 1929 and 1934.

Exhibit D

**INTERSTATE COMMERCE IN BITUMINOUS COAL PRODUCED IN
PENNSYLVANIA AND IN THREE MAJOR COMPETITIVE STATES
1915 AND 1929**

| Year and Producing State | Thousands of Net Tons | | | |
|--------------------------------|-----------------------------------|--|-----------------------------------|---------|
| | Wholly Interstate ^a | Partially Interstate ^b (Extent Unknown) | Wholly Intrastate ^c | Total |
| 1915 | | | | |
| Pennsylvania..... | 65,666 | 32,295 | 59,994 | 157,955 |
| Ohio..... | 4,875 | 7,896 | 9,664 | 22,435 |
| West Virginia..... | 61,706 | 9,478 | 6,000 | 77,184 |
| Kentucky..... | 12,283 | 4,650 | 4,429 | 21,362 |
| Total..... | 144,530 | 54,319 | 80,087 | 278,936 |
| 1929 | | | | |
| Pennsylvania..... | 59,670 | 29,548 | 55,038 | 144,256 |
| Ohio..... | 6,365 | 7,457 | 10,428 | 24,250 |
| West Virginia..... | 113,220 | 22,524 | 6,809 | 142,553 |
| Kentucky..... | 39,914 | 6,151 | 4,172 | 50,237 |
| Total..... | 219,169 | 65,680 | 76,447 | 361,296 |
| Per Cent of State Total | | | | |
| 1915 | | | | |
| Pennsylvania..... | 41.6% | 20.4% | 38.0% | 100.0% |
| Ohio..... | 21.7 | 35.2 | 43.1 | 100.0 |
| West Virginia..... | 79.9 | 12.3 | 7.8 | 100.0 |
| Kentucky..... | 57.5 | 21.8 | 20.7 | 100.0 |
| Total..... | 51.8 | 19.5 | 28.7 | 100.0 |
| 1929 | | | | |
| Pennsylvania..... | 41.4% | 20.5% | 38.1% | 100.0% |
| Ohio..... | 26.2 | 30.8 | 43.0 | 100.0 |
| West Virginia..... | 79.4 | 15.8 | 4.8 | 100.0 |
| Kentucky..... | 79.5 | 12.2 | 8.3 | 100.0 |
| Total..... | 60.7 | 18.2 | 21.1 | 100.0 |

Source: *Mineral Resources of the United States, 1915*, Part II, pp. 439 and 507. *Supplement to Monthly Coal Distribution Report*, Numbers 3, 4, and 6, and *Weekly Coal Report*, Number W.C.R. 653 (mimeographed, issued by the United States Bureau of Mines).

^a The data for interstate shipments consist of (1) all-rail and river shipments to "other" states, (2) exports by rail, (3) shipments to the Great Lakes, exclusive of shipments to Pennsylvania and to Ohio by way of Lake Erie, and (4) shipments to tidewater, exclusive of Pennsylvania shipments to Philadelphia tidewater destined for inside capes; those for partially interstate shipments consist of (1) railroad fuel delivered by all-rail routes, (2) for Pennsylvania and Ohio, coal received also by way of Lake Erie, and (3) for Pennsylvania, the addition of total shipments to Philadelphia tidewater destined for inside capes; and those for intrastate shipments consist of (1) consumption at mines for heat and power, (2) coal used for coke making at the mines, (3) sales to local trade, and (4) shipments by rail or river to points within the state.

Pennsylvania received 41,878 tons of coal by way of Lake Erie in 1929 and Ohio received 359,148 tons. Neither state received any coal by this route in 1915. Shipments by way of Philadelphia to nearby inside capes amounted to 1,696,734 tons in 1929, and to 2,000,000 tons (estimated) in 1915. It should be observed that neither the lake receipts nor the tidewater shipments need originate in the consuming state. The extent of interstate commerce, therefore, is slightly understated.

^b Includes the northern part of Tazewell County, Virginia, and a small part of the Thacker district in Kentucky, but excludes the Cumberland-Piedmont district along the northeastern border.

^c Excludes the part of the Thacker district lying in Kentucky.

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