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EMPLOYMENT AND RELATED STATISTICS  
OF MINES AND QUARRIES, 1935

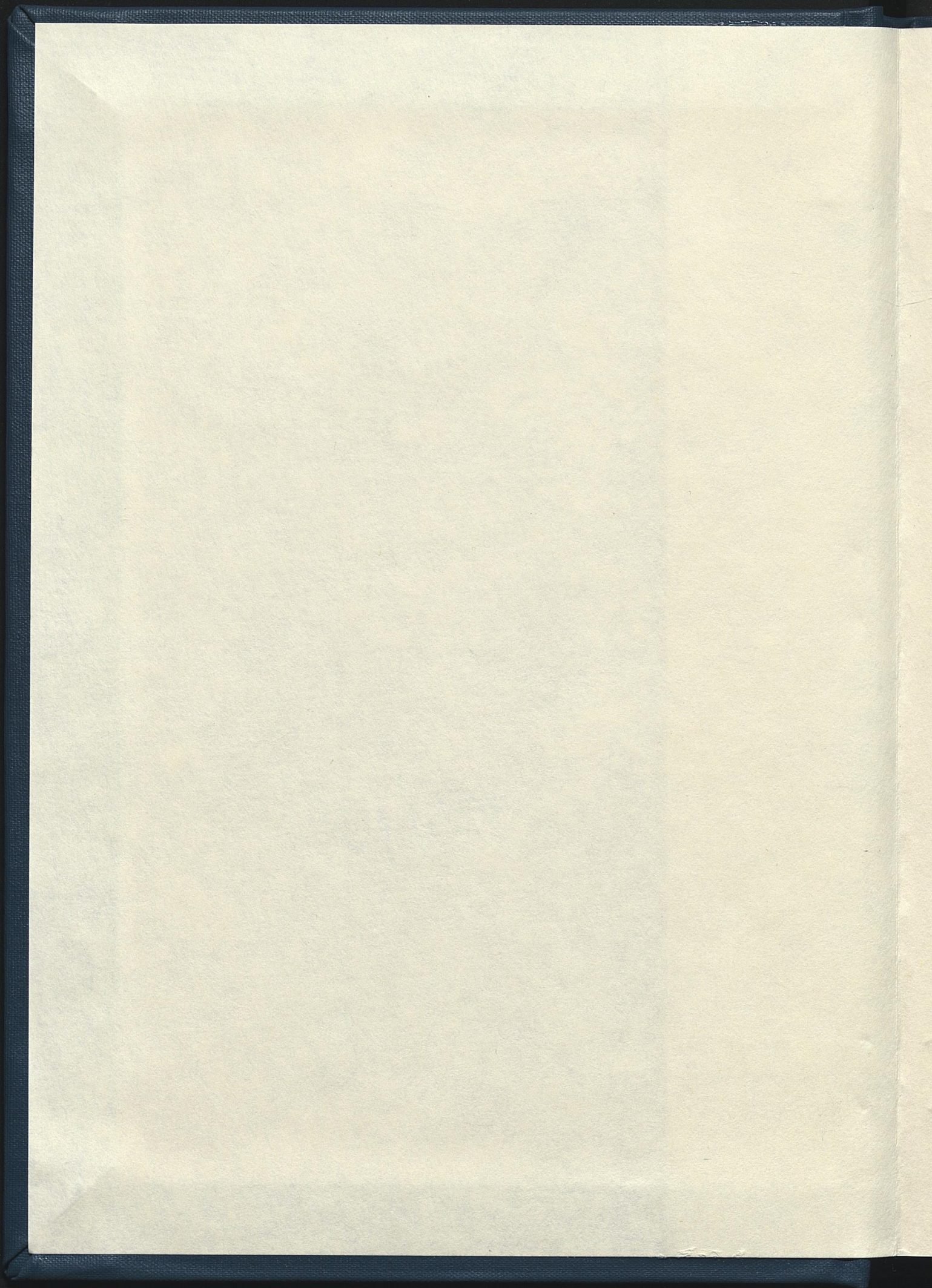
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on

Reemployment Opportunities and Recent Changes  
in Industrial Techniques,

**DAVID WEINTRAUB**  
Director

**IRVING KAPLAN**  
Associate Director

In cooperation with

**UNITED STATES DEPARTMENT OF THE INTERIOR**  
**BUREAU OF MINES**

**JOHN W. FINCH, Director**

and

**UNITED STATES DEPARTMENT OF COMMERCE**  
**BUREAU OF THE CENSUS**

**WILLIAM L. AUSTIN, Director**

**Mineral Technology and Output per Man Studies**

O. E. Kiessling, Economist in Charge



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THE W.P.A. NATIONAL RESEARCH PROJECT  
ON REEMPLOYMENT OPPORTUNITIES AND RECENT CHANGES  
IN INDUSTRIAL TECHNIQUES

Under the authority granted by the President in the Executive Order which created the Works Progress Administration, Administrator *Harry L. Hopkins* authorized the establishment of a research program for the purpose of collecting and analyzing data bearing on problems of employment, unemployment, and relief. Accordingly, the National Research Program was established in October 1935 under the supervision of *Corrington Gill*, Assistant Administrator of the WPA, who appointed the directors of the individual studies or projects.

The Project on Reemployment Opportunities and Recent Changes in Industrial Techniques was organized in December 1935 to inquire, with the cooperation of industry, labor, and governmental and private agencies, into the extent of recent changes in industrial techniques and to evaluate the effects of these changes on the volume of employment and unemployment. *David Weintraub* and *Irving Kaplan*, members of the research staff of the Division of Research, Statistics, and Finance, were appointed, respectively, Director and Associate Director of the Project. The task set for them was to assemble and organize the existing data which bear on the problem and to augment these data by field surveys and analyses.

To this end, many governmental agencies which are the collectors and repositories of pertinent information were invited to cooperate. The cooperating agencies of the United States Government include the Department of Agriculture, the Bureau of Mines of the Department of the Interior, the Bureau of Labor Statistics of the Department of Labor, the Railroad Retirement Board, the Social Security Board, the Bureau of Internal Revenue of the Department of the Treasury, the Department of Commerce, the Federal Trade Commission, and the Tariff Commission.

Also cooperating are the following private agencies: the Industrial Research Department of the University of Pennsylvania, the National Bureau of Economic Research, Inc., the Employment Stabilization Research Institute of the University of Minnesota, and the Agricultural Economics Departments in the Agricultural Experiment Stations of California, Illinois, Iowa, and New York.

EMPLOYMENT AND RELATED STATISTICS OF MINES AND QUARRIES

1935

Part I. - Bituminous Coal

by

F. G. Tryon, W. H. Young, M. E. Wilson,  
and F. E. Berquist

Part II. - Pennsylvania Anthracite

by

F. G. Tryon, M. Otero, W. H. Young,  
and D. C. Ashmead

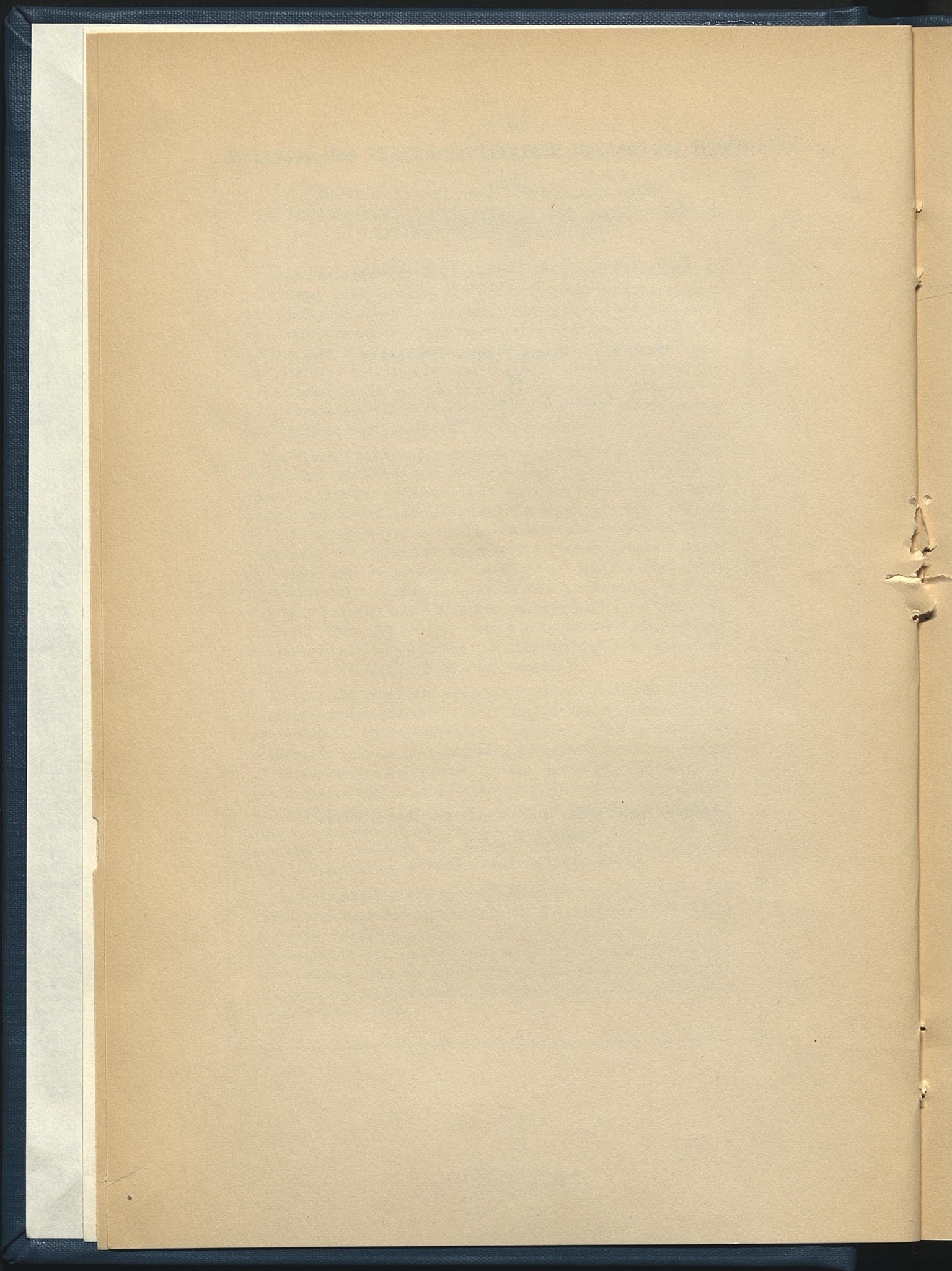
Mineral Technology and Output per Man Studies

Report No. E-4

*Philadelphia, Pennsylvania*

*July 1937*

167226





**WORKS PROGRESS ADMINISTRATION**

**WALKER-JOHNSON BUILDING  
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**HARRY L. HOPKINS  
ADMINISTRATOR**

June 29, 1937

Hon. Harry L. Hopkins  
Works Progress Administrator

Sir:

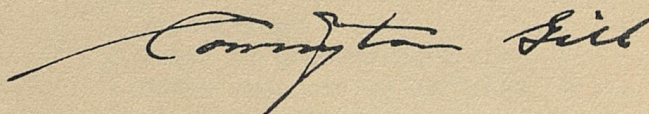
I hereby transmit a copy of a report on *Employment and Related Statistics of Mines and Quarries, 1935*. This volume covers statistics of coal mines.

The information here made available on the number of workers employed, wages paid, volume of production, and cost of fuels and supplies, will be drawn upon for the forthcoming reports in the series on "Mineral Technology and Output per Man Studies." This report is the fourth in this series of studies, which are being prepared under the supervision of Dr. O. E. Kiessling of the U. S. Bureau of Mines under a cooperative arrangement between that Bureau and our National Research Project.

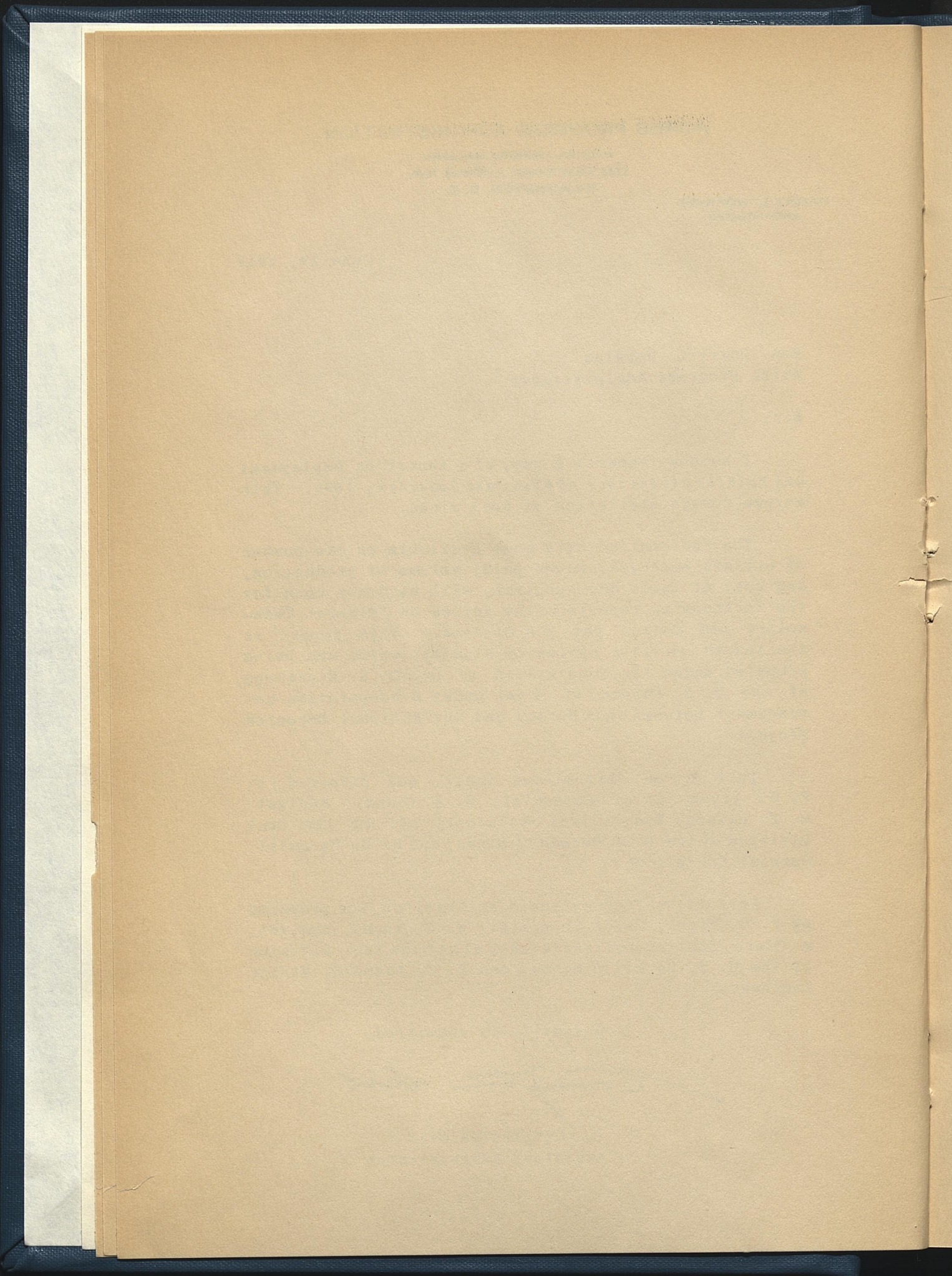
Part I, on "Bituminous Coal", was prepared by F. G. Tryon, Chief Economist; W. H. Young, Analyst; M. E. Wilson, Statistical Assistant, all of the Coal Division of the U. S. Bureau of Mines; and F. E. Berquist, Special Consultant.

Part II, on "Pennsylvania Anthracite", was prepared by F. G. Tryon, Chief Economist; W. H. Young, Analyst; M. Otero, Statistical Assistant, all of the Coal Division of the U. S. Bureau of Mines; and D. C. Ashmead, Mining Engineer.

Respectfully submitted,



Corrington Gill  
Assistant Administrator



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## PREFACE

To measure the over-all productivity of an industry, two elements are, of course, necessary - a record of total output and a record of labor expended. Adequate records of total production were fortunately available for almost all branches of mineral extraction. The factor of labor expended, on the other hand, was less accurately known. The only complete records of the manpower engaged in mining have been those of the decennial Censuses of Mines and Quarries, the latest of which covered the year 1929. Less complete data for subsequent years were available in the annual reports of the Bureau of Mines. No figures at all were at hand regarding employment in oil and gas production, and even in coal mining, for which the Bureau of Mines record was most comprehensive, the series covered only the "average number employed" during the year and threw no light on the seasonal fluctuations of employment which are so important to the coal digger.

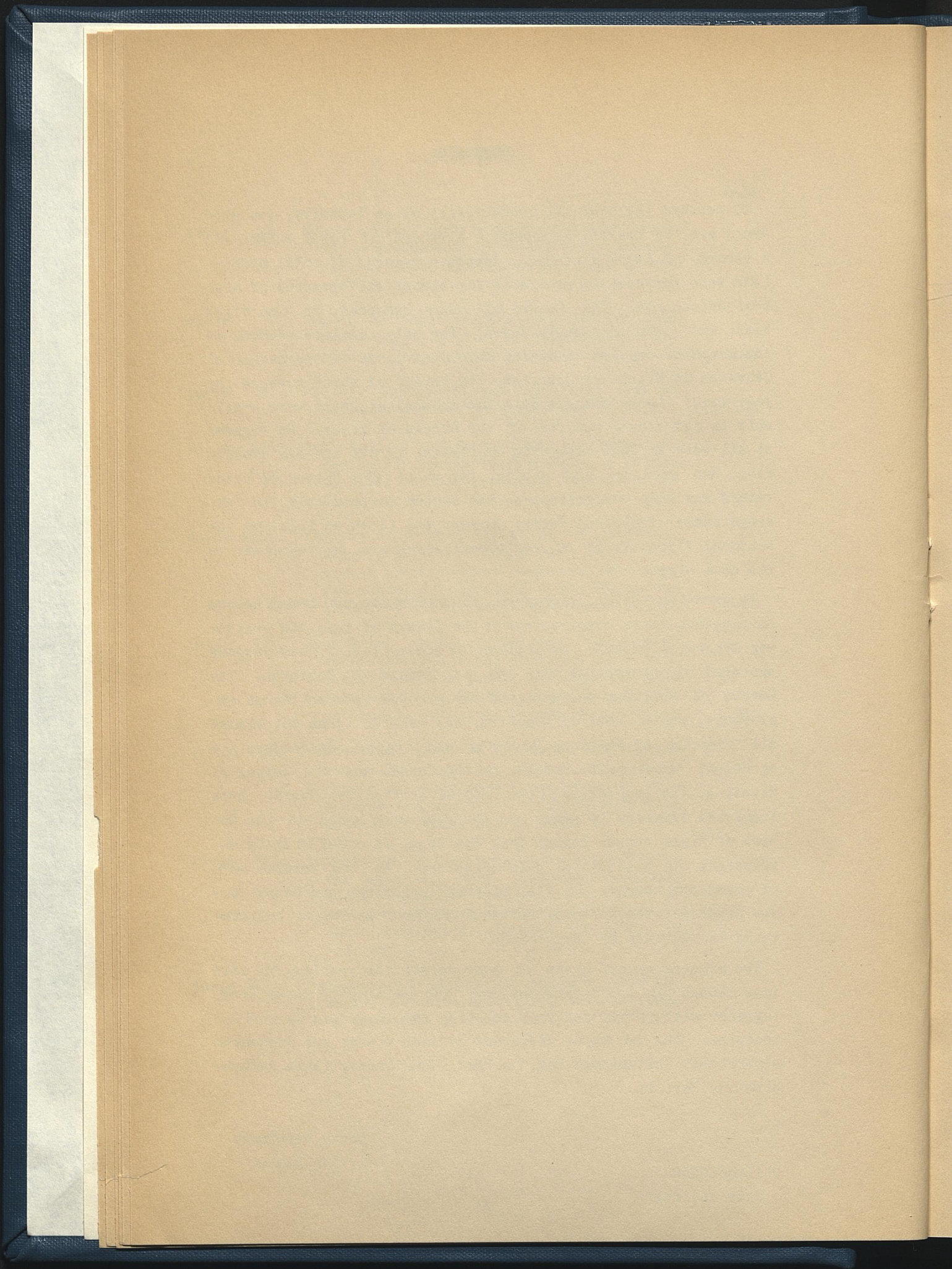
It seemed essential, therefore, to develop the employment record in 1935 on a basis comparable with the Census of 1929 and preceding decennial counts. Facilities for accomplishing this purpose appeared in connection with the 1935 Census of Business. The Census of Business was designed to provide information on employment, wages, cost of supplies, and related items for almost all branches of American industry and trade. By cooperative agreement between the Bureau of the Census and the Bureau of Mines, at the suggestion of the Central Statistical Board, these inquiries relating to mines and quarries were added to the Bureau of Mines annual report form for 1935, in order to avoid duplication of statistical questionnaires. As the results were of immediate concern in the "Mineral Technology and Output per Man Studies", the National Research Project has also collaborated in the task of compilation.

The present report gives in some detail the results of this 1935 Census of the bituminous coal and anthracite industries, together with a brief analysis relating the 1935 data to earlier censuses. The two major divisions of coal mining are presented separately, "Bituminous Coal" as Part I and "Pennsylvania Anthracite" as Part II.

David Weintraub  
Irving Kaplan

Philadelphia,

June 24, 1937.





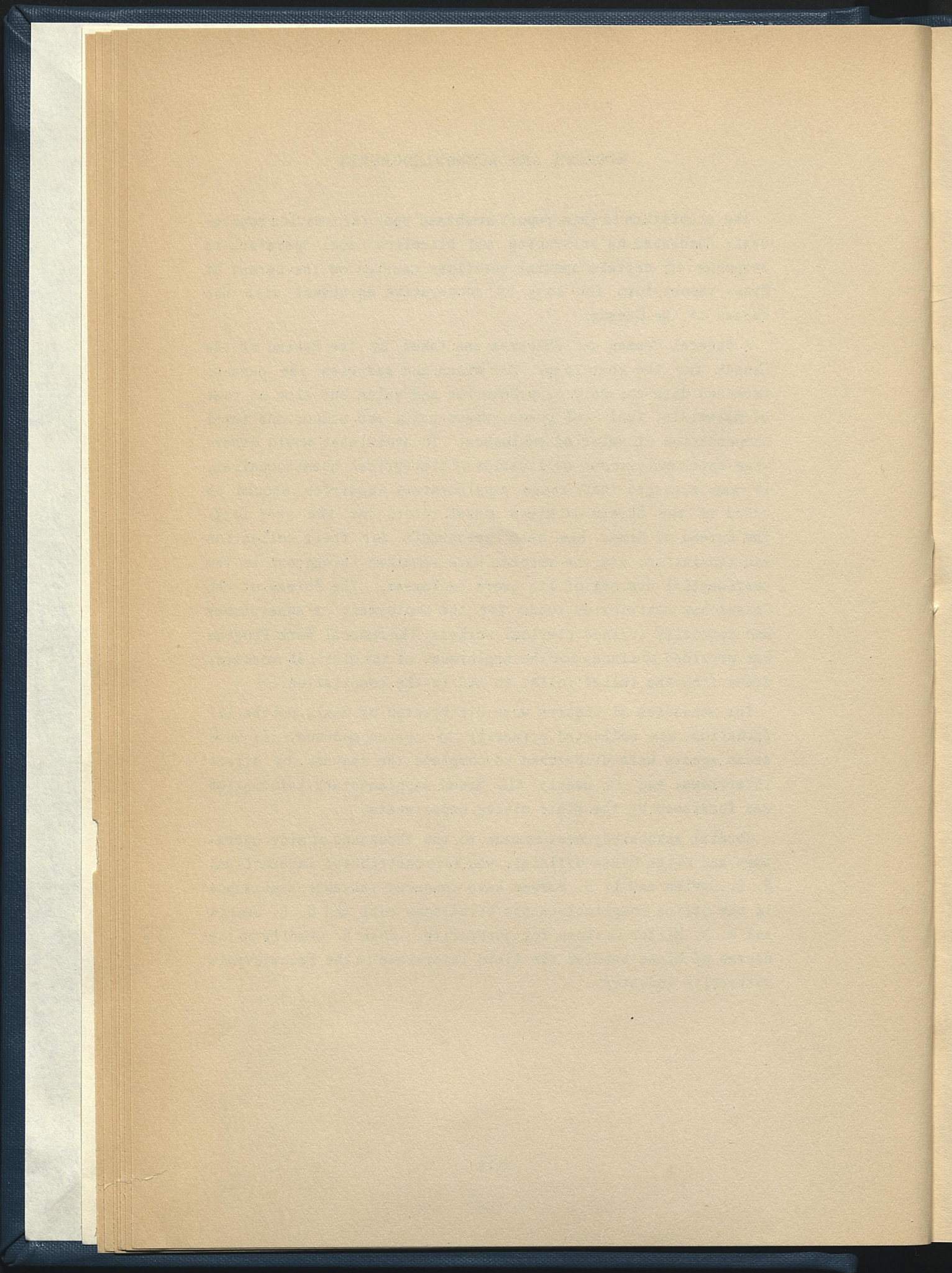
## SOURCES AND ACKNOWLEDGMENTS

The statistics in this report are based upon information courteously furnished by anthracite and bituminous coal operators in response to certain special questions carried on the Bureau of Mines report form for 1935 by cooperative agreement with the Bureau of the Census.

A general Census of Business was taken by the Bureau of the Census for the year 1935. For mines and quarries the canvass included data not only on production and value but also on cost of materials, fuel and power, wages paid, and number and total compensation of salaried employees. To avoid what would otherwise have been serious duplication of statistical questionnaires, it was arranged that these supplementary inquiries should be added to the Bureau of Mines annual return for the year 1935. The Bureau of Mines has been responsible for their collection and tabulation, and the records have remained throughout in the confidential custody of its sworn employees. The Bureau of the Census has contributed funds for the employment of supervisory and specially trained clerical workers; the Federal Work Program has provided the funds for the employment of the clerical workers, drawn from the relief rolls, to aid in the compilation.

The schedules of inquiry were distributed by mail, and the information was collected primarily by correspondence. In some areas agents were dispatched to complete the canvass by direct interviews, and in nearly all areas supplementary information was furnished by the State mining departments.

Cordial acknowledgement is made to the thousands of mine operators and to the State officials who have contributed information. H. L. Davies and L. H. Barber have rendered valuable assistance in the office compilations for bituminous coal and H. L. Bennit and R. M. Miller in those for anthracite. John R. Bradley of the Bureau of Mines handled the field interviews in the Pennsylvania anthracite industry.



## PART I - BITUMINOUS COAL

### SECTION I

#### SUMMARY FOR THE INDUSTRY

##### OPERATIONS IN 1935

The total production of bituminous coal in 1935 amounted to 372,253,697 tons. The value at the mines of the coal produced was \$657,560,722, an average of \$1.766 per ton. The value of other products or services - chiefly sales of surplus electric power - was reported as \$913,813, and the total value of all products or services was \$658,474,535. The number of mines in operation was 6,311.

The mining of bituminous coal was found to be by far the largest employer of labor among the mineral industries. An average of 435,426 wage earners were engaged over the year as a whole, including shut-down periods, the number on the rolls varying from 400,886 in July, the minimum month, to 460,871 in December, the maximum month. The total wages paid amounted to \$402,676,694. In addition, \$32,531,000 was paid in compensation to 16,916 salaried employees who worked at the mines or in offices directly connected therewith.

The bituminous-coal mines spent \$73,704,997 for supplies and materials in 1935. The cost of colliery fuel was \$4,796,141 and of purchased electric power, \$25,080,359. Comparisons with the preceding censuses are given in table I.

##### COMPARISONS WITH 1929

The changes indicated from 1929 to 1935 reflect in large measure the effects of the great depression upon the consumption of coal. Demand in 1935 showed a substantial increase over the low point of 1932, but the total tonnage produced remained 30.7 percent below that of the active year 1929. Prices, which had fallen to \$1.31 a ton in 1932, recovered to an average of \$1.766 in 1935. In comparison with the average of \$1.797 in 1929, the prices of

Table I.- SUMMARY OF BITUMINOUS COAL MINING OPERATIONS IN THE UNITED STATES AS REPORTED BY THE CENSUSES OF 1902, 1909, 1919, 1929, and 1935

(Exclusive of wagon mines producing less than 1,000 tons a year. The production of Alaska, which amounted to 119,425 tons in 1935, is not included.)

	1902 <sup>a/</sup>	1909 <sup>b/</sup>	1919	1929	1935	Percent of change 1929-1935
Number of mines .....	4,826	6,016	8,282	5,620	c/ 6,311	(c)
Production, net tons .....	260,020,356	376,952,534	460,425,836	537,442,495	372,253,697	-30.7
Value of products						
Coal, value at mine .....	\$290,584,483	\$401,555,972	\$1,144,322,647	\$965,707,288	\$657,560,722	-31.9
Average value per ton .....	\$1.118	\$1.065	\$2.485	\$1.797	\$1.766	- 1.7
Other products or services ..	---	\$426,962	\$1,654,918	\$986,483	\$913,813	- 7.4
Total value .....	---	\$401,982,934	\$1,145,977,565	\$966,693,771	\$658,474,535	-31.9
Salaries employees						
Number .....	14,413	18,393	33,573	20,826	d/ 16,916	(d)
Total compensation .....	\$14,511,924	\$20,939,242	\$68,669,038	\$48,840,030	\$32,531,000	(d)
Wage earners						
Average number, including shut-down periods .....	e/ 280,205	488,000	545,798	458,732	435,426	- 5.1
Wages paid .....	\$181,347,208	\$282,526,639	\$682,601,068	\$574,800,072	\$402,676,694	-29.9
Cost of supplies .....	\$24,780,695	\$38,302,248	\$142,432,551	\$106,438,396	\$73,704,997	-30.8
Cost of fuel .....	---	(f)	\$25,896,660	\$7,529,305	\$4,796,141	-36.3
Cost of purchased power .....	---	(f)	\$11,280,509	\$30,739,381	\$25,080,359	-18.4
Per-ton expenditures for:						
Wages .....	\$0.697	\$0.750	\$1.483	\$1.070	\$1.082	+ 1.1
Supplies .....	.095	.102	.309	.198	.198	---
Fuel .....	---	(f)	.056	.014	.013	- 7.1
Purchased electric power ...	---	(f)	.025	.057	.067	+17.5

Ratio of expenditures to total value							
Wages .....	62.1%	70.3%	59.6%	59.5%	61.2%		+ 2.9
Supplies .....	8.5%	9.5%	12.4%	11.0%	11.2%		+ 1.8
Fuel .....	---	(f)	2.3%	0.8%	0.7%		-12.5
Purchased electric power ...	---	(f)	1.0%	3.2%	3.8%		+18.8

(a) Data reported at the Census of 1902 have been revised by the elimination of 826 small mines, which averaged only 238 tons per year. Mines of this size have not been included at later censuses. (b) Data reported at the Census of 1909 included the coking of coal in beehive ovens at the mines. In order to make the figures comparable with other years, data for coking have been excluded, by estimate. For some items this estimate was made in the Census report for 1919 and for others by the present authors. (c) The indicated increase in number of mines from 1929 to 1935 is chiefly due to more complete coverage of small mines in the canvass conducted by the Bureau of Mines, made possible in part by cooperation of the N.R.A. divisional code authorities and the State mine departments. (d) The figures for salaried employees in 1935 are not comparable with those for 1929. In both years employees at central offices were returnable on a separate form for "General Administrative Office Personnel" and are not included here; but the line distinguishing central offices in the two years was differently drawn. In 1929 many employees at separate administrative offices located in the same county or State were grouped with the mine reports. In 1935 only personnel actually at the mine or in offices directly connected therewith were included. (e) Represents the number of 300-day workers equivalent to the numbers employed on the days when the mines operated. As the mines operated only 230 days in 1902, the average number actually on the rolls was undoubtedly much greater than the figure shown. (f) The 1909 returns for cost of fuel and purchased power were apparently not comparable with those in later censuses.

#### 4 EMPLOYMENT AND RELATED STATISTICS OF MINES

1935, however, showed a decrease of 1.7 percent. The decline in total value of products amounted to 31.9 percent.

Wage payments decreased 29.9 percent, slightly less than total value of products.

A decrease occurred, also, in expenditures for supplies, fuel, and power. It was greatest in the case of colliery fuel, expenditures for which declined 36.3 percent, and least in the case of purchased electric power, which declined 18.4 percent. Payments for supplies and materials showed a decrease of 30.8 percent.

#### COMPARISONS WITH EARLIER CENSUSES

In comparing the 1935 returns with those of still earlier censuses, the most significant items are the per-ton expenditures for wages and supplies and the corresponding ratios of those expenditures to the total value of products (table I). No general census can attain the accuracy of cost accounting, and where per-ton costs are computed, they must be regarded as approximate. The chance of error, however, is diminished when large numbers of mines are included, and the ratios here given are believed to indicate faithfully the long-time trends.

It should be noted that many items of cost are not included, such as the sums paid for contract work or for the purchase of new equipment, royalties, depletion, depreciation, interest on debentures, insurance, taxes, workmen's compensation, reserves for uninsurable hazards, and other administrative and selling expenses. It is therefore impossible to compute the total cost of production or the margin, if any, between sales realization and cost.

Per-ton expenditures for wages increased slightly from \$.697 at the Census of 1902 to \$.750 at that of 1909. With the sudden rise in commodity price levels and wage rates associated with the World War, wage costs per ton advanced to \$1.483 in 1919. The decline to \$1.07 in 1929 represented, in part, a reduction in wage scales, especially in the nonunion coal fields, and, in part, savings in the man-hours required per ton of coal produced. In 1935 the wage bill per ton averaged \$1.082, an increase of 1.1 percent over 1929. It appears, therefore, that the increase in mechanization has failed to offset in full the advances in

hourly wage rates which occurred in many districts during this period.

The changes in per-ton expenditures for supplies and materials suggest a long-time upward trend, obscured by fluctuations in the price of raw materials. Between 1902 and 1909 the average supply cost increased slightly, rising from 9.5 cents a ton to 10.2 cents. The peak of 30.9 cents in 1919 reflects the speculative levels of raw-material prices characteristic of the war period, and the subsequent decline to 19.8 cents in 1929, in the same way, is more an indication of price movements than of diminished consumption of supplies per ton of output. In 1935 the computed expenditures for supplies per ton were exactly the same as in 1929 (19.8 cents), but if movements of wholesale price levels are remembered, an increase in per-ton consumption is suggested. The steady growth of coal-mine mechanization points to higher supply costs per ton of output.

Costs of fuel and purchased power can be traced accurately beginning with 1919. Since then expenditures for fuel have declined sharply, partly because of the decrease in prices of coal itself but chiefly because of the tendency to close down isolated power plants at the individual mine and shift to central-station power purchased from public-utility distributors. Conversely, expenditures for purchased electric power have increased. The net change is seen in the decline of fuel costs from 5.6 cents per ton in 1919 to 1.3 cents in 1935, and the corresponding increase in purchased power costs from 2.5 cents a ton to 6.7 cents in the same period. Indeed, per-ton expenditures for purchased electric power have increased despite the depression.

Equally interesting is the ratio which the expenditures itemized in the census returns bear to the total value. From the viewpoint of accounting, it would, of course, be preferable to relate these ratios to the total cost of production, but as that is not recorded at the census, the only yardstick available is the total value of products. Measured against that yardstick, expenditures for supplies and materials again show a long-time tendency to increase. In 1902 supplies constituted 8.5 percent of the total value, and in 1909 they constituted 9.5 percent. In 1919, when the supply bill, as already pointed out, was inflated by high raw-material prices, the ratio was 12.4 percent, and at the lower levels of price later prevailing it declined. But the experience of 1929 and 1935, when the supply bill was

## 6 EMPLOYMENT AND RELATED STATISTICS OF MINES

11.0 and 11.2 percent of the value of products, offers definite confirmation that supply costs today are higher than before the war.

Fuel and power costs, also, show an upward trend in relation to total value. Because of the shift from local steam to central electric power, the items of fuel and purchased power should be combined in measuring these trends. Combined expenditures for the two increased from 3.3 percent of the total value of products in 1919 to 4.0 percent in 1929 and 4.5 percent in 1935.

No other large industry shows so high a ratio of wages to total value of products (and also to total cost) as does coal mining. In 1889 the wage bill of the bituminous-coal industry was 71.9 percent of the total value; in 1902 it was 62.4 percent; in 1909 it was 70.3 percent; and at the last three censuses it has hovered close to 60 percent. The ratio in the case of wages, particularly, is affected by the fact that our yardstick is total value of products rather than total cost, and the change from census to census is colored by the further fact that some of the census years have been marked by boom times and profits and others by serious financial loss. In 1902 bituminous-coal mining was called on to supply the deficit in anthracite caused by the great strike of that year and it enjoyed a temporary prosperity and relatively high prices. In 1909, with no stoppage of production in either hard- or soft-coal fields, competition was intense, prices were low, and the margin of profit, judged by all contemporary evidence, was small.<sup>1</sup> In 1919, on the other hand, the industry was fairly prosperous, Federal tax returns indicating a net income of \$62,259,694 for the industry as a whole.<sup>2</sup> The year 1929, in turn, though one of prosperity for general business and of large consumption of fuel, was marked by destructive competition in the bituminous-coal fields, and the income tax returns showed an over-all loss of \$11,822,033.<sup>3</sup> Income tax data are not yet available for 1935, but other lines of evidence suggest the probability of a loss in that year as well.

Were it possible to correct for these variations in the financial position of the industry and to show total costs rather

<sup>1</sup>Edward W. Parker, "The Cost of Coal," *Proceedings, American Mining Congress*, 16th Session, 1913, p. 386. (This article analyzes the returns of the Census of 1909.)

<sup>2</sup>F. E. Berquist and Associates, *Economic Survey of the Bituminous Coal Industry Under Free Competition and Code Regulation* (N. R. A., Division of Review, Industry Studies Section, March 1936) Work Materials No. 69, I, 63.

<sup>3</sup>*Idem.*



than total values at the mines, the ratio of wages to the total would be changed little in 1909, 1929, and 1935, but increased substantially in 1902 and 1919. The evidence, therefore, points to a definite though slight downward trend in the ratio of wages to total costs over the last 40 years. During that time this ratio has declined from something like the 70 percent suggested by the returns of 1889 and 1909 to the 61.2 percent suggested by the returns of 1935. The record is not sufficient to determine with accuracy the relative rewards of labor and capital in the industry, for it gives no measure of overhead costs or of the return upon investment which the mine owners may have obtained. It does, however, confirm the opinion that the increase in use of machinery and the increase in size of mine tend to increase supply and maintenance costs per ton at the same time that the associated savings in labor tend to diminish labor costs per ton, wage rates remaining unchanged.

#### STATE SUMMARY, 1935

Tables II, III, and IV give the principal statistics covering bituminous-coal mines for each State in 1935.

TABLE II.- PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT BITUMINOUS COAL MINES IN THE UNITED STATES IN 1935, BY STATES

(Exclusive of wagon mines producing less than 1,000 tons a year. Note also that the production of Alaska, which amounted to 119,425 tons in 1935, is not included.)

State	Number of mines	Coal produced (tons of 2,000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935 d/
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Alabama .....	164	8,504,510	\$18,250,929	\$1,044	\$18,254,973	\$2,206,418	\$120,011	\$879,530	\$3,205,959	\$10,737,712
Arkansas .....	65	1,133,279	3,447,578	1,648	3,449,226	403,451	19,618	187,760	610,829	1,971,132
Colorado .....	263	5,910,511	13,674,224	10,137	13,684,361	1,324,383	213,177	500,592	2,038,152	7,871,290
Illinois .....	722	44,525,459	69,516,429	43,235	69,559,664	10,041,109	878,284	2,345,946	13,265,339	39,039,928
Indiana .....	188	15,754,214	23,721,662	6,965	23,728,627	3,990,418	307,070	876,543	5,174,031	10,896,599
Iowa .....	263	3,650,163	9,001,740	441	9,002,181	805,035	72,843	276,145	1,154,024	6,090,032
Kansas .....	177	2,686,164	4,943,118	---	4,943,118	700,035	15,139	254,250	969,425	2,221,379
Kentucky .....	495	40,760,939	65,956,206	6,874	65,963,080	7,396,108	367,844	2,358,039	10,121,991	43,527,809
Maryland .....	114	1,678,059	3,265,958	9,009	3,274,967	310,890	13,415	93,271	417,576	2,335,184
Michigan .....	20	628,384	2,017,467	---	2,017,467	271,314	76,194	66,018	413,526	1,256,036
Missouri .....	201	3,645,996	6,923,917	37,927	6,961,844	1,106,240	34,008	381,325	1,521,573	3,262,035
Montana .....	81	2,758,906	4,146,344	563	4,146,907	e/ 938,524	5,883	147,053	1,091,460	1,780,904
New Mexico .....	49	1,388,877	3,681,075	42,007	3,723,082	421,028	62,573	104,881	588,482	2,189,057
North Dakota .....	161	1,955,510	2,395,507	37,486	2,433,993	368,609	24,510	120,941	514,060	1,011,273
Ohio .....	734	21,153,151	35,111,486	30,003	35,141,489	3,864,669	208,595	1,210,622	5,285,886	22,858,480
Oklahoma .....	104	1,229,398	2,878,999	---	2,878,999	362,067	24,053	110,367	496,487	1,686,388
Pennsylvania .....	1,365	91,404,670	172,169,692	307,744	172,477,436	16,890,449	1,272,177	7,019,226	25,181,852	111,655,209
South Dakota .....	17	13,243	21,032	---	21,032	2,972	418	---	3,390	13,363
Tennessee .....	104	4,137,802	7,434,826	286	7,435,112	774,967	69,227	276,702	1,120,896	4,667,693
Texas .....	18	757,529	653,552	1,908	655,460	86,919	5,483	16,469	108,871	408,213
Utah .....	40	2,946,918	6,091,286	---	6,091,286	708,660	8,235	333,005	1,049,900	3,229,849
Virginia .....	82	9,667,018	17,127,756	4,956	17,132,712	1,783,068	30,797	667,361	2,481,226	11,114,467
Washington .....	56	1,559,206	4,685,992	---	4,685,992	500,848	30,223	184,543	715,614	2,534,192

West Virginia .....	746	99,179,061	169,164,340	90,282	169,254,622	17,119,874	827,799	6,249,569	24,197,242	105,283,893
Wyoming .....	68	5,177,142	11,127,156	278,298	11,405,454	1,311,802	105,935	419,784	1,837,521	4,934,663
Other States f/ .....	14	47,578	152,451	---	152,451	15,138	2,630	417	18,185	102,914
Total g/ .....	6,311	372,253,697	657,560,722	913,813	658,474,535	73,704,997	4,796,141	25,080,359	103,581,497	402,676,694

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) Does not include compensation, if any, paid for labor at mines operated in connection with penal institutions or county homes to which the inquiry regarding labor was not applicable, as follows: Kansas, 150,858 man-days; Pennsylvania, 3,120 man-days; Tennessee, 153,720 man-days; and West Virginia, 6,362 man-days. (e) Includes payments other than for items of wages and power made under operating contract by one large stripping mine. (f) Arizona, California, Georgia, Idaho, North Carolina, and Oregon. (g) The canvass of production is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 5.2 percent of the total value of products, 7.5 percent of the expenditures for supplies, etc., and 10.3 percent of the wages paid in 1935.

Table III. PERSONNEL OTHER THAN WAGE EARNERS AND SALARIES PAID AT BITUMINOUS COAL MINES IN THE UNITED STATES IN 1935

(Covers only personnel actually at mine and office directly in connection therewith. Employees at central offices not connected with the mine were returnable at the Census on a separate form for "General Administrative Office Personnel" and are not included here. The figures are not directly comparable with those for the Census of 1929 which included in many cases employees at administrative offices located at other points in the State where the coal was produced.)

State	Number of proprietors or firm members (not applicable to corporations) a/	Salaried employees b/	
		Number	Compensation (thousand dollars)
Alabama	26	610	\$1,133
Arkansas	21	149	260
Colorado	44	487	792
Illinois	215	1,632	2,929
Indiana	42	638	1,296
Iowa	110	402	623
Kansas	31	135	227
Kentucky	50	2,160	3,677
Maryland	13	94	149
Michigan	2	19	97
Missouri	56	216	402
Montana	7	74	153
New Mexico	5	157	347
North Dakota	33	84	132
Ohio	138	803	1,504
Oklahoma	14	128	202
Pennsylvania (bituminous)	485	4,039	8,267
South Dakota	---	3	2
Tennessee	48	394	604
Texas	6	38	44
Utah	12	197	405
Virginia	12	532	902
Washington	47	163	335
West Virginia	64	3,556	7,622
Wyoming	39	168	416
Other States c/	9	8	11
Total	1,532	16,916	32,531

a/ Returns for this item cover only mines of commercial size operated as partnerships or individual undertakings. They do not include owner-operators of 2,023 small so-called "local" mines who were reported either as salaried employees or wage earners on the simplified questionnaire used for such mines, and most of whom were known to be engaged in manual labor. Members of cooperatives in which a group of men work the mine jointly and divide the proceeds are classified as wage earners. b/ Includes (when located at the mines or in offices directly in connection therewith) salaried officers of corporation, administrative and technical employees, clerks, and other office force. c/ Arizona, California, Georgia, Idaho, North Carolina, and Oregon.

Table IV. - NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT BITUMINOUS COAL MINES IN THE UNITED STATES IN 1935, BY STATES

State	Number of wage earners employed in pay period nearest 15th of month a/												Average number of wage earners b/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Alabama .....	15,735	19,302	19,552	18,940	18,864	18,548	17,565	16,849	17,449	2,070	13,314	16,943	16,261	18,957
Arkansas .....	3,344	3,154	2,410	783	1,570	1,920	2,567	3,099	3,701	4,053	4,041	4,043	2,890	3,705
Colorado .....	9,203	8,528	8,236	7,209	6,407	5,824	5,665	6,554	8,017	9,136	9,519	9,576	7,823	8,127
Illinois .....	45,823	45,968	45,859	31,922	34,321	36,216	29,999	33,681	42,060	45,880	45,412	45,744	40,240	45,690
Indiana .....	11,511	11,619	11,695	9,772	10,077	10,133	8,673	9,398	9,729	10,067	10,530	10,708	10,326	11,643
Iowa .....	8,349	8,292	7,973	5,598	5,536	5,427	4,753	5,156	6,601	7,611	8,288	8,496	6,840	7,966
Kansas .....	4,092	3,979	3,824	2,876	2,688	2,614	2,698	3,141	3,533	3,898	4,191	4,155	3,474	3,850
Kentucky .....	50,880	51,131	51,401	49,690	49,029	48,606	48,635	49,385	48,976	44,517	49,265	49,236	49,229	52,279
Maryland .....	3,024	3,059	2,972	2,819	2,591	2,688	2,523	2,570	2,748	2,820	2,865	2,886	2,797	2,941
Michigan .....	1,553	1,576	1,557	1,257	1,074	1,199	418	980	1,366	1,463	1,537	1,648	1,302	1,451
Missouri .....	5,927	5,934	5,555	4,152	3,600	3,558	3,342	4,062	5,016	5,755	6,093	6,167	4,930	5,632
Montana .....	1,646	1,627	1,506	1,427	1,211	1,175	986	1,344	1,598	1,770	1,850	1,766	1,492	1,551
New Mexico .....	2,282	2,421	2,420	2,385	2,340	2,150	2,149	2,195	2,243	2,314	2,321	2,374	2,300	2,349
North Dakota .....	1,619	1,528	1,288	1,000	803	721	850	749	1,179	1,458	1,636	1,582	1,201	1,369
Ohio .....	29,254	29,262	29,248	25,825	26,044	26,790	23,211	24,732	27,607	28,916	28,534	28,857	27,356	29,546
Oklahoma .....	3,150	3,011	2,769	1,402	1,255	1,327	1,598	2,243	2,760	2,947	3,019	2,845	2,360	3,130
Pennsylvania .....	119,330	121,657	124,668	118,059	117,459	119,187	113,272	116,016	117,073	118,428	121,811	122,828	119,149	123,549
South Dakota .....	51	44	41	29	2	2	2	2	21	45	49	39	27	56
Tennessee .....	7,471	7,509	7,453	7,247	7,359	7,275	7,210	7,397	7,294	1,840	7,283	7,776	6,926	7,521
Texas .....	795	786	778	765	767	751	767	777	812	789	811	799	783	795
Utah .....	3,251	2,955	2,611	2,193	1,870	1,971	1,850	1,956	2,530	3,096	3,559	3,589	2,619	2,730
Virginia .....	12,316	12,372	12,549	12,182	12,254	12,116	12,200	12,151	12,123	12,825	13,331	13,408	12,486	12,950
Washington .....	2,232	2,264	2,181	2,164	2,056	2,011	1,874	1,986	2,050	2,059	2,434	2,424	2,145	2,162
West Virginia .....	106,526	107,163	107,928	105,247	105,312	104,727	104,280	104,992	104,603	108,442	108,851	108,328	106,367	109,090
Wyoming .....	3,834	3,750	3,731	3,531	3,519	3,679	3,771	3,938	4,248	4,390	4,423	4,441	3,938	3,967
Other States c/ ..	232	230	230	171	144	113	28	132	157	112	209	213	165	216
Total .....	453,430	459,121	460,435	418,645	418,152	420,728	400,886	415,486	435,494	426,701	455,176	460,871	435,426	463,222

a/ At a small number of mines, chiefly in Illinois and Indiana, where the available working time was divided by local agreement among two or more groups of employees, the figures purport to represent the number of men on the rolls drawing pay rather than the average number working. b/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. For further explanation see text discussion of "Average number of wage earners employed." c/ Arizona, California, Georgia, Idaho, North Carolina, and Oregon.

SUMMARY FOR THE INDUSTRY

## SECTION II

### WAGE EARNERS AND WAGES

#### AVERAGE NUMBER OF WAGE EARNERS EMPLOYED

##### Problems of Measurement in Coal Mines

The measurement of the working force in coal mining presents peculiar difficulties, which center around the seasonal fluctuation of demand, characteristic of many districts, and around the intermittency of operation. The following records of three mines in 1935 illustrate some of the complications involved.

Table V.- MONTHLY EMPLOYMENT AND OPERATING TIME AT REPRESENTATIVE BITUMINOUS COAL MINES IN 1935

Month	Mine A (Illinois)		Mine B (Illinois)		Mine C (Colorado domestic coal)	
	Men em- ployed 15th of month	Days mine oper- ated	Men em- ployed 15th of month	Days mine oper- ated	Men em- ployed 15th of month	Days mine oper- ated
January.....	376	23	352	23	226	18
February.....	375	20	354	20	225	18
March.....	376	21	340	21	216	15
April.....	377	15	340	1	181	12
May.....	384	21	3	0	102	10
June.....	372	19	3	0	95	2
July.....	385	19	3	0	50	3
August.....	381	20	5	0	52	5
September.....	372	15	337	11	168	13
October.....	366	23	350	11	201	14
November.....	369	20	357	17	210	14
December.....	373	22	359	20	208	19
Total days operated..	-	238	-	124	-	141
Average number of men: <i>Including</i> shut-down pay periods, if any.....	376	-	234	-	161	-
<i>Excluding</i> shut-down pay periods.....	376	-	348	-	161	-

The typical coal mine works with a normal crew of men sufficient to operate it at capacity. It works as long as necessary to fill its orders and then shuts down for a day, two days, a week, or longer. At any one time a small proportion of men is likely to be absent through sickness or other causes; but in most coal camps, where other employment is scarce, the workers remain on hand at least during the briefer periods of idleness, and the manager aims to maintain a full working crew for service whenever there are orders for coal. It is impracticable to store the product at the mine, and so he takes up the slack of fluctuating demand by intermittent operation. Thus Mine A, in table V, employed almost the same number of men in April as in January but operated only two-thirds as many days. Usually a shut-down lasts a day or two only, but not uncommonly it runs for weeks or months. Mine B, selected from Illinois, was shut down for over 4 months in the summertime but employed substantially the same number of men in each of the 8 months when it did operate.

The principal exception to this general practice of retaining a full working crew, whenever the mine works, arises in districts where the demand is chiefly for domestic fuel and therefore highly seasonal and where miners can find other work in the spring and summer months. These conditions are well illustrated in the Colorado "domestic" field, from which Mine C was selected. Under such conditions the number on the pay rolls falls off greatly in the summer and builds up to a full crew in the winter. At the same time, the number of mine working days declines during the summer. Mine C operated only 2 days in June, as against 19 days in December.

There are numerous mines, especially among the smaller ones and especially in the Rocky Mountains and the fields of the Mississippi Valley, that show seasonal fluctuations in the numbers on the rolls something like those of Mine C, though seldom as sharp. But the larger mines generally keep much the same crew on hand throughout the year.

One further exception to the custom of operating with a full crew develops during a prolonged business depression. If the market remains depressed for months and years, the mine owner may gradually reduce his working force by ceasing to take on new men as older ones leave or by shutting down higher-cost portions of the mine. Hence, in a period of long decline of demand, such as happened in 1930-33, there is a tendency for the number of men

on the rolls to decline even at the mines remaining in operation. The converse of this tendency appears when demand revives and operators again begin to build up their working force. Such conditions, accentuated by the shortening of hours, have prevailed from 1933 to the present, and the number on the rolls has tended to increase, even at mines that have remained in operation throughout the hard times.

#### Days of Mine Operation

What is the best way to measure the volume of employment in such an industry? First, it is obvious that the factor of days of mine operation is no less important than the factor of number on the rolls. Hence, it is one of the customs of the industry, as reflected in the statistics both of the State mine departments and the United States Bureau of Mines, to record the average number of days worked. Such a record of days worked has been maintained annually since 1890. In 1935 the average working time for the bituminous-coal industry as a whole was 179 days. In the relatively active year 1929 it was 219 days. Statistics of the days operated in each of the principal States are given in table VI.

#### Numbers Employed on Days of Operation

The second item needed in measuring volume of employment is the average number of men employed *when the mines are in operation*. If accurately determined, this affords a true picture of the working force of the industry, and the product of the average number of men employed times the number of days worked will give at least a rough measure of the total number of man-days of labor expended. The total number of man-days, so computed, is shown in table VI.

It is also clear from the illustrations given above that in computing the average working force it is well to exclude the pay periods when the mines are shut down. Inclusion of the shut-down periods artificially depresses the average below the number who report for duty on the days of mine operation. Thus, at Mine B (table V) the average of all 12 months, including the 4-month period from May to August when the only men employed were watchmen and pumpers, gives a figure of 234 men, but the actual



average of the men at work on the 124 days when the mine was operating was about 348. The loss of working time and of income suffered by the men attached to this mine during the long period of shut-down must not be lost sight of in the measurement of work opportunity afforded by the mines, but the loss is more accurately measured by the factor of number of days worked. To measure this element of intermittent operation, both in the factor of number of days and in the factor of average number employed, would be to count double.

#### Total Numbers on Monthly Pay Rolls

It is also of interest to know the total numbers on the pay rolls in each month, including the workers both in the mines that are working and in those that have been shut down. Such totals on the rolls are given for each State in table IV and for all important counties in the detailed tables in section IV, and they are of much interest in indicating the number of men drawing pay at the several seasons of the year.

#### Effects of Shut-down Periods on the Average Number Employed

To indicate the numbers employed as accurately as possible, two averages have therefore been computed, based upon the monthly employment returns. In the first, all pay-roll periods have been covered, including periods when the mine was shut down. This is the customary average computed at previous censuses of mines and quarries and also computed in connection with corresponding employment statistics for manufacturing. The second average is new to the analysis of census employment records. It excludes all shut-down periods, when the mine was giving employment only to maintenance men or possibly to no workers at all. The latter average is necessarily computed separately for each mine, and the total of the individual averages gives the "average number of wage earners excluding shut-down periods" shown in table IV and in the detailed State and county tables in section IV.

It will be noted from table IV that the totals of the numbers on the rolls in 1935 fluctuated from a minimum of 400,886 in July to a maximum of 460,871 in December. The simple 12-month average, including shut-down periods, was 435,426 men. The average, excluding shut-down periods, was 463,222 men. The latter figure checks closely with the Bureau of Mines "average number of men

employed" in the same year, which represents the best information available to the Bureau as to the average number of men working on the days when the mines were in active operation. This figure amounted in 1935 to 462,403 men.<sup>1</sup>

#### Employment Records of Bureau of Mines and Census Compared

The difficulties arising from the inclusion of such shut-down periods in the computation of the average constitute the principal cause of the differences between the Bureau of Mines standard series of "average number of men employed", which have been published annually since 1890, and the Census Bureau "average number of wage earners", as published at the decennial censuses of mines and quarries. There are other causes of difference, which need not be discussed here, but the check furnished by the twofold analysis of the 1935 monthly returns indicates that inclusion of shut-down pay rolls depresses the average in this year by 27,796 men, or 6 percent. In some States the difference is as high as 15 percent.

The distorting effects of including shut-down periods reach a maximum at a time of general strike. To cite one example, the Census of Mines and Quarries of 1919 gives "the average number of wage earners employed during the year" at coal mines in Illinois as 73,780. But this average is depressed by including November, in which month the number on the pay rolls was only 11,000 because of a general strike. On January 15, 1919, according to the census returns, the number on the rolls was 84,197, and this agrees closely with the Bureau of Mines figure of 85,020 men employed. It is believed, therefore, that under the intermittency of operation characteristic of the bituminous-coal industry the simple 12-month average seriously understates the number of workers actually engaged on the days when the mines are in operation. Over the country as a whole, that number is more likely to be represented by the total on the rolls in the months of peak demand. Even in the peak months, there are certain to be considerable numbers of mines shut down, either by labor disputes, break-downs, or

<sup>1</sup>See F. G. Tryon, L. Mann, W. H. Young, and R. McKinney, *Bituminous Coal Tables, 1935-36* (Mimeo.; U. S. Dept. Int., Bur. Mines, Feb. 10, 1937). The two figures are not exactly comparable because the Bureau of Mines figure includes, in some cases, men who were reported in the census questions as salaried employees rather than as wage earners and because the average of the monthly wage earners includes men who were on the rolls but not actually working at a few mines operating under share-the-work agreements. The extent of such share-the-work agreements is explained in the footnotes to the detailed tables for Illinois and Indiana. The Bureau of Mines figure also includes 95 men in Alaska.

other causes, and the latter fact explains how in some cases the average of all monthly returns, excluding shut-down periods, can exceed the total for any single month (including shut-downs).

It appears, therefore, that the measurement of employment in the coal industry requires two factors - the number of days operated by the mines and the average working force. If the days-operated factor is taken into account, the best measure of the working force is the average number on the active pay rolls, excluding periods of nonoperation.

#### Days Worked in 1935

To supplement the statistics of the average number of wage earners computed from the monthly employment records in this report, table VI is reproduced from the annual coal chapters of the Bureau of Mines.<sup>2</sup> The Bureau's 1935 record of number of employees, given in columns (8) to (11), as already pointed out, is substantially the same as the average number of wage earners, computed from the monthly pay rolls excluding shut-down periods. Column (12) gives the average number of days operated, computed by weighting the working time of each mine by the number of its employees. Column (13) gives the only measure now available of the man-days of labor. A small proportion of the mines keep accurate records of man-days or man-hours worked, which are utilized by the Bureau wherever reported. For the great majority of mines, the man-days were computed by multiplying the average number of men employed at the mine times the number of days worked. Although the computations are made mine by mine, the resulting product is necessarily an approximation and is subject to a considerable margin of error, which will be fully discussed in future reports of this series.

Until the American coal industry arranges to keep an accurate record of man-hours worked, all computations of accident rates, daily earnings, and output per man will remain subject to serious qualifications. In the meantime, the computed product of men times days remains the only comprehensive measurement available.

<sup>2</sup>F. G. Tryon, L. Mann, and W. H. Young, "Bituminous Coal," *Minerals Yearbook*, 1937 (In press; U. S. Dept. Int., Bur. Mines).

Table VI.— PRODUCTION, VALUE, MEN EMPLOYED, DAYS OPERATED, MAN-DAYS OF LABOR, AND OUTPUT PER MAN PER DAY AT BITUMINOUS MINES IN THE UNITED STATES IN 1935, AS GIVEN IN THE ANNUAL COAL REPORTS OF THE U. S. BUREAU OF MINES

(Exclusive of product of wagon mines producing less than 1,000 tons. Alaska is included.  
For notes as to comparability of 1935 figures of employment in Illinois, Indiana, and Pennsylvania with those for 1934, see detailed tables by States.)

State	(1)	(2)	(3)		(4)	(5)	(6)		(7)	(8)			(9)	(10)	(11)	(12)	(13)	(14)
	Loaded at mines for shipment by rail or water	Commer- cial sales by truck or wagon	Net tons		Total quantity	Value (thou- sand dol- lars)	Aver- age per ton	Number of employees			Total	Aver- age number of days mines oper- ated	Man- days of labor b/ (in thou- sands)	Aver- age tons per man per day <sup>c/</sup>				
			Other sales to local trade, or used by employees, or taken by locomotives at tipples	Used for power and heat or made into coke at mines <sup>a/</sup>				Under- ground	In strip pits	All others								
Alabama .....	8,089,737	268,009	86,783	59,981	8,504,510	\$ 18,251	\$2.15	16,190	152	2,564	18,906	161	3,043	2.79				
Alaska .....	112,260	----	5,971	1,194	119,425	502	4.20	60	---	35	95	249	24	5.05				
Ariz., Calif., Ida., and Ore.	7,472	8,420	7,932	1,020	24,844	95	3.82	82	---	21	103	140	14	1.72				
Arkansas .....	1,110,787	8,230	2,383	11,879	1,133,279	3,448	3.04	3,218	42	483	3,743	123	459	2.47				
Colorado .....	4,379,481	1,169,675	149,975	211,380	5,910,511	13,675	2.31	6,820	20	1,313	8,153	177	1,447	4.08				
Georgia and North Carolina	19,719	2,600	120	295	22,734	58	2.55	90	---	19	109	160	17	1.30				
Illinois .....	37,154,075	6,050,159	609,102	712,133	44,525,469	69,516	1.56	35,271	2,132	6,345	43,748	171	7,460	5.97				
Indiana .....	14,098,465	976,602	452,132	227,015	15,754,214	23,722	1.51	7,281	2,037	2,029	11,347	176	1,992	7.91				
Iowa .....	2,059,149	1,502,268	53,654	35,092	3,650,163	9,002	2.47	6,998	223	817	8,038	162	1,306	2.80				
Kansas .....	2,368,581	303,004	4,504	10,075	2,686,164	4,943	1.84	2,396	990	510	3,896	173	672	4.00				
Kentucky .....	39,393,354	727,664	372,272	267,649	40,760,939	65,956	1.62	44,847	15	7,477	52,339	182	9,520	4.28				
Maryland .....	1,404,096	243,979	20,768	9,216	1,678,059	3,266	1.95	2,611	---	351	2,962	179	529	3.17				
Michigan .....	263,628	322,653	12,959	29,144	628,384	2,017	3.21	1,227	34	206	1,467	158	232	2.70				
Missouri .....	2,896,101	660,236	65,772	23,887	3,645,996	6,924	1.90	4,068	863	779	5,710	159	907	4.02				
Montana .....	2,585,818	158,579	11,174	3,335	2,758,906	4,146	1.50	1,170	56	345	1,571	189	297	9.30				
New Mexico .....	1,263,778	62,689	22,905	39,505	1,388,877	3,681	2.65	1,891	---	464	2,355	185	435	3.19				
North Dakota ..	1,435,934	437,079	74,329	8,168	1,955,510	2,395	1.22	668	424	273	1,365	188	257	7.61				

Ohio .....	17,867,820	2,707,007	455,383	122,865	21,153,151	35,111	1.66	25,369	871	3,284	29,524	162	4,768	4.44
Oklahoma .....	1,148,474	60,028	7,878	15,018	1,229,398	2,879	2.34	2,491	199	461	3,151	122	395	3.19
Pennsylvania ..	81,953,364	4,679,156	3,235,652	a/1,536,498	91,404,670	172,170	1.88	108,788	399	14,922	124,109	180	22,307	4.10
South Dakota ..	1,362	11,241	95	45	13,243	21	1.59	21	18	16	55	98	5	2.46
Tennessee .....	3,886,133	150,478	45,279	a/ 55,912	4,137,802	7,435	1.80	6,292	---	1,239	7,531	181	1,362	3.04
Texas .....	716,214	32,008	1,575	7,732	757,529	654	.86	658	28	106	792	177	140	5.42
Utah .....	2,808,321	101,064	19,811	a/ 17,722	2,946,918	6,091	2.07	2,063	---	689	2,752	188	517	5.70
Virginia .....	9,260,079	79,805	70,950	a/ 256,184	9,667,018	17,128	1.77	11,033	---	2,010	13,043	189	2,468	3.92
Washington .....	1,167,303	351,208	21,038	a/ 19,657	1,559,206	4,686	3.01	1,755	---	503	2,258	192	433	3.60
West Virginia..	95,809,219	733,122	1,897,796	a/ 738,924	99,179,061	169,164	1.71	93,483	2	15,830	109,315	192	20,945	4.74
Wyoming .....	4,807,434	153,213	65,427	151,068	5,177,142	11,127	2.15	3,101	28	857	3,966	217	862	6.00
Total 1935 <sup>c</sup> ..	338,068,658	21,960,252	7,773,619	a/4,570,593	372,373,122	658,063	1.77	389,942	8,533	63,928	462,403	179	82,803	4.50
Total 1934 ..	328,431,697	18,739,320	7,374,143	a/4,822,862	359,368,022	628,383	1.75	384,947	7,652	65,412	458,011	178	81,724	4.40

a/ Includes coal made into coke at mines in the following States in 1935: Colorado, 75,810 tons; Pennsylvania, 878,144; Tennessee, 6,047; Utah, 11,808; Virginia, 235,498; Washington, 3,978; West Virginia, 256,617; a grand total of 1,467,902 tons in 1935, against 1,647,805 in 1934.

b/ Based upon (1) the "reported" number of man-shifts where the operator keeps a record thereof; otherwise upon (2) the "calculated" number of man-shifts obtained by multiplying the average number of men employed underground and on the surface at each mine by the number of days worked by the mine and tippie, respectively. Using throughout the "calculated" man-shifts as developed before the year 1932, namely, the product of the total number of men employed at each mine times the tippie days, the average output per man per day was 4.56 in 1935, a figure which is strictly comparable with 5.06 in 1930, previously published.

c/ The figures relate only to active mines of commercial size that produced bituminous coal in 1935. The number of such mines in the United States was 6,315 in 1935 and 6,258 in 1934.

Size classes of commercial mines in 1935: There were 132 mines in Class 1A (500,000 tons and over) producing 26.6 percent of the tonnage; 429 mines in Class 1B (200,000 to 500,000 tons) with 35.6 percent; 479 mines in Class 2 (100,000 to 200,000 tons) with 18.5 percent; 503 mines in Class 3 (50,000 to 100,000 tons) with 9.7 percent; 1,056 mines in Class 4 (10,000 to 50,000 tons) with 6.8 percent; 3,716 mines in Class 5 (less than 10,000 tons) producing 2.8 percent.

Methods of mining in 1935: The tonnage by hand was 37,306,132; shot off the solid, 17,422,112; out by machines, 293,664,208; mined by stripping, 23,647,292; not specified, 333,378.

## DISTRIBUTION OF WAGE PAYMENTS

Wage payments are regarded by students of merchandising as among the most significant indexes of the purchasing power of an area, and there is a widespread demand among manufacturers and wholesale merchants for information on pay rolls by regions or by counties, as an aid to directing sales effort and thereby reducing the costs of distribution. The detailed tables in section IV show the number of wage earners and the total wages paid at bituminous-coal mines in each county for which the information can be published without disclosure of individual operations.

The county data for coal mining has been further combined with those for other branches of industry and trade into a composite of total employment and pay rolls in each county.<sup>3</sup>

<sup>3</sup>*Census of Business: 1935, Personnel and Pay Roll in Industry and Business, and Farm Personnel, by Counties*, (U. S. Dept. Com., Bur. of the Census, June 1937).

## SECTION III

### LOCATION OF THE MARKET FOR MINE SUPPLIES

Table VII shows by States and major subdivisions the distribution of the expenditures for supplies and materials made by the bituminous-coal industry in 1935. West Virginia led all other States with purchases of \$17,119,874, slightly exceeding the Pennsylvania bituminous industry which reported \$16,890,449. If anthracite were included, however, Pennsylvania would show a commanding lead.

Fully two-thirds of the bituminous industry's supply bill is concentrated in the northern and middle Appalachian fields. But while the Appalachian area remains the largest outlet, per-ton expenditures for supplies are higher in the Mississippi Valley and the far West. Against a weighted average of 17.3 cents in West Virginia, per-ton supply costs in Illinois were 22.5 cents, in Indiana 25.3 cents, and in Wyoming 25.4 cents. In part, these higher ratios reflect differences between shaft and drift mines or local variations in timber costs, but in part, also, they reflect higher degrees of mechanization, either underground or in strip mining. Highest of all in per-ton supply costs are some of the smaller States where mining conditions are abnormally difficult or the proportion of stripping is exceptionally high. In many areas, as elsewhere pointed out, these per-ton ratios are to be considered approximate only, but while the comparisons are not exact, they serve to bring out the broader relationships.

The distribution of the mine supply bill by counties is shown in the map of figure 1. McDowell County, West Virginia, heart of the Pocahontas field, led all other counties in 1935 with an expenditure of \$3,272,986. This one county purchased more supplies than many entire States, and in the map, where one black dot represents an expenditure of \$100,000, the county appears as solid black. Other areas of maximum density of concentration are Fayette, Raleigh, and Logan, in southern West Virginia; Marion in northern West Virginia; Cambria, Somerset, and Indiana, in eastern Pennsylvania; Allegheny, Washington, Fayette, and Westmoreland, in the Pittsburgh district; Franklin and Christian Counties, Illinois; Harlan County, Kentucky; and Jefferson County, Alabama. In each of these counties mine operators reported over a million dollars spent for supplies in 1935.

Table VII.- EXPENDITURES FOR SUPPLIES, FUEL, AND PURCHASED ELECTRIC POWER AT BITUMINOUS COAL MINES BY STATES AND MAJOR DIVISIONS IN 1935

(Exclusive of Alaska and of wagon mines producing less than 1,000 tons a year)

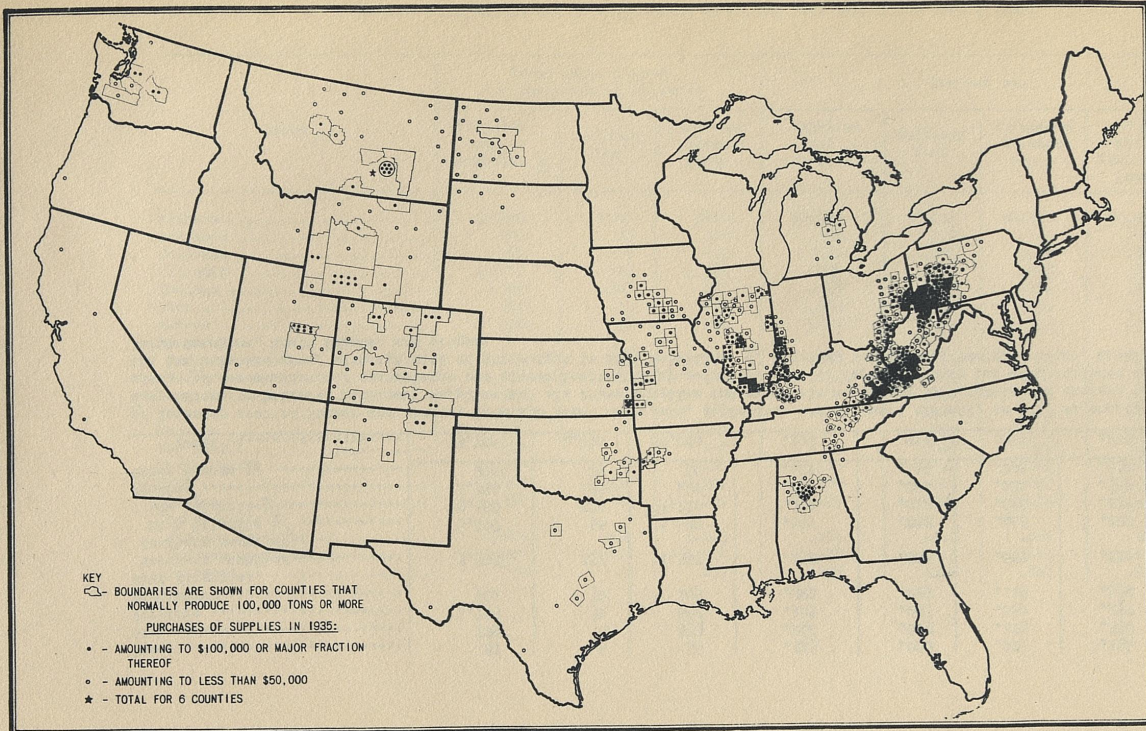
State	Total expenditures (in thousands of dollars)			Per net ton			
	Supplies and materials <sup>a/</sup>	Colliery fuel	Purchased electric power	Supplies and materials	Colliery fuel	Purchased electric power	Total supplies, fuel, and power
Alabama .....	\$2,206	\$120	\$880	\$0.259	\$0.014	\$0.104	\$0.377
Arkansas .....	403	20	188	.356	.017	.166	.539
Colorado .....	1,324	213	501	.224	.036	.085	.345
Illinois .....	10,041	878	2,346	.225	.020	.053	.298
Indiana .....	3,990	307	877	.253	.019	.056	.328
Iowa .....	805	73	276	.220	.020	.076	.316
Kansas .....	700	15	254	.261	.006	.094	.361
Kentucky:							
Eastern counties .....	6,168	254	1,975	.189	.008	.060	.257
Western counties .....	1,228	114	383	.151	.014	.047	.212
Maryland .....	311	14	93	.185	.008	.056	.249
Missouri .....	1,106	34	381	.303	.009	.105	.417
Montana .....	938	6	147	.340	.002	.053	.395
New Mexico .....	421	63	105	.303	.045	.076	.424
North Dakota .....	369	24	121	.189	.012	.062	.263
Ohio .....	3,865	208	1,211	.183	.010	.057	.250
Oklahoma .....	362	24	110	.295	.020	.089	.404
Pennsylvania:							
Eastern counties .....	6,845	664	3,015	.196	.019	.086	.301
Western counties .....	10,046	608	4,004	.178	.011	.071	.260
Tennessee .....	775	69	277	.167	.017	.067	.251



Texas .....	87	6	16	.115	.008	.021	.144
Utah .....	709	8	333	.240	.003	.113	.356
Virginia .....	1,783	31	667	.185	.003	.069	.257
Washington .....	501	30	185	.321	.019	.119	.459
West Virginia:							
Northern counties .....	3,593	177	1,357	.152	.007	.057	.216
Southern counties:							
High Volatile <u>b/</u> .....	4,167	56	1,682	.157	.002	.063	.222
Low Volatile <u>b/</u> .....	9,360	595	3,210	.192	.012	.066	.270
Wyoming .....	1,312	106	420	.254	.020	.081	.355
Other States <u>c/</u> .....	290	79	66	.421	.115	.096	.632
Total .....	73,705	4,796	25,080	.198	.013	.067	.278

a/ Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. b/ For statistical convenience the classification is by counties. All of Fayette County has been included with the low volatile group although much of its output is high volatile. c/ Arizona, California, Georgia, Idaho, Michigan, North Carolina, South Dakota, and Oregon.

Figure 1.-DISTRIBUTION OF THE MARKET FOR MINE SUPPLIES IN THE PRODUCTION OF BITUMINOUS COAL, 1935



TRYON, YOUNG, AND BERQUIST  
U. S. BUREAU OF MINES

MINERAL TECHNOLOGY AND OUTPUT PER MAN STUDIES  
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At the other extreme stand numerous counties in which the annual supply bill is less than \$50,000 and is therefore too small to be represented by a single black dot. These cases are indicated by the open circles on the map. Some are so small that the county boundaries are not shown in outline, that distinction being reserved for the counties normally producing as much as 100,000 tons a year. Each circle, however, represents a center of coal-mining activity and a potential market for the purchase of mine supplies.

At the 1929 Census, operators were asked for the value of new machinery purchased, and they reported expenditures of \$34,947,424 for that purpose. The 1935 canvass related only to consumable supplies, but the regional distribution of the supply bill may doubtless also be taken as a rough indication of the distribution of the potential market for capital equipment.

Attention is called to these county statistics because of their possible interest to the makers and distributors of mine supplies. Manufacturers may find them useful in scheduling production; and sales managers, in seeking more efficient distribution. Details for all counties that can be shown without disclosing individual operations are given in section IV of this report.

## SECTION IV

### DETAILED STATISTICS BY STATES AND COUNTIES

The following series of tables presents detailed figures for each county which can properly be shown without danger of disclosing individual operations. The several States are arranged in alphabetical order, and two tables are given for each State. Table 1, in each case, covers (1) the number of mines active in 1935, (2) tons of coal produced, (3) total value of products, (4) expenditures for supplies, colliery fuel, and purchased power, and (5) total wages paid in 1935. Table 2 covers the number of wage earners on the rolls at or near the 15th of each month and the average number for the year, computed both to include and to exclude shut-down periods when the mine was employing maintenance men only.

In using these tables, the reader may also find it of interest to refer to the corresponding county tables in the annual reports of the U. S. Bureau of Mines. The latter cover substantially the same list of counties and give details on the subjects listed in table VI on pages 18 and 19.

#### SCOPE OF THE CANVASS

The mining of Pennsylvania anthracite is treated in Part II of this report; the statistics here presented cover the bituminous-coal industry, exclusive of Alaska.

For reasons of statistical convenience the figures include the small amounts of lignite produced in the Dakotas, Texas, and Montana, and of anthracite and semianthracite in Arkansas, Colorado, Virginia, and New Mexico. While these coals constitute a small proportion of the national total, locally they represent distinct and important industries. To meet the needs of those directly interested, separate figures on the output of lignite, semianthracite, and anthracite are given in detail in the reports of the Bureau of Mines.<sup>1</sup> The total quantity and value of these

<sup>1</sup>See Statistical Appendix to *Minerals Yearbook, 1935* (U. S. Dept. Int., Bur. Mines, 1936), p. 306. See also F. G. Tryon, L. Mann, W. H. Young, and R. McKinney, *Bituminous Coal Tables, 1935-36* (Mimeo.; U. S. Dept. Int., Bur. Mines, Feb. 10, 1937).

nonbituminous coals included in the present statistics are summarized below:

Kind of coal and area	Coal produced (tons of 2,000 lbs.)	Value of coal at mine	Average number of men employed
Anthracite and semianthracite (outside of Pennsylvania) <sup>a</sup> :			
Virginia.....	186,503	\$ 430,000	624
Arkansas, Colorado, and New Mexico.....	236,587	823,000	1,028
Total.....	423,090	1,253,000	1,652
Lignite <sup>b</sup> :			
North Dakota .....	1,955,510	2,395,000	1,365
South Dakota .....	13,243	21,000	55
Montana <sup>c</sup> .....	59,868	108,000	114
Texas .....	721,558	557,000	526
Total .....	2,750,179	3,081,000	2,060

<sup>a</sup>Includes coal classified as anthracite and semianthracite in *The Coal Fields of the United States* (U. S. Geological Survey Professional Paper 100-A).

<sup>b</sup>Includes all coal produced in the area mapped as lignite in U. S. Geological Survey Professional Paper 100-A. Note that subbituminous coal, sometimes known as black lignite, is not included.

<sup>c</sup>Includes output of Daniels, Dawson, Richland, Roosevelt, Sheridan, Valley, and Wibaux Counties.

The census data for these special coals regarding cost of supplies and materials, colliery fuel, purchased power, and wages, are given by counties in the detailed tables of this report, insofar as they can be shown without disclosing individual operations. In several cases, however, the number of producers is so small that separate data cannot properly be published.

#### PROBLEM OF SMALL MINES

In all statistics of the bituminous-coal industry, the recording of the operations of small mines constitutes a difficult problem. While most of the output is produced by large-scale corporate enterprises, the industry is also characterized by a great number of very small producers. The total number of wagon mines, country coal banks, or "snowbirds" as they are sometimes called, runs into many thousands. These little mines open and close with the season. It is often impossible to locate their

owners, and their records are meager in the extreme. A complete enumeration of small mines would be very costly, and in practice it is advisable to set a minimum size limit, below which the canvass does not attempt to go. In recent years the Bureau of Mines has set this limit at 1,000 tons a year, a quantity equivalent to about \$2,000 in value of products, and this limit was likewise adopted for the census enumerations of 1929 and 1935.<sup>2</sup>

While no count of the little mines has ever been absolutely complete, reasonably accurate records of their production and employees are usually available from the State mine inspection departments, whose duties require periodic visits to all coal-mining operations. These State records were drawn upon, where direct reports were not received by the Bureau of Mines, and in most areas the count of tonnage and men employed at mines with output of over 1,000 tons per year is believed to be substantially complete. In still other districts complete registration with the State authorities was not available, and some of the smaller operations have doubtless been passed over. All names on the Bureau's lists have been accounted for, however, and the enumeration is more complete than any obtained in recent years, because of increased interest in the numbers of small mines resulting from the N. R. A. coal code. The omissions, in point of tonnage, are insignificant.

To obtain complete data for the small mines regarding cost of materials and wages, on the other hand, would require an elaborate field canvass by a large force of agents, and the results would not justify the cost. A simplified questionnaire<sup>3</sup> was therefore dispatched to the small mines, and some thousands of replies to the Bureau of Census inquiries were received. But where no information was obtainable on the items of supplies and wages, the missing item was supplied by estimate, based upon the mine's known production.

<sup>2</sup>The census enumeration of 1929, which was conducted independently of the Bureau of Mines, covered fewer small mines than did the Bureau of Mines canvass of the same year, but reported 0.45 percent greater tonnage and 1.34 percent greater value of products. The difference in tonnage was due to differences in figures reported, often for different periods (fiscal vs. calendar year) and inclusion by the Census Bureau of certain reports obtained by field agents from operators not replying to the Bureau of Mines. The difference in value was due to these causes and to return, by some operators, of higher per-ton values to the Census Bureau, including, in some cases, selling expenses.

<sup>3</sup>See Appendix, form 6-997C.

## ACCURACY OF THE RETURNS

In discussing the accuracy of the results, it is necessary to distinguish between the standard inquiries regarding production and employment, regularly carried in previous reports of the Bureau of Mines, and the special inquiries relating to expenditures, wages, and salaries.

The reports collected, like all others obtained by the Bureau of Mines, were made possible through the voluntary cooperation of mineral producers. The 1935 Census of Business imposed no legal penalty upon firms declining to report. The Bureau of Mines itself has no statutory power to compel the submission of reports and has sought none. The system of voluntary reporting has been employed in the field of mineral resources since 1883 and has served a useful purpose in measuring the simpler facts of production, value, supply and demand, the trends of employment, mechanical equipment, operating practice, and output per man.

The standard inquiries relating to these physical facts of mine operation are answered without reluctance by substantially all producers. In most years the returns of coal production voluntarily submitted have accounted for approximately 97 percent of the total, and the remaining 3 percent, consisting chiefly of the small mines previously referred to, has been ascertained with reasonable accuracy from the records of the State departments of mines, which have statutory authority to require reports, or occasionally from railroad carloadings. In 1935, also, the direct returns on production, employment, and operating practice were substantially complete, and the few mines which did not report by correspondence could be traced satisfactorily through the public records of the States.

As regards the special questions relating to the Census of Business, the returns were less complete. The funds available permitted no general canvass by field agents, and the workers drawn from the relief rolls, who were available for field interviews, lacked contacts and acquaintance with the industries. Accounting departments of coal companies were overburdened at the time with other requests for special information. In bituminous-coal mining, the relations of the Federal Government to the industry were also affected by litigation challenging the constitutionality of the Bituminous Coal Conservation Act of 1935. Certain companies,

particularly in Kentucky, although willing to supply the production data customarily requested by the Bureau of Mines, declined to furnish information on the supplementary items of the schedule, especially on wages paid.

As the purpose of the census was to determine the total volume of the industry's expenditures for supplies, wages, and salaries, it seemed best, where a reporting company declined to furnish information, to include an estimate in order to round out the totals. As the canvass of production and employment was in every district substantially complete, and as the returns for the other items in most districts covered all but a small part of the tonnage, estimates for the missing items could be supplied with a high degree of assurance. All estimates were made either for individual mines or for groups of mines within the same county where conditions were known to be similar. The basis used in each case was the known production and number employed at the mine or mines in question, to which were applied typical ratios per ton or per man derived from the experience of comparable mines in the same area. Thus, missing expenditures for supplies, fuel, and power were estimated by multiplying the known tonnage by the per-ton expenditures of the mines reporting these items, and similar methods were used in the case of wages. The task was facilitated by the detailed records of per-ton costs collected and published by the N. R. A. The cost findings of the Bituminous Coal Code unit of the N. R. A. had provided in each area a body of dependable information on typical per-ton costs, which could be used to check the reasonableness of the census returns. All estimates were made personally by the professional authors, either directly or through skilled assistants, drawing upon personal knowledge and extended contacts with the industry. These factors - the existence of a complete record of production, the availability of N. R. A. cost reports for purposes of check, and long-standing acquaintance with the economics of coal mining - were believed to justify a resort to interpolation of missing items on a scale rather greater than standard procedure in the editing of defective statistical returns might justify.

The extent of the estimates made for each of the major items is indicated in the footnotes to the detailed State tables.<sup>4</sup> For the industry as a whole, the proportion of the recorded totals in this report represented by such estimates is as follows:

<sup>4</sup>See State tables at end of this section.



Estimated of total for	Percent
Value of products.....	5.2
Salaries.....	10.0
Supplies, fuel, and power..	7.5
Wages paid.....	10.3

The results of the canvass are believed to be sufficiently accurate to show the total volume of expenditures made by the coal industry for supplies, fuel, power, and wages and to indicate the long-time relationships of these items set forth in the summary tables<sup>5</sup> of this report. No determination of these expenditures by the methods of a general census, however, can attain the accuracy of cost accounting, such as would be needed for the regulation of prices, and any per-ton ratios computed from the 1935 returns should be considered as approximate rather than exact and not as affording precise comparisons of costs between districts or between types of mines.

Mention has already been made of the fact that many significant cost items are not covered by the census inquiries. These unreported items often constitute an important part of the total cost, and they vary widely from mine to mine.

The results of the canvass point to the conclusion that accurate determination of per-ton costs, investments, and profits, and probably also of the controversial aspects of wage differentials, requires a public agency vested with statutory powers to compel the submission of reports and to prescribe the forms of accounts.

STATE BY STATE TABLES

State by State tables showing detailed statistics follow.

<sup>5</sup>See tables I, II, III, IV, VI, and VII.

ALABAMA

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN ALABAMA IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Bibb .....	9	459,354	\$1,035,005	---	\$1,035,005	\$103,095	\$17,628	\$40,746	\$161,469	\$676,983
Blount and Cullman ...	12	124,057	266,900	---	266,900	30,817	2,500	5,981	39,298	202,436
Jefferson .....	52	4,440,634	9,224,495	\$4,044	9,228,539	1,207,811	40,417	423,976	1,672,204	5,353,670
Marion and Tuscaloosa	18	282,119	725,557	---	725,557	81,575	65	31,567	113,207	392,966
St. Clair and Shelby .	23	1,240,609	3,016,127	---	3,016,127	260,826	55,742	141,150	457,718	1,691,645
Walker .....	45	1,850,749	3,767,607	---	3,767,607	497,135	3,209	224,771	725,115	2,284,224
Other counties (Stowah, Fayette, Jackson, and Winston) .....	5	106,988	215,238	---	215,238	25,159	450	11,339	36,948	135,788
Total d/.....	164	8,504,510	18,250,929	4,044	18,254,973	2,206,418	120,011	879,530	3,205,959	10,737,712

BITUMINOUS COAL - ALABAMA

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 7.2 percent of the total value of products, 11.1 percent of the expenditures for supplies, etc., and 30.5 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN ALABAMA IN 1935, BY COUNTIES.

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Bibb .....	988	1,131	1,148	899	1,108	1,101	1,051	1,035	1,043	109	671	1,017	942	1,134
Blount and Cullman .....	335	407	416	402	400	392	373	358	373	50	284	355	346	401
Jefferson .....	7,001	9,569	9,603	9,652	9,436	9,299	8,848	8,586	8,725	1,079	7,251	8,770	8,151	9,476
Marion and Tuscaloosa ..	642	786	795	770	768	755	734	707	729	105	552	697	670	791
St. Clair and Shelby ...	2,017	2,371	2,404	2,340	2,314	2,285	2,190	2,120	2,180	275	1,395	2,066	1,996	2,322
Walker .....	4,528	4,771	4,916	4,617	4,584	4,465	4,136	3,819	4,161	403	2,968	3,793	3,930	4,572
Other counties (Etowah, Fayette, Jackson, and Winston) .....	224	267	270	260	254	251	233	224	238	49	193	245	226	261
Total .....	15,735	19,302	19,552	18,940	18,864	18,548	17,565	16,849	17,449	2,070	13,314	16,943	16,261	18,957

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

ARKANSAS

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN ARKANSAS IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures			Total wages paid in 1935	
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power		
Franklin .....	9	137,236	\$392,147	---	\$392,147	\$50,727	\$1,952	\$15,195	\$67,874	\$193,961
Johnson and Pope ....	14	197,792	670,427	---	670,427	72,181	5,845	44,093	122,119	396,043
Logan .....	16	337,792	1,191,636	\$725	1,192,361	148,552	2,555	66,575	217,682	630,539
Sebastian .....	26	460,459	1,193,368	923	1,194,291	131,991	9,266	61,897	203,154	750,589
Total d/.....	65	1,133,279	3,447,578	1,648	3,449,226	403,451	19,618	187,760	610,829	1,971,132

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 18.4 percent of the total value of products, 6.2 percent of the expenditures for supplies, etc., and 40.8 percent of the wages paid in 1935, many of the smaller mines furnishing no data on wages.

BITUMINOUS COAL - ARKANSAS

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN ARKANSAS IN 1935, BY COUNTIES.

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Franklin .....	311	308	262	131	190	236	238	347	389	436	448	451	312	379
Johnson .....	732	621	383	186	191	17	120	404	724	770	781	773	475	716
Logan .....	1,034	970	685	203	336	523	803	897	1,121	1,235	1,190	1,201	850	1,050
Pope .....	180	177	124	15	15	15	157	161	160	215	185	170	135	171
Sebastian .....	1,087	1,078	956	248	838	1,129	1,249	1,270	1,307	1,399	1,437	1,448	1,120	1,389
Total .....	3,344	3,154	2,410	783	1,570	1,920	2,567	3,099	3,701	4,053	4,041	4,043	2,890	3,705

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

COLORADO

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN COLORADO IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Boulder .....	26	498,773	\$1,376,508	---	\$1,376,508	\$132,725	\$35,767	\$40,325	\$208,817	\$844,184
Delta .....	9	52,676	124,583	---	124,583	14,390	6,367	620	21,377	59,341
Elbert .....	6	6,754	11,530	---	11,530	1,935	440	323	2,698	7,638
El Paso .....	10	302,086	685,370	---	685,370	82,756	15,032	21,893	119,681	478,551
Fremont .....	31	417,029	1,140,094	---	1,140,094	118,010	10,843	34,886	163,739	722,949
Garfield .....	10	40,315	92,221	---	92,221	12,547	3,455	140	16,142	48,972
Gunnison .....	13	491,254	957,660	---	957,660	89,555	9,298	19,979	118,832	593,708
Huerfano .....	30	668,748	1,596,164	4,715	1,600,879	116,588	5,445	136,713	258,746	978,868
Jefferson .....	5	137,533	290,799	---	290,799	33,099	3,648	17,044	53,791	192,535
La Plata .....	14	28,660	67,427	---	67,427	9,635	172	505	10,312	44,880
Las Animas .....	33	953,791	2,026,273	671	2,026,944	197,091	23,894	104,194	325,179	1,366,031
Mesa .....	16	65,755	132,792	---	132,792	18,239	188	1,917	20,344	89,897
Moffatt .....	4	6,804	15,228	---	15,228	3,658	---	---	3,658	8,949
Montezuma .....	6	7,298	17,436	---	17,436	1,815	---	194	2,009	13,495
Rio Blanco .....	4	4,518	8,900	---	8,900	1,192	---	345	1,537	5,838
Routt .....	18	789,905	1,933,528	4,039	1,937,567	193,995	34,840	33,800	262,635	944,648
Weld .....	20	1,408,375	3,136,658	654	3,137,312	288,809	62,122	86,594	437,525	1,437,067
Other counties-northern (Jackson and Larimer) .....	5	26,496	51,753	58	51,811	6,945	1,616	962	9,523	28,859
Other counties-southern (Montrose, Pitkin, and San Miguel) .....	3	3,741	9,300	---	9,300	1,399	50	158	1,607	4,880
Total d/ .....	263	5,910,511	13,674,224	10,137	13,684,361	1,324,383	213,177	500,592	2,038,152	7,871,290

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 16.0 percent of the total value of products, 9.7 percent of the expenditures for supplies, etc., and 23.6 percent of the wages paid in 1935.

plies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 16.0 percent of the total value of products, 9.7 percent of the expenditures for supplies, etc., and 23.6 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN COLORADO IN 1935, BY COUNTIES.

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Boulder .....	906	878	892	724	623	435	404	471	764	861	901	889	729	746
Delta .....	85	83	75	63	59	49	48	57	71	83	87	89	71	71
Elbert .....	26	24	24	18	10	--	--	6	6	10	20	44	16	21
El Paso .....	436	432	425	400	361	300	280	297	334	388	416	430	375	376
Fremont .....	890	846	806	700	655	551	562	701	819	924	926	943	777	792
Garfield .....	65	54	37	52	43	44	41	53	54	57	68	63	53	54
Gunnison .....	585	570	552	515	437	485	503	537	588	642	665	669	562	572
Huerfano .....	1,377	1,092	1,163	945	829	839	782	941	908	1,157	1,249	1,265	1,045	1,207
Jefferson .....	153	155	160	144	130	122	119	124	130	141	142	138	138	140
La Plata .....	53	47	44	38	33	30	31	33	53	60	62	64	46	47
Las Animas .....	1,538	1,490	1,438	1,336	1,297	1,305	1,403	1,364	1,441	1,530	1,541	1,570	1,438	1,495
Mesa .....	123	100	94	79	61	79	114	75	95	121	133	135	101	103
Moffatt .....	11	11	9	7	5	4	5	7	7	13	13	8	8	9
Montezuma .....	21	19	19	17	15	13	13	15	19	24	27	27	19	19
Rio Blanco .....	10	8	7	7	6	4	4	5	6	7	9	9	7	8
Routt .....	1,041	895	849	745	675	599	636	962	1,033	1,252	1,344	1,322	946	955
Weld .....	1,810	1,754	1,582	1,366	1,134	942	698	878	1,651	1,821	1,869	1,864	1,447	1,455
Other counties-north- ern (Jackson and Larimer) .....	60	58	49	42	25	16	15	18	27	32	34	34	34	46
Other counties-south- ern (Montrose, Pit- kin, and San Miguel)	13	12	11	11	9	7	7	10	11	13	13	13	11	11
Total .....	9,203	8,528	8,236	7,209	6,407	5,824	5,665	6,554	8,017	9,136	9,519	9,576	7,823	8,127

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

ILLINOIS

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN ILLINOIS IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Bond and Montgomery .	3	622,047	\$900,078	\$5,237	\$905,315	\$90,751	\$15,316	\$42,151	\$148,218	\$607,727
Bureau .....	9	58,186	164,090	---	164,090	21,625	6,388	780	28,793	121,830
Christian .....	7	3,914,200	5,867,975	475	5,868,450	1,056,372	38,129	260,959	1,355,460	2,492,154
Clinton .....	3	243,418	357,950	---	357,950	51,816	15,495	---	67,311	273,759
Edgar .....	3	36,136	60,589	---	60,589	5,673	1,427	---	7,100	44,035
Franklin .....	12	7,878,555	12,344,614	---	12,344,614	1,975,758	113,674	436,990	2,526,422	6,405,772
Fulton .....	74	2,166,427	3,034,168	---	3,034,168	448,179	16,653	231,036	695,868	1,350,657
Gallatin .....	5	42,930	75,091	---	75,091	10,970	2,827	125	13,922	33,655
Grundy .....	6	129,845	316,937	---	316,937	37,630	2,133	5,989	45,752	145,591
Henry .....	22	676,538	1,143,107	---	1,143,107	111,727	14,810	70,352	226,889	558,352
Jackson .....	24	1,319,294	1,883,013	---	1,883,013	347,666	4,978	168,345	520,989	857,584
Knox .....	17	383,090	861,623	---	861,623	73,834	4,445	22,408	100,687	512,875
LaSalle .....	22	425,419	1,071,348	---	1,071,348	106,023	20,038	22,699	148,760	528,294
Livingston .....	6	19,092	60,121	---	60,121	2,119	1,000	1,393	4,512	45,982
Macoupin .....	13	3,643,310	4,653,749	32,047	4,685,796	580,345	130,827	17,349	728,521	3,132,734
Madison .....	29	1,690,279	2,417,724	---	2,417,724	350,385	48,439	44,397	443,221	1,628,711
Menard .....	11	136,612	258,388	---	258,388	34,117	6,870	6,705	47,692	182,065
Mercer .....	9	30,116	78,295	---	78,295	7,506	2,530	316	10,352	50,721
Peoria .....	45	1,512,006	2,561,983	---	2,561,983	285,849	4,492	67,535	357,876	1,847,621
Perry .....	28	3,293,847	4,431,754	---	4,431,754	804,007	47,031	220,660	1,071,698	1,890,263
Randolph .....	14	559,507	877,476	---	877,476	99,021	20,693	1,308	121,022	570,198
Rock Island .....	8	70,994	189,685	---	189,685	17,323	---	4,214	21,537	108,494
St. Clair .....	60	2,503,533	3,596,332	277	3,596,609	483,172	78,905	64,577	626,654	2,466,417



Saline .....	24	3,131,209	5,458,250	---	5,458,250	516,444	78,743	181,197	776,424	3,318,377
Sangamon .....	22	2,503,921	3,994,235	1,934	3,996,169	525,128	30,913	101,739	658,080	2,822,614
Tazewell .....	8	289,427	605,166	---	605,166	70,231	3,024	21,933	95,166	449,644
Vermilion .....	73	1,977,951	3,471,276	---	3,471,276	510,262	14,796	119,807	644,865	2,222,129
Washington .....	5	379,222	589,633	---	589,633	86,891	19,165	7,260	113,316	311,169
Williamson .....	82	2,944,577	4,414,386	3,240	4,417,626	776,597	80,633	114,556	971,786	2,217,143
Other counties d/ ...	78	1,243,781	3,777,393	25	3,777,418	523,348	53,910	109,166	686,424	1,826,061
Total e/ .....	722	44,525,469	69,516,429	43,235	69,559,664	10,041,109	878,284	2,345,946	13,265,339	39,039,928

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) Cass, Crawford, Greene, Hancock, McDonough, Macon, Marion, Marshall, Putnam, Schuyler, Scott, Shelby, Stark, Wabash, Warren, White, Will, and Woodford. (e) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 5.7 percent of the total value of products, 8.1 percent of the expenditures for supplies, etc., and 11.5 percent of the wages paid in 1935.

ILLINOIS

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN ILLINOIS IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a</sup> / <sub>b</sub>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Bond and Montgomery ...	984	983	810	564	980	974	976	978	965	958	965	957	925	975
Bureau .....	168	220	270	259	231	226	222	275	280	292	292	295	252	276
Christian .....	2,437	2,452	2,494	1,597	1,732	2,233	1,735	1,750	2,534	2,533	1,967	2,454	2,160	2,500
Clinton .....	476	476	477	211	213	214	109	214	477	477	477	477	358	476
Edgar .....	55	55	55	35	24	25	21	40	48	52	57	57	44	49
Franklin .....	7,189	7,195	7,178	3,720	5,224	6,114	3,853	5,862	6,380	7,053	7,043	7,032	6,154	7,018
Fulton .....	1,485	1,487	1,363	658	745	811	661	719	1,048	1,297	1,329	1,360	1,080	1,362
Gallatin .....	67	68	60	48	33	35	30	53	66	76	76	76	57	62
Grundy .....	228	226	222	84	81	79	73	84	172	204	202	205	155	206
Henry .....	603	595	615	439	503	442	401	471	526	561	566	558	523	570
Jackson .....	953	953	940	879	883	861	783	803	851	871	877	875	877	965
Knox .....	437	438	430	417	402	380	384	400	441	446	450	455	423	442
LaSalle .....	811	824	816	614	625	665	630	632	759	824	834	838	740	805
Livingston .....	75	75	73	58	54	57	49	54	60	63	65	68	62	62
Macoupin .....	3,359	3,356	3,621	3,612	3,392	3,592	3,575	3,564	3,573	3,586	3,589	3,557	3,531	3,577
Madison .....	2,117	2,100	2,075	1,675	1,074	1,616	1,611	1,661	1,944	2,065	2,047	2,113	1,842	2,044
Menard .....	176	181	170	115	103	82	83	126	174	190	190	190	148	163
Mercer .....	85	84	74	54	50	49	40	49	67	81	84	86	67	74
Peoria .....	1,725	1,732	1,714	1,465	1,565	1,453	689	968	1,720	1,755	1,765	1,782	1,528	1,712
Perry .....	2,099	2,142	2,108	1,728	1,790	1,771	1,629	1,631	1,767	2,069	2,029	1,900	1,889	2,091
Randolph .....	829	821	820	761	765	795	766	783	793	808	932	802	806	928
Rock Island .....	176	158	144	98	76	49	29	75	126	144	164	162	117	129
St. Clair .....	3,167	3,170	3,108	2,527	2,036	2,123	1,905	2,584	2,825	3,128	2,950	3,041	2,697	3,113
Saline .....	3,748	3,742	3,735	2,320	2,778	2,854	2,861	2,860	3,650	3,760	3,762	3,803	3,323	3,842
Sangamon .....	3,470	3,500	3,509	1,618	2,575	2,504	1,200	1,250	3,116	3,648	3,653	3,680	2,809	3,547

Tazewell .....	496	504	503	450	165	153	145	352	453	476	507	515	393	463
Vermilion .....	2,911	2,938	2,907	2,577	2,718	2,640	2,411	1,988	2,710	2,862	2,881	2,876	2,702	2,852
Washington .....	339	343	382	317	325	314	309	309	355	394	390	392	347	372
Williamson .....	2,672	2,652	2,685	1,668	1,885	2,090	1,810	1,848	2,299	2,730	2,707	2,578	2,302	2,641
All other counties b/.	2,486	2,498	2,499	1,354	1,294	1,015	1,009	1,498	1,881	2,477	2,562	2,560	1,929	2,374
Total .....	45,823	45,968	45,859	31,922	34,321	36,216	29,999	33,681	42,060	45,880	45,412	45,744	40,240	45,690

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. However, in 1935, there were 28 mines in the State which followed the practice of "staggering work" by dividing working time among the employees on their rolls in pursuance of local agreements. This practice affected chiefly mines in Bond, Franklin, Henry, Macoupin, Madison, Montgomery, Perry, Randolph, Saline, Williamson, and Vermilion Counties. The figures here given for such mines purport to represent the numbers on the rolls, whereas the figures published by the Bureau of Mines represent the average number working.

b/ Cass, Crawford, Greene, Hancock, McDonough, Macon, Marion, Marshall, Putnam, Schuyler, Scott, Shelby, Stark, Wabash, Warren, White, Will, and Woodford.

INDIANA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN INDIANA IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Clay .....	33	1,058,949	\$1,796,268	\$701	\$1,796,969	\$317,717	\$32,411	\$50,328	\$400,456	\$758,878
Greene .....	24	1,604,419	2,549,653	---	2,549,653	405,786	22,335	101,913	530,034	981,684
Knox .....	11	1,596,196	2,300,880	---	2,300,880	377,969	22,461	104,365	504,795	1,171,829
Owen .....	3	111,680	265,100	---	265,100	47,904	5,873	3,477	57,254	83,803
Pike .....	11	2,728,767	3,352,587	182	3,352,769	557,322	17,821	171,692	746,835	1,032,439
Sullivan .....	17	2,261,687	3,840,192	---	3,840,192	593,742	45,582	145,158	784,482	2,015,704
Vermillion .....	13	1,091,780	1,716,911	279	1,717,190	243,869	39,720	46,471	330,060	1,052,095
Vigo .....	32	2,892,804	4,621,877	---	4,621,877	704,776	64,900	165,774	935,450	2,255,984
Warrick .....	21	965,516	1,175,717	185	1,175,902	263,531	14,528	62,742	340,801	548,887
Other counties (Davies, Fountain, Gibson, Parke, Perry, Spencer, Vanderburg, and Warren) .....	23	1,412,416	2,102,477	5,618	2,108,095	477,802	41,439	24,623	543,864	995,296
Total d/ .....	188	15,754,214	23,721,662	6,965	23,728,627	3,990,418	307,070	876,543	5,174,031	10,896,599

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 11.0 percent of the total value of products, 12.0 percent of the expenditures for supplies, etc., and 7.4 percent of the wages paid in 1935.

BITUMINOUS COAL - INDIANA

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN INDIANA IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners $\bar{x}$	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Clay .....	753	765	757	575	590	433	357	614	685	715	738	693	640	721
Greene .....	1,102	1,097	1,060	931	913	1,025	701	749	710	801	839	861	899	1,091
Knox .....	1,230	1,247	1,257	1,107	1,099	1,164	1,148	1,086	1,052	1,087	1,100	1,112	1,141	1,256
Owen .....	79	80	95	80	84	83	77	83	88	89	101	104	87	88
Pike .....	892	898	922	898	870	886	855	868	874	902	910	945	893	914
Sullivan .....	2,135	2,143	2,150	1,676	1,724	1,678	1,686	1,714	1,752	1,780	2,071	2,109	1,885	2,110
Vermillion .....	1,327	1,343	1,346	923	1,258	1,250	459	792	785	816	825	843	997	1,328
Vigo .....	2,185	2,205	2,256	1,960	1,900	2,022	1,780	1,836	2,095	2,153	2,187	2,178	2,063	2,277
Warrick .....	606	636	673	536	565	572	582	584	572	572	583	672	596	681
Other counties (Davies, Fountain, Gibson, Parke, Perry, Spencer, Vanderburg, and Warren) .....	1,202	1,205	1,179	1,086	1,074	1,020	1,028	1,072	1,116	1,152	1,176	1,191	1,125	1,177
Total .....	11,511	11,619	11,695	9,772	10,077	10,133	8,673	9,398	9,729	10,067	10,530	10,708	10,326	11,643

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. However, in 1935 there were 14 mines in the State which followed the practice of "Staggering Work" by dividing working time among the employees on their rolls in pursuance of local agreement. The figures here given for such mines purport to represent the numbers on the rolls, where available, whereas the figures published by the Bureau of Mines represent the average number working.

## IOWA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN IOWA IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Adams .....	12	23,156	\$75,672	---	\$75,672	\$6,045	\$40	\$534	\$6,619	\$63,144
Appanoose .....	53	598,511	1,422,841	\$441	1,423,282	139,319	717	53,403	193,439	986,980
Boone .....	14	438,115	1,179,912	---	1,179,912	74,725	8,621	35,531	118,877	916,615
Dallas .....	5	368,487	887,259	---	887,259	72,905	2,295	38,626	113,826	571,572
Davis and Jefferson .	3	6,980	18,979	---	18,979	1,725	36	578	2,339	15,329
Greene .....	6	54,456	152,289	---	152,289	15,871	2,191	2,579	20,641	66,800
Guthrie .....	5	23,232	78,987	---	78,987	7,502	156	447	8,105	62,578
Jasper .....	6	45,974	120,450	---	120,450	8,976	1,704	3,164	13,844	87,184
Koocuk .....	3	8,424	17,046	---	17,046	3,730	---	327	4,057	12,926
Lucas and Mahaska ...	27	591,491	1,278,901	---	1,278,901	97,877	16,946	27,736	142,559	830,694
Marion .....	46	331,125	795,246	---	795,246	63,672	15,655	26,574	105,901	540,900
Monroe .....	10	273,141	579,916	---	579,916	59,908	2,974	13,893	76,775	445,367
Page .....	5	49,793	174,302	---	174,302	9,227	---	5,134	14,361	103,453
Polk .....	17	501,383	1,269,794	---	1,269,794	145,994	12,311	32,680	190,985	850,530
Van Buren .....	5	13,797	35,681	---	35,681	5,393	1,175	221	6,789	26,253
Wapello .....	22	82,783	226,131	---	226,131	20,721	951	5,184	26,856	158,369
Warren .....	8	161,959	446,924	---	446,924	46,588	5,973	25,122	77,683	210,282
Wayne .....	4	10,041	22,702	---	22,702	2,273	---	1,020	3,293	15,792
Webster .....	8	48,321	151,218	---	151,218	19,609	1,098	1,661	22,368	108,792
Other counties (Hamilton, Scott and Taylor) .....	4	18,994	67,490	---	67,490	2,976	---	1,731	4,707	46,202
Total d/ .....	263	3,650,163	9,001,740	441	9,002,181	805,036	72,843	276,145	1,154,024	6,090,032

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 19.0 percent of the total value of products, 20.1 percent of the expenditures for supplies, etc., and 28.3 percent of the wages paid in 1935, many of the small mines furnishing no data on wages.

BITUMINOUS COAL - IOWA

missing item was supplied by estimate, in order to complete the totals. The proportion of the value of products, 20.1 percent of the expenditures for supplies, etc., and 28.3 percent of the wages paid in 1935, many of the small mines furnishing no data on wages.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN IOWA IN 1935, BY COUNTIES.

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Adams .....	169	166	152	107	108	102	92	100	128	148	162	166	133	153
Appanoose .....	1,841	1,846	1,821	1,171	1,010	1,161	767	925	1,267	1,611	1,879	1,984	1,441	1,742
Boone .....	996	969	936	883	870	850	855	373	944	1,000	1,049	1,084	943	997
Dallas .....	682	672	643	460	460	443	436	572	576	601	701	707	579	639
Davis and Jefferson .....	25	24	24	16	16	16	14	15	19	22	24	25	20	24
Greene .....	129	125	104	48	35	34	31	46	95	114	127	133	85	117
Guthrie .....	103	100	91	48	42	41	37	44	71	94	103	107	73	84
Jasper .....	179	180	171	19	7	1	1	19	175	185	186	192	110	173
Keokuk .....	31	30	29	20	21	20	18	19	24	28	30	31	25	29
Lucas .....	733	714	719	715	723	577	569	556	586	725	728	724	672	722
Mahaska .....	155	157	128	100	53	53	40	23	134	170	196	198	117	156
Marion .....	798	789	763	421	558	535	494	393	524	605	656	670	601	798
Monroe .....	565	578	561	495	491	499	489	486	514	539	567	575	530	572
Page .....	135	134	100	72	55	53	47	72	97	116	140	154	98	118
Polk .....	1,075	1,083	1,067	566	668	626	501	583	837	937	954	950	821	916
Van Buren .....	21	21	18	11	4	6	2	13	50	54	65	65	27	40
Wapello .....	239	237	209	147	140	136	122	136	190	228	249	247	190	242
Warren .....	251	247	236	148	140	145	132	159	214	238	252	256	202	237
Wayne .....	44	44	43	35	24	23	16	17	21	40	43	48	33	42
Webster .....	115	114	100	72	73	70	64	68	88	102	111	113	91	112
Other counties (Hamilton, Scott and Taylor) .....	63	62	55	44	38	36	26	37	47	54	66	67	49	53
Total .....	8,349	8,292	7,973	5,598	5,536	5,427	4,753	5,156	6,601	7,611	8,288	8,496	6,840	7,966

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

BITUMINOUS COAL - IOWA

KENTUCKY

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN KENTUCKY IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Total value of products			Expenditures				Total wages paid in 1935	
		Coal produced (tons of 2000 lbs.)	Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power		Total
<b>Eastern district:</b>										
Bell	38	1,263,622	\$2,129,462	---	\$2,129,462	\$201,900	\$6,866	\$114,144	\$322,910	\$1,448,850
Boyd	5	32,069	59,018	---	59,018	3,425	---	3,044	6,469	46,136
Breathitt	5	69,533	130,706	---	130,706	10,623	4,010	215	14,848	75,885
Floyd	27	3,755,745	6,549,212	---	6,549,212	675,116	14,822	259,082	949,020	4,645,962
Harlan	53	12,115,474	21,304,507	---	21,304,507	2,622,042	32,193	739,824	3,394,069	13,247,338
Johnson	3	626,215	1,260,959	---	1,260,959	137,337	7,629	53,231	198,197	802,900
Knott	4	380,955	635,010	---	635,010	78,374	---	27,829	106,203	406,278
Knox	7	497,749	766,252	---	766,252	90,907	6,800	22,617	120,324	486,571
Letcher	24	4,377,700	7,469,225	---	7,469,225	575,220	101,958	111,868	789,046	5,244,364
Perry	32	3,663,951	6,260,225	---	6,260,225	612,642	---	308,586	921,228	4,151,908
Pike	32	4,735,877	7,831,663	\$10	7,831,673	940,483	47,030	253,020	1,240,533	5,073,336
Other Eastern counties d/	83	1,106,227	1,952,425	300	1,952,725	219,723	32,670	81,373	333,766	1,343,781
<b>Total</b>	<b>313</b>	<b>32,628,817</b>	<b>56,348,664</b>	<b>310</b>	<b>56,348,974</b>	<b>6,167,792</b>	<b>253,978</b>	<b>1,974,843</b>	<b>8,336,613</b>	<b>26,973,809</b>
<b>Western district:</b>										
Henderson, Hopkins, and Webster	77	4,616,492	5,579,056	3,000	5,582,056	611,276	31,998	219,171	862,445	) 6,554,000
Muhlenberg	37	2,211,692	2,509,060	2,177	2,511,237	426,864	55,255	93,748	575,867	
Ohio and Union	26	1,082,044	1,244,509	1,377	1,245,886	154,668	25,021	60,975	240,664	
Other Western counties e/	42	223,894	274,917	10	274,927	35,508	1,592	9,302	46,402	
<b>Total</b>	<b>182</b>	<b>8,134,122</b>	<b>9,607,542</b>	<b>6,564</b>	<b>9,614,106</b>	<b>1,228,316</b>	<b>113,866</b>	<b>333,196</b>	<b>1,725,378</b>	<b>1/6,554,000</b>
<b>State total f/</b>	<b>495</b>	<b>40,760,939</b>	<b>65,956,206</b>	<b>6,874</b>	<b>65,963,080</b>	<b>7,396,108</b>	<b>367,844</b>	<b>2,308,039</b>	<b>10,121,991</b>	<b>43,527,809</b>

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) Carter, Clay, Greenup, Jackson, Laurel, Lawrence, Lee, McCreary, Magoffin, Martin, Pulaski, Rockcastle, Wayne, Whitley, and Wolfe counties. (e) Butler, Christian, Daviess, Hancock, and McLean counties. (f) In Western Kentucky, a number of important companies located chiefly in Henderson, Hopkins, Union, and Webster counties declined to furnish information on wages paid to their employees. In order to round out totals, an estimate has been included for these companies on the assumption that 68.8 percent of their reported value of products f.o.b. mine was paid out in wages, that being the average ratio of wages to value of products of all companies in the area that did report wages. (g) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate in order to complete the totals. The proportion covered by estimate was as follows: Value of products, 9.3 percent; expenditures for supplies, etc., Western Kentucky 21.6 percent, Eastern Kentucky 6.3 percent; wages paid, Western Kentucky 54.2 percent (see above), Eastern Kentucky 8.0 percent.



of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate in order to complete the totals. The proportion covered by estimate was as follows: Value of products, 9.3 percent; expenditures for supplies, etc., Western Kentucky 21.6 percent, Eastern Kentucky 6.3 percent; wages paid, Western Kentucky 54.2 percent (see above), Eastern Kentucky 8.0 percent.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN KENTUCKY IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners $\bar{x}$	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
<b>Eastern district:</b>														
Bell .....	2,596	2,570	2,512	2,478	2,392	2,023	2,124	2,147	2,139	798	2,050	2,116	2,162	2,554
Boyd .....	127	132	129	126	124	111	103	113	110	114	125	124	120	121
Breathitt .....	171	180	186	141	136	143	145	145	147	180	186	189	162	178
Floyd .....	4,772	4,666	4,623	4,605	4,819	4,889	4,894	5,003	4,710	5,032	5,224	5,163	4,867	4,948
Harlan .....	11,579	11,801	12,217	12,312	12,444	12,151	12,179	12,448	12,622	13,189	13,377	13,399	12,476	12,574
Johnson .....	772	767	780	777	815	812	781	796	825	1,055	1,056	941	848	851
Knott .....	454	455	459	445	434	434	441	475	477	482	480	480	460	460
Knox .....	606	599	614	556	523	523	523	566	584	537	551	575	563	569
Letcher .....	5,302	5,411	5,560	5,584	5,558	5,533	5,459	5,408	5,352	5,448	5,439	5,175	5,444	5,491
Perry .....	4,985	4,870	4,914	4,488	4,267	4,298	4,276	4,344	4,385	4,733	5,039	5,059	4,637	4,739
Pike .....	5,268	5,260	5,326	5,220	5,322	5,245	5,215	5,222	5,215	4,311	5,454	5,201	5,205	5,325
Other Eastern counties b/	2,787	2,844	2,755	2,405	2,343	2,332	2,366	2,494	2,594	1,299	2,605	2,589	2,451	2,799
<b>Total Eastern Kentucky</b>	<b>39,419</b>	<b>39,645</b>	<b>40,084</b>	<b>39,137</b>	<b>39,267</b>	<b>38,594</b>	<b>38,506</b>	<b>39,161</b>	<b>39,160</b>	<b>37,178</b>	<b>41,526</b>	<b>41,011</b>	<b>39,395</b>	<b>40,609</b>
<b>Western district:</b>														
Henderson, Hopkins, and Webster .....	5,468	5,457	5,425	4,958	4,494	4,736	4,643	4,683	4,848	5,597	5,827	5,933	5,177	5,660
Muhlenberg .....	3,762	3,606	3,700	3,543	3,298	3,319	3,531	3,556	2,914	575	645	993	2,805	3,796
Ohio and Union .....	1,698	1,710	1,697	1,630	1,584	1,591	1,616	1,612	1,610	704	720	746	1,410	1,706
Other Western counties c/	513	513	495	422	386	366	339	373	444	463	487	503	442	508
<b>Total Western Kentucky</b>	<b>11,461</b>	<b>11,486</b>	<b>11,317</b>	<b>10,553</b>	<b>9,762</b>	<b>10,012</b>	<b>10,129</b>	<b>10,224</b>	<b>9,816</b>	<b>7,339</b>	<b>7,679</b>	<b>8,225</b>	<b>9,834</b>	<b>11,670</b>
<b>State total</b>	<b>50,880</b>	<b>51,131</b>	<b>51,401</b>	<b>49,690</b>	<b>49,029</b>	<b>48,606</b>	<b>48,635</b>	<b>49,385</b>	<b>48,976</b>	<b>44,517</b>	<b>49,205</b>	<b>49,236</b>	<b>49,229</b>	<b>52,279</b>

(a) Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. (b) Carter, Clay, Greemp, Jackson, Laurel, Lawrence, Lee, McCreary, Magoffin, Martin, Pulaski, Rockcastle, Wayne, Whitley, and Wolfe. (c) Butler, Christian, Davless, Hancock, and McLean.

MARYLAND

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN MARYLAND IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine <u>a</u> /	Other products or services <u>b</u> /	Total	Supplies and materials <u>c</u> /	Colliery fuel	Purchased electric power	Total	
Allegany .....	86	1,257,417	\$2,499,062	---	\$2,499,062	\$240,611	\$4,011	\$67,084	\$311,706	\$1,819,664
Garrett .....	28	420,642	766,896	\$9,009	775,905	70,279	9,404	26,187	105,870	515,520
Total <u>d</u> / .....	114	1,678,059	3,265,958	9,009	3,274,967	310,890	13,415	93,271	417,576	2,335,184

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 23.1 percent of the total value of products, 23.7 percent of the expenditures for supplies, etc., and 20.1 percent of the wages paid in 1935.

BITUMINOUS COAL - MARYLAND

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN MARYLAND IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a</sup> / <sub>15</sub>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Allegany .....	2,186	2,245	2,170	2,090	1,863	1,972	1,958	2,000	2,108	2,191	2,118	2,142	2,087	2,177
Garrett .....	838	814	802	729	728	716	565	570	640	629	747	744	710	764
Total .....	3,024	3,059	2,972	2,819	2,591	2,688	2,523	2,570	2,748	2,820	2,865	2,886	2,797	2,941

(a) Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen and maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

MICHIGAN

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN MICHIGAN IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Bay .....	4	119,186	\$371,132	---	\$371,132	\$47,707	\$29,964	\$18,796	\$96,467	\$249,603
Saginaw .....	5	145,867	477,435	---	477,435	59,591	9,326	6,512	75,429	283,107
Shiawassee .....	6	112,031	349,442	---	349,442	44,697	7,604	10,476	62,777	241,809
Other counties (Eaton, Genessee, Ingham, Midland, and Tuscola) .....	5	251,300	819,458	---	819,458	119,319	29,300	30,234	178,853	481,517
Total d/ .....	20	628,384	2,017,467	---	2,017,467	271,314	76,194	66,018	413,526	1,256,036

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 8.1 percent of the total value of products, 17.9 percent of the expenditures for supplies, etc., and 26.4 percent of the wages paid in 1935.

BITUMINOUS COAL - MICHIGAN

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN MICHIGAN IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners (a)	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Bay .....	330	332	319	51	66	321	87	318	347	355	353	355	270	341
Saginaw .....	364	363	383	380	260	340	102	176	298	290	289	379	302	340
Shiawassee .....	298	313	290	270	265	270	36	173	195	260	304	307	248	268
Other counties (Eaton, Genessee, Ingham, Midland, and Tuscola) ..	561	568	565	556	483	268	193	313	526	558	591	607	482	502
Total .....	1,553	1,576	1,557	1,257	1,074	1,199	418	980	1,366	1,463	1,537	1,648	1,302	1,451

(a) Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut-down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

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MISSOURI

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN MISSOURI IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Adair .....	11	161,959	\$314,826	---	\$314,826	\$52,766	\$6,780	\$8,119	\$67,665	\$206,897
Audrain .....	3	5,243	13,863	---	13,863	1,026	---	730	1,756	10,751
Barton .....	9	696,870	1,166,176	---	1,166,176	243,472	200	92,466	336,138	259,938
Bates .....	9	713,788	1,158,830	---	1,158,830	196,640	443	96,121	293,204	346,118
Boone .....	15	26,053	51,291	---	51,291	9,057	20	1,995	11,072	32,870
Callaway .....	8	37,716	81,618	---	81,618	8,406	1,987	2,500	12,893	32,753
Chariton .....	3	2,992	6,359	---	6,359	498	---	10	558	3,530
Clay .....	5	97,887	286,428	---	286,428	43,651	3,960	1,261	48,872	203,874
Dade and Jasper .....	3	16,890	37,873	---	37,873	10,256	---	732	10,988	16,235
Henry .....	9	506,421	924,516	---	924,516	189,035	5,121	66,294	260,450	288,007
Johnson .....	3	6,826	15,907	---	15,907	2,348	---	---	2,748	8,370
Lafayette .....	22	303,036	699,633	\$36,845	736,478	47,249	5,346	14,100	66,695	494,898
Lincoln, Ralls, and Warren .....	4	11,658	26,700	---	26,700	4,177	---	879	5,056	19,974
Linn .....	6	56,211	130,922	---	130,922	16,234	---	7,820	24,054	92,889
Macon .....	7	49,638	85,393	---	85,393	13,820	3,132	---	19,477	61,753
Putnam .....	19	35,803	58,409	---	58,409	12,331	---	2,841	15,172	41,187
Randolph .....	18	489,318	843,041	---	843,041	148,287	9	51,450	199,746	361,699
Ray .....	36	284,604	709,577	1,082	710,659	61,238	561	27,759	89,558	605,066
Vernon .....	6	92,000	153,268	---	153,268	28,298	2,643	3,167	34,108	65,466
Other counties (Caldwell, Grundy, Harrison and Platte) ..	5	51,083	159,287	---	159,287	17,451	3,356	556	21,363	109,760
Total a/ .....	201	3,645,996	6,923,917	37,927	6,961,844	1,106,240	34,008	381,325	1,521,573	3,262,035

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the published reports of the State Department of Mines were used in some instances, or the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 2.9 percent of the total value of products, 15.3 percent of the expenditures for supplies, etc., and 13.2 percent of the wages paid in 1935.

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TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN MISSOURI IN 1935, BY COUNTIES.

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Adair .....	285	285	281	274	229	221	225	229	256	285	303	303	264	274
Andrain .....	39	40	38	33	9	9	9	11	30	41	41	43	29	38
Barton .....	252	247	241	213	211	219	255	223	225	236	255	247	235	242
Bates .....	368	367	364	342	281	267	270	272	337	348	356	364	328	350
Boone .....	110	109	94	62	50	47	50	66	81	99	111	116	83	99
Callaway .....	80	83	70	59	46	43	49	57	68	78	79	80	66	74
Chariton .....	13	13	12	9	8	8	7	9	11	13	14	14	11	14
Clay .....	395	395	368	295	251	247	224	297	367	435	457	465	349	423
Dade and Jasper .....	24	24	21	9	7	7	12	14	18	25	25	26	18	22
Henry .....	293	293	279	210	191	163	163	221	264	288	302	305	248	290
Johnson .....	33	33	29	23	20	18	17	21	27	32	34	34	27	30
Lafayette .....	1,043	1,043	1,021	907	820	742	683	890	931	992	1,055	1,055	932	996
Lincoln, Balls, and Warren .....	50	50	45	36	30	29	27	33	41	48	52	52	41	47
Linn .....	331	331	274	126	60	58	56	68	189	282	339	342	205	288
Macon .....	320	321	253	177	177	173	166	199	215	284	301	308	241	273
Futnam .....	171	171	160	120	102	99	100	123	151	177	187	189	146	176
Randolph .....	441	438	426	388	354	353	329	353	408	453	465	479	407	439
Ray .....	1,312	1,321	1,257	664	582	679	529	768	1,142	1,350	1,406	1,436	1,037	1,222
Vernon .....	134	137	109	49	48	54	42	49	62	62	72	69	74	120
Other counties (Caldwell, Grundy, Harrison and Platte) .....	233	233	213	156	124	122	129	159	193	227	239	240	189	215
Total .....	5,927	5,934	5,555	4,152	3,600	3,558	3,342	4,062	5,016	5,755	6,093	6,167	4,930	5,632

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

MONTANA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN MONTANA IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Blaine .....	3	13,176	\$41,561	---	\$41,561	\$3,642	---	\$759	\$4,401	\$20,777
Carbon .....	7	321,729	527,468	\$563	528,031	85,678	\$1,431	36,464	123,573	353,747
Cascade .....	17	410,563	610,074	---	610,074	91,487	159	18,824	110,470	457,694
Chouteau .....	3	4,915	15,886	---	15,886	2,024	---	---	2,471	10,639
Daniels and Valley ..	4	14,296	24,414	---	24,414	3,782	297	299	4,378	18,256
Dawson and Wibaux ...	2	7,909	10,577	---	10,577	2,954	---	---	2,954	7,120
Fergus .....	4	3,525	13,685	---	13,685	1,386	---	---	1,386	10,049
Hill .....	3	4,940	14,220	---	14,220	1,281	180	---	1,461	12,713
Judith Basin .....	3	2,011	6,462	---	6,462	962	42	---	1,004	5,342
Musselshell .....	12	788,943	1,318,461	---	1,318,461	179,099	2,645	69,414	251,158	676,837
Pondera and Toole ...	2	2,144	11,820	---	11,820	571	330	---	901	7,489
Richland .....	4	17,580	39,542	---	39,542	3,592	---	3,141	6,733	28,704
Roosevelt .....	3	4,110	8,355	---	8,355	1,500	---	140	1,640	8,920
Other counties (Gallatin, Golden Valley, Park, Rose- bud and Sheridan) .	14	1,163,065	1,503,819	---	1,503,819	560,566	352	18,012	578,930	162,617
Total d/ .....	81	2,758,906	4,146,344	563	4,146,907	938,524	5,883	147,053	1,091,460	1,780,904

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. In the case of one large stripping mine operated under contract, includes payments made under contract other than for items of wages and power. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 6.8 percent of the total value of products, 4.8 percent of the expenditures for supplies, etc., and 15.8 percent of the wages paid in 1935.

BITUMINOUS COAL - MONTANA



TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN MONTANA IN 1935, BY COUNTIES.

County	Number of wage earners employed on 15th of month or nearest representative day												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Blaine .....	25	20	13	7	5	4	4	7	19	26	27	25	15	18
Carbon .....	392	378	289	283	267	265	143	276	311	344	437	341	311	323
Cascade .....	333	331	339	339	295	300	262	300	364	393	386	391	336	340
Chouteau .....	10	10	9	7	7	4	3	10	18	21	20	15	11	11
Daniels and Valley ....	31	31	31	30	21	18	16	24	30	39	40	35	29	29
Dawson and Wibaux .....	7	7	7	1	1	1	1	2	6	7	8	8	5	6
Fergus .....	13	13	12	12	10	10	8	11	13	14	15	14	12	12
Hill .....	20	20	10	--	--	--	--	--	25	30	30	25	13	17
Judith Basin .....	14	14	13	12	11	10	9	12	14	15	16	15	13	13
Musselshell .....	607	605	606	602	475	465	449	600	641	650	653	654	584	611
Pondera and Toole .....	10	9	9	6	6	6	8	10	12	12	11	12	9	9
Richland .....	46	46	38	19	10	5	5	8	19	38	46	46	27	27
Roosevelt .....	12	12	11	10	9	9	7	10	12	13	14	13	11	11
Rosebud .....	63	61	59	59	61	61	58	58	62	65	68	67	62	62
Sheridan .....	42	42	34	16	13	13	10	10	26	39	36	39	27	27
Other counties (Gallatin, Golden Val- ley and Park) .....	21	28	26	24	20	4	3	6	26	64	43	66	27	35
Total .....	1,646	1,627	1,506	1,427	1,211	1,175	986	1,344	1,598	1,770	1,850	1,766	1,492	1,551

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

NEW MEXICO

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN NEW MEXICO IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

BITUMINOUS COAL - NEW MEXICO

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine <u>a/</u>	Other products or services <u>b/</u>	Total	Supplies and materials <u>c/</u>	Colliery fuel	Purchased electric power	Total	
Colfax .....	15	710,915	\$1,875,438	---	\$1,875,438	\$184,744	\$3,430	\$81,297	\$269,471	\$938,398
Lincoln and Socorro ..	2	2,950	9,247	---	9,247	838	40	194	1,072	8,068
McKinley .....	17	520,464	1,340,329	\$42,007	1,382,336	199,404	33,505	20,394	253,303	910,262
Rio Arriba .....	6	25,275	54,120	---	54,120	7,457	360	2,555	10,372	36,865
San Juan, Sandoval and Santa Fe .....	9	129,273	401,941	---	401,941	28,585	25,238	441	54,264	295,464
Total <u>d/</u> .....	49	1,388,877	3,681,075	42,007	3,723,082	421,028	62,573	104,881	588,482	2,189,057

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 2.2 percent of the total value of products, 12.1 percent of the expenditures for supplies, etc., and 6.7 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN NEW MEXICO IN 1935, BY COUNTIES.

County	Number of wage earners employed on 15th of month or nearest representative day												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Colfax .....	984	984	977	982	985	963	948	963	966	962	947	938	967	968
Lincoln and Socorro ...	14	15	15	10	10	9	9	15	15	15	15	15	13	14
McKinley .....	861	993	1,008	987	958	806	813	825	857	936	963	984	916	963
Rio Arriba .....	46	48	48	47	47	44	43	44	45	47	47	48	46	46
San Juan <sup>b/</sup> .....	23	30	21	18	19	33	17	23	29	26	24	36	25	25
Sandoval and Santa Fe .	354	351	351	341	321	305	319	326	331	328	325	353	333	333
Total .....	2,282	2,421	2,420	2,385	2,340	2,160	2,149	2,196	2,243	2,314	2,321	2,374	2,300	2,349

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut-down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. <sup>b/</sup> Includes an average of 15 men at one mine where work is divided, the average number working daily being 5.

NORTH DAKOTA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN NORTH DAKOTA IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Adams .....	10	22,008	\$28,083	---	\$28,083	\$5,057	\$38	\$1,028	\$6,123	\$17,521
Bowman .....	7	18,032	20,275	---	20,275	5,067	---	423	5,490	11,691
Burke .....	7	209,780	251,532	---	251,532	28,992	6,143	14,116	49,251	100,774
Burleigh .....	9	232,053	287,307	---	287,307	30,512	2,864	31,191	64,567	96,615
Divide .....	6	206,290	263,708	---	263,708	28,846	25	9,652	38,523	74,969
Grant .....	7	24,250	30,404	---	30,404	6,511	---	1,296	7,807	18,608
Hettinger .....	13	17,743	22,535	---	22,535	3,970	150	412	4,532	16,289
McLean .....	18	119,444	161,886	---	161,886	23,916	2,093	2,168	28,197	95,019
Mercer .....	9	524,473	636,020	\$5,653	641,673	115,890	3,600	27,914	147,404	285,341
Morton .....	9	27,695	39,673	---	39,673	7,453	4,420	220	12,093	20,169
Mountrail .....	6	8,743	12,373	---	12,373	1,606	30	235	1,871	7,508
Stark .....	5	90,555	101,905	---	101,905	32,397	1,340	1,889	35,626	59,220
Ward .....	28	411,545	472,011	31,833	503,844	68,427	3,607	28,927	100,961	161,152
Williams .....	20	31,496	55,102	---	55,102	7,620	200	1,211	9,031	38,267
Other counties (Dunn, Golden Valley, Mc Kenzie, and Oliver) .....	7	11,400	12,693	---	12,693	2,345	---	239	2,584	8,220
Total d/ .....	161	1,955,510	2,395,507	37,486	2,432,993	368,609	24,510	120,941	514,060	1,011,273

BITUMINOUS COAL - NORTH DAKOTA

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 2.8 percent of the total value of products, 14.2 percent of the expenditures for supplies, etc., and 26.9 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN NORTH DAKOTA IN 1935, BY COUNTIES.

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Adams .....	42	40	34	26	21	18	22	19	30	37	42	41	31	36
Bowman .....	59	37	31	24	18	16	20	19	30	37	43	43	30	33
Burke .....	111	104	94	86	77	86	101	100	114	123	141	127	105	112
Burlingame .....	148	136	126	89	77	57	70	67	99	114	121	117	103	114
Divide .....	76	65	52	68	67	68	65	71	71	84	94	87	72	77
Grant .....	28	27	23	20	16	14	17	15	22	27	30	30	23	26
Hettinger .....	44	41	35	27	21	19	23	20	31	38	43	42	32	40
McLean .....	160	156	147	88	73	66	62	81	158	202	218	200	134	154
Mercer .....	441	398	349	247	176	123	216	163	284	323	391	391	282	344
Morton .....	45	42	36	28	22	19	24	20	32	45	45	43	33	43
Mountrail .....	31	30	27	21	14	13	15	13	21	24	28	27	22	25
Stark .....	70	70	69	66	63	65	70	15	19	77	83	77	62	72
Ward .....	290	295	195	157	118	111	101	108	205	245	270	271	197	213
Williams .....	74	69	56	41	31	28	34	30	49	64	68	67	51	62
Other counties (Dunn, Golden Valley, Mc Kense, and Oliver) .....	19	18	14	12	9	8	10	8	14	17	19	19	14	18
Total .....	1,619	1,528	1,288	1,000	803	721	850	749	1,179	1,458	1,636	1,582	1,201	1,359

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

## OHIO

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN OHIO IN 1935, BY COUNTIES  
(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures			Total wages paid in 1935	
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power		
Athens .....	33	2,393,176	\$4,120,192	---	\$4,120,192	\$356,081	\$39,762	\$153,279	\$549,122	\$2,987,157
Belmont .....	45	5,832,252	8,995,412	---	8,995,412	884,444	26,628	333,135	1,244,207	6,069,204
Carroll .....	18	221,037	408,448	---	408,448	46,303	414	22,215	68,932	300,377
Columbiana .....	33	304,980	522,321	---	522,321	63,633	4,440	12,435	80,508	253,357
Coshocton .....	52	217,402	378,369	---	378,369	47,469	1,283	12,908	61,660	228,421
Gallia .....	5	22,813	46,094	---	46,094	4,503	---	1,171	5,674	22,281
Guernsey .....	30	1,170,697	1,948,951	---	1,948,951	168,892	5,645	93,664	268,201	1,394,258
Harrison .....	25	2,496,973	3,960,314	---	3,960,314	588,319	50,008	109,666	747,993	2,247,410
Hocking .....	33	291,370	529,236	---	529,236	50,007	3,983	16,049	70,039	332,637
Holmes .....	15	48,455	110,003	---	110,003	8,670	270	883	9,823	55,606
Jackson .....	28	285,596	516,974	---	516,974	84,375	---	7,216	91,591	213,913
Jefferson .....	51	3,590,631	5,796,856	\$28,024	5,824,880	558,403	26,081	201,824	786,308	3,693,471
Lawrence .....	25	81,116	151,061	---	151,061	15,121	54	2,501	17,676	85,950
Mahoning .....	24	97,075	227,976	1,979	229,955	22,946	4,209	2,938	30,093	118,496
Meigs .....	23	342,942	613,738	---	613,738	76,955	237	27,176	104,368	400,421
Muskingum .....	42	602,750	1,096,628	---	1,096,628	133,940	8,775	30,600	173,315	630,036
Noble .....	4	192,885	314,846	---	314,846	34,106	10,241	---	44,347	243,350
Perry .....	59	724,028	1,236,722	---	1,236,722	151,040	1,557	48,869	201,466	840,323
Portage .....	4	17,533	49,113	---	49,113	3,368	---	993	4,361	31,655
Scioto .....	4	5,649	11,260	---	11,260	1,249	---	159	1,408	9,104
Stark .....	46	523,710	1,047,003	---	1,047,003	157,526	4,675	38,415	200,616	615,265
Summit .....	6	27,031	53,202	---	53,202	4,267	2,087	382	6,736	33,718
Tuscarawas .....	101	1,156,192	2,050,006	---	2,050,006	331,618	14,508	61,207	407,333	1,372,456
Vinton .....	17	87,455	165,072	---	165,072	17,678	1,367	3,737	22,782	88,376
Wayne .....	4	7,299	14,500	---	14,500	1,491	120	204	1,815	11,831
Other counties (Medina, Morgan, and Washington)	7	412,104	747,189	---	747,189	52,265	2,251	28,996	83,512	519,407
<b>Total d/.....</b>	<b>724</b>	<b>21,153,151</b>	<b>35,111,486</b>	<b>30,003</b>	<b>35,141,489</b>	<b>3,864,669</b>	<b>208,595</b>	<b>1,210,622</b>	<b>5,283,886</b>	<b>22,858,480</b>

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 3.5 percent of the total value of products, 8.9 percent of the expenditures for supplies, etc., and 2.5 percent of the wages paid in 1935.

wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 3.5 percent of the total value of products, 8.9 percent of the expenditures for supplies, etc., and 2.5 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN OHIO IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Athens .....	4,753	4,750	4,773	4,006	3,930	4,285	3,462	4,022	4,411	4,517	4,526	4,687	4,344	4,593
Belmont .....	6,831	6,813	6,847	6,482	6,698	7,249	7,034	6,553	6,592	6,804	6,135	6,392	6,703	7,309
Carroll .....	487	408	393	351	296	291	291	360	405	477	439	451	387	432
Columbiana .....	467	467	457	406	396	366	228	269	437	463	494	409	405	462
Coshocton .....	505	491	469	292	298	300	266	259	353	431	481	480	385	417
Gallia .....	47	47	45	35	32	33	28	30	61	71	74	76	48	60
Guernsey .....	1,619	1,619	1,690	1,497	1,578	1,553	1,508	1,530	1,412	1,479	1,476	1,441	1,534	1,605
Harrison .....	2,067	2,075	2,056	1,916	1,926	1,946	1,713	1,862	2,160	2,206	2,211	2,192	2,028	2,081
Hooking .....	718	735	581	425	527	542	356	520	520	554	558	488	544	694
Holmes .....	77	83	68	58	34	43	40	43	70	107	117	121	71	80
Jackson .....	315	327	288	206	221	158	151	290	329	387	386	396	288	355
Jefferson .....	4,263	4,281	4,300	4,122	4,008	3,943	3,048	3,746	3,817	4,084	4,108	4,142	3,989	4,183
Lawrence .....	153	145	180	146	144	161	52	90	188	219	196	164	153	209
Mahoning .....	295	298	256	189	171	167	151	165	211	242	256	269	223	249
Meigs .....	721	724	730	685	616	642	31	65	621	733	767	880	601	732
Muskingum .....	706	727	746	655	649	610	613	643	693	724	778	726	689	716
Noble .....	264	240	497	548	541	549	554	266	553	309	287	286	408	545
Perry .....	1,370	1,380	1,352	886	1,262	1,209	1,140	1,240	1,314	1,371	1,379	1,380	1,274	1,331
Portage .....	56	56	43	23	25	26	23	25	47	58	58	55	41	53
Scioto .....	26	24	19	14	15	11	12	10	16	27	28	30	19	21
Stark .....	870	907	817	649	532	386	313	476	863	971	1,007	1,009	733	801
Summit .....	93	93	79	30	29	25	25	25	91	91	93	93	64	66
Tuscarawas .....	1,717	1,719	1,717	1,450	1,389	1,521	1,477	1,472	1,592	1,680	1,725	1,763	1,602	1,665
Vinton .....	122	145	132	60	41	95	73	112	139	162	176	152	116	157
Wayne .....	18	18	18	16	16	17	15	15	17	18	36	41	20	38
Other counties (Medina, Morgan, and Washington) .....	694	690	695	678	670	662	607	644	695	731	743	734	687	692
<b>Total .....</b>	<b>29,254</b>	<b>29,262</b>	<b>29,248</b>	<b>25,825</b>	<b>26,044</b>	<b>26,780</b>	<b>23,211</b>	<b>24,732</b>	<b>27,607</b>	<b>28,916</b>	<b>28,534</b>	<b>28,857</b>	<b>27,356</b>	<b>29,546</b>

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

OKLAHOMA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN OKLAHOMA IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Coal .....	5	31,079	\$123,808	---	\$123,808	\$9,189	\$395	\$5,396	\$14,980	\$66,080
Haskell .....	4	95,027	168,876	---	168,876	28,680	2,955	4,364	35,999	78,156
Latimer and Pittsburg	26	238,082	612,258	---	612,258	66,883	6,287	21,042	94,212	416,841
LeFlore .....	39	355,831	1,033,088	---	1,033,088	146,320	7,023	49,842	203,185	608,089
Muskogee and Tulsa ...	13	81,155	173,962	---	173,962	30,995	1,575	4,167	36,737	97,627
Okmulgee .....	13	223,999	425,806	---	425,806	32,513	2,478	17,726	52,717	283,622
Other counties (Craig, Rogers, and Wagoner) .....	4	204,225	341,201	---	341,201	47,487	3,340	7,830	58,657	129,973
Total d/ .....	104	1,229,398	2,878,999	---	2,878,999	362,067	24,053	110,367	496,487	1,680,388

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 28.8 percent of the total value of products, 20.8 percent of the expenditures for supplies, etc., and 31.1 percent of the wages paid in 1935.

BITUMINOUS COAL - OKLAHOMA



TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN OKLAHOMA IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Coal .....	108	105	94	86	87	81	37	81	84	90	94	97	87	87
Haskell .....	152	138	140	35	133	130	39	44	119	123	122	119	108	133
Latimer and Pittsburg ..	686	657	602	460	347	289	332	507	649	710	745	643	552	687
LeFlore .....	1,233	1,208	1,151	325	327	368	716	897	1,002	1,062	1,083	1,072	870	1,309
Muskogee and Tulsa .....	223	219	188	107	83	113	129	181	216	230	165	174	169	230
Okmulgee .....	599	551	457	318	220	276	263	435	578	604	647	601	462	572
Other counties (Craig, Rogers, and Wagoner) .....	149	135	137	71	58	70	82	98	112	128	163	139	112	112
Total .....	3,150	3,011	2,769	1,402	1,255	1,327	1,598	2,243	2,760	2,947	3,019	2,845	2,360	3,130

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

PENNSYLVANIA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT BITUMINOUS COAL MINES IN PENNSYLVANIA IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel d/	Purchased electric power d/	Total	
Allegheny .....	171	13,856,980	\$24,338,543	\$11,442	\$24,349,955	\$2,368,741	\$131,705	\$950,922	\$3,451,368	\$16,043,389
Armstrong .....	46	2,289,252	4,007,866	---	4,007,866	356,547	6,545	215,812	578,904	2,745,793
Beaver .....	17	83,655	212,005	---	212,005	18,643	174	6,510	25,327	160,584
Bedford .....	28	406,636	990,908	---	990,908	71,685	3,277	21,097	96,059	609,109
Blair .....	17	212,947	458,310	66	458,376	45,156	2,181	25,744	73,081	279,841
Butler .....	30	687,023	1,344,418	---	1,344,418	104,206	3,304	92,233	199,743	957,600
Cambria .....	214	12,521,766	25,250,406	237,257	25,487,663	2,599,469	355,768	989,245	3,944,482	16,679,771
Center .....	42	445,901	859,131	---	859,131	89,596	4,446	56,683	150,725	579,740
Clarion .....	51	1,245,156	2,047,099	---	2,047,099	271,584	6,129	70,227	347,940	1,574,053
Clearfield .....	115	2,980,476	5,506,046	1,331	5,507,377	528,046	10,171	325,806	864,023	3,855,860
Clinton .....	15	62,649	127,406	---	127,406	15,468	739	1,653	17,860	77,147
Elk .....	20	753,153	1,342,507	---	1,342,507	122,002	8,281	29,468	159,751	1,046,463
Fayette .....	82	13,456,428	27,318,462	---	27,318,462	2,512,987	223,519	971,294	3,707,800	15,708,586
Greene .....	11	3,488,787	6,897,208	5,451	6,902,659	865,908	33,964	293,909	1,193,781	4,513,187
Huntingdon .....	16	500,357	1,141,591	---	1,141,591	133,188	26,542	60,811	220,541	789,768
Indiana .....	64	5,618,534	9,792,009	5,620	9,797,629	1,043,420	32,605	573,012	1,649,037	6,576,792
Jefferson .....	41	1,846,945	3,281,405	263	3,281,668	263,614	34,818	142,836	441,268	2,343,166
Lawrence and Mercer .....	19	501,922	1,216,752	1,000	1,217,752	108,728	34,633	25,063	168,424	794,931
Somerset .....	131	5,700,742	11,394,288	37,744	11,432,032	1,186,855	160,688	475,368	1,822,911	7,288,077
Tioga .....	13	182,169	550,328	---	550,328	48,031	10,712	812	59,555	391,204
Venango .....	4	11,734	24,895	---	24,895	1,979	12	260	2,251	13,832

BITUMINOUS COAL - PENNSYLVANIA

Washington .....	71	15,321,512	27,574,037	6,712	27,580,749	2,531,275	63,035	998,919	3,593,229	17,715,043
Westmoreland .....	130	8,990,487	15,941,889	888	15,942,777	1,533,281	117,722	665,376	2,316,379	10,515,056
Other counties (Bradford, Fulton, Lycoming, and McKean) .....	17	232,479	552,183	---	552,183	70,040	1,207	26,166	97,413	396,717
Total f/ .....	1,365	91,404,670	172,169,692	307,744	172,477,436	16,890,449	1,272,177	7,019,226	25,181,852	111,655,209

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) Items for colliery fuel and expenditures therefor in Cambria and Somerset counties are affected by the situation of one company which draws coal for a central power plant from certain of its mines and prorates the cost thereof to its other mines on the basis of their power requirements. A similar situation affects the returns for Elk and Jefferson counties. (e) Does not include compensation, if any, paid for approximately 3,120 man-days of labor at mine of the county home, to which the inquiry regarding wages was not applicable. (f) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 3.6 percent of the total value of products, 5.3 percent of the expenditures for supplies, etc., and 9.8 percent of the wages paid in 1935.

PENNSYLVANIA

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TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT BITUMINOUS COAL MINES IN PENNSYLVANIA IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month <sup>a</sup>												Average number of wage earners <sup>b</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Allegheny .....	15,019	14,968	14,959	14,549	14,283	14,377	14,222	14,665	14,951	15,373	15,600	15,571	14,861	15,167
Armstrong .....	3,544	3,708	4,072	3,705	3,762	3,929	3,343	3,028	2,951	3,374	3,292	3,570	3,523	3,871
Beaver .....	259	262	265	231	182	177	173	186	212	215	228	274	222	274
Bedford .....	844	845	839	733	704	741	661	802	840	904	781	866	797	818
Blair .....	566	579	594	554	532	537	458	481	545	553	524	530	538	540
Butler .....	1,338	1,328	1,378	1,028	1,292	1,236	1,062	1,187	1,251	1,307	1,329	1,329	1,255	1,292
Cambria .....	19,709	19,798	19,922	19,378	18,943	19,016	18,628	19,044	19,319	19,775	19,800	19,847	19,431	19,616
Center .....	852	867	872	872	872	860	846	821	861	879	916	849	864	913
Clarion .....	2,109	2,142	2,078	2,098	2,105	2,095	2,079	2,079	2,097	2,156	2,154	2,195	2,116	2,186
Clearfield .....	5,690	5,653	5,788	5,494	5,306	5,633	5,225	5,119	5,167	5,385	5,477	5,414	5,446	5,737
Clinton .....	122	122	148	91	102	127	75	78	108	119	102	109	109	134
Elk .....	1,293	1,264	1,268	1,260	1,248	1,227	1,221	1,193	1,228	1,226	1,200	1,216	1,237	1,250
Fayette .....	13,952	15,334	15,598	14,670	14,458	15,175	14,324	14,716	14,415	14,176	15,122	15,676	14,801	16,014
Greene .....	4,015	4,042	4,376	4,149	4,086	4,120	4,060	4,048	4,048	2,919	4,153	4,163	4,015	4,132
Huntingdon .....	1,099	1,087	1,081	1,040	1,019	1,036	990	1,011	1,025	1,041	1,056	1,058	1,045	1,057
Indiana .....	7,336	7,628	7,842	7,472	7,376	7,876	7,079	7,043	7,121	7,130	7,153	7,379	7,370	7,831
Jefferson .....	2,858	2,924	2,941	2,825	2,859	2,801	2,704	2,713	2,706	2,650	2,702	2,780	2,789	2,864
Lawrence and Mercer	963	768	1,026	978	1,033	1,021	923	1,030	1,024	995	1,016	995	981	1,018
Somerset .....	8,366	8,430	8,590	8,293	8,190	8,170	7,713	8,083	8,021	8,244	8,417	8,374	8,244	8,310
Tioga .....	596	600	586	530	493	383	351	462	500	519	541	540	508	535
Venango .....	38	33	29	22	15	15	10	18	35	41	40	40	28	30

BITUMINOUS COAL - PENNSYLVANIA

Washington .....	16,626	16,986	17,857	16,675	17,146	17,219	16,502	17,205	17,442	17,804	18,330	18,414	17,351	17,521
Westmoreland .....	11,645	11,797	12,068	11,159	11,013	10,975	10,196	10,564	10,762	11,164	11,391	11,143	11,156	11,969
Other counties (Bradford, Fulton, Lycoming, and McKean) .....	491	492	491	453	440	441	427	440	444	479	487	496	465	470
Total .....	119,330	121,657	124,668	118,059	117,459	119,187	113,272	116,016	117,073	118,428	121,811	122,828	119,149	123,549

a/ At any mines where the available working time was divided by local agreement among two or more groups of employees, the figures purport to represent the number of men on the rolls drawing pay rather than the average number working. b/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

TENNESSEE

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN TENNESSEE IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures			Total wages paid in 1935	
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power		Total
Anderson .....	16	782,324	\$1,374,036	---	\$1,374,036	\$137,903	\$8,790	\$52,070	\$198,763	\$883,144
Bledsoe, Hamilton, and Marion .....	22	394,958	819,921	---	819,921	97,803	260	28,305	126,368	513,545
Campbell .....	25	999,827	1,975,715	\$276	1,975,991	186,035	8,615	66,360	261,010	1,258,875
Claiborne .....	9	706,560	1,213,706	---	1,213,706	124,557	8,999	58,520	192,076	850,805
Fentress and Overton .....	8	336,244	500,182	---	500,182	39,654	13,061	11,463	64,178	368,496
Morgan .....	12	307,581	535,575	10	535,585	80,856	7,447	28,939	117,242	\$150,333
Other counties-northeastern (Cumberland, Putnam, Roane, and Scott) .....	5	68,024	111,185	---	111,185	9,562	4,710	3,273	17,545	76,158
Other counties-southeastern (Grundy, Rhea, Sequatchie, and White) .....	7	548,284	904,506	---	904,506	98,597	17,345	27,772	143,714	566,337
Total e/ .....	104	4,137,802	7,434,826	286	7,435,112	774,967	69,227	276,702	1,120,896	\$1,667,693

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) Does not include compensation, if any, paid for approximately 153,720 man-days of convict labor at penitentiary mines to which inquiry regarding wages was not applicable. (e) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 7.8 percent of the total value of products, 19.8 percent of the expenditures for supplies, etc., and 4.9 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN TENNESSEE IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Anderson .....	1,191	1,245	1,257	1,159	1,170	1,183	1,176	1,203	1,237	8	1,279	1,312	1,118	1,222
Bledsoe, Hamilton and Marion .....	871	882	872	856	869	853	805	839	828	212	821	876	799	899
Campbell .....	1,942	1,954	1,932	1,856	1,919	1,881	1,861	1,946	1,838	95	1,758	2,060	1,754	1,941
Claiborne .....	1,226	1,194	1,195	1,221	1,199	1,186	1,193	1,203	1,182	447	1,196	1,278	1,143	1,203
Fentress and Overton .....	432	427	404	403	432	412	422	423	418	400	404	438	418	450
Morgan .....	754	754	754	756	757	753	756	757	753	515	760	763	736	760
Other counties-northeastern (Cumberland, Putnam, Roane, and Scott) .....	143	144	144	140	142	140	138	142	140	21	140	150	132	142
Other counties-southeastern (Grundy, Rhea, Sequatchie, and White) .....	912	909	895	856	871	867	859	884	898	142	925	899	826	904
Total .....	7,471	7,509	7,453	7,247	7,359	7,275	7,210	7,397	7,294	1,840	7,283	7,776	6,926	7,521

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

TEXAS

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN TEXAS IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures			Total wages paid in 1935	
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power		
Bituminous: Brewster, Palo Pinto, and Webb .....	4	35,971	\$ 96,686	—	\$ 96,686	\$ 19,040	—	—	\$19,040	\$62,133
Total bituminous .....	4	35,971	96,686	—	96,686	19,040	—	—	19,040	62,133
Lignite:										
Anderson and Henderson ...	4	504,677	381,742	\$ 50	381,792	42,116	3,716	14,908	60,740	243,129
Bastrop, Bexar, and Milam..	5	159,429	96,681	1,858	98,539	17,200	—	1,154	18,354	67,832
Harrison, Tivus, and Wood.	5	57,452	78,443	—	78,443	8,563	1,767	407	10,737	35,119
Total lignite .....	14	721,558	556,866	1,908	558,774	67,879	5,483	16,469	89,831	346,080
State total d/ .....	18	757,529	653,552	1,908	655,460	86,919	5,483	16,469	108,871	408,213

BITUMINOUS COAL - TEXAS

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 7.1 percent of the total value of products, 13.6 percent of the expenditures for supplies, etc., and 13.2 percent of the wages paid in 1935.



TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN TEXAS IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners $\bar{x}$	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Bituminous: Brewster, Palo Pinto, and Webb	286	263	246	247	250	261	251	243	268	272	275	270	261	263
Total bituminous	286	263	246	247	250	261	251	243	268	272	275	270	261	263
Lignite: Anderson and Henderson ....	271	280	291	287	284	275	291	302	308	288	296	295	289	290
Bastrop, Bexar, and Milam ....	166	173	175	172	172	167	175	172	173	169	178	170	172	172
Harrison, Titus, and Wood .....	72	70	66	59	61	48	50	60	63	60	62	64	61	70
Total lignite	509	523	532	518	517	490	516	534	544	517	536	529	522	532
State total ...	795	786	778	765	767	751	767	777	812	789	811	799	783	795

(a) Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut-down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

UTAH

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN UTAH IN 1935, BY COUNTIES  
(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mines <sup>a/</sup>	Other products or services <sup>b/</sup>	Total	Supplies and materials <sup>c/</sup>	Colliery fuel	Purchased electric power	Total	
Carbon .....	29	2,638,691	\$5,494,163	---	\$5,494,163	\$661,541	\$6,767	\$297,162	\$965,470	\$2,953,478
Emery .....	6	253,130	474,926	---	474,926	40,261	1,468	30,331	72,060	203,853
Other counties (Grand, Iron, Kane and Summit).	5	55,097	122,197	---	122,197	6,858	---	5,512	12,370	72,518
Total <sup>d/</sup> .....	40	2,946,918	6,091,286	---	6,091,286	708,660	8,235	333,005	1,049,900	3,229,849

BITUMINOUS COAL - UTAH

<sup>a/</sup> Less selling expense. <sup>b/</sup> Includes receipts for power sold and services performed for other establishments. <sup>c/</sup> Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. <sup>d/</sup> The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 1.4 percent of the total value of products, 2.9 percent of the expenditures for supplies, etc., and 4.5 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN UTAH IN 1935, BY COUNTIES

County	Number of wage earners employed on 15th of month or nearest representative day												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Carbon .....	3,033	2,738	2,402	1,992	1,772	1,768	1,773	1,749	2,321	2,859	3,289	3,322	2,418	2,508
Emery .....	154	155	147	144	40	145	20	148	146	173	202	201	140	159
Other counties (Grand, Iron, Kane, and Summit)	64	62	62	57	58	58	57	59	63	64	68	66	61	63
Total .....	3,251	2,955	2,611	2,193	1,870	1,971	1,850	1,956	2,530	3,096	3,559	3,589	2,619	2,730

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

VIRGINIA

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN VIRGINIA IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year. There are a few mines along the West Virginia and Kentucky borders of the State whose workings lie partly in those States and partly in Virginia. The figures here used for such mines represent coal mined from lands in the State of Virginia and the expenditures, wages, and employment related thereto.)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Buchanan .....	10	1,360,668	\$2,066,551	---	\$2,066,551	\$257,569	---	\$59,895	\$317,464	\$1,216,700
Dickenson .....	8	1,129,448	1,880,356	---	1,880,356	164,143	\$2,080	86,262	252,485	1,270,109
Lee .....	12	1,147,272	2,198,687	---	2,198,687	161,375	8	88,457	249,840	1,422,247
Montgomery, Pulaski, and Russell .....	16	846,927	1,569,846	---	1,569,846	187,438	1,061	66,001	254,500	1,042,504
Tazewell .....	13	2,387,002	4,479,461	---	4,479,461	412,452	31	148,533	561,016	2,891,286
Wise .....	23	2,795,701	4,932,855	\$4,956	4,937,811	600,091	27,617	218,213	845,921	3,271,621
Total d/	82	9,667,018	17,127,756	4,956	17,132,712	1,783,068	30,797	667,361	2,481,226	11,114,467

BITUMINOUS COAL - VIRGINIA

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 2.3 percent of the total value of products, 7.6 percent of the expenditures for supplies, etc., and 9.1 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN VIRGINIA IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Buchanan .....	1,131	1,184	1,227	1,279	1,275	1,330	1,353	1,426	1,468	1,532	1,550	1,578	1,361	1,379
Dickenson .....	1,212	1,222	1,215	1,205	1,229	1,249	1,265	1,204	1,177	1,218	1,280	1,298	1,231	1,247
Lee .....	1,666	1,671	1,700	1,660	1,669	1,670	1,683	1,689	1,673	1,760	1,845	1,841	1,711	1,711
Montgomery, Pulaski, and Russell .....	1,582	1,584	1,463	1,134	1,136	1,128	1,220	1,243	1,281	1,505	1,543	1,551	1,364	1,568
Tazewell .....	3,012	3,007	3,177	3,087	3,203	2,999	3,002	2,932	2,900	3,179	3,360	3,390	3,104	3,282
Wise .....	3,713	3,704	3,767	3,817	3,742	3,740	3,677	3,657	3,624	3,631	3,753	3,750	3,715	3,763
Total.....	12,316	12,372	12,549	12,182	12,254	12,116	12,200	12,151	12,123	12,825	13,331	13,408	12,486	12,950

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut-down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

WASHINGTON

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN WASHINGTON IN 1935, BY COUNTIES.

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mines <sup>a</sup>	Other products or services <sup>b</sup>	Total	Supplies and materials <sup>c</sup>	Colliery fuel	Purchased electric power	Total	
King .....	21	604,518	\$1,813,084	---	\$1,813,084	\$199,244	\$1,697	\$79,358	\$280,299	\$1,079,399
Kittitas .....	13	627,753	1,814,155	---	1,814,155	163,242	16,280	43,680	223,202	863,872
Lewis .....	10	49,157	127,839	---	127,839	19,673	---	5,364	25,037	57,640
Pierce .....	8	135,437	495,112	---	495,112	47,889	4,409	36,875	89,173	309,808
Other counties (Thurston and Whatcom)	4	142,341	435,802	---	435,802	70,800	7,837	19,266	97,903	223,473
Total <sup>d</sup> / .....	56	1,559,206	4,685,992	---	4,685,992	500,848	30,223	184,543	715,614	2,534,192

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 2.6 percent of the total value of products, 1.6 percent of the expenditures for supplies, etc., and 8.0 percent of the wages paid in 1935.

BITUMINOUS COAL - WASHINGTON

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN WASHINGTON IN 1935, BY COUNTIES.

County	Number of wage earners employed on 15th of month or nearest representative day												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
King .....	971	991	917	912	865	825	788	802	824	903	998	975	898	897
Kittitas .....	681	693	678	669	648	640	589	633	655	709	783	797	681	682
Lewis .....	102	103	96	91	83	82	79	82	82	92	105	103	92	92
Pierce .....	265	266	280	286	257	256	212	265	281	285	305	294	271	276
Other counties (Thurston and Whatcom) ....	213	211	210	206	203	208	206	204	208	70	243	255	203	215
Total .....	2,232	2,264	2,181	2,164	2,056	2,011	1,874	1,986	2,050	2,059	2,434	2,424	2,145	2,162

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut-down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

WEST VIRGINIA

TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN WEST VIRGINIA IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Barbour .....	17	1,125,173	\$1,681,301	---	\$1,681,301	\$114,310	---	\$60,470	\$174,780	\$1,060,823
Boone .....	16	2,947,819	4,924,528	---	4,924,528	481,256	\$5,526	213,855	700,637	3,121,656
Braxton .....	5	31,260	50,479	---	50,479	4,282	---	349	4,631	32,266
Brooke .....	16	1,062,164	1,925,465	---	1,925,465	157,989	343	99,869	258,201	1,211,486
Fayette .....	72	11,312,245	21,519,371	\$1,516	21,520,887	2,352,182	105,990	835,894	3,294,066	13,905,003
Grant, Mineral, and Tucker .....	26	839,325	1,659,187	19,429	1,678,616	164,100	42,478	23,361	229,939	1,108,310
Greenbrier .....	12	1,586,528	2,877,925	37,791	2,915,716	257,595	15,463	102,783	375,841	1,740,883
Hancock .....	3	12,708	27,646	---	27,646	5,407	---	---	5,407	16,556
Harrison .....	36	2,934,724	4,350,177	---	4,350,177	387,096	1,644	140,607	529,347	2,728,957
Kanawha .....	46	5,822,593	9,629,539	---	9,629,539	886,384	8,460	399,114	1,293,958	6,221,171
Logan .....	66	13,416,014	20,770,005	5,162	20,775,167	2,025,057	21,745	761,959	2,808,761	11,823,395
McDowell .....	78	18,474,096	32,710,243	11,665	32,721,908	3,272,986	249,377	994,098	4,516,461	19,141,405
Marion .....	25	6,844,460	11,041,758	3,070	11,044,828	1,125,722	60,612	357,032	1,543,366	6,844,023
Marshall .....	7	787,822	1,316,420	---	1,316,420	132,440	20,839	52,160	205,439	488,302
Mercer .....	17	3,164,506	5,613,013	1,020	5,614,033	614,000	9,582	260,998	884,580	3,489,109
Mingo .....	27	3,234,789	4,821,097	---	4,821,097	522,507	830	247,588	770,925	3,223,625
Monongalia .....	39	4,930,475	6,683,545	---	6,683,545	692,524	638	345,054	1,038,216	4,526,789
Ohio .....	16	1,983,829	3,006,902	---	3,006,902	350,745	353	122,268	473,366	2,267,712
Preston .....	35	728,939	1,154,825	---	1,154,825	107,150	7,155	48,353	162,658	823,438
Raleigh .....	85	12,430,077	23,512,653	10,629	23,523,282	2,459,560	165,879	913,255	3,538,694	14,428,408
Randolph .....	21	482,085	893,262	---	893,262	76,900	16,267	6,801	99,968	635,502



Taylor .....	15	748,397	1,127,368	---	1,127,368	90,731	459	46,376	137,566	d/ 746,169
Upshur .....	7	222,475	317,977	---	317,977	36,138	8,730	372	45,240	213,867
Webster .....	11	859,364	1,610,879	---	1,610,879	120,624	9,182	48,570	178,376	1,110,349
Wyoming .....	18	1,855,114	3,658,060	---	3,658,060	403,157	48,448	103,610	555,215	2,368,787
Other counties (Clay, Gilmer, Lewis, Mason, Nicholas, Put- nam, Summers, and Wayne) .....	32	1,342,080	2,280,715	---	2,280,715	279,032	27,799	64,773	371,604	1,607,862
Total e/ .....	746	99,179,061	169,164,340	90,282	169,254,622	17,119,874	827,799	6,249,569	24,197,242	105,283,893

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies and all other supplies and materials necessary to maintain and operate the mine. (d) Does not include compensation, if any, paid for approximately 4,256 man-days in Marshall County and 2,106 man-days in Taylor County at penitentiary or industrial school mines, to which the inquiry regarding wages paid was inapplicable. (e) The canvass of production and number of wage earners is believed to be complete. Where no report was available from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 1.6 percent of the total value of products, 4.4 percent of the expenditures for supplies, etc., and 5.4 percent of the wages paid in 1935.

WEST VIRGINIA

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN WEST VIRGINIA IN 1935, BY COUNTIES

County	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Barbour .....	1,372	1,448	1,479	1,356	1,402	1,459	1,406	1,418	1,385	1,493	1,592	1,688	1,458	1,472
Boone .....	2,925	3,000	3,119	3,165	2,962	3,121	3,076	3,137	2,960	3,087	3,175	3,224	3,079	3,162
Braxton .....	64	64	60	60	56	58	55	57	61	63	63	62	60	62
Brooke .....	1,235	1,263	1,255	1,101	1,087	1,091	1,059	1,066	1,121	1,275	1,286	1,227	1,172	1,238
Fayette .....	12,872	12,920	13,022	12,902	13,090	12,807	12,849	13,083	13,069	13,069	13,079	13,046	12,984	13,202
Grant .....	7	6	6	5	4	4	3	4	5	29	29	29	11	28
Greenbrier ...	1,910	1,888	1,868	1,782	1,746	1,490	1,694	1,720	1,649	1,793	1,864	1,840	1,770	1,781
Hancock .....	31	28	25	25	23	21	20	20	22	25	29	29	25	25
Harrison .....	3,468	3,623	3,657	3,357	3,431	3,691	3,459	3,430	3,493	3,617	3,605	3,489	3,527	3,567
Kanawha .....	6,318	6,400	6,317	6,286	6,185	6,236	6,277	6,407	6,363	6,518	6,453	6,412	6,348	6,542
Lewis .....	15	15	15	15	15	12	12	12	15	15	15	15	14	14
Logan .....	11,836	12,003	12,216	12,102	12,011	11,834	11,348	11,501	11,476	12,177	12,025	11,658	11,849	12,265
McDowell .....	17,808	18,255	18,471	18,801	18,804	18,637	18,791	18,987	18,654	19,443	19,087	18,973	18,723	19,051
Marion .....	6,901	6,628	6,744	6,168	6,735	6,479	6,387	6,084	6,412	6,475	6,458	6,523	6,500	6,964
Marshall .....	996	1,024	1,057	1,020	1,021	1,059	1,097	1,083	1,081	1,170	1,111	1,047	1,064	1,142
Mason .....	149	154	146	79	68	68	66	92	146	148	153	111	139	139
Mercer .....	3,872	3,824	3,804	3,712	3,748	3,774	3,782	3,814	3,807	3,946	3,957	3,901	3,828	3,838
Mineral .....	568	569	579	510	487	531	519	549	553	597	648	619	561	571
Mingo .....	3,527	3,447	3,471	3,458	3,473	3,420	3,463	3,396	3,389	3,493	3,634	3,627	3,483	3,514
Monongalia ...	4,710	4,807	4,987	4,879	4,886	4,940	5,094	4,882	4,753	4,992	4,985	5,155	4,923	4,959
Nicholas .....	201	158	180	162	152	152	151	152	155	155	156	156	161	180
Ohio .....	2,359	2,339	2,310	2,219	2,171	2,203	2,181	2,173	2,164	2,205	2,203	2,028	2,213	2,233
Preston .....	1,597	1,549	1,531	1,362	1,310	1,354	1,139	1,205	1,277	1,360	1,343	1,451	1,373	1,417
Raleigh .....	13,939	13,892	13,890	13,332	13,164	12,919	13,009	13,329	13,212	13,688	14,061	14,091	13,544	13,792
Randolph .....	902	947	902	823	810	822	830	832	840	893	948	976	877	929

Taylor .....	1,028	1,028	1,019	784	835	843	811	833	852	876	858	852	885	995
Tucker .....	704	708	714	716	599	676	662	667	662	670	675	672	677	677
Upshur .....	285	306	316	310	302	329	320	283	320	323	323	323	312	318
Webster .....	1,060	1,064	1,054	1,034	969	980	987	998	997	1,019	1,006	1,042	1,018	1,047
Wyoming .....	2,278	2,212	2,265	2,171	2,217	2,182	2,261	2,273	2,232	2,313	2,489	2,481	2,281	2,405
Other counties (Clay, Gilmer, Putnam, Sum- mers, and Wayne) .....	1,589	1,594	1,451	1,551	1,549	1,535	1,469	1,531	1,532	1,547	1,546	1,539	1,536	1,561
Total ...	106,526	107,163	107,928	105,247	105,312	104,727	104,280	104,992	104,603	108,442	108,851	108,328	106,367	109,090

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry.

WYOMING

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TABLE 1. PRODUCTION, TOTAL VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COAL MINES IN WYOMING IN 1935, BY COUNTIES

(Exclusive of wagon mines producing less than 1,000 tons a year)

County	Number of mines	Coal produced (tons of 2000 lbs.)	Total value of products			Expenditures				Total wages paid in 1935
			Value of coal at mine a/	Other products or services b/	Total	Supplies and materials c/	Colliery fuel	Purchased electric power	Total	
Campbell and Crook ..	3	122,934	\$136,256	\$18,474	\$154,730	\$30,138	\$7,560	\$134	\$37,832	\$54,773
Carbon .....	12	494,066	1,135,386	13,330	1,148,716	121,619	506	53,476	175,601	387,659
Converse .....	4	11,696	19,401	---	19,401	1,566	---	---	1,566	15,686
Fremont, Hot Springs and Sheridan .....	18	789,039	1,361,483	---	1,361,483	152,657	44,825	55,999	253,481	729,029
Johnson .....	3	9,446	15,208	---	15,208	1,333	270	632	2,235	7,921
Lincoln .....	8	474,474	1,127,855	176	1,128,031	161,037	19,745	69,240	250,022	618,041
Sweetwater .....	16	3,258,811	7,288,937	246,318	7,535,255	838,940	33,029	238,879	1,110,848	3,095,727
Other counties (Big Horn, Park, and Uinta) .....	4	16,676	42,630	---	42,630	4,512	---	1,424	5,936	25,827
Total d/ .....	68	5,177,142	11,127,156	278,298	11,405,454	1,311,802	105,935	419,784	1,837,521	4,934,663

BITUMINOUS COAL - WYOMING

(a) Less selling expense. (b) Includes receipts for power sold and services performed for other establishments. (c) Includes cost of lumber and timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine. (d) The canvass of production and number of wage earners is believed to be complete. Where no report was obtainable from the mine operator regarding other items of the schedule, the missing item was supplied by estimate, in order to complete the totals. The proportion covered by estimate was 4.0 percent of the total value of products, 5.5 percent of the expenditures for supplies, etc., and 5.2 percent of the wages paid in 1935.

TABLE 2. NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH AT COAL MINES IN WYOMING IN 1935, BY COUNTIES.

County	Number of wage earners employed on 15th of month or nearest representative day												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Campbell and														
Grook .....	36	36	36	35	36	37	37	39	39	40	40	36	37	37
Carbon .....	268	265	279	284	278	305	325	334	351	365	360	364	315	318
Converse .....	22	20	16	14	12	12	12	14	18	28	26	26	18	18
Framont .....	46	47	40	31	19	19	11	18	41	47	49	49	35	35
Hot Springs .....	375	372	364	320	248	258	221	289	313	337	360	371	319	319
Johnson .....	14	14	8	8	6	6	6	6	8	9	12	12	9	9
Lincoln .....	463	447	442	428	433	441	472	487	493	491	518	508	469	477
Sheridan .....	326	326	319	223	243	289	268	211	312	325	350	350	295	295
Sweetwater .....	2,261	2,201	2,205	2,170	2,227	2,293	2,400	2,520	2,650	2,723	2,682	2,698	2,419	2,436
Other counties (Big Horn, Park and Uinta) .....	23	22	22	18	17	19	19	20	23	25	26	27	22	23
Total .....	3,834	3,750	3,731	3,531	3,519	3,679	3,771	3,938	4,248	4,390	4,423	4,441	3,938	3,967

<sup>a/</sup> Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the mine was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. Note, however, that where the mine reported that it operated with a "swing crew" or other arrangement for dividing work among the men on the rolls the figures in this table represent the number on the rolls, while those for the "average number of men employed" represent the average number working.

PART I - APPENDIX

## APPENDIX

### SCHEDULES USED AND DEFINITIONS OF TERMS

The schedules of inquiry used by the Bureau of Mines in collecting this information are reproduced on the pages following. Form 6-998 C was distributed to the mines producing approximately 5,000 tons or more a year. Items 1, 2, 3a, 4, 8, and 9 cover the customary information usually collected by the Bureau for presentation in its annual reports. Items 3b, 5, 6, and 7 cover the special items carried only for 1935 in the cooperative arrangement with the Census of Business, upon which the information in this report is based. Form 6-997 C was distributed to the small mines.

### DEFINITIONS

#### Production

The production of coal reported includes all marketable coal mined during the calendar year. Refuse from washery or picking tables is excluded. The figures of production, therefore, differ from those published by certain State mine departments, which represent the total product hoisted before the removal of refuse.

The unit of measurement is the net or short ton of 2,000 pounds.

#### Value of Production

In reporting the value of the coal produced, the operator was asked to state the amount "received for product f. o. b. cars at mine, less selling expense. Value of coal not sold but used by producer, also mine fuel and coal coked (*not coke*), should be estimated at average prices that might have been received."

The statistics of total value and average value per ton should be used with these instructions in mind. The figures do not purport to include selling expense, but it is likely that not all companies marketing their own product have in fact deducted the selling cost. The value figures are affected, also, by the large tonnage of captive coal,<sup>1</sup> for which the average value re-

<sup>1</sup>Captive coal is mined by the consumer. A steel plant, for example, may have its own coal mines from which it takes fuel to be consumed in the plant operations.

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ported may differ materially from that for sales on the competitive market.

As the inquiry regarding value follows the form used for many years by the Bureau of Mines, the replies should furnish a faithful index to the rise and fall in the level of coal prices.

### Other Products or Services

A few mines reported revenue from work or services performed for other establishments. This included receipts for power generated and sold (by far the largest item), hauling, hoisting, pumping, shopwork, selling, or similar services. Rentals of company houses and income from stores were not included.

### Supplies and Materials

The inquiry relating to supplies and materials called for "cost of lumber or timber used for repairs, supports, ties, and other purposes; iron and steel for blacksmithing, rails, frogs, sleepers, and other uses; explosives and oil used directly or sold to employees; water for boilers; machinery supplies; and all other supplies and materials necessary to maintain and operate the mine." Expenditures for new machinery or equipment were not asked for in the 1935 Census and should not have been reported. Some operators appear to have included under this heading purchases of new machinery itself or other items of expenditure, such as depreciation and depletion. In order to run down such extraneous items, the per-ton expenditures for supplies were computed for each schedule. Where the indicated cost per ton seemed unduly high, a letter was written to the company or an adjustment made. When reduced to a per-ton basis, the results check closely in most fields with the cost-accounting returns previously collected by the N. R. A.

### Colliery Fuel

The inquiry regarding fuel called for cost of fuel for all purposes, including the value of coal produced by the operator himself and used at the mine for power and heat. The value placed on such colliery fuel is a matter of accounting practice. A common practice where run-of-mine coal is used is to debit it at



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years employees at central offices were returnable on a separate form for "General Administrative Office Personnel", but the line distinguishing central offices was differently drawn for the two years. In 1929, many employees at separate administrative offices located in the same county or State in which the mine was operated were grouped with the mine reports. In 1935, only such personnel as were reported by the company as being actually at the mine or in offices connected therewith were included.

The figures for 1935 here given, therefore, include fewer of the salaried officers of corporations and of the higher-paid technical employees than were included with the mine reports at the 1929 Census. In many instances the 1935 salary payments represent only the supervisory and technical force engaged in the direct operation of the mine.

### Wage Earners, by Months

The inquiry regarding wage earners called for "the number of wage earners working any time during a week or pay period of normal activity in each month during 1935, preferably the week or pay period ending nearest the 15th of each month. Include foremen and overseers in minor positions as well as employees on piecework."

### Wages Paid

The inquiry regarding wages asked for total wage payments to all wage earners reported under the preceding question, including employees paid by the ton, yard, or other piecework basis. The employer was also requested to deduct charges for smithing, explosives, and other supplies furnished by the company. The ascertainment of such occupational deductions, however, is often a difficult matter, and very few of the schedules submitted indicated the amount of occupational charges which had been deducted. No attempt was made to follow up this point by correspondence, and in a majority of cases it is probable that the returns represent gross wages prior to such occupational charges.

No attempt was made to ascertain how much of the reported wage payments were made in the form of scrip. Balances due to the worker on pay day after deductions of prior charges are payable in money, but many mines make advances to the worker before pay

the previous month's cost of production. In still other cases, especially where slack or screenings are used, the charge is based on the price that the coal would have brought if sold. Coal delivered to employees, charged in coke ovens, or used for other industrial purposes at the mines is not included in the colliery fuel.

#### **Purchased Electric Current**

The inquiry regarding expenditures for electricity relates only to power purchased from power plants not directly connected with the mine. In nearly all cases the payments reported were to central electric stations operated by public utilities. In a few instances, the mining company operated a central power plant serving many mines and followed the practice of charging each mine with purchases of power from this central plant.

The returns do not include cost of power generated directly by the mine itself, whether steam or electric, except as this is represented in the item of colliery fuel.

#### **Proprietors or Firm Members**

The schedule called for the number but not the compensation of proprietors or firm members of concerns other than corporations. The returns for this item cover only mines of commercial size operated as partnerships or individual undertakings. They do not include owner-operators of 2,025 small local mines, who were reported either as salaried employees or wage earners on the simplified questionnaire used for such mines. Members of cooperatives in which a group of men work the mines jointly and divide the proceeds were classified as wage earners in the tabulations. The total number of men engaged in such cooperative mines is small.

#### **Salaried Employees**

The schedule called for the number of salaried employees on December 14, 1935, and the total salaries, including bonuses and commissions, paid during 1935. It instructed that "this report should cover only employees actually at mine and at office in connection therewith." The information received in response to this question was not comparable with that for 1929. In both

day in scrip or in credits on the company store, and the money equivalent of such payments is affected by the discount, if any, in converting them into cash or by the prices charged for goods. The extent to which scrip is used varies greatly. In many districts little or none is issued. In some others it constitutes a large part of the payments made.<sup>2</sup> The cash value of wages is also affected by house rentals where miners live in company-owned houses, or by charges for other services, such as medical care when provided by the company. These facts make it hazardous to generalize from the census data as to comparative earnings per man in different mines or in different parts of the country.

Comparisons of average earnings in different fields would likewise require more accurate records of the time worked than are obtainable at a general census. The number of man-days worked in 1935, derived from the same schedules, has been previously published for each State and county in the Bureau of Mines *Bituminous Coal Tables, 1935-36*, February 10, 1937, mimeographed. These measurements of man-days are the best that can well be obtained in a general canvass, but as most American coal mines keep no actual record of the time put in by the pieceworkers, who constitute the majority of the working force, the number of man-days has to be computed from the reported average number of men employed at the mine and the number of days worked. The computed number of man-days is a useful yardstick of the amount of labor expended, but it is far from precise.

For all these reasons the census returns of wages and employment do not furnish a basis for accurate comparison of the relative income provided by the existing wage scales in different parts of the bituminous-coal fields. Investigation of the vexed question of wage differentials would require specific arrangements to record the hours worked by the men who are paid by the ton, and to allow for occupational charges, scrip, and the other factors mentioned.

The cautions offered are no more than might be suggested against the use of census data to measure average earnings in other industries. The subject of wage rates is so complicated as to require special investigation. The census data are chiefly useful to

<sup>2</sup>Charles B. Fowler, Daniel Bloomfield, and Henry P. Dutton, *Report of the Committee on the Economic and Social Implications of the Company Store and Scrip System* (N. R. A., Division of Review, Work Materials No. 4, March 1936), pp. 84, 85, 91, 97.

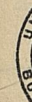
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determine the industry's total wage bill and the total income flowing from wages in a given area. For these purposes the returns for 1935 are believed to be adequate.

**SCHEDULES USED**

Facsimiles of the schedules of inquiry, Form 6-998 C and Form 6-997 C, used by the Bureau of Mines in collecting the information, follow.

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6-998 C



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES  
WASHINGTON

**CONFIDENTIAL**  
FOR GOVERNMENT  
USE ONLY

IN COOPERATION WITH THE UNITED STATES BUREAU OF THE CENSUS

**COAL IN 1935**

Please indicate any change  
necessary for correct name  
and address

By special arrangement, data on mines and quarries for 1935 are being collected for the Bureau of the Census by the United States Bureau of Mines as a part of its annual canvass of mineral producers.

Please reply to the following questions and return the schedule as promptly as possible in the enclosed envelop which requires no postage. A SEPARATE REPORT SHOULD BE PREPARED FOR EACH MINE that was in operation for either production or development purposes during the calendar year 1935. If operated by you ANY PART of 1935 please fill out this schedule. Additional blanks will be furnished upon request.

Only sworn employees of the Bureau of Mines and the Bureau of the Census will be permitted to examine your report and, except with your express permission, no information will be given out by either Bureau which will disclose any figures in your report.

In appreciation of your cooperation, a copy of the published report will be sent you. IF YOU HAD NO OUTPUT PLEASE SO STATE AND ANSWER REMAINING PERTINENT QUESTIONS.

**1. DESCRIPTION AND LOCATION OF OPERATION:**

Name of mine ..... Field or trade district .....

Name of present operating company .....

General office address .....

Location of mine: State ..... County in which mine is located .....

Railroad station or post office nearest to mine .....

Has mine changed hands in the last year? If so, please give date .....

Name of predecessor, if any .....

Address of same .....

Name of successor, if any .....

Address of same .....

Check type of organization: Corporation .....; Partnership .....; Individual proprietorship .....; Other (specify) .....

**2. PRODUCTION:**

Disposal of product (include all marketable coal. Exclude only washery and other refuse) Quantity in net tons  
(See item (f) below)

(a) Loaded at mine for shipment by rail or water .....

(b) COMMERCIAL sales by truck or wagon (excluding coal used by employees) .....

(c) Other sales to local trade, or used by employees, or taken by locomotives at tipple.....

(d) Used at mine for power and heat (colliery fuel) .....

(e) Made into coke at mine .....

Total production in 1935.....

(f) If production is not reported in net tons, state unit used.....

**3. VALUE OF PRODUCTION:**

(a) Total value of coal at mine in 1935..... \$.....

Important.—Value reported should be total dollars received for product f. o. b. cars at mine, less selling expense. Value of coal not sold but used by producer, also mine fuel and coal coked (not coke), should be estimated at average prices that might have been received, and included in total value above.

(b) Amount received for work or services performed for other establishments..... \$.....

(Report receipts for power generated and sold, hauling, hoisting, pumping, shopwork, selling, or similar services.)

Please reply to the questions on the other pages of this schedule

EMPLOYMENT AND RELATED STATISTICS OF MINES

4. TRANSPORTATION:

List railroads or waterways on which product was first loaded for shipment:

Name of road or waterway	Net tons loaded on each	Name of road or waterway	Net tons loaded on each
.....	.....	.....	.....
.....	.....	.....	.....

5. MINE EXPENDITURES (INCLUDING DEVELOPMENT WORK):

- (a) Cost of supplies and materials (excluding fuel) actually used in 1935..... \$.....  
(Include cost of lumber or timber used for repairs, supports, ties, and other purposes; iron and steel for blacksmithing, rails, frogs, sleepers, and other uses; explosives and oil used directly or sold to employees; water for boilers; machinery supplies; and all other supplies and materials necessary to maintain and operate the mine. If figures on supplies and materials actually used are not available, purchases during the year may be substituted.)
- (b) Cost of fuel for all purposes in 1935 (include estimate for value of colliery fuel produced by operator but exclude coal used for cooking)..... \$.....
- (c) Cost of purchased electric current in 1935.....
- (d) Total (sum of (a), (b), and (c))..... \$.....

6. PERSONNEL OTHER THAN WAGE EARNERS, AND SALARIES PAID:

Please report the number of salaried employees on December 14, 1935, and the total salaries—including bonuses and commissions—paid during 1935. (If December 14 was not a representative day, give data for a day which more clearly represents the normal number of salaried employees.) DO NOT INCLUDE WAGE EARNERS reported under question 7. Do not count the same person twice under different headings; for example, if a firm member is also the general manager report him only once. This report should cover only employees actually at mine and at office in connection therewith. A separate schedule will be supplied for reporting the employees of a central administrative office located elsewhere than at mine.

	Number	Total compensation—including bonuses and commissions—paid during 1935
(a) Proprietors or firm members..... <small>(Not applicable to corporations)</small>	.....	X X X X X X X X
(b) Salaried officers of corporation..... <small>(Do not include directors who receive no salary)</small>	.....	\$.....
(c) Supervisory and technical employees..... <small>(Include manager, superintendents, mining or mechanical engineers, and other responsible administrative and technical employees)</small>	.....	.....
(d) Other salaried employees..... <small>(Include clerks, stenographers, bookkeepers, timekeepers, draftsmen, and others receiving compensation on a salary basis, whether in office or mine)</small>	.....	.....
(e) Total salaried employees (sum of (b), (c), and (d)).....	.....	\$.....

7. WAGE EARNERS (EXCLUDE SALARIED EMPLOYEES) AND WAGES PAID:

Please report all wage earners working at mine covered by this report. DO NOT INCLUDE SALARIED EMPLOYEES reported under question 6.

- (a) In the following table please indicate the number of wage earners working any time during a week or pay period of normal activity in each month during 1935, preferably the week or pay period ending nearest the 15th of each month. Include foremen and overseers in minor positions as well as employees on piecework.

EMPLOYED UNDERGROUND				EMPLOYED ABOVE GROUND			
Month	Number	Month	Number	Month	Number	Month	Number
January.....	.....	July.....	.....	January.....	.....	July.....	.....
February.....	.....	August.....	.....	February.....	.....	August.....	.....
March.....	.....	September.....	.....	March.....	.....	September.....	.....
April.....	.....	October.....	.....	April.....	.....	October.....	.....
May.....	.....	November.....	.....	May.....	.....	November.....	.....
June.....	.....	December.....	.....	June.....	.....	December.....	.....

- (b) Total wages paid during 1935..... \$.....  
(Report total wage payments to all wage earners specified under (a) including employees paid by ton, yard, or other piecework basis. Deduct charges for smithing, explosives, and other supplies furnished by the company.)

8. EMPLOYMENT AND TIME WORKED:

(a) Total number of full days mine (tipple) was in operation during year (parts of days should be reduced to equivalent in full days).....

(b) Employment in 1935 (excluding coke workers and office force):

	Under-ground	In strip pits	All others on surface	Total
1. Average number of men employed, including night force.....	.....	.....	.....	.....
2. Number of days mine and tipple operated*.....	.....	.....	.....	X X X X X X X
3. Number of hours operated per shift*.....	.....	.....	.....	X X X X X X X

\* NOTE.—In columns "Underground" and "In strip pits" report mine time. In column "All others on surface" report tipple time. Parts of days should be reduced to equivalent in full days.

(c) Do you keep a record of the number of man-days or man-hours worked?..... If so, report below the number in 1935. (Yes or no)

	Under-ground	In strip pits	All others on surface	Total
1. Total man-days.....	.....	.....	.....	.....
2. Total man-hours.....	.....	.....	.....	.....

(d) Shifts per day in 1935:

	In July	In December
1. Number of shifts operated per day.....	.....	.....
2. Average total number of men employed:		
On day shift.....	.....	.....
On night shift (if any).....	.....	.....
3. If men were employed on a night shift, please check the kind of work done at night: Cutting.....; Shot-firing.....; Loading coal.....; Repairs.....; Maintenance.....; Stripping.....		

(e) Were there any strikes in 1935 at the mine? If so, please state number of men affected and duration in days, excluding Sundays and holidays:  
Men on strike..... Days on strike.....

9. PRODUCTION AND PREPARATION METHODS:

(a) Coal produced by different methods in 1935:

	Quantity in net tons
1. Tons undercut by hand.....	.....
2. Tons shot from solid.....	.....
3. Tons cut by machines.....	.....
4. Tons mined from strip pits.....	.....

(b) Number of mining machines (cutting or shearing) of all types used:

"Permissible" machines..... All others.....

(c) Number of power shovels used in strip pits on the surface in 1935:

Steam.....; Electric.....; Other (specify).....

(d) NUMBER of animals, locomotives, or rope units used in UNDERGROUND haulage:

Animals.....; Electric locomotives.....; Other locomotives.....; Rope units.....

(e) Mechanical loading underground in 1935:

(Please list each type of machine separately)

	Make and type of machine	Number of machines	Net tons handled mechanically
1. Mobile loading machines.....	.....	.....	.....
2. Scraper loaders.....	.....	.....	.....
3. Duckbills and self-loading conveyors.....	.....	.....	.....
4. Pit-car loaders.....	.....	.....	.....
5. Hand-loaded face conveyors.....	.....	.....	.....
Total, all types.....	.....	.....	.....

(f) Mechanical cleaning by wet or pneumatic methods: (Excluding hand-picking on tables)

	Wet-washing methods	Pneumatic methods
1. Make and type of cleaning equipment.....	.....	.....
2. Sizes of coal mechanically cleaned.....	.....	.....
3. Tons of raw coal cleaned in 1935.....	.....	.....
4. Tons of cleaned product obtained.....	.....	.....
5. Tons of refuse (exclude this refuse in answering question 2 on page 1).....	.....	.....

(Signature)

(Official position)

6-997 C



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES  
WASHINGTON  
IN COOPERATION WITH THE UNITED STATES BUREAU OF THE CENSUS

**CONFIDENTIAL**  
FOR GOVERNMENT  
USE ONLY

**COAL IN 1935**

Please indicate any change  
necessary for correct name  
and address

By special arrangement, data on mines and quarries for 1935 are being collected for the Bureau of the Census by the United States Bureau of Mines as a part of its annual canvass of mineral producers.

Please reply to the following questions and return the schedule as promptly as possible in the enclosed envelope, which requires no postage. If operated by you ANY PART of 1935 please fill out this schedule.

Only sworn employees of the Bureau of Mines and the Bureau of the Census will be permitted to examine your report and, except with your express permission, no information will be given out by either Bureau which will disclose any figures in your report.

In appreciation of your cooperation, a copy of the published report will be sent to you. IF YOU HAD NO OUTPUT PLEASE SO STATE AND ANSWER REMAINING PERTINENT QUESTIONS.

County ..... State .....

Name of operator .....

Address of operator .....

**1. DISPOSAL OF PRODUCT:**

(a) Loaded on railroad cars for shipment.....	Short tons
(b) Sold by truck or wagon.....	.....
(c) Used by employees.....	.....
(d) Used at mine for power and heat.....	.....
<b>Total production in 1935</b> .....	.....

**2. Dollars received for coal produced in 1935**..... \$.....

**3. TRANSPORTATION:**

(a) Does mine have a railroad switch and siding?..... (Yes or no)

(b) Name of railroad or waterway on which coal was loaded:.....

**4. MINE EXPENDITURES (INCLUDING DEVELOPMENT WORK):**

(a) Cost of supplies and materials (excluding fuel) actually used in 1935..... \$.....

(b) Cost of fuel for all purposes in 1935..... \$.....

(c) Cost of purchased electric current in 1935..... \$.....

(d) Total (sum of (a), (b), and (c))..... \$.....

**5. SALARIED EMPLOYEES AND SALARIES PAID:**

(a) Total number of salaried employees working in 1935.....

(b) Total salaries paid salaried employees in 1935..... \$.....

**6. WAGE EARNERS (EXCLUDE SALARIED EMPLOYEES) AND WAGES PAID:**

(a) Please indicate the number of wage earners working any time during a week or pay period of normal activity in each month during 1935. Include all wage earners working at the mine or tipple but DO NOT INCLUDE SALARIED EMPLOYEES reported under question 5:

January .....	February .....	March .....	April .....	May .....	June .....
July .....	August .....	September .....	October .....	November .....	December .....

(b) Total wages paid during 1935 to all wage earners specified under (a)..... \$.....

**7. EMPLOYMENT IN 1935:**

	Underground	In strip pits	All others on surface	Total
(a) Average number of men employed.....	.....	.....	.....	.....
(b) Number of full days mine was operated.....	.....	.....	.....	X X X X X X X X
(c) Length of working day (7, 8, or 9 hours).....	.....	.....	.....	X X X X X X X X

**8. Number of mining machines used**.....

**9. Number of power shovels used**.....

..... (Signature) ..... (Official position)



## PART II - PENNSYLVANIA ANTHRACITE

### SECTION I

#### SUMMARY FOR THE INDUSTRY

##### OPERATIONS IN 1935

The value of the coal produced by the Pennsylvania anthracite industry in 1935 was \$210,130,565, an average of \$4.03 per net ton. The value of other services was reported as \$220,657, and the total value of all products or services was \$210,351,222. Table VIII summarizes the figures for the industry as a whole for 1935 and earlier census years.

The anthracite-mining industry was the third largest employer of labor among the mineral industries, ranking next to bituminous coal and oil and gas. The number of wage earners on the pay rolls was 104,764 in February, the maximum month, and 77,096 in August, the minimum month. The average for the 12 months of the year was 92,438 men, a figure which is affected by numerous brief shut-downs.<sup>1</sup>

The total wages paid amounted to \$120,101,896, exclusive of charges for powder and supplies. In addition, \$11,116,986 was paid in compensation to 5,302 salaried employees engaged at the collieries or in offices reported in connection therewith.

The anthracite industry spent \$27,140,346 for supplies and materials, including explosives furnished to employees. The cost of colliery fuel was \$4,197,451 and of purchased electric power, \$7,197,413.

The total production in 1935 was 52,158,783 net tons. Of this, 590,467 tons was river coal, fine particles of anthracite carried downstream from the wash water of the breakers or culm-bank washeries and recovered from the river beds by dredging. A total of 2,106,969 tons was culm-bank coal treated at separate washeries, while a further 617,350 tons was culm-bank coal put through the breakers. The balance of the production was fresh-mined coal, of which 43,656,925 tons were produced from underground workings and 5,187,072 from open pits by strip mining with power shovels.

<sup>1</sup>Excluding the shut-down periods, the average number employed was 101,783. See tables IX, X, and XIII; also text, pp. 102, 105.

TABLE VIII.- SUMMARY OF ALL OPERATIONS PRODUCING PENNSYLVANIA ANTHRACITE, AS REPORTED BY THE CENSUSES OF 1909, 1919, 1929, AND 1935 (Not including illicit operations producing bootleg coal, which has been estimated at approximately 4,000,000 tons in 1935)

	1935 <sup>a/</sup>			
	1909	1919	1929	Total all operations
Number of enterprises .....	359	254	198	Reported by coal operators b/ 350
Production - net tons of 2,000 lbs. ....	80,881,106	88,170,508	74,545,900	52,158,783
Value of products:				
Coal, value at mine c/ .....	\$148,957,894	\$363,944,774	\$384,754,011	\$210,130,565
Average value per ton .....	\$1.84	\$4.13	\$5.16	\$4.03
Other products or services .....	-----	\$139,368	\$100,289	\$220,657
Total value .....	-----	\$344,084,142	\$384,854,300	\$210,351,222
Reported by strip contractors -----				52,158,783
Strip contract tonnage included in operators' reports				\$210,130,565
Number .....	4,302	7,351	7,655	5,100
Total compensation .....	\$4,572,489	\$12,995,469	\$19,335,930	\$10,674,605
Wage earners:				
Average number, including shut-down periods .....	169,175	147,372	142,801	89,395
Wages paid, less charges for explosives and supplies .....	\$2,169,906	\$210,289,473	\$229,967,059	\$116,364,341
Cost of supplies, including explosives sold to miners .....	\$23,472,809	\$59,738,376	\$43,367,491	\$24,954,854
Cost of fuel .....	\$3,189,279	\$11,406,117	\$7,419,721	\$3,642,415
Cost of purchased electric power .....	\$3,911,186	\$1,899,835	\$6,508,527	\$7,088,768
Contract work .....		\$4,413,811	\$8,691,435	(a)
Per-ton expenditures for:				
Wages, less charges for explosives and supplies .....	\$1.140	\$2.385	\$3.085	\$2.231
Supplies, including explosives sold to employees ....	\$ .290	\$ .678	\$ .582	\$ .478
Fuel .....	\$ .039	\$ .129	\$ .100	\$ .069
Purchased electric power .....	\$ .022	\$ .022	\$ .087	\$ .136
Contract work .....	\$ .048	\$ .050	\$ .117	(a)
Contract work .....				\$2,185,492
				\$555,036
				\$108,645
				(a)
				\$ .072
				\$ .012
				\$ .011
				\$ .002
				(a)

Ratio of expenditures to total value:						
Wages, less charges for explosives and supplies .....	61.9%	57.8%	59.8%	57.1%	55.3%	1.8%
Supplies, including explosives sold to employees .....	15.8%	16.4%	11.3%	12.9%	11.9%	1.0%
Fuel .....	2.1%	3.1%	1.9%	2.0%	1.7%	0.3%
Purchased electric power .....	2.6%	0.5%	1.7%	3.4%	3.4%	0.1%
Contract work .....		1.2%	2.3%	(a)	(a)	(a)
Methods of production: f/						
Net tons mined by stripping .....	(g)	2,006,879	1,911,766	5,187,072	667,290	4,519,782
Net tons of culm-bank coal put through washeries .....	4,852,818	4,337,720	808,917	2,106,969	2,106,969	----
Net tons recovered by river dredges .....	107,788	693,093	716,944	590,467	590,467	----
Net tons undercut by machine .....	(g)	1,575,205	1,159,910	1,848,095	1,848,095	----
Net tons loaded on conveyors and other mechanical devices .....	(g)	(g)	3,470,158	9,279,057	9,279,057	----

(a) At previous Censuses the colliery operator was asked to report payments made for contract work, but no data were obtained from contractors themselves. At the 1935 Census, because of the great increase in the practice of mining coal by stripping under contract, a supplementary report was obtained from all strip contractors regarding employment, payrolls, and expenditures for supplies, fuel, and power, which are summarized in the last column. These items reported by contractors are in addition to the corresponding amounts reported by the coal operators. The raw coal produced by stripping, however, is sized and cleaned in the breaker of the operator and therefore included in the operator's reports. As 8.7 percent of the total production in 1935 was produced by strip contractors, it is evident that the procedure adopted for 1935 gives a more complete record of employment, payrolls, and total expenditures than if the contractors were omitted. The 1935 returns, however, are in some respects not exactly comparable with those for previous Censuses. No returns on the amount paid for contract work were collected from the operators in 1935. (b) Data for 1935 represent number of operations, each breaker, washery, dredging plant, or independent mine without preparation facilities being counted as one operation. The figures are not directly comparable with those for preceding Censuses. (c) Excludes margins of separately incorporated sales companies. (d) The figures for salaried employees in 1935 are not fully comparable with those for 1929. In both years employees at central offices were returnable on a separate form for "General Administrative Office Personnel" and are not included here; but the line dislocated in the anthracite region were, in most cases, grouped with the colliery reports. In 1935 only the salaried personnel at the colliery or in offices connected therewith or reported on a single return covering both collieries and administrative offices were included. (e) Excludes \$433,318, cost of coal purchased for resale. (f) Data from annual reports of U. S. Bureau of Mines. (g) No record.

The increase in strip mining has been an outstanding development of the anthracite industry in recent years, the quantity produced by stripping in 1935 being 2.7 times as great as in 1929. The greater part of the strip-mined output in 1935 was produced by stripping contractors, working under contract for the colliery company.

At previous censuses the colliery owner was asked to report payment for contract work of all kinds, but no data were collected from the contractors themselves. In 1935 strip contractors were asked to report their employment, pay rolls, and expenditures, and their replies are summarized in the last column of table VIII. These items of expenditure reported by the contractors are in addition to the corresponding amounts reported by the operators. The raw coal produced by stripping, however, is sized and cleaned in the breaker or washery, and it is therefore already included in the operator's reports. The figures of total production and value in the tables represent the final tonnage leaving the preparation plant of the operator, all duplication being carefully eliminated. As 8.7 percent of the total output of raw coal was produced by strip contractors, it is evident that the procedure adopted for 1935 gives a more complete record of employment, pay rolls, and total expenditures than if the contractors were omitted. The 1935 returns, however, are not exactly comparable in some respects with those for previous censuses. Had the operations of strip contractors been included in 1929 and earlier years, the totals of employment and expenditures would have been slightly higher, though at that time stripping was relatively unimportant. On the other hand, no returns on the amount paid out by the operator for contract work were collected in 1935 to match the record of previous years.<sup>2</sup>

#### COMPARISONS WITH 1929

The changes indicated from 1929 to 1935 reflect in large measure the effects of the depression and of competition from other fuels upon the demand for anthracite. Consumption in 1935 showed a

<sup>2</sup>In addition to stripping, certain other operations, especially the driving of rock tunnels or the sinking of shafts, are often done under contract, and the employment connected therewith was not specifically recorded at any of the censuses. In many of the smaller contract operations underground, however, the company actually pays the wages of the men working for the contractor, so that the totals of employment and wage payments are not little affected. Operations under such special contracts are not to be confused with the work of the contract miners and contract miners' laborers, who are pieceworkers and paid directly by the company.

moderate increase over the low point of the depression in 1933, but the total tonnage produced remained 30.0 percent below that of the active year 1929. Prices had fallen sharply. The average value for all grades and sizes had declined from \$5.16 per ton in 1929 to \$4.03 in 1935, a decrease of 21.9 percent. The decrease in total value of product amounted to 45.3 percent. Comparisons with 1929 for other items are affected by the varying treatment of contract stripping referred to previously. The totals for 1935 show a decrease of 35.3 percent in the average number of wage earners and 47.8 percent in the wages paid. Expenditures for supplies decreased 37.4 percent and those for fuel, 43.4 percent. On the other hand, cost of purchased electric power showed an increase of 10.6 percent.

#### COMPARISONS WITH EARLIER CENSUSES

All such comparisons with earlier censuses are much affected by the shifting proportions of washery, dredge, and fresh-mined coal as well as by the rise of strip mining. Washery and dredge coal have relatively low value per ton and, as shown in table XII, require much less labor for their production. Strip mining similarly requires less labor than underground mining. The changes in the proportions derived from these sources must be borne in mind in considering the ratios given in the lower portions of table VIII. As already pointed out, no general census can attain the accuracy of cost accounting, and where per-ton costs are computed, they must be regarded as approximate. The chances of error are diminished when large numbers of mines are included and the ratios given in table VIII are believed to indicate the long-time trends, subject to the influences just mentioned.

It should be noted that many items of cost are not included, such as the sums paid for contract work or for the purchase of new equipment, royalties, depletion, depreciation, interest on debentures, insurance, taxes, workmen's compensation, reserves for uninsurable hazards, and other administrative and selling expenses. It is therefore impossible to compute the total cost of production or the margin, if any, between sales realization and cost.

The increases in per-ton expenditures for wages from 1909 to 1929 are due primarily to advances in wage rates. From 1929 to 1935 there was no change in the general level of rates, though such changes as resulted from the setting of new rates in new

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or reopened workings were probably downward. The chief causes for the indicated decrease in wages per ton during the latter period are to be found in the deferring of development work because of the depression, in the increasing proportion of culm-bank and strip-mined coal, and in economies of labor effected underground. The extent of the savings in labor is indicated by the fact that output per man per day, according to the Bureau of Mines, increased from 2.16 tons in 1929 to 2.68 tons in 1935 (table XII).

The changes in per-ton expenditures for supplies and materials suggest a long-time upward trend if allowance is made for the wartime increase and subsequent decline in the price of timber and certain other raw materials.

A conspicuous change has occurred in the per-ton costs of fuel and purchased electric power. In the anthracite region, as elsewhere, there has been a tendency for mine operators to close down isolated steam power plants and to purchase their power through public utility distributors or, in certain cases, to construct large central power stations of their own. The change is indicated by the decreasing proportion of the product used as colliery fuel. According to operators' reports to the Bureau of Mines, the quantity of anthracite used for colliery fuel declined from 9,602,410 net tons in 1919 to 5,300,593 in 1929 and 2,745,984 in 1935. A part of the reduction is due to improved efficiency at colliery power plants, but the principal cause is the shift to central-station power. The reported cost of colliery fuel declined from \$11,406,117 in 1919 to \$4,197,451 in 1935, the latter figure including fuel purchased by strip contractors.

During the same period, expenditures for purchased electric power increased from \$1,899,835 in 1919 to \$6,508,527 in 1929 and \$7,197,413 in 1935. There was thus an increase in the purchased power bill of the industry even during the years of the depression. Per-ton costs for purchased electric power, meanwhile, rose from 2.2 cents in 1919 to 13.8 cents in 1935. The increased expenditure for purchased power is due chiefly to the shift to central stations, but it also reflects an increase in the application of power underground and a very great increase in the volume of water pumped. The total quantity of water raised from mines has been computed at 361 billion gallons in 1935, an

average of 33.3 tons of water for every ton of coal produced from underground workings.<sup>3</sup>

Anthracite mining resembles bituminous coal mining in its high ratio of wages to total cost or total value. In 1909 the wage bill of the anthracite industry was 61.9 percent of the total value of products; in 1919 it was 57.8 percent; in 1929, 59.8 percent; and in 1935, 57.1 percent. The ratio is affected by the fact that the only yardstick afforded by the census returns is total value of product rather than total cost, and the change from census to census is colored by variations in the state of trade. The slight decline in percentage of wages to total value from 1929 to 1935 is attributable partly to the deferring of development work during the depression and to the increased proportions of culm-bank, strip-mined, and dredge coal, all of which involve lower ratios of wages to value than does underground mining. Thus, as may be calculated from table XIII, wage costs in dredging operations amounted to 35.8 percent of the value of the product in 1935. In 1921 labor costs at typical washeries amounted to 31.9 percent of the total value.<sup>4</sup> In stripping, also, the ratio of wages to total value is comparatively low. The ratio of wages paid to total value is also affected by the mechanization of work underground and by improvements in preparation plants on the surface. The number of mechanical loading devices installed underground - conveyors, scrapers, and mobile loaders - increased from 705 in 1929 to 2,123 in 1935, and the quantity of coal mechanically loaded increased from 3,470,158 tons to 9,279,057. The lower ratio of wages to the total value in all of these methods of production is associated with higher relative charges for depreciation, maintenance, supplies, and overhead. Corresponding improvements have been made in the mechanical equipment and efficiency of surface preparation plants, and the quality of the product has been notably increased.

The census record is not sufficient to determine the relative rewards of capital and labor in the industry, for it gives no measure of overhead costs or of the return upon investment which the several operators may or may not have obtained.

<sup>3</sup>D. C. Ashmead, "Water Pumped from the Mines of the Anthracite Region of Northeastern Pennsylvania," *Transactions of American Geophysical Union* (In press; National Research Council of the National Academy of Sciences).

<sup>4</sup>David L. Wing and James E. Black, "Cost of Production of Anthracite," *Report of the United States Coal Commission*, Part II, 68th Cong., 1925, p. 881.

## SECTION II

### WAGE EARNERS AND WAGES

#### AVERAGE NUMBER OF WAGE EARNERS EMPLOYED

##### Seasonal Fluctuations

Tables IX and X show the number of wage earners on the rolls in each month of 1935, grouped both by districts and by counties. For the industry as a whole, employment showed a downward tendency during the year. In January, the total number employed was 104,473 and in December, 95,489.

The monthly fluctuations in employment were affected by the seasonal character of demand, accentuated, in some cases, by labor disputes which shut down a number of collieries. In the operation of the breakers the low point of employment was reached in late summer. At river dredges the fluctuations in monthly employment showed a different seasonal pattern, affected by freezing of the rivers in winter and by the stage of the water at other seasons. The high point of total employment in dredging was reached in May and the low point in February.

##### Effect of Shut-downs Upon the Average

The report on bituminous coal (Part I) has referred to the problems of measuring the average number employed in an industry subject to the intermittent operation characteristic of coal mining. Anthracite collieries, like bituminous mines, usually operate with a normal crew of men for as many days a week or a month as are necessary to fill the orders on hand and then shut down for a time until the market justifies resumption of work. Ordinarily, the shut-down lasts for a day or two only, but it may extend over an entire pay period, and when that happens, the only men working are those engaged in pumping, maintenance, or possibly construction work; and the number on the pay roll drops to a small fraction of normal. In recent years, with the decline in the demand for anthracite, the number of such shut-down pay periods has increased, and in 1935 it was accentuated by local strikes. Table XI shows the record of three collieries during



Table IX.- NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH IN THE PRODUCTION OF PENNSYLVANIA ANTHRACITE IN 1935,  
BY REGIONS AND TYPES OF OPERATION  
(Includes employees of strip contractors)

Region	Number of wage earners employed in pay period nearest 15th of month												Average number of wage earners <sup>a/</sup>	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
<b>Anthracite Region</b>														
<b>excluding Sullivan</b>														
<b>County</b>														
<b>Lehigh:</b>														
Breaker product .....	17,756	16,218	13,935	10,976	13,882	16,599	13,215	12,327	13,935	17,496	15,418	15,712	14,792	17,838
Dredge product .....	---	---	4	19	25	25	25	25	25	25	2	2	17	25
Total Lehigh .....	17,756	16,218	13,939	10,995	13,907	16,624	13,240	12,352	13,960	17,521	15,443	15,714	14,809	17,863
<b>Schuylkill:</b>														
Breaker product .....	25,442	24,762	21,426	23,396	23,329	23,534	23,000	17,242	21,946	24,492	23,377	24,482	23,035	25,197
Washery product .....	698	681	621	660	465	343	348	328	342	394	402	498	482	634
Dredge product .....	113	108	198	266	320	228	185	116	113	125	135	111	167	240
Total Schuylkill ..	26,253	25,551	22,245	24,322	24,114	24,105	23,533	17,686	22,401	25,011	23,914	25,091	23,684	26,071
<b>Wyoming:</b>														
Breaker product .....	59,895	62,405	54,000	51,267	52,274	51,784	49,916	46,648	52,414	53,794	53,377	54,038	53,484	b/ 57,205
Washery product .....	73	73	73	105	105	73	73	73	105	105	105	105	89	b/ 105
Dredge product .....	---	---	---	5	15	19	18	21	17	16	10	---	10	15
Total Wyoming .....	59,968	62,478	54,073	51,377	52,394	51,876	50,007	46,742	52,536	53,915	53,492	54,143	53,583	57,325
<b>Total, excluding</b>														
<b>Sullivan County:</b>														
Breaker product .....	103,093	103,385	89,361	85,639	89,485	91,917	86,131	76,217	88,295	95,782	92,172	94,262	91,311	b/ 100,240
Washery product .....	771	754	694	765	570	416	421	401	447	499	507	603	571	b/ 739
Dredge product .....	113	108	202	290	360	272	228	162	155	166	170	113	194	280
Total .....	103,977	104,247	90,257	86,694	90,415	92,605	86,780	76,780	88,897	96,447	92,849	94,978	92,076	101,259
<b>Sullivan County:</b>														
Breaker product .....	496	517	398	327	300	85	84	316	394	429	484	511	362	504
<b>Grand total .....</b>	<b>104,473</b>	<b>104,764</b>	<b>90,655</b>	<b>87,021</b>	<b>90,715</b>	<b>92,690</b>	<b>86,864</b>	<b>77,096</b>	<b>89,291</b>	<b>96,876</b>	<b>93,333</b>	<b>95,489</b>	<b>92,438</b>	<b>101,763</b>

a/ Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the operation was shut down and giving employment only to watchmen or maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. b/ The men shown for "breaker product" include a considerable number of washery employees who could not be separated from breaker employees.

Table X.- NUMBER OF WAGE EARNERS EMPLOYED IN EACH MONTH IN PRODUCTION OF PENNSYLVANIA ANTHRACITE IN 1935, BY COUNTIES

(Includes breakers, washeries, and dredges, and employees of strip contractors)

County	Number of wage earners in pay period nearest 15th of month												Average number of wage earners a/	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Including shut-down periods	Excluding shut-down periods
Carbon .....	3,645	2,537	1,638	917	2,336	3,593	1,851	1,783	2,290	3,575	2,261	1,732	2,346	3,712
Columbia .....	357	350	350	341	345	351	390	374	435	597	685	762	445	724
Dauphin .....	1,139	1,119	1,142	1,252	1,307	1,206	1,163	140	1,028	1,015	1,048	1,010	1,047	1,185
Lackawanna .....	21,642	21,897	18,580	17,213	17,626	17,528	17,243	18,439	18,947	18,017	18,225	18,900	18,688	20,782
Luzerne .....	46,738	49,129	44,161	41,261	42,104	41,690	39,981	35,612	40,981	44,182	44,156	44,215	42,851	45,151
Northumberland .....	8,483	8,458	7,936	7,805	7,710	7,207	7,032	7,157	7,173	7,408	7,262	7,457	7,591	8,097
Schuylkill .....	20,939	19,775	15,839	17,244	17,929	19,933	18,010	12,166	16,946	20,569	18,761	20,450	18,213	20,615
Sullivan .....	496	517	396	327	300	85	84	316	394	429	484	511	362	504
Susquehanna and Wayne .....	1,032	980	601	628	1,015	1,054	1,067	1,066	1,054	1,044	425	445	867	952
Other counties b/..	2	2	10	33	43	43	43	43	43	40	36	7	28	41
Total .....	104,473	104,764	90,655	87,021	90,715	92,690	86,864	77,096	89,291	96,876	93,333	95,489	92,438	101,763

(a) Two averages are shown here, computed from the monthly payroll data. The first covers all payrolls reported, including periods when the operation was shut down and giving employment only to watchmen and maintenance men. The second excludes the shut-down periods and more correctly represents the number on the payrolls in the days when the mines were in operation. The latter average in most instances agrees closely with the "average number of men employed" as reported elsewhere on the schedule and published by the U. S. Bureau of Mines as the best measure of the operating force of the coal-mining industry. (b) Berks, Lebanon, Lehigh, and Northampton.

the year and illustrates how the occurrence of shut-down periods may affect the computed average number employed.

The usual method of computing the average number employed is to obtain the total number on the rolls at the pay period nearest the 15th of the month, add the 12 monthly totals, and divide by 12. This is the method which has been followed at previous censuses of mines and quarries, and it has been used to compute the average number of wage earners including shut-down periods, as shown in the next to the last column of tables IX and X. The average so computed for 1935 is 92,438 men, but this figure understates the number of men customarily employed at the mines because it is depressed by the inclusion of the shut-down periods. In order to determine the effects of the shut-downs, a second average has therefore been computed which is new to the analysis of census employment records. This average excludes all shut-down periods, when the mine was giving employment only to maintenance men. This second average is necessarily computed separately for each mine, and the total of the individual mines gives the average number of wage earners excluding shut-down periods, shown in the last column of these tables. This second average excluding the shut-down periods amounts to 101,763 men.

#### Days Worked in 1935

The procedure of excluding periods when the mines were shut down in the computation of the average number employed is believed to give a result which represents more closely the number of men actually engaged on the days when the mine was in operation. To obtain a clear picture of employment opportunity, however, it is also necessary to take account of the time worked and lost. In the coal industry this can best be done by recording the number of days that the mine operated. It is a universal custom of the mines to record the days of operation, and weighted averages for the anthracite and bituminous industries are available annually as far back as 1890. In 1935, for example, as shown by the Bureau of Mines record, the weighted average number of days operated in the anthracite industry was 189.<sup>1</sup> The two factors of average number of men employed when the mines were in operation and of average number of days operated, taken together, give the best available measure of employment opportunity in this industry.

<sup>1</sup>In computing the average number of days worked, each mine is weighted by the number of men employed.

TABLE XI.— MONTHLY EMPLOYMENT AND OPERATING TIME AT SELECTED ANTHRACITE COLLIERIES IN 1935

Month	Colliery A		Colliery B		Colliery C	
	Men employed 15th of month	Days colliery operated	Men employed 15th of month	Days colliery operated	Men employed 15th of month	Days colliery operated
January .....	456	26	1,562	21	889	26
February .....	443	24	1,477	13	925	24
March .....	444	20	26	—	948	14
April .....	446	25	27	—	932	18
May .....	463	26	30	—	970	24
June .....	466	25	15	—	26	—
July .....	473	26	297	5	29	—
August .....	470	23	1,465	25	33	—
September .....	440	21	1,454	22	43	—
October .....	436	15	1,436	22	829	12
November .....	335	17	1,431	14	871	18
December .....	342	25	1,429	18	868	24
Total days operated .....	—	273	—	140	—	160
Average number of men Including shut-down pay periods, if any .....	435	—	887	—	614	—
Excluding shut-down pay periods .....	435	—	1,319	—	904	—

For 1935 we may say that 101,763 wage earners on the average were drawing pay on the days when the mines operated and that the mines operated 189 days on the average out of the potential working year of 304 days. So important is the element of intermittent employment in coal mining that it requires separate measurement. To measure it in the factor of days worked and also in the average number of men employed would be to count double.

#### Employment Records of the Bureau of Mines

The annual employment records of the Bureau of Mines have sought to measure both the factor of average number of men employed and the factor of days of mine operation. The Bureau's results for 1935, derived from information collected on the same schedule with the census data, are summarized in table XII. The Bureau of Mines "average number of men employed" purports to represent the numbers engaged when the mines were active, excluding periods of shut-down. It includes a small proportion of salaried men working in or around the mines who are not counted in the wage earners of the census classification. If the inclusion of salaried men in the Bureau's figure is kept in mind, the two sets of data are found to check closely. The Bureau of Mines average number of men employed, computed for 1935 by the same method as in former years, is 103,269, as against the census average number of wage earners excluding shut-down periods of 101,763 men.

Table XII also gives the Bureau of Mines record of the man-days of labor performed. A small number of the anthracite collieries keep an accurate record of the man-days or man-hours worked, which is utilized by the Bureau wherever reported. The great majority of the collieries, however, indicate that they keep no such record, in which case the man-days are computed by multiplying the average number of men employed at the mine by the number of days worked. Although the computations of man-days are made mine by mine, the resulting product is necessarily an approximation and is subject to a considerable margin of error, which will be fully discussed in future reports of this series. Because of the chance of error and of the inclusion of the salaried men mentioned before, it would be hazardous to attempt to calculate average daily earnings by dividing the wages shown in previous tables by the man-days of labor shown in table XII.

Table XII.- MEN EMPLOYED AND DAYS WORKED AT OPERATIONS PRODUCING PENNSYLVANIA ANTHRACITE IN 1935,  
AS GIVEN IN THE ANNUAL COAL REPORTS OF THE U. S. BUREAU OF MINES

(Includes operations of strip contractors)

District	Average number of men employed							Grand total	Average number of days plant operated	Man-days of labor	Average tons per man per day
	Underground			Surface							
	Miners and their laborers	Other	Total underground	In strip pits	In preparation plant	Other	Total surface				
<b>Anthracite Region, excluding Sullivan County</b>											
<b>Lehigh:</b>											
Breaker product .....	8,091	3,882	11,973	1,611	1,717	2,880	6,208	18,181	168	3,059,851	2.50
Dredge product .....					6	19	25	25	177	4,430	17.74
Total .....	8,091	3,882	11,973	1,611	1,723	2,899	6,233	18,206	168	3,064,281	2.52
<b>Schuylkill:</b>											
Breaker product .....	11,315	6,592	17,907	1,949	2,076	3,545	7,570	25,477	199	5,058,290	2.75
Washery product .....				7	242	413	662	662	204	135,284	a/11.70
Dredge product .....					70	171	241	241	145	34,878	14.13
Total .....	11,315	6,592	17,907	1,956	2,368	4,129	8,473	26,380	198	5,228,452	3.06
<b>Wyoming:</b>											
Breaker product .....	33,095	14,728	47,823	513	2,833	6,870	10,216	58,033	191	11,106,402	2.49
Washery product .....					26	79	105	105	148	15,589	a/ 9.51
Dredge product .....					7	8	15	15	173	2,595	7.41
Total .....	33,095	14,728	47,823	513	2,866	6,957	10,336	58,159	191	11,124,586	2.54
<b>Total, excluding Sullivan County</b>											
Breaker product .....	52,501	25,202	77,703	4,073	6,626	13,295	23,994	b/ 101,697	189	b/ 19,224,543	2.56
Washery product .....				7	268	492	767	b/ 767	197	b/ 150,873	13.97
Dredge product .....					83	198	281	281	149	41,903	14.09
Total .....	52,501	25,202	77,703	4,080	6,977	13,985	25,042	102,745	189	19,417,319	2.68
<b>Sullivan County</b>											
Breaker product .....	241	114	355	11	66	92	169	524	131	68,455	2.78
<b>Grand total</b>	<b>52,742</b>	<b>25,316</b>	<b>78,058</b>	<b>4,091</b>	<b>7,043</b>	<b>14,077</b>	<b>25,211</b>	<b>103,269</b>	<b>189</b>	<b>19,485,774</b>	<b>2.68</b>

(a) Represents washeries for which both production and employment were separately reported. (b) The men shown for "breaker product" include a considerable number of washery employees who could not be separated from breaker employees.

Until the American coal industry arranges to keep an accurate record of man-hours worked, all computations of accident returns, daily earnings, and output per man will remain subject to serious qualifications. In the meantime, the computed product of men times days remains the only comprehensive measurement available.

#### Changes in Number Employed, 1929-35

The net decline in the number of men employed by the anthracite industry during the depression may be placed between 48,000 and 50,000. The census return of average number of wage earners (including shut-down periods) declined from 142,801 in 1929 to 92,438 in 1935, a decrease of 50,363 men, or 35.3 percent. The Bureau of Mines return of average number of men employed on the days of active operation declined from 151,501 in 1929 to 103,269 in 1935, a decrease of 48,232 men, or 31.9 percent.

The official employment statistics relate only to the legally authorized operations and make no attempt to include men engaged in the digging of bootleg or illicit coal. It has been estimated that "between 12 thousand and 14 thousand men are now more or less regularly engaged during the winter months in mining coal illegally. Of these a substantial proportion, probably more than half, were formerly employed in legitimate mining. In addition, about 6 thousand men and boys are engaged in breaking the stolen coal, in trucking it, and in distributing it to markets as far away as Baltimore and southern New England."<sup>2</sup>

#### DISTRIBUTION OF WAGE PAYMENTS

Wage payments are regarded by students of merchandising as among the most important indexes of the purchasing power of an area, and there is a widespread demand among manufacturers and wholesale merchants for information on pay rolls by regions or by counties as a means of directing sales effort and thereby reducing the costs of distribution. Tables XIV through XVI show the number of wage earners and the total wages paid in each of the regions or fields. Corresponding data by counties will be shown combined with those for other branches of industry and trade in

<sup>2</sup>Anthracite Coal Industry Commission, W. Jett Lauck, chmn., and James W. Angell, commissioner, *Ad Interim Report* (Commonwealth of Pennsylvania, May 15, 1937), p. 7.

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a composite total of employment and pay rolls for each county of the country. This information is in preparation by the Census of Business.



### SECTION III

#### STATISTICS BY REGIONS AND TYPES OF OPERATION

Tables XIII through XVI break down the totals for the industry as a whole into such groupings by kinds of operation and districts as the census returns permit without danger of disclosure of individual operations. In table XIII, the grand total for the industry is divided between river dredges on the one hand and collieries and washeries on the other.

#### THE PENNSYLVANIA ANTHRACITE INDUSTRY

Trade practice and historical usage recognize two major divisions in the coal industry of the United States - bituminous coal and Pennsylvania anthracite. Anthracite and semianthracite are mined in parts of Virginia, Arkansas, Colorado, and New Mexico. Locally these coals represent distinct and important industries, but the tonnages involved are small, as the tabulation on page 27 shows.

For statistical convenience these anthracitic coals of the South and West are usually grouped with the totals of the bituminous industry, and the census data concerning them relating to cost of supplies, colliery fuel, power, and wages are given, insofar as they can be disclosed, in Part I on bituminous coal mining.

The present report covers all of the non-bituminous fields of Pennsylvania. Trade usage commonly includes with Pennsylvania anthracite the output of the Bernice Basin in Sullivan County, Pennsylvania, although the coal of this basin is officially classified as semianthracite according to the tentative standard of coal classification adopted by the American Society for Testing Materials.

#### DISTRICTS AND FIELDS

The main anthracite region is divided into three subregions or districts - Lehigh, Schuylkill, and Wyoming. This is the areal grouping most commonly used in trade statistics, and it is followed, also, in the district organization of the United Mine

TABLE XIII.- SUMMARY OF PRODUCTION, VALUE OF PRODUCTS, EXPENDITURES FOR SUPPLIES, FUEL, PURCHASED ELECTRIC POWER, WAGES AND SALARIES, AND NUMBER OF EMPLOYEES AT ALL OPERATIONS PRODUCING PENNSYLVANIA ANTHRACITE IN 1935  
(For details by types of operation and region, see Tables 3, 4, and 5)

	Collieries and washeries (including Sullivan County)	River dredges	Grand total a/
Number of operations active .....	319	31	350
Coal produced - net tons of 2000 lbs. Total product .....	51,568,316	590,467	52,158,783
Value of product:			
Coal, value at plant b/ .....	\$209,613,261	\$517,304	\$210,130,565
Other products or services .....	\$220,657	---	\$220,657
Total value of products .....	\$209,833,918	\$517,304	\$210,351,222
Expenditures, including those by strip contractors, for:			
Supplies and materials, including explosives furnished to miners .....	\$27,080,189	\$60,157	\$27,140,346
Fuel, including gasoline and oil .....	\$4,168,193	\$29,258	\$4,197,451
Purchased electric power .....	\$7,171,840	\$25,573	\$7,197,413
Wages paid c/ (less charges for explosives, etc.) .....	\$119,916,612	\$185,284	\$120,101,896
Wage earners, average number c/:			
Including shut-down periods .....	92,244	194	92,438
Excluding shut-down periods .....	101,466	297	101,763
Salaried employees c/ d/:			
Number at operation or offices directly connected therewith .....	5,265	37	5,302
Compensation .....	\$11,065,765	\$51,221	\$11,116,986

(a) The figures do not include the production of stolen or bootleg coal, the output of which in 1935 has been estimated at approximately 4,000,000 tons. For all authorized operations, the canvass of production and employment is believed to be complete. A number of small operators made no report on certain other items of the schedule, and where this occurred, the missing item was supplied by estimate, in order to round out the totals. The proportion covered by estimate was 2.6 percent of the value of products, 4.2 percent of the expenditures for supplies and materials, 6.1 percent of the salaries, and 4.5 percent of the wages paid in 1935. (b) Does not include margins of separately incorporated sales companies. (c) Includes employees of strip contractors and their compensation. (d) Excludes salaried personnel at general administrative offices not reported on the colliery schedules.

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Workers of America, in which district No. 1 corresponds to the Wyoming trade region, district No. 7 to the Lehigh region, and district No. 9 to the Schuylkill region. The regional grouping, therefore, is used in the primary tables of this report (tables IX, XII, XIV, XVI, and XVII. For technical operating studies, however, a grouping into four fields - Northern, Western Middle, Eastern Middle, and Southern - is preferred because it follows more closely the geologic conditions which largely influence the methods and costs of mining. The field grouping is followed in table XV.

The Northern field is coterminous with the Wyoming district. That part of the Southern field lying east of Tamaqua, known as the Panther Creek Valley, and the Eastern Middle field make up the Lehigh district. That part of the Southern field west of Tamaqua and the Western Middle field comprise the Schuylkill district.

### BOOTLEG COAL NOT INCLUDED

The returns relate to authorized operations only. It was considered impracticable at a general census to attempt to cover the illicit or bootleg coal diggings. The quantity of bootleg coal produced and sold in 1935 has been variously estimated at approximately 4,000,000 tons.

### SMALL MINES AND INTERCOMPANY SALES

All legitimate operators so far as known are included in the statistics. In recent years conditions have favored the development of numerous small mines operating on lease or subcontract and producing run-of-mine coal, which is sold to larger companies for preparation at a breaker. At the same time the transfer of coal from one operation to another is increasing, and one of the largest companies has built huge central breakers to which coal from numerous collieries is shipped by rail for preparation. These tendencies have increased the complexity of the task of compilation, but great care has been exercised to avoid double counting of tonnage mined by one operator and prepared for market by another, so that the figures are believed to represent the net quantity of merchantable coal, plus the fuel used by the collieries themselves. At the same time, the employees and the expendi-

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tures for supplies or wages made by the operators producing run-of-mine coal only have been included, since they constitute both a charge against the cost and a contribution to the value of the final product.

### REPORTS FROM STRIPPING CONTRACTORS

In view of the recent increase in the quantity of coal mined by stripping, it was felt advisable in the census of 1935 to make special arrangements to record the operations of strip contractors. Supplementary reports were therefore obtained from all strip contractors regarding men employed, pay rolls, and expenditures for supplies, fuel, and power, and they are included under suitable notation in the tables of this report in such a way as to complete the record of employment and purchases, and yet to avoid double counting of production between the contractor and the colliery company for which the work was done.

### ACCURACY OF THE RETURNS

The returns collected, as with others obtained by the Bureau of Mines, were based upon the voluntary cooperation of anthracite producers. The 1935 Census of Business imposed no legal penalty upon firms declining to report. The Bureau of Mines itself has no statutory power to compel the submission of reports and has sought none. The system of voluntary reporting has been utilized in the field of mineral resources since 1883 and has served a useful purpose in measuring the simpler facts of production, supply and demand, trends of employment, mechanical equipment, operating practice, and output per man.

The standard inquiries relating to these physical facts of mine operation were answered without reluctance by substantially all anthracite producers, and the few small mines not reporting directly could be traced through the public records of the Pennsylvania Department of Mines. The returns on these points are, therefore, believed to be complete.

As regards the supplementary questions of the Census of Business, a few operators, chiefly of the smaller class, supplied no information. Since the purpose of the census was to determine the total volume of the industry's expenditures for supplies, wages, and salaries, it seemed best where a reporting company failed to

## STATISTICS BY REGIONS AND TYPES OF OPERATION 115

furnish information to include an estimate in order to round out the totals. As the returns on production and employment were complete and as those for all other items covered substantially all of the tonnage, estimates for the missing items could be supplied with a high degree of assurance. The basis used in each case was the experience of comparable mines in the same locality as indicated by per-ton expenditures for supplies, fuel, power, and wages, or by average daily earnings at the mines reporting those items. All estimates were made personally by the professional authors of this report, drawing upon extended contacts with the industry.

For the anthracite industry as a whole, the proportion of the recorded totals in this report represented by such estimates is 2.6 percent of the value of products, 4.2 percent of the expenditures for supplies and materials, 6.1 percent of the salaries, and 4.5 percent of the wages paid in 1935. In view of the evident care with which the reporting companies prepared their returns, it is believed that the interpolation of the missing items is no greater than justified by standard procedure in the editing of defective statistical returns.

The results give a reliable measure of the total volume of expenditures made by the anthracite industry for supplies, fuel, power, and wages. It should be recognized, however, that no general census can well attain the accuracy of cost-accounting methods, and any computations of per-ton expenditures for the items listed should be considered approximate rather than exact. Mention has already been made of the fact that many significant cost items are not covered by the census inquiries. It is, therefore, impossible to compute the total cost of production or the margin, if any, between sales realization and cost.

### LOCATION OF THE MARKET FOR MINE SUPPLIES

The location of the market for mine supplies in the anthracite region is indicated by the regional analysis in tables XIV through XVI. Of the total expenditures for supplies and materials at collieries and washeries, including the purchases made by strip contractors, nearly half was concentrated in the Wyoming district (otherwise the Northern field), which reported \$13,270,340 (table XIV). The Schuylkill district bought \$8,824,114 worth of supplies and the Lehigh district, \$4,909,236. The total for the anthra-

TABLE XIV.- PRODUCTION, VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COLLIERIES AND WASHERIES IN THE PENNSYLVANIA ANTHRACITE INDUSTRY, IN 1935, BY DISTRICTS

	Lehigh district	Schuylkill district	Wyoming district	Total excluding Sullivan	Sullivan county	Total collieries and washeries
Number of operations active .....	35	83	195	313	6	319
Coal produced - net tons of 2000 lbs.:						
Breaker product .....	7,655,586	13,915,561	27,700,235	49,271,382	189,965	49,461,347
Washery product <u>a/</u> .....	---	1,582,227	524,742	2,106,969	---	2,106,969
Total .....	7,655,586	15,497,788	28,224,977	51,378,351	189,965	51,568,316
Value of products:						
Breaker coal .....	\$31,245,929	\$54,109,377	\$118,945,667	\$204,300,973	\$602,458	\$204,903,431
Washery coal .....	---	\$3,710,572	\$999,258	\$4,709,830	---	\$4,709,830
Total coal <u>b/</u> .....	\$31,245,929	\$57,819,949	\$119,944,925	\$209,010,803	\$602,458	\$209,613,261
Other products or services <u>c/</u> .....	\$200,265	---	\$20,392	\$220,657	---	\$220,657
Total value of products .....	\$31,446,194	\$57,819,949	\$119,965,317	\$209,231,460	\$602,458	\$209,833,918
Expenditures for supplies and materials including explosives furnished miners <u>d/</u> :						
By operator .....	\$4,238,958	\$7,573,445	\$13,005,795	\$24,818,198	\$76,499	\$24,894,697
By strip contractor .....	\$670,278	\$1,250,669	\$264,545	\$2,185,492	---	\$2,185,492
Total supplies and materials .....	\$4,909,236	\$8,824,114	\$13,270,340	\$27,003,690	\$76,499	\$27,080,189
Expenditures for colliery fuel:						
By operator <u>e/</u> .....	\$672,273	\$898,596	\$2,029,270	\$3,600,139	\$13,018	\$3,613,157
By strip contractor <u>f/</u> .....	\$173,561	\$283,899	\$97,576	\$555,036	---	\$555,036
Total colliery fuel .....	\$845,834	\$1,182,495	\$2,126,846	\$4,155,175	\$13,018	\$4,168,193
Expenditures for purchased electric power:						
By operator .....	\$1,320,879	\$3,535,788	\$2,202,408	\$7,059,075	\$4,120	\$7,063,195
By strip contractor <u>g/</u> .....	\$38,605	\$64,016	\$6,024	\$108,645	---	\$108,645
Total purchased power .....	\$1,359,484	\$3,599,804	\$2,208,432	\$7,167,720	\$4,120	\$7,171,840

Wages paid, less charges for explosives and supplies:						
By operator g/ .....	\$17,730,155	\$30,340,289	\$67,714,439	\$115,784,883	\$394,174	\$116,179,057
By strip contractor .....	\$1,233,958	\$2,053,843	\$449,754	\$3,737,555	---	\$3,737,555
Total wages paid .....	\$18,964,113	\$32,394,132	\$68,164,193	\$119,522,438	\$394,174	\$119,916,612
Wage earners, average number:						
(including those paid by strip contractors)						
Including shut-down periods .....	14,792	23,517	53,573	91,882	362	92,244
Excluding shut-down periods .....	17,838	25,831	57,293	100,962	504	101,466

(a) Includes only coal put through separate culm-bank washeries. In addition, a total of 617,350 tons of culm-bank coal was treated at breakers, 192,790 tons in the Lehigh District, 188,584 in the Schuylkill District, and 235,976 tons in the Wyoming District. The total quantity of culm-bank coal treated at both washeries and breakers was Lehigh 192,790 tons, Schuylkill 1,748,960, and Wyoming 760,718, a grand total of 2,702,468 tons. (b) Excludes margins of separately incorporated sales companies. (c) Includes receipts for power sold and services performed for other establishments. (d) Includes cost of lumber or timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine, breaker, or washery. (e) The reported expenditures for colliery fuel include gasoline, Diesel engine oil, and freight charges, if any, on coal used, and therefore exceed in some cases the f.o.b. mine value of the anthracite used for colliery fuel, as reported elsewhere by the Bureau of Mines. (f) Coal for fuel and electric power is often furnished to the strip contractor without charge by the coal operator under the terms of the contract. (g) The operator was instructed to "deduct charges for explosives and supplies furnished by the company."

TABLE XV.- PRODUCTION, VALUE OF PRODUCTS, AND EXPENDITURES FOR SUPPLIES, COLLIERY FUEL, PURCHASED ELECTRIC POWER, AND WAGES AT COLLIERIES AND WASHERIES IN THE PENNSYLVANIA ANTHRACITE INDUSTRY, IN 1935, BY FIELDS.

	Northern field	Eastern middle field	Western middle field	Southern field	Total excluding Sullivan	Sullivan County (Bernice Basin)	Total collieries and washeries
Number of operations active .....	195	29	57	32	313	6	319
Coal produced - net tons of 2000 lbs.:							
Breaker product .....	27,700,235	5,248,176	10,231,664	6,091,307	49,271,382	189,965	49,461,347
Washery product <u>a</u> / .....	524,742	---	1,483,023	99,204	2,106,969	---	2,106,969
Total .....	28,224,977	5,248,176	11,714,687	6,190,511	51,378,351	189,965	51,568,316
Value of products:							
Breaker coal .....	\$118,945,667	\$22,081,169	\$40,392,762	\$22,881,375	\$204,300,973	\$602,458	\$204,903,431
Washery coal .....	\$99,258	---	\$3,462,744	\$247,828	\$4,709,830	---	\$4,709,830
Total coal <u>b</u> / .....	\$119,944,925	\$22,081,169	\$43,855,506	\$23,129,203	\$209,010,803	\$602,458	\$209,613,261
Other products or services <u>c</u> / .....	\$20,392	\$20,265	---	---	\$220,657	---	\$220,657
Total value of products .....	\$119,965,317	\$22,281,434	\$43,855,506	\$23,129,203	\$209,231,460	\$602,458	\$209,833,918
Expenditures for supplies and materials including explosives furnished miners <u>d</u> /:							
By operator .....	\$13,005,795	\$2,632,113	\$5,943,124	\$3,237,166	\$24,818,198	\$76,499	\$24,894,697
By strip contractor .....	\$264,545	\$293,838	\$368,828	\$758,281	\$2,185,192	---	\$2,185,192
Total supplies and materials .....	\$13,270,340	\$2,925,951	\$6,311,952	\$3,995,447	\$27,003,690	\$76,499	\$27,080,189
Expenditures for colliery fuel:							
By operator <u>e</u> / .....	\$2,029,270	\$515,384	\$711,541	\$343,944	\$3,600,139	\$13,018	\$3,613,157
By strip contractor <u>f</u> / .....	\$97,576	\$90,295	\$216,737	\$150,428	\$555,036	---	\$555,036
Total colliery fuel .....	\$2,126,846	\$605,679	\$928,278	\$494,372	\$4,155,175	\$13,018	\$4,168,193
Expenditures for purchased electric power:							
By operator .....	\$2,202,408	\$812,855	\$2,610,968	\$1,432,844	\$7,059,075	\$4,120	\$7,063,195
By strip contractor <u>f</u> / .....	\$6,024	\$20,613	\$41,768	\$40,240	\$108,645	---	\$108,645
Total purchased power .....	\$2,208,432	\$833,468	\$2,652,736	\$1,473,084	\$7,167,720	\$4,120	\$7,171,840



Wages paid, less charges for explosives and supplies:							
By operator g/ .....	\$67,714,439	\$12,650,294	\$22,602,845	\$12,817,305	\$115,784,883	\$394,174	\$116,179,057
By strip contractor .....	\$49,754	\$945,239	\$1,336,304	\$1,006,258	\$3,737,555	---	\$3,737,555
Total wages paid .....	\$68,164,193	\$13,595,533	\$23,939,149	\$13,823,563	\$119,522,438	\$394,174	\$119,916,612
Wage earners, average number:							
(including those paid by strip contractors)							
Including shut-down periods .....	53,573	11,285	18,233	8,791	91,882	362	92,244
Excluding shut-down periods .....	57,293	12,235	20,000	11,434	100,962	504	101,466
Net tons mined by stripping .....	702,299	1,347,042	1,700,973	1,418,464	5,168,778	18,294	5,187,072

(a) Includes only coal put through separate culm-bank washeries. In addition, a total of 617,350 tons of culm-bank coal was treated at breakers, 255,976 tons in the Northern Field, 143,473 tons in the Eastern Middle Field, 60,673 tons in the Western Middle Field, and 177,228 tons in the Southern Field. The total quantity of culm-bank coal treated at both washeries and breakers was Northern Field 760,718 tons, Eastern Middle Field 143,473 tons, Western Middle Field 1,521,845 tons and Southern Field 276,432 tons, a grand total of 2,702,468 tons. (b) Excludes margins of separately incorporated sales companies. (c) Includes receipts for power sold and services performed for other establishments. (d) Includes cost of lumber or timber, iron and steel materials, explosives and oil used directly or sold to employees, water for boilers, machinery supplies, and all other supplies and materials necessary to maintain and operate the mine, breaker, or washery. (e) The reported expenditures for colliery fuel in addition to the cost of coal include gasoline, Diesel engine oil, and freight charges, if any, on coal used, and therefore exceed in some cases the f.o.b. mine value of the anthracite used for colliery fuel, as reported elsewhere by the Bureau of Mines. (f) Coal for fuel and electric power is often furnished to the strip contractor without charge by the coal operator under the terms of the contract. (g) The operator was instructed to "deduct charges for explosives and supplies furnished by the company."

TABLE XVI.-- PRODUCTION, VALUE OF PRODUCTS, EXPENDITURES FOR SUPPLIES, FUEL, PURCHASED ELECTRIC POWER, WAGES AND SALARIES, AND NUMBER OF EMPLOYEES AT RIVER DREDGES IN THE PENNSYLVANIA ANTHRACITE INDUSTRY IN 1935, BY REGIONS

	Lehigh and Wyoming districts	Schuylkill district	Total dredges
Number of operations active .....	3	28	31
Coal produced - net tons of 2000 lbs. Dredge product .....	97,805	492,662	590,467
Value of product:			
Coal, value at dredge <u>a/</u> .....	\$123,017	\$394,287	\$517,304
Other products or services .....	---	---	---
Total value of products .....	\$123,017	\$394,287	\$517,304
Expenditures for supplies and materials .....	\$8,282	\$51,875	\$60,157
Expenditures for fuel, including gasoline and oil ....	\$10,182	\$19,076	\$29,258
Expenditures for purchased electric power .....	\$1,709	\$23,864	\$25,573
Wages paid .....	\$29,301	\$155,983	\$185,284
Wage earners, average number:			
Including shut-down periods .....	27	167	194
Excluding shut-down periods .....	57	240	297
Salaried employees:			
Number at dredge or offices directly connected therewith <u>b/</u> .....	7	30	37
Compensation .....	\$11,114	\$40,107	\$51,221

a/ Excludes selling expense. b/ Employees at central offices remote from the operation are not included.

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cite region proper was \$27,003,690. The Sullivan County semi-anthracite mines reported expenditures of \$76,499.

Of the \$60,157 spent by dredge operators for supplies, \$51,875 was in the Schuylkill district and \$8,282 in the Lehigh and Wyoming districts.

### COLLIERIES AND WASHERIES

It would be of interest to further separate washeries from breaker operations, but the census returns for these two types of operation were so often combined on the same schedule as to make this impracticable. The best that can be done is to show for each area the total tonnages of washery product and breaker product derived from the expenditures reported. This is done in tables XIV and XV, which present the returns for collieries and washeries first by the three districts, Lehigh, Schuylkill, and Wyoming, and then by the four fields, Northern, Eastern Middle, Western Middle, and Southern, with the Bernice Basin of Sullivan County shown separately. From table XIV, for example, it will be seen that the Schuylkill district reported 13,915,561 tons of breaker product and 1,582,227 tons of culm-bank washery product as the result of the expenditures for supplies, fuel, power, and wages indicated. In addition to the washery product itself, a further quantity of 188,584 tons of culm-bank coal was put through the breakers in the Schuylkill district and is included, therefore, in the quantity reported as breaker product. The proportions of culm-bank coal vary from district to district and field to field, and this fact should be borne in mind in any comparisons of expenditures with tonnage in different districts or fields. The comparative expenditures are also much affected by the proportion of strip-mined coal.

### RIVER DREDGES

Table XVI shows the operations of river dredges by regions insofar as they can be shown without disclosure of individual business. Coal is obtained by dredging in each of the three principal districts, but the Schuylkill district is much the largest center of activity. The principal streams from which the dredged product is obtained are, in order of importance, the Susquehanna River and its tributaries, Mahanoy and Shamokin Creeks; the

TABLE XVII.- PENNSYLVANIA ANTHRACITE SHIPPED, SOLD LOCALLY, AND USED AS COLLIERY FUEL IN 1935, BY DISTRICTS  
(As reported by the U. S. Bureau of Mines)

District	Shipments		Local sales		Colliery fuel		Total	
	Net tons	Value a/	Net tons	Value	Net tons	Value	Net tons	Value a/
<u>Anthracite Region, excluding Sullivan County</u>								
Lehigh:								
Breaker product .....	6,939,191	\$29,202,045	298,972	\$1,374,608	417,423	\$669,276	7,655,586	\$31,245,929
Dredge product .....	78,578	90,224	---	---	---	---	78,578	90,224
Total Lehigh .....	7,017,769	29,292,269	298,972	1,374,608	417,423	669,276	7,734,164	31,336,153
Schuylkill:								
Breaker product .....	12,779,324	50,823,898	601,978	2,517,938	534,259	767,541	13,915,561	54,109,377
Washery product .....	1,514,648	3,528,918	49,908	152,674	17,671	28,980	1,582,227	3,710,572
Dredge product .....	295,564	188,397	194,550	203,693	2,538	2,197	492,662	394,287
Total Schuylkill .....	14,589,536	54,541,213	846,446	2,874,305	554,468	798,718	15,990,450	58,214,236
Wyoming:								
Breaker product .....	24,547,692	109,796,251	1,635,014	7,457,658	1,517,529	1,691,758	27,700,235	118,945,667
Washery product .....	279,754	672,572	1,160	3,548	243,828	323,138	524,742	999,258
Dredge product .....	---	---	19,227	72,793	---	---	19,227	72,793
Total Wyoming .....	24,827,446	110,468,823	1,655,401	7,493,999	1,761,357	2,014,896	28,244,204	119,977,718
Total, excluding Sullivan County:								
Breaker product .....	44,266,207	189,822,194	2,535,964	11,350,204	2,469,211	3,128,575	49,271,382	204,300,973
Washery product .....	1,794,402	4,201,490	51,068	156,222	261,499	352,118	2,106,969	4,709,830
Dredge product .....	574,142	278,621	213,787	236,486	2,538	2,197	590,467	517,304
Total .....	46,634,751	194,302,305	2,800,819	11,742,912	2,733,248	3,482,890	51,968,818	209,528,107
Sullivan County: b/								
Breaker product .....	103,078	300,325	74,151	289,115	12,736	13,018	189,965	602,458
<u>Grand total</u> .....	<u>46,531,829</u>	<u>194,602,630</u>	<u>2,874,970</u>	<u>12,032,027</u>	<u>2,745,984</u>	<u>3,495,908</u>	<u>52,158,783</u>	<u>210,130,565</u>

a/ Value given is value at which coal left possession of producing company f.o.b. mines and does not include margins of separately incorporated sales companies. b/ For purposes of historical comparison and statistical convenience the mines of Sullivan County are grouped with the Pennsylvania anthracite region although the product is classified as semi-anthracite according to the American Society for Testing Materials' Tentative Standard.

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Schuylkill River; and the Lehigh River. For the 31 dredging operations active in the region in 1935, the total value of product was \$517,304. Expenditures for supplies and materials were \$60,157; for fuel, including gasoline and oil, \$29,258; for purchased electric power, \$25,573; and for wages, \$185,284. Reduced to a per-ton basis, the expenditures reported were as follows:

	Cents
Supplies and materials.....	10.2
Fuel, including gasoline and oil.....	5.0
Purchased electric power.....	4.3
Wages.....	31.4

The average number of wage earners employed, excluding shut-down periods, was 297.

**DISPOSAL OF PRODUCT**

Table XVII gives the disposition of the production of anthracite in 1935, as reported to the U. S. Bureau of Mines. Of the year's production of 52,158,783 tons, 46,537,829 tons were shipped by rail or by truck to points outside the anthracite region. These figures include shipments to storage yards but exclude shipments out of storage, in order to avoid double counting. A total of 2,874,970 tons was sold locally to customers within the anthracite region. The combined items of shipments and local sales, amounting to 49,412,799 tons, represent the commercial production.

The quantity of anthracite used for colliery fuel in 1935, as already noted, was 2,745,984 tons.

APPENDIX - PART II

## APPENDIX

### SCHEDULE USED AND DEFINITIONS OF TERMS

#### DEFINITIONS

##### Production

The record of production includes all marketable coal mined during the calendar year. Refuse from preparation plants is excluded, as is silt or coal in the form of particles so small as to be at present unsaleable. The unit of measurement is the net or short ton of 2,000 pounds.

##### Value of Product

In reporting the value of the coal produced, the operator was asked to state the "net selling value f.o.b. point of shipment of all anthracite produced during 1935 *whether disposed of or not*. . . . The value of any anthracite produced and used by the producer should be included." The figure therefore includes the value of the coal used as fuel by the colliery itself. It should be noted that the margins of separately incorporated sales companies are not included. As a large part of the anthracite produced is marketed through such separate corporations, the figures are often somewhat below the price paid by the consumer for the coal, f.o.b. mine. Since the inquiry regarding value preserves the form used for many years by the Bureau of Mines, the replies should furnish a faithful index to the rise and fall in the level of anthracite prices.

##### Other Products or Services

A few collieries reported revenue from work or services performed for other establishments. This included receipts for power generated and sold, hauling, hoisting, shopwork, pumping, use of drainage tunnels for disposal of mine water, and in some cases cleaning or preparing coal for the account of other producers. Rentals of company houses and income from stores were not included.

### Supplies and Materials

The inquiry relating to supplies and materials called for "cost of lumber or timber used for repairs, supports, ties, and other purposes; iron and steel for blacksmithing, rails, frogs, sleepers, and other uses; explosives and oil used directly or sold to employees; water for boilers; machinery supplies; and all other supplies and materials necessary to maintain and operate the mine, breaker, or washery." The supply bill, as thus defined, includes the important item of explosives purchased and resold to the miners at prices generally fixed by agreement. The powder cost often amounts to 10 cents per ton of coal, and its inclusion in the supply costs and exclusion from the wages paid should be borne in mind in considering the tables of this report.

Expenditures for new machinery were not asked for at the 1935 Census and should not have been reported as supplies. Some operators, however, have apparently included under supplies either new machinery or other items of expenditure, such as depreciation, depletion, and royalties. In order to run down such extraneous items, per-ton expenditures for supplies were computed for each schedule, and where the indicated cost per ton seemed unduly high, an inquiry was addressed to the company or, in a few cases, an adjustment was made.

### Colliery Fuel

The inquiry regarding fuel called for the cost of fuel for all purposes, including the value of colliery fuel produced by the operator. The returns, therefore, include the cost of gasoline and Diesel engine oil, which constitute a large proportion of the fuel consumed by stripping contractors and dredge operators. By far the largest item of fuel expense was the cost of coal used by the operator for power or heat. The coal cost as thus reported includes freight charges, if any, and where the coal is shipped from one mine or washery to another, sometimes by way of a central preparation plant, the reported cost will exceed the reported value, f.o.b. mine, of the same tonnage as given on the schedule for the producing colliery. For these reasons, the figures of cost of fuel as given in tables VIII, XIII, XIV, and XV



exceed, in some instances, the value of the anthracite used as colliery fuel, given in table XVII.

#### Purchased Electric Power

The inquiry regarding expenditures for electricity relates only to power purchased from power plants not directly connected with the mine. In nearly all cases the payments reported were to central electric stations operated by public utilities. In a few instances, the mining company operated a central power plant serving many mines and followed the practice of charging each mine with purchases of power from this central plant.

The returns do not include cost of power, whether steam or electric, generated directly by the mine itself, except as this is represented in the item of colliery fuel.

#### Proprietors and Firm Members

The schedule called for the number, but not the compensation, of proprietors and firm members of concerns other than corporations. The total reported - 59 - may understate the fact, as several very small mines returned as corporations may actually have been operated as partnerships or individual proprietorships.

#### Salaried Employees

The schedule called for the number of salaried employees on December 14, 1935 and the total salaries, including bonuses and commissions, paid during 1935. It instructed that "this report should cover only employees actually at mine, breaker, or washery and at office in connection therewith." The information received in response to this question was not fully comparable with that for 1929. In both years employees at central offices were returnable on a separate form for "General Administrative Office Personnel", but the line distinguishing central offices was differently drawn for the two years. In 1929 salaried employees at separate administrative offices located in the anthracite region were, in most cases, grouped with the colliery reports. In 1935 only the salaried personnel at the colliery or in offices directly connected therewith or reported on the single return covering

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both collieries and administrative offices were included. Two of the larger companies submitted a single return covering all of their salaried employees in the anthracite region.

The figures for 1935 in the tables, therefore, include fewer salaried officers of corporations, higher-paid technical employees, and clerical workers at central offices than were included with the mine reports at the 1929 Census.

Separate returns on personnel at general administrative offices were made by 24 companies. These 24 reports gave a total of 1,568 employees, whose compensation was \$3,542,421. These items are in addition to the salaried personnel recorded in the tables, and they include certain offices located outside the anthracite region. Branch sales offices, however, are not included.

### Wage Earners, by Months

The inquiry regarding wage earners called for "the number of wage earners working any time during a week or pay period of normal activity in each month during 1935, preferably the week or pay period ending nearest the 15th of each month. Include foremen and overseers in minor positions as well as employees on piecework."

### Wages Paid

The inquiry regarding wages asked for total wage payments to all wage earners reported under the preceding question, including employees paid by the ton, yard, or other piecework basis. The employer was also requested to deduct charges for explosives and other supplies furnished by the company. The deductions of explosives were checked with the auditors of certain of the larger companies, and the per-ton wage charges reported by others indicate that the deductions were in fact generally made. The figures of wages paid, therefore, represent net wages after deducting these occupational charges.

The census data regarding wages are chiefly useful to determine the industry's total wage bill and the total income flowing from wages within a given area. A word of caution should be offered, however, regarding the use of census data to measure average earnings. Calculations of average annual earnings depend on the

accuracy of the computed average number of wage earners and, as later pointed out, this computation is in itself beset with pitfalls. Computation of average daily earnings would require more accurate records of time worked than are obtainable at a general census. The number of days of mine operation and the computed man-days of labor in 1935, derived from the same schedules by the standard methods of the Bureau of Mines, are given in table XII. These figures of man-days are the best that can well be obtained from a general canvass, but as most anthracite mines keep no actual records of the time put in by the pieceworkers, who constitute a majority of the working force, the number of man-days has to be computed from the average number of men employed at the mine and the number of days worked. The computed number of man-days is a useful yardstick of the amount of labor expended, but it is not precise.

For these reasons, the census returns of wages and employment do not furnish a basis for accurate measurement of the daily earnings of employees in the anthracite mines. Investigation of this subject would require special arrangements to record the hours worked by tonnage men in relation to the wages received.

#### SCHEDULE USED

A facsimile of the schedule of inquiry, Form 6-993 C, used by the Bureau of Mines in collecting the information, follows.

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6-988 C



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES  
WASHINGTON

CONFIDENTIAL  
FOR GOVERNMENT USE  
ONLY

IN COOPERATION WITH THE UNITED STATES BUREAU OF THE CENSUS

PENNSYLVANIA ANTHRACITE IN 1935

By special arrangement, data on mines and quarries for 1935 are being collected for the Bureau of the Census by the United States Bureau of Mines as a part of its annual canvass of mineral producers.

Please reply to the following questions and return the schedule as promptly as possible in the enclosed envelop which requires no postage. A separate report should be prepared for each mine, breaker, or washery that was in operation for either production or development purposes during the calendar year 1935. If operated by you ANY PART of 1935 please fill out this schedule. Additional blanks will be furnished upon request. Report in NET TONS of 2,000 pounds. IF YOU HAD NO OUTPUT PLEASE SO STATE AND ANSWER REMAINING PERTINENT QUESTIONS.

Only sworn employees of the Bureau of Mines and the Bureau of the Census will be permitted to examine your report and, except with your express permission, no information will be given out by either Bureau which will disclose any figures in your report.

In appreciation of your cooperation, a copy of the published report will be sent to you.

1. DESCRIPTION AND LOCATION OF OPERATION:

Name of operation .....

Check type of operation: Mine .....; Breaker .....; Culm-bank washery .....; Central cleaning plant .....

Name of operator .....

General office address .....

Location of operation: Trade region .....; Field .....  
County .....; Post office .....

Has operation changed hands in the last year? If so, date .....

Name of predecessor, if any .....

Address of same .....

Name of successor, if any .....

Address of same .....

Check type of organization: Corporation .....; Partnership .....; Individual proprietorship .....; Other (specify) .....

Are you mining coal and selling to other companies for preparation? .....

Names of your own mines or culm banks supplying coal to this operation .....

2. MINE EXPENDITURES (INCLUDING DEVELOPMENT WORK):

(a) Cost of supplies and materials (excluding fuel) actually used in 1935 ..... \$.....  
(Include cost of lumber or timber used for repairs, supports, ties, and other purposes; iron and steel for blacksmithing, rails, frogs, sleepers, and other uses; explosives and oil used directly or sold to employees; water for boilers; machinery supplies; and all other supplies and materials necessary to maintain and operate the mine, breaker, or washery. If figures on supplies and materials actually used are not available, purchases during the year may be substituted.)

(b) Cost of fuel for all purposes in 1935 (include estimate for value of colliery fuel produced by operator) .....

(c) Cost of purchased electric current in 1935 .....

(d) Total (sum of (a), (b), and (c)) .....

3. PERSONNEL, OTHER THAN WAGE EARNERS, AND SALARIES PAID:

Please report the number of salaried employees on December 14, 1935, and the total salaries—including bonuses and commissions—paid during 1935. (If December 14 was not a representative day, give data for a day which more nearly represents the normal number of salaried employees.) DO NOT INCLUDE WAGE EARNERS reported under question 4. Do not count the same person twice under different headings; for example, if a firm member is also the general manager report him only once. This report should cover only employees actually at mine, breaker, or washery and at office in connection therewith. A separate schedule will be supplied for reporting the employees of a central administrative office located elsewhere than at mine, breaker, or washery.

	NUMBER	Total compensation—including bonuses and commissions—paid during 1935
(a) Proprietors or firm members (not applicable to corporations).....		
(b) Salaried officers of corporation (do not include directors who receive no salary).....		X X X X X X X X X X
(c) Supervisory and technical employees (include managers, superintendents, mining or mechanical engineers, and other responsible administrative and technical employees).....		\$.....
(d) Other salaried employees (include clerks, stenographers, bookkeepers, timekeepers, draftsmen, and others receiving compensation on a salary basis, whether in office or mine).....		
(e) Total salaried employees (sum of (b), (c), and (d)).....		\$.....

Please reply to the questions on the other pages of this schedule

[over]

4. WAGE EARNERS (EXCLUDE SALARIED EMPLOYEES) AND WAGES PAID:

Please report all wage earners working at mine, breaker, or washery covered by this report. DO NOT INCLUDE SALARIED EMPLOYEES reported under question 3.

(a) In the following table please indicate the number of wage earners working any time during a week or pay period of normal activity in each month during 1935, preferably the week or pay period ending nearest the 15th of each month. Include foremen and overseers in minor positions as well as employees on piecework.

EMPLOYED UNDERGROUND				EMPLOYED ABOVE GROUND			
Month	Number	Month	Number	Month	Number	Month	Number
January.....		July.....		January.....		July.....	
February.....		August.....		February.....		August.....	
March.....		September.....		March.....		September.....	
April.....		October.....		April.....		October.....	
May.....		November.....		May.....		November.....	
June.....		December.....		June.....		December.....	

(b) Total wages paid during 1935..... \$.....  
 (Report total wage payments to all wage earners specified under (a), including employees paid by ton, cubic yard, or other piecework basis. Deduct charges for explosives and other supplies furnished by the company.)

5. PRODUCTION IN 1935:

(a) SHIPMENTS—by railroads, waterways, and by trucks to points outside of anthracite region (include prepared coal of all sizes produced and put in storage):

	QUANTITY (Net tons of 2,000 pounds)	VALUE AT BREAKER OR WASHERY (Exclude selling expense and stock shrinkage. Estimate value of coal not sold)
Lump and broken.....		\$.....
Egg.....		
Stove.....		
Chestnut.....		
Pea.....		
Buckwheat No. 1.....		
Buckwheat No. 2.....		
Buckwheat No. 3.....		
Buckwheat No. 4.....		
Other, including boiler (specify).....		
TOTAL SHIPMENTS.....		\$.....

(b) Sold to LOCAL TRADE within anthracite region or used by employees..... \$.....

(c) USED FOR POWER at colliery..... \$.....

(d) TOTAL (sum of (a), (b), and (c)) SHIPPED, SOLD, OR USED IN 1935..... \$.....

(e) If the sum of (a), (b), and (c) is not substantially equal to the total production for the year, because of the practice of storing run-of-mine coal on the ground before preparing it in the breaker, please give below the amount of such storage and the total production:

Run-of-mine stored on ground:	NET TONS
January 1, 1935.....	
December 31, 1935.....	
Net change during 1935.....	

(f) Total production in 1935:  
 (Item (d) plus net change in run-of-mine storage)..... \$.....

6. VALUE OF PRODUCTS:

(a) Total value of all anthracite produced in 1935..... \$.....  
 (Report the net selling value f. o. b. point of shipment of all anthracite produced during 1935 whether disposed of or not. This figure may vary from the total asked in question 5 (d) in that it should include the value of all anthracite produced even though part may have been held in stock at the end of the year. The value of any anthracite produced and used by the producer should be included.)

(b) Amount received for work or services performed for other establishments..... \$.....  
 (Report receipts for power generated and sold, hauling, hoisting, pumping, shopwork, selling, cleaning or preparing coal, or similar services.)

7. If any of the production reported under question 5 was prepared at some other breaker of your company please give name of breaker which prepared the coal.....



16. PREPARATION PLANTS AT THIS OPERATION:

NAME OF PLANT	ACTIVE OR IDLE IN 1935 (Specify)
Breaker, equipped to prepare standard sizes of fresh-mined coal.....	.....
Culm-bank washery.....	.....
Other preparation plant, for preliminary crushing, screening, or cleaning--	.....

17. EMPLOYMENT IN 1935 (including all persons connected directly with mine, breaker, or washery; *excluding* office force):

	UNDERGROUND		SURFACE			TOTAL
	Miners and their laborers *	All other underground	In strip pits	At prepara- tion plant *	All others on surface (excluding office force)	
Average number of men employed.....	.....	.....	.....	.....	.....	.....
Number of full days plant was operated.....	.....	.....	.....	.....	.....	x x x x x
Length of working day (7, 8, or 9 hours).....	.....	.....	.....	.....	.....	x x x x x

\* Include all miners (contract, consideration, and company) and their laborers. \* Include employees inside breakers, culm-bank washeries, and other cleaning and sizing plants. Employees in yards, shops, power house, etc., should be reported in column "All others on the surface." \* Parts of days should be reduced to equivalent in full days.

18. Do you keep a record of the number of man-days worked? ..... Of the number of man-hours? .....

(Yes or no) (Yes or no)

If so, please give below the number worked in 1935:

	UNDERGROUND	IN STRIP PITS	AT PREPARA- TION PLANT	ALL OTHERS ON SURFACE (EXCLUDING OFFICE FORCE)	TOTAL
Total man-days worked.....	.....	.....	.....	.....	.....
Total man-hours worked.....	.....	.....	.....	.....	.....

19. Were there any STRIKES in 1935 at the operation reported hereon? If so, state number of men affected and duration in days, excluding Sundays and holidays:

Men on strike ..... Days on strike .....

20. RAILROAD, WATERWAY, AND TRUCK SHIPMENTS:

(Exclude coal shipped to other breakers or washeries for preparation, or for boiler fuel.)

(a) Railroads and waterways:

(List separately each rail or water carrier on which product was first loaded for shipment.)

NAME	NET TONS LOADED ON EACH
.....	.....
.....	.....
.....	.....

(b) Trucks: Report all deliveries to points inside and outside the anthracite region. If possible, give separate figures for coal—

Trucked to points inside the anthracite region (local sales).....

Trucked to points outside the anthracite region.....

(Signature)

(Official position)

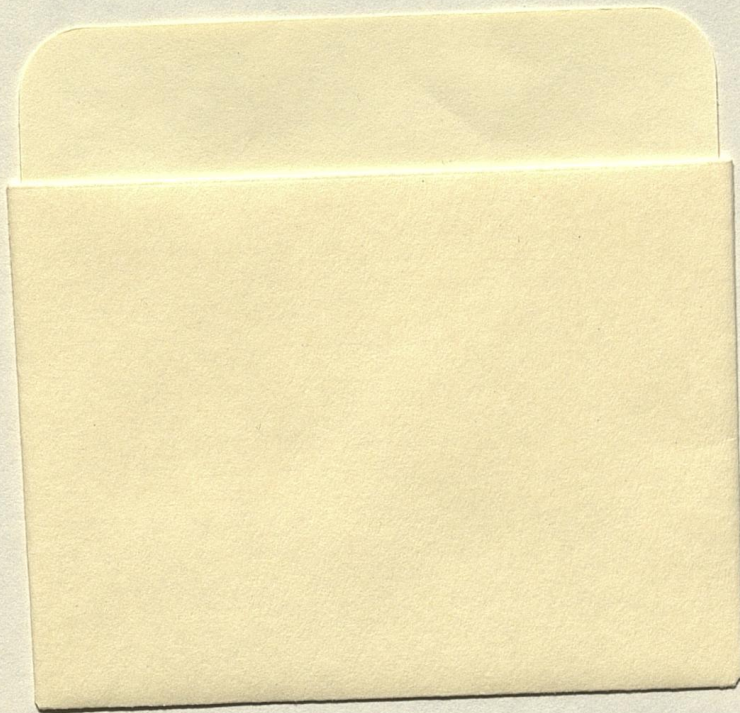
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