DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES

MINES AND QUARRIES: 1919

OHIO, INDIANA, ILLINOIS, IOWA

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, in which neither productive work nor development work was done during the entire year; or the products of which were valued at less than $500; or in the case of the bituminous coal mining industry, producing less than 1,000 tons; or, if not productive, in which development work amounting to less than $5,000 was done.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same State operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same State. If plants under unified control were not all located within the same State, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the States in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, is reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the State. A selection has been made of the leading industries of the State for more detailed consideration. Industries of greater importance than some of those selected are omitted when they comprise so few enterprises that detailed presentation would reveal the operations of individual concerns.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of employees of this class does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation which was made for the representative day. This number is not used in any other way because, in view of the unavoidable variations of date, such a total is believed to be less significant than the average number. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give undue weight to seasonal industries as compared with industries in continuous operation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours in an establishment from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class within which the enterprise itself falls. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. *Do not* include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the *Census of 1909*. The reports received in respect to capital, however, at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported in the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of those used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Royalties and rents.—The amount is given under this head represent the payment to fee holders or the value of share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock; corporation income, and excess profits tax; and also State, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation of mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics ion producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Quantity of products.—In so far as the statistics on quantities of mineral products in 1919 are available for the states, they will be found in the reports of the United States Geological Survey, which has tabulated the statistics on quantities of products collected by the Bureau of the Census in cooperation with the Geological Survey, and will also be presented in the special reports of the Census on the several mining industries.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product made in 1919 under the terms by which it was disposed of, and also includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Lands controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

OHIO.

Ohio, which ranks thirty-fifth among the states in size (land area, 40,740 square miles) and fourth in population (5,759,394 in 1920), ranked seventh in value of mineral products for 1919. The state ranked fourth in total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross value of mineral products for the state in 1919 was $134,518,505. Deducting from this gross value $3,092,567, the value of natural gas sold by some producers for use as material and for resale by others, leaves $131,425,938, the net value of products, an increase of 125.1 per cent as compared with the corresponding value reported at the census of 1909.

Increases in wages, cost of supplies and materials, fuel and power, and in the value of products shown in Table 1, the comparative summary for 1919 and 1909, although perhaps largely due to general price increases, were also in part due to growth of the mining industries. The progress of the mining industries in Ohio is better indicated by the moderate increase in the number of enterprises and number of individual mines and quarries and wells operated. The small decrease in the average number of wage earners, shown in Table 1, is due to unemployment in the coal-mining industry in November, 1919. With normal employment in the coal industry the average number of wage earners employed in all mining industries for 1919 would have shown slight increase over 1909. The addition of Federal income and excess-profits taxes since 1909 will account for the large increase in taxes.

The industries reported for 1919, ranked according to value of products, were coal mining, petroleum and natural-gas production, limestone quarrying, sandstone quarrying, clay mining, and gypsum mining. The production of salt was an important mineral industry in Ohio in 1919, but was not included in the census of mines and quarries. Those industries for which the statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

Four industries, coal, petroleum and natural gas, limestone, and sandstone, together reported 98.9 per cent of the total value of products and 98.8 per cent of the total number of wage earners employed in mining and quarrying in Ohio in 1919.

The principal mining industry, coal, reported products valued at $77,988,602, which was 58 per cent of the total value of products of all mining industries in the state. Ohio ranked fourth among the states in value of products of coal mines. The coal-producing area of this state is part of the Northern Appalachian Coal Province, which extends into adjoining states. In Ohio it covers approximately 12,500 square miles in eastern and southeastern counties, 28 of which reported production in 1919.

The petroleum and natural-gas industry ranked second in importance, with an output valued at $42,390,958 (net). Ohio ranked seventh among the states in this industry. The petroleum and natural-gas operations in Ohio were in two fields, the Appalachian Field in the eastern half of the state, from which 36 counties reported production, and the Lima-Indiana Field in the northwestern part of the state from which 14 counties reported production.

In 1919 limestone held third rank among the industries in the state and sandstone fourth. In both these industries Ohio ranked second among the states with products valued at $6,742,496 and $2,759,352, respectively. The limestone operations were well distributed over the state and were reported from 32 counties, whereas the sandstone quarrying was reported from only 12 counties in the eastern half of the state.

In addition to the products indicated by the industry designations by-products were reported as follows: Twelve clay enterprises produced coal; one enterprise, classified as a limestone operation, also mined coal; two limestone mining enterprises reported production of lime; ten coal enterprises produced clay, and five produced pyrite. The aggregate value of these by-products, together with other unspecified products and receipts for power sold and miscellaneous work or services for other enterprises, amounting to $976,086, has been included in the total value of products reported for the industries. The statistics do not include data on the mining of clay or of coal, incidental to clay mining, when these were mined by manufacturers of clay products for use in their plants at the mines.

Operations on nonproductive mineral properties were reported by a few enterprises in Ohio in 1919. These operations for development were negligible as compared with the producing enterprises.

The corporate form of organization was most common among enterprises in the mining industries in Ohio in 1919. As shown in Table 3, corporations conducted 39.7 per cent of all enterprises, a greater percentage than that shown for any other form of

organization. They employed 91.9 per cent of the total number of wage earners and reported 89.6 per cent of the total value of products. The preponderance of corporations is most marked in the coal industry in which they operated 57.5 per cent of the enterprises, employed 93.4 per cent of the total number of wage earners, and reported 93.8 per cent of the total value of products, and is least marked in the petroleum and natural-gas industry, in which they operated only 26.8 per cent of the total number of enterprises, but employed 78.6 per cent of the total number of wage earners and reported 81.3 per cent of the total value of products.

Table 4 shows the relatively large number of small enterprises as measured by the number of wage earners employed. Of the total number of enterprises in Ohio, 94.9 per cent were in classes having no wage earners or less than 101, and such enterprises employed only 37 per cent of the total number of wage earners. On the other hand, enterprises employing more than 100 wage earners constituted only 5.1 per cent of the total number of enterprises but employed 63 per cent of the total number of wage earners. Similar relations are also shown in Table 4 for the coal mining and quarrying industries.

Table 5 shows that in a majority of enterprises employing wage earners and for more than 80 per cent of the total number of wage earners the prevailing hours of labor were 44 to 53 per week. For a considerable number of enterprises and wage earners the prevailing hours were 54 to 62 per week. Table 5 also shows that in the coal-mining industry the hours of labor per week were most commonly 44 to 53, in the quarrying industries 54 to 62, and in the petroleum and natural-gas industry also 54 to 62, but in this industry a considerable number of enterprises, employing relatively very few wage earners, reported the prevailing hours as less than 35 per week.

The statistics for wage earners given in Table 6, showing the changes in the number employed month by month, reflect conditions prevailing in the industries during the census year. The extremely low minimum in the coal-mining industry in November was the result of the great strike. This figure is not only extremely low as compared with the number employed in other months but is abnormal in that the minimum employment in the coal-mining industry in Ohio more commonly occurs in the spring or summer months. As the statistics for coal mining dominate those for the other industries, the month of minimum employment shown for all industries combined in Table 6 is also abnormal.

Table 7 presents for 1919 statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

	MINING INDUSTRIES.		Per cent of increase.[1]		MINING INDUSTRIES.		Per cent of increase.[1]
	1919	1909			1919	1909	
Number of enterprises	2,283	1,876	21.7	Capital	$256,057,006	$161,324,520	58.7
Number of mines and quarries	1,064	964	10.4	Principal expenses:			
Number of petroleum and natural-gas wells	35,440	35,067	1.1	Salaries	8,042,224	2,774,984	189.8
Number of natural-gas gasoline plants	53	(2)	.....	Wages	58,109,904	26,769,229	117.1
Persons engaged	56,736	56,256	0.9	Contract work	3,920,476	2,970,544	32.3
Proprietors and firm members, total	3,309	3,064	8.0	Supplies and materials [3]	19,209,516	12,736,355	50.8
Number performing manual labor in or about the mines, quarries, and wells	509	571	−10.9	Fuel and power	4,131,008	802,671	362.8
Salaried employees	4,129	2,625	57.3	Royalties and rents	6,339,816	3,667,382	72.9
Wage earners (average number)	49,298	50,567	−2.5	Taxes	4,028,789	856,766	370.2
Power used (horsepower)	337,511	294,763	14.5	Value of products	134,518,505	63,767,112	111.0

[1] A minus sign (−) denotes decrease. [2] Figures not available. [3] Includes cost of natural gas purchased as material.

TABLE 2.—PRINCIPAL INDUSTRIES, PRODUCING ENTERPRISES, RANKED BY VALUE OF PRODUCTS: 1919.

INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.		INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.			Average number.	Per cent distribution.	Amount.	Per cent distribution.
All industries	2,283	49,298	100.0	$134,518,505	100.0	Limestone	90	2,262	4.6	$6,742,406	5.0
Coal, bituminous	788	40,452	82.1	77,988,602	58.0	Sandstone	21	875	1.8	2,760,352	2.1
Petroleum and natural gas	1,333	5,123	10.4	45,483,525	33.8	All other industries [1]	51	586	1.2	1,544,580	1.1

[1] Includes enterprises in industries as follows: Clay, 49; gypsum, 2.

TABLE 3.—CHARACTER OF ORGANIZATION, FOR SELECTED INDUSTRIES, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Number of wage earners.	VALUE OF PRODUCTS.		PER CENT DISTRIBUTION.		
			Total.	Per enterprise.	Enterprises.	Wage earners.	Value of products.
ALL INDUSTRIES	2,283	49,298	$134,518,505	$58,922	100.0	100.0	100.0
Corporation	906	45,318	120,568,610	133,078	39.7	91.9	89.6
Individual	513	1,478	4,087,636	7,968	22.5	3.0	3.0
Firm	782	2,331	8,706,783	11,134	34.3	4.7	6.5
Other	82	171	1,155,476	14,091	3.6	.3	.9
COAL, BITUMINOUS	788	40,452	77,988,602	98,970	100.0	100.0	100.0
Corporation	453	37,798	78,116,226	161,404	57.5	93.4	93.8
Individual	172	1,118	2,008,691	11,678	21.8	2.8	2.6
Firm [1]	163	1,536	2,863,685	17,569	20.7	3.8	3.7
PETROLEUM AND NATURAL GAS	1,333	5,123	45,483,525	34,121	100.0	100.0	100.0
Corporation	357	4,027	36,960,934	103,532	26.8	78.6	81.3
Individual	296	261	1,701,832	5,753	22.2	5.1	3.9
Firm	600	698	5,661,294	9,435	45.0	13.6	12.4
Other	80	137	1,069,465	13,368	6.0	2.7	2.4
LIMESTONE	90	2,262	6,742,496	74,917	100.0	100.0	100.0
Corporation	45	2,087	6,287,088	139,713	50.0	92.3	93.2
Individual	30	81	245,901	8,197	33.3	3.6	3.6
Firm [1]	15	94	209,507	13,967	16.7	4.2	3.1

[1] Includes 1 other form of organization.

TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution.	Number.	Per cent distribution.
ALL INDUSTRIES	2,283	100.0	49,298	100.0
No wage earners	604	26.5	.....	.....
1 to 5	974	42.7	1,945	3.9
6 to 20	323	14.1	3,509	7.1
21 to 50	172	7.5	5,707	11.8
51 to 100	93	4.1	7,012	14.2
101 to 500	105	4.6	19,892	40.4
501 to 1,000	9	0.4	6,465	13.1
Over 1,000	3	0.1	4,678	9.5
COAL, BITUMINOUS	788	100.0	40,452	100.0
No wage earners	27	3.4	.....	.....
1 to 5	253	32.1	725	1.8
6 to 20	198	25.1	2,258	5.6
21 to 50	120	16.4	4,390	10.9
51 to 100	76	9.6	5,755	14.2
101 to 500	95	12.1	17,680	43.7
501 to 1,000	7	0.9	4,966	12.3
Over 1,000	3	0.4	4,678	11.6
PETROLEUM AND NATURAL GAS	1,333	100.0	5,123	100.0
No wage earners	572	42.9	.....	.....
1 to 5	660	49.5	1,096	21.4
6 to 20	72	5.4	685	13.4
21 to 50	14	1.1	477	9.3
51 to 100	10	0.8	736	14.4
101 to 500	3	0.2	630	12.3
501 to 1,000	2	0.2	1,499	29.3
LIMESTONE	90	100.0	2,262	100.0
No wage earners	2	2.2	.....	.....
1 to 5	39	43.3	87	3.8
6 to 20	24	26.7	257	11.4
21 to 50	18	20.0	551	24.4
51 to 100	3	3.3	228	10.1
101 to 500	4	4.4	1,139	50.4
SANDSTONE	21	100.0	875	100.0
1 to 5	4	19.0	6	0.7
6 to 20	7	33.3	81	9.3
21 to 50	4	19.0	117	13.4
51 to 100	3	14.3	228	26.1
101 to 500	3	14.3	443	50.6

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—											
			35 and under.		36 to 43.		44 to 53.		54 to 62.		63 to 71.		72 to 84.	
	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries	[1] 1,679	49,298	194	547	71	525	913	40,318	445	7,308	30	407	26	133
Coal, bituminous	761	40,452	20	350	42	476	675	38,968	24	658	.....	.....	.....	.....
Petroleum and natural gas	761	5,123	173	196	26	45	202	562	305	3,793	29	394	26	133
Limestone	88	2,262	.....	.....	2	3	6	467	80	1,792	.....	.....	.....	.....
Sandstone	21	875	.....	.....	.....	.....	4	11	16	791	1	73	.....	.....
All other industries	48	586	1	1	1	1	26	310	20	274	.....	.....	.....	.....

[1] Exclusive of 604 enterprises employing no wage earners in industries as follows: Clay, 3; coal, bituminous, 27; petroleum and natural gas, 572; limestone, 2.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OF NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries	49,470	51,037	48,466	48,139	47,986	50,487	52,390	53,684	56,510	56,983	56,674	*19,033*	51,351	33.4
Producing enterprises	49,298	51,820	48,325	48,005	47,838	50,336	52,236	53,518	56,340	56,792	56,448	*18,792*	51,125	33.1
Coal, bituminous	40,452	43,395	40,357	39,890	39,465	41,530	43,165	44,175	46,693	47,253	47,105	*9,827*	42,470	20.8
Petroleum and natural gas	5,123	4,982	*4,860*	4,935	4,952	5,082	5,108	5,248	**5,407**	5,331	5,211	5,171	5,189	89.9
Limestone	2,262	2,173	*1,878*	1,902	1,986	2,166	2,415	2,564	**2,659**	2,569	2,458	2,314	2,060	70.6
Sandstone	875	701	*687*	766	900	**1,008**	971	965	970	977	903	863	789	68.2
All other industries	586	560	543	*512*	535	550	577	566	611	602	**681**	618	608	75.2
Nonproducing enterprises	172	*117*	141	134	148	151	154	166	170	191	226	**240**	226	48.8

TABLE 7.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	Aggregate.	Producing enterprises.						Non-producing enterprises.[3]
		Total.	Coal, bituminous.[1]	Petroleum and natural gas.	Limestone.	Sandstone.	All other.[2]	
Number of enterprises	2,289	2,283	788	1,333	90	21	51	6
Number of mines and quarries	1,065	1,064	898	.....	91	23	52	1
Number of petroleum and natural-gas wells	35,440	35,440	.....	35,440	.....	.....	.....	.....
Number of natural-gas gasoline plants	53	53	.....	53	.....	.....	.....	.....
Capital	$257,144,007	$256,057,996	$144,508,527	$95,749,317	$10,087,803	$4,026,782	$1,685,567	$1,086,011
Principal expenses:								
Salaries and wages—								
Officers	$2,729,382	$2,726,182	$2,031,874	$461,053	$124,608	$86,352	$22,295	$3,200
Superintendents and managers	$2,628,882	$2,620,782	$1,735,506	$601,974	$187,463	$49,227	$46,612	$8,100
Technical employees	$252,003	$252,003	$173,699	$73,045	$4,800	$1,359	.....	.....
Clerks, etc.	$2,445,277	$2,442,357	$1,162,018	$968,846	$193,330	$80,042	$38,121	$2,920
Wage earners	$58,319,694	$58,109,904	$47,748,648	$6,343,279	$2,327,159	$965,151	$725,667	$209,790
Supplies and materials	$16,375,997	$16,116,949	$9,105,833	$5,197,502	$1,339,758	$288,557	$185,299	$259,048
Cost of natural gas purchased as material and resold	$3,092,567	$3,092,567	.....	$3,092,567	.....	.....	.....	.....
Fuel	$2,951,426	$2,949,460	$1,433,483	$848,211	$494,038	$92,720	$81,008	$1,966
Power	$1,189,858	$1,181,608	$925,302	$11,683	$200,673	$22,927	$21,023	$8,250
Royalties and rents	$6,343,386	$6,339,816	$1,420,770	$4,814,769	$64,009	$15,869	$24,399	$3,570
Taxes	$4,031,123	$4,028,789	$1,502,444	$2,045,436	$358,289	$47,991	$14,629	$2,334
Contract work	$3,944,652	$3,929,476	$371,663	$3,412,458	$120,421	$24,934	.....	$15,176
Expenditures for development (included in the above items)	$8,430,675	$7,931,195	$1,142,196	$6,745,006	$14,550	$19,499	$9,944	$508,480
Value of products	$134,518,505	$134,518,505	$77,988,602	$45,483,525	$6,742,496	$2,759,352	$1,544,530	.....
Persons engaged in industry	56,916	56,736	43,433	9,072	2,599	968	664	180
Proprietors and firm members (total)	3,309	3,309	622	2,588	65	2	32	.....
Number performing manual labor	509	509	312	163	20	.....	14	.....
Salaried officers	793	791	538	193	36	19	5	2
Superintendents and managers	1,162	1,159	723	310	92	19	15	3
Technical employees	149	149	110	35	3	1	.....	.....
Clerks, etc.	2,033	2,030	988	823	141	52	26	3
Wage earners (average number)	49,470	49,298	40,452	5,123	2,262	875	586	172
Wage earners by occupation (Dec. 15):								
Above ground (total)	16,865	16,837	8,046	5,249	2,482	818	242	28
Below ground (total)	40,489	40,291	39,831	.....	.....	.....	460	198
Foremen, shift bosses, etc.—								
Above ground	497	494	354	.....	94	29	17	3
Below ground	662	660	641	.....	.....	.....	19	2
Enginemen, hoistmen, electricians, mechanics, etc.—								
Above ground	7,362	7,352	2,681	4,177	419	45	30	10
Below ground	1,515	1,507	1,498	.....	.....	.....	9	8
Miners, quarrymen, and drillmen, including their helpers—								
Above ground	1,707	1,707	396	.....	917	328	66	.....
Below ground	18,341	18,163	17,948	.....	.....	.....	215	178
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—								
Above ground	978	975	839	.....	100	21	15	3
Below ground	7,736	7,726	7,622	.....	.....	.....	104	10
Muckers, loaders, laborers, and others not classified—								
Above ground	5,046	5,034	3,776	1,072	862	156	68	12
Below ground	12,235	12,235	12,122	.....	.....	.....	113	.....
Wage earners employed in mills and beneficiating plants—								
Above ground	375	375	.....	.....	90	239	46	.....
Mineral and oil land operated ... acres	1,947,462	1,914,023	442,887	1,449,239	9,437	2,978	9,482	33,439
Land controlled, total ... acres	1,996,126	1,962,687	488,852	1,449,239	10,759	3,094	10,743	33,439
Mineral and oil land owned	414,597	413,597	348,214	49,655	8,849	2,689	4,190	1,000
Mineral and oil land leased	1,551,640	1,519,201	113,280	1,399,584	756	289	5,292	32,439
Timber and other lands owned and leased	29,889	29,889	27,358	.....	1,154	116	1,261	.....
Power used: Aggregate horsepower	337,082	337,011	136,145	153,220	39,881	5,431	2,934	371
Prime movers (horsepower, total)	272,812	272,716	84,578	153,083	29,480	3,529	2,046	96
Steam engines—								
Number	2,241	2,239	650	1,172	357	36	24	2
Horsepower	138,385	138,339	79,949	24,274	28,746	3,419	1,951	46
Steam turbines—								
Number	4	4	4	.....	.....	.....	.....	.....
Horsepower	3,275	3,275	3,275	.....	.....	.....	.....	.....
Internal-combustion engines—								
Number	6,310	6,308	120	6,134	43	5	6	2
Horsepower	131,124	131,074	1,354	128,809	706	110	95	50
Water wheels, turbines, and motors—								
Number	1	1	.....	.....	1	.....	.....	.....
Horsepower	28	28	.....	.....	28	.....	.....	.....
Purchased power (horsepower, total)	65,170	64,895	51,567	137	10,401	1,902	888	275
Electric motors operated by purchased current—								
Number	1,966	1,956	1,647	11	221	47	30	10
Horsepower	65,050	64,775	51,447	137	10,401	1,902	888	275
Other equipment operated by purchased power—								
Horsepower	120	120	120	.....	.....	.....	.....	.....
Electric motors run by current generated by enterprise using:								
Number	1,620	1,620	1,498	2	6	96	18	.....
Horsepower	40,687	40,687	38,145	37	36	2,222	247	.....
Fuel used:								
Coal, anthracite ... tons, 2,240 pounds	100	100	.....	.....	100	.....	.....	.....
Coal, bituminous ... tons, 2,000 pounds	803,191	802,717	675,165	7,365	137,879	23,954	18,354	474
Coke ... tons, 2,000 pounds	788	788	.....	.....	187	130	471	.....
Wood ... cords	139	139	.....	.....	139	.....	.....	.....
Fuel oils ... barrels	1,385	1,385	95	1,130	120	40	.....	.....
Gasoline and other volatile oils ... barrels	4,946	4,946	1,421	730	2,075	110	610	.....
Natural gas ... 1,000 cubic feet	5,441,460	5,439,260	2,468	5,435,316	1,476	.....	.....	2,200

[1] Exclusive of a small quantity of coal mined with clay by, and included in reports of, manufacturers of clay products.
[2] Includes enterprises as follows: Clay, 49; gypsum, 2.
[3] Includes enterprises as follows: Coal, bituminous, 1; petroleum and natural gas, 5.

INDIANA.

Indiana, which ranks thirty-seventh among the states in size (land area, 36,045 square miles) and eleventh in population (2,930,390 in 1920), ranked fourteenth in value of mineral products for 1919. The state ranked ninth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross value of the products of all mines, quarries, and wells in Indiana in 1919 was $52,840,252. Deducting from this amount a duplication of $50,546 in the value of natural gas, which was sold by some producers and resold by others, leaves $52,789,706 as the net value of products. This was an increase of 140.9 per cent over the corresponding figures for 1909.

Growth of the mining industries in Indiana is indicated by the increase in the total number of persons engaged and the number of wage earners employed as shown by Table 1, a comparative summary for 1919 and 1909. The large increases shown in the principal expenses of operation and value of products are due, in part, to general price increases and do not correctly indicate the growth of the industries. The decrease in the number of individual mines and quarries operated, which may be chiefly due to combinations and suspension of small operations, is not significant of decline in the mining and quarrying, but the large decrease in the number of wells clearly reflects the decrease in petroleum and natural-gas production in Indiana during the decade.

The mining and quarrying industries reported for 1919, ranked according to value of products, were bituminous coal, limestone, petroleum and natural gas, clay, and sandstone. In addition to the products indicated by the industry designations six coal enterprises reported production of clay and one clay enterprise, coal. The value of products stated include $61,801, the value of these by-products and the amount received by some enterprises for power sold or miscellaneous services furnished to other enterprises.

In Table 2 the industries in the state which can be shown without the disclosure of individual operations are arranged in order of rank by value of products.

The three principal mineral industries, bituminous coal, limestone, and petroleum and natural gas, accounted for 99.8 per cent of the total value of mineral products of the state in 1919. Coal mining was the leading industry, reporting products valued at $45,492,726, which was 86.1 per cent of the gross value of mineral products. Indiana ranked sixth among the states in value of products of coal mines for 1919. The coal-producing area of the state is part of the Eastern Interior Coal Field which extends into Illinois and Kentucky and covers approximately 7,500 square miles in 22 counties in the southwestern part of Indiana, 18 of which reported production in 1919.

The limestone industry was second in importance in value of products in Indiana, and the state, with an output valued at $4,619,801, ranked third in the United States in 1919 as a producer of limestone. The state owes its rank in this industry to the importance of the limestone enterprises in the Bedford-Bloomington district in Lawrence and Monroe Counties.

The petroleum and natural-gas industry was third in importance, with an output valued at $2,604,395. The industry is located in two fields: The Lima-Indiana Field in east central Indiana, which extends into Ohio; and the southwestern Indiana field, which is continuous with the Illinois field. In the former field 22 counties in Indiana reported production in 1919, and in the latter field 7 counties.

The corporation is the prevailing form of organization among mining enterprises in Indiana. Table 3 shows that corporations constituted 62.8 per cent of all the enterprises, employed 96.7 per cent of the wage earners, and reported 95.6 per cent of the value of products. In the bituminous coal industry more than two-thirds of the enterprises were corporations and these reported more than 97 per cent of both wage earners and value of products. In the limestone and petroleum and natural-gas industries more than one-half the enterprises were of the corporate form and these reported more than nine-tenths of both value of products and number of wage earners in the limestone industry and more than two-thirds of both in the petroleum and natural-gas industry.

The relatively large number of small mining enterprises is brought out by Table 4. Of the 503 producing mining enterprises in the state, 413, or 82 per cent of the total number, were in classes reporting no wage earners or less than 101, and the wage earners employed by these enterprises were only 26.1 per cent of the total number employed. The 90 enterprises employing more than 100 wage earners, though only 17.9 per cent of the total number, reported 73.8 per cent of all wage earners reported. The enterprises reporting more than 100 wage earners were all in the coal, limestone, and petroleum and natural-gas industries and formed only 28.4 per cent, 7.5 per cent, and 0.8 per cent, respectively, of the enterprises in these industries.

Table 5 shows that, for all the mining industries considered together, the prevailing hours of labor were 44 to 53 per week in a majority of the enterprises and

for more than 80 per cent of the wage earners. These ratios are also true in the coal industry, but for the limestone industry, 54 to 62 hours were reported for 78.8 per cent of the enterprises and for 62.1 per cent of the wage earners in the industry. In the petroleum and natural-gas industry the largest group of enterprises, 31.9 per cent, was also the class reporting 54 to 62 as the prevailing hours per week and this class reported more than half of the wage earners in the petroleum and natural-gas industry.

The statistics for wage earners given in Table 6, showing changes in the number employed from month to month, reflect conditions prevailing in the industries during the census year. The unusually low minimum in the coal industry, which affects the figures for all industries combined, is abnormal as to season and is due to the strike of November, 1919.

Table 7 presents for 1919 statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

	MINING INDUSTRIES.		Per cent of increase.[1]		MINING INDUSTRIES.		Per cent of increase.[1]
	1919	1909			1919	1909	
Number of enterprises	503	1,010	−50.2	Capital	$63,198,281	$59,764,947	5.7
Number of mines and quarries	398	480	−17.1				
Number of petroleum and natural-gas wells	2,456	10,373	−76.3	Principal expenses:			
				Salaries	4,078,279	1,101,521	270.2
Persons engaged	28,738	27,669	3.9	Wages	30,192,924	14,782,488	104.2
Proprietors and firm members, total	330	2,628	−87.1	Contract work	340,187	295,982	14.9
Number performing manual labor in or about the mines, quarries, and wells	164	181	−9.4	Supplies and materials[2]	6,421,099	1,846,499	247.7
				Fuel and power	2,012,706	551,821	264.7
Salaried employees	1,648	1,105	49.1	Royalties and rents	939,696	595,274	57.9
Wage earners (average number)	26,751	23,936	11.8	Taxes	1,590,853	176,369	802.0
Power used (horsepower)	129,663	95,039	36.4	Value of products	52,840,252	21,934,201	140.9

[1] A minus sign (−) denotes decrease. [2] Includes cost of natural gas purchased as material.

TABLE 2.—PRINCIPAL INDUSTRIES, PRODUCING ENTERPRISES, RANKED BY VALUE OF PRODUCTS: 1919.

INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.		INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.			Average number.	Per cent distribution.	Amount.	Per cent distribution.
All industries	503	26,751	100.0	$52,840,252	100.0	Limestone	67	1,800	6.7	$4,619,801	8.7
Coal, bituminous	295	24,479	91.5	45,492,726	86.1	Petroleum and natural gas	131	403	1.5	2,604,395	4.9
						All other industries[1]	10	69	0.3	123,330	0.2

[1] Includes enterprises in industries as follows: Clay, 9; sandstone, 1.

TABLE 3.—CHARACTER OF ORGANIZATION, FOR SELECTED INDUSTRIES, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Number of wage earners.	VALUE OF PRODUCTS.		PER CENT DISTRIBUTION.		
			Total.	Per enterprise.	Enterprises.	Wage earners.	Value of products.
ALL INDUSTRIES	503	26,751	$52,840,252	$105,050	100.0	100.0	100.0
Corporation	316	25,869	50,531,018	159,908	62.8	96.7	95.6
Individual	100	395	753,594	7,536	19.9	1.5	1.4
Firm	80	442	982,785	12,285	15.9	1.7	1.9
Other	7	45	572,855	81,836	1.4	0.2	1.1
COAL, BITUMINOUS	295	24,479	45,492,726	154,213	100.0	100.0	100.0
Corporation	202	23,828	44,226,927	218,945	68.5	97.3	97.2
Individual	46	284	488,796	10,626	15.6	1.2	1.1
Firm[1]	47	367	777,003	16,532	15.9	1.5	1.7
LIMESTONE	67	1,800	4,619,801	68,952	100.0	100.0	100.0
Corporation	35	1,644	4,347,674	124,219	52.2	91.3	94.1
Individual	21	83	142,106	6,767	31.3	4.6	3.1
Firm	11	73	130,021	11,820	16.4	4.1	2.8
PETROLEUM AND NATURAL GAS	131	403	2,604,395	19,881	100.0	100.0	100.0
Corporation	71	334	1,841,627	25,938	54.2	82.9	70.7
Individual	31	22	114,152	3,682	23.7	5.5	4.4
Firm	23	19	192,973	8,390	17.6	4.7	7.4
Other	6	28	455,643	75,940	4.6	6.9	17.5

[1] Includes 1 other form of organization.

TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution.	Number.	Per cent distribution.
ALL INDUSTRIES	503	100.0	26,751	100.0
No wage earners	67	13.3	.....	.....
1 to 5	159	31.6	410	1.5
6 to 20	80	15.9	884	3.3
21 to 50	56	11.1	1,878	7.0
51 to 100	51	10.1	3,828	14.3
101 to 500	86	17.1	16,402	61.5
501 to 1,000	3	0.6	1,816	6.8
Over 1,000	1	0.2	1,473	5.5
COAL, BITUMINOUS	295	100.0	24,479	100.0
No wage earners	7	2.4	.....	.....
1 to 5	66	22.4	212	0.9
6 to 20	49	16.6	576	2.4
21 to 50	42	14.2	1,459	6.0
51 to 100	47	15.9	3,576	14.6
101 to 500	80	27.1	15,367	62.8
501 to 1,000	3	1.0	1,816	7.4
Over 1,000	1	0.3	1,473	6.0
LIMESTONE	67	100.0	1,800	100.0
No wage earners	1	1.5	.....	.....
1 to 5	24	35.8	56	3.1
6 to 20	24	35.8	240	13.3
21 to 50	9	13.4	260	14.4
51 to 100	4	6.0	252	14.0
101 to 500	5	7.5	992	55.1
PETROLEUM AND NATURAL GAS	131	100.0	403	100.0
No wage earners	59	45.0	.....	.....
1 to 5	61	46.6	115	28.5
6 to 20	6	4.6	62	15.4
21 to 50	4	3.1	123	30.5
101 to 500	1	0.8	103	25.6

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—											
			35 and under.		36 to 43.		44 to 53.		54 to 62.		63 to 71.		72 to 84.	
	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
All industries	[1] 436	26,751	43	3,261	20	330	269	21,667	83	1,370	13	53	8	55
Coal, bituminous	288	24,479	37	3,253	15	330	234	20,390	2	6	.....	.....	.....	.....
Limestone	66	1,800	.....	.....	.....	.....	14	682	52	1,118	.....	.....	.....	.....
Petroleum and natural gas	72	403	6	8	5	0	18	53	23	229	12	49	8	55
All other industries	10	69	.....	.....	.....	.....	3	42	6	23	1	4	.....	.....

[1] Exclusive of 67 enterprises employing no wage earners in industries as follows: Coal, bituminous, 7; limestone, 1; petroleum and natural gas, 59.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OF NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries	26,751	29,961	28,209	26,030	25,837	27,074	26,875	28,145	29,434	30,907	**31,544**	*5,818*	30,269	18.4
Coal, bituminous	24,479	28,559	26,813	25,380	23,831	24,808	24,355	25,403	26,518	28,051	**28,871**	*3,360*	27,700	11.6
Limestone	1,800	940	*915*	1,107	1,583	1,817	2,046	2,249	**2,410**	2,303	2,170	1,080	2,002	37.8
Petroleum and natural gas	403	401	**431**	392	*370*	387	394	415	408	405	412	408	413	85.8
All other industries	69	61	*50*	51	53	62	80	78	89	88	**91**	61	64	54.9

TABLE 7.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.				
	Total.	Coal, bituminous.	Limestone.	Petroleum and natural gas.	All other.[1]
Number of enterprises	503	295	67	131	10
Number of mines and quarries	398	317	71	.....	10
Number of petroleum and natural-gas wells	2,456	.....	.....	2,456	.....
Capital	$63,198,281	$45,996,383	$7,156,592	$9,890,964	$154,342
Principal expenses:					
Salaries and wages—					
Officers	$1,792,076	$1,571,256	$177,281	$42,015	$1,524
Superintendents	$1,255,650	$996,344	$174,440	$79,060	$5,806
Technical employees	$168,527	$136,923	$23,025	$6,828	$1,751
Clerks, etc	$862,026	$685,116	$142,052	$34,790	$68
Wage earners	$30,192,924	$27,877,669	$1,767,636	$475,788	$71,831
Supplies and materials	$6,370,553	$5,379,400	$700,469	$271,975	$18,709
Cost of natural gas purchased as material and resold	$50,546	.....	.....	$50,546	.....
Fuel	$1,737,090	$1,455,123	$214,987	$61,296	$5,684
Power	$275,616	$159,146	$112,222	$4,248	.....
Royalties and rents	$939,696	$562,205	$31,974	$344,064	$1,393
Taxes	$1,590,853	$1,437,558	$66,274	$86,599	$422
Contract work	$340,187	$103,826	$7,472	$213,536	$15,353
Expenditures for development (included in the above items)	$2,111,492	$1,534,258	$127,979	$449,255	.....
Value of products	$52,840,252	$45,492,726	$4,619,801	$2,604,395	$123,330
Persons engaged in industry	28,738	25,911	2,106	644	77
Proprietors and firm members (total)	339	170	44	123	2
Number performing manual labor	164	116	22	25	1
Salaried officers	371	298	44	28	1
Superintendents and officers	535	421	65	45	4
Technical employees	93	79	10	3	1
Clerks, etc	649	464	143	42	.....
Wage earners (average number)	26,751	24,479	1,800	403	69
Wage earners, by occupation (Dec. 15):					
Above ground (total)	[2] 6,934	[2] 3,943	2,481	422	88
Below ground (total)	25,623	25,617	.....	.....	6
Foremen, shift bosses, etc.—					
Above ground	338	249	83	.....	6
Below ground	474	473	.....	.....	1
Enginemen, hoistmen, electricians, mechanics, etc.—					
Above ground	2,051	1,406	340	294	11
Below ground	881	881	.....	.....	.....
Miners, quarrymen, and drillmen, including their helpers—					
Above ground	962	193	703	.....	66
Below ground	14,191	14,189	.....	.....	2
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—					
Above ground	586	533	52	.....	1
Below ground	5,584	5,581	.....	.....	3
Muckers, loaders, laborers, and others not classified—					
Above ground	2,363	1,552	681	128	2
Below ground	4,493	4,493	.....	.....	.....
Wage earners employed in mills and beneficiating plants—					
Above ground	634	10	622	.....	2
Number of females included in wage earners reported above—					
Above ground	4	3	1	.....	.....
Mineral and oil land operated ....acres	266,988	176,200	4,825	85,319	644
Land controlled, total ....acres	280,513	189,594	4,831	85,319	769
Mineral and oil land owned	119,203	106,763	4,128	8,104	268
Mineral and oil land leased	151,036	72,748	697	77,215	376
Timber and other lands owned and leased	10,214	10,083	6	.....	125
Power used: Aggregate horsepower	129,663	99,585	21,642	7,669	767
Prime movers (horsepower, total)	100,632	81,158	11,161	7,546	767
Steam engines—					
Number	898	678	142	65	13
Horsepower	92,120	78,912	10,836	1,605	767
Steam turbines—					
Number	16	15	1	.....	.....
Horsepower	2,052	1,902	150	.....	.....
Internal-combustion engines—					
Number	349	64	11	274	.....
Horsepower	6,460	344	175	5,941	.....
Purchased power (horsepower, total)	29,031	18,427	10,481	123	.....
Electric motors operated by purchased current—					
Number	785	407	359	19	.....
Horsepower	29,031	18,427	10,481	123	.....
Electric motors run by current generated by enterprise using:					
Number	875	817	58	.....	.....
Horsepower	43,102	41,890	1,212	.....	.....
Fuel used:[3]					
Coal, anthracite ....tons, 2,240 pounds	1,366	.....	1,366	.....	.....
Coal, bituminous ....tons, 2,000 pounds	780,153	705,031	64,798	7,799	2,525
Fuel oils ....barrels	678	.....	.....	678	.....
Gasoline and other volatile oils ....barrels	1,529	1,037	342	150	.....
Natural gas ....1,000 cubic feet	329,788	.....	.....	329,788	.....

[1] Includes enterprises as follows: Clay, 9; sandstone, 1.
[2] Includes 2 wage earners under 16 years of age reported by 1 enterprise.
[3] Exclusive of 10 tons of coke in the limestone industry.

ILLINOIS.

Illinois, which ranks twenty-third in size (land area 56,043 square miles) and third in population (6,485,280 in 1920), ranked fourth among the states in value of mineral products for the year 1919. It ranked third in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross value of mineral products for the state in 1919 was $178,673,065, an increase of 133.1 per cent over the value reported at the census of 1909. Deducting from this gross value $91,659, the value of natural gas sold by some producers for use as material or for resale by others, leaves $178,581,406, the net value of the products.

Increases in wages, cost of supplies, fuel and power, and the value of products as shown in the comparative summary for 1909 and 1919, Table 1, are largely due to general price increases and are not a measure of the growth of mining during the census period 1909–1919. Nor, on the other hand, is any decline in mining indicated by the decrease in the number of enterprises, which may be a reflection of adverse industrial conditions during 1919 or the result of consolidation of operations. Probably the most significant fact shown by this table is the small increase in the number of wage earners. The addition of Federal income and excess-profits taxes since 1909 will account for the increase in taxes.

The industries reported for 1919, ranked according to value of products, were coal mining, petroleum and natural-gas production, limestone quarrying, fluorspar mining, sandstone quarrying, lead and zinc mining, clay mining, mining of abrasive materials (tripoli), and pyrite mining. Besides producing the materials indicated by the industry designations, two clay-mining enterprises produced coal as a by-product, one coal mine produced clay and two produced pyrite, and three fluorspar enterprises produced lead-ore concentrates. The aggregate value of these mineral by-products was $108,124, and this amount, together with $113,876 received for other unspecified products and for power sold and work or miscellaneous services for other enterprises, is included in the total value of products for the industries.

The relative importance of the mining industries may be variously determined by use of different bases of rank; in Table 2 they are ranked by value of products.

The principal mining industry, coal, reported products valued at $138,767,835, which was 77.7 per cent of the total value of products of all mining industries. Illinois ranked third among the states in the value of products of coal mines for 1919. The coal-producing area of the state is part of the Eastern Interior Coal Field, which extends into Indiana and Kentucky, and covers approximately 35,000 square miles in 48 counties in Illinois and furnishes bituminous coal chiefly for steam and domestic use. Petroleum and natural-gas production ranked second in importance, with an output valued at $31,171,904 (net), placing Illinois ninth among the states in this industry. The productive oil and gas operations in Illinois extend over an area of approximately 4,500 square miles, in 16 counties, which is part of an oil field including also the southwestern counties of Indiana. The quarrying industries are well distributed throughout the state and furnish not only stone for construction work, but also limestone for various other purposes, and sandstone from which a large part of the United States silica supply is derived. Illinois is the leading state in the Union in production of fluorspar, which is obtained in Hardin County.

The preponderance of the corporation among the mining organizations is brought out by Table 3. Corporations controlled 59.2 per cent of all the mining enterprises in the state in 1919, and represented 96.9 per cent of the average number of wage earners, and 96.2 per cent of the total value of products.

The relatively large number of small enterprises as determined by the number of wage earners employed is shown in Table 4. Of the total number of enterprises in this state, 72.8 per cent were in classes having no wage earners or less than 101, while such enterprises employed only 10.9 per cent of the total number of wage earners. On the other hand, enterprises employing more than 100 wage earners constituted only 27.3 per cent of the total number of enterprises but employed 89 per cent of the total number of wage earners. The coal-mining industry included 95.7 per cent of these larger enterprises.

Table 5 shows that in a majority of enterprises, and for about 80 per cent of the wage earners in all the mining industries in the state in 1919, the hours of labor were from 44 to 53 hours per week, or that the 8-hour day prevailed. In the coal-mining industry these hours were reported for approximately 85 per cent of the enterprises and wage earners, but in the petroleum and natural-gas and other industries presented separately the normal hours of labor were longer.

The statistics for wage earners given in Table 6, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year. The extremely low minimum in the coal industry, which affects the figures for all industries combined, was very abnormal and was the result of the great November strike.

Table 7 presents statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

	MINING INDUSTRIES.		Per cent of increase.[1]		MINING INDUSTRIES.		Per cent of increase.[1]
	1919	1909			1919	1909	
Number of enterprises	772	915	—15.6	Capital	$231,836,571	$116,959,707	98.2
Number of mines and quarries	590	759	—22.3	Principal expenses:			
Number of petroleum and natural-gas wells	16,498	10,918	51.1	Salaries	10,123,866	3,112,655	225.2
Number of natural-gas gasoline plants	72	(2)	.....	Wages	94,178,504	46,378,727	103.1
				Contract work	431,555	2,376,956	—81.8
Persons engaged	84,309	76,039	10.9	Supplies and materials [3]	18,807,752	8,574,817	119.3
Proprietors and firm members, total	691	1,425	—51.5	Fuel and power	5,784,479	1,325,880	336.3
Number performing manual labor in or about the mines, quarries, and wells	126	401	—68.6	Royalties and rents	6,636,176	3,579,472	85.4
Salaried employees	4,495	2,528	77.8	Taxes	6,890,455	287,460	.....
Wage earners (average number)	79,123	72,086	9.8	Value of products	178,673,065	76,658,974	133.1
Power used (horsepower)	318,231	225,330	41.2				

[1] A minus sign (—) denotes decrease.
[2] Figures not available.
[3] Includes for 1919 cost of natural gas, and for 1909 cost of ore and natural gas, purchased as material.

TABLE 2.—PRINCIPAL INDUSTRIES, PRODUCING ENTERPRISES, RANKED BY VALUE OF PRODUCTS: 1919.

INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.		INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.			Average number.	Per cent distribution.	Amount.	Per cent distribution.
All industries	772	79,123	100.0	$178,673,065	100.0	Sandstone	15	288	0.4	1,329,389	0.7
						Lead and zinc	6	239	0.3	621,296	0.3
Coal, bituminous	447	73,780	93.2	138,767,835	77.7	Clay	10	154	0.2	472,284	0.3
Petroleum and natural gas	236	2,752	3.5	31,263,563	17.5	Abrasive materials	5	21	(1)	45,205	(1)
Limestone	41	1,244	1.6	3,776,626	2.1	All other industries [2]	12	645	0.8	2,396,867	1.3

[1] Less than one-tenth of 1 per cent.
[2] Includes enterprises in industries as follows: Fluorspar, 11; pyrite, 1.

TABLE 3.—CHARACTER OF ORGANIZATION, FOR SELECTED INDUSTRIES, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Number of wage earners.	VALUE OF PRODUCTS.		PER CENT DISTRIBUTION.		
			Total.	Per enterprise.	Enterprises.	Wage earners.	Value of products.
ALL INDUSTRIES	772	79,123	$178,673,065	$231,442	100.0	100.0	100.0
Corporation	457	76,691	171,829,643	375,995	59.2	96.9	96.2
Individual	120	1,165	2,457,327	20,478	15.5	1.5	1.4
Firm	166	963	3,541,544	21,335	21.5	1.2	2.0
Other	29	304	844,551	29,122	3.8	0.4	0.5
COAL, BITUMINOUS	447	73,780	138,767,835	310,443	100.0	100.0	100.0
Corporation	320	71,763	135,182,771	422,446	71.6	97.3	97.4
Individual	65	996	1,734,925	26,691	14.5	1.3	1.2
Firm	54	762	1,535,811	28,441	12.1	1.0	1.1
Other	8	259	314,328	39,291	1.8	0.4	0.2
PETROLEUM AND NATURAL GAS	236	2,752	31,263,563	132,473	100.0	100.0	100.0
Corporation	74	2,493	28,348,300	383,085	31.4	90.6	90.7
Individual	37	42	426,988	11,540	15.7	1.5	1.4
Firm	104	172	1,958,052	18,827	44.1	6.2	6.3
Other	21	45	530,223	25,249	8.9	1.6	1.7
LIMESTONE AND SANDSTONE	56	1,532	5,106,015	91,179	100.0	100.0	100.0
Corporation	42	1,465	4,992,086	118,859	75.0	95.6	97.8
Individual	9	57	97,247	10,805	16.1	3.7	1.9
Firm	5	10	16,682	3,336	8.9	0.7	0.3
CLAY	10	154	472,284	47,228	100.0	100.0	100.0
Corporation	5	110	327,579	65,516	50.0	71.4	69.4
Individual [1]	5	44	144,705	28,941	50.0	28.6	30.6

[1] Includes 2 firms.

TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTEI INDUSTRIES: 1919.

INDUSTRY AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution	Number.	Per cent distribution.
ALL INDUSTRIES	772	100.0	79,123	100.0
No wage earners	43	5.6	.....	.....
1 to 5	263	34.1	568	0.7
6 to 20	122	15.8	1,378	1.7
21 to 50	77	10.0	2,621	3.3
51 to 100	56	7.3	4,099	5.2
101 to 500	186	24.1	45,287	57.2
501 to 1,000	18	2.3	11,867	15.0
Over 1,000	7	0.9	13,303	16.8
COAL, BITUMINOUS	447	100.0	73,780	100.0
No wage earners	3	0.7	.....	.....
1 to 5	77	17.2	229	0.3
6 to 20	73	16.3	839	1.1
21 to 50	46	10.3	1,570	2.1
51 to 100	46	10.3	3,402	4.6
101 to 500	178	39.8	44,018	59.7
501 to 1,000	18	4.0	11,867	16.1
Over 1,000	6	1.3	11,855	16.1
PETROLEUM AND NATURAL GAS	236	100.0	2,752	100.0
No wage earners	35	14.8	.....	.....
1 to 5	162	68.6	267	9.7
6 to 20	22	9.3	233	8.5
21 to 50	11	4.7	324	11.8
51 to 100	2	0.8	114	4.1
101 to 500	3	1.3	366	13.3
Over 1,000	1	0.4	1,448	52.6

INDUSTRY AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution.	Number.	Per cen distribution.
LIMESTONE	41	100.0	1,244	100.
No wage earners	3	7.3	.....	.....
1 to 5	10	24.4	30	2.
6 to 20	10	24.4	120	9.
21 to 50	11	26.8	400	32.
51 to 100	4	9.8	298	24.
101 to 500	3	7.3	396	31.
SANDSTONE	15	100.0	288	100.
1 to 5	8	53.3	23	8.
6 to 20	3	20.0	35	12.
21 to 50	2	13.3	86	29.
51 to 100	2	13.3	144	50.
LEAD AND ZINC	6	100.0	239	100.
6 to 20	2	33.3	17	7.
21 to 50	2	33.3	81	33.
51 to 100	2	33.3	141	59.

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILIN(HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—											
			35 and under.		36 to 43.		44 to 53.		54 to 62.		63 to 71.		72 to 84.	
	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners
All industries	[1] 729	79,123	33	5,922	26	2,872	445	66,032	126	3,709	30	187	69	31
Coal, bituminous	444	73,780	27	5,910	19	2,846	391	64,905	7	119	.....	.....	.....	.....
Petroleum and natural gas	201	2,752	5	7	6	6	26	242	65	1,099	30	187	69	31
Limestone	38	1,244	.....	.....	.....	.....	7	75	31	1,169	.....	.....	.....	.....
Sandstone	15	288	.....	.....	.....	.....	5	41	10	247	.....	.....	.....	.....
Lead and zinc	6	239	.....	.....	.....	.....	2	89	4	150	.....	.....	.....	.....
All other industries	25	820	1	5	1	20	14	680	9	115	.....	.....	.....	.....

[1] Exclusive of 43 enterprises employing no wage earners in industries as follows: Abrasive materials, 2; coal, bituminous, 3; limestone, 3; petroleum and natural gas, 35.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY.	Average number employed during year.	NUMBER EMPLOYED ON TH 15DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries	79,123	89,224	86,988	85,233	82,026	80,235	79,033	81,643	83,906	87,050	89,321	*10,788*	88,029	18.
Coal, bituminous	73,780	84,197	82,192	80,214	76,796	74,761	73,604	76,052	78,218	81,302	83,739	*11,323*	82,902	13.
Petroleum and natural gas	2,752	2,753	2,695	2,735	2,709	*2,663*	2,728	2,780	2,874	2,827	2,767	2,736	2,757	92.
Limestone	1,244	834	*810*	1,054	1,279	1,488	1,389	1,461	1,438	1,452	1,401	1,334	988	54.
Sandstone	288	307	284	269	*247*	269	276	283	284	297	327	326	285	75.
Lead and zinc	239	234	235	237	248	248	237	253	245	238	243	229	*221*	87.
Clay	154	143	121	120	*113*	140	164	168	164	171	170	188	186	60.
Abrasive materials	21	22	22	22	21	21	23	23	23	33	17	*8*	17	24.
All other industries	645	734	629	*588*	613	645	612	623	660	676	657	636	673	79.

TABLE 7.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.								
	Total.	Coal, bituminous.	Petroleum and natural gas.	Limestone.	Sandstone.	Lead and zinc.	Clay.	Abrasive materials.	All other.[1]
Number of enterprises	772	447	236	41	15	6	10	5	12
Number of mines and quarries	590	499	.....	41	15	6	10	5	14
Number of petroleum and natural-gas wells	16,498	.....	16,498	.....	.....	.....	.....	.....	.....
Number of natural-gas gasoline plants	72	.....	72	.....	.....	.....	.....	.....	.....
Capital	$231,836,571	$166,069,312	$46,207,394	$8,810,097	$3,788,564	$460,642	$1,472,582	$124,500	$4,303,480
Principal expenses:									
Salaries and wages—									
Officers	$3,201,099	$2,653,996	$263,292	$183,898	$101,243	$600	$25,800	$900	$31,400
Superintendents and managers	$3,654,906	$3,094,522	$283,255	$87,472	$41,095	$28,559	$18,976	$2,400	$98,027
Technical employees	$374,419	$542,522	.....	$11,805	.....	$6,326	.....	.....	$13,766
Clerks, etc	$2,633,442	$2,202,685	$105,021	$115,634	$20,260	$7,642	$9,553	$1,050	$20,697
Wage earners	$94,178,504	$87,796,328	$3,277,515	$1,447,647	$335,756	$312,046	$173,976	$18,527	$816,709
Supplies and materials	$18,716,093	$15,345,498	$1,692,172	$835,598	$182,443	$136,213	$61,191	$4,573	$458,405
Cost of natural gas purchased as material and resold	$91,059	.....	$91,059	.....	.....	.....	.....	.....	.....
Fuel	$4,810,013	$4,154,744	$151,570	$231,015	$127,258	$4,820	$24,505	$3,110	$112,091
Power	$974,466	$668,142	$3,079	$158,053	$48,089	$95,526	$500	.....	$1,077
Royalties and rents	$6,636,176	$1,704,504	$4,768,871	$34,501	$9,853	$51,142	$66,094	$621	$500
Taxes	$6,890,455	$4,487,204	$1,070,994	$45,598	$42,029	$877	$14,854	$281	$328,528
Contract work	$431,555	$68,042	$359,082	.....	$3,531	.....	.....	.....	.....
Expenditures for development (included in the above items)	$4,331,319	$2,959,034	$1,133,165	$13,483	$16,450	$16,534	.....	$718	$191,935
Value of products	$178,673,005	$138,767,835	$31,263,563	$3,776,626	$1,329,389	$621,296	$472,284	$45,205	$2,396,867
Persons engaged in industry	84,309	77,825	3,506	1,448	353	262	186	28	701
Proprietors and firm members (total)	691	199	449	14	13	2	8	2	4
Number performing manual labor	126	114	2	3	3	.....	2	2	.....
Salaried officers	685	561	44	42	22	1	6	1	8
Superintendents and managers	1,561	1,350	112	49	10	9	10	2	19
Technical employees	248	229	.....	5	.....	3	.....	.....	11
Clerks, etc	2,001	1,706	149	94	20	8	8	2	14
Wage earners (average number)	79,123	73,780	2,752	1,244	288	239	154	21	645
Wage earners, by occupation (Dec. 15):									
Above ground	14,880	9,866	2,758	1,342	298	92	126	25	373
Below ground	75,566	75,045	.....	.....	.....	129	62	7	323
Foremen, shift bosses, etc.—									
Above ground	485	375	.....	62	19	1	5	.....	23
Below ground	930	898	.....	.....	.....	7	2	.....	23
Enginemen, hoistmen, electricians, mechanics, etc.—									
Above ground	6,667	3,827	2,391	249	59	18	16	.....	107
Below ground	2,207	2,174	.....	.....	.....	.....	1	.....	32
Miners, quarrymen, and drillmen, including their helpers—									
Above ground	720	253	.....	387	41	.....	29	.....	19
Below ground	43,002	42,888	.....	.....	.....	23	23	5	63
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—									
Above ground	924	749	.....	118	33	9	.....	8	7
Below ground	16,822	16,645	.....	.....	.....	52	8	.....	117
Muckers, loaders, laborers, and others not classified—									
Above ground	5,298	4,126	367	523	62	12	74	.....	134
Below ground	12,605	12,440	.....	.....	.....	47	28	2	88
Wage earners employed in mills and beneficiating plants—									
Above ground	777	536	.....	3	34	52	2	17	83
Number of females included in wage earners reported above—									
Above ground	20	17	.....	.....	2	.....	1	.....	.....
Mineral and oil land operated ..... acres	945,302	752,316	169,025	14,922	1,327	898	2,055	1,964	2,855
Land controlled, total ..... acres	1,031,783	790,060	169,025	52,000	1,441	898	2,118	2,144	4,197
Mineral and oil land owned	617,833	590,082	2,434	14,348	622	368	830	1,024	2,125
Mineral and oil land leased	320,448	158,153	166,591	574	705	530	1,225	940	730
Timber and other lands owned and leased	84,502	44,825	.....	37,078	114	.....	63	180	1,342
Power used: Aggregate horsepower	318,231	247,142	35,430	22,325	3,806	1,978	2,779	250	4,521
Prime movers (horsepower, total)	261,934	205,777	35,326	11,360	1,916	30	2,754	250	4,521
Steam engines—									
Number	2,077	1,609	170	161	31	1	27	2	76
Horsepower	208,782	186,926	3,588	9,125	1,774	30	2,742	250	4,347
Steam turbines—									
Number	42	36	.....	5	.....	.....	.....	.....	1
Horsepower	19,728	17,725	.....	1,953	.....	.....	.....	.....	50
Internal-combustion engines—									
Number	1,855	88	1,723	18	14	.....	2	.....	10
Horsepower	33,424	1,126	31,738	282	142	.....	12	.....	124
Purchased power (horsepower, total)	56,297	41,365	104	10,965	1,890	1,948	25	.....	.....
Electric motors operated by purchased current—									
Number	1,432	1,070	8	222	70	61	1	.....	.....
Horsepower	56,267	41,365	74	10,965	1,890	1,948	25	.....	.....
Other equipment operated by purchased power (horsepower)	30	.....	30	.....	.....	.....	.....	.....	.....
Electric motors run by current generated by enterprise using:									
Number	3,218	3,165	2	.....	8	.....	17	.....	26
Horsepower	97,160	95,916	25	.....	341	.....	478	.....	400
Fuel used:									
Coal, bituminous ..... tons, 2,000 pounds	2,092,655	1,946,807	3,385	67,618	32,829	786	8,387	1,150	31,693
Coke ..... tons, 2,000 pounds	400	.....	.....	.....	400	.....	.....	.....	.....
Fuel oils ..... barrels	7,536	370	6,777	53	240	.....	.....	.....	96
Gasoline and other volatile oils ..... barrels	4,272	1,830	1,581	507	114	.....	10	.....	230
Natural gas ..... 1,000 cubic feet	1,809,962	.....	1,809,962	.....	.....	.....	.....	.....	.....

[1] Includes enterprises as follows: Fluorspar, 11; pyrite, 1.

IOWA.

Iowa, which ranks twenty-fourth in size among the states (land area, 55,586 square miles) and sixteenth in population (2,404,021 in 1920), ranked twenty-fifth in value of mineral products for 1919. The state ranked twentieth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The total value of mineral products for the state in 1919 was $18,473,558, an increase of 33.1 per cent over the value reported at the census of 1909. This increase and the increases in the principal expenses of operation, shown in Table 1, are due to price increases and are not significant of increase in mining in Iowa during the decade. Decreases in the number of enterprises, individual mines and quarries operated, and wage earners employed reflect adverse conditions in 1919. The addition of Federal income taxes since 1909 will account for the large increase in taxes.

The industries reported for 1919, ranked according to value of products, were coal mining, gypsum mining, limestone quarrying, and clay mining. The industries for which the statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The principal mining industry, coal, reported products valued at $16,903,358, which includes, in addition to the value of the coal produced, a small amount received by the operators for power sold and miscellaneous services furnished other enterprises. Iowa ranked eleventh among the states in the value of coal produced in 1919. The coal-producing area of the state is part of the Western Interior Coal Field and extends over 20 central and southern counties.

Gypsum production ranked second in importance in the state and Iowa ranked second among the gypsum-producing states with an output valued at $1,092,920, reported almost entirely from Webster County.

The superior position of corporations among the organizations operating mining enterprises is brought out in Table 3. More than half of all the enterprises in all the mining industries were conducted by corporations, which employed 92 per cent of the total number of wage earners and reported 92.3 per cent of the total value of products.

The relatively large number of small enterprises, as measured by the number of wage earners employed, is shown in Table 4. Eighty and eight-tenths per cent of the total number of enterprises were in classes having no wage earners or less than 101, while such enterprises employed only 27.6 per cent of the total number of wage earners. On the other hand, enterprises employing more than 100 wage earners constituted 19.2 per cent of the total number of enterprises but employed 72.4 per cent of the total number of wage earners. These larger enterprises were in the coal and gypsum industries.

Table 5 shows that, for 82 per cent of all mining enterprises employing wage earners and 97 per cent of the total number of wage earners engaged in the mining industries, the prevailing hours of labor were 44 to 53 per week. In the gypsum industry all enterprises and in the coal industry nearly all enterprises reported these hours; in the limestone industry 19 out of 24 enterprises, employing 85.4 per cent of the wage earners in the industry, reported 54 to 62 hours of labor per week.

The statistics for wage earners given in Table 6, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year. The extremely low minimum in the coal industry in November, which affects the figures for all industries combined, was due to the great strike and was very abnormal as to number of wage earners and as to occurence of minimum employment in this industry late instead of early in the year.

Table 7 presents for 1919 statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

	MINING INDUSTRIES.		Per cent of increase.[1]
	1919	1909	
Number of enterprises	198	373	−46.9
Number of mines and quarries	230	431	−46.6
Persons engaged	12,034	17,374	−30.7
Proprietors and firm members, total	200	423	−52.7
Number performing manual labor in or about the mines and quarries	143	285	−49.8
Salaried employees	560	471	18.9
Wage earners (average number)	11,274	16,480	−31.6
Power used (horsepower)	32,171	23,453	37.2
Capital	$16,699,094	$8,481,483	96.9

	MINING INDUSTRIES.		Per cent of increase.[1]
	1919	1909	
Principal expenses:			
Salaries	$1,343,697	$540,975	148.[illegible]
Wages	12,466,426	10,870,446	14.[illegible]
Contract work	33,404	40,836	−18.[illegible]
Supplies and materials	2,072,308	1,307,919	58.[illegible]
Fuel and power	748,844	221,740	237.[illegible]
Royalties and rents	335,530	349,440	−4.[illegible]
Taxes	186,811	43,574	328.[illegible]
Value of products	18,473,558	13,877,781	33.[illegible]

[1] A minus sign (−) denotes decrease.

TABLE 2.—PRINCIPAL INDUSTRIES, PRODUCING ENTERPRISES, RANKED BY VALUE OF PRODUCTS: 1919.

INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.		INDUSTRY.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.			Average number.	Per cent distribution.	Amount.	Per cent distribution.
All industries	198	11,274	100.0	$18,473,558	100.0	Gypsum	5	444	3.9	$1,092,920	5.9
Coal, bituminous	167	10,584	93.9	16,903,358	91.5	Limestone [1]	26	246	2.2	477,280	2.6

[1] Includes, to avoid disclosure, one small clay enterprise.

TABLE 3.—CHARACTER OF ORGANIZATION, FOR SELECTED INDUSTRIES, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Number of wage earners.	VALUE OF PRODUCTS.		PER CENT DISTRIBUTION.		
			Total.	Per enterprise.	Enterprises.	Wage earners.	Value of products.
ALL INDUSTRIES	198	11,274	$18,473,558	$93,301	100.0	100.0	100.0
Corporation	102	10,370	17,052,298	167,179	51.5	92.0	92.3
Individual	35	431	585,293	16,723	17.7	3.8	3.2
Firm [1]	61	473	835,967	13,704	30.8	4.2	4.5
COAL, BITUMINOUS	167	10,584	16,903,358	101,218	100.0	100.0	100.0
Corporation	84	9,746	15,610,232	185,836	50.3	92.1	92.3
Individual	27	394	504,025	18,668	16.2	3.7	3.0
Firm [1]	56	444	789,101	14,091	33.5	4.2	4.7
GYPSUM	5	444	1,092,920	218,584	100.0	100.0	100.0
Corporation	5	444	1,092,920	218,584	100.0	100.0	100.0
LIMESTONE [2]	26	246	477,280	18,357	100.0	100.0	100.0
Corporation	13	180	349,146	26,857	50.0	73.2	73.2
Individual	8	37	81,208	10,158	30.8	15.0	17.0
Firm	5	29	46,866	9,373	19.2	11.8	9.8

[1] Includes 1 other form of organization.

[2] Includes 1 small clay enterprise.

TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.		INDUSTRY AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution.	Number.	Per cent distribution.		Number.	Per cent distribution.	Number.	Per cent distribution.
ALL INDUSTRIES	198	100.0	11,274	100.0	GYPSUM	5	100.0	444	100.0
No wage earners	4	2.0	.....	.....	6 to 20	1	20.0	9	2.0
1 to 5	61	30.8	177	1.6	21 to 50	2	40.0	78	17.6
6 to 20	50	25.3	576	5.1	101 to 500	2	40.0	357	80.4
21 to 50	21	10.6	648	5.7					
51 to 100	24	12.1	1,716	15.2	LIMESTONE [1]	26	100.0	246	100.0
101 to 500	36	18.2	6,659	59.1					
501 to 1,000	2	1.0	1,498	13.3	No wage earners	2	7.7	.....	.....
					1 to 5	9	34.6	20	8.1
COAL, BITUMINOUS	167	100.0	10,584	100.0	6 to 20	13	50.0	137	55.7
					21 to 50	1	3.8	31	12.6
No wage earners	2	1.2	.....	.....	51 to 100	1	3.8	58	23.6
1 to 5	52	31.1	157	1.5					
6 to 20	36	21.6	430	4.1					
21 to 50	18	10.8	539	5.1					
51 to 100	23	13.8	1,658	15.7					
101 to 500	34	20.4	6,302	59.5					
501 to 1,000	2	1.2	1,498	14.2					

[1] Includes 1 small clay enterprise employing no wage earners.

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILIN HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—							
			35 and under.		36 to 43.		44 to 53.		54 to 62.	
	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners
All industries	[1] 194	11,274	2	11	14	117	159	10,936	19	2
Coal, bituminous	165	10,584	2	11	14	117	149	10,456	.....	.....
Gypsum	5	444	.....	.....	.....	.....	5	444	.....	.....
Limestone	24	246	.....	.....	.....	.....	5	36	19	2

[1] Exclusive of 4 enterprises employing no wage earners in industries as follows: Clay, 1; coal, bituminous, 2; limestone, 1.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries	11,274	13,221	12,926	12,592	11,194	10,868	10,622	11,012	11,811	12,524	13,052	*3,404*	12,062	25.
Coal, bituminous	10,584	12,879	12,554	12,154	10,634	10,192	9,886	10,172	10,930	11,570	12,100	*2,527*	11,410	19.
Gypsum	444	*233*	240	272	330	380	453	540	545	611	619	613	483	37.
Limestone	246	*109*	132	166	230	287	283	300	336	**343**	333	264	169	31.

TABLE 7.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING ENTERPRISES.			
	Total.	Coal, bituminous.	Gypsum.	Limestone.[1]
Number of enterprises	198	167	5	26
Number of mines and quarries	230	199	5	26
Capital	$16,699,094	$13,628,805	$2,124,006	$946,283
Principal expenses:				
Salaries and wages				
Officers	$536,196	$520,082	$6,849	$9,265
Superintendents and managers	$503,601	$458,074	$26,838	$18,689
Technical employees	$24,805	$23,305	.....	$1,500
Clerks, etc	$279,095	$201,405	$51,780	$25,910
Wage earners	$12,466,426	$11,087,918	$495,747	$282,761
Supplies and materials	$2,072,308	$1,758,025	$206,180	$108,103
Fuel	$606,285	$449,697	$119,579	$37,009
Power	$142,559	$120,666	$13,021	$8,872
Royalties and rents	$335,530	$299,194	$21,021	$15,315
Taxes	$186,811	$176,543	$7,546	$2,722
Contract work	$33,464	$33,464	.....	.....
Expenditures for development (included in the above items)	$587,368	$560,282	$8,000	$19,086
Value of products	$18,473,558	$16,903,358	$1,092,920	$477,280
Persons engaged in industry	12,034	11,239	487	308
Proprietors and firm members (total)	200	178	.....	22
Number performing manual labor	143	136	.....	7
Salaried officers	128	122	1	5
Superintendents and managers	195	173	9	13
Technical employees	13	12	.....	1
Clerks, etc	224	170	33	21
Wage earners (average number)	11,274	10,584	444	246
Wage earners by occupation (Dec. 15):				
Above ground (total)	[2] 1,844	[2] 1,352	171	321
Below ground (total)	11,300	10,945	355	.....
Foremen, shift bosses, etc.—				
Above ground	100	81	2	17
Below ground	181	169	12	.....
Enginemen, hoistmen, electricians, mechanics, etc.—				
Above ground	442	381	17	44
Below ground	98	97	1	.....
Miners, quarrymen, and drillmen, including their helpers—				
Above ground	179	31	.....	148
Below ground	7,284	7,175	109	.....
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—				
Above ground	255	240	5	10
Below ground	2,885	2,799	86	.....
Muckers, loaders, laborers, and others not classified—				
Above ground	742	619	21	102
Below ground	852	705	147	.....
Wage earners employed in mills and beneficiating plants—				
Above ground	126	.....	126	.....
Mineral land operated ....acres..	68,724	66,359	1,519	846
Land controlled, total ....acres..	73,672	71,117	1,519	1,036
Mineral land owned	33,536	31,662	1,160	714
Mineral land leased	36,433	35,942	359	132
Timber and other lands owned and leased	3,703	3,513	.....	190
Power used: Aggregate horsepower	32,171	26,123	2,057	3,991
Prime movers (horsepower, total)	19,626	15,885	1,256	2,485
Steam engines—				
Number	256	214	4	38
Horsepower	17,078	13,389	1,256	2,433
Steam turbines—				
Number	4	4	.....	.....
Horsepower	1,690	1,690	.....	.....
Internal-combustion engines—				
Number	94	85	.....	9
Horsepower	858	806	.....	52
Purchased power (horsepower, total)	12,545	10,238	801	1,506
Electric motors operated by purchased current—				
Number	358	288	40	30
Horsepower	12,540	10,233	801	1,506
Other equipment operated by purchased power—				
Horsepower	5	5	.....	.....
Electric motors run by current generated by enterprise using:				
Number	88	67	21	.....
Horsepower	4,670	4,119	551	.....
Fuel used:				
Coal, bituminous ....tons, 2,000 pounds..	210,939	184,205	18,360	8,374
Coke ....tons, 2,000 pounds..	465	.....	465	.....
Wood ....cords..	115	.....	.....	115
Fuel oils ....barrels..	42	42	.....	.....
Gasoline and other volatile oils ....barrels..	1,675	1,180	.....	495

[1] Includes, to avoid disclosure, 1 small clay enterprise.

[2] Includes 1 female.

DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES

MINES AND QUARRIES: 1919

ALASKA

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, in which neither productive work nor development work was done during the entire year; or the products of which were valued at less than $500; or in the case of the bituminous coal mining industry, producing less than 1,000 tons; or, if not productive, in which development work amounting to less than $5,000 was done.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same State operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same State. If plants under unified control were not all located within the same State, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the States in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, is reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the State. A selection has been made of the leading industries of the State for more detailed consideration. Industries of greater importance than some of those selected are omitted when they comprise so few enterprises that detailed presentation would reveal the operations of individual concerns.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of employees of this class does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation which was made for the representative day. This number is not used in any other way because, in view of the unavoidable variations of date, such a total is believed to be less significant than the average number. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give undue weight to seasonal industries as compared with industries in continuous operation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours in an establishment from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class within which the enterprise itself falls. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. *Do not* include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the Census of 1909. The reports received in respect to capital, however, at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported in the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of these used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Royalties and rents.—The amount is given under this head represent the payment to fee holders or the value of share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock; corporation income, and excess profits tax; and also State, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation of mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics on producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Quantity of products.—In so far as the statistics on quantities of mineral products in 1919 are available for the states, they will be found in the reports of the United States Geological Survey, which has tabulated the statistics on quantities of products collected by the Bureau of the Census in cooperation with the Geological Survey, and will also be presented in the special reports of the Census on the several mining industries.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product made in 1919 under the terms by which it was disposed of, and also includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Lands controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

ALASKA.

General statistics.—The census of 1919 was the second to make an actual canvass of the mines and quarries in Alaska. As in the first census, covering the year 1909, the returns secured from the territory are incomplete, but they cover at least a representative number of enterprises in various industries.

The statistics cover 346 mining enterprises, 85.5 per cent of these being gold placer mines. The failure to secure complete returns in Alaska is due chiefly to conditions in the placer mining industry. This industry is seasonal and one in which the operators move from place to place. Many of them had moved out of the territory before the canvass began and, furthermore, many of the mines were in localities not easily accessible to the census agents, and difficult to reach by mail.

In addition to the number of returns tabulated, there were received from active concerns 97 returns not tabulated because they were defective or reported product valued at less than $500, or were in operation for development only. Six of these last reported capital investment amounting to approximately $900,000, employment of about 90 wage earners, and expenditures for development amounting to over $350,000 for salaries, wages, supplies, fuel, and power.

The total value of products of all mining industries in Alaska, in 1919, as reported to the Bureau of the Census, was $15,634,801.[1] Of this amount copper and gold lode mines, and deep mines producing other metals contributed $11,516,565, or 73.7 per cent. The gold placers contributed $3,565,489, or 22.8 per cent, which came chiefly from the mines, the product of these being valued at $2,735,047; the remainder—$830,442—was produced by dredges. The industry next in importance was coal mining, which produced $333,912 worth of coal, or 2.1 per cent of the total. All other mining industries produced less than 2 per cent of the value of products for the industry as a whole.

The total value of products of all mining industries in Alaska canvassed by the Census Bureau was 80 per cent of the total value of production as reported for that territory by the United States Geological Survey. For the gold placer mining industry the corresponding percentage is 72. The discrepancy between the Census and Geological Survey figures is due partly to the fact that the Census Bureau reports the net value of the dust or bullion produced, whereas the Geological Survey reports gross value of the metals contained in the products, but is due chiefly to the fact that the Geological Survey (which cooperated with the Bureau of the Census in the canvass) was able to supplement the production statistics so derived by information from indirect sources, through which, however, replies could not be obtained to those census inquiries not relating to product.

Comparative summary.—In Table 1 the principal statistics for all mining enterprises in the territory of Alaska in 1919 are summarized and compared with the statistics for 1909. The notable features brought out by this comparison are that whereas the value of products decreased only 7.7 per cent, the number of enterprises and the number of persons engaged in the mining industries in 1919 decreased approximately 43 and 35 per cent as compared with 1909 and, on the other hand, the capital invested increased approximately 250 per cent. These changes are merely the reflection of the changing character of the mining industry in the territory. Formerly, the industry was characterized by a large number of small bonanza gold placer mines, the operation of which employed little capital and many men, and which were the chief source of production. By 1919 placer mining, and particularly bonanza mining, had so declined and lode mining so increased that the industry in the territory was dominated by lode mining which employed large capital and relatively fewer persons per unit of output and had a production valued at nearly three-fourths the total value of all the mineral output. In addition to the change in character of mining, changes in commodity values also played an important part in the apparent decline of the industry and in impairing the comparability of 1909 and 1919 statistics.

Character of organization.—Table 2 classifies the producing enterprises of the territory according to character of organization, distinguishing the corporations from individual owners and firms (partnerships), and shows for all industries combined, and for the principal industries separately, the number of wage earners and the value of products for each class. The corporations, although forming only 11.6 per cent of the total number of enterprises, employed 66.2 per cent of all the wage earners and produced 82.2 per cent of the total value of all products. The separate figures for the principal industries show that the predominance of the corporations in these respects is confined to the lode mining industries.

Size of enterprises.—In Table 3 the producing enterprises are classified in six groups according to the number of wage earners employed. There were 123 enterprises, or 35.5 per cent of the total number, employing no wage earners; 194, or 56.1 per cent of the total, employing from 1 to 20 wage earners; and 5 large enterprises, or 1.4 per cent of the total, employing over 100 wage earners each. The enterprises in this last class are all lode mines.

Persons employed in mining.—As shown by Table 5, of the total of 3,267 persons employed in producing

[1] The gross value of all Alaskan mineral products in 1919, as estimated by the United States Geological Survey, was $19,600,000.

enterprises in Alaska, copper and gold lode mines reported 1,887, or 57.8 per cent of the total number; and the gold placers 1,109, or 33.9 per cent. Of the 593 proprietors and firm members reported, 505, or approximately 85.1 per cent, performed manual labor in or about the mines. Of this number 30 were engaged in lode mining and 463 in placer mining.

Number of wage earners employed, by months.—Table 4 shows the number of wage earners employed on the 15th of each month, or nearest representative day, in the producing enterprises in all mining industries combined, and separately for the lode mines, placer mines, and coal mines. The seasonal control of placer mining is shown by the figures for gold and tin placers. It is even more marked than the figures indicate as all productive operations in dredging and other placer mining except drift mining is suspended during the winter months.

Power used.—The detailed summary, Table 5, shows the aggregate horsepower used in producing mining enterprises in Alaska as 29,979, of which 29,829 horsepower was developed by steam engines and turbines, internal-combustion engines, and water wheels and turbines owned by the operators using them; and 150 horsepower by electric motors operated by purchased current. In the copper, gold, and other lode mines, 24,220 horsepower, or 80.8 per cent of the aggregate, was used, while in gold placer mining 4,717 horsepower was employed, 2,980 of which was used by placer mines proper and 1,737 by dredges. Of the total horsepower developed by prime movers, 58.2 per cent was by water wheels or turbines, and of this amount 97.8 per cent was used by copper and gold lode mines.

TABLE 1.—COMPARATIVE SUMMARY FOR PRODUCING ENTERPRISES: 1919 AND 1909.

	1919	1909		1919	1909
Number of enterprises	346	607	Capital	$116,026,441	$33,100,004
Number of mines and quarries	367	(1)			
Number of petroleum wells	8	(1)	Expenses (selected items):		
			Salaries	533,076	310,040
Persons engaged in industries	3,267	4,991	Wages	5,010,611	6,129,840
Proprietors and firm members, total	593	1,418	Supplies and materials	2,789,755	2,461,065
Number performing manual labor	505	411	Fuel and power	1,080,348	264,625
Salaried employees	199	173	Royalties and rents	314,096	1,526,405
Wage earners (average number)	2,475	3,400	Taxes	307,390	6,855
Wage earners, Sept. 15	3,379	5,956	Contract work	457,774	1,038,388
Power used (horsepower)	29,979	19,039	Value of products	15,634,801	16,933,427

[1] Figures not available.

TABLE 2.—CHARACTER OF ORGANIZATION, FOR PRODUCING ENTERPRISES: 1919.

INDUSTRY AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Number of wage earners.	VALUE OF PRODUCTS. Total.	VALUE OF PRODUCTS. Per enterprise.	PER CENT DISTRIBUTION. Enterprises.	PER CENT DISTRIBUTION. Wage earners.	PER CENT DISTRIBUTION. Value of products.
ALL INDUSTRIES	346	3,379	$15,634,801	$45,187	100.0	100.0	100.0
Corporation	40	2,236	12,855,187	321,380	11.6	66.2	82.2
Individual	127	371	695,381	5,475	36.7	11.0	4.4
Firm [1]	179	772	2,084,233	11,644	51.7	22.8	13.3
PLACER GOLD	296	1,185	3,565,489	12,046	100.0	100.0	100.0
Corporation	16	298	1,292,204	80,766	5.4	25.1	36.2
Individual	117	284	530,287	4,609	39.5	24.0	15.1
Firm [2]	163	603	1,733,958	10,638	55.1	50.9	48.6
COPPER, GOLD, AND OTHER LODE MINES	32	1,929	11,516,505	359,893	100.0	100.0	100.0
Corporation	16	1,821	11,329,000	708,067	50.0	94.4	98.4
Firm [3]	16	108	187,490	11,719	50.0	5.6	1.6

[1] Includes 2 cooperative associations and 2 unclassified. [2] Includes 2 cooperative associations. [3] Includes 5 individuals.

TABLE 3.—SIZE OF ENTERPRISES, BY NUMBER OF WAGE EARNERS PER ENTERPRISE: 1919.

WAGE EARNERS PER ENTERPRISE.	ALL INDUSTRIES: 1919. Enterprises. Number.	Enterprises. Per cent distribution.	Wage earners. Number.	Wage earners. Per cent distribution.	PLACER GOLD. Enterprises. Number.	Enterprises. Per cent distribution.	Wage earners. Number.	Wage earners. Per cent distribution.	COPPER, GOLD, AND OTHER LODE MINES. Enterprises. Number.	Enterprises. Per cent distribution.	Wage earners. Number.	Wage earners. Per cent distribution.
Total	346	100.0	3,379	100.0	296	100.0	1,185	100.0	32	100.0	1,929	100.0
No wage earners	123	35.5	.....	.....	112	37.8	.....	.....	8	25.0	.....	.....
1 to 5	113	32.7	272	8.0	105	35.5	238	20.1	5	15.6	22	1.1
6 to 20	81	23.4	776	23.0	69	23.3	632	53.3	4	12.5	47	2.4
21 to 50	19	5.5	520	15.7	9	3.0	250	21.1	7	21.9	194	10.1
51 to 100	5	1.4	340	10.1	1	0.3	65	5.5	3	9.4	204	10.6
Over 100	5	1.4	1,462	43.3	.....	.....	.....	.....	5	15.6	1,462	75.8

TABLE 4.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY.	Average number employed during year	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries	2,475	2,197	*1,967*	2,022	2,085	2,303	2,774	2,942	**3,103**	3,044	2,552	2,361	2,350	63.4
Copper, gold, and other lode mining	1,723	1,813	1,549	1,548	1,502	*1,428*	1,547	1,595	1,764	1,796	2,014	2,039	**2,081**	68.6
Placer mining, total	538	178	204	249	379	660	983	1,107	1,098	1,014	365	132	*87*	7.9
Gold mines	427	161	185	222	287	545	821	905	867	769	210	77	*75*	8.3
Gold dredges	95	17	19	27	92	115	146	155	182	**196**	123	55	*12*	6.1
Tin placers	16	.....	.....	.....	.....	.....	*16*	46	49	49	32	.....	.....	32.7
Coal	143	163	167	**169**	130	128	157	138	143	140	*118*	130	133	69.8
All other industries [1]	71	*43*	47	50	74	87	87	102	98	94	55	60	49	42.2

[1] Includes enterprises as follows: Chromite, 1; gypsum, 1; marble, 1; and petroleum, 1.

TABLE 5.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

	PRODUCING MINES, QUARRIES, AND WELLS.						
	Total.	Copper, gold, and other lode mines.	Gold placers.		Coal.	Tin (placers).	All other.[1]
			Mines.	Dredges.			
Number of enterprises	346	32	279	17	8	6	4
Number of mines, quarries, and wells	375	33	298	18	8	7	11
Capital	$116,626,441	$100,612,540	$5,997,427	$2,736,984	$276,083	$189,796	$813,011
Principal expenses:							
Salaries and wages—							
Officers	$134,651	$73,450	$30,183	$25,400	.....	$200	$5,418
Superintendents and managers	$241,497	$150,055	$46,710	$24,215	$5,100	$3,000	$12,417
Clerks and others	$150,928	$127,709	$13,112	$4,167	$8,712	.....	$3,228
Wage earners	$5,010,611	$3,547,471	$825,066	$250,239	$250,200	$28,131	$103,504
Supplies and materials	$2,789,755	$2,105,602	$461,518	$103,317	$69,585	$15,246	$34,487
Fuel and power	$1,080,348	$755,661	$163,338	$111,452	$13,086	$4,707	$32,104
Royalties and rents	$314,066	$53,395	$175,335	$69,179	$70	$15,777	$400
Taxes	$307,390	$286,695	$14,378	$3,446	$132	$551	$2,188
Contract work	$457,774	$453,474	$300	.....	$4,000	.....	.....
Expenditures for development (included in above)	$1,202,363	$959,074	$113,101	$31,097	$97,091	$2,000	.....
Value of products	$15,631,801	$11,516,565	$2,735,047	$830,442	$333,912	$72,498	$146,337
Persons engaged in industry	3,297	1,887	975	134	164	22	85
Proprietors and officials	702	96	530	36	15	6	10
Proprietors and firm members, total	593	42	515	20	12	2	2
Number performing manual labor	505	30	452	11	10	2	.....
Salaried officers of corporations	31	12	8	7	.....	2	2
Superintendents and managers	78	42	16	9	3	2	6
Clerks and other salaried employees	90	68	9	3	6	.....	4
Wage earners (average number)	2,475	1,723	427	95	143	16	71
Wage earners, total number Sept. 15, or nearest representative day	3,370	1,929	989	196	163	49	53
Above ground	2,242	1,096	791	196	57	49	53
Below ground	1,137	833	198	.....	106	.....	.....
Women (included above)	42	1	36	5	.....	.....	.....
Mineral and oil lands operated ....acres..	46,551	13,027	23,932	3,450	2,050	2,250	1,842
Land controlled, total ....acres..	46,706	13,122	24,052	3,450	2,050	2,250	1,842
Mineral and oil land owned	38,376	12,132	20,167	2,815	180	1,570	1,512
Mineral and oil land leased	8,175	895	3,765	635	1,870	680	330
Other lands	215	95	120	.....	.....	.....	.....
Power used:							
Aggregate horsepower	29,979	24,220	2,980	1,737	152	330	560
Prime movers	29,829	24,070	2,980	1,737	152	330	560
Steam engines—							
Number	235	24	176	5	8	3	19
Horsepower	5,370	1,852	2,339	410	129	95	545
Steam turbines—							
Number	11	4	7	.....	.....	.....	.....
Horsepower	2,493	2,450	43	.....	.....	.....	.....
Internal-combustion engines—							
Number	74	27	8	29	6	3	1
Horsepower	4,599	2,776	223	1,327	23	235	*15*
Water wheels and turbines—							
Number	33	28	5	.....	.....	.....	.....
Horsepower	17,367	16,992	375	.....	.....	.....	.....
Electric motors operated by purchased current—							
Number	7	7	.....	.....	.....	.....	.....
Horsepower	150	150	.....	.....	.....	.....	.....
Electric motors run by current generated by the enterprise:							
Number	468	463	2	.....	1	.....	2
Horsepower	18,988	18,763	150	.....	10	.....	65
Fuel used:							
Coal, bituminous ....tons, 2,000 pounds..	8,387	2,195	186	32	2,688	16	3,270
Wood ....cords..	21,812	3,024	18,080	3,698	10	.....	.....
Fuel oils ....barrels..	165,780	161,715	311	3,073	.....	321	360
Gasoline and other volatile oils ....barrels..	1,990	1,019	58	845	5	52	11

[1] Includes enterprises as follows: Chromite, 1; gypsum, 1; marble, 1; and petroleum, 1.

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DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES

MINES AND QUARRIES: 1919

COAL

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, which did neither productive work nor development work during the entire year; or enterprises the products of which were valued at less than $500 or, in the bituminous coal-mining industry, producing less than 1,000 tons; or, if nonproducing enterprises, those doing development work amounting to less than $5,000.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same state operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same state. If plants under unified control were not all located within the same state, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the states in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, was reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Geographic presentation.—The general tables at the end of the bulletin give statistics of the industry in detail for each state or group of states which can be shown without disclosure of individual operations. Other tables present statistics by mining regions, producing provinces, or fields, these divisions comprising groups of states related by features peculiar to the industry.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of such employees does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The total number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation for the representative day. This number is not used in any other way because it is believed to be less significant than the average number. The number reported for the representative day, on account of the unavoidable variations of date, involves more or less duplication of persons working in different industries at different times; does not represent the total number employed in all industries at any one time; and gives undue weight to seasonal industries as compared with industries in continuous operation.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class in which the majority belong. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. Do not include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the Census of 1909. The reports received in respect to capital, however at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported at the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of these used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Contract work.—The amounts reported under this head include expenditures for both productive operations and those prosecuted for development only; they are in effect indirect expenditures for salaries, wages, supplies, materials, and fuel and power.

Royalties and rents.—The amounts given under this head represent the payment to fee holders or the value of the share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock, corporation income, and excess profits taxes; and also state, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation for mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics on producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product mined in 1919 under the terms by which it was disposed of, and includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Lands controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

COAL.

INTRODUCTION.

Scope of the report.—This report presents the results of the census of mines and quarries for the year 1919 relating to the coal-mining industry comprising the production of coal of all kinds—anthracite, bituminous coal, lignite, and other varieties. It includes statistics showing: The geographic distribution of the industry by coal-mining provinces or regions and states; the progress of the industry by comparison of results of the 1919 census with those of the three preceding censuses of mines and quarries; the character of organization, and the size of operating enterprises; the persons engaged in the industry; the acreage of land controlled and the form of tenure of coal land; power equipment and fuel used; methods of operation; and statistics in detail for the United States as a whole, for the coal-mining provinces or regions, and for each state within the provinces or regions that can be shown without disclosure of individual operations.

This report on the coal-mining industry does not include statistics relating to the operation of mines by governmental and other noncommercial institutions. Returns were received from 9 such enterprises, 1 each in Indiana, New Mexico, North Dakota, and Tennessee, 2 in Virginia, and 3 in Pennsylvania which operated 9 mines, engaged the services of 145 persons of whom 135 were wage earners, and which produced approximately 175,000 short tons of bituminous coal valued at $469,745.

The canvass of coal-mining enterprises did not include small bituminous coal mines or banks producing less than 1,000 tons annually, and the statistics herein presented are exclusive of data for such enterprises. The United States Geological Survey reported for 1919, 3,415 noncommercial small mines whose production was less than 1,000 tons and aggregated 928,635 tons valued at $2,429,141. As this count is admittedly incomplete and, furthermore, as the Geological Survey has included in its tabulation of commercial coal mines a number of mines which produced less than 1,000 tons in 1919 the full count of small mines productive in that year was probably in excess of 3,500 mines and their product more than 1,000,000 tons of coal.

This report contains statistics relating to unproductive operations conducted solely for development of coal properties as well as statistics relating to productive operations. The nonproducing operations reported include one Pennsylvania anthracite enterprise for which statistics can not be shown separately and have therefore been included with those for bituminous coal-mining enterprises.

Relation to the census of manufactures.—Two classes of enterprises were engaged in bituminous coal-mining operations intimately connected with manufacturing. These were (1) manufacturers of coke and (2) manufacturers of clay products who mined the coal used in their manufacturing plants. Completely segregated returns were secured for the mining and the coke manufacturing operations, or, when producers made combined reports, they were apportioned so that mining and manufacturing statistics could be separately tabulated except in the case of a few establishments whose coke-producing operations were quite subordinate to coal mining and whose entire reports were therefore accepted as coal-mining reports. A few manufacturers of clay products who mined coal in connection with clay and used both mineral products in their manufacturing plants, located at the mines, did not furnish separate data on coal mining, and statistics for such establishments are not included in the statistics of mines and quarries. The coal so produced amounted to less than 100,000 tons and was probably in the neighborhood of 50,000 tons. There is therefore no duplication in the census statistics relating to coal mining of statistics reported by the census of manufactures for the year 1919.

Differences between the census of mines and quarries, 1919, and the preceding censuses.—The scope of the inquiries and the form of presentation of statistics relating to coal mining were essentially similar at the Fourteenth and Thirteenth Censuses, except in two important respects, which are: (1) That the Fourteenth Census relating to the year 1919 thoroughly segregated coal-mining operations from coke-manufacturing operations, whereas the Thirteenth Census relating to the year 1909 included statistics relating to coke-manufacturing operations conducted at the mines by coal producers. In the reports of the Thirteenth Census there are, however, also presented statistics from which the data relating to coke manufacture at the mines were excluded, partly by estimate. (2) The Fourteenth Census did not count the operators but reported the number of enterprises which is essentially a count of the operations for which the operators kept separate records and for which they submitted separate returns. The Thirteenth Census presented the number of operators by eliminating duplications in the count for such operators as reported more than one enterprise in the state. The number of enterprises, comparable with the count for 1919, was, however, given in the report of the Thirteenth Census in a special statement. Entirely comparable statistics for the years 1919 and 1909 can therefore be presented.

The special census of Mines and Quarries for the year 1902 and the earlier censuses relating to coal mining were different from the later censuses in both the form and scope of the inquiries and method of presentation of results. Therefore, only partly comparable statistics are available for selected items.

Use of long and short tons.—In all the tables in which the quantities of bituminous coal only or of both anthracite and bituminous coal are given the unit of measure used is the ton of 2,000 pounds, but in all the tables which deal with Pennsylvania anthracite only the long ton of 2,240 pounds is used.

Differences in the results presented by the Bureau of the Census and the Geological Survey.—The statistics on coal mining were collected in cooperation with the United States Geological Survey. For the purpose of the cooperative canvass supplemental schedules were provided in addition to the general schedule of the census. These supplemental schedules requested special information such as the quantity of coal according to the disposition made of it, the time in operation, the number of employees, the character of openings, method of mining, the kind of mining machine used, and other special data. This information was tabulated by the United States Geological Survey. It has been used by the Bureau of the Census in completing or correcting defective general schedules and for classifying the coal-mining enterprises according to method of operation and disposition of products. The schedules were independently prepared for tabulation by the Bureau of the Census and the Geological Survey, and therefore slight differences in results developed. The results would, however, be essentially identical except for the fact that the Geological Survey supplemented the returns of the canvass by the inclusion of belated returns or estimates for enterprises from which the general census statistics were not obtained and also included in its published statistics the production of small mines, governmental institutions, and manufacturing plants not classified as mines by the Bureau of the Census.

Therefore the quantity of coal produced and the total value of products of the coal-mining industry as reported by the Bureau of the Census, and the quantity and value of coal produced as reported by the Geological Survey are different for each of the principal states. As shown in the following statement, the total quantity and value credited to the United States Geological Survey are larger than the figures of the Bureau of the Census, and for most of the states there is a small excess in the Geological Survey figures.

The Geological Survey's statistics on men employed, "underground," and "surface," are in approximate accord with the Bureau of the Census statistics on wage earners below ground and above ground. The Geological Survey's figures are, however, based on estimated averages made by the reporting operator, whereas the Bureau of the Census average number is the average of the numbers reported on a representative day of each month, and the numbers given by that bureau as employed above ground and below ground are the numbers reported by the operators for December 15 or nearest representative day.

STATE.	BUREAU OF THE CENSUS.		GEOLOGICAL SURVEY.	
			Coal produced.	
	Coal produced (tons, 2,000 pounds).	Total value of products of the industry.	Quantity (tons, 2,000 pounds).	Value.
United States [1]	548,596,000	$1,510,061,707	553,891,000	$1,525,199,416
Anthracite (Pennsylvania)	88,170,000	364,084,142	88,092,000	364,926,950
Bituminous coal	460,426,000	1,145,977,565	465,799,000	1,160,272,466
Alabama	15,411,000	45,359,441	15,537,000	45,937,681
Arkansas	1,440,000	5,292,274	1,429,000	5,288,844
Colorado	10,183,000	28,342,195	10,323,000	28,748,531
Illinois	60,331,000	138,767,835	60,863,000	140,075,969
Indiana	20,505,000	45,402,726	20,912,000	46,345,750
Iowa	5,474,000	16,903,358	5,625,000	17,352,620
Kansas	5,204,000	15,748,535	5,225,000	15,917,053
Kentucky	29,426,000	72,432,840	30,036,000	73,891,049
Maryland	2,997,000	8,195,667	3,022,000	8,255,984
Michigan	990,000	3,861,874	996,000	3,864,228
Missouri	3,784,000	12,077,845	3,980,000	12,766,366
Montana	3,212,000	8,591,211	3,236,000	8,644,344
New Mexico	3,185,000	9,965,541	3,139,000	9,750,833
North Dakota	768,000	1,927,304	841,000	2,100,303
Ohio	35,141,000	77,988,602	35,877,000	79,490,301
Oklahoma	3,783,000	14,477,317	3,802,000	14,544,901
Pennsylvania	150,039,000	362,973,952	150,758,000	365,430,591
Tennessee	5,132,000	14,024,432	5,213,000	14,448,168
Texas	1,588,000	4,322,100	1,681,000	4,527,640
Utah	4,593,000	12,632,035	4,631,000	12,760,613
Virginia	9,335,000	23,763,410	9,327,000	23,774,941
Washington	2,987,000	10,737,656	2,990,000	10,691,222
West Virginia	77,617,000	193,108,343	79,036,000	196,551,015
Wyoming	7,212,000	18,723,451	7,220,000	18,751,024
All other states [2]	92,000	327,591	100,000	356,570

[1] Exclusive of Alaska.
[2] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.

The Bureau of the Census does not report the tonnage of coal mined by various methods, and its figures are therefore not in conflict with statements made by the Geological Survey. The Bureau of the Census has classified bituminous coal-mining enterprises only on the basis of use of mining machines. Enterprises classified as using them may nevertheless have produced the major part of their coal output by hand mining.

Varieties of coal.—Three principal kinds of coal are commonly recognized, namely, (1) anthracite, (2) bituminous coal, and (3) lignite. A number of other names are used to designate varieties of coal that are intermediate between, or subordinate to, these. Some of these names indicate "rank;" that is, the differences in coal that are due to the progressive change from lignite to anthracite, and other names designate coals in accordance with peculiar characters aside from their rank. Within the boundaries of the United States there are all ranks of coal from the coarse, woody lignite of North Dakota and eastern Montana through subbituminous coals, bituminous coals, semibituminous coals, and semianthracites to the highest rank of anthracite in fields of eastern Pennsylvania; and there are many varieties such as cannel, splint, and block coals. For purposes of statistical presentation in this report coal-mining enterprises are not classified according to the character

or variety of the coal produced. All the coal-mining enterprises in 1919, except those in the Pennsylvania anthracite region, are designated bituminous coal-mining enterprises, and statistics relating to them are presented as for bituminous-coal mines. The statistics in this report presented for anthracite mines relate entirely to the anthracite region in eastern Pennsylvania. This comparatively small area produces practically all the anthracite mined in the United States, although there is a little commercial production of anthracite in Gunnison County, Colorado, and Santa Fe County, New Mexico, and although anthracite occurs in a number of other fields in the western states. The so-called anthracites of other states, particularly Virginia, West Virginia, and Arkansas, are very high rank bituminous coals or semianthracite.

PRINCIPAL STATISTICS.

Summary for producing and nonproducing enterprises: 1919.—The principal statistics for the coal-mining industry in 1919 for the United States as a whole are presented in Table 1. These statistics are separately given for producing anthracite mines, for producing bituminous coal mines, and for nonproducing coal mines.

TABLE 1.—PRINCIPAL STATISTICS, ALL ENTERPRISES: 1919.

	Aggregate.	PRODUCING ENTERPRISES.					Nonproducing enterprises.
		Total.	Anthracite (Pennsylvania).		Bituminous coal.		
			Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	
Number of enterprises	6,916	6,890	254	3.7	6,636	96.3	26
Number of mines	8,682	8,656	[1] 374	4.3	8,282	95.7	26
Coal land operated ... acres	8,547,434	8,522,727	261,355	3.1	8,261,372	96.9	24,707
Persons engaged	739,049	738,490	154,882	21.0	583,608	79.0	529
Proprietors and firm members, total	4,401	4,396	159	3.6	4,237	96.4	5
Number performing manual labor	1,866	1,864	34	1.8	1,830	98.2	2
Salaried employees	40,977	40,924	7,351	18.0	33,573	82.0	53
Wage earners (average number)	693,641	693,170	147,372	21.2	545,798	78.7	471
Wage earners Dec. 15 or nearest representative day:							
Above ground	155,838	155,364	46,618	30.0	108,746	70.0	474
Below ground	614,629	614,282	105,625	17.2	508,657	82.8	347
Power used (aggregate horsepower)	3,057,729	3,055,195	899,783	29.5	2,155,412	70.5	2,534
Capital	$2,343,935,332	$2,338,318,162	$433,868,039	18.6	$1,904,450,123	81.4	$5,617,170
Principal expenses:							
Salaries	$81,744,493	$81,664,507	$12,995,469	15.9	$68,669,038	84.1	$79,986
Wages	$893,481,365	$892,890,541	$210,289,473	23.6	$682,601,068	76.4	$590,824
Contract work	$4,426,346	$4,413,811	$1,557,845	35.3	$2,855,966	64.7	$12,535
Supplies and materials	[2] $203,255,476	[2] $202,604,245	[2] $60,171,694	29.7	$142,432,551	70.3	$651,231
Fuel and purchased power	$50,408,420	$50,383,121	$13,305,952	26.4	$37,177,169	73.6	$15,299
Royalties and rents	$34,081,130	$34,061,654	$11,766,598	34.5	$22,295,056	65.5	$19,476
Taxes	$48,814,048	$48,768,359	$14,060,963	28.8	$34,707,396	71.2	$46,289
Expenditures for development (included in the above items)	$37,487,973	$36,234,369	$6,189,990	17.1	$30,044,379	82.9	$1,253,604
Value of all products	$1,510,061,707	$1,510,061,707	$364,084,142	24.1	$1,145,977,565	75.9	.....
Coal:							
Quantity (tons, 2,000 pounds)	548,596,344	548,596,344	88,170,508	16.1	460,425,836	83.9	.....
Value at mine	$1,508,267,421	$1,508,267,421	$363,944,774	24.1	$1,144,322,647	75.9	.....
Other products [3]	$1,794,286	$1,794,286	$130,368	7.8	$1,654,918	92.2	.....

[1] In addition to mines, the anthracite enterprises reported 245 breakers, 79 washeries, and 81 dredges.
[2] Includes $433,318, the cost of anthracite purchased for resale.
[3] Includes receipts for mineral by-products, products not specified, and for power, work, or miscellaneous services for other enterprises.

The total number of enterprises for which returns were received by the Bureau of the Census was 6,916, of which 6,636 operated 8,282 bituminous coal mines, 254 operated 374 [1] anthracite mines, and 26 unproductive enterprises operated 25 bituminous coal mines and 1 anthracite mine.

[1] The anthracite enterprises comprised 261 collieries operating 374 mines, 245 breakers, and 60 washeries; 19 culm washeries operated independently of mines; and 81 dredges. It should be noted that in some tables reporting statistics for anthracite enterprises the figure 361, representing collieries, independent culm washeries, and dredges, is given as comparable to the number 420, reported at the census of 1909; in other tables reporting the number of mines the figure 374, which represents mines only, is given; and in still others the number 534 is given, which is the total count of all mines, washeries, and dredges (breakers not being counted because regarded as beneficiating plants operated in connection with mines).

The average number of wage earners employed by all coal mines was 693,641, of which producing bituminous coal enterprises reported 545,798, anthracite enterprises 147,372, and nonproducing enterprises 471.

The unproductive enterprises, operating 26 mines, reported work for the purpose of development only. These operations were relatively insignificant as compared with the operations of productive enterprises, which included development work amounting to $36,234,369, whereas the amount of expenditures credited to development work by the nonproducing enterprises was only $1,253,604.

The output of all coal mines during the census year was 548,596,344 short tons of coal valued at

$1,508,267,421. In addition to the value of coal produced, the producing enterprises received $1,794,286 for other products, which comprised the following items:

OTHER PRODUCTS.	Amount received.
Clay	$323,196
Coke	96,016
Pyrite	63,378
Sandstone	4,241
Not specified	14,944
Power sold, and work or miscellaneous services for other enterprises	1,292,511

The gross value of products of the coal-mining industry, embracing the above items, also included $433,318, which represented the cost of 122,725 tons of anthracite purchased by some operators from others within the industry and resold and reported by the purchaser as part of his product.

Coal mining is the most important mining industry in the United States. It outranked all other mining industries in 1919 in all important statistical items except the amount of capital invested, the acreage of mineral land controlled, and the amount paid for rent and royalties, in which items it was exceeded by the petroleum and natural-gas industry. The coal-mining industry accounted for 47.8 per cent of the total value of products of all mining industries in 1919 ($3,158,463,966) and employed 70.6 per cent of the total average number of wage earners (981,560). In value of products the coal-mining industry exceeded the industry next in rank, petroleum and natural gas, by about 60 per cent of the value of the latter. The average number of wage earners employed in the coal-mining industry was more than seven times the number in the petroleum and natural-gas industry, and more than 15 times the numbers in the iron-ore and copper-mining industries, which were next in importance. Moreover, bituminous-coal mining, separately considered, outranked all other mining industries, with products valued at 36.3 per cent of the total value of products and with 55.6 per cent of the total average number of wage earners in all mining industries. Anthracite mining, with 11.5 per cent of the total value of products for the United States, was outranked by the petroleum and natural-gas industry in value of products but exceeded that industry and all others except bituminous-coal mining in the average number of wage earners employed, having 15 per cent of the total average number for the United States.

Table 1 also shows the distribution of the principal statistics for the coal-mining industry as between anthracite (Pennsylvania) and bituminous coal-mining enterprises. Anthracite mining represents a very small part of the coal-mining industry as measured by the number of enterprises or mines and acreage operated but on the basis of wage earners employed, it represents more than one-fifth, on tonnage produced, nearly one-sixth, and on value of products, nearly one-fourth of the total coal-mining industry.

GEOGRAPHIC DISTRIBUTION.

Producing regions and states.—Coal was produced in 1919 in the following 30 states:

Alabama.	Kentucky.	Oregon.
Arkansas.	Maryland.	Pennsylvania.
California.	Michigan.	South Dakota.
Colorado.	Missouri.	Tennessee.
Georgia.	Montana.	Texas.
Idaho.	New Mexico.	Utah.
Illinois.	North Carolina.	Virginia.
Indiana.	North Dakota.	Washington.
Iowa.	Ohio.	West Virginia.
Kansas.	Oklahoma.	Wyoming.

Six of these states, California, Georgia, Idaho, North Carolina, Oregon, and South Dakota, each producing less than 100,000 tons, were quite unimportant in coal mining. The important statistical items relating to coal mining in the states are assembled in Table 2 by the usual geographic divisions in order that statistics for this industry may be compared with other census statistics distributed by these geographic divisions.

TABLE 2.—PRINCIPAL STATISTICS FOR PRODUCING ENTERPRISES, BY GEOGRAPHIC DIVISIONS: 1919.

DIVISION.	Number of enterprises.	Number of mines.	Coal land operated (acres).	Wage earners (average number).	Power used (aggregate horsepower).	Capital.	Wages.	Supplies and materials including fuel and rent of power.	PRODUCTS. Total value of all products.	Coal produced (tons, 2,000 pounds).	Value of coal at mines.
United States	6,890	8,056	8,522,727	693,170	3,055,195	$2,338,318,162	$892,890,541	$252,654,048	$1,510,061,707	548,596,344	$1,508,267,421
Middle Atlantic	2,192	2,958	1,753,274	302,364	1,558,746	1,082,494,849	421,636,166	129,079,055	727,058,094	238,200,195	726,115,636
East North Central	1,541	1,728	1,380,572	140,365	489,756	363,211,867	165,410,377	39,592,805	266,111,637	116,971,081	265,793,580
West North Central	554	636	218,060	26,727	79,979	39,568,117	30,823,152	6,970,580	46,657,042	15,230,046	46,638,357
South Atlantic	1,092	1,497	2,285,625	103,136	409,579	408,031,091	124,109,250	36,829,973	225,067,450	89,949,237	224,009,737
East South Central	930	1,145	1,678,273	73,973	246,789	221,576,637	82,643,224	22,838,707	131,816,713	49,969,621	131,644,317
West South Central	212	264	170,481	12,538	57,647	24,549,491	15,114,481	3,596,546	24,091,691	6,811,527	24,070,916
Mountain	322	373	947,426	29,351	179,260	180,654,346	46,322,668	11,646,780	78,104,433	28,384,568	78,087,288
Pacific	35	43	65,940	4,413	32,190	15,987,334	6,515,988	2,018,711	10,737,656	2,086,910	10,680,109
All other states [1]	12	12	13,167	303	1,249	2,244,430	315,235	80,801	327,591	92,259	327,481

[1] Includes California, 1; Georgia, 1; Idaho, 1; North Carolina, 1; Oregon, 3; South Dakota, 5.

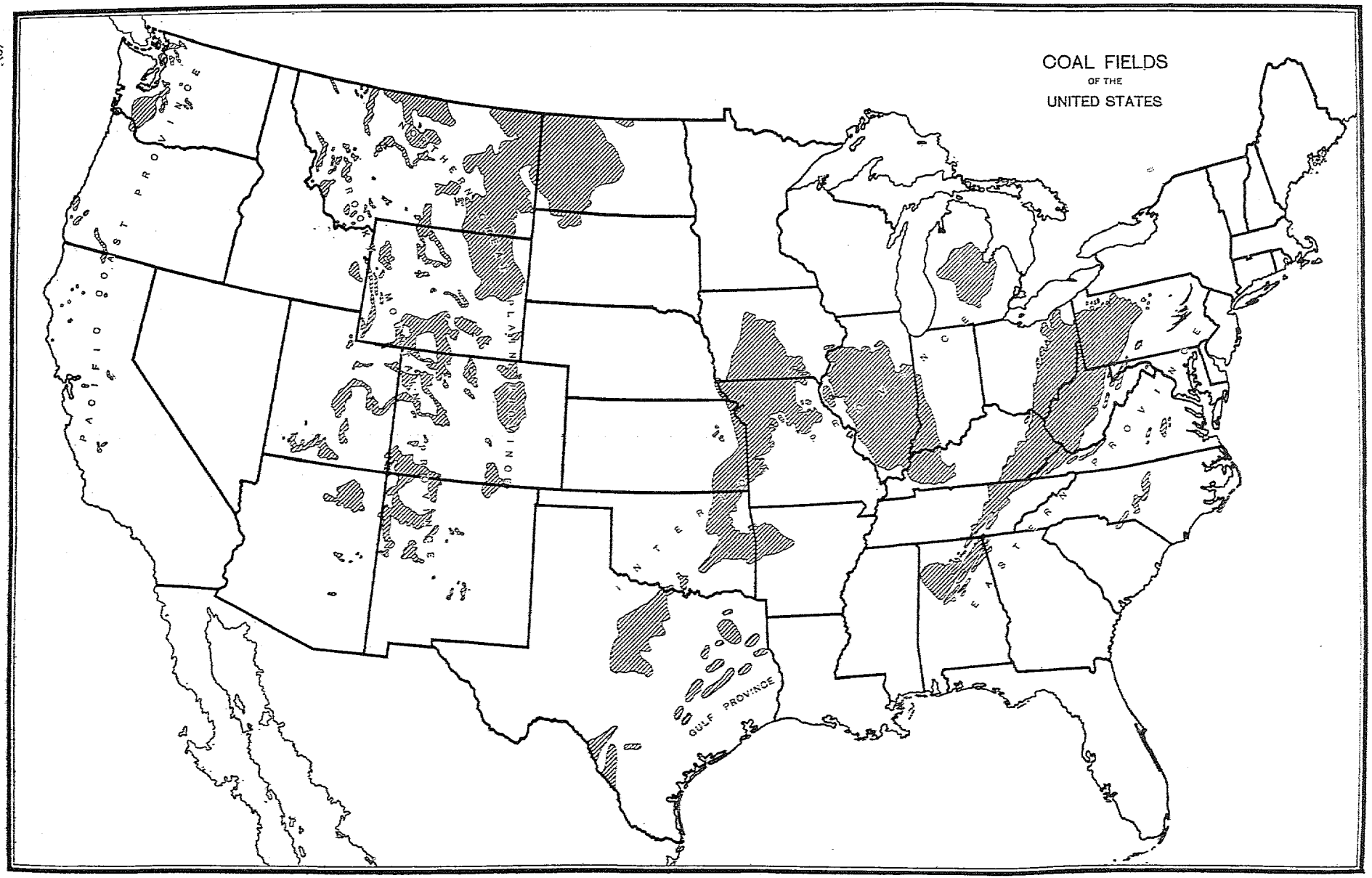
According to inherent features of coal deposits, such as the kind and quality of the coal and the natural conditions which affect their industrial development, coal-producing areas are grouped in six major provinces—the Eastern Province, the Interior Province, the Gulf Province, the Northern Great Plains Province, the Rocky Mountain Province, and the Pacific Coast Province. For the first two provinces statistics are shown separately by states and by principal coal regions. Statistics for the Gulf Province relate only to lignite mines in Texas. They can not be shown separately and are combined with statistics for other (bituminous coal) mines in Texas, which are in the Interior Province. Statistics for mines in the three provinces of the western United States can be given only by states and as the province boundaries divide four important states, totals for the separate provinces can not be given. The following definitions and descriptions of the provinces and regions used for presentation of census statistics conform as closely as possible to the definitions of the standard coal provinces and regions as laid down by the United States Geological Survey. (See map on following page.)

1. The Eastern Province is subdivided into the Rhode Island Anthracite Region, the Pennsylvania Anthracite Region, the Atlantic Region, and the Northern, Middle, and Southern Appalachian Regions. The Rhode Island Anthracite Region contains a little graphitic coal of no commercial importance. The Pennsylvania Anthracite Region is in Wayne, Susquehanna, Lackawanna, Luzerne, Carbon, Schuylkill, Columbia, Northumberland, Dauphin, and Sullivan Counties. It is divided into three principal fields, the Northern or Wyoming, the Middle or Lehigh, and the Southern or Schuylkill, and a fourth field, the Bernice Basin in Sullivan County, which is for convenience combined in this report with the Wyoming or Northern Field. The Atlantic Coast Region of the Eastern Province, in Virginia, North Carolina, and South Carolina, is unimportant and data for one enterprise reporting from this region for 1919 are combined with statistics for the Southern Appalachian Region. The Northern and Middle Appalachian Regions include the many coal fields of Pennsylvania, Ohio, Maryland, Virginia, and West Virginia, eastern Kentucky, and northeastern Tennessee. Coals of these regions are all of high rank from bituminous to semianthracite, and although conditions are somewhat different in the two regions separate statistical presentation is not made in this report. The Southern Appalachian Region includes southeastern Tennessee, Alabama, and Georgia. The coals of this region also are of high rank.

2. The Interior Province includes all the bituminous coal fields and regions near the Great Lakes, in the Mississippi Valley, and in Texas. It is made up of four distinct regions, the Northern Region in Michigan and the Eastern Region in Illinois, Indiana, and western Kentucky for which statistics are presented separately; the Western Region in Iowa, Missouri, and Kansas, and the Southern Region in Arkansas, Oklahoma, and the bituminous coal fields of Texas. The coals of the Interior Province, are, with the exception of some in Arkansas and eastern Oklahoma, bituminous coals of low rank. Those excepted are of higher rank, approximately equivalent to the Appalachian coals. The statistics for the Southern Interior Region include the statistics for the lignite fields of Texas which are a part of the Gulf Province.

3. The Northern Great Plains, Rocky Mountain, and Pacific Coast Provinces in the states of North Dakota, South Dakota, Montana, Idaho, Wyoming, Utah, Colorado, and New Mexico, which comprise the coal fields of the Great Plains east of the Front Range of the Rocky Mountains and those within the Rocky Mountains; and also the coal fields of the Pacific coast states, Washington, Oregon, and California. The coal-bearing areas in the Great Plains Province contain chiefly lignite and subbituminous coals, but locally within these areas coals of higher rank are produced. The Rocky Mountain Province contains a great variety of coal ranging from lignite to anthracite, including all the recognized ranks although prevailing grades are subbituminous and low-grade bituminous coal. The Pacific Coast Province is limited largely to the state of Washington which is fairly well supplied with subbituminous and bituminous coals and which has locally also some anthracite. Both California and Oregon have small coal fields but the coal is generally of low rank and poor quality and has been little mined.

Principal statistics by regions: 1919.—Table 3 presents the principal statistics for all producing coal-mining enterprises for 1919, by provinces and regions, and gives the percentage distribution. The productive area of the Eastern Province, comprising the Pennsylvania anthracite and the Appalachian bituminous-coal regions, reported 70 per cent of the total number of producing enterprises in the United States, employed 73 per cent of the total average number of wage earners, and produced 74 per cent of the total tonnage of coal, valued at 76 per cent of the total value of all products of the coal industry in the United States. The Northern and Middle Appalachian Regions are the most important regions, and of the two the Northern far outranks the Middle. The Eastern Interior Region is next in importance, and is followed by the Southern Appalachian Region. Although the table appears to show the regions of the western states as outranking several other regions, it is to be noted that the statistics for the western states are shown combined for three provinces which comprise several regions each. More than 86 per cent of the bituminous coal-mining industry, as measured by average number of wage earners, 88 per cent by quantity of coal produced, and over 85 per cent by the value of products, is concentrated in the Appalachian and Eastern Interior Regions.



Shaded areas represent bituminous coal; solid black area (Pennsylvania) represents anthracite coal.

TABLE 3.—PRINCIPAL STATISTICS FOR PRODUCING ENTERPRISES, BY MINING PROVINCES AND REGIONS: 1919.

PROVINCE AND REGION.	Number of enterprises.	Number of mines.	Coal land operated (acres).	WAGE EARNERS. Average number.	December 15 or nearest representative day. Above ground.	Below ground.	Power used (aggregate horsepower).	Capital.	Wages.
UNITED STATES	6,890	8,656	8,522,727	693,170	155,364	644,282	3,055,195	$2,338,318,162	$892,890,541
EASTERN PROVINCE	4,838	6,310	5,968,455	509,161	123,049	431,752	2,310,564	$1,833,614,724	$666,081,981
Per cent distribution	70.2	72.9	70.0	73.5	79.2	70.3	75.8	78.4	74.6
Pennsylvania anthracite Region	254	[1] 374	261,355	147,372	46,618	105,625	899,783	$433,868,039	$210,289,473
Per cent distribution	3.7	4.3	3.1	21.3	30.0	17.2	29.5	18.6	23.6
Northern and Middle Appalachian Regions	4,379	5,648	1,859,029	334,645	69,607	304,052	1,315,455	$1,326,507,550	$425,516,157
Per cent distribution	63.6	65.2	57.0	48.3	44.8	49.5	43.1	56.7	47.7
Southern Appalachian Region [2]	205	288	848,071	27,174	6,824	22,075	101,326	$73,239,135	$30,276,351
Per cent distribution	3.0	3.3	10.0	3.9	4.4	3.6	3.3	3.1	3.4
INTERIOR PROVINCE [3]	1,606	1,841	1,519,703	149,384	23,591	151,563	524,517	$304,969,481	$172,820,709
Per cent distribution	23.3	21.3	17.8	21.6	15.2	24.7	17.2	13.0	19.4
Michigan Region	11	14	9,169	1,654	304	1,837	6,884	$6,037,645	$1,987,732
Per cent distribution	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.2
Eastern Interior Region	908	1,006	1,129,818	109,239	15,665	111,520	382,044	$236,679,575	$125,924,470
Per cent distribution	13.2	11.6	13.3	15.8	10.1	18.2	12.5	10.1	14.1
Western Interior Region	475	557	201,235	25,953	4,981	25,802	77,042	$37,702,770	$29,794,026
Per cent distribution	6.9	6.4	2.4	3.7	3.2	4.2	2.6	1.6	3.3
Southern Interior Region [3]	212	264	179,481	12,538	2,641	12,404	57,647	$24,549,491	$15,114,481
Per cent distribution	3.1	3.0	2.1	1.8	1.7	2.0	1.9	1.0	1.7
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST PROVINCES	446	505	1,034,569	34,625	8,724	30,967	214,114	$199,733,957	$53,987,851
Per cent distribution	6.5	5.8	12.1	5.0	5.6	5.0	7.0	8.5	6.0

PROVINCE AND REGION.	Contract work.	Cost of supplies and materials.	Cost of fuel.	Cost of purchased power.	PRODUCTS. Total value of all products.	Coal produced (tons, 2,000 pounds).	Value of coal at mines.
UNITED STATES	$4,413,811	[4] $202,170,027	$37,302,777	$13,180,344	$1,510,061,707	$548,596,344	$1,508,267,421
EASTERN PROVINCE	$3,536,290	$160,249,162	$26,293,462	$10,770,989	$1,144,226,386	$405,044,798	$1,142,747,308
Per cent distribution	80.1	79.3	70.5	81.7	75.8	73.8	75.8
Pennsylvania anthracite Region	$1,557,845	[4] $59,738,376	$11,406,117	$1,899,835	$364,084,142	$88,170,508	$363,944,774
Per cent distribution	35.3	29.5	30.6	14.4	24.1	16.1	24.1
Northern and Middle Appalachian Regions	$1,872,760	$94,803,715	$13,336,055	$8,398,964	$731,847,202	$300,397,540	$730,533,249
Per cent distribution	42.4	46.9	35.8	63.7	48.5	54.8	48.4
Southern Appalachian Region [2]	$105,695	$5,707,071	$1,551,290	$472,190	$48,295,042	$16,476,750	$48,269,285
Per cent distribution	2.4	2.8	4.2	3.6	3.2	3.0	3.2
INTERIOR PROVINCE [3]	$648,805	$31,184,802	$8,809,498	$1,330,665	$274,873,241	$111,380,440	$274,723,614
Per cent distribution	14.7	15.4	23.6	10.1	18.2	20.3	18.2
Michigan Region	.....	$664,557	$264,876	$36,701	$3,861,874	$995,099	$3,861,874
Per cent distribution	.....	0.3	0.7	0.3	0.3	0.2	0.3
Eastern Interior Region	$183,573	$22,978,613	$6,296,357	$838,062	$202,189,938	$89,110,563	$202,078,992
Per cent distribution	4.2	11.4	16.9	6.4	13.4	16.2	13.4
Western Interior Region	$345,898	$5,045,311	$1,356,859	$247,083	$44,729,738	$14,462,351	$44,711,832
Per cent distribution	7.8	2.5	3.6	1.9	3.0	2.6	3.0
Southern Interior Region [3]	$119,334	$2,496,321	$891,406	$208,810	$24,091,691	$6,811,527	$24,070,916
Per cent distribution	2.7	1.2	2.4	1.6	1.6	1.2	1.6
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST PROVINCES	$228,716	$10,736,693	$2,199,817	$1,078,690	$90,962,080	$32,171,106	$90,796,499
Per cent distribution	5.2	5.3	5.9	8.2	6.0	5.9	6.0

[1] In addition to mines, the anthracite enterprises reported 245 breakers, 79 washeries, and 81 dredges.
[2] Includes the Atlantic Region.
[3] Includes the Texas Region of the Gulf Province.
[4] Exclusive of $433,318, cost of coal purchased for resale by anthracite enterprises.

Rank of states.—In Table 4 the coal-producing states are ranked according to value of products of the coal-mining industry, and the number of enterprises, average number of wage earners, and value of products are shown together with the per cent distribution for wage earners and value of products.

Principal statistics for anthracite enterprises, by fields.—Table 5 shows the principal statistics for anthracite mines segregated by fields. The data are given separately for collieries proper, which produce freshly mined coal, and for culm washeries and river dredges which recover previously mined coal. The separation of statistics for freshly mined coal from other coal is quite incomplete, as washeries operated by collieries in connection with breakers recover more coal than the independent washeries and dredges, but did not give separate data for such operations. As measured by quantity or value of products, by the average number of wage earners employed, and by the number of collieries, the Wyoming or Northern field ranked first, accounting for more than half of these items; the Schuylkill or Southern field was second and the Lehigh or Middle field was third. Dredging was practiced chiefly in the Schuylkill field; but although only three dredges were reported from each of the other fields the six produced 20 per cent of the dredge output.

TABLE 4.—RANK OF STATES, PRODUCING ENTERPRISES: 1919.

STATE.	Number of enterprises.	WAGE EARNERS. Average number.	WAGE EARNERS. Per cent distribution.	VALUE OF PRODUCTS. Amount.	VALUE OF PRODUCTS. Per cent distribution.
United States	6,890	693,170	100.0	$1,510,061,707	100.0
Anthracite (Pennsylvania)	254	147,372	21.3	364,084,142	24.1
Bituminous coal	6,636	545,798	78.7	1,145,977,565	75.9
Pennsylvania	2,192	302,364	43.6	727,058,094	48.1
Anthracite	254	147,372	21.3	364,084,142	24.1
Bituminous coal	1,938	154,992	22.4	362,973,952	24.0
West Virginia	926	87,095	12.6	193,108,343	12.8
Illinois	447	73,780	10.7	138,767,835	9.2
Ohio	788	40,452	5.8	77,988,602	5.2
Kentucky	635	39,769	5.7	72,432,840	4.8
Indiana	295	24,479	3.5	45,492,726	3.0
Alabama	188	24,648	3.6	45,359,441	3.0
Colorado	161	11,252	1.6	28,342,195	1.9
Virginia	108	11,215	1.6	23,763,440	1.6
Wyoming	46	7,091	1.0	18,723,451	1.2
Iowa	167	10,584	1.5	16,903,358	1.1
Kansas	129	8,084	1.2	15,748,535	1.0
Oklahoma	94	7,040	1.0	14,477,317	1.0
Tennessee	107	9,556	1.4	14,024,432	0.9
Utah	27	3,647	0.5	12,632,035	0.8
Missouri	179	7,285	1.1	12,077,845	0.8
Washington	35	4,413	0.6	10,737,656	0.7
New Mexico	21	3,564	0.5	9,905,541	0.7
Montana	67	3,797	0.6	8,591,211	0.6
Maryland	58	4,826	0.7	8,195,667	0.5
Arkansas	85	2,787	0.4	5,292,274	0.4
Texas	33	2,711	0.4	4,322,100	0.3
Michigan	11	1,654	0.2	3,861,874	0.3
North Dakota	79	774	0.1	1,927,304	0.1
South Dakota	5	8	(1)	29,802	(1)
All other states [2]	7	295	(1)	297,699	(1)

[1] Less than one-tenth of 1 per cent.
[2] Includes enterprises for states listed in order of value of products as follows: Georgia, 1; Oregon, 3; North Carolina, 1; Idaho, 1; California, 1.

TABLE 5.—PRINCIPAL STATISTICS FOR ANTHRACITE (PENNSYLVANIA), BY FIELDS: 1919.

	Total.	WYOMING FIELD. Collieries proper.	WYOMING FIELD. Washeries and dredges.	WYOMING FIELD. Per cent of total.	LEHIGH FIELD. Collieries proper.	LEHIGH FIELD. Washeries and dredges.	LEHIGH FIELD. Per cent of total.	SCHUYLKILL FIELD. Collieries proper.	SCHUYLKILL FIELD. Washeries and dredges.	SCHUYLKILL FIELD. Per cent of total.
Number of enterprises	254	85	13	38.6	26	5	12.2	45	80	49.2
Number of mines	374	237	.....	63.4	51	.....	13.6	86	.....	23.0
Number of breakers	245	135	.....	55.1	20	.....	11.8	81	.....	33.1
Number of culm washeries	79	31	10	51.9	11	2	16.5	18	7	31.6
Number of dredges	81	.....	3	3.7	.....	3	3.7	.....	75	92.6
Coal land operated ... acres	261,355	120,168	.....	46.0	26,746	.....	10.2	114,441	.....	43.8
Coal land controlled ... acres	272,345	123,099	.....	45.2	27,827	.....	10.2	121,419	.....	44.6
Owned ... acres	194,390	78,401	.....	40.3	13,758	.....	7.1	102,228	.....	52.6
Held under lease ... acres	77,955	44,695	.....	57.3	14,069	.....	18.0	19,191	.....	24.6
Wage earners (average number)	147,372	83,723	236	57.0	19,356	116	13.2	43,503	438	29.8
Capital	$433,868,030	$233,080,051	$897,283	53.9	$63,404,502	$652,508	14.8	$133,861,049	$1,972,646	31.3
Expenses (selected items):										
Wages	$210,289,473	$118,506,173	$259,167	56.5	$27,843,467	$120,596	13.3	$63,050,379	$509,691	30.2
Contract work	$1,557,845	$538,242	.....	34.6	$615,165	.....	39.5	$362,960	$41,478	26.0
Supplies and materials [1]	$60,171,694	$34,818,892	$157,091	58.1	$8,100,966	$57,020	13.6	$16,778,026	$279,189	28.3
Cost of fuel	$11,406,117	$6,420,747	$3,129	56.3	$2,143,683	$15,710	18.9	$2,763,808	$58,971	24.7
Cost of purchased power	$1,899,835	$566,681	$49,103	32.4	$647,666	$33,388	35.8	$584,193	$18,804	31.7
Royalties and rents	$11,766,598	$5,597,684	$197,888	49.3	$1,710,713	$3,782	14.6	$4,096,761	$159,770	36.2
Value of all products	$364,084,142	$207,659,034	$1,079,455	57.3	$53,961,307	$415,252	14.9	$99,385,469	$1,583,625	27.7
Coal produced ... tons, 2,240 pounds	78,723,668	43,016,303	298,807	55.0	11,881,375	176,846	15.3	22,520,591	829,746	29.7
Power used (aggregate horsepower)	899,783	406,333	2,768	45.5	111,699	1,833	12.6	372,551	5,208	42.0
Prime movers	782,099	373,976	256	47.9	75,372	940	9.8	328,099	3,447	42.4
Electric motors run by purchased current	117,693	32,357	2,512	29.6	36,718	893	31.1	44,452	1,761	39.3
Electric motors run by current generated by the enterprise reporting	185,723	152,966	.....	82.4	740	.....	0.4	32,017	.....	17.2
Fuel used:										
Coal, anthracite ... tons, 2,240 pounds	8,548,201	4,096,032	821	47.9	1,164,033	3,003	13.7	3,269,885	14,427	38.4
Coal, bituminous ... tons, 2,000 pounds	4,096	80	50	3.2	.....	.....	.....	.....	3,966	96.8
Oils ... barrels	2,052	34	.....	1.7	737	.....	35.9	237	1,044	62.4

[1] Includes $433,318, cost of coal purchased for resale.

PROGRESS OF THE INDUSTRY.

Comparative statistics, producing enterprises: 1919, 1909, 1902, and 1889.—Table 6 gives for producing enterprises the principal items of the census statistics for 1919, 1909, 1902, and 1889, which are comparable. The statistics for 1909 in this table were adjusted at the census of 1909 to relate solely to coal mining by reducing the general census statistics for the bituminous coal-mining industry for that year by the amounts attributable to the manufacture of coke at the mine.[1] The number of enterprises given for 1909 is the total number as shown in Table 11, page 344, of the General Tables, in the Thirteenth Census report for Mines and Quarries, regardless of duplication of operators, and is entirely comparable with the number of enterprises reported for 1919. The statistics for 1909 and 1919 are exclusive of data for mines operated by governmental and eleemosynary institutions. The tonnage and value of coal shown for 1889 include the quantity and value of the output of many small "banks" or local mines, which are not included in the number of mines given or in the statistics of acreage, capital, or expenses. However, the total output of these mines was very small, so that its inclusion does not materially affect the relation of the production data to the other items. The statistics for anthracite are for Pennsylvania only, the data for Colorado and New Mexico anthracite being included with the statistics for bituminous coal. Salaries of foremen, totaling $3,510,543, have been deducted from the wages published in the 1889 statistics, since in the returns for 1909 the payments to inside and outside foremen were included in salaries, and in the returns for 1919 they were also largely but not entirely so included.

[1] See explanation relating to Table 3 (p. 186), Thirteenth Census of the United States, Volume XI, Mines and Quarries, 1909, chapter 4, Coal, page 184.

TABLE 6.—COMPARATIVE STATISTICS, PRODUCING ENTERPRISES: 1919, 1909, 1902, AND 1889.

	1919	1909 [1]	1902	1889	PER CENT OF INCREASE.[2] 1909–1919	1902–1909	1889–1902
UNITED STATES.							
Number of enterprises	6,890	[3] 4,716	4,528	(4)	46.1	4.2	.....
Number of mines, collieries, culm washeries, and dredges	8,643	6,436	5,986	2,564	34.3	7.5	133.5
Wage earners (average number)	693,170	657,175	350,329	296,623	5.5	87.6	18.1
Capital	$2,338,318,162	$1,207,217,543	(4)	$342,757,929	93.7	.....	.....
Wages	$892,890,541	$374,696,545	$220,198,401	$103,426,515	138.3	70.2	112.9
Cost of supplies (including fuel and purchased power)	[5] $252,654,048	$72,043,898	$37,539,702	$18,828,590	250.7	91.9	99.4
Coal produced:							
Tons (2,000 pounds)	548,596,344	457,833,640	301,590,439	141,229,513	19.8	51.8	113.5
Value at mines	$1,508,267,421	$550,513,866	$367,032,069	$160,226,323	174.0	50.0	129.1
ANTHRACITE (PENNSYLVANIA).							
Number of enterprises	254	359	119	(4)	−29.2	201.7	.....
Number of collieries, culm washeries, and dredges	361	420	334	346	−14.0	25.7	−3.5
Wage earners (average number)	147,372	169,175	69,691	123,782	−12.9	142.8	−43.7
Capital	$433,868,039	$246,713,318	(4)	$162,035,610	75.9	.....	.....
Wages	$210,280,473	$92,169,906	$38,716,113	$37,854,273	128.2	138.1	2.3
Cost of supplies (including fuel and purchased power)	[5] $73,044,328	$26,662,088	$12,740,780	$10,834,380	174.0	109.3	17.6
Coal produced:							
Tons (2,000 pounds)	88,170,508	80,881,106	41,373,595	45,600,487	9.0	95.5	−9.3
Value at mines	$363,944,774	$148,957,894	$76,173,586	$65,879,514	144.3	95.6	15.6
BITUMINOUS COAL.							
Number of enterprises	6,636	4,357	4,409	(4)	52.3	−1.2	.....
Number of mines	8,282	6,016	5,652	2,218	37.7	6.4	154.8
Wage earners (average number)	545,798	488,000	280,638	172,841	11.8	73.9	62.4
Capital	$1,904,450,123	$960,504,225	(4)	$180,722,319	98.3	.....	.....
Wages	$682,601,068	$282,520,639	$181,482,288	$65,572,242	141.6	55.7	176.8
Cost of supplies (including fuel and purchased power)	$179,609,720	$45,381,810	$24,798,022	$7,994,210	295.8	83.0	210.2
Coal produced:							
Tons (2,000 pounds)	460,425,836	376,952,534	260,216,844	95,629,026	22.1	44.9	172.1
Value at mines	$1,144,322,647	$401,555,972	$290,858,483	$94,346,809	185.0	38.1	208.3

[1] Statistics for 1909 relating to coke manufacture at mines excluded, partly by estimate.
[2] A minus sign (−) denotes decrease.
[3] At the census of 1909 the number of operators was given instead of the number of enterprises in most tables. In order to present comparable figures the number of enterprises in 1909 is given in this and other comparative tables.
[4] Not reported.
[5] Exclusive of $133,318, cost of coal purchased for resale by anthracite enterprises.

The table shows very notable growth for the industry as a whole at each census period, but in two respects the increases of the last decade (1909 to 1919) were small as compared with earlier increases. These are in the average number of wage earners employed (for which decrease is shown in anthracite mining), and in the quantity of coal produced. The value of coal produced in 1919 shows a very large increase over 1909, which is due to price increases, the value per ton having more than doubled during the ten-year period. Similarly the large increases as shown in the table for wages and supplies in 1919 as compared with 1909 are due more largely to general price increases than to growth of the industry.

Comparative summary, producing enterprises: 1919 and 1909.—Table 7 gives the principal statistics for producing anthracite and bituminous coal-mining enterprises for 1919 and 1909. The data there shown differ from those in Table 6 in that the adjustment to exclude data for 1909 relating to coke manufacture at the mines has not been made, the purpose of the table being to give the gross statistics relating to coal mining as presented in results of the Thirteenth and Fourteenth Censuses. It will be noted that the increases and decreases shown in Table 7 are not essentially different from those in Table 6.

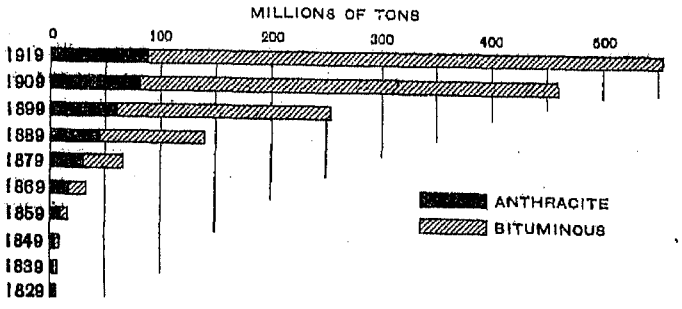
TABLE 7.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.[1]

	TOTAL.[1]		ANTHRACITE (PENNSYLVANIA).		BITUMINOUS.[1]		PER CENT OF INCREASE.[2]		
	1919	1909	1919	1909	1919	1909 [3]	Total.	Anthracite.	Bituminous.
Number of enterprises	6,890	4,710	251	359	6,639	4,357	46.1	--29.2	52.3
Number of mines, collieries, culm washeries, and dredges	8,613	6,436	301	429	8,282	6,016	34.3	--14.0	37.7
Coal land operated ... acres	8,522,727	6,817,545	261,355	273,490	8,261,372	6,571,040	24.5	--4.4	25.7
Persons engaged	738,490	708,478	154,882	173,605	583,608	534,873	4.2	--10.8	9.1
Proprietors and firm members (total)	4,396	3,027	159	188	4,237	3,739	44.9	--15.4	13.3
Number performing manual labor	1,894	1,785	31	72	1,830	1,713	4.4	.....	6.8
Salaried employees	40,924	23,461	7,351	4,302	33,573	19,159	74.4	70.9	75.2
Wage earners (average number)	694,170	681,690	147,372	169,175	546,798	511,915	1.8	--12.9	6.8
Power used (aggregate horsepower)	3,055,195	1,961,154	899,783	676,128	2,155,412	1,228,026	65.4	33.1	75.5
Capital	$2,338,318,162	$1,309,125,161	$433,898,039	$246,713,318	$1,904,450,123	$1,062,411,843	78.6	75.9	79.3
Principal expenses:									
Salaries	84,664,507	26,384,199	12,995,469	4,572,489	68,669,038	21,811,710	220.5	184.2	214.8
Wages	892,890,511	386,514,147	210,289,473	92,109,906	682,601,038	294,314,241	131.0	128.2	131.9
Contract work	4,413,811	3,911,186	1,557,815	1,701,514	2,855,996	2,209,672	12.9	--8.4	29.2
Supplies and materials	[4] 202,170,027	64,603,440	[4] 59,738,376	23,472,809	142,432,551	40,530,631	215.9	154.5	251.4
Fuel and purchased power	50,483,124	10,703,173	13,305,952	3,189,279	37,177,100	7,513,894	371.7	317.2	394.8
Royalties and rents	31,031,654	20,034,227	11,706,598	7,009,785	22,295,056	12,993,442	60.8	67.6	84.4
Taxes	48,768,359	7,163,693	14,050,963	2,677,853	34,707,396	4,485,840	580.8	425.1	673.7
Value of all products	1,513,051,707	577,142,935	364,081,142	148,957,894	1,145,977,565	428,185,011	161.6	144.4	167.6

[1] Statistics for bituminous-coal mining are not strictly comparable owing to the fact that in 1909 the statistics relating to the manufacture of coke at the mines are included.
[2] A minus sign (—) denotes decrease. Percentages are omitted where base is less than 100.
[3] Includes statistics for 3 enterprises in Colorado and New Mexico, classified as anthracite at the census of 1909.
[4] Exclusive of $133,318, cost of coal purchased for resale by anthracite enterprises.

Production of coal: 1829 to 1919.—The progress of the coal-mining industry is best measured by the production of coal during successive periods. In Table 8 the production of coal, classified as anthracite and bituminous coal, is shown by decades from 1829 to 1889 and annually from 1889 to 1919. The table is compiled from the reports of the United States Geological Survey.[1] The data presented in the table are also shown graphically in Diagram 1 which shows by length of bars the relative importance of anthracite and bituminous coal production in each census year, and in Diagram 2, page 13, which indicates by curves the annual production of anthracite and bituminous coal from 1889 to 1919.

DIAGRAM 1.—COMPARATIVE PRODUCTION, ANTHRACITE AND BITUMINOUS COAL, BY DECADES: 1829 TO 1919.



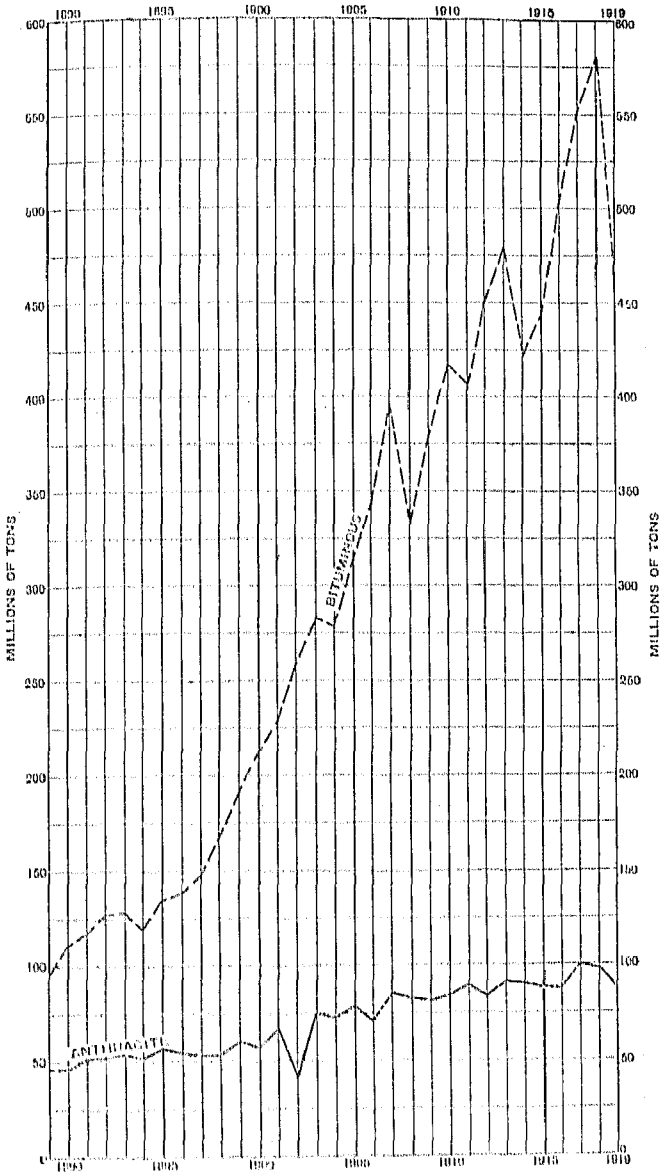
[1] Mineral Resources of the United States.

TABLE 8.—PRODUCTION OF COAL: 1829 TO 1919.[1]

YEAR.	Total (tons, 2,000 pounds).	Anthracite (tons, 2,000 pounds).	Bituminous (tons, 2,000 pounds).
1829	240,080	138,080	102,000
1839	1,560,360	1,008,322	552,038
1849	6,448,831	3,995,331	2,453,497
1859	15,633,175	9,619,771	6,013,404
1869	32,904,360	17,083,131	15,821,226
1879	68,105,799	30,207,793	37,898,006
1889	141,220,513	46,518,970	95,682,543
1890	157,770,063	46,468,641	111,302,522
1891	168,566,669	50,665,431	117,901,238
1892	179,329,071	52,472,501	126,856,567
1893	182,352,771	53,967,543	128,385,231
1894	170,741,526	51,921,121	118,820,405
1895	193,117,530	57,999,337	135,118,193
1896	191,986,357	54,846,081	137,140,276
1897	200,229,199	52,611,680	147,617,519
1898	219,976,267	53,382,644	166,593,623
1899	253,741,192	60,418,005	193,323,187
1900	269,681,027	57,367,915	212,313,112
1901	293,299,816	67,471,667	225,828,149
1902	301,590,439	41,373,595	260,216,844
1903	357,350,416	74,607,068	282,749,348
1904	351,816,398	73,156,709	278,659,689
1905	392,722,035	77,059,850	315,662,785
1906	414,157,278	71,282,411	342,874,867
1907	480,363,421	85,604,312	394,759,112
1908	415,842,668	83,268,754	332,573,914
1909	460,814,016	81,070,359	379,744,257
1910	501,596,378	84,485,236	417,111,142
1911	496,371,180	90,464,067	405,907,059
1912	531,466,561	81,361,598	455,104,963
1913	509,960,229	91,524,922	418,435,297
1914	513,525,477	90,821,507	422,703,970
1915	531,619,487	88,995,061	442,624,426
1916	590,098,175	87,578,493	502,519,682
1917	651,402,374	99,611,811	551,790,563
1918	678,211,901	98,826,084	579,385,820
1919	553,952,259	88,092,201	465,860,058

[1] From the reports of the United States Geological Survey which include Alaska.

DIAGRAM 2.—ANNUAL PRODUCTION OF ANTHRACITE AND BITUMINOUS COAL: 1889 TO 1919.



The coal-mining industry has progressed by large advances from decade to decade, but although the gain in production each decade, beginning 1829, was increasingly larger as measured in absolute numbers up to 1909, the per cent of increase has declined between decades from 550 per cent in 1839 as compared with 1829, and over 300 per cent in 1849 as compared with 1839, to 100 per cent in 1889 as compared with 1879, and 80 per cent in 1909 as compared with 1899. The production in 1919 was abnormally low on account of the great strike of bituminous coal miners, and therefore the falling off to 20 per cent increase in 1919 as compared with 1909 is not properly indicative of progress during the last decade. With normal production in the year 1919 the increase compared with 1909 would probably have been at least 40 per cent.

The curves showing annual production since 1889 indicate clearly the years of depression in coal mining. The most notable sags on the curves for bituminous coal are for the years 1908, 1914, and 1919. The first two were during and following periods of panic and severe depression in business generally. In 1914 the decrease in bituminous coal production was in part a reaction from the hitherto unprecedented rates of production in 1912 and 1913, and was also due to depression in the iron and steel industry and to labor difficulties in some coal fields. Apparently the beginning of the European war did not exert a marked effect upon coal production in the United States in 1914. In 1919 the decline of approximately 125,000,000 tons came as the result of both the cessation of the tremendous rate of production attained in 1918 because of the war's demands and the great strike in November and December.

Anthracite is used largely in heating houses, therefore, the amount of its output depends more on labor conditions and on temperature and weather than on general business conditions. There has, moreover, been no intimate affiliation between labor in the anthracite fields and labor in the bituminous coal fields, and therefore the two curves do not show the same trends throughout their length, the most marked departure between them being the decline due to the great anthracite coal strike in 1902. The anthracite curve is peculiar in that it shows almost regularly alternate changes in trend which reflect the difficulties of the biennial readjustment of labor conditions which characterized this industry.

Table 8 also serves to show the change in relative importance of anthracite and bituminous coal production. In the early years of the coal-mining industry in the United States and until after 1869 more anthracite was produced and used than bituminous coal. By 1879 bituminous coal production had surpassed the anthracite output and was about 56 per cent of the total coal production, and since that time the proportion of bituminous coal has increased to approximately 85 per cent in each of the last four years covered by the table.

Population and coal production: 1829 to 1919.—Table 9 compares the growth of population with the increase in the output of coal during each decade from 1829 to 1919. This table shows an enormous increase in production of coal as compared with the increase in population in the early decades, but it also shows that the per cent of increase in the production of coal has been decreasing more rapidly than the per cent of increase in population. In 1829 only about one-fiftieth of a ton of coal was produced per capita as compared with five and one-quarter tons 90 years later, and, whereas the population of the country in 1919 was approximately 8 times the population of 1829, the production of coal was more than 2,000 times that in 1829, 350 times that of 1839, and 85 times that in 1849.

TABLE 9.—COMPARATIVE GROWTH OF POPULATION AND COAL PRODUCTION.

YEAR.	Population.[1]	Per cent of increase over preceding census.	Coal produced [2] (tons, 2,000 pounds).	Per cent of increase over preceding census.	Tons per capita.
1829	12,866,020	.....	240,086	.....	0.02
1839	17,069,453	32.7	1,560,360	549.9	0.09
1849	23,191,876	35.9	6,448,831	313.3	0.28
1859	31,443,321	35.6	15,633,175	142.4	0.50
1869	38,558,371	22.6	32,904,360	110.5	0.85
1879	50,155,783	30.1	68,105,799	107.0	1.36
1889	62,947,714	25.5	141,229,513	107.4	2.24
1899	75,994,575	20.7	253,741,192	79.7	3.34
1909	91,972,266	21.0	460,814,016	81.6	5.01
1919	105,710,620	14.9	553,952,259	20.2	5.24

[1] Population is for the year following that covered by the statistics for coal.
[2] From the reports of the United States Geological Survey, which include Alaska.

In the recent periods, when the quantity of coal mined had reached large proportions, the increase in coal production was rapid and was approximately four times as large as the increase in population except in the last decade reported. For this decade, 1909 to 1919, it was much less, but if the maximum recorded production, that for 1918, is used in computation, the increase in coal production was three times the increase in population.

Comparative production by regions: 1919 and 1909.—Table 10 gives the quantity and value of coal produced by regions and for states in 1919 and 1909. The total increase of 90 million tons in the production of coal in 1919 as compared with 1909 comprises an increase of approximately 7 million tons of Pennsylvania anthracite and 83 million tons of bituminous coal. In bituminous coal the increase was chiefly in the Appalachian Regions and amounted to 70 million tons, or about 85 per cent of the total increase. The table also shows for regions and states the increases in the average values per ton of coal, which reflect the general price increases during the decade.

TABLE 10.—COMPARATIVE COAL PRODUCTION: 1919 AND 1909.

REGION AND STATE.	COAL PRODUCED.							
	Quantity (tons, 2,000 pounds).			Value.				
				Total.			Average per ton.	
	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]	1919	1909
	Expressed in thousands.			Expressed in thousands.				
UNITED STATES	548,590	457,834	19.8	$1,508,208	$550,514	174.0	$2.75	$1.20
Anthracite (Pennsylvania)	88,170	80,881	9.0	363,045	148,958	144.3	4.13	1.84
Bituminous coal	460,420	[2] 376,953	22.1	1,144,323	[2] 401,556	185.0	2.49	1.07
APPALACHIAN REGIONS	325,089	255,481	27.2	790,503	242,574	228.4	2.45	0.95
Pennsylvania	159,030	137,305	9.3	362,171	129,513	179.6	2.41	0.94
West Virginia	77,017	51,496	50.7	192,953	44,344	335.1	2.49	0.86
Ohio	35,141	27,519	27.7	77,778	27,274	185.2	2.21	0.99
Kentucky [3]	20,426	10,561	178.6	72,348	9,030	627.9	2.46	0.94
Alabama	15,411	13,677	12.7	45,334	16,174	180.3	2.94	1.18
Virginia	9,335	4,949	88.6	23,701	4,336	448.0	2.55	0.88
Tennessee	5,132	5,973	−14.1	13,962	6,549	113.2	2.72	1.10
Maryland	2,997	4,001	−25.1	8,196	4,445	84.4	2.73	1.11
MICHIGAN REGION	996	1,772	−43.8	3,862	3,175	21.6	3.88	1.79
EASTERN INTERIOR REGION	80,836	65,293	23.8	184,154	67,985	170.9	2.28	1.04
Illinois	60,331	50,570	19.3	138,701	53,000	161.7	2.30	1.05
Indiana	20,505	14,723	39.3	45,453	14,985	203.3	2.22	1.02
WESTERN INTERIOR REGION	14,462	18,219	−20.6	44,711	28,395	57.5	3.09	1.56
Iowa	5,474	7,720	−29.1	16,893	12,670	33.2	3.09	1.64
Kansas	5,204	6,896	−24.5	15,745	9,836	60.1	3.03	1.43
Missouri	3,784	3,597	5.2	12,073	5,880	105.3	3.19	1.63
SOUTHERN INTERIOR REGION	6,811	7,312	−6.9	24,071	12,828	87.6	3.53	1.75
Oklahoma	3,783	3,113	21.5	14,461	6,184	133.8	3.82	1.99
Arkansas	1,440	2,374	−39.3	5,289	3,509	50.7	3.67	1.48
Texas	1,588	1,825	−13.0	4,321	3,135	37.8	2.72	1.72
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	32,140	[2] 28,568	12.5	90,693	[2, 4] 46,954	93.2	2.82	1.64
Colorado	10,183	10,705	−4.9	28,328	14,246	98.8	2.78	1.33
Wyoming	7,212	6,295	−14.6	18,723	9,721	92.6	2.60	1.54
Utah	4,593	2,260	103.2	12,623	[4] 4,112	207.0	2.75	1.82
Washington	2,987	3,601	−17.1	10,680	9,140	16.8	3.58	2.54
New Mexico	3,185	2,800	13.8	9,863	[4] 4,055	143.2	3.10	1.45
Montana	3,212	2,543	26.3	8,550	[4] 5,117	67.1	2.66	2.01
North Dakota	768	364	111.0	1,926	563	242.1	2.51	1.55
All other states [5]	92	308	−70.1	320	[4] 1,748	−81.2	3.58	5.68

[1] A minus sign (−) denotes decrease.
[2] Includes 87,000 tons of coal, valued at $222,577 for mines in Colorado and New Mexico which were classified as anthracite enterprises at the census of 1909.
[3] Includes the western Kentucky portion of the Eastern Interior Region for which separate figures are not available for 1909.
[4] Includes value of coke made at mines not included in total for the United States, to avoid disclosure of individual operations.
[5] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota for 1919; and California, Georgia, Idaho, and Oregon for 1909.

Comparative production per mine and per wage earner: 1849 to 1919.—Table 11 gives the average production of coal per mine and per wage earner at each census of mines since 1849. It shows, for the industry as a whole, regular progress in productivity per wage earner during the last half century. The decline in the average per mine and per wage earner for anthracite coal in 1902 and per mine for bituminous coal in 1919 was due to the great strikes in those years.

TABLE 11.—AVERAGE COAL PRODUCTION PER MINE, AND PER WAGE EARNER, AT EACH CENSUS OF MINES, 1849 TO 1919.

	1919	1909	1902	1889	1879	1869	1859	1849
All coal:[1]								
Quantity produced per mine (tons, 2,000 pounds)	63,209	71,821	50,383	[2] 53,578	21,701	20,986	23,045	12,539
Quantity produced per wage earner (tons, 2,000 pounds)	790	672	[3] 565	476	422	347	393	426
Anthracite (Pennsylvania):[1]								
Quantity produced per mine (tons, 2,000 pounds)	231,841	226,224	123,873	131,793	.....	.....	.....	.....
Quantity produced per wage earner (tons, 2,000 pounds)	592	478	279	368	.....	.....	.....	.....
Bituminous coal:								
Quantity produced per mine (tons, 2,000 pounds)	55,594	62,658	46,040	43,115	.....	.....	.....	.....
Quantity produced per wage earner (tons, 2,000 pounds)	814	736	703	553	.....	.....	.....	.....

[1] Exclusive of dredges and of culm washeries operated independently of mines in 1919.—Based on number of "collieries" and estimated average number of wage earners in them for 1909.
[2] Exclusive of local mines.
[3] See Special Reports of the Census, 1902, tabular statement, p. 669, and p. 666 for explanation of the number of wage earners used in obtaining this average.

Comparative statistics for power used: 1919 and 1909.—Table 12 presents statistics of power equipment used by producing anthracite-mining enterprises and by producing bituminous coal-mining enterprises in the United States and separately by regions, for 1919 and 1909. The statistics for 1909 include the power equipment used in coke manufacture at the coal mines, which, however, was quite insignificant in amount. The aggregate horsepower used in anthracite mines increased 33.1 per cent between 1909 and 1919, and that used in bituminous coal mines increased 75.5 per cent in the same period.

TABLE 12.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

Region.	Census year.	Aggregate horsepower.	Prime movers.							Equipment operated by purchased power.			Electric motors run by current generated by the enterprise reporting.	
			Total horsepower.	Steam engines.		Internal-combustion engines.		Water wheels and turbines.		Electric motors.		Other (horsepower).		
				Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.		Number.	Horsepower.
UNITED STATES	1919	3,055,195	2,166,024	14,833	2,143,447	1,319	22,503	9	74	23,067	888,824	347	24,845	893,064
	1909	1,904,154	1,877,450	19,318	1,874,001	374	3,101	9	348	872	26,704	.....	10,869	375,386
Per cent of increase[1]	.....	60.4	15.4	−23.2	14.4	252.7	625.7	.....	−78.7	2,545.3	3,228.4	.....	128.6	137.9
Anthracite (Pennsylvania)	1919	899,783	782,090	5,343	780,806	73	1,284	.....	.....	1,881	117,693	.....	3,801	185,723
	1909	676,128	674,718	7,567	673,946	25	772	.....	.....	32	1,410	.....	1,152	46,088
Per cent of increase[1]	.....	33.1	15.9	−29.4	15.9	.....	66.3	.....	.....	.....	8,247.0	.....	229.9	303.0
Bituminous coal	1919	2,155,412	1,383,934	9,490	1,362,641	1,246	21,219	9	74	21,186	771,131	347	21,044	707,341
	[2]1909	1,228,026	1,202,732	11,751	1,200,055	349	2,329	9	348	840	25,294	.....	9,717	329,298
Per cent of increase[1]	.....	75.5	15.1	−19.2	13.5	257.0	811.1	.....	−78.7	2,422.1	2,943.7	.....	116.6	114.8
Northern and Middle Appalachian Regions	1919	1,315,455	755,086	4,293	741,110	685	14,876	.....	.....	15,851	559,227	242	13,872	458,575
	1909	744,516	725,231	6,148	724,234	119	987	2	10	667	19,285	.....	7,853	259,132
Per cent of increase[1]	.....	76.7	4.2	−30.2	2.3	475.6	1,407.2	.....	.....	2,276.5	2,799.8	.....	76.6	77.0
Southern Appalachian Region	1919	101,326	63,304	465	62,079	55	1,151	9	74	868	38,022	.....	710	27,385
	1909	54,494	53,831	517	53,744	10	87	.....	.....	15	663	.....	366	11,584
Per cent of increase[1]	.....	85.9	17.6	−10.1	15.5	.....	.....	.....	.....	.....	5,634.8	.....	94.0	136.4
Michigan Region	1919	6,884	6,189	50	6,189	.....	.....	.....	.....	10	695	.....	179	5,285
	1909	7,012	7,012	94	7,000	2	12	.....	.....	.....	.....	.....	47	2,162
Per cent of increase[1]	.....	−13.0	−21.8	.....	−21.7	.....	.....	.....	.....	.....	.....	.....	.....	144.4
Eastern Interior Region	1919	382,044	321,310	2,500	319,771	167	1,539	.....	.....	1,507	60,734	.....	4,636	157,642
	1909	212,084	211,755	2,564	211,180	90	575	.....	.....	20	329	.....	486	19,641
Per cent of increase	.....	80.1	51.7	1.0	51.4	.....	167.7	.....	.....	.....	18,360.2	.....	855.7	702.6
Western Interior Region	1919	77,942	60,654	938	58,786	213	1,868	.....	.....	661	17,283	5	234	8,283
	1909	50,723	50,502	922	49,909	118	520	1	4	12	221	.....	125	4,377
Per cent of increase	.....	53.7	20.1	1.7	17.6	80.5	253.1	.....	.....	.....	7,720.4	.....	87.2	89.2
Southern Interior Region	1919	57,647	46,341	488	45,180	60	1,161	.....	.....	340	11,306	.....	192	6,543
	1909	43,041	42,606	509	42,606	.....	.....	.....	.....	9	435	.....	51	3,446
Per cent of increase[1]	.....	33.9	8.8	−4.1	6.0	.....	.....	.....	.....	.....	2,499.1	.....	.....	89.9
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	1919	214,114	130,150	666	129,526	66	624	.....	.....	1,949	83,864	100	1,222	43,628
	1909	115,256	110,895	997	110,422	10	139	6	334	117	4,361	.....	790	28,956
Per cent of increase[1]	.....	85.8	17.4	−33.2	17.3	.....	348.9	.....	.....	1,565.8	1,823.0	.....	54.7	50.7

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[2] Includes 13 steam engines of 625 horsepower reported for 3 anthracite mines in Colorado and New Mexico classified as anthracite enterprises at the census of 1909.

Most of the power used in coal mines in 1909 was that of steam engines, but in 1919 electric motors operated by purchased current furnished approximately 30 per cent of the power used in all coal mines, 13 per cent for anthracite mines and 36 per cent for bituminous coal mines. The increased relative importance of electrical equipment in coal mining is shown by the fact that the horsepower of steam engines increased only 15.9 per cent in the anthracite mines and 13.5 per cent in the bituminous coal mines, whereas the horsepower of electric motors operated by purchased current increased more than 8,000 per cent for anthracite mines and approximately 3,000 per cent for bituminous coal mines. Very notable increase is also shown in the use of internal-combustion engines, particularly in bituminous coal mining, and in the use of electric motors operated by current generated by the enterprise reporting them. These increases are much less, however, than the increase shown for electric motors operated by purchased current. Similar changes marking great progress toward electrification of the coal-mining industry is shown for each of the bituminous coal-mining regions. Although the total horsepower of internal-combustion engines increased sixfold during the decade, the proportion of power furnished by them is still only a very small fraction of the total horsepower used. In 1909 most of the electric motors used by all coal mines in the United States were run by current generated by the mine operators themselves. This was also the case for anthracite mines in 1919 (although the number of electric motors operated by purchased current had increased from less than 3 per cent of all electric motors to approximately 35 per cent of the total number); whereas in bituminous-coal mining in 1919 in the United States as a whole, and in each of the mining regions except in Michigan, and the Eastern Interior Region, the number of electric motors operated by purchased current exceeded the number run by current generated by the mine operator. In the exceptional fields, furthermore, the proportion of motors of the first class increased very greatly.

Table 13 shows for 1919 and 1909 for selected states by mining regions for producing enterprises in the bituminous coal-mining industry, the horsepower used per mine, per wage earner employed, and per 1,000 tons of coal produced. For the United States as a whole the total power used increased about 75 per cent, whereas the power used per mine increased from 204 to 260, or 27 per cent; per wage earner from 2.4 to 3.9, or 62 per cent; and per 1,000 tons of coal produced from 3.3 to 4.7, or 42 per cent. In the main the individual states show considerable increase in horsepower used per mine, but there was small decrease which marked no essential change in Maryland, Pennsylvania, and North Dakota. The increase in horsepower per wage earner and per ton of coal mined was general and relatively large in most of the states, North Dakota alone showing decrease for both averages.

TABLE 13.—POWER USED BY BITUMINOUS COAL PRODUCING ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED: 1919 AND 1909.

REGION AND STATE.	Census year.	Number of mines.	Wage earners (average number).	Coal produced (tons, 2,000 pounds) (expressed in thousands).	POWER USED (AGGREGATE HORSEPOWER).			
					Total.	Per mine.	Per wage earner.	Per 1,000 tons of coal produced.
UNITED STATES	1919	8,252	545,798	490,426	2,155,412	260	3.9	4.7
	[1] 1909	6,016	511,915	376,053	1,228,026	204	2.4	3.3
APPALACHIAN REGION:								
Alabama	1919	260	24,648	15,411	97,039	373	3.9	6.3
	1909	203	21,635	13,077	54,084	266	2.5	4.0
Kentucky [2]	1919	742	39,769	29,426	126,804	171	3.2	4.3
	1909	310	16,471	10,561	44,314	143	2.7	4.2
Maryland	1919	92	4,826	2,997	12,470	136	2.6	4.2
	1909	70	5,558	4,001	9,845	141	1.8	2.5
Ohio	1919	898	40,452	35,141	136,145	152	3.4	3.9
	1909	640	39,078	27,510	97,422	152	2.5	3.5
Pennsylvania	1919	2,584	154,992	150,030	658,903	255	4.3	4.4
	1909	1,569	168,166	137,305	404,654	208	2.4	2.9
Tennessee	1919	143	9,556	5,132	22,946	161	2.4	4.5
	1909	142	10,519	5,973	16,075	113	1.5	2.7
Virginia	1919	118	11,215	9,335	41,630	353	3.7	4.5
	1909	85	9,084	4,949	16,630	196	1.8	3.4
West Virginia	1919	1,287	87,095	77,017	355,479	276	4.1	4.6
	1909	661	65,228	51,496	155,573	235	2.4	3.0
MICHIGAN REGION	1919	14	1,654	996	6,884	492	4.2	6.9
	1909	28	3,403	1,772	7,912	283	2.3	4.5
EASTERN INTERIOR REGION:								
Illinois	1919	499	73,780	60,331	247,142	495	3.3	4.1
	1909	631	64,942	50,570	136,174	203	2.0	3.3
Indiana	1919	317	24,479	20,505	99,585	314	4.1	4.9
	1909	322	19,070	14,723	45,910	143	2.4	3.1

[1] Includes statistics for anthracite mines in Colorado and New Mexico classified as anthracite enterprises at the census of 1909.
[2] Includes the Western Kentucky portion of the Eastern Interior Region for which separate figures are not available for 1909.

TABLE 13.—POWER USED BY BITUMINOUS COAL PRODUCING ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED: 1919 AND 1909—Continued.

REGION AND STATE.	Census year.	Number of mines.	Wage earners (average number).	Coal produced (tons, 2,000 pounds) (expressed in thousands).	POWER USED (AGGREGATE HORSEPOWER).			
					Total.	Per mine.	Per wage earner.	Per 1,000 tons of coal produced.
WESTERN INTERIOR REGION:								
Iowa	1919	195	10,584	5,474	26,123	134	2.5	4.8
	1909	311	15,361	7,726	19,118	62	1.2	2.5
Kansas	1919	166	8,084	5,204	23,434	141	2.9	4.5
	1909	202	11,566	6,896	19,707	98	1.7	2.9
Missouri	1919	196	7,285	3,784	28,385	145	3.9	7.5
	1909	220	7,594	3,597	11,898	54	1.6	3.3
SOUTHERN INTERIOR REGION:								
Arkansas	1919	91	2,787	1,440	15,027	165	5.4	10.4
	1909	69	4,250	2,374	10,508	152	2.5	4.4
Oklahoma	1919	131	7,040	3,783	36,483	278	5.2	9.6
	1909	104	7,434	3,113	26,316	253	3.5	8.5
Texas	1919	42	2,711	1,588	6,137	146	2.3	3.9
	1909	47	4,024	1,825	6,217	132	1.5	3.4
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:								
Colorado	1919	164	11,252	10,183	63,016	384	5.6	6.2
	[1] 1909	157	13,334	10,705	34,410	219	2.6	3.2
Montana	1919	76	3,797	3,212	27,077	356	7.1	8.4
	1909	65	4,048	2,543	16,173	249	4.0	6.4
New Mexico	1919	34	3,564	3,185	18,063	531	5.1	5.7
	[1] 1909	29	3,620	2,800	9,687	334	2.7	3.5
North Dakota	1919	79	774	768	2,037	26	2.6	2.7
	1909	53	556	364	2,025	38	3.6	5.5
Utah	1919	34	3,647	4,593	24,029	707	6.6	5.2
	1909	22	2,683	2,260	6,929	315	2.6	3.1
Washington	1919	43	4,413	2,987	32,190	749	7.3	10.8
	1909	54	5,833	3,601	16,812	311	2.9	4.7
Wyoming	1919	65	7,091	7,212	47,075	724	6.6	6.5
	1909	65	7,134	6,295	28,071	432	3.9	4.5
All other states [2]	1919	12	303	92	1,249	104	4.1	13.6
	1909	17	715	308	1,559	92	2.2	5.1

[2] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota for 1919, and California, Georgia, Idaho, and Oregon for 1909.

CHARACTER OF ORGANIZATION.

The character of organizations operating producing anthracite and bituminous coal-mining enterprises is shown for the United States as a whole and by states in Table 14. Approximately two-thirds of the coal-mining enterprises in the United States were operated by corporations and these corporations employed 95.1 per cent of the total average number of wage earners and reported 95.4 per cent of the total value of products of the industry. In most of the states similar ratios held for the average number of wage earners employed and the value of products reported by corporations, although the per cent which the number of corporations was of the total number of operating organizations, varied from 100 per cent in Michigan to 24.1 per cent in North Dakota. Among the other forms of organization individuals outnumbered firms or partnerships in the bituminous coal-mining industry, but in anthracite mining, firms or partnerships were more numerous and the enterprises in this class of organization were larger, as measured by wage earners and value of products, than those operated by individuals.

TABLE 14.—CHARACTER OF ORGANIZATION OF PRODUCING ENTERPRISES, FOR SELECTED STATES: 1919.

STATE.	ALL CLASSES.			CORPORATION.							INDIVIDUAL.			
	Number of enterprises.	Average number of wage earners.	Value of products.	Enterprises.		Wage earners.		Value of products.			Enterprises.		Wage earners.	
				Number.	Per cent of total.	Average number.	Per cent of total.	Amount.	Per cent of total.	Per enterprise.	Number.	Per cent of total.	Average number.	Per cent of total.
UNITED STATES	6,890	693,170	$1,510,061,707	4,495	65.2	659,307	95.1	$1,440,333,781	95.4	$320,430	1,218	17.7	14,275	2.1
Anthracite (Pennsylvania)	254	147,372	364,084,142	170	66.9	143,615	97.5	355,328,907	97.6	2,090,170	37	14.6	431	0.3
Bituminous coal	6,636	545,798	1,145,977,565	4,325	65.2	515,692	94.5	1,085,004,874	94.7	250,868	1,181	17.8	13,844	2.5
Pennsylvania	1,938	154,992	362,973,952	1,000	51.6	139,535	90.0	328,381,965	90.5	328,382	487	25.1	7,706	5.0
West Virginia	926	87,095	193,108,343	804	86.8	85,256	97.9	189,232,443	98.0	235,364	53	5.7	475	0.5
Illinois	447	73,780	138,767,835	320	71.6	71,753	97.3	135,182,771	97.4	422,446	65	14.5	996	1.3
Ohio	788	40,452	77,088,602	453	57.5	37,798	93.4	73,146,226	93.8	161,404	172	21.8	1,118	2.8
Kentucky	635	39,769	72,432,840	472	74.3	38,597	97.1	70,908,050	97.5	149,593	96	15.1	536	1.3
Indiana	295	24,479	45,492,726	202	68.5	23,828	97.3	44,226,927	97.2	218,945	46	15.6	284	1.2
Alabama	188	24,648	45,359,441	168	89.4	23,786	96.5	43,997,017	97.0	261,887	11	5.9	273	1.1
Colorado	161	11,252	28,342,195	132	82.0	11,013	97.9	27,817,977	98.2	210,742	10	6.2	74	0.7
Virginia	108	11,215	23,763,440	88	81.5	11,032	98.4	23,457,245	98.7	266,560	9	8.3	89	0.8
Wyoming	46	7,091	18,723,451	37	80.4	7,052	99.4	18,611,184	99.6	503,816	5	10.9	10	0.1
Iowa	167	10,584	16,903,358	84	50.3	9,746	92.1	15,610,232	92.3	185,836	27	16.2	394	3.7
Kansas	129	8,084	15,748,535	63	48.8	6,925	85.7	13,643,327	86.6	216,561	30	23.3	652	8.1
Oklahoma	94	7,040	14,477,317	75	79.8	6,777	96.3	13,986,627	96.6	186,488	12	12.8	154	2.2
Tennessee	107	9,556	14,021,432	85	79.4	9,330	97.6	13,733,409	97.9	161,570	10	9.3	81	0.8
Utah	27	3,647	12,632,035	18	66.7	3,619	99.2	12,554,081	99.4	697,449	3	11.1	9	0.2
Missouri	179	7,285	12,077,845	92	51.4	6,399	87.8	10,756,523	89.1	116,919	43	24.0	361	5.0
Washington	35	4,413	10,737,656	31	88.6	4,361	98.8	10,645,391	99.1	343,400	.....	.....	.....	.....
New Mexico	21	3,564	9,905,541	14	66.7	3,444	96.6	9,669,144	97.6	690,653	[1] 7	33.3	[1] 120	3.4
Montana	67	3,797	8,591,211	29	43.3	3,641	95.9	8,217,759	95.7	283,371	21	31.3	84	2.2
Maryland	58	4,826	8,195,667	44	75.9	4,408	91.3	7,578,229	92.5	172,232	8	13.8	52	1.1
Arkansas	85	2,787	5,292,274	49	57.6	2,259	81.1	4,314,407	81.5	88,049	15	17.6	194	7.0
Texas	33	2,711	4,322,100	29	87.9	2,615	96.5	4,205,450	97.3	145,016	[2] 4	12.1	[2] 96	3.5
Michigan	11	1,054	3,861,874	11	100.0	1,054	100.0	3,861,874	100.0	351,079	.....	.....	.....	.....
North Dakota	70	774	1,927,304	19	24.1	571	73.8	1,278,196	66.3	67,273	48	60.8	160	20.7

STATE.	INDIVIDUAL—con.			FIRM.							ALL OTHER.						
	Value of products.			Enterprises.		Wage earners.		Value of products.			Enterprises.		Wage earners.		Value of products.		
	Amount.	Per cent of total.	Per enterprise.	Number.	Per cent of total.	Average number.	Per cent of total.	Amount.	Per cent of total.	Per enterprise.	Number.	Per cent of total.	Average number.	Per cent of total.	Amount.	Per cent of total.	Per enterprise.
UNITED STATES	$29,306,406	1.9	$24,061	1,137	16.5	17,726	2.6	$36,841,111	2.4	$32,402	40	0.6	1,862	0.3	$3,580,409	0.2	$89,510
Anthracite (Pennsylvania)	962,441	0.3	26,012	42	16.5	2,879	2.0	6,741,024	1.9	160,501	5	2.0	447	0.3	1,051,770	0.3	210,354
Bituminous coal	28,343,965	2.5	24,000	1,095	16.5	14,847	2.7	30,100,087	2.6	27,489	35	0.5	1,415	0.3	2,528,639	0.2	72,247
Pennsylvania	17,487,290	4.8	35,908	440	22.7	6,870	4.4	15,352,035	4.2	34,891	11	0.6	881	0.6	1,752,602	0.5	159,333
West Virginia	1,095,610	0.6	20,672	[3] 69	7.5	[3] 1,364	1.6	[3] 2,780,281	1.4	40,294	.....	.....	.....	.....	.....	.....	.....
Illinois	1,734,925	1.3	26,691	54	12.1	762	1.0	1,535,811	1.1	28,441	8	1.8	259	0.4	314,328	0.2	39,291
Ohio	2,008,691	2.6	11,678	[3] 163	20.7	[3] 1,536	3.8	[3] 2,863,685	3.7	17,569	.....	.....	.....	.....	.....	.....	.....
Kentucky	782,735	1.1	8,153	67	10.6	636	1.6	1,042,055	1.4	15,553	.....	.....	.....	.....	.....	.....	.....
Indiana	488,796	1.1	10,626	[3] 47	15.9	[3] 367	1.5	[3] 777,003	1.7	16,532	.....	.....	.....	.....	.....	.....	.....
Alabama	428,805	0.9	38,982	[3] 9	4.8	[3] 589	2.4	[3] 933,610	2.1	103,735	.....	.....	.....	.....	.....	.....	.....
Colorado	139,136	0.5	13,914	[3] 19	11.8	[3] 165	1.5	[3] 385,082	1.4	20,267	.....	.....	.....	.....	.....	.....	.....
Virginia	150,026	0.6	16,670	11	10.2	94	0.8	150,169	0.7	14,197	.....	.....	.....	.....	.....	.....	.....
Wyoming	30,478	0.2	6,096	4	8.7	29	0.4	51,789	0.3	12,947	.....	.....	.....	.....	.....	.....	.....
Iowa	504,025	3.0	18,668	[3] 56	33.5	[3] 444	4.2	[3] 789,101	4.7	14,091	.....	.....	.....	.....	.....	.....	.....
Kansas	1,250,429	7.9	41,681	32	24.8	396	4.9	720,976	4.6	22,531	4	3.1	111	1.4	133,803	0.8	33,451
Oklahoma	274,234	1.9	22,853	7	7.4	109	1.5	216,456	1.5	30,922	.....	.....	.....	.....	.....	.....	.....
Tennessee	96,097	0.7	9,610	[4] 12	11.2	[4] 145	1.5	[4] 194,926	1.4	16,244	.....	.....	.....	.....	.....	.....	.....
Utah	19,545	0.2	6,515	6	22.2	19	0.5	58,409	0.5	9,735	.....	.....	.....	.....	.....	.....	.....
Missouri	517,831	4.3	12,043	[3] 44	24.6	[3] 525	7.2	[3] 803,491	6.7	18,261	.....	.....	.....	.....	.....	.....	.....
Washington	.....	.....	.....	4	11.4	52	1.2	92,265	0.9	23,066	.....	.....	.....	.....	.....	.....	.....
New Mexico	[1] 236,307	2.4	33,771	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana	174,776	2.0	8,323	[3] 17	25.4	[3] 72	1.9	[3] 108,676	2.3	11,687	.....	.....	.....	.....	.....	.....	.....
Maryland	76,400	0.9	9,550	6	10.3	366	7.6	541,038	6.6	90,173	.....	.....	.....	.....	.....	.....	.....
Arkansas	282,405	5.3	18,827	[3] 21	24.7	[3] 334	12.0	[3] 695,462	13.1	33,117	.....	.....	.....	.....	.....	.....	.....
Texas	[2] 116,650	2.7	29,163	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Michigan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Dakota	497,140	25.8	10,357	12	15.2	43	5.6	151,968	7.9	12,664	.....	.....	.....	.....	.....	.....	.....

[1] Includes number or amount for 2 firms.
[2] Includes number or amount for 1 firm and 1 other form of ownership.
[3] Includes number or amount for 1 other form of ownership.
[4] Includes number or amount for 2 other forms of ownership.

SCALE OF OPERATION.

Size of mines and enterprises.—Statistics relating to the scale of operation and production in coal mining are presented in two ways: First, based on the individual mines, and second, based on the enterprises. They might well also be presented in a third way—based on the activities of the individual operator—but at the census of 1919 it was impossible to consolidate, for the individual operators, the returns on their several enterprises so that statistics for 1919 can not be presented as they were at the census of 1909, showing the size of operation and scale of production as measured by the combined activities of each operator. Unfortunately, moreover, the fact that many operators rendered combined reports for several or for all of their mines—although of course stating the number of mines covered—instead of a separate report for each, made it impossible to completely classify individual mines according to wage earners employed, quantity or value of products, acreage operated, or other measure of operation. Therefore, only the average size of mines can be given based on the entire number of mines and the total number of wage earners, output, or acreage reported for each region, state, or other grouping.

Average size of coal mines.—The size of both anthracite and bituminous coal mines varies widely, but Table 15, in which the average number of wage earners per mine and the average output in tons per mine are given by regions and states, shows that viewed broadly the anthracite mines are much larger than bituminous coal mines. The average number of wage earners employed per mine in anthracite operations in 1919 was 392 and the output per mine 231,841 short tons, whereas the average for all bituminous coal mines covered by the census was only 66 wage earners and 55,594 tons, and would be much lower if the very small local mines not within the scope of the census were taken into consideration. In the Northern and Middle Appalachian Regions the average output and average number of wage earners employed in bituminous coal mines approximated the figures for all bituminous coal mines, and in the Michigan Region and the Eastern Interior Region the mines on the average were much larger, whereas in the Western and Southern Interior Regions they were smaller.

TABLE 15.—AVERAGE NUMBER OF WAGE EARNERS AND AVERAGE OUTPUT PER MINE, PRODUCING ENTERPRISES: 1919.

REGION AND STATE.	Number of mines.	WAGE EARNERS (AVERAGE NUMBER).		COAL PRODUCED (TONS, 2,000 POUNDS).	
		Total.	Per mine.	Total.	Per mine.
UNITED STATES	8,656	692,380	80	547,134,297	63,209
Anthracite[1] (Pennsylvania)	374	146,582	392	86,708,461	231,841
Bituminous coal	8,282	545,798	66	460,425,836	55,594
NORTHERN AND MIDDLE APPALACHIAN REGIONS	5,648	334,615	59	300,397,540	53,187
Kentucky, eastern	552	28,789	52	21,150,896	38,317
Maryland	92	4,826	52	2,997,336	32,580
Ohio	898	40,452	45	35,140,541	39,132
Pennsylvania	2,584	154,992	60	150,029,687	58,061
Tennessee, northeastern	117	7,246	62	4,127,179	35,275
Virginia	118	11,215	95	9,334,786	79,108
West Virginia	1,287	87,095	68	77,617,115	60,309
SOUTHERN APPALACHIAN REGION	288	27,174	94	16,476,750	57,211
Alabama	260	24,648	95	15,411,436	59,275
Georgia, North Carolina, and Tennessee, southeastern	28	2,526	90	1,065,314	38,047
MICHIGAN REGION	14	1,654	118	995,999	71,143
EASTERN INTERIOR REGION	1,066	109,239	109	89,110,563	88,579
Illinois	499	73,780	148	60,330,650	120,903
Indiana	317	24,479	77	20,504,791	64,684
Kentucky, western	190	10,980	58	8,275,122	43,553
WESTERN INTERIOR REGION	557	25,953	47	14,462,351	25,965
Iowa	195	10,584	54	5,474,249	28,073
Kansas	166	8,084	49	5,204,388	31,352
Missouri	196	7,285	37	3,783,714	19,305
SOUTHERN INTERIOR REGION	264	12,538	47	6,811,527	25,801
Arkansas	91	2,787	31	1,440,493	15,830
Oklahoma	131	7,040	54	3,782,794	28,876
Texas	42	2,711	65	1,588,240	37,815
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	505	34,625	69	32,171,106	63,705
Colorado	164	11,252	69	10,182,512	62,088
Montana	76	3,797	50	3,211,719	42,259
New Mexico	34	3,564	105	3,185,484	93,691
North Dakota	79	774	10	767,695	9,718
South Dakota	5	8	2	9,306	1,861
Utah	34	3,647	107	4,592,847	135,084
Washington	43	4,413	103	2,986,910	69,463
Wyoming	65	7,091	109	7,212,006	110,954
California, Idaho, and Oregon	5	79	16	22,627	4,525

[1] Exclusive of data for enterprises operating only culm washeries and dredges.

Table 16 shows the average output in tons of coal for bituminous coal-mining enterprises using mining machines and for those operating without mining machines. For the United States as a whole the average output for mines using mining machines was approximately 95,000 tons per mine, which was four and one-half times the average per mine for enterprises operating without mining machines. The average output per mine for the regions shown in the table ranged from about 35,000 tons to 112,000 tons per mine for enterprises using mining machines, whereas the average per mine for enterprises without mining machines ranged from approximately 22,000 tons to nearly 40,000 tons. The maximum average output per

mine, for the states considered separately, was nearly 72,000 tons per mine in Washington for enterprises without mining machines, and 231,000 tons per mine in Utah for enterprises using mining machines.

TABLE 16.—AVERAGE OUTPUT OF BITUMINOUS COAL MINES FOR ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD, FOR SELECTED STATES: 1919.

REGION AND STATE.	ALL CLASSES.				ENTERPRISES WITHOUT MINING MACHINES.				ENTERPRISES USING MINING MACHINES.			
	Number of enterprises.	Number of mines.	Coal produced (tons, 2,000 pounds).		Number.	Number of mines.	Coal produced (tons, 2,000 pounds).		Number.	Number of mines.	Coal produced (tons, 2,000 pounds).	
			Total.	Per mine.			Total.	Per mine.			Total.	Per mine.
UNITED STATES	6,636	8,282	460,425,836	55,594	4,018	4,412	92,860,744	21,047	2,618	3,870	367,565,092	94,978
NORTHERN AND MIDDLE APPALACHIAN REGIONS	4,379	5,648	300,397,540	53,187	2,478	2,715	40,557,805	14,938	1,901	2,933	259,839,645	88,592
Pennsylvania	1,938	2,584	150,029,087	58,061	1,283	1,428	23,541,260	16,485	655	1,156	126,488,427	109,419
West Virginia	926	1,287	77,617,115	60,309	356	400	8,258,178	20,645	570	887	69,358,937	78,195
Ohio	788	898	35,146,511	39,132	386	403	2,364,135	5,866	402	495	32,776,406	66,215
Kentucky, eastern	469	552	21,150,896	38,317	284	287	2,941,059	10,248	185	265	18,209,837	68,716
Virginia	108	118	9,334,786	79,108	68	71	1,077,886	15,181	40	47	8,256,900	175,679
Tennessee, northeastern	92	117	4,127,179	35,275	54	64	898,912	14,046	38	53	3,228,267	60,911
Maryland	58	92	2,997,336	32,580	47	62	1,476,465	23,814	11	30	1,520,871	50,696
SOUTHERN APPALACHIAN REGION	205	288	16,476,750	57,211	154	198	7,849,013	39,611	51	90	8,627,737	95,864
Alabama	188	260	15,411,436	59,275	139	172	6,891,224	40,065	49	88	8,520,212	96,821
EASTERN INTERIOR REGION	908	1,006	89,110,563	88,579	568	580	21,744,405	37,490	340	426	67,366,158	158,137
Illinois	447	499	60,330,650	120,903	282	291	15,265,064	52,457	165	208	45,065,586	216,661
Indiana	295	317	20,504,791	64,684	175	176	5,297,464	30,099	120	141	15,207,327	107,853
Kentucky, western	166	190	8,275,122	43,553	111	113	1,181,877	10,459	55	77	7,093,245	92,120
WESTERN INTERIOR REGION	475	557	14,462,351	25,965	370	419	9,613,469	22,944	105	138	4,848,882	35,137
Iowa	167	195	5,474,249	28,073	144	160	3,340,940	20,881	23	35	2,133,309	60,952
Kansas	129	166	5,204,388	31,352	99	126	4,410,891	35,007	30	40	793,497	19,837
Missouri	179	196	3,783,714	19,305	127	133	1,861,638	13,997	52	63	1,922,076	36,809
SOUTHERN INTERIOR REGION	212	264	6,811,527	25,801	169	204	4,436,648	21,748	43	60	2,374,879	39,581
Oklahoma	94	131	3,782,794	28,876	58	78	1,551,651	19,893	36	53	2,231,143	42,097
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	446	595	32,171,106	63,705	278	295	8,646,434	29,310	168	210	23,524,672	112,022
Colorado	161	164	10,182,512	62,088	78	78	3,042,306	39,004	83	86	7,140,206	83,026
Wyoming	46	65	7,212,095	110,954	19	24	1,026,528	67,772	27	41	5,585,478	136,231
Utah	27	34	4,592,847	135,084	15	15	202,289	13,486	12	19	4,390,558	231,082
Montana	67	76	3,211,719	42,259	44	46	503,354	10,942	23	30	2,708,365	90,279
New Mexico	21	34	3,185,484	93,691	13	15	163,897	10,926	8	19	3,021,587	159,031
Washington	35	43	2,986,910	69,463	29	37	2,659,105	71,868	6	6	327,805	54,634
North Dakota	79	79	707,695	9,718	71	71	420,022	5,916	8	8	347,673	43,459
South Dakota	5	5	9,306	1,861	5	5	9,306	1,861	.....	.....	.....	.....

Size of enterprises according to value of products.—Table 17 shows, for the United States as a whole and by states, the producing anthracite and bituminous coal-mining enterprises, classified according to the value of products per enterprise and gives the value of their products and the per cent distribution for each class. For the United States as a whole the small enterprises producing less than $100,000 worth of products, and coming within the scope of the census, constituted two-thirds of all enterprises enumerated, but the value of their products was only about one-twelfth of the total value of products reported. On the other hand, only 3.4 per cent of the enterprises reported products valued at more than $1,000,000 each, but these enterprises accounted for nearly half of the total value of products.

In anthracite mining less than one-half of the enterprises had products valued at less than $100,000. Considering only collieries proper, that is, excluding dredges and independent culm washeries, only 17 per cent of the anthracite enterprises were in the classes producing less than $100,000, and they produced less than five-tenths of 1 per cent of the value of products of the collieries. In contrast to this there were 65 anthracite enterprises operating collieries, or over two-fifths of all the colliery enterprises, which produced nine-tenths of the total value of products.

TABLE 17.—SIZE OF PRODUCING ENTERPRISES FOR SELECTED STATES, BY VALUE OR PRODUCTS: 1919.

STATE AND VALUE OF PRODUCT PER ENTERPRISE.	Number of enterprises.	Value of products.	PER CENT DISTRIBUTION. Number of enterprises.	PER CENT DISTRIBUTION. Value of products.
UNITED STATES	6,890	$1,510,061,707	100.0	100.0
Less than $5,000	855	2,801,020	12.4	0.2
$5,000 to $20,000	1,656	18,054,536	24.0	1.2
$20,000 to $100,000	2,049	102,223,266	29.7	6.8
$100,000 to $500,000	1,690	396,152,362	24.5	26.2
$500,000 to $1,000,000	409	281,472,952	5.9	18.6
$1,000,000 to $5,000,000	204	372,478,693	3.0	24.7
$5,000,000 and over	27	336,878,848	0.4	22.3
ANTHRACITE (Pennsylvania)	254	364,084,142	100.0	100.0
Less than $5,000	37	89,997	14.6	(1)
$5,000 to $20,000	38	440,045	15.0	0.1
$20,000 to $100,000	43	1,843,631	16.9	0.5
$100,000 to $500,000	39	10,076,064	15.4	2.8
$500,000 to $1,000,000	32	24,276,649	12.6	6.7
$1,000,000 to $5,000,000	48	83,086,309	18.9	22.8
$5,000,000 and over	17	244,270,547	6.7	67.1
BITUMINOUS COAL	6,636	1,145,977,565	100.0	100.0
Less than $5,000	818	2,711,023	12.3	0.2
$5,000 to $20,000	1,618	17,614,491	24.4	1.5
$20,000 to $100,000	2,006	100,379,635	30.2	8.8
$100,000 to $500,000	1,651	386,075,398	24.9	33.7
$500,000 to $1,000,000	377	257,196,333	5.7	22.4
$1,000,000 to $5,000,000	156	289,392,384	2.4	25.3
$5,000,000 and over	10	92,608,301	0.2	8.1
PENNSYLVANIA	1,938	362,973,952	100.0	100.0
Less than $5,000	290	963,845	15.0	0.3
$5,000 to $20,000	508	5,552,313	26.2	1.5
$20,000 to $100,000	598	29,120,676	30.9	8.0
$100,000 to $500,000	385	87,310,917	19.9	24.1
$500,000 to $1,000,000	104	71,709,120	5.4	19.8
$1,000,000 to $5,000,000	45	91,793,645	2.3	25.3
$5,000,000 and over	8	76,523,436	0.4	21.1
WEST VIRGINIA	926	103,108,343	100.0	100.0
Less than $5,000	49	153,724	5.3	0.1
$5,000 to $20,000	139	1,614,472	15.0	0.8
$20,000 to $100,000	321	17,215,144	34.7	8.9
$100,000 to $500,000	317	74,396,658	34.2	38.5
$500,000 to $1,000,000	75	50,120,169	8.1	26.0
$1,000,000 and over [2]	25	49,608,176	2.7	25.7
ILLINOIS	447	138,767,835	100.0	100.0
Less than $5,000	39	140,055	8.7	0.1
$5,000 to $20,000	78	836,444	17.4	0.6
$20,000 to $100,000	96	4,609,202	21.5	3.3
$100,000 to $500,000	142	36,934,283	31.8	26.6
$500,000 to $1,000,000	66	45,418,571	14.8	32.7
$1,000,000 and over [3]	26	50,834,590	5.8	36.6
OHIO	788	77,988,602	100.0	100.0
Less than $5,000	145	490,912	18.4	0.6
$5,000 to $20,000	249	2,708,069	31.6	3.5
$20,000 to $100,000	217	10,458,980	27.5	13.4
$100,000 to $500,000	155	36,828,934	19.7	47.2
$500,000 to $1,000,000	13	8,834,585	1.6	11.3
$1,000,000 to $5,000,000	9	18,667,122	1.1	23.9
KENTUCKY	635	72,432,840	100.0	100.0
Less than $5,000	105	315,311	16.5	0.4
$5,000 to $20,000	151	1,763,812	23.8	2.4
$20,000 to $100,000	214	10,575,195	33.7	14.6
$100,000 to $500,000	142	32,212,748	22.4	44.5
$500,000 to $1,000,000	15	10,746,001	2.4	14.8
$1,000,000 to $5,000,000	8	16,879,773	1.3	23.3
INDIANA	295	45,492,726	100.0	100.0
Less than $5,000	33	112,907	11.2	0.2
$5,000 to $20,000	65	640,042	22.0	1.4
$20,000 to $100,000	70	3,338,699	23.7	7.3
$100,000 to $500,000	110	25,354,580	37.3	55.7
$500,000 to $1,000,000	11	7,029,541	3.7	15.5
$1,000,000 to $5,000,000	6	9,016,957	2.0	19.8
ALABAMA	188	45,359,441	100.0	100.0
Less than $5,000	9	29,274	4.8	0.1
$5,000 to $20,000	29	330,464	15.4	0.7
$20,000 to $100,000	63	3,389,020	33.5	7.5
$100,000 to $500,000	60	13,077,544	31.9	30.2
$500,000 to $1,000,000	18	12,772,097	9.6	28.2
$1,000,000 to $5,000,000	9	15,161,042	4.8	33.4
COLORADO	161	28,342,195	100.0	100.0
Less than $5,000	12	42,183	7.5	0.1
$5,000 to $20,000	33	351,942	20.5	1.2
$20,000 to $100,000	44	2,750,530	27.3	9.7
$100,000 to $500,000	55	13,505,468	34.2	47.7
$500,000 and over [3]	17	11,692,072	10.6	41.3
VIRGINIA	108	23,763,440	100.0	100.0
Less than $5,000	10	43,436	9.3	0.2
$5,000 to $20,000	32	333,082	29.6	1.4
$20,000 to $100,000	25	1,353,402	23.1	5.7
$100,000 to $500,000	25	5,320,337	23.1	22.4
$500,000 to $1,000,000	10	7,305,891	9.3	30.7
$1,000,000 to $5,000,000	6	9,401,292	5.6	39.6
WYOMING	46	18,723,451	100.0	100.0
Less than $5,000	5	16,409	10.9	0.1
$5,000 to $20,000	6	64,307	13.0	0.3
$20,000 to $100,000	5	232,170	10.9	1.2
$100,000 to $500,000	13	3,757,123	28.3	20.1
$500,000 to $1,000,000	13	9,142,565	28.3	48.8
$1,000,000 to $5,000,000	4	5,510,877	8.7	29.4
IOWA	167	16,903,358	100.0	100.0
Less than $5,000	24	89,976	14.4	0.5
$5,000 to $20,000	51	497,479	30.5	2.9
$20,000 to $100,000	41	1,891,164	24.6	11.2
$100,000 to $500,000	45	9,475,093	26.9	56.1
$500,000 and over [3]	6	4,949,646	3.6	29.3
KANSAS	129	15,748,535	100.0	100.0
Less than $5,000	5	16,036	3.9	0.1
$5,000 to $20,000	49	549,726	38.0	3.5
$20,000 to $100,000	36	1,691,449	27.9	10.7
$100,000 to $500,000	34	7,326,918	26.4	46.5
$500,000 and over [3]	5	6,164,406	3.9	39.1
OKLAHOMA	94	14,477,317	100.0	100.0
Less than $5,000	6	19,429	6.4	0.1
$5,000 to $20,000	10	107,432	10.6	0.7
$20,000 to $100,000	38	2,155,983	40.4	14.9
$100,000 to $500,000	34	7,977,576	36.2	55.1
$500,000 to $1,000,000	6	4,216,897	6.4	29.1
TENNESSEE	107	14,024,432	100.0	100.0
Less than $5,000	3	9,678	2.8	0.1
$5,000 to $20,000	29	319,849	27.1	2.3
$20,000 to $100,000	41	2,060,754	38.3	14.7
$100,000 to $500,000	26	6,425,274	24.3	45.8
$500,000 to $1,000,000	8	5,208,877	7.5	37.1
UTAH	27	12,632,035	100.0	100.0
Less than $5,000	3	8,330	11.1	0.1
$5,000 to $20,000	8	79,031	29.6	0.6
$20,000 to $100,000	3	134,620	11.1	1.1
$100,000 to $500,000	7	2,182,211	25.9	17.3
$500,000 and over [3]	6	10,227,843	22.2	81.0
MISSOURI	179	12,077,845	100.0	100.0
Less than $5,000	17	62,010	9.5	0.5
$5,000 to $20,000	68	719,305	38.0	6.0
$20,000 to $100,000	59	2,749,394	33.0	22.8
$100,000 and over [4]	35	8,547,136	19.6	70.8
WASHINGTON	35	10,737,656	100.0	100.0
$5,000 to $20,000	5	78,881	14.3	0.7
$20,000 to $100,000	12	702,859	34.3	6.5
$100,000 to $500,000	13	3,734,980	37.1	34.8
$500,000 and over [3]	5	6,220,936	14.3	57.9
NEW MEXICO	21	9,905,541	100.0	100.0
Less than $5,000	3	7,633	14.3	0.1
$5,000 to $20,000	3	35,186	14.3	0.4
$20,000 to $100,000	6	192,774	28.6	1.9
$100,000 to $500,000	4	644,549	19.0	6.5
$500,000 and over [3]	5	9,025,399	23.8	91.1
MONTANA	67	8,591,211	100.0	100.0
Less than $5,000	17	51,507	25.4	0.6
$5,000 to $20,000	20	190,629	29.9	2.2
$20,000 to $100,000	16	648,532	23.9	7.5
$100,000 to $500,000	8	1,872,972	11.9	21.8
$500,000 and over [4]	6	5,827,571	9.0	67.8
MARYLAND	58	8,195,667	100.0	100.0
Less than $5,000	3	8,159	5.2	0.1
$5,000 to $20,000	15	177,125	25.9	2.2
$20,000 to $100,000	23	1,373,272	39.7	16.8
$100,000 and over [3]	17	6,637,111	29.3	81.0
ARKANSAS	85	5,292,274	100.0	100.0
Less than $5,000	10	29,964	11.8	0.6
$5,000 to $20,000	24	253,712	28.2	4.8
$20,000 to $100,000	39	1,963,940	45.9	37.1
$100,000 and over [5]	12	3,044,658	14.1	57.5
TEXAS	33	4,322,100	100.0	100.0
Less than $5,000	3	6,866	9.1	0.2
$5,000 to $20,000	4	31,966	12.1	0.7
$20,000 to $100,000	18	944,949	54.5	21.9
$100,000 and over [4]	8	3,338,319	24.2	77.2

[1] Less than one-tenth of 1 per cent.
[2] Includes the group "$5,000,000 and over."
[3] Includes the group "$1,000,000 to $5,000,000."
[4] Includes the groups "$500,000 to $1,000,000" and "$1,000,000 to $5,000,000."
[5] Includes the group "$500,000 to $1,000,000."

In Table 18 statistics similar to those in Table 17 are presented, for the United States as a whole, for bituminous coal-mining enterprises classified according to mining method. The table shows that among enterprises using mining machines less than two-fifths were small and had products valued at less than $100,000 each, whereas among the enterprises where mining machines were not used more than four-fifths of the enterprises were small. Mining enterprises using mining machines embraced approximately three-fourths of all the bituminous coal-mining enterprises which reported products valued at more than $100,000 each.

TABLE 18.—SIZE, BY VALUE OF PRODUCTS, OF BITUMINOUS COAL PRODUCING ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD: 1919.

VALUE OF PRODUCT PER ENTERPRISE.	ENTERPRISES WITHOUT MINING MACHINES.		ENTERPRISES USING MINING MACHINES.	
	Number.	Value of products.	Number.	Value of products.
United States	4,018	$247,009,572	2,618	$898,907,993
Less than $5,000	779	2,580,740	39	130,283
$5,000 to $20,000	1,397	14,971,149	221	2,643,342
$20,000 to $100,000	1,243	57,670,619	763	42,709,016
$100,000 to $500,000	521	111,581,138	1,130	274,494,260
$500,000 to $1,000,000	68	43,529,786	309	213,666,547
$1,000,000 to $5,000,000	10	16,736,140	146	272,656,244
$5,000,000 and over			10	92,608,301

In Table 19 producing bituminous-coal enterprises in the United States as a whole are divided into two groups—those enterprises which operate coke plants at the mines and enterprises without coke plants. The table shows that although enterprises operating coke plants at the mines were relatively very few in number, they were chiefly large enterprises and included 7 per cent of all bituminous coal enterprises having products valued at more than $100,000 each, and nearly 20 per cent of those having products valued at more than $1,000,000.

TABLE 19.—SIZE, BY VALUE OF PRODUCTS, OF BITUMINOUS COAL PRODUCING ENTERPRISES WITH AND WITHOUT COKE PLANTS: 1919.

VALUE OF PRODUCT PER ENTERPRISE.	ENTERPRISES OPERATING COKE PLANTS AT THE MINES.		ENTERPRISES WITHOUT COKE PLANTS.	
	Number.	Value of products.	Number.	Value of products.
United States	184	$157,865,973	6,452	$988,111,592
Less than $5,000			818	2,711,023
$5,000 to $20,000	3	37,642	1,615	17,576,849
$20,000 to $100,000	29	1,703,743	1,977	98,615,892
$100,000 to $500,000	78	21,205,379	1,573	364,870,019
$500,000 to $1,000,000	43	28,990,758	334	228,205,575
$1,000,000 to $5,000,000	27	58,806,007	120	230,586,377
$5,000,000 and over	4	47,002,444	6	45,545,857

Size of enterprises according to quantity of products.—Table 20 presents, for anthracite enterprises classified according to the character of operation and according to the quantity of output per enterprise, the average number of wage earners and the quantity and value of products. The table shows that the 16 largest enterprises produced approximately two-thirds of the total output, that only among the collieries operating breakers, was an individual output of more than 500,000 tons reported, and that the output of culm washeries and dredges was relatively small.

TABLE 20.—SIZE, BY QUANTITY OF PRODUCT, OF ANTHRACITE PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO CHARACTER OF OPERATION: 1919.

QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,240 POUNDS).	Number of enterprises.	Number of— Mines, washeries, or dredges.	Number of— Breakers.	Wage earners (average number).	Coal produced (tons, 2,240 pounds).	Value of all products.
Anthracite (Pennsylvania)—All enterprises	254			147,372	78,723,668	$364,084,142
Less than 25,000	114			1,096	883,014	2,476,040
25,000 to 50,000	17			1,025	591,368	2,138,001
50,000 to 100,000	26			3,823	1,891,627	8,161,184
100,000 to 200,000	28			8,784	4,401,213	21,014,209
200,000 to 500,000	42			23,605	12,921,426	57,047,834
500,000 to 1,000,000	11			12,915	7,100,179	34,028,125
1,000,000 and over	16			96,124	50,934,841	239,218,749
Enterprises operating mines only		*Mines.*				
Less than 50,000	16	16		2,783	1,709,181	7,456,219
50,000 to 100,000	7	7		207	81,943	332,412
100,000 to 500,000	5	5		506	300,045	1,343,646
	4	4		2,010	1,318,193	5,780,161
Enterprises operating breakers, mines, and washeries						
Less than 25,000	[1] 140	358	245	143,799	75,709,088	353,549,591
25,000 to 50,000	22	21	22	559	220,349	1,108,252
50,000 to 100,000	9	9	9	745	323,645	1,435,851
100,000 to 200,000	17	17	17	3,099	1,274,785	5,981,457
200,000 to 500,000	26	28	27	8,480	4,075,749	19,798,347
500,000 to 1,000,000	39	56	41	21,877	11,779,543	51,978,810
1,000,000 and over	11	29	16	12,915	7,100,179	34,028,125
	16	198	113	96,124	50,934,841	239,218,749
Enterprises operating only culm washeries		*Washeries.*				
Less than 50,000	19	19		434	684,034	2,174,200
50,000 to 200,000	14	14		254	227,083	833,394
	5	5		180	456,951	1,340,806
Enterprises operating only dredges		*Dredges.*				
Less than 25,000	79	81		356	621,365	904,132
25,000 to 50,000	73	75		257	442,376	643,986
	6	6		99	178,989	260,146

[1] Includes, in addition to the 358 mines and 245 breakers shown by the table, data for 60 washeries.

Except for the class of enterprises reporting more than 1,000,000 tons, the grouping by enterprises in Table 20 is essentially a grouping by plants or unit operations, as most of the enterprises represent only 1 mine, breaker, washery, or dredge. The class of enterprises producing more than 1,000,000 tons each and having 113 breakers and 198 mines all told, reported from 3 to 25 breakers and from 3 to 28 mines per enterprise. They averaged less than 500,000 tons per breaker but according to analysis made by the United States Geological Survey of returns for individual breakers, 25 of these having an aggregate output of 17,500,000 tons produced more than 500,000 tons each and 4 of these produced between 1,000,000 and 1,250,000 tons each. The data for enterprises operating mines only and culm washeries only are of little significance because most of the mines and culm washeries are covered in reports of enterprises reporting breakers. The data for dredges show that all such operations were small and averaged little more than 7,500 tons for each dredge.

Table 21 shows for the United States as a whole and by selected states, for bituminous coal-mining enterprises classified according to the quantity of output per enterprise, the number of mines, the average number of wage earners, and the total quantity and value of products for each group. In Table 21 the indicated average output per mine in each class of enterprises is within the specified range for only the groups of enterprises producing less than 100,000 tons. This is because the smaller enterprises as a rule operated but one mine each, whereas many of the larger enterprises operated two or more mines. In the four groups of enterprises producing more than 100,000 tons the average per mine is less than the specified range of output for the enterprises because the enterprises in these groups averaged more than one mine per enterprise. It is noteworthy, however, that the table indicates progressive increase, from group to group, of output per mine and per wage earner from approximately 7,800 tons per mine and 620 tons per wage earner in the group of smallest enterprises to more than 200,000 tons per mine and 1,000 tons per wage earner in the group of largest enterprises.[1]

TABLE 21.—SIZE OF BITUMINOUS COAL ENTERPRISES, BY QUANTITY OF PRODUCT, FOR SELECTED STATES: 1919.

STATE AND QUANTITY PER ENTERPRISE (TONS, 2,000 POUNDS).	Number of enterprises.	Number of mines.	Wage earners (average number).	Value of products.	Coal produced (tons, 2,000 pounds).
UNITED STATES	6,630	8,282	545,708	$1,145,077,505	400,425,836
Less than 25,000	3,972	4,141	51,771	86,197,351	32,174,984
25,000 to 50,000	779	872	41,642	73,079,200	28,023,083
50,000 to 100,000	741	928	70,031	138,497,001	53,178,603
100,000 to 200,000	610	873	105,690	219,734,148	85,005,393
200,000 to 500,000	415	751	139,109	302,772,145	122,171,888
500,000 to 1,000,000	76	302	54,081	127,158,011	51,832,435
1,000,000 and over	43	412	85,402	198,539,700	87,139,450
ALABAMA	188	200	24,048	45,359,441	15,411,436
Less than 25,000	85	90	1,652	2,478,255	838,624
25,000 to 50,000	39	45	2,559	4,514,763	1,432,203
50,000 to 100,000	21	27	2,494	4,346,788	1,411,263
100,000 to 200,000	24	38	5,634	10,901,705	3,301,891
200,000 to 500,000	14	28	6,737	13,151,395	4,479,205
500,000 and over [1]	5	32	5,572	9,966,535	3,888,160
ARKANSAS	85	91	2,787	5,292,274	1,440,493
Less than 25,000	68	70	1,163	1,900,900	511,509
25,000 to 50,000	9	9	478	832,499	274,137
50,000 to 100,000	5	8	539	1,013,521	311,789
100,000 to 200,000	3	4	607	1,495,294	342,998
COLORADO	161	164	11,252	28,342,195	10,182,512
Less than 25,000	70	70	942	1,578,117	555,755
25,000 to 50,000	31	31	1,455	3,126,395	1,114,301
50,000 to 100,000	22	22	1,564	4,227,033	1,537,788
100,000 to 200,000	28	28	4,520	11,648,592	4,123,707
200,000 to 500,000	10	13	2,771	7,762,058	2,850,961
ILLINOIS	447	490	73,780	138,767,835	60,330,050
Less than 25,000	181	183	1,932	3,271,039	1,201,768
25,000 to 50,000	45	46	2,030	3,912,307	1,653,798
50,000 to 100,000	57	58	6,450	10,931,102	4,312,673
100,000 to 200,000	63	70	13,236	21,520,128	9,028,808
200,000 to 500,000	80	99	28,273	54,768,756	21,172,952
500,000 to 1,000,000	14	25	9,160	20,260,252	8,920,959
1,000,000 and over	7	27	12,090	24,974,101	10,940,692
INDIANA	295	317	24,479	45,492,726	20,504,791
Less than 25,000	142	142	1,405	2,195,862	879,172
25,000 to 50,000	34	36	1,873	2,847,371	1,252,839
50,000 to 100,000	49	52	4,561	7,621,144	3,461,061
100,000 to 200,000	48	52	7,898	14,584,983	6,695,887
200,000 to 500,000	19	23	5,991	12,441,765	5,593,619
500,000 and over [1]	3	12	2,751	5,801,601	2,612,213
IOWA	167	195	10,584	16,903,358	5,474,249
Less than 25,000	114	115	1,540	2,333,400	659,317
25,000 to 50,000	20	28	1,599	2,377,846	750,927
50,000 to 100,000	19	28	2,794	4,215,624	1,351,874
100,000 to 200,000	9	16	2,192	3,606,794	1,169,184
200,000 to 500,000	5	13	2,459	4,369,634	1,542,947
KANSAS	129	166	8,084	15,748,535	5,204,338
Less than 25,000	79	81	968	1,388,822	451,317
25,000 to 50,000	21	22	1,034	2,164,744	733,761
50,000 to 100,000	18	23	1,916	3,886,815	1,278,031
100,000 to 200,000	7	19	1,274	2,640,047	901,924
200,000 and over [2]	4	21	2,892	5,059,107	1,839,355
KENTUCKY	635	742	39,769	72,432,840	29,426,018
Less than 25,000	411	416	5,604	7,929,537	3,101,328
25,000 to 50,000	88	91	5,149	8,027,013	3,191,138
50,000 to 100,000	59	67	5,609	10,231,897	4,134,325
100,000 to 200,000	52	77	9,154	18,053,697	7,262,461
200,000 to 500,000	20	60	6,895	14,869,800	6,080,131
500,000 and over [1]	5	31	7,358	13,320,896	5,656,635
MARYLAND	58	92	4,826	8,195,667	2,997,336
Less than 25,000	30	34	521	607,616	223,986
25,000 to 50,000	12	16	719	1,084,502	406,559
50,000 to 100,000	9	16	1,060	1,872,826	701,763
100,000 and over [2]	7	26	2,526	4,630,723	1,665,028
MICHIGAN	11	14	1,654	3,861,874	995,999
Less than 50,000 [1]	5	5	347	643,083	152,023
50,000 and over [1]	6	9	1,307	3,218,791	843,976

See footnotes at end of table.

[1] It should be noted in connection with Table 21 that it is not based on the quantity of output per mine and that the quantity of output per mine is not indicated except by averages for the groups. The average per mine for the groups of enterprises presented by this table is not the average output of mines of like size, because the enterprises as defined by the Bureau of the Census may comprise the operations of several mines of very different sizes in any one state. Statistics regarding the number of tons of coal produced by groups of mines classified according to output are given in the United States Geological Survey's publication, Mineral Resources. These statistics show that in 1918, the year of maximum production, mines producing more than 200,000 tons numbered 821, or 7.4 per cent of the total number in the United States, that they produced an average of 342,591 tons per mine, and that the average, by states, for this class of mines in only one state barely exceeded 500,000 tons and ranged down to approximately 212,000 tons. The aggregate production in mines of this class was 281,266,842 tons, or 48.5 per cent of the total output for the United States. In 1919, 550 mines, or 4.4 per cent of the total number, produced more than 200,000 tons each. The average output of these mines was 317,906 tons and their combined output was 174,848,412 tons.

TABLE 21.—SIZE OF BITUMINOUS COAL ENTERPRISES, BY QUANTITY OF PRODUCT, FOR SELECTED STATES: 1919—Continued.

STATE AND QUANTITY PER ENTERPRISE (TONS, 2,000 POUNDS).	Number of enterprises.	Number of mines.	Wage earners (average number).	Value of products.	Coal produced (tons, 2,000 pounds).
MISSOURI	179	196	7,285	$12,077,845	3,783,714
Less than 25,000	136	136	2,096	2,886,138	832,084
25,000 to 50,000	20	21	1,193	2,122,931	671,979
50,000 to 100,000	16	18	1,798	3,352,345	1,112,280
100,000 and over [5]	7	21	2,288	3,716,431	1,167,365
MONTANA	67	76	3,707	8,591,241	3,211,719
Less than 25,000	51	52	373	748,401	248,257
25,000 to 50,000	4	4	233	344,953	118,340
50,000 to 100,000	3	4	332	686,901	252,461
100,000 to 200,000	5	7	933	2,036,066	762,605
200,000 and over [4]	4	9	1,826	4,774,290	1,830,056
OHIO	788	898	40,452	77,988,602	35,140,541
Less than 25,000	546	561	5,227	8,852,274	3,491,475
25,000 to 50,000	87	100	4,390	7,394,015	3,149,461
50,000 to 100,000	56	72	5,647	11,389,567	4,832,485
100,000 to 200,000	57	76	9,450	17,707,988	8,078,409
200,000 to 500,000	23	43	6,642	13,977,630	6,414,028
500,000 to 1,000,000	5	20	3,535	7,669,080	3,500,715
1,000,000 and over	4	26	5,561	10,997,436	5,670,965
OKLAHOMA	94	131	7,040	14,477,317	3,782,794
Less than 25,000	49	51	1,050	1,811,651	485,304
25,000 to 50,000	19	26	1,238	2,481,925	677,731
50,000 to 100,000	17	30	2,345	4,710,400	1,203,537
100,000 and over [5]	9	24	2,407	5,473,332	1,416,222
PENNSYLVANIA	1,938	2,584	154,992	302,973,052	150,029,687
Less than 25,000	1,348	1,452	17,860	33,591,349	12,960,699
25,000 to 50,000	118	138	5,354	10,334,018	4,225,695
50,000 to 100,000	174	229	14,417	31,634,235	12,349,073
100,000 to 200,000	144	229	21,629	50,204,555	20,367,879
200,000 to 500,000	112	216	33,151	81,622,693	33,270,408
500,000 to 1,000,000	22	74	14,770	37,053,803	15,207,023
1,000,000 and over	20	255	47,811	117,973,239	51,648,850
TENNESSEE	107	143	9,556	14,024,432	5,132,167
Less than 25,000	62	64	1,282	1,519,258	548,716
25,000 to 50,000	15	22	1,308	1,618,455	572,157
50,000 to 100,000	14	26	1,770	2,820,397	1,081,247
100,000 to 200,000	7	12	2,157	2,976,010	1,058,540
200,000 to 500,000	8	19	3,039	5,090,282	1,871,507
TEXAS	33	42	2,711	$4,322,100	1,588,240
Less than 25,000	14	14	201	232,312	140,110
25,000 to 50,000	10	11	616	713,532	360,777
50,000 to 100,000	5	8	490	960,107	339,816
100,000 and over [5]	4	9	1,404	2,416,149	741,537
UTAH	27	31	3,647	12,632,035	4,502,847
Less than 100,000 [6]	16	16	235	493,708	204,773
100,000 to 200,000	5	5	533	1,040,484	711,767
200,000 tons and over [4]	6	13	2,879	10,227,843	3,676,307
VIRGINIA	108	118	11,215	23,703,440	9,334,780
Less than 25,000	59	61	707	1,080,431	403,935
25,000 to 50,000	13	14	664	1,253,811	454,202
50,000 to 100,000	13	16	1,232	2,403,454	890,008
100,000 to 200,000	7	7	1,087	2,315,561	892,066
200,000 to 500,000	11	12	3,803	8,390,242	3,378,058
500,000 to 1,000,000	5	6	3,272	8,310,941	3,315,837
WASHINGTON	35	43	4,413	10,737,656	2,986,910
Less than 25,000	13	13	317	444,146	126,135
25,000 to 50,000	9	9	579	1,220,590	331,160
50,000 to 100,000	5	5	985	1,615,343	371,512
100,000 to 200,000	4	5	960	2,310,900	571,273
200,000 and over [2]	4	11	1,833	5,146,671	1,586,774
WEST VIRGINIA	926	1,287	87,095	193,108,343	77,617,115
Less than 25,000	386	406	6,131	9,505,302	3,757,043
25,000 to 50,000	173	197	7,590	15,281,965	6,233,345
50,000 to 100,000	154	202	12,937	28,260,514	11,167,142
100,000 to 200,000	117	175	19,041	42,802,050	16,403,447
200,000 to 500,000	78	161	23,050	55,844,537	22,293,137
500,000 to 1,000,000	14	80	9,633	22,712,310	9,242,026
1,000,000 and over	4	60	8,093	18,701,555	8,510,775
WYOMING	46	65	7,001	18,723,451	7,212,000
Less than 50,000 [3]	17	17	167	418,924	140,040
50,000 to 100,000	6	6	410	1,004,087	400,394
100,000 to 200,000	7	9	1,321	3,083,945	1,187,020
200,000 to 500,000	13	21	3,405	9,601,618	3,671,650
500,000 to 1,000,000	3	12	1,785	4,435,877	1,743,002

[1] Includes the group, "1,000,000 and over."
[2] Includes the group, "500,000 to 1,000,000."
[3] Includes the group, "Less than 25,000."
[4] Includes the groups, "100,000 to 200,000" and "200,000 to 500,000."
[5] Includes the group, "200,000 to 500,000."
[6] Includes the groups, "Less than 25,000" and "25,000 to 50,000."

Forty-three enterprises in Alabama, Illinois, Indiana, Kentucky, New Mexico, Ohio, Pennsylvania, Utah, and West Virginia producing more than 1,000,000 tons each and, in fact, averaging more than 2,000,000 tons, accounted for 19 per cent of the total production of bituminous coal. The enterprises in the groups producing from 100,000 to 1,000,000 tons, of which there were 1,101, produced approximately 260,000,000 tons, or 56 per cent of the total output, and the 5,492 enterprises in the groups producing less than 100,000 tons, produced about 113,000,000 tons, or 25 per cent of the total output. The preponderance in numbers and the inferior productive capacity of the smaller enterprises is shown for all of the important coal-producing states.

Table 22 shows, for bituminous coal-mining enterprises operating without mining machines and for those using mining machines, the same data as in Table 21, assembled by mining regions and for the principal states. The table shows for the United States as a whole and for the leading states and regions, that all or most of the largest enterprises were in the class using mining machines and about three-fourths of the smaller enterprises (producing less than 50,000 tons each) were in the class operating without mining machines. The table also indicates that the average output per wage earner was larger in the first class (approximately 900 tons in the United States as a whole) than in the second class (about 700 tons). The output per wage earner in enterprises using mining machines ranged from nearly 600 tons in the Western and Southern Interior Regions to about 900 tons in the Northern and Middle Appalachian Regions and 1,000 tons in the Northern Great Plains, Rocky Mountain, and Pacific Coast Regions; whereas the output per wage earner in enterprises without mining machines ranged in the specified regions from only a little over 500 to about 700 and 750 tons.

TABLE 22.—SIZE, BY QUANTITY OF PRODUCT, OF BITUMINOUS COAL ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD, BY REGIONS AND SELECTED STATES: 1919.

REGION, STATE, AND QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,000 POUNDS).	NUMBER OF ENTERPRISES.		NUMBER OF MINES.		WAGE EARNERS (AVERAGE NUMBER).		VALUE OF PRODUCTS.		COAL PRODUCED (TONS, 2,000 POUNDS).	
	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.
UNITED STATES	4,018	2,618	4,412	3,870	133,228	412,570	$247,039,572	$898,907,993	92,860,744	367,565,092
Less than 25,000	3,250	716	3,403	738	37,702	14,072	64,437,872	21,759,479	23,980,301	8,194,683
25,000 to 50,000	308	471	351	521	17,030	24,612	29,171,127	43,008,073	10,866,639	17,156,444
50,000 to 100,000	228	513	305	623	23,537	46,494	43,178,655	95,318,346	16,094,242	37,084,361
100,000 to 200,000	161	449	224	649	30,720	75,979	58,868,042	160,866,105	22,087,888	63,817,505
200,000 to 500,000	61	354	109	645	20,488	115,621	42,375,343	260,396,802	16,482,898	105,688,990
500,000 to 1,000,000	4	72	20	282	3,751	50,330	9,038,533	118,119,478	3,348,776	48,483,659
1,000,000 and over	.....	43	.....	412	.....	85,462	.....	198,539,709	.....	87,139,450
NORTHERN AND MIDDLE APPALACHIAN REGIONS	2,478	1,901	2,715	2,933	52,627	281,988	101,760,806	[1] 630,086,396	39,767,366	[1] 260,630,174
Less than 25,000	2,184	545	2,316	565	25,784	10,414	45,343,976	16,107,006	17,398,088	6,375,248
25,000 to 50,000	131	358	159	401	6,099	18,232	11,301,656	32,167,014	4,528,931	13,073,807
50,000 to 100,000	98	369	135	462	8,286	31,934	17,375,082	67,314,243	6,861,157	26,619,789
100,000 to 200,000	47	324	73	482	7,091	52,475	16,197,707	113,763,922	6,476,278	45,614,131
200,000 to 500,000	17	227	29	462	4,729	66,424	11,452,385	163,196,006	4,502,912	66,474,619
500,000 to 1,000,000	1	48	3	209	638	33,374	.....	[1] 82,546,237	.....	[1] 33,573,524
1,000,000 and over	.....	30	.....	355	.....	66,135	.....	154,991,968	.....	68,899,056
PENNSYLVANIA	1,283	655	1,428	1,156	27,987	127,005	57,298,806	[1] 305,675,146	22,750,731	[1] 127,278,956
Less than 25,000	1,173	175	1,269	183	14,796	3,064	28,403,891	5,157,458	10,938,594	2,022,105
25,000 to 50,000	11	107	11	127	345	5,009	870,663	9,463,355	382,337	3,843,358
50,000 to 100,000	56	118	79	150	4,586	9,831	9,645,493	21,988,742	3,868,251	8,480,822
100,000 to 200,000	30	114	45	175	4,132	17,497	9,924,361	40,370,194	4,201,544	16,166,335
200,000 to 500,000	12	100	21	195	3,490	29,661	8,454,398	73,038,295	3,360,005	29,910,463
500,000 to 1,000,000	1	21	3	71	638	14,132	.....	[1] 37,653,863	.....	[1] 15,207,023
1,000,000 and over	.....	20	.....	255	.....	47,811	.....	117,973,239	.....	51,648,850
WEST VIRGINIA	356	570	400	887	10,412	76,683	21,453,890	171,654,444	8,258,178	69,358,937
Less than 25,000	239	127	274	132	3,233	2,898	5,331,271	4,174,121	2,090,912	1,666,731
25,000 to 50,000	63	110	76	121	2,555	5,044	5,568,401	9,713,564	2,216,754	4,016,591
50,000 to 100,000	18	136	24	178	1,521	11,416	3,403,319	24,857,195	1,363,043	9,804,099
100,000 to 200,000	11	106	18	157	1,864	17,177	4,152,921	38,649,129	1,444,562	14,964,885
200,000 to 500,000	5	73	8	153	1,239	22,420	2,997,987	52,846,570	1,142,907	21,153,230
500,000 to 1,000,000	.....	14	.....	86	.....	9,633	.....	22,712,310	.....	9,242,626
1,000,000 and over	.....	4	.....	60	.....	8,095	.....	18,701,555	.....	8,510,775
OHIO	386	402	403	495	3,429	37,023	5,497,059	[1] 72,491,543	2,120,651	[1] 33,019,890
Less than 25,000	373	173	383	178	2,703	2,524	4,662,550	4,189,724	1,783,999	1,710,476
25,000 to 50,000	10	77	17	83	478	3,012	834,509	6,559,506	336,652	2,812,812
50,000 to 100,000	2	64	2	70	96	5,551	.....	[1] 11,389,567	.....	[1] 4,832,485
100,000 to 200,000	1	56	1	75	152	9,298	.....	[1] 17,707,988	.....	[1] 8,078,409
200,000 to 500,000	.....	23	.....	43	.....	6,642	.....	13,977,636	.....	6,414,028
500,000 to 1,000,000	.....	5	.....	20	.....	3,535	.....	7,669,686	.....	3,500,715
1,000,000 and over	.....	4	.....	26	.....	5,561	.....	10,997,436	.....	5,670,965
KENTUCKY, EASTERN	284	185	287	265	4,886	23,903	7,684,814	46,818,649	2,941,059	18,209,837
Less than 25,000	253	52	256	52	3,324	1,258	4,685,398	1,811,904	1,749,875	701,317
25,000 to 50,000	25	48	25	51	1,245	2,9.2	2,091,979	4,747,445	834,632	1,821,592
50,000 to 100,000	6	33	6	39	317	3,248	907,437	5,936,249	356,552	2,296,260
100,000 to 200,000	.....	34	.....	56	.....	5,588	.....	12,354,280	.....	4,073,379
200,000 to 500,000	.....	14	.....	44	.....	4,780	.....	10,984,626	.....	4,197,952
500,000 and over [2]	.....	4	.....	23	.....	6,057	.....	10,984,145	.....	4,519,337
VIRGINIA	68	40	71	47	1,703	9,512	2,460,601	[1] 21,302,839	930,721	[1] 8,404,065
Less than 25,000	54	5	57	6	597	170	847,353	233,078	321,294	82,641
25,000 to 50,000	8	5	8	6	489	475	706,120	547,691	262,514	191,778
50,000 to 100,000	5	8	5	11	518	714	907,128	1,499,326	346,913	543,695
100,000 to 200,000	1	6	1	6	99	988	.....	[1] 2,315,561	.....	[1] 892,056
200,000 to 500,000	.....	11	.....	12	.....	3,893	.....	8,390,242	.....	3,378,058
500,000 to 1,000,000	.....	5	.....	6	.....	3,272	.....	8,316,941	.....	3,515,837
TENNESSEE, NORTHEASTERN	54	38	64	53	1,870	5,376	2,107,310	[1] 9,203,425	753,036	[1] 3,374,143
Less than 25,000	45	10	47	10	748	302	904,114	412,504	329,989	151,417
25,000 to 50,000	4	9	8	11	385	703	404,742	966,193	148,853	328,203
50,000 to 100,000	4	8	8	9	449	913	798,454	1,483,589	274,194	612,839
100,000 to 200,000	1	5	1	8	288	1,370	.....	[1] 2,385,502	.....	[1] 860,613
200,000 to 500,000	.....	6	.....	15	.....	2,028	.....	3,928,637	.....	1,420,888
MARYLAND	47	11	62	30	2,340	2,486	3,890,174	4,305,493	1,476,465	1,520,871
Less than 25,000	27	3	30	4	383	138	509,399	98,217	183,425	40,551
25,000 to 50,000	10	2	14	2	602	117	915,242	169,260	347,189	59,370
50,000 to 100,000	7	2	11	5	799	261	1,396,266	476,560	531,660	170,103
100,000 and over [3]	3	4	7	19	556	1,970	1,069,267	3,561,456	414,191	1,250,837
SOUTHERN APPALACHIAN REGION	154	51	198	90	13,688	13,486	23,572,799	24,722,243	7,849,013	8,627,737
Less than 25,000	82	11	87	11	1,435	437	2,162,995	514,771	757,340	155,583
25,000 to 50,000	31	11	36	12	2,068	711	3,415,999	1,346,284	1,116,979	410,312
50,000 to 100,000	13	11	24	13	1,786	1,284	2,777,240	2,305,935	905,919	752,865
100,000 to 200,000	20	5	36	5	5,167	966	9,437,424	2,114,819	2,952,600	607,168
200,000 to 500,000	8	8	15	17	3,232	4,516	5,779,141	8,503,899	2,116,175	2,813,649
500,000 and over [2]	.....	5	.....	32	.....	5,572	.....	9,906,535	.....	3,888,160
ALABAMA	130	49	172	88	11,321	13,327	20,920,103	24,439,338	6,891,224	8,520,212
Less than 25,000	75	10	80	10	1,245	407	1,959,654	518,601	691,629	146,995
25,000 to 50,000	28	11	33	12	1,848	711	3,168,479	1,346,284	1,021,981	410,312
50,000 to 100,000	11	10	15	12	1,339	1,155	2,297,588	2,049,200	757,335	653,928
100,000 to 200,000	10	5	33	5	4,668	966	8,846,885	2,114,819	2,754,723	607,168
200,000 to 500,000	6	8	11	17	2,221	4,516	4,647,496	8,503,899	1,665,556	2,813,649
500,000 and over [2]	.....	5	.....	32	.....	5,572	.....	9,906,535	.....	3,888,160

[1] Includes quantity and value of products for those enterprises operating without mining machines which are not shown separately in order to avoid disclosure of individual operations.
[2] Includes the group "1,000,000 and over."
[3] Includes the group "500,000 to 1,000,000."

TABLE 22.—SIZE, BY QUANTITY OF PRODUCT, OF BITUMINOUS COAL ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD, BY REGIONS AND SELECTED STATES: 1919—Continued.

Region, state, and quantity of product per enterprise (tons, 2,000 pounds).	Number of enterprises.		Number of mines.		Wage earners (average number).		Value of products.		Coal produced (tons, 2,000 pounds).	
	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.	Without mining machines.	Using mining machines.
EASTERN INTERIOR REGION	568	340	580	426	20,902	79,337	47,747,072	[1] 154,411,936	20,857,286	[1] 68,253,277
Less than 25,000	383	46	387	46	3,562	707	5,704,187	1,191,919	2,321,673	499,403
25,000 to 50,000	59	35	60	37	3,313	2,131	4,930,637	3,016,630	2,100,600	1,284,951
50,000 to 100,000	49	77	50	82	5,315	7,740	8,172,792	12,897,755	3,569,205	5,685,082
100,000 to 200,000	57	72	59	84	10,822	13,878	17,889,801	23,914,724	7,634,852	10,678,925
200,000 to 500,000	19	86	20	109	5,916	36,433	11,050,552	60,045,143	5,161,893	26,486,854
500,000 to 1,000,000	1	15	4	28	944	9,494	.....	[1] 23,152,001	.....	[1] 10,253,434
1,000,000 and over	.....	9	.....	40	.....	11,811	.....	30,220,701	.....	13,366,728
ILLINOIS	282	105	291	208	21,050	52,730	33,477,811	[1] 105,200,021	14,377,945	[1] 45,952,765
Less than 25,000	104	17	106	17	1,600	332	2,701,942	479,107	1,191,366	190,402
25,000 to 50,000	35	10	36	19	2,035	601	3,055,711	859,573	1,200,921	353,877
50,000 to 100,000	30	27	30	28	3,573	2,877	5,441,256	4,519,930	2,317,021	1,991,752
100,000 to 200,000	34	29	36	34	7,271	5,962	11,028,319	9,801,779	4,713,570	4,285,132
200,000 to 500,000	18	62	19	71	5,624	22,649	10,560,510	44,208,210	4,915,031	19,257,891
500,000 to 1,000,000	1	13	4	21	944	8,216	.....	[1] 20,200,252	.....	[1] 8,920,959
1,000,000 and over	.....	7	.....	27	.....	12,090	.....	24,074,101	.....	10,940,692
INDIANA	175	120	170	141	7,100	17,379	11,181,010	[1] 34,308,681	5,050,629	[1] 15,451,162
Less than 25,000	119	23	119	23	1,091	311	1,678,678	517,181	663,607	215,565
25,000 to 50,000	18	16	18	18	949	921	1,439,017	1,408,351	659,810	603,020
50,000 to 100,000	16	33	17	35	1,455	3,106	2,300,763	5,320,381	1,018,051	2,412,110
100,000 to 200,000	21	27	21	31	3,280	4,618	5,765,582	8,819,401	2,678,261	4,017,626
200,000 to 500,000	1	18	1	22	322	5,009	.....	[1] 12,441,765	.....	[1] 5,593,619
500,000 and over [2]	.....	3	.....	12	.....	2,751	.....	5,891,001	.....	2,612,213
KENTUCKY, WESTERN	111	55	113	77	1,752	9,228	2,100,236	[1] 15,820,141	968,962	[1] 7,306,160
Less than 25,000	100	6	102	6	898	151	1,233,577	198,658	556,730	93,436
25,000 to 50,000	6	9	6	9	329	503	435,880	751,703	209,869	325,016
50,000 to 100,000	3	17	3	19	287	1,757	430,773	2,057,148	202,303	1,279,120
100,000 to 200,000	2	16	2	19	208	3,298	.....	[1] 5,600,417	.....	[1] 2,589,082
200,000 and over [2]	.....	7	.....	24	.....	3,410	.....	6,221,025	.....	3,010,477
WESTERN INTERIOR REGION	370	105	419	138	17,041	8,312	29,425,247	15,304,491	9,013,459	4,848,882
Less than 25,000	274	55	276	56	3,212	1,302	4,614,429	1,903,091	1,372,183	570,535
25,000 to 50,000	37	24	40	26	2,548	1,178	4,078,170	2,587,351	1,320,980	835,687
50,000 to 100,000	38	15	49	20	4,922	1,586	7,099,935	3,454,849	2,670,300	1,065,831
100,000 to 200,000	14	7	26	23	2,952	1,757	5,284,624	3,056,509	1,761,991	962,321
200,000 and over [3]	7	4	28	13	3,007	2,489	7,448,089	4,211,791	2,481,955	1,414,508
IOWA	144	23	160	35	6,030	3,954	10,448,388	6,454,970	3,340,940	2,133,309
Less than 25,000	103	11	104	11	1,168	372	1,772,867	560,593	496,191	163,126
25,000 to 50,000	18	2	20	3	1,381	218	2,131,588	246,258	680,481	70,446
50,000 to 100,000	16	3	25	3	2,315	479	3,436,682	778,942	1,113,117	238,757
100,000 and over [4]	7	7	11	18	1,766	2,885	3,107,251	4,869,177	1,051,151	1,660,980
KANSAS	99	30	126	40	7,009	1,075	13,315,862	2,432,673	4,410,891	793,497
Less than 25,000	61	18	62	19	653	315	917,927	470,895	309,069	142,248
25,000 to 50,000	13	8	14	8	814	220	1,363,710	801,034	447,768	285,993
50,000 to 200,000 [5]	21	4	29	13	2,650	540	5,375,118	1,160,744	1,814,699	365,256
200,000 and over [3]	4	.....	21	.....	2,892	.....	5,659,107	.....	1,839,355	.....
MISSOURI	127	52	133	63	4,002	3,283	5,660,997	6,416,848	1,861,038	1,922,076
Less than 25,000	110	26	110	26	1,391	615	1,923,635	662,503	596,923	205,161
25,000 to 50,000	6	14	6	15	453	740	582,872	1,540,050	192,731	479,248
50,000 to 100,000	7	9	7	11	1,030	768	1,302,775	1,989,570	400,262	623,024
100,000 and over [4]	4	3	10	11	1,128	1,160	1,791,715	1,624,716	611,722	555,643
SOUTHERN INTERIOR REGION	169	43	204	60	8,530	4,008	15,047,942	9,043,749	4,136,648	2,374,879
Less than 25,000	114	17	117	18	1,974	440	3,179,142	765,781	914,840	198,143
25,000 to 50,000	31	7	37	9	1,926	406	3,166,804	911,152	1,047,994	264,651
50,000 to 100,000	16	11	31	15	1,907	1,437	3,710,632	2,973,405	1,091,339	765,893
100,000 and over [4]	8	8	19	18	2,723	1,685	4,991,364	4,393,411	1,352,475	1,148,282
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	278	168	295	210	10,828	23,797	22,747,566	[1] 68,214,514	7,732,275	[1] 24,438,831
Less than 25,000	218	41	219	41	1,723	673	3,383,643	1,130,406	1,173,207	389,171
25,000 to 50,000	19	33	19	33	976	1,628	2,187,861	3,508,034	682,155	1,157,493
50,000 to 100,000	14	20	16	27	1,321	1,983	3,142,974	5,140,514	990,202	1,883,389
100,000 to 200,000	17	33	19	39	3,360	5,305	7,009,821	14,043,184	2,572,476	4,915,490
200,000 to 500,000	9	27	16	37	2,432	7,855	6,423,267	22,032,354	2,314,145	7,859,268
500,000 to 1,000,000	1	5	6	18	1,016	3,411	.....	[1] 11,729,941	.....	[1] 4,367,404
1,000,000 and over	.....	3	.....	15	.....	2,942	.....	10,829,481	.....	3,866,610
COLORADO	78	83	78	86	3,733	7,519	7,008,255	[1] 21,243,940	2,540,481	[1] 7,642,031
Less than 25,000	53	17	53	17	558	384	908,193	309,924	342,086	213,069
25,000 to 50,000	8	23	8	23	386	1,089	638,766	2,187,629	304,071	810,230
50,000 to 100,000	6	16	6	16	455	1,109	1,129,641	3,007,392	442,010	1,094,869
100,000 to 200,000	9	19	9	19	1,868	2,652	4,001,655	7,586,037	1,451,405	2,672,302
200,000 to 500,000	2	8	2	11	466	2,305	.....	[1] 7,702,058	.....	[1] 2,850,061

[1] Includes quantity and value of products for those enterprises operating without mining machines which are not shown separately in order to avoid disclosure of individual operations.

[2] Includes the group "1,000,000 and over."

[3] Includes the group "500,000 to 1,000,000."

[4] Includes the group "200,000 to 500,000."

[5] Includes the group "100,000 to 200,000."

Size of enterprises according to average number of wage earners employed.—Table 23 presents for the United States as a whole, for Pennsylvania anthracite enterprises, and for bituminous coal-mining enterprises for selected states, a classification of producing enterprises according to the average number of wage earners per enterprise, and gives the distribution of enterprises and wage earners for each class. The table shows that a large number of small enterprises as measured by the average number of wage earners employed is characteristic of the coal-mining industry.

Fifty-three per cent of the anthracite enterprises were in the class of small enterprises employing no wage earners or having fewer than 101 each; nearly three-fourths of those small enterprises, or about 39 per cent of the total number of anthracite enterprises, were dredge or culm washery operations of which there were none in the larger classes of enterprises. On the other hand 47 per cent of the total number of anthracite enterprises, including three-fourths of all the coal mines and collieries proper, were in classes employing more than 100 wage earners. These larger classes of enterprises employed 98.5 per cent of the total number of wage earners engaged in anthracite mining.

TABLE 23.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED STATES: 1919.

STATE.	TOTAL.		ENTERPRISES EMPLOYING—														
	Number of enterprises.	Wage earners (average number.)	No wage earners.	1 to 5 wage earners.		6 to 20 wage earners.		21 to 50 wage earners.		51 to 100 wage earners.		101 to 500 wage earners.		501 to 1,000 wage earners.		Over 1,000 wage earner.	
			Enterprises.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
UNITED STATES	6,890	693,170	64	1,574	4,476	1,588	18,543	1,258	41,638	901	65,336	1,304	277,528	134	90,541	67	195,108
Per cent distribution	100.0	100.0	0.9	22.8	0.6	23.0	2.7	18.3	6.0	13.1	9.4	18.9	40.0	1.9	13.1	1.0	28.1
Anthracite (Pennsylvania)	251	147,372	2	52	130	39	499	20	629	13	931	63	18,240	33	21,804	22	105,110
Per cent distribution	100.0	100.0	0.8	24.1	0.1	15.4	0.3	7.9	0.4	5.1	0.7	24.8	12.4	13.0	14.8	8.7	71.3
Bituminous coal	6,636	545,798	62	1,512	4,337	1,549	18,074	1,238	41,009	888	64,355	1,241	259,288	101	68,737	45	89,998
Per cent distribution	100.0	100.0	0.9	22.8	0.8	23.3	3.3	18.7	7.5	13.4	11.8	18.7	47.5	1.5	12.6	0.7	16.5
Pennsylvania	1,038	151,992	11	551	1,557	489	5,702	303	11,764	216	15,792	263	55,281	26	17,742	19	47,154
Per cent distribution	100.0	100.0	0.6	28.6	1.0	25.1	3.7	18.7	7.6	11.1	10.2	13.6	35.7	1.3	11.4	1.0	30.4
West Virginia	926	87,095	.....	85	263	192	2,373	231	7,001	170	11,770	230	46,884	13	8,915	5	9,239
Per cent distribution	100.0	100.0	.....	9.2	0.3	20.7	2.7	24.9	8.7	18.4	13.5	24.8	53.8	1.4	10.2	0.5	10.7
Illinois	447	73,780	3	77	220	73	830	46	1,570	46	3,402	178	44,018	18	11,867	6	11,855
Per cent distribution	100.0	100.0	0.7	17.2	0.3	16.3	1.1	10.3	2.1	10.3	4.6	39.8	59.7	4.0	16.1	1.3	16.1
Ohio	788	40,452	27	253	725	198	2,253	129	4,390	76	5,755	95	17,680	7	4,936	3	4,678
Per cent distribution	100.0	100.0	3.4	32.1	1.8	25.1	5.6	16.4	10.9	9.6	14.2	12.1	43.7	0.9	12.3	0.4	11.6
Kentucky	635	39,709	1	138	390	180	2,074	122	4,024	97	6,969	89	16,976	5	3,368	3	5,968
Per cent distribution	100.0	100.0	0.2	21.7	1.0	28.3	5.2	19.2	10.1	15.3	17.5	14.0	42.7	0.8	8.5	0.5	15.0
Alabama	188	24,648	.....	18	63	36	473	42	1,407	33	2,383	50	11,978	5	3,516	4	4,828
Per cent distribution	100.0	100.0	.....	9.6	0.3	19.1	1.9	22.3	5.7	17.6	9.7	26.6	48.6	2.7	14.3	2.1	19.6
Indiana	205	24,479	7	66	212	49	576	42	1,459	47	3,576	80	15,367	3	1,816	1	1,473
Per cent distribution	100.0	100.0	2.4	22.4	0.9	16.6	2.4	14.2	6.0	15.9	14.6	27.1	62.8	1.0	7.4	0.3	6.0
Colorado	161	11,252	1	33	96	17	200	42	1,530	35	2,500	33	6,926	.....	.....	.....	.....
Per cent distribution	100.0	100.0	0.6	20.5	0.9	10.6	1.8	26.1	13.6	21.7	22.2	20.5	61.6	.....	.....	.....	.....
Virginia	108	11,215	.....	19	64	28	318	14	450	19	1,410	22	5,132	6	3,841	.....	.....
Per cent distribution	100.0	100.0	.....	17.6	0.6	25.9	2.8	13.0	4.0	17.6	12.6	20.4	45.8	5.6	34.2	.....	.....
Iowa	167	10,584	2	52	157	30	430	18	530	23	1,658	34	6,302	2	1,498	.....	.....
Per cent distribution	100.0	100.0	1.2	31.1	1.5	21.6	4.1	10.8	5.1	13.8	15.7	20.4	59.5	1.2	14.2	.....	.....
Tennessee	107	9,556	.....	12	33	28	350	22	778	14	993	29	6,165	2	1,237	.....	.....
Per cent distribution	100.0	100.0	.....	11.2	0.3	26.2	3.7	20.6	8.1	13.1	10.4	27.1	64.5	1.9	12.9	.....	.....
Kansas	120	8,084	1	19	68	43	479	28	938	14	1,089	18	3,039	2	1,317	1	1,154
Per cent distribution	100.0	100.0	0.8	14.7	0.8	35.7	5.9	21.7	11.6	10.9	13.5	14.0	37.6	1.5	16.3	0.8	14.3
Missouri	170	7,285	1	44	145	56	624	40	1,258	21	1,447	16	3,135	1	676	.....	.....
Per cent distribution	100.0	100.0	0.6	24.6	2.0	31.8	8.6	22.3	17.3	11.7	19.9	8.9	43.0	0.6	9.3	.....	.....
Wyoming	46	7,001	.....	9	22	6	72	3	111	5	372	21	5,227	2	1,287	.....	.....
Per cent distribution	100.0	100.0	.....	19.6	0.3	13.0	1.0	6.5	1.6	10.9	5.2	45.7	73.7	4.3	18.1	.....	.....
Oklahoma	94	7,010	1	10	24	14	152	27	916	17	1,222	24	4,175	1	551	.....	.....
Per cent distribution	100.0	100.0	1.1	10.6	0.3	14.9	2.2	28.7	13.0	18.1	17.4	25.5	59.3	1.1	7.8	.....	.....
Maryland	58	4,826	.....	5	12	13	198	12	418	12	870	12	1,915	.....	.....	1	1,413
Per cent distribution	100.0	100.0	.....	8.6	0.2	27.6	4.1	20.7	8.7	20.7	18.0	20.7	39.7	.....	.....	1.7	29.3
Washington	35	4,413	.....	2	7	3	38	10	301	8	638	11	2,413	.....	.....	1	1,016
Per cent distribution	100.0	100.0	.....	5.7	0.2	8.6	0.9	28.6	6.8	22.9	14.5	31.4	54.7	.....	.....	2.9	23.0
Montana	67	3,797	1	27	54	18	173	6	190	5	348	8	1,715	2	1,317	.....	.....
Per cent distribution	100.0	100.0	1.5	40.3	1.4	26.9	4.6	9.0	5.0	7.5	9.2	11.9	45.2	3.0	34.7	.....	.....
Utah	27	3,647	.....	9	19	2	13	3	91	3	192	8	1,330	1	832	1	1,170
Per cent distribution	100.0	100.0	.....	33.3	0.5	7.4	0.4	11.1	2.5	11.1	5.3	29.6	36.5	3.7	22.8	3.7	32.1
New Mexico	21	3,504	1	4	6	5	66	2	48	4	302	2	656	3	2,486	.....	.....
Per cent distribution	100.0	100.0	4.8	19.0	0.2	23.8	1.9	9.5	1.3	19.0	8.5	9.5	18.4	14.3	69.8	.....	.....
Arkansas	85	2,787	.....	18	42	28	311	22	758	13	897	4	779	.....	.....	.....	.....
Per cent distribution	100.0	100.0	.....	21.2	1.5	32.9	11.2	25.9	27.2	15.3	32.2	4.7	28.0	.....	.....	.....	.....
Texas	33	2,711	.....	2	10	9	114	8	274	7	497	6	972	1	844	.....	.....
Per cent distribution	100.0	100.0	.....	6.1	0.4	27.3	4.2	24.2	10.1	21.2	18.3	18.2	35.9	3.0	31.1	.....	.....
Michigan	11	1,654	.....	.....	.....	2	21	.....	.....	2	188	6	784	1	661	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	18.2	1.3	.....	.....	18.2	11.4	54.5	47.4	9.1	40.0	.....	.....

In bituminous-coal mining for the United States as a whole nearly two-thirds of all enterprises employing wage earners had fewer than 51, and nearly four-fifths had fewer than 101. In each of the states shown, except Michigan and Wyoming, the small enterprises, that is, all those employing no wage earners or employing fewer than 101, were more than half the total number of enterprises. For the United States as a whole the smaller bituminous coal-mining enterprises employing fewer than 101 wage earners, reported only 23.4 per cent of the total average number. In contrast to this a relatively small number of large enterprises (21 per cent) employed 76.6 per cent of the total average number of wage earners. Most of the very large enterprises were in Pennsylvania, West Virginia, and Illinois.

Size of enterprises according to acreage of coal land operated.—Table 24 presents for producing anthracite enterprises, including only those operating mines, a classification according to the number of acres of coal land operated. The table gives the number of enterprises, mines, and acres of land operated for each class. The tendency in the anthracite field is toward large holdings. On the other hand, Table 25, which presents similar statistics for bituminous coal-mining enterprises by mining regions and states, shows that a very large proportion of enterprises operate only a small acreage of coal land. There are, however, a considerable number of enterprises in most states which reported very large holdings of coal land. In explanation of the figures in Table 25 it should be noted that most of the enterprises reported, for acreage operated, as was requested, only acreage properly pertaining to their operations during the census year, whereas some enterprises which reported very large acreage have included figures for reserve acreage not properly pertaining to 1919 operations.

TABLE 24.—SIZE OF ANTHRACITE PRODUCING ENTERPRISES BY NUMBER OF ACRES OF COAL LAND OPERATED: 1919.

ACRES PER ENTERPRISE.	ENTERPRISES.		MINES.	COAL LAND OPERATED.	
	Number.	Per cent distribution.	Number.	Acres.	Per cent distribution.
All classes	[1] 155	100.0	374	261,355	100.0
1 to 50	19	12.2	19	417	0.2
50 to 100	10	6.5	10	738	0.3
100 to 200	11	7.1	11	1,845	0.7
200 to 500	35	22.6	36	12,368	4.7
500 to 1,000	34	21.9	46	23,082	8.8
1,000 and over	46	29.7	252	222,905	85.3

[1] Exclusive of 99 enterprises operating only breakers, culm washeries, or dredges and having no coal lands.

TABLE 25.—SIZE OF BITUMINOUS COAL PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF COAL LAND OPERATED: 1919.

REGION AND STATE.	TOTAL.			ENTERPRISES OPERATING— 1 to 50 acres.					50 to 100 acres.					100 to 200 acres.				
	Enterprises	Mines	Coal land operated.	Enterprises.		Mines	Coal land operated.		Enterprises.		Mines	Coal land operated.		Enterprises.		Mines	Coal land operated.	
	Number.	Number.	Acres.	Number.	Per cent of total.	Number.	Acres.	Per cent of total.	Number.	Per cent of total.	Number.	Acres.	Per cent of total.	Number.	Per cent of total.	Number.	Acres.	Per cent of total.
UNITED STATES	6,636	8,282	8,261,372	1,057	29.5	2,042	40,237	0.5	715	10.8	741	54,882	0.7	803	12.1	842	122,105	1.5
NORTHERN AND MIDDLE APPALACHIAN REGIONS	4,379	5,048	4,859,020	1,388	31.7	1,467	25,872	0.5	475	10.8	497	35,947	0.7	505	11.5	541	75,082	1.6
Kentucky, eastern	499	552	529,814	100	21.3	101	2,499	0.5	55	11.7	55	4,507	0.9	56	11.9	58	8,588	1.6
Maryland	58	92	53,442	12	20.7	18	269	0.5	4	6.9	4	325	0.6	4	6.9	5	566	1.1
Ohio	788	898	442,887	276	35.0	278	5,249	1.2	104	13.2	107	7,227	1.6	125	15.9	130	18,078	4.1
Pennsylvania	1,938	2,584	1,491,919	822	42.4	886	14,235	1.0	228	11.8	245	17,390	1.2	220	11.4	239	33,408	2.2
Tennessee, northeastern	92	117	108,784	17	18.5	10	462	0.4	7	7.6	7	566	0.5	8	8.7	8	1,329	1.2
Virginia	108	118	397,976	21	19.4	21	444	0.1	7	6.5	7	619	0.2	9	8.3	9	1,362	0.3
West Virginia	926	1,287	1,834,207	140	15.1	144	2,723	0.1	70	7.6	72	5,313	0.3	83	9.0	92	12,551	0.7
SOUTHERN APPALACHIAN REGION	205	288	848,071	23	11.2	26	662	0.1	23	11.2	23	1,974	0.2	27	13.2	27	4,203	0.5
Alabama	188	260	653,793	23	12.2	26	662	0.1	23	12.2	23	1,974	0.3	26	13.8	26	4,043	0.6
Georgia, North Carolina, and Tennessee, southeastern	17	28	194,278	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	5.9	1	160	0.1
MICHIGAN REGION	11	14	9,160	.....	.....	.....	.....	.....	1	9.1	1	80	0.9	.....	.....	.....	.....	.....
EASTERN INTERIOR REGION	908	1,096	1,129,818	247	27.2	248	5,620	0.5	89	9.8	91	6,803	0.6	93	10.2	94	13,724	1.2
Illinois	447	499	752,316	108	24.2	109	2,510	0.3	33	7.4	33	2,480	0.3	52	11.6	53	7,617	1.0
Indiana	295	317	173,200	77	26.1	77	1,779	1.0	36	12.2	36	2,665	1.5	27	9.2	27	4,116	2.3
Kentucky, western	166	190	201,302	62	37.4	62	1,340	0.7	20	12.0	22	1,658	0.8	14	8.4	14	1,991	1.0
WESTERN INTERIOR REGION	475	557	201,235	153	32.2	153	3,838	1.9	81	17.1	82	6,366	3.2	66	13.9	67	10,288	5.1
Iowa	167	195	66,359	48	28.7	48	1,298	2.0	26	15.6	26	1,928	2.9	20	12.0	20	3,004	4.7
Kansas	129	166	73,559	51	39.5	51	1,015	1.4	17	13.2	18	1,357	1.8	16	12.4	16	2,733	3.7
Missouri	179	196	61,317	54	30.2	54	1,525	2.5	38	21.2	38	3,081	5.0	30	16.8	31	4,461	7.3
SOUTHERN INTERIOR REGION	212	264	179,481	52	24.5	53	1,220	0.7	20	9.4	21	1,675	0.9	28	13.2	29	4,573	2.5
Arkansas	85	91	24,421	36	42.4	37	837	3.4	12	14.1	12	920	3.8	11	12.9	11	1,750	7.2
Oklahoma	94	131	104,936	15	16.0	15	353	0.3	2	2.1	3	200	0.2	13	13.8	14	2,085	2.0
Texas	33	42	50,124	1	3.0	1	30	0.1	6	18.2	6	549	1.1	4	12.1	4	732	1.5
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	446	505	1,034,569	94	21.1	95	3,016	0.3	26	5.8	26	2,037	0.2	84	18.8	84	13,335	1.5
Colorado	151	164	127,881	26	16.1	26	780	0.6	6	3.7	6	475	0.4	27	16.8	27	4,331	3.4
Montana	67	76	73,967	27	40.3	28	992	1.3	3	4.5	3	255	0.3	9	13.4	9	1,452	2.0
New Mexico	21	34	641,125	3	14.3	3	120	(1)	3	14.3	3	220	(1)	6	28.6	6	1,003	0.2
North Dakota	79	79	17,734	25	31.6	25	802	4.5	9	11.4	9	587	3.9	23	29.1	23	3,546	20.0
South Dakota	5	5	880	3	60.0	3	120	13.6	.....	.....	.....	.....	.....	1	20.0	1	160	18.2
Utah	27	34	46,891	5	18.5	5	143	0.3	.....	.....	.....	.....	.....	4	14.8	4	697	1.5
Washington	35	43	65,940	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	17.1	6	806	1.3
Wyoming	46	65	57,502	4	8.7	4	54	0.1	5	10.9	5	400	0.7	8	17.4	8	1,280	2.2
California, Idaho, and Oregon	5	5	2,589	1	20.0	1	5	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[1] Less than one-tenth of 1 per cent.

TABLE 25.—SIZE OF BITUMINOUS COAL PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF COAL LAND OPERATED: 1919—Continued.

Region and state.	Enterprises operating—continued.														
	200 to 500 acres.					500 to 1,000 acres.					1,000 acres and over.				
	Enterprises.		Mines.	Coal land operated.		Enterprises.		Mines.	Coal land operated.		Enterprises.		Mines.	Coal land operated.	
	Number.	Per cent of total.	Number.	Acres.	Per cent of total.	Number.	Per cent of total.	Number.	Acres.	Per cent of total.	Number.	Per cent of total.	Number.	Acres.	Per cent of total.
UNITED STATES	1,013	15.3	1,124	343,455	4.2	848	12.8	1,022	616,013	7.4	1,309	19.6	2,511	7,084,080	85.8
NORTHERN AND MIDDLE APPALACHIAN REGIONS	649	14.8	737	219,242	4.5	528	12.1	646	386,500	8.0	834	19.0	1,760	4,115,486	84.7
Kentucky, eastern	91	19.4	92	30,382	5.7	65	13.9	66	48,090	9.1	102	21.7	180	435,748	82.2
Maryland	10	17.2	11	3,050	5.7	10	17.2	14	7,395	13.8	18	31.0	40	41,856	78.3
Ohio	100	12.7	100	33,616	7.6	93	11.8	113	58,794	13.3	90	11.4	164	319,923	72.2
Pennsylvania	274	14.1	334	92,127	6.2	160	8.3	215	120,324	8.1	234	12.1	665	1,214,435	81.4
Tennessee, northeastern	16	17.4	16	6,036	5.6	12	13.0	18	10,176	9.4	32	34.8	49	90,185	82.9
Virginia	18	16.7	19	5,705	1.4	11	10.2	11	7,904	2.0	42	38.9	51	381,942	96.0
West Virginia	140	15.1	159	48,296	2.6	177	19.1	209	133,827	7.3	316	34.1	611	1,631,397	88.9
SOUTHERN APPALACHIAN REGION	24	11.7	30	8,454	1.0	28	13.7	43	19,770	2.3	80	39.0	139	813,008	95.9
Alabama	24	12.8	30	8,454	1.3	23	12.2	31	16,006	2.4	69	36.7	124	622,654	95.2
Georgia, North Carolina, and Tennessee, southeastern	.....	.....	.....	.....	.....	5	20.4	12	3,764	1.9	11	64.7	15	190,354	98.0
MICHIGAN REGION	3	27.3	3	1,140	12.4	6	54.5	9	2,278	24.8	1	9.1	1	5,671	61.8
EASTERN INTERIOR REGION	128	14.1	131	44,426	3.9	136	15.0	151	97,386	8.6	215	23.7	231	961,850	85.1
Illinois	57	12.8	58	19,732	2.6	66	14.8	77	48,344	6.4	131	29.3	169	671,633	89.3
Indiana	56	19.0	58	19,380	11.0	53	18.0	56	37,476	21.3	46	15.6	63	110,784	62.9
Kentucky, western	15	9.0	15	5,314	2.6	17	10.2	18	11,566	5.7	38	22.9	59	179,433	89.1
WESTERN INTERIOR REGION	98	20.6	111	32,805	16.3	43	9.1	51	30,279	15.0	34	7.2	93	117,059	58.5
Iowa	45	20.9	54	14,739	22.2	14	8.4	15	10,016	15.1	14	8.4	32	35,284	53.2
Kansas	24	18.6	28	8,259	11.2	12	9.3	16	7,546	10.3	9	7.0	37	52,649	71.6
Missouri	29	16.2	29	9,807	16.0	17	9.5	20	12,717	20.7	11	6.1	24	29,726	48.5
SOUTHERN INTERIOR REGION	37	17.5	38	12,455	6.9	38	17.9	47	30,927	17.2	37	17.5	76	128,631	71.7
Arkansas	11	12.9	11	3,203	13.1	14	16.5	18	11,626	47.6	1	1.2	2	6,073	24.9
Oklahoma	20	21.3	21	7,177	6.8	18	19.1	21	14,796	14.1	26	27.7	57	80,325	76.5
Texas	6	18.2	6	2,075	4.1	6	18.2	8	4,505	9.0	10	30.3	17	42,233	84.3
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	74	16.6	74	24,933	2.4	69	15.5	75	48,873	4.7	99	22.2	151	942,375	91.1
Colorado	20	18.0	29	10,336	8.1	33	22.4	37	26,445	20.7	37	23.0	39	85,514	66.9
Montana	9	13.4	9	2,875	3.9	6	9.0	6	4,053	5.5	13	19.4	21	64,340	87.0
New Mexico	2	9.5	2	720	0.1	2	9.5	4	1,280	0.2	5	23.8	16	637,782	99.5
North Dakota	14	17.7	14	4,498	25.4	5	6.3	5	3,501	19.7	3	3.8	3	4,700	26.5
South Dakota	.....	.....	.....	.....	.....	1	20.0	1	600	68.2	.....	.....	.....	.....	.....
Utah	7	25.9	7	2,474	5.3	6	22.2	6	4,083	8.7	5	18.5	12	39,494	84.2
Washington	5	14.3	5	1,440	2.2	5	14.3	8	3,036	4.6	19	54.3	24	60,598	91.9
Wyoming	6	13.0	6	1,850	3.2	6	13.0	6	4,031	7.0	17	37.0	36	49,947	86.8
California, Idaho, and Oregon	2	40.0	2	740	28.6	2	40.0	2	1,844	71.2	.....	.....	.....	.....	.....

PERSONS ENGAGED.

Persons according to class and sex.—Table 26 shows the persons engaged in producing enterprises in the coal-mining industry by classes, gives the number of males and females (except among the wage earners) in each class, and the per cent each class is of the total number of persons engaged in the industry. The statistics are presented for the United States, and separately for anthracite enterprises classified according to the character of operation, and separately by regions for bituminous coal-mining enterprises classified according to the use of mining machines.

For the United States as a whole the salaried employees numbering 40,924 constituted only 5.5 per cent of the total number of persons. The females reported as salaried employees numbered 5,162 which was 12.6 per cent of the total number of salaried employees, and seven-tenths of 1 per cent of the total number of persons employed in the industry. They were mostly in the class "clerks and other subordinate employees" of which they constituted more than one-fourth. The average number of wage earners reported for the year was 693,170, or 93.9 per cent of the total number of persons. As shown by the figures for the representative day in the table of detailed statistics at the end of this report, females and persons under 16 years of age among the wage earners were negligible in number. The females reported were all employed in the bituminous coal-mining enterprises and the persons under 16 were chiefly (two-thirds) employed in anthracite enterprises. Proprietors and firm members constituted only six-tenths of 1 per cent of the total number of persons engaged in coal mining, and 1,864, or 42.4 per cent of these proprietors, performed manual labor in or about the mines. For the bituminous coal-mining enterprises there are no essential differences between the regions in the proportions of the various classes of persons to the total number. For the enterprises considered according to method of operation the differences in the proportion of the various classes of persons to the total number were slight in most cases. In the anthracite-dredging enterprises there were a relatively larger number of proprietors performing manual labor and consequently

a relatively lower ratio for wage earners. Among the bituminous coal-mining enterprises operating without mining machines the proprietors and firm members were more numerous than in other enterprises. As a rule, also, the wage earners in enterprises operating without mining machines are proportionately somewhat fewer than other enterprises.

TABLE 26.—PERSONS ENGAGED IN PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO MINING METHOD: 1919.

REGION AND MINING METHOD.	Total.	PROPRIETORS AND FIRM MEMBERS.			SALARIED OFFICERS.			SUPERINTENDENTS AND MANAGERS.			TECHNICAL EMPLOYEES.			CLERKS AND OTHER SUBORDINATE EMPLOYEES.			WAGE EARNERS.		Proprietors performing manual labor
		Male	Female	Per cent of total	Male	Female	Per cent of total	Male	Female	Per cent of total	Male	Female	Per cent of total	Male	Female	Per cent of total	Average number.	Per cent of total	
UNITED STATES	738,490	4,202	194	0.6	5,963	140	0.8	12,544	27	1.7	3,397	56	0.5	13,858	4,030	2.5	693,170	93.9	1,864
ANTHRACITE (PENNSYLVANIA)	154,882	149	10	0.1	230	3	0.2	2,819	2	1.8	993	4	0.6	2,773	617	2.2	147,372	95.2	34
Enterprises operating—																			
Mines	2,948	1	.....	(1)	7	.....	0.2	77	.....	2.6	26	.....	0.9	50	4	1.8	2,783	94.4	1
Breakers, mines, and washeries	150,023	36	9	(1)	203	2	0.1	2,689	2	1.8	875	4	0.6	2,701	603	2.2	143,799	95.3	0
Culm washeries	496	.....	.....	.....	12	1	2.6	28	.....	5.6	2	.....	0.4	13	6	3.8	434	87.5	.....
River dredges	515	112	1	21.9	8	.....	1.6	25	.....	4.9	.....	.....	.....	9	4	2.5	356	69.1	24
BITUMINOUS COAL	583,608	4,053	184	0.7	5,733	137	1.0	9,725	25	1.7	2,494	52	0.4	11,085	4,322	2.6	545,798	93.5	1,830
Enterprises without mining machines	140,077	3,509	144	2.5	2,210	58	1.6	3,202	8	2.2	485	1	0.3	2,352	889	2.2	133,228	91.2	1,647
Enterprises using mining machines	437,531	544	40	0.1	3,523	79	0.8	6,523	17	1.5	2,009	51	0.5	8,733	3,442	2.8	412,570	94.3	183
Northern and Middle Appalachian Regions	358,785	2,747	143	0.8	3,769	70	1.1	6,142	12	1.7	1,728	23	0.5	7,203	2,333	2.7	334,615	93.3	1,097
Enterprises without mining machines	59,751	2,305	109	4.0	1,243	25	2.1	1,740	1	2.9	242	1	0.4	1,012	446	2.4	52,627	88.1	878
Enterprises using mining machines	299,034	442	34	0.2	2,526	45	0.9	4,402	11	1.5	1,486	22	0.5	6,191	1,887	2.7	281,988	94.3	139
Southern Appalachian Region	28,890	34	2	0.1	234	8	0.8	383	1	1.3	173	16	0.7	627	148	2.7	27,174	94.4	4
Enterprises without mining machines	14,441	34	2	0.2	162	5	1.2	189	1	1.3	48	.....	0.3	261	51	2.2	13,688	94.8	4
Enterprises using mining machines	14,359	.....	.....	.....	72	3	0.5	194	.....	1.4	125	16	1.0	366	97	3.2	13,486	93.9	.....
Michigan Region	1,744	.....	.....	.....	13	.....	0.7	32	.....	1.8	8	.....	0.5	27	10	2.1	1,654	94.8	.....
Enterprises without mining machines	17	.....	.....	.....	2	.....	11.8	2	.....	11.8	.....	.....	.....	1	.....	5.9	12	70.6	.....
Enterprises using mining machines	1,727	.....	.....	.....	11	.....	0.6	30	.....	1.7	8	.....	0.5	26	10	2.1	1,642	95.1	.....
Eastern Interior Region	115,415	461	18	0.4	979	32	0.9	1,948	6	1.7	343	.....	0.3	1,832	557	2.1	109,239	94.6	289
Enterprises without mining machines	32,118	435	14	1.4	434	14	1.4	597	1	1.9	109	.....	0.3	405	147	1.9	29,902	93.1	270
Enterprises using mining machines	83,297	26	4	(1)	545	18	0.7	1,351	5	1.6	234	.....	0.3	1,367	410	2.1	79,337	95.2	10
Western Interior Region	27,713	436	10	1.6	209	9	1.1	415	6	1.5	44	.....	0.2	377	164	2.0	25,953	93.6	299
Enterprises without mining machines	18,924	395	9	2.1	173	7	1.0	281	5	1.5	32	.....	0.2	266	121	2.0	17,641	93.2	284
Enterprises using mining machines	8,789	41	1	0.5	126	2	1.5	134	1	1.5	12	.....	0.1	117	43	1.8	8,312	94.6	15
Southern Interior Region	14,253	114	1	0.8	160	6	1.2	301	.....	2.1	20	1	0.2	246	857	7.7	12,538	88.0	86
Enterprises without mining machines	9,204	111	1	1.2	112	6	1.3	220	.....	2.4	18	.....	0.2	169	37	2.2	8,530	92.7	85
Enterprises using mining machines	5,049	3	.....	0.1	48	.....	1.0	81	.....	1.6	11	1	0.2	77	820	17.8	4,008	79.4	1
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	36,898	261	10	0.7	270	12	0.8	504	.....	1.4	169	12	0.5	773	253	2.8	34,625	93.8	135
Enterprises without mining machines	11,022	229	9	2.0	84	1	0.7	173	.....	1.5	36	.....	0.3	181	78	2.3	10,828	93.2	117
Enterprises using mining machines	25,876	32	1	0.1	195	11	0.8	331	.....	1.3	133	12	0.6	589	175	3.0	23,797	94.1	18

[1] Less than one-tenth of 1 per cent.

Wage earners, by occupations.—Table 27 presents the total number of wage earners, classified according to occupations, employed on December 15 [1] or the nearest representative day. The table also gives the percentage distribution by classes and the number in each class employed above and below ground. The statistics are given for each type of anthracite operation in Pennsylvania and separately for bituminous coal-mining enterprises with and without mining machinery, by regions. The table distinguishes between the number engaged in the more peculiarly mining occupations, such as miners, cutters, timbermen, trackmen, trammers, and their helpers; men in other skilled trades, such as enginemen, hoistmen, electricians, firemen, machinists, carpenters, and other mechanics; and less skilled and unclassified laborers.

For the anthracite enterprises as a whole, 21,715 wage earners were reported employed in breakers, culm washeries, and dredges. These employees, representing 14.3 per cent of the total number, were not engaged in mining operations proper. Approximately 70 per cent of all the wage earners in the anthracite enterprises were reported as employed below ground; but considering only wage earners in mining proper—that is, not including those employed in washeries, breakers, and dredges—the proportion employed below ground was approximately 80 per cent. For all classes of bituminous mining enterprises in the United States as a whole, only four-tenths of 1 per cent of the wage earners were employed in washeries and not in mining operations proper. The proportion of all wage earners employed below ground was 82.4 per cent of the total number of wage earners, but for the individual states and different classes of enterprises the proportion varies, being less as a rule for mines using mining machines and more for mines operating without mining machines. The proportion was generally highest in the Eastern Interior Region, where the mines are mostly shaft mines, and lowest in the Southern Appalachian Region and the Northern Great Plains and Rocky Mountain Regions. The largest class of wage earners reported were the miners, cutters, and others, including their helpers, and next largest class were the laborers and other unclassified wage earners.

TABLE 27.—WAGE EARNERS BY OCCUPATIONS, IN PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO MINING METHOD: 1919.

REGION AND MINING METHOD.	NUMBER OF WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.[1]									
	All classes.					Foremen, shift bosses, etc.			Enginemen, hoistmen, electricians, mechanics, etc.		
	Total.	Above ground.		Below ground.		Number.		Per cent of total.	Number.		Per cent of total.
		Number.	Per cent of total.	Number.	Per cent of total.	Above ground.	Below ground.		Above ground.	Below ground.	
UNITED STATES	709,646	155,364	20.2	614,282	79.8	5,082	12,020	2.2	43,123	26,775	9.1
ANTHRACITE (PENNSYLVANIA)	152,243	46,618	30.6	105,625	69.4	435	1,098	1.0	10,488	4,331	9.7
Enterprises operating—											
Mines only	3,053	644	21.1	2,409	78.9	7	14	0.7	228	110	11.1
Breakers, mines, and washeries	147,972	44,750	30.2	103,216	69.8	388	1,084	1.0	10,050	4,221	9.6
Culm washeries	733	733	100.0	.....	.....	33	.....	4.5	94	.....	12.8
River dredges	485	485	100.0	.....	.....	7	.....	1.4	116	.....	23.9
BITUMINOUS COAL	617,403	108,746	17.6	508,657	82.4	4,647	10,922	2.5	32,635	22,444	8.9
Enterprises without mining machines	162,434	26,818	16.5	135,616	83.5	1,644	2,838	2.8	7,429	2,938	6.4
Enterprises using mining machines	454,969	81,928	18.0	373,041	82.0	3,003	8,084	2.4	25,206	19,506	9.8
Northern and Middle Appalachian Regions	373,659	69,607	18.6	304,052	81.4	2,887	7,649	2.8	19,550	13,337	9.6
Enterprises without mining machines	66,668	12,044	18.1	54,564	81.9	783	1,409	3.3	2,526	1,392	5.8
Enterprises using mining machines	307,051	57,563	18.7	249,488	81.3	2,104	6,240	2.7	17,024	14,975	10.4
Southern Appalachian Region	28,899	6,824	23.6	22,075	76.4	303	439	2.6	2,052	940	10.4
Enterprises without mining machines	14,848	3,564	24.0	11,284	76.0	178	237	2.8	1,016	220	8.3
Enterprises using mining machines	14,051	3,260	23.2	10,791	76.8	125	202	2.3	1,036	720	12.5
Michigan Region	2,141	304	14.2	1,837	85.8	25	22	2.2	125	67	9.0
Enterprises without mining machines	20	7	35.0	13	65.0	1	1	10.0	4	.....	20.0
Enterprises using mining machines	2,121	297	14.0	1,824	86.0	24	21	2.1	121	67	8.9
Eastern Interior Region	127,185	15,665	12.3	111,520	87.7	722	1,573	1.8	5,863	3,335	7.3
Enterprises without mining machines	37,081	4,171	11.3	32,890	88.7	280	519	2.2	1,065	754	6.5
Enterprises using mining machines	90,124	11,494	12.8	78,630	87.2	442	1,054	1.7	4,198	2,611	7.6
Western Interior Region	30,783	4,981	16.2	25,802	83.8	268	380	2.1	1,413	249	5.4
Enterprises without mining machines	20,883	2,318	11.1	18,565	88.9	169	205	2.1	784	124	4.3
Enterprises using mining machines	9,900	2,663	26.9	7,237	73.1	99	115	2.2	629	125	7.6
Southern Interior Region	15,015	2,041	17.6	12,404	82.4	131	247	2.5	942	177	7.4
Enterprises without mining machines	10,329	1,748	16.9	8,581	83.1	97	168	2.6	569	136	6.8
Enterprises using mining machines	4,716	893	18.9	3,823	81.1	37	79	2.5	373	41	8.8
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	39,691	8,724	22.0	30,967	78.0	308	612	2.3	2,690	1,309	10.1
Enterprises without mining machines	12,685	2,966	23.4	9,719	76.6	133	239	3.0	865	342	9.5
Enterprises using mining machines	27,006	5,758	21.3	21,248	78.7	172	373	2.0	1,825	967	10.3

REGION AND MINING METHOD.	NUMBER OF WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.[1]									
	Miners, cutters, etc., including their helpers.			Timbermen, trackmen, and men engaged in hauling, etc.			Laborers and others not classified.			In breakers and washeries.	
	Number.		Per cent of total.	Number.		Per cent of total.	Number.		Per cent of total.	Number.	Per cent of total.
	Above ground.	Below ground.		Above ground.	Below ground.		Above ground.	Below ground.		Above ground.	
UNITED STATES	7,153	354,485	47.0	17,502	116,805	17.5	59,443	104,197	21.3	23,051	3.0
ANTHRACITE (PENNSYLVANIA)	138	59,401	39.1	2,769	17,325	13.2	12,291	23,470	23.5	20,497	13.5
Enterprises operating—											
Mines only	71	1,494	51.3	65	473	17.6	273	318	19.4	.....	.....
Breakers, mines, and washeries	67	57,907	39.2	2,704	16,852	13.2	11,050	23,152	23.1	20,497	13.9
Culm washeries	.....	.....	.....	.....	.....	.....	606	.....	82.7	.....	.....
River dredges	.....	.....	.....	.....	.....	.....	332	.....	74.6	.....	.....
BITUMINOUS COAL	7,025	295,084	48.9	14,733	99,480	18.5	47,152	80,727	20.7	2,554	0.4
Enterprises without mining machines	2,753	92,525	58.7	4,279	26,834	19.2	9,669	10,481	12.4	1,044	0.6
Enterprises using mining machines	4,272	202,559	45.5	10,454	72,646	18.3	37,483	70,246	23.7	1,510	0.3
Northern and Middle Appalachian Regions	4,849	173,817	47.8	9,957	53,926	17.9	31,848	49,323	21.7	516	0.1
Enterprises without mining machines	1,648	38,301	60.0	2,254	9,119	17.1	4,643	4,373	13.5	190	0.3
Enterprises using mining machines	3,201	135,516	45.2	7,703	47,807	18.1	27,205	44,950	23.5	326	0.1
Southern Appalachian Region	402	13,563	48.3	999	4,170	17.9	1,982	2,903	17.1	1,086	3.8
Enterprises without mining machines	228	7,511	54.1	609	2,194	18.9	1,016	822	12.4	517	3.5
Enterprises using mining machines	174	5,752	42.2	390	1,976	16.8	966	2,141	22.1	569	4.0
Michigan Region	10	1,205	61.0	24	345	17.2	120	108	10.6	.....	.....
Enterprises without mining machines	.....	12	60.0	2	.....	10.0	.....	.....	.....	.....	.....
Enterprises using mining machines	10	1,283	61.0	22	345	17.3	120	108	10.7	.....	.....
Eastern Interior Region	532	61,868	49.1	1,418	24,206	20.1	6,584	20,508	21.3	546	0.4
Enterprises without mining machines	176	21,247	57.8	476	7,593	21.8	1,441	2,777	11.4	133	0.4
Enterprises using mining machines	356	40,621	45.5	942	16,613	19.5	5,143	17,731	25.4	413	0.4
Western Interior Region	541	17,606	59.0	783	5,308	20.1	1,929	2,169	13.3	47	0.2
Enterprises without mining machines	273	13,215	64.6	370	3,967	20.8	675	990	8.0	47	0.2
Enterprises using mining machines	268	4,396	47.1	413	1,431	18.6	1,254	1,170	24.5	.....	.....
Southern Interior Region	371	8,176	56.8	388	2,741	20.8	780	1,023	12.2	26	0.2
Enterprises without mining machines	305	5,589	57.1	273	1,984	21.9	478	704	11.4	26	0.3
Enterprises using mining machines	66	2,587	56.3	115	757	18.5	302	359	14.0	.....	.....
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	320	18,750	48.1	1,164	5,694	17.3	3,009	4,593	21.4	333	0.8
Enterprises without mining machines	123	6,355	51.1	295	1,977	17.9	1,416	806	17.5	131	1.0
Enterprises using mining machines	197	12,404	46.7	869	3,717	17.0	2,493	3,787	23.3	202	0.7

[1] On account of the strike in November and December many of the enterprises reported for October 15 or some other date in October, or an earlier month.

Wage earners, by months.—Table 28 shows, for producing enterprises by regions and states and for nonproducing enterprises by states, the number of wage earners employed on the fifteenth day of each month or the nearest representative day, the average number of wage earners employed during the year, the months of maximum and minimum employment, and the ratio of the minimum to the maximum number. The changes in the number employed from month to month reflect conditions prevailing in the coal-mining industry during the year. In anthracite mining there was only slight fluctuation from month to month. The seasons of minimum and maximum employment were normal. In the statistics for bituminous-coal mining the great strike of November and December, 1919, is reflected by the figures for the United States and most of the states not only by the occurrence of the minimum figure in November but also by the maximum in October, as productive operations were in that month forced to a maximum in anticipation of the strike. The figures for each of the important coal-mining states except Virginia and West Virginia show similar minima for November and some also maxima in October although others show normal maxima in January. In Virginia and West Virginia where there are important nonunion fields the minimum of employment occurred in the spring months which is normal and the ratios of minimum to maximum number of wage earners employed by months were 83 and 84 per cent, respectively, as compared with the ratios of approximately 21, 55, and 13 per cent in Ohio, Pennsylvania, and Illinois. On account of extent of unemployment in November, and in some states in December also, the number of wage earners as measured by the average of the number employed on a representative day of each of the 12 months is not a fair measure of wage earners employed in bituminous-coal mining in 1919. A better approximation is the average of the first ten months of the year which was nearly 20,000 or about 4 per cent greater than the average for the 12 months.

TABLE 28.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES, BY REGIONS AND STATES: 1919.

[The month of maximum employment for each region and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

REGION AND STATE.	Average number employed during year.	NUMBER EMPLOYED ON THE 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
UNITED STATES	693,641	736,316	708,078	693,831	675,651	680,326	687,030	715,757	732,847	743,451	751,132	*459,608*	739,571	61.2
Producing enterprises	693,170	736,105	707,840	693,563	675,373	680,035	686,657	715,294	732,340	742,820	750,397	*458,860*	738,714	61.1
Anthracite (Pennsylvania)	147,372	146,241	145,985	143,437	*142,691*	144,025	145,010	148,397	149,220	149,522	150,847	150,594	151,595	94.1
Bituminous coal	545,798	589,864	561,861	550,126	532,682	535,110	541,647	566,897	583,120	593,301	**599,550**	*308,266*	587,149	51.4
NORTHERN AND MIDDLE APPALACHIAN REGIONS	334,615	350,063	328,781	328,963	318,680	324,747	334,185	352,524	363,551	365,876	**366,086**	*229,609*	357,306	62.7
Pennsylvania	154,092	165,508	158,485	156,116	151,807	150,261	154,525	162,681	168,167	**168,972**	167,191	*92,833*	163,378	54.9
West Virginia	87,695	87,044	80,378	*79,740*	80,320	83,650	85,670	90,496	92,194	93,614	93,759	83,379	**94,887**	84.0
Ohio	40,452	43,305	40,357	39,890	39,465	41,530	43,165	44,175	46,693	**47,253**	47,195	*9,867*	42,470	20.8
Kentucky, eastern	28,789	28,783	26,362	26,371	26,165	27,060	28,091	31,231	31,846	31,205	**32,333**	*24,136*	31,765	74.6
Virginia	11,215	11,750	11,343	10,470	*9,574*	10,242	10,513	11,334	11,096	11,750	**11,998**	11,646	11,855	83.1
Tennessee, northeastern	7,246	8,227	7,132	6,862	6,593	7,476	7,680	7,838	7,894	7,766	**8,280**	*3,487*	7,717	42.1
Maryland	4,826	5,287	4,714	4,514	4,356	4,528	4,541	4,760	5,121	5,225	**5,330**	*4,302*	5,225	80.7
SOUTHERN APPALACHIAN REGION	27,174	28,395	**28,428**	28,289	27,978	26,844	26,935	27,107	26,990	27,108	28,104	*22,385*	27,405	78.7
Alabama	24,648	25,762	25,784	**25,805**	25,558	24,398	24,442	24,612	24,445	24,548	25,402	*20,298*	24,722	78.7
Tennessee, southeastern, Georgia, and North Carolina	2,526	2,633	2,644	2,484	2,420	2,446	2,493	2,495	2,545	2,620	2,702	*2,087*	2,743	76.1
MICHIGAN REGION	1,054	2,047	2,236	2,085	533	1,586	1,617	1,801	1,785	1,937	2,040	*176*	1,996	7.9
EASTERN INTERIOR REGION	109,239	**124,812**	120,503	116,974	111,070	110,135	108,375	112,000	115,809	121,063	124,799	*21,956*	123,273	17.6
Illinois	73,780	**84,197**	82,192	80,214	76,796	74,761	73,604	76,052	78,218	81,362	83,739	*11,823*	82,902	13.4
Indiana	24,470	28,559	26,813	25,389	23,831	24,808	24,356	25,403	26,518	28,051	**28,871**	*3,360*	27,700	11.3
Kentucky, western	10,980	12,056	11,498	11,371	10,443	10,566	10,416	10,644	11,073	11,650	12,189	*7,273*	**12,581**	57.8
WESTERN INTERIOR REGION	25,053	**31,744**	31,135	29,719	27,460	26,549	26,199	26,975	26,083	27,019	27,775	*4,436*	26,342	14.0
Iowa	10,584	**12,879**	12,554	12,154	10,634	10,192	9,886	10,172	10,930	11,570	12,100	*2,587*	11,410	19.6
Kansas	8,084	**9,728**	9,610	9,583	9,292	9,216	9,151	9,186	7,913	7,818	7,802	*532*	7,237	5.4
Missouri	7,285	**9,137**	8,971	7,982	7,534	7,141	7,162	7,667	7,240	7,631	7,873	*1,387*	7,695	15.2
SOUTHERN INTERIOR REGION	12,538	13,078	13,316	12,423	12,482	12,739	12,659	13,600	14,255	**14,712**	14,087	*2,788*	13,108	19.0
Oklahoma	7,040	7,596	7,580	6,950	7,206	7,337	7,293	7,512	7,880	8,102	**8,299**	*962*	7,751	11.6
Arkansas	2,787	2,944	2,652	2,490	2,332	2,483	2,540	3,307	3,035	3,018	3,859	*474*	2,801	12.1
Texas	2,711	3,138	3,075	2,983	2,944	2,919	2,817	2,790	2,740	2,692	2,529	*1,352*	2,553	43.1
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	34,625	**39,125**	37,462	36,673	34,470	32,510	31,677	32,782	34,647	35,529	36,050	*26,910*	37,659	68.8
Colorado	11,252	12,028	11,566	11,440	11,131	10,547	10,269	10,988	11,490	11,511	11,224	*10,026*	**12,804**	78.3
Wyoming	7,091	8,445	7,988	7,621	6,972	6,358	*6,117*	6,186	6,688	6,980	7,339	6,570	7,819	72.4
Washington	4,413	5,259	5,248	5,195	4,885	4,698	4,531	4,575	4,652	4,814	4,714	*1,018*	3,367	19.4
Montana	3,797	4,404	4,101	4,107	3,732	3,601	3,613	3,807	4,029	4,178	4,379	*1,124*	4,429	25.2
Utah	3,047	3,728	3,684	3,417	3,266	*3,204*	3,255	3,531	3,731	3,791	3,841	4,050	**4,260**	75.2
New Mexico	3,564	4,029	3,840	4,000	3,773	3,541	3,364	3,127	3,455	3,395	3,541	*2,087*	3,716	74.1
North Dakota	774	1,011	878	807	636	497	*472*	518	550	770	931	1,054	1,158	40.8
South Dakota	8	16	11	13	6	4	.....	.....	*2*	6	10	13	15	12.5
Oregon, Idaho, and California	79	145	146	73	69	60	56	*50*	*50*	69	71	68	91	34.2
Nonproducing enterprises	471	*211*	232	268	278	291	382	403	507	625	735	833	827	25.3
Pennsylvania	109	*25*	30	51	49	44	59	101	99	152	181	246	273	8.4
West Virginia	13	.....	.....	.....	.....	.....	24	19	*12*	20	24	29	28	41.4
All other states[1]	349	*186*	202	217	229	247	299	343	396	453	530	558	526	33.7

[1] Includes states listed in order of wage earners as follows: Ohio, Kentucky, Washington, Iowa, Kansas, Colorado, Illinois, Texas, Virginia, and Oregon.

It will be noted that the number of wage earners reported for all bituminous-coal enterprises on a representative day which is presented in several tables aggregated 617,403 and is larger than the number shown for any month in Table 28. The representative day and month selected for reporting wage earners in detail varied with the individual enterprise, therefore the aggregate for the representative day differs from the total of the numbers reported by the several enterprises in any month.

Days in operation.—The number of working days during the census year varied considerably for different enterprises in the coal-mining industry and in different states. Table 29 gives by states for producing and nonproducing enterprises in anthracite and bituminous-coal mining the distribution of enterprises according to the number of days in operation in 1919. The table shows for anthracite enterprises that only 7 worked full time (301 days or more), but nearly one-half of the enterprises were in operation more than three-fourths of the full time (from 226 to 300 days).

Among the productive bituminous coal-mining enterprises about 4 per cent were in operation full time, about one-third of the enterprises were in operation less than half time, and somewhat more than one-third were in operation for periods ranging from 151 to 225 days. The percentage of short-time operation was greater in the Appalachian and Interior Regions than in the regions of the West.

TABLE 29.—ALL ENTERPRISES, CLASSIFIED ACCORDING TO TIME IN OPERATION: 1919.

REGION AND STATE.	Total number of enterprises.	ENTERPRISES OPERATING— 75 days and less.	76 to 150 days.	151 to 225 days.	226 to 300 days.	301 days and over.
UNITED STATES	6,916	471	1,787	2,623	1,779	253
Producing enterprises	6,890	473	1,777	2,617	1,772	251
Anthracite (Pennsylvania)	254	30	33	61	123	7
Bituminous coal	6,636	443	1,744	2,556	1,649	244
NORTHERN AND MIDDLE APPALACHIAN REGIONS:						
Kentucky, eastern	469	57	147	178	76	11
Maryland	58	6	21	20	10	1
Ohio	788	82	231	293	116	36
Pennsylvania	1,938	97	460	679	625	77
Tennessee, northeastern	92	6	27	42	11	3
Virginia	108	9	21	33	41	1
West Virginia	920	60	212	411	222	21
SOUTHERN APPALACHIAN REGION:						
Alabama	188	8	33	65	69	13
Georgia, North Carolina, and Tennessee, southeastern	17	2	3	4	8	.....
MICHIGAN REGION	11	.....	1	9	1	.....
EASTERN INTERIOR REGION:						
Illinois	417	26	121	217	71	12
Indiana	295	21	121	105	41	7
Kentucky, western	166	14	58	63	27	4
WESTERN INTERIOR REGION:						
Iowa	167	8	37	99	20	3
Kansas	129	5	51	47	21	5
Missouri	179	8	44	63	55	9
SOUTHERN INTERIOR REGION:						
Arkansas	85	17	40	25	2	1
Oklahoma	94	1	25	54	12	2
Texas	33	.....	6	9	17	1
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:						
Colorado	161	7	20	41	83	10
Montana	67	4	15	25	13	10
New Mexico	21	1	3	1	13	3
North Dakota	79	2	23	31	18	5
South Dakota	5	1	.....	2	2	.....
Utah	27	.....	4	11	10	2
Washington	35	.....	5	18	11	3
Wyoming	46	.....	10	12	20	4
California, Idaho, and Oregon	5	1	2	1	1	.....
Nonproducing enterprises	26	1	10	6	7	2
Pennsylvania	10	.....	5	1	3	1
West Virginia	3	.....	2	1	.....	.....
All other states	13	1	3	4	4	1

Prevailing hours of labor.—Table 30 presents for producing enterprises by regions and by states and for nonproducing enterprises by states, and separately for anthracite and bituminous coal mines, a classification of enterprises according to the prevailing hours of labor per week reported by them and shows the distribution of enterprises and wage earners for each class. In the coal-mining industry different hours for different classes of wage earners may prevail in some localities, but in the tabulation of census statistics the wage earners of each enterprise were classed as a unit in accordance with the hours reported as prevailing for the majority, regardless of the fact that some worked more or fewer hours. The percentages in Table 30 therefore can not be taken as showing precisely the relative number of wage earners working the number of hours specified, but may be taken merely as approximating the general distribution of wage earners according to hours of labor. Enterprises employing no wage earners are not included in the table.

The normal hours of labor in the coal-mining industry generally were 44 to 53 per week, and in fact were 48—the 8-hour day and the 6-day week prevailing. Among the anthracite enterprises the exceptions to these prevailing hours were almost entirely reported by those who operated only culm washeries and dredges. In bituminous-coal mining other hours than those generally prevailing were reported by a considerable number of enterprises in fully half of the states, but the wage earners employed in such enterprises were relatively quite few in number except in West Virginia, eastern Kentucky, northeastern Tennessee, Alabama, Arkansas, Texas, Utah, and South Dakota.

TABLE 30.—NUMBER OF PRODUCING AND OF NONPRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

REGION AND STATE.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—									
			35 and under.		36 to 43.		44 to 53.		54 to 62.		63 and over.	
	Enterprises.	Wage earners (average number).	Enterprises.	Wage earners (average number).	Enterprises.	Wage earners (average number).	Enterprises.	Wage earners (average number).	Enterprises.	Wage earners (average number).	Enterprises.	Wage earners (average number).
UNITED STATES	[1] 6,851	693,641	257	15,978	426	17,478	5,743	631,761	406	26,100	19	2,324
Per cent distribution	100.0	100.0	3.8	2.3	6.2	2.5	83.8	91.1	5.9	3.8	0.3	0.3
Producing enterprises	6,826	693,170	257	15,978	426	17,478	5,722	631,301	402	26,029	19	2,324
Per cent distribution	100.0	100.0	3.8	2.3	6.2	2.5	83.8	91.1	5.9	3.8	0.3	0.3
Anthracite (Pennsylvania)	252	147,372	.....	.....	1	315	176	145,787	71	807	4	463
Per cent distribution	100.0	100.0	.....	.....	0.4	0.2	69.8	98.9	28.2	0.5	1.6	0.3
Bituminous coal	6,574	545,798	257	15,978	425	17,163	5,546	485,574	331	25,222	15	1,861
Per cent distribution	100.0	100.0	3.9	2.9	6.5	3.1	84.4	89.0	5.0	4.6	0.2	0.3
NORTHERN AND MIDDLE APPALACHIAN REGIONS:												
Pennsylvania	1,927	154,992	40	759	63	1,098	1,704	143,357	108	8,001	10	1,777
Per cent distribution	100.0	100.0	2.1	0.5	3.3	0.7	88.5	92.5	5.6	5.2	0.5	1.1
West Virginia	926	87,095	30	2,028	46	3,170	801	74,125	47	7,702	2	70
Per cent distribution	100.0	100.0	3.2	2.3	5.0	3.6	86.5	85.1	5.1	8.8	0.2	0.1
Ohio	701	40,452	20	350	42	470	675	38,968	24	658	.....	.....
Per cent distribution	100.0	100.0	2.6	0.9	5.5	1.2	88.7	96.3	3.2	1.6	.....	.....
Kentucky, eastern	468	28,789	49	1,711	55	1,734	304	20,487	60	4,857	.....	.....
Per cent distribution	100.0	100.0	10.5	5.9	11.8	6.0	65.0	71.2	12.8	16.9	.....	.....
Virginia	108	11,215	4	105	5	310	84	10,413	13	375	2	12
Per cent distribution	100.0	100.0	3.7	0.9	4.6	2.8	77.8	92.8	12.0	3.3	1.9	0.1
Tennessee, northeastern	92	7,246	7	378	21	1,069	62	5,566	2	233	.....	.....
Per cent distribution	100.0	100.0	7.6	5.2	22.8	14.8	67.4	76.8	2.2	3.2	.....	.....
Maryland	58	4,826	.....	.....	6	133	51	4,668	1	25	.....	.....
Per cent distribution	100.0	100.0	.....	.....	10.3	2.8	87.9	96.7	1.7	0.5	.....	.....
SOUTHERN APPALACHIAN REGION:												
Alabama	138	24,648	9	185	52	3,765	122	20,015	5	653	.....	.....
Per cent distribution	100.0	100.0	4.8	0.8	27.7	15.3	64.9	81.3	2.7	2.6	.....	.....
Tennessee, southeastern, Georgia, and North Carolina	17	2,526	1	77	1	8	15	2,441	.....	.....	.....	.....
Per cent distribution	100.0	100.0	5.9	3.0	5.9	0.3	88.2	96.6	.....	.....	.....	.....
MICHIGAN REGION	11	1,654	.....	.....	.....	.....	11	1,654	.....	.....	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
EASTERN INTERIOR REGION:												
Illinois	444	73,780	27	5,910	19	2,846	391	64,905	7	119	.....	.....
Per cent distribution	100.0	100.0	6.1	8.0	4.3	3.9	88.1	88.0	1.6	0.2	.....	.....
Indiana	288	24,479	37	3,253	15	330	234	20,890	2	6	.....	.....
Per cent distribution	100.0	100.0	12.8	13.3	5.2	1.3	81.2	85.3	0.7	[2]	.....	.....
Kentucky, western	165	10,980	2	7	11	266	135	10,489	18	218	.....	.....
Per cent distribution	100.0	100.0	1.2	0.1	6.6	2.4	81.3	95.5	10.8	2.0	.....	.....
WESTERN INTERIOR REGION:												
Iowa	165	10,584	2	11	14	117	149	10,456	.....	.....	.....	.....
Per cent distribution	100.0	100.0	1.2	0.1	8.5	1.1	90.3	98.8	.....	.....	.....	.....
Kansas	128	8,094	4	20	3	10	121	8,019	.....	.....	.....	.....
Per cent distribution	100.0	100.0	3.1	0.4	2.3	0.2	94.5	99.4	.....	.....	.....	.....
Missouri	178	7,285	9	69	18	253	142	6,746	9	217	.....	.....
Per cent distribution	100.0	100.0	5.1	0.9	10.1	3.5	79.8	92.6	5.1	3.0	.....	.....
SOUTHERN INTERIOR REGION:												
Oklahoma	93	7,040	7	837	5	100	77	6,014	4	89	.....	.....
Per cent distribution	100.0	100.0	7.5	11.9	5.4	1.4	82.8	85.4	4.3	1.3	.....	.....
Arkansas	85	2,787	2	69	25	720	57	1,979	1	19	.....	.....
Per cent distribution	100.0	100.0	2.4	2.5	29.4	25.8	67.1	71.0	1.2	0.7	.....	.....
Texas	33	2,711	1	56	7	515	20	1,959	5	181	.....	.....
Per cent distribution	100.0	100.0	3.0	2.1	21.2	19.0	60.6	72.3	15.2	6.7	.....	.....
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:												
Colorado	160	11,252	2	97	4	109	148	10,700	6	346	.....	.....
Per cent distribution	100.0	100.0	1.2	0.9	2.5	1.0	92.5	95.1	3.8	3.1	.....	.....
Wyoming	46	7,091	.....	.....	1	16	44	7,033	1	42	.....	.....
Per cent distribution	100.0	100.0	.....	.....	2.2	0.2	95.7	99.2	2.2	0.6	.....	.....
Washington	35	4,413	1	2	.....	.....	34	4,411	.....	.....	.....	.....
Per cent distribution	100.0	100.0	2.9	[2]	.....	.....	97.1	100.0	.....	.....	.....	.....
Montana	66	3,797	1	24	5	38	55	3,718	5	17	.....	.....
Per cent distribution	100.0	100.0	1.5	0.6	7.6	1.0	83.3	97.9	7.6	0.4	.....	.....
Utah	27	3,647	1	7	4	65	16	2,143	5	1,430	1	2
Per cent distribution	100.0	100.0	3.7	0.2	14.8	1.8	59.3	58.8	18.5	39.2	3.7	0.1
New Mexico	20	3,504	.....	.....	.....	.....	19	3,556	1	8	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	95.0	99.8	5.0	0.2	.....	.....
North Dakota	76	774	1	14	2	7	67	730	6	23	.....	.....
Per cent distribution	100.0	100.0	1.3	1.8	2.6	0.9	88.2	94.3	7.9	3.0	.....	.....
South Dakota	3	8	.....	.....	1	2	1	3	1	3	.....	.....
Per cent distribution	100.0	100.0	.....	.....	33.3	25.0	33.3	37.5	33.3	37.5	.....	.....
Oregon, Idaho, and California	5	79	.....	.....	.....	.....	5	79	.....	.....	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
Nonproducing enterprises	25	471	.....	.....	.....	.....	21	400	4	71	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	84.0	84.9	16.0	15.1	.....	.....
Pennsylvania	9	109	.....	.....	.....	.....	9	109	.....	.....	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
West Virginia	3	13	.....	.....	.....	.....	3	13	.....	.....	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
All other states [3]	13	349	.....	.....	.....	.....	9	278	4	71	.....	.....
Per cent distribution	100.0	100.0	.....	.....	.....	.....	69.2	79.7	30.8	20.3	.....	.....

[1] Exclusive of 65 enterprises—producing, 64, and nonproducing, 1—employing no wage earners.
[2] Less than one-tenth of 1 per cent.
[3] Includes states listed in order of wage earners as follows: Ohio, Kentucky, Washington, Iowa, Kansas, Colorado, Illinois, Texas, Virginia, and Oregon.

LAND TENURE AND ROYALTIES.

Extent of holdings.—Table 31 gives the aggregate acreage held by anthracite and bituminous coal-mining enterprises, both producing and nonproducing, in each state and shows, in addition to the acreage of coal land owned and held under lease, the extent of coal land operated and of timber and other lands controlled. In this table, and in others relating to acreage, the number of acres of mineral land controlled by the mining enterprises is greater by the amount of acreage leased to other operators and by the idle acreage, than the number of acres reported operated. The average holding of coal land per enterprise for the 155 producing anthracite enterprises which operated mines was approximately 1,760 acres and for the 6,636 productive bituminous coal-mining enterprises was 1,250. There was, however, great variation in the extent of holdings of single enterprises, as shown in Tables 24 and 25.

TABLE 31.—LAND OPERATED AND CONTROLLED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

STATE.	Coal land operated (acres).	LAND CONTROLLED.				
		Aggregate (acres).	Coal land.			Timber and other lands (acres).
			Total (acres).	Owned (acres).	Held under lease (acres).	
UNITED STATES	8,547,434	9,530,545	8,619,265	6,032,358	2,616,907	911,280
Producing	8,522,727	9,505,741	8,594,558	5,988,041	2,606,517	911,183
Anthracite (Pennsylvania)	261,355	432,055	272,345	194,390	77,955	159,710
Bituminous coal	8,261,372	9,073,686	8,322,213	5,793,651	2,528,562	751,473
Alabama	653,793	701,760	654,633	563,894	90,739	47,127
Arkansas	24,421	25,322	24,496	12,226	12,270	826
Colorado	127,881	131,838	128,181	89,608	38,573	3,657
Illinois	752,316	799,060	754,235	596,082	158,153	44,825
Indiana	176,200	189,594	176,511	103,763	72,748	10,083
Iowa	66,359	71,117	67,604	31,662	35,942	3,513
Kansas	73,559	88,650	74,509	30,629	43,880	14,141
Kentucky	731,110	832,007	731,411	451,374	280,037	100,596
Maryland	53,442	60,744	53,486	34,168	19,318	7,228
Michigan	9,169	10,529	9,169	1,921	7,248	1,360
Missouri	61,317	62,357	61,417	30,239	31,178	940
Montana	73,067	82,266	75,287	55,124	20,163	6,979
New Mexico	641,125	657,160	641,125	614,619	26,506	16,035
North Dakota	17,734	18,558	17,734	9,305	8,429	824
Ohio	442,887	488,852	461,494	348,214	113,280	27,358
Oklahoma	104,936	110,536	105,068	26,729	78,339	5,468
Pennsylvania	1,401,919	1,682,398	1,494,676	1,112,956	381,720	187,722
Tennessee	203,364	305,117	294,384	165,067	129,317	70,733
Texas	50,124	135,288	50,154	32,433	17,721	85,134
Utah	46,891	56,665	47,051	44,532	2,519	9,614
Virginia	397,976	407,324	399,015	312,376	86,639	8,309
Washington	65,949	80,958	66,180	44,368	21,812	14,778
West Virginia	1,834,207	1,940,557	1,860,664	1,022,574	838,090	79,893
Wyoming	57,662	60,842	57,562	44,526	13,036	3,280
All other states [1]	13,167	14,217	13,167	12,262	905	1,050
Nonproducing	24,707	24,804	24,707	14,317	10,390	97
Kentucky	5,030	5,059	5,030	3,303	1,730	29
Pennsylvania	8,722	8,785	8,722	6,946	1,776	63
West Virginia	3,418	3,418	3,418	2,088	1,330	.....
All other states [2]	7,537	7,542	7,537	1,983	5,554	5

[1] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.
[2] Includes Colorado, Illinois, Iowa, Kansas, Ohio, Oregon, Texas, Virginia, and Washington.

Enterprises and acreage according to tenure of coal land.—Table 32 shows for enterprises classified according to the form of tenure of coal land, and by mining regions and states, for both producing and nonproducing anthracite and bituminous coal mines, the number of enterprises and the number of acres of coal land controlled. The table also shows the percentage the total owned acreage is of the aggregate coal land controlled and the percentage that the acreage held by each class of enterprises is of the aggregate coal land controlled.

For all coal mines in the United States, 69.6 per cent of the total coal land reported in 1919 was owned by the operators and 30.4 per cent was held under lease. These percentages prevailed also for bituminous coal enterprises separately considered, but for anthracite enterprises the percentages were 71.4 per cent for owned land and 28.6 per cent for land held under lease. The percentage of owned acreage ranged among the bituminous coal-mining states from 21 in Michigan to 95.9 in New Mexico. In the Appalachian Region as a whole the percentage of owned land was 67.1 per cent; in the Interior Regions it was 67.3 per cent but was less in most of the states of these regions, and in the Northern Great Plains, Rocky Mountain, and Pacific Coast Regions it was 87.3 per cent. It is noteworthy that the largest percentage of owned acreage is reported from the far western regions.

A majority of the anthracite-mining enterprises operated only on land held under lease but they controlled only 13.4 per cent of the aggregate anthracite acreage. A few enterprises operated only on land held by ownership and these controlled 12.7 per cent of the aggregate acreage, and one-third of the anthracite-mining enterprises operated on land held under both forms of tenure and controlled 73.9 per cent of the aggregate acreage.

A little more than one-third of the bituminous coal-mining enterprises in the United States operated only on land held by ownership but they controlled 51.1 per cent of the aggregate bituminous-coal acreage, whereas about one-half of the bituminous coal-mining enterprises operated only on land held under lease and they controlled 22 per cent of the aggregate acreage. The remaining bituminous coal-mining enterprises, less than one-sixth, operated on land under both forms of tenure and controlled 26.9 per cent of the aggregate acreage. Among the several coal-mining states the proportions of coal land operated under different forms of tenure ranged between wide limits.

TABLE 32.—COAL LAND CONTROLLED BY PRODUCING AND NONPRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

Region and state.	All classes.					Enterprises operating only owned land.			Enterprises operating only land held under lease.			Enterprises operating land partly owned and partly held under lease.				
	Number of enterprises.	Acres controlled.				Number.	Acres controlled.		Number.	Acres controlled.		Number.	Acres controlled.			
		Aggregate.	By ownership.	By lease.	Per cent owned is of aggregate.		By ownership.	Per cent owned is of aggregate.		By lease.	Per cent leased is of aggregate.		Total.	Per cent of aggregate.	By ownership.	By lease.
United States	16,817	8,616,265	6,002,358	2,616,907	69.6	2,358	4,295,769	49.8	3,434	1,872,587	21.7	1,025	2,450,009	28.4	1,703,589	744,320
Producing enterprises	16,791	8,594,558	5,988,041	2,605,517	69.6	2,348	4,289,204	49.9	3,425	1,865,997	21.7	1,018	2,439,357	28.4	1,698,837	740,520
Anthracite (Pennsylvania)	[1] 155	272,345	194,390	77,955	71.4	15	34,583	12.7	87	36,414	13.4	53	201,348	73.9	159,807	41,541
Bituminous coal	16,636	8,322,213	5,793,651	2,528,562	69.6	2,333	4,254,621	51.1	3,338	1,829,583	22.0	965	2,238,009	26.9	1,539,030	698,979
Northern and Middle Appalachian Regions	4,379	4,908,728	3,141,991	1,766,737	64.0	1,538	2,046,645	41.7	2,262	1,311,381	26.7	579	1,550,702	31.6	1,095,346	455,356
Kentucky, eastern	469	530,089	292,313	237,776	55.1	83	256,236	48.3	337	200,011	37.7	49	73,822	13.9	36,057	37,765
Maryland	58	53,486	34,168	19,318	63.9	20	25,077	46.9	23	9,744	18.2	15	18,665	34.9	9,091	9,574
Ohio	788	461,494	348,214	113,280	75.5	300	264,201	57.2	360	65,033	14.3	122	131,260	28.4	84,013	47,247
Pennsylvania	1,938	1,494,676	1,112,956	381,720	74.5	863	837,549	56.0	826	226,808	15.2	249	430,319	28.8	275,407	154,912
Tennessee, northeastern	92	109,304	19,390	89,914	17.7	11	14,488	13.3	77	81,364	74.4	4	13,452	12.3	4,902	8,550
Virginia	108	399,015	312,376	86,639	78.3	23	117,126	29.4	72	74,242	18.6	13	207,647	52.0	195,250	12,397
West Virginia	926	1,866,664	1,022,574	838,090	55.0	232	531,948	28.6	567	653,170	35.1	127	675,537	36.3	490,626	184,911
Southern Appalachian Region	205	849,411	719,269	130,142	84.7	62	598,028	70.4	112	89,002	10.6	31	161,421	19.0	121,241	40,180
Alabama	188	654,633	563,894	90,739	86.1	54	454,855	69.5	106	64,724	9.9	28	135,054	20.6	109,039	26,015
Georgia, North Carolina, and Tennessee, southeastern	17	194,778	155,375	39,403	79.8	8	143,173	73.5	6	25,238	13.0	3	26,367	13.5	12,202	14,165
Michigan Region	11	9,169	1,921	7,248	21.0	.....	.....	.....	4	1,560	17.0	7	7,609	83.0	1,921	5,688
Eastern Interior Region	908	1,135,098	861,936	273,162	75.9	389	683,896	60.3	352	161,727	14.2	167	289,445	25.5	178,010	111,435
Illinois	447	754,235	596,682	158,153	79.0	192	479,737	63.5	170	88,511	11.7	85	185,987	24.7	116,345	69,642
Indiana	295	179,511	106,763	72,748	59.5	110	62,126	34.6	119	41,340	23.0	66	76,045	42.4	44,637	31,408
Kentucky, western	166	201,322	159,061	42,261	79.0	87	142,033	70.6	63	31,876	15.8	16	27,413	13.6	17,028	10,385
Western Interior Region	475	203,530	92,530	111,000	45.5	100	63,503	31.2	310	84,777	41.7	65	55,250	27.1	20,027	26,223
Iowa	107	67,604	31,562	35,042	46.8	28	14,630	21.6	110	23,920	35.5	20	28,984	42.0	17,032	11,952
Kansas	129	74,109	30,929	43,880	41.1	19	25,145	33.7	98	39,954	53.6	12	9,410	12.6	5,484	3,926
Missouri	170	61,417	30,239	31,178	49.2	53	23,728	38.6	102	20,833	33.9	24	16,856	27.4	6,511	10,345
Southern Interior Region	212	170,718	71,388	108,330	39.7	40	61,716	34.3	138	99,781	55.5	34	27,221	15.1	9,672	17,549
Arkansas	85	24,496	12,226	12,270	49.9	14	9,251	37.8	56	8,108	33.1	15	7,137	29.1	2,975	4,162
Oklahoma	94	105,068	26,7.9	78,339	25.4	15	21,045	20.0	66	69,033	65.7	13	14,990	13.4	4,784	9,306
Texas	33	50,154	32,433	17,721	64.7	11	30,520	60.9	16	13,640	27.2	6	5,094	12.0	1,913	4,081
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	446	1,036,589	904,646	131,943	87.3	204	800,833	77.3	160	80,395	8.6	82	146,361	14.1	103,813	42,548
Colorado	161	128,181	89,608	38,573	69.9	55	59,007	46.0	62	20,726	16.2	44	48,448	37.8	30,601	17,847
Montana	67	75,287	55,124	20,163	73.2	34	44,337	58.9	24	7,823	10.4	9	23,127	30.7	10,787	12,340
New Mexico	21	641,125	614,619	26,506	95.9	16	589,099	91.9	2	26,180	4.1	3	25,810	4.0	25,520	320
North Dakota	79	17,734	9,305	8,429	52.5	44	9,065	51.1	33	8,029	45.3	2	640	3.6	240	400
Utah	27	47,051	44,532	2,519	94.6	18	35,962	76.4	7	2,319	4.9	2	8,770	18.6	8,570	200
Washington	35	66,180	44,368	21,812	67.0	12	25,094	37.9	11	15,013	22.7	12	26,073	39.4	19,274	6,799
Wyoming	46	57,592	44,526	13,036	77.4	19	35,705	62.0	17	8,394	14.6	10	13,463	23.4	8,821	4,642
California, Idaho, Oregon, and South Dakota	10	3,469	2,564	905	73.9	6	2,564	73.9	4	905	26.1	.....	.....	.....	.....	.....
Nonproducing enterprises	26	24,707	14,317	10,390	57.9	10	6,565	26.6	9	6,590	26.7	7	11,552	46.8	7,752	3,800
Pennsylvania	10	8,722	6,946	1,776	79.6	4	736	8.4	2	920	10.5	4	7,066	81.0	6,210	856
West Virginia	3	3,418	2,088	1,330	61.1	1	1,200	35.1	1	20	0.6	1	2,198	64.3	888	1,310
All other states [2]	13	12,567	5,283	7,284	42.0	5	4,629	36.8	6	5,650	45.0	2	2,288	18.2	654	1,634

[1] Exclusive of 99 enterprises operating only breakers, culm washeries, and dredges, and controlling no coal lands.
[2] Includes enterprises in states as follows: Colorado, 1; Illinois, 1; Iowa, 1; Kansas, 1; Kentucky, 3; Ohio, 1; Oregon, 1; Texas, 1; Virginia, 1; and Washington, 2.

Comparative acreage of coal land according to tenure: 1919 and 1909.—Table 33 shows the total acreage of coal land controlled, as reported at the censuses of 1919 and 1909. It also shows the number of acres of coal land owned by the operators, the number held under lease, and the percentages of increase or decrease under each form of tenure. These statistics are given for producing anthracite and bituminous-coal enterprises, by states.

There was an increase of about one-fourth in the acreage of coal land controlled in 1919 as compared with 1909, and this was all in bituminous-coal land as there was slight decrease in the anthracite land controlled. For the bituminous coal-mining enterprises in the United States as a whole there was a slightly larger increase in the acreage controlled by ownership than in the acreage held under lease, and for anthracite-mining enterprises there was a small increase in acreage held by ownership as against a considerable decrease in the acreage held under lease.

TABLE 33.—COMPARATIVE STATISTICS, COAL LAND CONTROLLED, PRODUCING ENTERPRISES: 1919 AND 1909.

STATE.	COAL LAND CONTROLLED (ACRES).								
	Total.			Owned.			Held under lease.		
	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]
UNITED STATES	8,594,558	6,858,520	25.3	5,988,041	4,732,556	26.5	2,606,517	2,125,964	22.6
Anthracite (Pennsylvania)	272,345	284,474	−4.3	194,390	183,044	6.2	77,955	101,430	−23.1
Bituminous coal	8,322,213	[2] 6,574,046	26.6	5,793,651	4,549,512	27.3	2,528,562	2,024,534	24.9
Alabama	654,633	599,259	9.2	563,894	525,355	7.3	90,739	73,904	22.8
Arkansas	24,496	54,359	−54.9	12,226	23,885	−48.8	12,270	30,474	−59.7
Colorado	128,181	[2] 93,502	37.1	89,608	65,201	37.4	38,573	28,301	36.3
Illinois	754,235	552,330	36.5	596,082	395,955	50.5	158,153	156,431	1.1
Indiana	179,511	140,244	28.0	106,763	103,910	2.7	72,748	36,334	100.2
Iowa	67,004	70,102	−3.7	31,062	20,152	57.1	35,942	50,010	−28.2
Kansas	74,509	80,459	−7.4	30,629	53,310	−42.6	43,880	27,119	61.8
Kentucky	731,411	364,669	100.6	451,374	247,006	82.7	280,037	117,663	138.0
Maryland	53,486	68,220	−21.6	34,168	63,596	−46.3	19,318	4,624	317.8
Michigan	9,169	23,135	−60.4	1,921	3,696	−48.0	7,248	19,439	−62.7
Missouri	61,417	116,108	−47.1	30,239	70,805	−57.3	31,178	45,303	−31.2
Montana	75,287	49,825	51.1	55,124	39,588	39.2	20,163	10,237	97.0
New Mexico	641,125	[2] 115,849	453.4	614,619	64,929	846.6	26,506	50,920	−47.9
North Dakota	17,734	10,353	71.2	9,305	7,971	16.7	8,429	2,385	253.4
Ohio	461,494	406,333	13.6	348,214	260,423	33.7	113,280	145,913	−22.4
Oklahoma	105,068	75,744	38.7	26,729	910	.....	78,339	74,834	4.7
Pennsylvania	1,494,676	1,673,537	−10.7	1,112,956	1,321,981	−15.8	381,720	351,556	8.6
Tennessee	294,384	458,924	−35.9	165,067	353,954	−53.4	129,317	104,970	23.2
Texas	50,154	125,774	−60.1	32,433	104,513	−69.0	17,721	21,261	−16.7
Utah	47,051	17,341	171.3	44,532	17,221	158.6	2,519	120	.....
Virginia	399,015	169,296	135.7	312,376	85,217	266.6	86,639	84,079	3.0
Washington	66,180	88,611	−25.3	44,368	67,635	−34.4	21,812	20,976	4.0
West Virginia	1,860,664	1,134,485	64.0	1,022,574	583,263	75.3	838,090	551,222	52.0
Wyoming	57,502	64,783	−11.1	44,526	50,024	−11.0	13,036	14,759	−11.7
All other states [3]	13,167	20,642	−36.2	12,262	18,972	−35.4	905	1,670	−45.8

[1] A minus sign (−) denotes decrease.
[2] Includes acreage of coal land for anthracite mines in Colorado and New Mexico classified as anthracite enterprises in 1909.
[3] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota for 1919, and California, Georgia, Idaho, and Oregon for 1909.

Comparative production, according to tenure of coal land: 1919 and 1909.—Table 34 gives for 1919 and 1909 for selected states by mining regions, the number of bituminous coal mines reported on land owned, on land held under lease, and on land partly owned and partly held under lease, together with the total output for each class of mines. Of the total production shown in this table for 1919, approximately 47 per cent was that of mines on land wholly owned by the operators, 29 per cent that of mines on land wholly leased, and 24 per cent that of mines on land partly owned and partly held under lease by the operators. The corresponding percentages for 1909 were, respectively, 44, 22, and 34. Although mines of the class operating on lands controlled by both forms of tenure did not report what part of the output came from owned and what part from leased land, it is probable that the greater portion was taken from land held by ownership. This is shown by the amount of royalties and rents reported by these operators which indicates that the coal mined from leased lands was somewhat less than half the total production of these mines in both 1909 and 1919. (See Tables 36 and 38). Consequently, it may be estimated that between 60 and 65 per cent of the bituminous coal mined in 1909 and 1919 was from land owned by the operators and that between 35 and 40 per cent was from leased holdings.

TABLE 34.—COMPARATIVE PRODUCTION FOR BITUMINOUS-COAL MINING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF LAND: 1919 AND 1909.

REGION AND STATE.	ALL CLASSES.				ENTERPRISES OPERATING—											
					Only owned land.				Only land held under lease.				Land partly owned and partly held under lease.			
	Number of mines.		Coal produced (tons, 2,000 pounds).		Number of mines.		Coal produced (tons, 2,000 pounds).		Number of mines.		Coal produced (tons, 2,000 pounds).		Number of mines.		Coal produced (tons, 2,000 pounds).	
	1919	[1]1909	1919	[1]1909	1919	1909	1919	1909	1919	[1]1909	1919	[1]1909	1919	[1]1909	1919	[1]1909
UNITED STATES	8,282	6,016	469,425,836	376,952,534	2,980	2,220	215,357,565	165,144,620	3,774	2,412	[2]132,160,723	[2]87,918,327	1,522	1,381	[3]112,901,548	[3]128,859,587
APPALACHIAN REGIONS:																
Alabama	266	263	15,411,436	13,676,601	96	109	8,629,789	10,309,117	126	63	3,924,418	1,639,539	44	31	2,857,229	1,676,095
Kentucky	742	310	29,426,018	10,501,276	235	141	13,639,139	5,597,607	419	121	11,082,208	3,056,051	88	48	3,823,311	1,907,018
Maryland	62	70	2,007,336	4,001,272	30	42	824,081	2,910,850	28	17	355,512	344,265	34	11	1,817,113	749,157
Ohio	868	640	35,449,541	27,518,761	354	260	18,203,001	12,473,327	380	225	6,715,216	4,022,418	164	155	10,202,321	11,023,019
Pennsylvania	2,581	1,500	150,629,687	137,304,762	1,168	587	93,631,316	64,782,860	960	471	25,600,540	21,400,517	450	451	30,791,855	51,121,383
Tennessee	143	142	5,132,107	5,972,030	32	38	1,610,144	2,092,475	94	75	2,821,077	3,043,900	17	29	700,340	926,555
Virginia	118	85	9,334,780	4,949,341	29	10	1,515,304	147,896	75	54	5,583,626	2,761,607	17	21	2,206,450	2,039,778
West Virginia	1,287	601	77,617,115	51,495,666	322	157	17,444,017	11,008,781	708	352	43,863,849	26,111,412	257	152	16,060,240	14,375,473
MICHIGAN REGION	14	28	995,999	1,772,315	.....	3	.....	9,987	4	2	107,600	(4)	10	23	888,399	[5]1,762,328
EASTERN INTERIOR REGION:																
Illinois	499	631	60,330,650	50,570,503	212	257	32,231,470	26,638,707	178	254	11,268,970	5,010,057	109	138	16,830,210	17,901,679
Indiana	317	322	20,504,791	14,723,231	115	147	7,440,233	7,220,506	128	115	5,326,402	2,506,629	74	60	7,738,156	4,996,096
WESTERN INTERIOR REGION:																
Iowa	195	311	5,474,249	7,725,670	33	57	1,084,630	1,408,230	119	178	1,917,164	2,305,695	43	76	2,472,455	3,951,754
Kansas	166	202	5,204,388	6,805,660	20	56	1,403,236	3,185,115	110	121	2,414,948	1,868,893	30	25	1,386,204	1,841,652
Missouri	196	220	3,783,714	3,596,691	59	75	1,121,573	1,179,523	108	113	1,411,564	1,065,589	29	32	920,577	1,351,579
SOUTHERN INTERIOR REGION:																
Arkansas	91	69	1,410,493	2,373,619	15	19	201,572	1,178,105	60	35	825,010	550,612	16	15	413,911	644,872
Oklahoma	131	104	3,782,794	3,113,149	18	6	880,888	59,394	94	94	2,346,019	2,906,888	19	4	555,887	155,867
Texas	42	47	1,588,240	1,824,742	17	28	845,470	1,282,486	18	11	604,893	383,663	7	8	137,877	158,593
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:																
Colorado	164	157	10,182,512	10,705,253	55	48	2,472,147	1,990,949	62	55	2,398,939	1,670,848	47	54	5,311,426	7,034,466
Montana	76	65	3,211,719	2,543,383	36	42	1,329,826	1,287,913	24	12	278,136	282,190	16	11	1,603,757	973,280
New Mexico	34	29	3,185,484	2,799,551	24	18	2,590,472	1,652,254	5	4	(4)	57,320	5	7	[6]595,012	1,089,968
North Dakota	70	53	707,695	304,536	44	44	545,560	330,305	33	9	(4)	31,231	2	.....	[5]222,135	.....
Utah	34	22	4,592,847	2,259,789	22	21	3,175,097	2,242,489	7	1	(4)	(8)	5	.....	[6]1,417,750	.....
Washington	43	54	2,986,910	3,601,213	13	25	806,080	2,470,080	11	10	436,069	138,211	19	19	1,684,722	992,889
Wyoming	65	65	7,212,006	6,294,596	32	35	3,575,056	3,470,907	19	15	1,443,118	688,717	11	15	2,193,832	2,134,972
All other states[7]	12	17	92,259	308,054	8	12	85,552	253,417	4	3	6,707	(4)	.....	2	.....	[6,8]71,957

[1] Includes figures, for anthracite mines in Colorado and New Mexico, classified as anthracite enterprises in 1909.
[2] Includes tonnage for mines not distributed by states, in order to avoid disclosure of individual operations. See notes 3, 4, 5, and 6.
[3] Exclusive of tonnage for mines on land held under lease, which, to avoid disclosure, is distributed by states with the tonnage for mines on land partly owned and partly held under lease. See notes 2, 4, 5, and 6.
[4] Tonnage not shown is combined, in order to avoid disclosure, with tonnage for mines on land partly owned and partly held under lease. See notes 2, 3, and 5.
[5] Includes tonnage for mines on land held under lease. See notes 2, 3, and 4.
[6] Tonnage not shown is combined, in order to avoid disclosure, with tonnage of mines in "All other states" operated on land partly owned and partly held under lease. See note 8.
[7] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.
[8] Includes tonnage of mine on land held under lease in Utah. See note 6.

The table indicates by the average output per mine in each class that the mines operated on land held by ownership were generally larger than those operated on land held under lease. In the United States as a whole, the average output per mine in these two classes was respectively about 70,000 tons and 35,000 tons in both 1919 and 1909. The average output for each form of tenure in the leading state of each of the principal regions is shown in the following statement:

		AVERAGE OUTPUT BY MINES—	
		On land owned (tons, 2,000 lbs.).	On land held under lease (tons, 2,000 lbs.).
Pennsylvania	1919	80,000	27,000
	1909	110,000	45,000
West Virginia	1919	53,000	62,000
	1909	70,000	74,000
Illinois	1919	152,000	63,000
	1909	112,000	23,000
Colorado	1919	45,000	39,000
	1909	42,000	30,000

Royalties.—Table 35 presents for producing anthracite enterprises and Table 36 presents by regions and states for producing bituminous-coal enterprises classified according to form of tenure of coal land, the number of mines, royalties and rents paid, the total value of all products, and the quantity of coal produced. Although the census of 1919 did not distinguish between royalties and rents paid for mineral lands and rents of other kinds, the statistics presented relating to royalties and rents are for the most part royalties only, as rents of other kinds are in the aggregate insignificant in the coal-mining industry. This is indicated by the fact that the amounts reported for enterprises of the class operating only on land held by ownership is a relatively small part of the total royalties and rents paid by all enterprises. Royalties are a compensation for coal mined from leased land and are generally a fixed charge per ton of coal marketed.

TABLE 35.—QUANTITY AND VALUE OF ANTHRACITE PRODUCED AND ROYALTIES AND RENTS, FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF COAL LAND: 1919.

CLASS OF ENTERPRISE.	Number of enterprises.	Number of mines.	Value of all products.	Anthracite produced (tons, 2,240 pounds).	Royalties and rents.
All classes	[1] 156	374	$361,005,810	77,418,269	$11,405,158
Enterprises operating:					
Only owned land	16	21	33,086,790	7,525,526	131,937
Only land held under lease	87	100	58,988,631	12,993,872	5,875,618
Land partly owned and partly held under lease	53	250	268,930,389	56,898,871	5,397,603

[1] Exclusive of 19 enterprises operating culm washeries only and 79 enterprises operating river dredges.

Table 35 shows that more than half of the anthracite-mining enterprises operated only leased acreage and reported about one-sixth of the total quantity and value of products of anthracite mines but that they paid more than one-half of all royalties and rents, which amounted to an average rate of 45 cents per ton of coal produced. Enterprises which operated on land held by ownership entirely, representing only one-tenth of the total number of anthracite enterprises, reported somewhat more than one-twelfth of the total quantity and value of anthracite mined and paid less than 2 per cent of the total amount of royalties and rents and at a rate of less than 2 cents per ton of coal produced. The one-third of the anthracite enterprises which operated on land partly owned and partly held under lease produced approximately three-fourths of the total quantity and value of coal and reported less than half the total royalties and rents paid by anthracite mines, which amounted to 9 cents per ton of coal produced.

Table 36 shows that about one-half of the bituminous coal-mining enterprises in the United States as a whole were in the class operating only leased acreage and they reported less than one-third of the total quantity and value of the bituminous-coal output, but paid more than two-thirds of the total royalties and rents reported by bituminous-coal enterprises. This amounted to 12 cents per ton for enterprises in this class. Enterprises in the class operating only on land held by ownership, constituting a little more than one-third of the total number, reported nearly one-half of the total quantity and value of the bituminous-coal output and paid in royalties and rents (probably chiefly rents for buildings and equipment) less than 4 per cent of the total amount reported as royalties and rents.

TABLE 36.—QUANTITY AND VALUE OF BITUMINOUS COAL PRODUCED AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF COAL LAND: 1919.

REGION AND STATE.	ALL CLASSES.					ENTERPRISES OPERATING— Only owned land.				
	Number of enterprises.	Number of mines.	Value of all products.	Coal produced (tons, 2,000 pounds).	Royalties and rents.	Number of enterprises.	Number of mines.	Value of all products.	Coal produced (tons, 2,000 pounds).	Royalties and rents.
UNITED STATES	6,636	8,282	$1,145,977,505	460,425,836	$22,205,056	2,333	2,986	$515,769,546	215,357,565	$830,030
NORTHERN AND MIDDLE APPALACHIAN REGIONS	4,379	5,648	731,847,202	300,397,540	16,041,319	1,538	2,044	327,555,808	140,383,281	533,136
Kentucky, eastern	469	552	54,503,403	21,150,896	1,566,304	83	127	20,209,468	8,070,803	23,477
Maryland	58	92	8,195,367	2,997,336	109,627	20	30	2,202,922	824,681	4,079
Ohio	788	808	77,988,602	35,140,541	1,420,770	306	354	40,114,846	18,203,004	34,586
Pennsylvania	1,938	2,584	362,973,952	150,029,087	6,003,527	863	1,168	217,966,327	93,631,316	386,141
Tennessee, northeastern	92	117	11,313,735	4,127,179	336,266	11	17	2,344,653	964,156	1,483
Virginia	108	118	23,763,440	9,334,786	679,464	23	26	3,831,947	1,545,304	20,767
West Virginia	926	1,287	193,108,343	77,617,115	5,925,361	232	322	40,885,705	17,144,017	62,603
SOUTHERN APPALACHIAN REGION	205	288	48,295,042	16,476,750	733,106	62	107	26,012,362	9,336,103	31,048
Alabama	188	260	45,359,441	15,411,436	684,997	54	90	24,108,275	8,629,789	26,781
Georgia, North Carolina, and Tennessee, southeastern	17	28	2,935,601	1,065,314	48,109	8	17	1,904,087	706,314	4,267
MICHIGAN REGION	11	14	3,861,874	995,999	40,940	.....	.....	.....	.....	.....
EASTERN INTERIOR REGION	908	1,006	202,189,938	89,110,563	2,425,348	389	435	102,740,563	45,221,339	81,159
Illinois	447	499	138,767,835	60,330,650	1,704,594	192	212	74,195,278	32,231,470	55,109
Indiana	295	317	45,492,726	20,504,791	562,205	110	115	16,682,935	7,440,233	24,498
Kentucky, western	166	190	17,929,377	8,275,122	158,489	87	108	11,862,350	5,549,636	1,552
WESTERN INTERIOR REGION	475	557	44,729,738	14,462,351	977,791	100	118	12,033,642	3,909,439	15,533
Iowa	167	195	16,903,358	5,474,249	299,194	28	33	3,099,568	1,084,630	1,021
Kansas	129	166	15,748,535	5,204,388	409,674	19	26	4,287,899	1,403,236	8,369
Missouri	179	196	12,077,845	3,783,714	268,923	53	59	4,646,175	1,421,573	6,143
SOUTHERN INTERIOR REGION	212	264	24,001,691	6,811,527	618,505	40	50	7,194,766	1,927,930	19,099
Arkansas	85	91	5,292,274	1,440,493	184,207	14	15	726,935	201,572	339
Oklahoma	94	131	14,477,317	3,782,794	349,853	15	18	3,390,882	880,888	18,397
Texas	33	42	4,322,100	1,588,240	84,505	11	17	3,076,949	845,470	363
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	440	505	90,902,080	32,171,106	1,448,987	204	232	40,232,345	14,579,473	150,055
Colorado	161	164	28,342,195	10,182,512	732,430	55	55	6,600,452	2,472,147	26,369
Montana	67	70	8,591,211	3,211,719	139,369	34	36	3,667,862	1,329,826	23,211
New Mexico	21	34	9,905,541	3,185,484	97,107	16	24	7,460,595	2,590,472	48,641
North Dakota	79	79	1,027,304	767,695	30,868	44	44	1,379,958	545,560	1,625
Utah	27	34	12,632,035	4,502,847	39,273	18	22	8,576,870	3,175,097	6,604
Washington	35	43	10,737,056	2,986,910	166,279	12	13	3,310,967	866,089	40,953
Wyoming	46	65	18,723,451	7,212,006	239,261	19	32	9,165,099	3,575,056	1,367
California, Idaho, Oregon, and South Dakota	10	10	102,087	31,933	4,340	6	6	70,542	25,226	1,285

TABLE 36.—QUANTITY AND VALUE OF BITUMINOUS COAL PRODUCED AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF COAL LAND: 1919—Continued.

REGION AND STATE.	ENTERPRISES OPERATING—continued.									
	Only land held under lease.					Land partly owned and partly held under lease.				
	Number of enterprises.	Number of mines.	Value of all products.	Coal produced (tons, 2,000 pounds).	Royalties and rents.	Number of enterprises.	Number of mines.	Value of all products.	Coal produced (tons, 2,000 pounds).	Royalties and rents.
UNITED STATES	3,338	3,774	$341,935,645	132,166,723	$15,895,621	965	1,522	$288,272,374	112,901,548	$5,569,405
NORTHERN AND MIDDLE APPALACHIAN REGIONS	2,262	2,594	243,033,003	95,154,588	11,470,025	579	1,010	161,258,331	64,859,671	4,029,158
Kentucky, eastern	337	355	27,277,095	10,274,623	1,324,845	49	70	7,010,999	2,805,470	217,982
Maryland	23	28	982,407	355,542	47,218	15	34	5,010,338	1,817,113	58,330
Ohio	360	380	15,778,002	6,735,216	928,857	122	164	22,095,754	10,202,321	457,327
Pennsylvania	826	960	65,773,900	25,006,516	3,523,939	249	456	79,233,725	30,791,855	2,093,447
Tennessee, northeastern	77	88	7,670,246	2,735,816	304,132	4	12	1,298,836	427,207	30,651
Virginia	72	75	14,409,699	5,583,026	601,194	13	17	5,462,484	2,206,456	57,503
West Virginia	567	708	111,082,344	43,803,849	4,748,840	127	257	41,140,294	16,699,249	1,113,918
SOUTHERN APPALACHIAN REGION	112	132	12,308,772	4,010,279	569,039	31	49	9,973,908	3,130,368	132,419
Alabama	106	126	12,058,216	3,924,418	544,564	28	44	9,192,950	2,857,220	113,652
Georgia, North Carolina, and Tennessee, southeastern	6	6	250,556	85,861	25,075	3	5	780,958	273,130	18,767
MICHIGAN REGION	4	4	451,058	107,600	8,238	7	10	3,410,816	888,399	41,702
EASTERN INTERIOR REGION	352	370	40,985,072	18,303,017	1,889,576	107	201	58,464,303	25,586,207	454,613
Illinois	170	178	25,491,998	11,268,970	1,357,502	85	109	39,080,559	16,830,210	291,923
Indiana	119	128	11,744,601	5,326,402	410,803	66	74	17,065,190	7,738,156	120,964
Kentucky, western	63	64	3,748,473	1,707,645	121,211	16	18	2,318,554	1,017,841	35,726
WESTERN INTERIOR REGION	310	337	18,112,657	5,773,076	729,833	65	102	14,583,439	4,779,236	232,425
Iowa	110	119	6,266,937	1,917,164	166,617	29	43	7,536,853	2,472,455	131,556
Kansas	98	110	7,268,784	2,414,948	350,932	12	30	4,191,852	1,386,204	50,373
Missouri	102	108	4,576,936	1,441,564	212,284	24	29	2,854,734	920,577	50,496
SOUTHERN INTERIOR REGION	138	172	12,965,673	3,775,922	495,912	34	42	3,631,252	1,107,675	103,554
Arkansas	56	60	3,112,351	825,010	150,208	15	16	1,452,988	413,911	33,660
Oklahoma	66	94	8,931,136	2,346,019	278,434	13	19	2,155,209	555,887	53,022
Texas	16	18	922,186	604,893	67,270	6	7	322,905	137,877	16,872
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	160	165	[1] 14,079,410	[1] 5,041,641	[1] 723,398	82	108	[2] 36,650,325	[2] 12,549,992	[2] 575,534
Colorado	62	62	6,345,761	2,398,939	355,393	44	47	15,305,082	5,311,426	350,608
Montana	24	24	742,955	278,136	40,911	9	16	4,180,394	1,603,757	75,247
New Mexico	2	5	(3)	(3)	(3)	3	5	[4] 2,444,946	[4] 595,012	[4] 48,526
North Dakota	33	33	(3)	(3)	(3)	2	2	[4] 547,340	[4] 222,135	[4] 29,243
Utah	7	7	(3)	(3)	(3)	2	5	[4] 4,055,105	[4] 1,417,750	[4] 32,669
Washington	11	11	1,531,871	436,099	74,366	12	19	5,894,818	1,684,722	50,000
Wyoming	17	19	3,903,803	1,443,118	145,661	10	14	5,654,540	2,193,832	92,233
California, Idaho, Oregon, and South Dakota	4	4	32,145	6,707	3,055	.....	.....	.....	.....	.....

[1] Includes amounts for 42 enterprises not shown separately by states, in order to avoid disclosure of individual operations.
[2] Exclusive of amounts for 42 enterprises operating only land held under lease which amounts are included, in order to avoid disclosure, with the figures for the separate states.
[3] Combined, to avoid disclosure, with statistics for enterprises operating land partly owned and partly held under lease.
[4] Includes, to avoid disclosure, statistics for enterprises operating only land held under lease.

A little more than one-seventh of the total number of bituminous-coal enterprises operated on land partly held by ownership and partly held under lease, reported about one-fourth of the quantity and value of the coal output, and paid about one-fourth of the total royalties and rents, which amounted to approximately 5 cents per ton of coal produced by enterprises in this class.

Table 37 shows for those anthracite enterprises which operated only leased properties the amount of royalties paid per ton of output, and Table 38 shows similar data by regions and states for the bituminous-coal enterprises which operated only on land held under lease. For bituminous coal the average rates ranged from 10 to 14 cents per ton in the principal regions and from 10 to 15 cents per ton in states having important production.

TABLE 37.—ANTHRACITE PRODUCED AND ROYALTIES FOR ENTERPRISES OPERATING LEASED PROPERTIES: 1919.[1]

CLASS OF ENTERPRISE.	Coal produced (tons, 2,240 pounds).	ROYALTIES AND RENTS.	
		Amount.	Average per ton.
All classes	14,187,402	$6,235,320	$0.44
Enterprises operating:			
Mines only	606,150	192,250	0.32
Breakers, mines, and washeries	12,387,722	5,683,308	0.46
Culm washeries only	609,111	341,549	0.56
Dredges only	584,479	18,159	0.03

[1] Statistics relate to enterprises which operated leased properties only and not to enterprises which operated both owned and leased properties.

TABLE 38.—BITUMINOUS COAL PRODUCED AND ROYALTIES FOR MINES OPERATING ON LEASED LAND: 1919.[1]

REGION AND STATE.	Coal produced (tons, 2,000 pounds).	ROYALTIES AND RENTS.	
		Amount.	Average per ton.
UNITED STATES	132,166,723	$15,895,621	0.12
NORTHERN AND MIDDLE APPALACHIAN REGIONS	95,154,588	11,479,025	0.12
Kentucky, eastern	10,271,623	1,324,845	0.13
Maryland	365,542	47,218	0.13
Ohio	6,735,216	928,857	0.14
Pennsylvania	25,606,516	3,523,939	0.14
Tennessee, northeastern	2,735,818	304,132	0.11
Virginia	5,583,023	601,194	0.11
West Virginia	43,863,849	4,748,840	0.11
SOUTHERN APPALACHIAN REGION	4,010,270	569,639	0.14
Alabama	3,924,418	544,564	0.14
Georgia, North Carolina, and Tennessee, southeastern	85,861	25,075	0.29
MICHIGAN REGION	107,600	8,238	0.08
EASTERN INTERIOR REGION	18,303,017	1,889,576	0.10
Illinois	11,268,970	1,357,562	0.12
Indiana	5,326,402	410,803	0.08
Kentucky, western	1,707,645	121,211	0.07
WESTERN INTERIOR REGION	5,773,576	729,833	0.13
Iowa	1,917,164	166,617	0.09
Kansas	2,414,948	350,932	0.15
Missouri	1,441,564	212,284	0.15
SOUTHERN INTERIOR REGION	3,775,022	495,912	0.13
Arkansas	825,010	150,208	0.18
Oklahoma	2,346,019	278,434	0.12
Texas	604,893	67,270	0.11
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS	5,041,641	723,398	0.14
Colorado	2,398,939	355,393	0.15
Montana	278,136	40,911	0.15
Washington	436,099	74,366	0.17
Wyoming	1,443,118	145,631	0.10
All other states [2]	485,349	107,087	0.22

[1] Statistics relate to enterprises which operated leased lands only; not to enterprises which operated both owned and leased lands.
[2] Includes California, Idaho, New Mexico, North Dakota, Oregon, South Dakota, and Utah.

POWER.

Power equipment used: 1919.—The number and horsepower of the several types of prime movers and of electric motors used by all coal-mining enterprises in 1919 are given by regions and states in the table of detailed statistics at the end of this report. In Table 39 these statistics are summarized for producing enterprises in the United States as a whole and given separately for anthracite and bituminous coal-mining enterprises, classified according to mining method. Of the aggregate horsepower used by producing coal mines of all kinds 70.9 per cent was furnished by prime movers operated by the reporting enterprise and 29.1 per cent by equipment operated by purchased power. Electric motors were much less used in anthracite mining than in bituminous coal mining, although the anthracite culm washeries, which reported only a small figure for aggregate horsepower, used chiefly electric motors run by purchased current. Steam engines (not turbines) were the principal sources of power for the industry as a whole as well as for both of its branches. Steam turbines furnished a much smaller part of the power used, but the table shows that although they were relatively unimportant in number those reported were for the most part very large and they supplied 8.1 per cent of the aggregate horsepower used. Internal-combustion engines were reported in considerable numbers but were small and furnished only a negligible part of the total horsepower used except on anthracite dredges.

TABLE 39.—POWER EQUIPMENT, PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO MINING METHOD: 1919.

CLASS OF ENTERPRISE.	POWER USED.									
	Aggregate horsepower.	Prime movers.								
		Total horsepower.	Steam engines (not turbines).		Steam turbines.		Internal-combustion engines.		Water wheels and turbines.	
			Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower
All producing coal enterprises	3,055,195	2,166,021	11,475	1,897,003	358	246,444	1,319	22,503	9	71
Anthracite (Pennsylvania)	899,783	782,090	5,298	730,141	45	50,665	73	1,281	.....	.....
Enterprises operating—										
Mines only	14,886	10,923	122	10,923	.....	.....	.....	.....	.....	.....
Breakers, mines, and washeries	875,088	766,524	5,014	715,201	45	50,665	19	655	.....	.....
Culm washeries only	6,067	1,705	25	1,705	.....	.....	.....	.....	.....	.....
Dredges only	3,742	2,938	137	2,309	.....	.....	54	629	.....	.....
Bituminous coal	2,155,412	1,383,931	9,177	1,166,862	313	195,779	1,246	21,219	9	74
Enterprises—										
Without mining machines	380,491	286,881	3,132	263,531	38	12,308	975	10,968	9	74
Using mining machines	1,774,921	1,097,053	6,045	903,331	275	183,471	271	10,251	.....	.....

CLASS OF ENTERPRISE.	POWER USED—con.			ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING.		PER CENT OF AGGREGATE HORSEPOWER.				
	Equipment operated by purchased power.					Total prime movers.	Steam engines (not turbines).	Steam turbines.	Internal-combustion engines.	Electric motors operated by purchased current.
	Electric motors.		Other.							
	Number.	Horsepower.	Horsepower.	Number.	Horsepower.					
All producing coal enterprises	23,067	888,824	347	24,815	893,064	70.9	62.1	8.1	0.7	29.1
Anthracite (Pennsylvania)	1,881	117,693	.....	3,801	185,723	86.9	81.1	5.6	0.1	13.1
Enterprises operating—										
Mines only	86	3,963	.....	2	100	73.4	73.3	.....	.....	26.6
Breakers, mines, and washeries	1,655	108,564	.....	3,799	185,623	87.6	81.7	5.8	0.1	12.4
Culm washeries only	98	4,362	.....	.....	.....	28.1	28.1	.....	.....	71.9
Dredges only	42	804	.....	.....	.....	78.5	61.7	.....	16.8	21.5
Bituminous coal	21,186	771,131	347	21,044	707,341	64.2	54.1	9.1	1.0	35.8
Enterprises—										
Without mining machines	2,037	93,605	5	2,196	59,871	75.4	69.3	3.2	2.9	24.6
Using mining machines	18,519	677,526	342	18,818	617,470	61.8	50.9	10.3	0.6	38.2

Extent of electrification.—The relative use of electrically driven equipment as compared with mechanical drive or the direct use of prime movers, in other words, the extent of electrification in the coal-mining industry, may be estimated from the ratio of the total horsepower of all electric motors used to the horsepower of prime movers used. As, however, some considerable part of the reported horsepower of prime movers was used for driving electric generators which furnished current for operating motors, the total horsepower of prime movers should be reduced by the amount required to drive generators in making such estimates. The extent of electrification may be roughly approximated from the data presented in Tables 12, 39, and 42 by comparing the total horsepower of all electric motors with the horsepower of prime movers, not including that used to drive generators of electric current. Thus measured, the horsepower of electric motors for all productive coal mines in the United States in 1919 was roughly 40 per cent greater than the horsepower of prime movers used for direct drive of mechanical equipment; whereas in 1909 the horsepower of electric motors was only about one-fourth of the horsepower of prime movers used for mechanical drive. The corresponding ratio for bituminous coal-mining enterprises in 1919 was as 2 to 1 and for anthracite enterprises was as one-half to 1, whereas in 1909 the ratios were as 0.4 and 0.075 to 1, respectively. The estimated ratios for producing anthracite enterprises in 1919, classified according to mining method, and for producing bituminous-coal enterprises in 1919, separately by regions, and according to the use of mining machines are given in the following statement:

	Electric motors.	Prime movers.
Anthracite (Pennsylvania)	0.5	1
Enterprises operating—		
Mines only	0.4	1
Breakers, mines, and washeries	0.5	1
Culm washeries only	2.0	1
River dredges only	0.3	1
Bituminous Coal	2.2	1
Enterprises without mining machines	0.7	1
Enterprises using mining machines	2.0	1
Northern and Middle Appalachian Regions	3.4	1
Enterprises without mining machines	0.2	1
Enterprises using mining machines	4.0	1
Southern Appalachian Region	1.8	1
Enterprises without mining machines	0.0	1
Enterprises using mining machines	3.1	1
Michigan Region	6.6	1
Enterprises without mining machines	.....	.....
Enterprises using mining machines	7.1	1
Eastern Interior Region	1.3	1
Enterprises without mining machines	0.4	1
Enterprises using mining machines	1.0	1
Western Interior Region	0.5	1
Enterprises without mining machines	0.4	1
Enterprises using mining machines	0.7	1
Southern Interior Region	0.5	1
Enterprises without mining machines	0.3	1
Enterprises using mining machines	1.0	1
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	1.5	1
Enterprises without mining machines	1.3	1
Enterprises using mining machines	1.5	1

Horsepower used per mine, per wage earner, and per 1,000 tons of coal produced.—Table 40 shows for producing anthracite-mining enterprises, classified according to type of operation, the aggregate horsepower used per enterprise and per plant, per wage earner, and per thousand tons of coal produced.

TABLE 40.—HORSEPOWER USED PER ENTERPRISE, PER MINE, ETC., PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED, FOR ANTHRACITE ENTERPRISES, CLASSIFIED ACCORDING TO CHARACTER OF OPERATION: 1919.

CLASS OF ENTERPRISE.	Number of enterprises.	Number of mines, etc.	Wage earners (average number).	Coal produced (tons, 2,240 pounds).	POWER USED (AGGREGATE HORSEPOWER). Total.	Per enterprise.	Per mine, etc.	Per wage earner.	Per 1,000 tons of coal produced.
All classes	254	.....	147,372	78,723,068	899,783	3,542	.....	6.1	11.4
Enterprises operating:									
Mines only	16	16	2,783	1,709,181	14,886	930	930	5.3	8.7
Breakers, mines, and washeries	140	[1] 245 / [2] 358	113,799	75,709,088	875,088	6,251	3,572 / 2,444	6.1	11.6
Culm washeries only	19	19	434	684,034	6,067	319	319	14.0	8.9
Dredges only	79	81	356	621,305	3,742	47	46	10.5	6.0

[1] Mines. [2] Breakers.

The power used per unit of operation (per enterprise or mine, breaker, washery, or dredge) is greatest for mines and breakers and least for dredges, but the mines and breakers used less horsepower per wage earner employed and produced fewer tons of coal per horsepower used. Separate data for horsepower used by mines, and by breakers and washeries connected with them, are not available for enterprises operating breakers and mines. Therefore, the average horsepower per mine as given in Table 40 includes the proportionate amount for breakers and washeries connected with mines, and the average per breaker includes the proportionate amount for mines and washeries operated in connection with the breaker.

Table 41 shows for producing bituminous-coal enterprises by mining regions and selected states, for enterprises classified according to the use of mining machines, the horsepower per mine, per wage earner employed, and per thousand tons of coal mined. The table shows by comparison with Table 40 that the power used per mine and per wage earner was less for bituminous coal mines than for anthracite mines; but the power used per ton of coal mined was also less than for anthracite, which means that the output per horsepower used was

greater for bituminous coal than for anthracite. The table also shows that the average horsepower per mine and per wage earner was considerably larger for enterprises using mining machines, and was also greater per thousand tons of coal mined.

TABLE 41.—POWER USED BY BITUMINOUS COAL ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED FOR SELECTED STATES: 1919.

Region and state.	All classes.							Enterprises without mining machines.		
	Number of mines.	Wage earners (average number).	Coal produced (tons, 2,000 pounds). Expressed in thousands.	Power used (aggregate horsepower). Total.	Power used (aggregate horsepower). Per mine.	Power used (aggregate horsepower). Per wage earner.	Power used (aggregate horsepower). Per 1,000 tons of coal mined.	Number of mines.	Wage earners (average number).	Coal produced (tons, 2,000 pounds). Expressed in thousands.
United States	8,282	545,798	460,426	2,155,412	260.3	3.9	4.7	4,412	133,228	92,861
Northern and Middle Appalachian Regions	5,648	334,615	300,398	1,315,455	232.9	3.9	4.4	2,715	52,627	40,558
Kentucky, eastern	552	28,789	21,151	91,487	165.7	3.2	4.3	287	4,886	2,941
Maryland	92	4,826	2,997	12,470	135.5	2.6	4.2	62	2,340	1,476
Ohio	898	40,452	35,141	136,145	151.6	3.4	3.9	403	3,429	2,364
Pennsylvania	2,584	154,992	150,030	658,963	255.0	4.3	4.4	1,428	27,987	23,542
Tennessee, northeastern	117	7,246	4,127	19,281	164.8	2.7	4.7	64	1,870	899
Virginia	118	11,215	9,335	41,630	352.8	3.7	4.5	71	1,703	1,078
West Virginia	1,287	87,095	77,617	355,479	276.2	4.1	4.6	400	10,412	8,258
Southern Appalachian Region	288	27,174	16,476	101,326	351.8	3.7	6.1	198	13,688	7,849
Alabama	260	24,648	15,411	97,039	373.2	3.9	6.3	172	11,321	6,891
Eastern Interior Region	1,006	109,239	89,111	382,044	379.8	3.5	4.3	580	29,902	21,744
Illinois	499	73,780	60,331	247,142	495.3	3.3	4.1	291	21,050	15,265
Indiana	317	24,479	20,505	99,585	314.1	4.1	4.9	176	7,100	5,297
Kentucky, western	190	10,980	8,275	35,317	185.9	3.2	4.3	113	1,752	1,182
Western Interior Region	557	25,053	14,462	77,942	139.9	3.0	5.4	419	17,641	9,614
Iowa	195	10,584	5,474	26,123	134.0	2.5	4.8	160	6,630	3,341
Kansas	166	8,084	5,204	23,434	141.2	2.9	4.5	126	7,009	4,411
Missouri	196	7,285	3,784	28,385	144.8	3.9	7.5	133	4,002	1,862
Southern Interior Region	264	12,538	6,811	57,647	218.4	4.6	8.5	204	8,530	4,437
Oklahoma	131	7,040	3,783	36,483	278.5	5.2	9.6	78	3,278	1,552
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	495	34,538	32,149	213,487	431.3	6.2	6.6	286	10,753	8,617
Colorado	164	11,252	10,183	63,016	384.2	5.6	6.2	78	3,733	3,042
Montana	76	3,797	3,212	27,077	356.3	7.1	8.4	46	679	503
New Mexico	34	3,564	3,185	18,063	531.3	5.1	5.7	15	276	164
North Dakota	79	774	768	2,037	25.8	2.6	2.7	71	384	420
Utah	34	3,647	4,593	24,029	706.7	6.6	5.2	15	234	202
Washington	43	4,413	2,087	32,190	748.6	7.3	10.8	37	3,811	2,659
Wyoming	65	7,091	7,212	47,075	724.2	6.6	6.5	24	1,636	1,627

Region and state.	Enterprises without mining machines—continued. Power used (aggregate horsepower). Total.	Per mine.	Per wage earner.	Per 1,000 tons of coal mined.	Enterprises using mining machines. Number of mines.	Wage earners (average number).	Coal produced (tons, 2,000 pounds). Expressed in thousands.	Power used (aggregate horsepower). Total.	Per mine.	Per wage earner.	Per 1,000 tons of coal mined.
United States	380,491	86.2	2.9	4.1	3,870	412,570	367,565	1,774,921	458.6	4.3	4.8
Northern and Middle Appalachian Regions	108,442	39.9	2.1	2.7	2,933	281,988	259,840	1,207,013	411.5	4.3	4.6
Kentucky, eastern	3,208	11.2	0.7	1.1	265	23,903	18,210	88,279	333.1	3.7	4.8
Maryland	3,225	52.0	1.4	2.2	30	2,486	1,521	9,245	308.2	3.7	6.1
Ohio	6,662	16.5	1.9	2.8	495	37,023	32,777	129,483	261.6	3.5	4.0
Pennsylvania	67,783	47.5	2.4	2.9	1,156	127,005	120,488	591,180	511.4	4.7	4.7
Tennessee, northeastern	4,424	69.1	2.4	4.9	53	5,376	3,228	14,857	280.3	2.8	4.6
Virginia	2,656	37.4	1.6	2.5	47	9,512	8,257	38,974	829.2	4.1	4.7
West Virginia	20,484	51.2	2.0	2.5	887	76,683	69,359	334,995	377.7	4.4	4.8
Southern Appalachian Region	39,860	201.3	2.9	5.1	90	13,486	8,627	61,466	683.0	4.6	7.1
Alabama	35,941	209.0	3.2	5.2	88	13,327	8,520	61,098	694.3	4.6	7.2
Eastern Interior Region	82,398	142.1	2.8	3.8	426	79,337	67,367	299,646	703.4	3.8	4.4
Illinois	57,630	198.0	2.7	3.8	208	52,730	45,066	189,512	911.1	3.6	4.2
Indiana	20,829	118.3	2.9	3.9	141	17,379	15,208	78,756	558.6	4.5	5.2
Kentucky, western	3,939	34.9	2.2	3.3	77	9,228	7,093	31,378	407.5	3.4	4.4
Western Interior Region	43,050	102.7	2.4	4.5	138	8,312	4,848	34,892	252.8	4.2	7.2
Iowa	17,396	108.5	2.6	5.2	35	3,954	2,133	8,757	250.2	2.2	4.1
Kansas	15,831	125.9	2.3	3.6	40	1,075	793	7,573	189.3	7.0	9.5
Missouri	9,823	73.9	2.5	5.3	63	3,283	1,922	18,562	294.6	5.7	9.7
Southern Interior Region	36,073	176.8	4.2	8.1	60	4,008	2,374	21,574	359.6	5.4	9.1
Oklahoma	16,935	217.1	5.2	10.9	53	3,762	2,231	19,548	368.8	5.2	8.8
Northern Great Plains, Rocky Mountain, and Pacific Coast Regions	70,051	244.9	6.5	8.1	209	23,785	23,523	143,436	686.3	6.0	6.1
Colorado	20,770	266.3	5.6	6.8	86	7,519	7,141	42,246	491.2	5.6	5.9
Montana	5,841	127.0	8.0	11.6	30	3,118	2,709	21,236	707.9	6.8	7.8
New Mexico	685	45.7	2.5	4.2	19	3,288	3,021	17,378	914.6	5.3	5.8
North Dakota	624	8.8	1.6	1.5	8	390	348	1,413	176.6	3.6	4.1
Utah	900	60.0	3.8	4.5	19	3,413	4,391	23,120	1,217.3	6.8	5.3
Washington	29,425	795.3	7.7	11.1	6	602	328	2,765	460.8	4.6	8.4
Wyoming	11,806	491.9	7.2	7.3	41	5,455	5,585	35,289	860.2	6.5	6.3

Comparative statistics for power: 1919 and 1909.—Comparative statistics relating to the number and horsepower of various types of prime movers and of electric motors used by coal-mining enterprises are given by mining regions in Table 12. In Table 42, which follows, the horsepower used per mine, per wage earner, and per thousand tons of coal produced in 1919 and 1909 are compared for anthracite enterprises and for bituminous coal-mining enterprises in the United States as a whole. The table shows notable advance in the industry through increased use of power and hence of mechanical equipment.

TABLE 42.—COMPARATIVE STATISTICS, POWER USED, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED: 1919 AND 1909.

	POWER USED (AGGREGATE HORSEPOWER).			
	Total.	Per mine.	Per wage earner.	Per 1,000 tons (2,000 pounds) of coal produced.
All producing coal enterprises:				
1919	3,055,195	.....	4.4	5.6
1909	1,904,154	.....	2.8	4.2
Per cent of increase	60.4	.....	57.1	33.3
Anthracite (Pennsylvania):				
1919	899,783	.....	6.1	10.2
1909	676,128	.....	4.0	8.4
Per cent of increase	33.1	.....	52.5	21.4
Bituminous coal:				
1919	2,155,412	260	3.9	4.7
1909	1,228,026	204	2.4	3.3
Per cent of increase	75.5	27.4	62.5	42.4

METHOD OF OPERATION.

Principal statistics for anthracite enterprises classified according to character of operation.—At the Census of 1919 anthracite enterprises were grouped in four classes according to the character of operations as follows: (1) Enterprises which operated only mines and produced only fresh run-of-mine coal; (2) enterprises which operated breakers, generally in connection with one or more mines, and some of which also operated washeries. Enterprises of this class produced chiefly freshly mined coal which was for the most part cleaned and sized at the breakers, but some of these enterprises which also operated washeries marketed some washery product which was not freshly mined coal. Unfortunately, the records of such operating companies would not permit a segregation of census data for washeries as distinct from mining operations; (3) enterprises which operated only culm washeries, the product of which was not freshly mined coal; and (4) enterprises which operated river dredges, the product of which was not freshly mined coal.

Table 43 shows the quantity and value of products as compiled by the United States Geological Survey for mines and breakers producing freshly mined coal separately from the product of washeries and dredges which was not freshly mined coal. The freshly mined coal represented 97 per cent of the total quantity and value of anthracite produced. The culm washery product represented nearly all of the remainder and the dredge product was negligibly small.

TABLE 43.—ANTHRACITE PRODUCED, BY DIFFERENT METHODS: 1919.[1]

	Quantity (tons, 2,240 pounds).	Value (total).
Total	76,053,751	$304,926,950
Mine and breaker product (freshly mined coal)	74,161,954	353,104,440
Washery product	3,872,964	10,953,756
Dredge product	618,833	868,746

[1] U. S. Geological Survey, Mineral Resources of the United States.

In Table 44 the principal statistics are shown separately for anthracite enterprises so far as it is possible to segregate them by character of operation. The table also shows the per cent each class of enterprises contributes to the total for each item. Other statistics for anthracite enterprises classified according to character of operation are given in Tables 5, 20, 26, 27, 37, 39, and 40.

TABLE 44.—PRINCIPAL STATISTICS FOR ANTHRACITE ENTERPRISES, CLASSIFIED ACCORDING TO CHARACTER OF OPERATION: 1919.

	All enterprises.	Enterprises operating— Breakers, mines, and washeries.		Mines only.		Culm washeries.		River dredges.	
		Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.
Number of enterprises	254	140	55.1	16	6.3	19	7.5	79	31.1
Number of mines	374	358	95.7	16	4.3				
Number of breakers	245	245	100.0						
Number of culm washeries	70	60	75.9			19	24.1		
Number of dredges	81							81	100.0
Coal land operated ... acres	261,355	252,671	96.7	8,684	3.3				
Owned ... acres	194,390	192,031	98.8	2,359	1.2				
Held under lease ... acres	77,955	71,528	91.8	6,427	8.2				
Persons engaged	154,882	150,923	97.4	2,948	1.9	496	0.3	515	0.3
Proprietors and firm members (total)	159	45	28.3	1	0.6			113	71.1
Number performing manual labor	34	9	26.5	1	2.9			24	70.6
Salaried employees	7,351	7,079	96.3	164	2.2	62	0.8	46	0.6
Wage earners (average number)	147,372	143,799	97.6	2,783	1.9	434	0.3	356	0.2
Wage earners, Dec. 15 or nearest representative day	152,243	147,072	97.2	3,053	2.0	733	0.5	485	0.3
Above ground	46,618	44,756	96.0	644	1.4	733	1.6	485	1.0
Below ground	105,625	103,216	97.7	2,409	2.3				
Power used (aggregate horsepower)	899,783	875,088	97.3	14,886	1.7	6,067	0.7	3,742	0.4
Capital	$433,868,089	$421,597,304	97.2	$8,748,298	2.0	$1,943,053	0.4	$1,579,384	0.4
Principal expenses:									
Salaries	$12,995,409	$12,485,109	96.1	$313,832	2.4	$137,531	1.1	$58,997	0.5
Wages	$210,289,473	$205,758,460	97.8	$3,041,559	1.7	$502,903	0.2	$386,551	0.2
Contract work	$1,557,345	$1,439,588	92.4	$76,779	4.9	$40,200	2.6	$1,278	0.1
Supplies and materials [1]	$59,738,376	$57,944,018	97.0	$1,320,548	2.2	$284,689	0.5	$189,121	0.3
Fuel	$11,400,117	$11,221,531	98.4	$106,767	0.9	$20,814	0.2	$57,005	0.5
Purchased power	$1,899,835	$1,721,959	90.6	$76,581	4.0	$90,835	4.8	$10,460	0.6
Royalties and rents	$11,766,598	$11,066,694	94.1	$338,464	2.9	$342,616	2.9	$18,824	0.2
Taxes	$14,060,963	$13,907,474	98.9	$143,693	1.0	$7,304	0.1	$2,492	(2)
Products, total value	$364,084,142	$353,549,591	97.1	$7,456,219	2.0	$2,174,200	0.6	$904,132	0.2
Coal—									
Quantity ... tons, 2,240 pounds	78,723,068	75,709,088	96.2	1,709,181	2.2	684,034	0.9	621,365	0.8
Value at mine	$363,944,774	$353,421,992	97.1	$7,455,516	2.0	$2,174,200	0.6	$893,066	0.2

[1] Exclusive of $433,318, the cost of anthracite purchased for resale.

[2] Less than one-tenth of 1 per cent.

Classification of bituminous coal enterprises.—The Census of Mines and Quarries for 1919 recognized only two classes of bituminous coal mines on the basis of mining method—enterprises using mining machines and enterprises operating without mining machines. Other classifications according to mining methods, for example, such as would be based on the kind of mine opening, was not made by the Bureau of the Census, and information bearing on such classification, which was collected by the Bureau of the Census and the Geological Survey cooperatively, has been compiled by the Geological Survey.

The census classification of bituminous-coal enterprises in 1919, according to the method of operation, was based arbitrarily on the use of mining machines regardless of the quantity of coal mined with or without machines, because although in some mines practically the entire output of coal is machine mined and in others it is mined by hand without the use of machines or shot from the solid, in most mines the output is partly machine mined and partly hand mined, and the census data other than that relating to product could not be apportioned in accordance with the tonnage mined one way or another. In the census statistics enterprises classified as using mining machines include those mines using various types of machines for undercutting and shearing coal and also those mines using steam-shovels or other large excavating machines in opencuts or strip pits. Statistics for bituminous coal-mining enterprises, classified according to mining method, are shown in Tables 16, 18, 22, 26, 27, 39, 41, 45, and 46.

The tonnage mined by machines and otherwise, as reported by the United States Geological Survey, is shown by states in Table 45, which also gives the per cent of the total mined by each method. The table shows that in the United States as a whole about 60 per cent of the total tonnage was mined by machines; but the percentages shown for the separate states ranged from less than 1 per cent in Texas to nearly 95 per cent in Michigan. The percentages in this table do not accord with those in Table 46 in which, as explained above, the data are not apportioned according to the tonnages mined with and without machines.

TABLE 45.—BITUMINOUS COAL MINED BY DIFFERENT METHODS IN 1919.[1]

STATE.	Total (tons, 2,000 pounds).	Mined by hand.		Shot from the solid.		Mined by machines.		Mined in strip pits.		Not accounted for.	
		Tons (2,000 pounds).	Per cent of total.	Tons (2,000 pounds).	Per cent of total.	Tons (2,000 pounds).	Per cent of total.	Tons (2,000 pounds).	Per cent of total.	Tons (2,000 pounds).	Per cent of total.
United States	465,860,058	109,715,932	23.6	71,103,293	15.3	270,010,799	58.2	5,774,900	1.2	3,246,134	0.7
Alabama	15,536,721	2,765,365	17.8	7,289,462	46.9	5,135,655	33.1	276,454	1.8	69,785	0.4
Arkansas	1,429,020	54,702	3.8	1,238,187	86.6	113,218	7.9	10,982	0.8	11,931	0.9
Colorado	10,323,420	5,056,839	49.0	1,025,639	9.9	4,157,836	40.3	.....	.....	83,106	0.8
Georgia	53,337	.....	.....	53,337	100.0	.....	.....	.....	.....	.....	.....
Illinois	60,862,608	4,518,306	7.4	19,794,179	32.5	35,913,902	59.0	413,909	0.7	222,312	0.4
Indiana	20,912,288	1,651,565	7.9	7,373,601	35.3	10,819,551	51.7	908,873	4.3	158,698	0.8
Iowa	5,624,692	1,144,701	20.4	3,709,060	65.9	659,209	11.7	.....	.....	111,722	2.0
Kansas	5,224,724	144,861	2.8	4,421,792	84.7	54,670	1.0	584,112	11.2	19,289	0.3
Kentucky	30,036,061	1,229,768	4.1	4,536,474	15.1	23,965,661	79.8	11,261	.....	292,897	1.0
Maryland	3,021,686	2,288,571	75.7	401,066	13.3	311,324	10.3	8,357	0.3	12,368	0.4
Michigan	996,545	12,880	1.3	39,600	4.0	943,519	94.7	.....	.....	546	.....
Missouri	3,979,798	614,286	15.4	1,370,414	34.4	888,657	22.3	960,511	24.2	145,930	3.7
Montana	3,236,369	377,849	11.7	1,372,239	42.4	1,429,304	44.2	.....	.....	56,977	1.7
New Mexico	3,138,756	2,039,413	65.0	129,216	4.1	957,549	30.5	.....	.....	12,578	0.4
North Dakota	840,959	51,352	6.1	326,698	38.8	324,961	38.6	11,003	1.3	126,945	15.2
Ohio	35,876,682	1,354,739	3.8	943,464	2.6	31,238,008	87.1	1,749,435	4.9	590,436	1.6
Oklahoma	3,802,113	30,761	0.8	1,798,838	47.3	1,708,933	47.3	158,694	4.2	14,887	0.4
Pennsylvania	150,758,154	57,222,242	38.0	5,369,605	3.6	86,382,120	57.3	670,507	0.4	1,113,680	0.7
Tennessee	5,213,205	1,290,934	24.8	2,305,833	44.2	1,507,489	30.6	9,944	0.2	9,005	0.2
Texas	1,680,656	1,293,826	77.0	376,348	22.4	10,267	0.6	.....	.....	215	.....
Utah	4,631,323	1,123,606	24.3	314,332	6.8	3,187,766	68.8	.....	.....	5,619	0.1
Virginia	9,326,830	1,286,853	13.8	1,717,200	18.4	6,312,020	67.7	.....	.....	10,667	0.1
Washington	2,990,447	1,937,697	64.8	779,635	26.1	273,115	9.1	.....	.....	.....	.....
West Virginia	79,036,553	20,939,708	26.5	2,375,934	3.0	55,562,196	70.3	.....	.....	158,715	0.2
Wyoming	7,219,738	1,256,360	17.4	1,976,096	27.3	3,982,269	55.2	.....	.....	5,013	0.1
Other states	107,373	28,748	26.8	64,954	60.5	.....	.....	858	0.8	12,813	11.9

[1] U. S. Geological Survey, Mineral Resources of the United States.

Principal statistics for bituminous coal-mining enterprises, classified according to the use of mining machines.—Table 46 shows, for selected states by mining regions, the principal statistics for producing bituminous-coal enterprises classified according to the use of mining machines. This table shows for the United States that 39.5 per cent of the enterprises using mining machines employed 75.6 per cent of the total average number of wage earners and reported 78.4 per cent of the total value of products. Great differences, however, are shown among the states in the percentage of enterprises using mining machines—from approximately 6 in Arkansas to nearly 62 in West Virginia. The percentage of value of products for such enterprises ranged from 9.5 in Arkansas to 95.7 in Utah. It should be noted that although the use of mining machines generally indicates more advanced and more efficient methods of mine operations there are some mines in some localities where conditions and scale of operation or size of output do not warrant the use of mining machines.

TABLE 46.—PRINCIPAL STATISTICS FOR BITUMINOUS-COAL PRODUCING ENTERPRISES, BY MINING METHOD, FOR SELECTED STATES: 1919.

REGION AND STATE.	ENTERPRISES.		MINES.		WAGE EARNERS.		POWER USED.		WAGES.	
	Number.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.	Aggregate horsepower.	Per cent of total.	Amount.	Per cent of total.
UNITED STATES	6,636	100.0	8,282	100.0	545,798	100.0	2,155,412	100.0	$682,601,068	100.0
Enterprises without mining machines	4,018	60.5	4,412	53.3	133,228	24.4	380,491	17.7	154,887,768	22.7
Enterprises using mining machines	2,618	39.5	3,870	46.7	412,570	75.6	1,774,921	82.3	527,713,300	77.3
NORTHERN AND MIDDLE APPALACHIAN REGIONS:										
Kentucky, eastern—										
Enterprises without mining machines	284	60.6	287	52.0	4,886	17.0	3,208	3.5	5,129,692	14.5
Enterprises using mining machines	185	39.4	265	48.0	23,903	83.0	88,279	96.5	30,235,688	85.5
Maryland—										
Enterprises without mining machines	47	81.0	62	67.4	2,340	48.5	3,225	25.9	2,470,320	45.9
Enterprises using mining machines	11	19.0	30	32.6	2,486	51.5	9,245	74.1	2,910,189	54.1
Ohio—										
Enterprises without mining machines	386	49.0	403	44.9	3,429	8.5	6,662	4.9	3,618,213	7.8
Enterprises using mining machines	402	51.0	495	55.1	37,023	91.5	129,483	95.1	44,132,435	92.4
Pennsylvania—										
Enterprises without mining machines	1,283	66.2	1,428	55.3	27,987	18.1	67,783	10.3	35,139,722	16.6
Enterprises using mining machines	655	33.8	1,156	44.7	127,005	81.9	591,180	89.7	176,206,971	83.4
Tennessee, northeastern—										
Enterprises without mining machines	54	58.7	64	54.7	1,870	25.8	4,424	22.9	1,681,113	24.2
Enterprises using mining machines	38	41.3	53	45.3	5,376	74.2	14,857	77.1	5,265,073	75.8
Virginia—										
Enterprises without mining machines	68	63.0	71	60.2	1,703	15.2	2,656	6.4	1,784,409	13.8
Enterprises using mining machines	40	37.0	47	39.8	9,512	84.8	38,974	93.6	11,177,182	86.2
West Virginia—										
Enterprises without mining machines	350	38.4	400	31.1	10,412	12.0	20,484	5.8	12,114,626	11.5
Enterprises using mining machines	570	61.6	887	68.9	76,683	88.0	334,995	94.2	93,646,524	88.5
SOUTHERN APPALACHIAN REGION:										
Alabama—										
Enterprises without mining machines	139	73.9	172	66.2	11,321	45.9	35,941	37.0	12,671,558	44.7
Enterprises using mining machines	49	26.1	88	33.8	13,327	54.1	61,098	63.0	15,655,862	55.3
EASTERN INTERIOR REGION:										
Illinois—										
Enterprises without mining machines	282	63.1	291	58.3	21,050	28.5	57,630	22.5	23,475,399	26.7
Enterprises using mining machines	165	36.9	208	41.7	52,730	71.5	198,512	77.5	64,320,929	73.3
Indiana—										
Enterprises without mining machines	175	59.3	176	55.5	7,103	29.0	20,829	20.9	7,358,664	26.4
Enterprises using mining machines	120	40.7	141	44.5	17,379	71.0	78,756	79.1	20,519,005	73.6
Kentucky, western—										
Enterprises without mining machines	111	66.9	113	59.5	1,752	16.0	3,939	11.2	1,665,824	16.3
Enterprises using mining machines	55	33.1	77	40.5	9,228	84.0	31,378	88.8	8,584,649	83.7
WESTERN INTERIOR REGION:										
Iowa—										
Enterprises without mining machines	144	86.2	160	82.1	6,630	62.6	17,366	66.5	7,052,048	60.3
Enterprises using mining machines	23	13.8	35	17.9	3,954	37.4	8,757	33.5	4,635,870	39.7
Kansas—										
Enterprises without mining machines	99	76.7	126	75.9	7,009	86.7	15,861	67.7	8,646,528	86.9
Enterprises using mining machines	30	23.3	40	24.1	1,075	13.3	7,573	32.3	1,302,628	13.1
Missouri—										
Enterprises without mining machines	127	70.9	133	67.9	4,002	54.9	9,823	34.6	4,285,153	52.5
Enterprises using mining machines	52	29.1	63	32.1	3,283	45.1	18,562	65.4	3,871,799	47.5
SOUTHERN INTERIOR REGION:										
Arkansas—										
Enterprises without mining machines	80	94.1	86	94.5	2,568	92.1	13,305	88.5	3,242,392	93.3
Enterprises using mining machines	5	5.9	5	5.5	219	7.9	1,722	11.5	232,627	6.7
Oklahoma—										
Enterprises without mining machines	58	61.7	78	59.5	3,278	46.6	16,935	46.4	3,973,129	45.2
Enterprises using mining machines	36	38.3	53	40.5	3,762	53.4	19,548	53.6	4,816,807	54.8
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:										
Colorado—										
Enterprises without mining machines	78	48.4	78	47.6	3,733	33.2	20,770	33.0	5,482,049	32.6
Enterprises using mining machines	83	51.6	86	52.4	7,519	66.8	42,246	67.0	11,351,264	67.4
Montana—										
Enterprises without mining machines	44	65.7	46	60.5	679	17.9	5,841	21.6	875,616	15.4
Enterprises using mining machines	23	34.3	30	39.5	3,118	82.1	21,236	78.4	4,828,194	84.6
New Mexico—										
Enterprises without mining machines	13	61.9	15	44.1	276	7.7	685	3.8	318,351	5.6
Enterprises using mining machines	8	38.1	19	55.9	3,288	92.3	17,378	96.2	5,323,393	94.4
North Dakota—										
Enterprises without mining machines	71	89.9	71	89.9	384	49.6	624	30.6	517,068	50.2
Enterprises using mining machines	8	10.1	8	10.1	390	50.4	1,413	69.4	512,058	49.8
South Dakota—										
Enterprises without mining machines	5	.....	5	.....	8	.....	49	.....	11,423	.....
Enterprises using mining machines	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah—										
Enterprises without mining machines	15	55.6	15	44.1	234	6.4	900	3.7	320,030	4.2
Enterprises using mining machines	12	44.4	19	55.9	3,413	93.6	23,129	96.3	7,278,737	95.8
Washington—										
Enterprises without mining machines	29	82.9	37	86.0	3,811	86.4	29,425	91.4	5,794,430	88.9
Enterprises using mining machines	6	17.1	6	14.0	602	13.6	2,765	8.6	721,558	11.1
Wyoming—										
Enterprises without mining machines	19	41.3	24	36.9	1,636	23.1	11,806	25.1	2,546,915	24.2
Enterprises using mining machines	27	58.7	41	63.1	5,455	76.9	35,269	74.9	7,998,119	75.8

TABLE 46.—PRINCIPAL STATISTICS FOR BITUMINOUS COAL PRODUCING ENTERPRISES, BY MINING METHOD, FOR SELECTED STATES: 1919—Continued.

REGION AND STATE.	SUPPLIES AND MATERIALS.		COST OF FUEL.		COST OF PURCHASED POWER.		VALUE OF ALL PRODUCTS.		COAL PRODUCED (TONS, 2,000 POUNDS).	
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	Quantity.	Per cent of total.
UNITED STATES	$112,432,551	100.0	$25,896,660	100.0	$11,280,509	100.0	$1,145,977,505	100.0	460,425,836	100.0
Enterprises without mining machines	28,306,535	19.9	6,053,791	23.4	1,447,323	12.8	247,069,572	21.6	92,860,744	20.2
Enterprises using mining machines	114,126,016	80.1	19,842,869	76.6	9,833,186	87.2	898,907,993	78.4	367,565,092	79.8
NORTHERN AND MIDDLE APPALACHIAN REGIONS:										
Kentucky, eastern—										
Enterprises without mining machines	1,426,822	16.4	73,678	8.5	8,736	1.5	7,084,814	14.1	2,941,059	13.9
Enterprises using mining machines	7,264,403	83.6	792,890	91.5	548,925	98.4	46,818,649	85.9	18,269,857	86.1
Maryland—										
Enterprises without mining machines	366,244	39.4	20,669	15.5	26,375	40.7	3,899,174	47.5	1,476,465	49.3
Enterprises using mining machines	563,081	60.6	112,719	84.5	29,606	59.3	4,305,493	52.5	1,520,871	50.7
Ohio—										
Enterprises without mining machines	505,839	5.2	107,671	7.5	21,602	2.3	6,082,505	7.8	2,364,135	6.7
Enterprises using mining machines	8,539,991	93.8	1,325,812	92.5	903,760	97.7	71,906,037	92.2	32,776,400	93.3
Pennsylvania—										
Enterprises without mining machines	7,186,454	16.0	849,129	11.2	392,602	11.1	58,965,089	16.2	21,541,260	15.7
Enterprises using mining machines	37,725,913	84.0	6,750,530	88.8	3,136,000	88.9	304,008,863	83.8	126,488,427	84.3
Tennessee, northeastern—										
Enterprises without mining machines	620,850	35.5	57,374	22.9	35,370	69.8	2,507,007	22.7	898,912	21.8
Enterprises using mining machines	1,128,383	64.5	226,700	77.1	15,276	30.2	8,746,728	77.3	3,228,267	78.2
Virginia—										
Enterprises without mining machines	417,687	12.2	66,837	23.6	3,397	0.8	2,783,541	11.7	1,077,886	11.5
Enterprises using mining machines	3,014,761	87.8	216,959	76.4	435,860	99.2	20,970,899	88.3	8,256,900	88.5
West Virginia—										
Enterprises without mining machines	2,557,471	9.8	239,647	8.8	122,806	4.3	21,453,899	11.4	8,258,178	10.6
Enterprises using mining machines	23,425,813	90.2	2,485,440	91.2	2,730,535	95.7	171,654,444	88.9	69,358,937	89.4
SOUTHERN APPALACHIAN REGION:										
Alabama—										
Enterprises without mining machines	1,978,198	36.5	691,043	47.5	148,955	31.5	20,920,103	46.1	9,891,224	44.7
Enterprises using mining machines	3,441,979	63.5	765,141	52.5	323,235	68.5	24,439,338	53.9	8,520,212	55.3
EASTERN INTERIOR REGION:										
Illinois—										
Enterprises without mining machines	3,406,015	22.5	1,108,475	26.7	176,429	26.4	35,720,461	25.7	15,265,064	25.3
Enterprises using mining machines	11,879,483	77.4	3,046,269	73.3	491,713	73.6	103,047,374	74.3	45,005,586	74.7
Indiana—										
Enterprises without mining machines	1,176,600	21.9	365,780	25.1	16,657	10.5	11,674,052	25.7	5,297,464	25.8
Enterprises using mining machines	4,202,800	78.1	1,089,343	74.9	142,489	89.5	33,818,674	74.3	15,207,327	74.2
Kentucky, western—										
Enterprises without mining machines	323,818	14.4	65,612	9.6	2,410	22.4	2,596,109	14.5	1,181,877	14.3
Enterprises using mining machines	1,929,897	85.6	620,878	90.4	8,364	77.6	15,333,268	85.5	7,093,245	85.7
WESTERN INTERIOR REGION:										
Iowa—										
Enterprises without mining machines	1,020,064	58.0	335,603	74.6	69,253	57.4	10,448,388	61.8	3,340,940	61.0
Enterprises using mining machines	737,961	42.0	114,094	25.4	51,413	42.6	6,454,970	38.2	2,133,300	39.0
Kansas—										
Enterprises without mining machines	1,473,854	77.3	360,581	81.5	20,783	53.6	13,315,862	84.6	4,410,891	84.8
Enterprises using mining machines	432,209	22.7	88,739	18.5	25,737	46.4	2,432,073	15.4	793,497	15.2
Missouri—										
Enterprises without mining machines	579,954	42.0	145,675	34.0	27,167	38.3	5,660,997	46.9	1,861,638	49.2
Enterprises using mining machines	801,269	58.0	282,157	66.0	43,730	61.7	6,416,848	53.1	1,922,076	50.8
SOUTHERN INTERIOR REGION:										
Arkansas—										
Enterprises without mining machines	603,402	84.2	164,040	95.6	76,657	80.1	4,791,467	90.5	1,308,039	90.8
Enterprises using mining machines	113,153	15.8	7,556	4.4	18,992	19.9	500,867	9.5	132,454	9.2
Oklahoma—										
Enterprises without mining machines	571,426	41.1	275,700	43.3	37,528	33.3	5,961,985	41.2	1,551,651	41.0
Enterprises using mining machines	820,345	58.9	360,614	56.7	75,045	66.7	8,515,332	58.8	2,231,143	59.0
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:										
Colorado—										
Enterprises without mining machines	1,052,579	34.5	222,760	35.8	97,207	22.0	8,308,238	29.5	3,042,306	29.9
Enterprises using mining machines	1,999,449	65.5	400,164	64.2	345,054	78.0	19,973,957	70.5	7,140,206	70.1
Montana—										
Enterprises without mining machines	194,302	16.4	85,142	30.4	15,638	26.1	1,438,209	16.7	503,354	15.7
Enterprises using mining machines	989,508	83.6	195,167	69.6	44,341	73.9	7,153,002	83.3	2,708,365	84.3
New Mexico—										
Enterprises without mining machines	105,841	10.8	20,623	15.1	4,354	6.5	545,103	5.5	163,897	5.1
Enterprises using mining machines	869,901	89.2	115,631	84.9	62,817	93.5	9,360,438	94.5	3,021,587	94.9
North Dakota—										
Enterprises without mining machines	163,186	57.5	15,230	46.4	1,368	28.3	1,070,088	55.5	420,022	54.7
Enterprises using mining machines	120,447	42.5	17,617	53.6	3,473	71.7	857,216	44.5	347,073	45.3
South Dakota—										
Enterprises without mining machines	937	.....	105	.....	.....	.....	29,892	.....	9,306	.....
Enterprises using mining machines	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah—										
Enterprises without mining machines	72,552	4.6	13,807	8.1	5,651	5.7	537,830	4.3	202,289	4.4
Enterprises using mining machines	1,492,403	95.4	156,141	91.9	93,445	94.3	12,094,205	95.7	4,390,558	95.6
Washington—										
Enterprises without mining machines	1,131,296	82.2	428,991	78.3	75,617	79.8	9,493,086	88.4	2,659,105	89.0
Enterprises using mining machines	244,958	17.8	118,733	21.7	19,116	20.2	1,244,570	11.6	329,805	11.0
Wyoming—										
Enterprises without mining machines	592,473	25.9	116,425	29.6	57,688	18.6	4,008,632	21.4	1,626,528	22.6
Enterprises using mining machines	1,695,498	74.1	277,363	70.4	252,827	81.4	14,714,819	78.6	5,585,478	77.4

FUEL USED.

Table 47 shows for all coal-mining enterprises in the United States by regions and states the quantities of fuel used by kinds. As would be expected bituminous coal was used almost entirely by bituminous-coal mines and anthracite coal only by anthracite mines, and very little other fuel was used by either.

TABLE 47.—QUANTITY OF FUEL USED, BY KINDS, ALL ENTERPRISES: 1919.

REGION AND STATE.	Coal[1] (tons, 2,000 pounds).	Coke (tons, 2,000 pounds).	Wood (cords).	Fuel oils (barrels).	Gasoline and other volatile oils (barrels).	Gas (1,000 cubic feet).
UNITED STATES	20,704,670	14,254	594	3,906	20,374	865,907
Producing enterprises	20,702,985	14,254	594	3,906	20,344	865,907
Anthracite (Pennsylvania)	9,578,081			671	1,381	
Bituminous coal	11,124,904	14,254	594	3,235	18,963	865,907
NORTHERN AND MIDDLE APPALACHIAN REGIONS:						
Kentucky, eastern	333,040			12	1,158	
Maryland	46,264				382	
Ohio	675,195			95	1,421	2,468
Pennsylvania	3,364,025			196	5,008	310,914
Tennessee, northeastern	113,538		104	19	342	
Virginia	113,881			90	272	
West Virginia	1,124,614			339	2,424	287,042
SOUTHERN APPALACHIAN REGION:						
Alabama	500,815	14,254		360	780	
Georgia, North Carolina, and Tennessee, southeastern	35,557			108	95	
MICHIGAN REGION	83,824					
EASTERN INTERIOR REGION:						
Illinois	1,946,807			370	1,830	
Indiana	705,031				1,037	
Kentucky, western	346,903			455	180	
WESTERN INTERIOR REGION:						
Iowa	184,205			42	1,180	
Kansas	170,666		60	2	360	
Missouri	143,433		400	141	873	
SOUTHERN INTERIOR REGION:						
Arkansas	58,978		5	63	135	
Oklahoma	177,267				507	154,570
Texas	53,867			860	155	110,913
NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS:						
Colorado	286,884		25		34	
Montana	163,456				113	
New Mexico	45,834				14	
North Dakota	16,437				451	
South Dakota	28				15	
Utah	82,907					
Washington	173,052			23	103	
Wyoming	223,042				91	
California, Idaho, Oregon	5,384				3	
Nonproducing enterprises	1,691				30	
Pennsylvania	40				10	
West Virginia						
All other states[2]	1,651				20	

[1] Bituminous coal, except 9,573,985 tons of anthracite reported used in the Pennsylvania anthracite region.
[2] Includes Illinois, Kansas, Kentucky, Texas, and Washington.

GENERAL TABLE.

Table 48 presents in detail for 1919 statistics relating to coal mines in the United States as a whole, for anthracite and bituminous coal separately, and for each of the mining regions and states that can be shown separately without the disclosure of individual operations. It shows separately the statistics for the enterprises and mines which produced coal in 1919 and statistics for those enterprises in which all operations were confined to development work. The table gives the number of enterprises and mines; the acreage of coal land classified according to tenure, and acreage of other lands; persons engaged in the industry, by classes; capital invested; the principal expenses of operation and development; the quantity and value of products; and statistics with regard to power equipment used.

TABLE 48.—DETAILED STATISTICS FOR THE COAL-MINING

	REGION AND STATE.	Number of enterprises.	Number of mines.	Number of enterprises operating breakers and washeries.	LAND CONTROLLED (ACRES). Coal land. Operated.	Coal land. Owned.	Coal land. Held under lease.	Timber and other lands.	PERSONS ENGAGED IN INDUSTRY. Aggregate.	Proprietors and officials. Total.	Proprietors and firm members. Total.	Proprietors and firm members. Performing manual labor.	Salaried officers.	Superintendents and managers.	Technical employees.
1	**United States**	**6,916**	**8,842**	**274**	**8,547,434**	**6,002,358**	**2,610,907**	**011,280**	**739,019**	**26,573**	**4,401**	**1,866**	**6,116**	**12,588**	**3,468**
2	**Producing enterprises**	**6,890**	**8,816**	**274**	**8,532,727**	**5,988,041**	**2,606,517**	**011,183**	**738,490**	**26,533**	**4,396**	**1,864**	**6,103**	**12,571**	**3,453**
3	Anthracite (Pennsylvania)	[1] 254	[1] 534	140	201,355	194,300	77,955	159,710	154,882	4,120	169	34	233	2,821	907
4	Bituminous coal	6,636	8,282	134	8,261,372	5,793,651	2,528,562	751,473	583,608	22,413	4,227	1,830	5,870	9,750	2,546
5	NORTHERN AND MIDDLE APPALACHIAN REGIONS.	4,370	5,648	28	4,859,029	3,141,991	1,766,737	437,259	358,785	14,434	2,800	1,017	3,839	6,154	1,751
6	Kentucky, eastern	460	552	1	529,814	262,313	237,776	67,389	31,668	1,610	148	37	503	903	256
7	Maryland	58	92	1	53,442	34,108	19,318	7,228	5,180	222	20	10	69	93	31
8	Ohio	788	898	.....	442,887	348,214	113,280	27,758	43,433	1,693	622	312	538	723	110
9	Pennsylvania	1,038	2,584	11	1,491,919	1,112,050	381,720	187,722	105,044	6,205	1,743	575	1,410	2,480	572
10	Tennessee, northeastern	92	117	1	108,784	19,300	89,914	59,400	7,753	318	33	0	85	170	30
11	Virginia	108	118	3	397,976	312,376	86,639	8,300	11,940	302	42	11	98	198	54
12	West Virginia	926	1,287	11	1,834,207	1,022,574	838,090	70,803	93,767	3,891	273	63	1,136	1,707	088
13	SOUTHERN APPALACHIAN REGION	205	288	53	848,071	719,209	130,142	58,400	28,800	851	30	4	242	364	189
14	Alabama	188	200	50	653,793	563,894	90,739	47,127	26,162	789	33	4	219	360	177
15	Georgia, North Carolina, and Tennessee, southeastern.	17	28	3	194,278	155,375	39,403	11,333	2,638	62	3	.....	23	24	12
16	MICHIGAN REGION	11	14	.....	9,169	1,921	7,248	1,360	1,741	53	.....	.....	13	32	8
17	EASTERN INTERIOR REGION	908	1,006	20	1,129,818	861,903	273,102	88,115	115,115	3,787	479	289	1,011	1,954	343
18	Illinois	447	499	10	752,316	593,082	158,153	44,825	77,825	2,339	199	114	561	1,350	229
19	Indiana	205	317	1	176,200	103,703	72,718	10,083	25,911	968	170	116	208	421	70
20	Kentucky, western	166	190	.....	201,302	159,001	42,201	33,207	11,679	480	110	59	152	183	35
21	WESTERN INTERIOR REGION	475	557	4	201,235	92,530	111,009	18,594	27,713	1,219	440	266	308	421	44
22	Iowa	107	105	.....	66,350	31,002	35,942	3,513	11,239	485	178	136	122	173	12
23	Kansas	129	166	.....	73,559	30,620	43,880	11,141	8,622	309	111	78	65	113	20
24	Missouri	179	106	4	61,317	30,239	31,178	940	7,852	425	157	85	121	135	12
25	SOUTHERN INTERIOR REGION	212	204	1	179,481	71,388	108,330	91,428	14,253	612	115	80	166	301	30
26	Arkansas	85	91	1	24,421	12,226	12,276	826	3,095	212	78	63	36	94	4
27	Oklahoma	94	131	.....	104,030	26,720	78,339	5,408	8,296	290	33	21	86	154	17
28	Texas	33	42	.....	50,124	32,433	17,721	85,134	2,862	110	4	2	44	53	9
29	NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS.	446	505	28	1,034,559	934,646	131,943	50,217	36,898	1,347	271	135	201	504	181
30	Colorado	161	164	4	127,881	89,008	33,573	3,657	12,017	386	56	43	116	134	36
31	Montana	67	76	1	73,067	55,124	20,103	6,979	4,056	174	70	37	35	56	13
32	New Mexico	21	34	2	641,125	614,610	26,506	16,035	3,774	117	10	3	18	54	40
33	North Dakota	79	79	.....	17,734	9,305	8,429	824	939	135	75	23	16	27	17
34	South Dakota	5	5	.....	880	720	160	640	16	8	8	7	.....	.....	.....
35	Utah	27	34	.....	46,891	44,532	2,512	9,614	3,926	133	26	9	35	46	26
36	Washington	35	43	20	65,940	44,398	21,812	14,778	4,654	118	10	7	24	58	26
37	Wyoming	46	65	.....	57,562	44,526	13,036	3,280	7,427	169	14	6	50	77	28
38	California, Idaho, and Oregon	5	5	1	2,580	1,844	745	410	89	7	2	.....	2	2	1
39	**Nonproducing enterprises**	**26**	**26**	.....	**24,707**	**14,317**	**10,390**	**97**	**529**	**50**	**5**	**2**	**13**	**17**	**15**
40	Pennsylvania	10	10	.....	8,722	6,046	1,776	63	135	23	4	2	2	6	11
41	West Virginia	3	3	.....	3,418	2,088	1,330	.....	20	6	.....	.....	2	3	1
42	All other states [2]	13	13	.....	12,567	5,283	7,284	34	371	21	1	.....	9	8	3

[1] Includes 156 colliery enterprises, comprising 374 mines, 245 breakers, and 60 washeries; 19 enterprises operating 19 culm washeries independently of mines; and 79 enterprises operating 81 river dredges.

[2] Includes enterprises in states as follows: Colorado, 1; Illinois, 1; Iowa, 1; Kansas, 1; Kentucky, 3; Ohio, 1; Oregon, 1; Texas, 1; Virginia, 1; Washington, 2.

INDUSTRY, BY REGIONS AND STATES: 1919.

PERSONS ENGAGED IN INDUSTRY—continued.																						
Clerks and other subordinate salaried employees.		Wage earners.			Wage earners, Dec. 15 or nearest representative day.																	
		Average number.	Number 15th day of—		Total.		Foremen, shift bosses, etc.		Engineemen, hoistmen, electricians, mechanics, etc.		Miners, cutters, etc., including their helpers.		Timbermen, trackmen, and men engaged in hauling, etc.		Other laborers not classified.		In breakers and washeries.	Under 16 years of age (above ground).	Females (above ground).	
Male.	Female.		Maximum month.	Minimum month.	Above ground.	Below ground.	Above ground	Below ground	Above ground	Below ground	Above ground	Below ground.	Above ground	Below ground.	Above ground	Below ground.					
13,862	4,943	693,641	Oc 751,132	No 459,693	155,836	614,629	5,101	12,029	43,191	26,785	7,194	354,756	17,581	116,834	59,720	104,225	23,051	181	58	1
13,858	4,939	693,170	Oc 750,397	No 458,860	155,364	614,282	5,082	12,020	43,123	26,775	7,163	354,485	17,502	116,805	59,443	104,107	23,051	180	58	2
2,773	617	147,372	De 151,595	Ap 142,691	46,618	105,625	435	1,098	10,488	4,331	138	59,401	2,769	17,325	12,291	23,470	20,497	119	.....	3
11,085	4,322	545,798	Oc 599,550	No 308,266	108,746	508,657	4,647	10,922	32,635	22,444	7,025	295,084	14,733	99,480	47,152	80,727	2,554	61	58	4
7,203	2,333	334,615	Oc 366,086	No 220,600	69,607	304,052	2,887	7,649	19,550	16,337	4,849	173,817	9,957	56,926	31,848	49,323	516	46	13	5
1,033	236	28,789	Oc 32,333	No 24,135	7,312	25,180	271	732	1,530	1,291	778	14,611	1,184	4,858	3,536	3,688	13	8	.....	6
97	35	4,826	Oc 5,330	No 4,302	868	4,448	40	123	205	130	116	3,202	130	665	373	328	4	1	.....	7
625	363	40,452	Se 47,253	No 9,827	8,046	39,831	354	641	2,681	1,498	396	17,948	839	7,622	3,776	12,122	.....	.....	.....	8
2,682	1,165	154,092	Se 168,972	No 92,833	28,639	143,458	1,219	3,663	8,966	7,042	1,609	91,575	3,409	23,457	13,202	17,721	234	34	.....	9
148	41	7,246	Oc 8,280	No 3,487	2,096	6,110	64	111	418	365	374	3,718	469	1,203	757	713	14	1	.....	10
289	44	11,215	Oc 11,098	Ap 9,974	2,246	9,512	104	269	661	1,044	157	4,838	280	2,278	1,012	1,083	32	.....	13	11
2,320	449	87,095	De 94,887	Mh 79,740	20,400	75,513	835	2,110	5,089	4,967	1,419	37,925	3,646	16,843	9,192	13,668	219	2	.....	12
627	148	27,174	Fe 28,428	No 22,385	6,824	22,075	303	439	2,052	940	402	13,563	999	4,170	1,982	2,963	1,086	.....	5	13
583	142	24,648	Mh 25,805	No 20,208	6,104	20,051	265	400	1,912	909	402	12,144	919	3,714	1,545	2,384	1,061	.....	5	14
44	6	2,526	De 2,743	No 2,087	720	2,024	38	39	140	31	.....	1,419	80	456	437	79	25	.....	.....	15
27	10	1,054	Fe 2,236	No 176	304	1,837	25	22	125	67	10	1,295	24	345	120	108	.....	.....	.....	16
1,832	557	109,239	Ja 124,812	No 21,956	15,665	111,520	722	1,573	5,863	3,365	532	61,868	1,418	24,206	6,584	20,508	546	2	20	17
1,308	398	73,780	Ja 84,197	No 11,323	9,866	75,045	375	898	3,827	2,174	253	42,888	749	16,645	4,126	12,440	536	.....	17	18
354	110	24,479	Oc 28,871	No 3,360	3,943	25,617	249	473	1,406	881	193	14,189	533	5,581	1,552	4,493	10	2	3	19
170	49	10,980	De 12,581	No 7,273	1,856	10,858	98	202	630	310	86	4,791	136	1,980	906	3,575	.....	.....	.....	20
377	164	25,953	Ja 31,744	No 4,436	4,981	25,802	268	380	1,413	249	541	17,606	783	5,398	1,929	2,169	47	.....	2	21
114	56	10,584	Ja 12,879	No 2,527	1,352	10,945	81	169	381	97	31	7,175	240	2,799	619	705	.....	.....	1	22
162	67	8,084	Ja 9,728	No 522	1,492	7,761	106	101	522	72	204	5,841	115	1,413	545	334	.....	.....	.....	23
101	41	7,285	Ja 9,137	No 1,387	2,137	7,096	81	110	510	80	306	4,590	428	1,186	705	1,130	47	.....	1	24
246	857	12,538	Se 14,712	No 2,788	2,641	12,404	134	247	942	177	371	8,176	388	2,741	780	1,063	26	8	.....	25
83	13	2,787	Se 3,918	No 474	793	3,203	28	51	251	26	238	2,307	102	449	148	370	26	.....	.....	26
130	836	7,010	Oc 8,209	No 962	1,454	6,746	63	140	578	66	101	4,086	226	1,844	486	610	.....	.....	.....	27
33	8	2,711	Ja 3,138	No 1,352	394	2,455	43	56	113	85	32	1,783	60	448	146	83	.....	8	.....	28
773	253	34,625	Ja 39,125	No 26,916	8,724	30,967	308	612	2,690	1,309	320	18,759	1,164	5,694	3,909	4,593	333	5	18	29
275	104	11,252	De 12,804	No 10,026	2,772	10,287	93	218	834	351	106	6,655	210	1,487	1,479	1,576	50	.....	3	30
61	24	3,797	Ja 4,464	No 1,124	828	3,735	34	67	335	138	26	2,632	56	615	356	283	21	.....	.....	31
70	23	3,504	Ja 4,029	No 2,987	815	2,893	21	61	369	121	.....	1,974	41	604	289	133	95	.....	1	32
24	6	774	De 1,158	Je 472	318	836	15	16	42	16	35	550	35	158	191	96	.....	.....	2	33
.....	.....	8	Ja 16	Au 2	7	9	.....	.....	1	.....	4	9	2	.....	.....	.....	.....	.....	.....	34
135	11	3,647	De 4,260	My 3,204	1,363	2,902	26	32	289	208	5	1,343	511	859	532	460	.....	.....	8	35
74	49	4,413	Ja 5,259	No 1,018	1,264	3,705	64	123	416	183	45	2,262	126	922	449	215	164	3	4	36
131	36	7,091	Ja 8,445	Je 6,117	1,307	6,488	52	91	372	286	89	3,253	182	1,035	612	1,823	.....	2	.....	37
3	.....	70	Fe 146	Jy [a] 50	50	112	3	4	32	6	10	81	1	14	1	7	3	.....	.....	38
4	4	471	No 833	Ja 211	474	347	19	9	68	10	31	271	79	29	277	28	.....	1	.....	39
1	2	109	De 273	Ja 23	249	22	6	2	10	.....	29	8	55	4	149	8	.....	1	.....	40
.....	1	13	No 29	Au 12	26	4	1	.....	14	.....	.....	4	.....	.....	11	.....	.....	.....	.....	41
3	1	349	No 558	Ja 188	199	321	12	7	44	10	2	259	24	25	117	20	.....	.....	.....	42

[a] Same number reported for 1 or more months.

TABLE 48.—DETAILED STATISTICS FOR THE COAL-MINING

	REGION AND STATE.	Capital.	PRINCIPAL EXPENSES OF OPERATION AND DEVELOPMENT.									
				Salaries and wages.								
			Total.	Salaried officers, superintendents' managers, and technical employees.	Clerks and other subordinate salaried employees.	Wage earners.	Supplies and materials.	Cost of fuel.	Cost of purchased power.	Royalties and rents.	Taxes—Federal, state, county, and local.	Contract work.
1	**United States**	$2,343,935,332	$1,315,868,560	$59,257,514	$22,485,979	$893,481,365	[1]$202,822,158	$37,307,325	$13,191,095	$34,081,130	$48,814,648	$4,426,346
2	**Producing enterprises**	2,338,318,162	1,314,452,920	59,182,753	22,481,754	892,800,541	[1]202,170,927	37,302,777	13,180,344	34,061,654	48,768,359	4,413,811
3	Anthracite (Pennsylvania)	433,808,639	323,714,676	8,848,535	4,146,934	210,289,473	[1]59,738,370	11,406,117	1,809,835	11,766,598	14,060,963	1,557,845
4	Bituminous coal	1,904,450,123	990,738,244	50,334,218	18,334,820	682,601,068	142,432,551	25,896,660	11,280,509	22,295,056	34,707,396	2,855,966
5	NORTHERN AND MIDDLE APPALACHIAN REGIONS.	1,326,507,550	626,379,398	31,484,891	11,477,346	425,516,157	94,803,715	13,336,055	8,398,964	16,041,319	23,448,191	1,872,760
6	Kentucky, eastern	113,882,426	53,255,983	3,380,605	1,388,989	35,365,380	8,691,225	866,568	557,661	1,566,304	1,244,084	188,207
7	Maryland	17,226,789	7,485,483	546,013	133,164	5,386,509	929,325	133,388	56,041	109,627	186,071	11,345
8	Ohio	144,508,527	67,671,240	3,941,070	1,162,018	47,748,648	9,105,833	1,433,483	925,302	1,420,770	1,562,444	371,603
9	Pennsylvania	648,626,810	304,207,697	13,022,723	5,018,500	211,346,603	44,912,367	7,599,659	3,522,701	6,063,527	12,253,433	618,094
10	Tennessee, northeastern	11,458,696	10,654,120	631,382	164,013	6,946,186	1,749,233	294,074	56,655	336,266	426,701	55,610
11	Virginia	46,789,454	20,449,283	873,065	427,064	12,961,591	3,432,448	283,796	439,263	679,464	1,130,332	222,260
12	West Virginia	344,014,848	162,565,592	9,083,964	3,183,598	105,701,150	25,083,284	2,725,087	2,853,341	5,925,361	6,644,226	405,581
13	SOUTHERN APPALACHIAN REGION	73,239,135	43,352,810	2,224,914	985,531	30,276,351	5,707,071	1,551,290	472,190	733,106	1,296,672	105,085
14	Alabama	62,728,860	40,662,789	2,042,304	918,371	28,327,420	5,420,177	1,456,184	472,190	684,097	1,252,773	88,373
15	Georgia, North Carolina, and Tennessee, southeastern.	10,510,275	2,690,021	182,610	67,160	1,948,931	286,894	95,106	.....	48,109	43,899	17,312
16	MICHIGAN REGION	6,037,045	3,239,778	151,317	54,777	1,987,732	664,557	264,876	36,701	49,940	29,878	.....
17	EASTERN INTERIOR REGION	230,679,575	178,284,267	10,134,289	3,206,048	125,924,470	22,978,613	6,296,357	838,062	2,425,348	6,297,507	183,573
18	Illinois	166,069,312	122,779,237	6,291,010	2,262,985	87,796,328	15,345,498	4,154,744	668,142	1,704,594	4,487,294	68,942
19	Indiana	45,996,383	40,364,626	2,704,523	685,116	27,877,669	5,379,400	1,455,123	159,146	502,205	1,437,558	103,826
20	Kentucky, western	24,613,880	15,140,404	1,138,756	258,247	10,250,473	2,253,715	686,490	10,774	158,489	372,655	10,805
21	WESTERN INTERIOR REGION	37,702,770	41,244,661	2,162,174	643,123	29,794,026	5,045,311	1,356,859	247,083	977,791	672,390	345,898
22	Iowa	13,628,805	15,728,373	1,001,461	201,405	11,687,918	1,758,025	449,697	120,666	299,194	176,543	33,464
23	Kansas	12,285,452	13,926,077	543,830	280,698	9,949,156	1,906,063	479,320	55,520	409,674	295,463	6,353
24	Missouri	11,788,513	11,590,211	616,883	161,020	8,156,952	1,381,223	427,842	70,897	268,923	200,390	306,081
25	SOUTHERN INTERIOR REGION	24,549,491	21,353,757	1,204,510	382,640	15,114,481	2,496,321	891,496	208,810	618,565	317,681	110,334
26	Arkansas	3,628,278	5,141,489	284,989	99,287	3,475,019	716,615	171,596	95,649	184,207	57,476	56,651
27	Oklahoma	12,238,946	12,457,069	702,132	230,210	8,789,936	1,391,771	636,314	112,573	349,853	186,140	58,140
28	Texas	8,682,267	3,755,199	217,389	53,143	2,849,526	387,935	83,496	597	84,505	74,065	4,543
29	NORTHERN GREAT PLAINS, ROCKY MOUNTAIN AND PACIFIC COAST REGIONS.	199,733,957	76,883,573	2,972,123	1,585,355	53,987,851	10,736,963	2,199,817	1,078,690	1,448,987	2,045,071	228,716
30	Colorado	66,007,130	23,899,808	1,056,248	520,349	16,833,313	3,052,028	622,923	442,261	732,430	623,875	16,361
31	Montana	7,742,364	7,889,093	251,421	105,633	5,703,810	1,183,810	280,309	59,979	139,369	158,097	6,669
32	New Mexico	40,197,139	7,874,833	323,440	194,851	5,641,744	975,742	136,254	67,201	97,167	335,575	102,859
33	North Dakota	1,805,347	1,591,039	120,788	38,858	1,020,126	283,633	32,853	4,841	30,808	19,922	30,750
34	South Dakota	32,770	14,275	.....	.....	11,423	937	105	.....	1,500	310	.....
35	Utah	32,831,106	10,496,001	308,822	263,071	7,598,767	1,564,955	109,948	99,096	39,273	452,159	.....
36	Washington	15,987,334	9,493,645	313,538	171,476	6,515,988	1,376,254	547,724	94,733	166,279	247,041	66,612
37	Wyoming	33,876,667	15,464,050	591,551	288,487	10,545,034	2,287,071	393,788	316,515	239,261	806,211	1,232
38	California, Idaho, and Oregon	1,194,160	160,139	6,315	2,630	108,646	11,633	15,913	64	2,840	1,881	10,217
39	**Nonproducing enterprises**	5,617,170	1,415,640	74,761	5,225	590,824	651,231	4,548	10,751	19,476	46,289	12,535
40	Pennsylvania	3,191,812	369,650	23,920	1,445	133,945	156,161	195	1,264	900	40,204	11,616
41	West Virginia	303,410	40,166	10,250	240	14,251	10,277	.....	.....	3,500	1,648	.....
42	All other states	2,121,948	1,005,824	40,591	3,540	442,628	484,793	4,353	9,487	15,076	4,437	919

[1] Exclusive of $433,318, the cost of coal purchased for resale by anthracite enterprises.

INDUSTRY, BY REGIONS AND STATES: 1919—Continued.

Expenditures for development (included in principal expenses).	Value of products.	Coal produced (tons, 2,000 pounds).	POWER USED. Aggregate horsepower.	Total horsepower.	Prime movers. Steam engines (not turbines). Number.	Steam engines (not turbines). Horsepower.	Steam turbines. Number.	Steam turbines. Horsepower.	Internal-combustion engines. Number.	Internal-combustion engines. Horsepower.	Water wheels and turbines. Number.	Water wheels and turbines. Horsepower	Equipment operated by purchased power. Electric motors. Number.	Electric motors. Horsepower.	Other. Horsepower	Electric motors run by current generated by the enterprise reporting. Number.	Electric motors. Horsepower.	
$37,487,973	$1,510,061,707	548,596,344	3,057,729	2,107,843	14,488	1,898,788	358	246,444	1,323	22,537	9	74	23,088	889,539	347	24,849	893,214	1
36,234,369	1,510,061,707	548,596,344	3,055,195	2,166,024	14,475	1,897,003	358	246,444	1,319	22,503	9	74	23,067	888,824	347	24,845	893,064	2
6,189,990	364,084,142	88,170,508	899,783	782,090	5,298	730,141	45	50,065	73	1,284	.....	.....	1,881	117,693	.....	3,801	185,723	3
30,044,379	1,145,977,565	460,425,836	2,155,412	1,383,934	9,177	1,166,862	313	195,779	1,246	21,219	9	74	21,186	771,131	347	21,044	707,341	4
20,082,103	731,847,202	300,397,540	1,315,455	755,986	4,115	613,419	178	127,691	685	14,876	.....	.....	15,851	559,227	242	13,872	458,575	5
5,423,532	54,503,463	21,150,896	91,487	46,878	202	28,839	31	17,646	49	393	.....	.....	1,113	44,609	.....	1,272	33,386	6
182,424	8,195,667	2,997,336	12,470	8,506	90	8,166	.....	.....	14	340	.....	.....	113	3,964	.....	76	2,747	7
1,142,196	77,988,602	35,140,541	136,145	84,578	650	79,949	4	3,275	120	1,354	.....	.....	1,047	51,447	120	1,498	38,145	8
3,344,445	362,973,952	150,629,087	658,963	444,690	2,194	348,402	100	86,273	319	10,015	.....	.....	5,953	214,208	65	8,045	278,780	9
106,802	11,313,735	4,127,179	19,281	17,078	110	15,623	2	928	28	527	.....	.....	73	2,203	.....	225	8,486	10
647,496	23,763,440	9,334,786	41,630	10,016	91	9,228	1	600	19	188	.....	.....	944	31,614	.....	256	9,775	11
4,235,208	193,108,343	77,617,115	355,479	144,240	778	123,212	40	18,969	136	2,059	.....	.....	6,008	211,182	57	2,500	87,256	12
504,798	48,205,042	16,476,750	101,320	63,304	461	60,712	4	1,307	55	1,151	9	74	868	38,022	.....	710	27,385	13
464,608	45,359,441	15,411,436	97,039	59,017	415	56,802	4	1,307	30	774	9	74	868	38,022	.....	671	25,311	14
40,190	2,935,601	1,065,314	4,287	4,287	46	3,910	.....	.....	25	377	.....	.....	.....	.....	.....	39	2,074	15
143,023	3,861,874	995,999	6,881	6,189	49	6,114	1	75	.....	.....	.....	.....	10	695	.....	179	5,285	16
4,575,917	292,189,938	89,110,563	382,044	321,310	2,527	294,004	63	25,767	167	1,539	.....	.....	1,507	60,734	.....	4,635	157,642	17
2,959,034	138,767,835	60,330,650	247,142	205,777	1,609	186,926	36	17,725	88	1,126	.....	.....	1,070	41,365	.....	3,165	95,916	18
1,534,258	45,492,726	20,501,791	99,585	81,158	678	78,912	15	1,902	64	344	.....	.....	407	18,427	.....	817	41,890	19
82,625	17,929,377	8,275,122	35,317	34,375	240	28,166	12	6,140	15	69	.....	.....	30	942	.....	653	19,836	20
1,114,452	44,729,738	14,462,351	77,912	60,654	929	56,761	9	2,025	213	1,868	.....	.....	661	17,283	5	234	8,283	21
566,282	16,903,358	5,471,249	26,123	15,885	214	13,389	4	1,690	85	806	.....	.....	288	10,233	5	67	4,119	22
96,748	15,748,535	5,294,388	23,434	19,334	353	18,978	.....	.....	36	356	.....	.....	233	4,100	.....	37	1,041	23
457,422	12,077,845	3,783,714	28,385	25,435	362	24,391	5	335	92	700	.....	.....	140	2,950	.....	130	3,123	24
657,103	24,091,690	6,811,527	57,647	46,341	483	44,380	5	800	60	1,161	.....	.....	340	11,306	.....	192	6,543	25
270,610	5,292,274	1,440,493	15,027	10,159	130	10,003	.....	.....	18	156	.....	.....	130	4,868	.....	25	601	26
279,428	14,477,317	3,782,794	36,483	30,140	277	29,187	4	700	31	253	.....	.....	207	6,343	.....	142	5,159	27
107,065	4,322,100	1,588,240	6,137	6,042	76	5,190	1	100	11	752	.....	.....	3	95	.....	25	783	28
2,066,983	90,962,080	32,171,106	214,114	130,150	613	91,472	53	38,054	66	624	.....	.....	1,949	83,864	100	1,222	43,628	29
1,240,692	28,342,195	10,182,512	63,016	31,461	274	30,327	2	1,050	4	84	.....	.....	785	31,455	100	253	10,481	30
311,434	8,591,211	3,211,719	27,077	19,132	60	14,679	13	4,350	11	103	.....	.....	185	7,945	.....	145	5,239	31
120,839	9,905,511	3,185,484	18,063	13,333	15	2,745	11	10,548	2	40	.....	.....	125	4,730	.....	250	5,104	32
93,885	1,927,301	707,695	2,037	1,783	28	1,530	.....	.....	38	253	.....	.....	24	254	.....	9	100	33
.....	29,892	9,306	49	49	1	35	.....	.....	3	14	.....	.....	.....	.....	.....	.....	.....	34
224,566	12,632,035	4,592,847	24,020	9,840	40	7,755	4	2,085	.....	.....	.....	.....	276	14,189	.....	143	7,764	35
651,734	10,737,050	2,980,910	32,190	20,857	98	19,006	7	1,781	5	70	.....	.....	196	11,333	.....	315	10,619	36
318,207	18,723,451	7,212,006	47,075	33,135	88	14,850	16	18,240	2	45	.....	.....	355	13,940	.....	92	3,966	37
5,530	72,795	22,627	578	560	9	545	.....	.....	1	15	.....	.....	3	18	.....	15	355	38
1,253,604	.....	.....	2,534	1,810	13	1,785	.....	.....	4	34	.....	.....	21	715	.....	4	150	39
258,851	.....	.....	103	53	1	30	.....	.....	2	23	.....	.....	4	50	.....	.....	.....	40
35,018	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
959,735	.....	.....	2,431	1,706	12	1,755	.....	.....	2	11	.....	.....	17	665	.....	4	150	42

6 40

DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES

MINES AND QUARRIES: 1919

GOLD, SILVER, COPPER, LEAD, AND ZINC

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures
By FRANK J. KATZ, Expert Special Agent for Mines and Quarries

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, which did neither productive work nor development work during the entire year; or enterprises the products of which were valued at less than $500 or, in the bituminous coal-mining industry, producing less than 1,000 tons; or, if nonproducing enterprises, those doing development work amounting to less than $5,000.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same state operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same state. If plants under unified control were not all located within the same state, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the states in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, was reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Geographic presentation.—The general tables at the end of the bulletin give statistics of the industry in detail for each state or group of states which can be shown without disclosure of individual operations. Other tables present statistics by mining regions, producing provinces, or fields, these divisions comprising groups of states related by features peculiar to the industry.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of such employees does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The total number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation for the representative day. This number is not used in any other way because it is believed to be less significant than the average number. The number reported for the representative day, on account of the unavoidable variations of date, involves more or less duplication of persons working in different industries at different times; does not represent the total number employed in all industries at any one time; and gives undue weight to seasonal industries as compared with industries in continuous operation.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class in which the majority belong. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. Do not include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the Census of 1909. The reports received in respect to capital, however at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported at the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of these used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Contract work.—The amounts reported under this head include expenditures for both productive operations and those prosecuted for development only; they are in effect indirect expenditures for salaries, wages, supplies, materials, and fuel and power.

Royalties and rents.—The amounts given under this head represent the payment to fee holders or the value of the share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock, corporation income, and excess profits taxes; and also state, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation for mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics on producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product mined in 1919 under the terms by which it was disposed of, and includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Lands controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

GOLD, SILVER, COPPER, LEAD, AND ZINC.

INTRODUCTION.

Scope of the report.—This report presents the results of the census of mines and quarries for the year 1919 for the gold, silver, copper, lead, and zinc mining industries. It includes statistics showing: The geographic distribution of the industries by states and mining regions; the progress of the industries by comparison of results of the present census with those of the two preceding censuses of mines and quarries; the character of organization and the size of operating enterprises; persons engaged in the industry; and the acreage of mineral and other lands controlled. It includes also statistics in regard to power equipment and fuel used, and a general table presenting statistics in detail for the combined metal-mining industries in the United States, and separately for each industry and for such states in each industry that can be shown without disclosure of individual operations.

Definitions and explanations.—This report relates to the mining of materials valuable for their content of one or more of the following metals: Gold, silver, copper, lead, and zinc. Incidentally, there are included in this report with the statistics of gold and silver mining, statistics in regard to the production of platinum and related metals. The report covers mining activities in which two major classes of metal mining are distinguished on the bases of the nature of the ground exploited, the materials produced, and the character of operations. These classes are the mining or the production of metalliferous ores principally from firm rock formations, and placer mining or the production of crude metallic gold (and platinum, etc.) from sand and gravel. Enterprises in the first class are designated in this report "lode mines," which term is synonymous with the term "deep mines" as used in the 1909 census of mines and quarries and in the reports of the United States Geological Survey. The term lode mines is used for convenience only. It comprises the mining of all types of deposits, other than placer deposits, and thus includes many mines which are not lodes in a geological sense. Mines of gold, silver, copper, lead, and zinc ores collectively considered are referred to as metalliferous lode mines.

The statistics on metalliferous lode mining in this report are presented for three industries, gold and silver, copper, and lead and zinc mining. The assignment of the mining enterprises to these industries at the census of 1919 was based on the metal of predominant worth in the ores produced and disposed of during the census year. This classification is necessarily arbitrary because most mines produce ores which contain two or more of the metals, although some mines produce ores which are distinctly or solely gold or silver or copper or lead or zinc ores. This classification of enterprises resulted in groupings of enterprises essentially similar to those made by the census of 1909 except that at the census of 1909 enterprises producing argentiferous lead and zinc ores, whether or not silver predominated, were classified as silver-mining enterprises and assigned to the gold and silver-mining industry. Unfortunately, under any system based on the value of the metal content of the ores, the classification of individual mines would change from time to time, because of price changes and because the relative proportion of metals contained in the ores of many mines is different in different parts of the mines in ores mined at different times. Thus, certain large enterprises classified as copper mines for the year 1909 were classified as lead and zinc mines for 1919, and some mines which are essentially zinc mines were classified as silver mines for 1919 when, on account of the low price for zinc and the high price for silver, only the ores richer in silver could be profitably mined.

The statistics relating to nonproducing enterprises in the metal-mining industries, including metalliferous lode mines and placer mines, are presented as a unit. Operations for development only were not classified because returns for placer mining were received from only a few unimportant enterprises, and classification of lode mining on the basis of metal of predominant worth in the ores mined was not possible because no product was reported.

Ores of the metals gold, silver, copper, lead, and zinc require dressing and metallurgical processes for the recovery of their metal content. Ore dressing, including concentration, and the metallurgical processes such as amalgamating, cyaniding, roasting, and leaching and precipitation, are classified by the census as processes of beneficiation and therefore a part of mining. Statistics for such operations, whether conducted by the mine operators at the mines or elsewhere, or by independent operators, are included in this report. On the other hand, the final processes in the extraction of the metals in smelters and refineries, including electrolytic refineries, are manufacturing operations and statistics for these operations were excluded from the census of mines and quarries in 1919. In this respect, therefore, the statistics of the

census of mines and quarries for 1919 are not comparable with those for 1909 which included data for some smelters and refineries.

In general, schedules were secured for mining and milling separate from the manufacturing operations, refining and smelting. Some operators, however, submitted consolidated or partly segregated returns on mining and manufacturing operations. Such reports were segregated for tabulation by estimated allotments to mining and to manufacturing based on information supplied by the operators, and on available well-established data from other sources.

The statistics for the metal-mining industries include operations on dumps and old tailings. Except where especially segregated or omitted, statistics for such enterprises are combined with statistics for lode mines.

It is a common practice in metal-mining industries, in some districts, for controlling organizations to lease mining enterprises in whole, or in part, and sometimes in several parcels or blocks to different operators. At the census of 1919 efforts were made to secure reports from the actual operators, and, so far as possible, the statistics are based on the reports of such operators rather than on reports secured from the nonoperating organizations. The statistics, therefore, are different as to number of enterprises or mines, the acreage controlled, capital invested, size and character of operating organizations, and value of products from statistics which would have been obtained from reports of fee owners or primary lessees. Such differences would be particularly marked in the lead and zinc mining industry in the Central Region.

Method of reporting quantity and value of products.—The values of products reported by the Bureau of the Census for the metal-mining industries are based on the net amounts received f. o. b. mines or mills by the operators for ore, concentrates, precipitates, and bullion, or the estimated equivalent of sales values of such products when these were further treated (smelted or refined) by the miner. The values so reported are not the value of the metals produced or recoverable from these materials by smelting and refining, but are less by at least the cost of transportation to treatment plants, treatment charges, and the cost of marketing the metals. The statistics of the production of metal mines were collected in cooperation with the United States Geological Survey for which purpose there was provided, in addition to the general schedule of the census, supplemental schedules requesting special information desired by the Geological Survey.

The schedules for metalliferous lode mines, requested the quantity of crude ore mined, quantity of crude ore treated, the kind of treatment process, the character of products, and the quantity of metals contained in or recoverable from the ores, concentrates, or other materials produced. This information furnished a basis on which to classify the enterprises according to the metal of principal worth produced and the treatment or beneficiating process practiced; and it also served as a basis for checking, and for estimating when necessary, the value of receipts to the operator which was the value of products required by the census general schedule and which has been tabulated by the Census Bureau. The Geological Survey has tabulated the total quantity of ore mined and also the quantities of concentrates and other materials produced but has not tabulated the actual value of these products to the mine operators. It shows as value of product of the metal mines the full market value of the metals produced or recoverable from the mine and mill products. There is no simple or uniform relation between the value of metals mined, as reported by the Geological Survey, and the value of the products of the metal-mining industries, as reported by the Bureau of the Census.

The supplemental schedule for placer mines requested information relating to the character, quantity, fineness, and value of products recovered, and also information in regard to character and quantity of materials handled, the machinery used, and the method of operation. The supplemental schedule thus served to classify the enterprises according to mining methods and as a basis for checking, or supplying by estimate when necessary, the value of receipts to the operator which was the value of products required by the census general schedule and which has been tabulated by the Census Bureau.

The products of the metal-mining industries being of many kinds—ores having wide range in metal content, concentrates of varying richness and derived by various ratios of reduction from the ores, and bullion of many grades of fineness—there is no common measure of quantity. The nearest approach to comparable data on the quantity of products of the metal-mining industries, as defined by the census, is the quantity of ore mined. Such data are available only for the metal-mining industries combined, and are shown in Table 1, together with the metal content of the ores. This table is based upon data supplied by the United States Geological Survey and is substantially a compilation of statistics published in the state reports on metal mining contained in "Mineral Resources of the United States: 1919, Part 1, Metals."

TABLE 1.—PRODUCTS OF GOLD, SILVER, COPPER, LEAD, AND ZINC MINES: 1919 (BASED ON DATA SUPPLIED BY UNITED STATES GEOLOGICAL SURVEY).

STATE.	LODE MINES.						PLACER MINES.	
	Total ores (tons, 2,000 pounds).	Metal content of ores.					Metal content of crude product.[1]	
		Gold (fine ounces).	Silver (fine ounces).	Copper (tons, 2,000 pounds).	Lead (tons, 2,000 pounds).	Zinc (tons, 2,000 pounds).	Gold (fine ounces).	Silver (fine ounces).
UNITED STATES (exclusive of Alaska)	61,839,245	1,833,344.20	51,224,338	582,555	443,007	549,242	463,953.49	45,418
EASTERN STATES	1,930,411	306.55	104,682	8,298	2,189	121,279	34.59	8
Georgia and Alabama	353	2.51		4			34.59	8
New Hampshire					1			
Maine	12,000	7.01	4,142	188				
North Carolina and South Carolina	33	4.89	38	3				
Tennessee	1,227,534	273.90	98,288	7,812	2,188	23,247		
Vermont	23,400	18.24	2,214	291				
New Jersey	615,680					92,912		
New York	51,411					5,120		
CENTRAL STATES	23,170,783		536,271	90,222	234,878	305,364		
Arkansas	5,800				28	189		
Illinois	404,000		4,440		2,105	6,788		
Kansas	1,391,600				11,283	47,636		
Kentucky	(2)				86	36		
Michigan	7,690,253		441,430	89,413				
Missouri	[3] 5,690,730		90,401	809	103,290	31,540		
Oklahoma	6,168,200				53,872	178,410		
Wisconsin	1,826,200				4,214	40,765		
WESTERN STATES	36,075,051	1,833,037.65	50,583,385	484,035	205,940	122,599	463,918.90	45,410
South Dakota	1,330,368	235,230.41	116,496		16		19.16	1
Colorado	1,919,768	451,632.14	5,750,867	1,780	18,535	18,610	26,633.44	7,143
Texas	54,510	1.21	538,642	(4)	7			
Wyoming	708	4.06	151	70				
New Mexico	2,155,998	31,477.47	837,385	25,575	1,443	3,797	239.89	33
Idaho	1,467,305	25,275.26	5,577,154	1,561	91,171	7,997	9,227.63	1,902
Montana	4,183,594	93,758.40	12,538,872	84,991	17,219	84,382	14,097.92	2,309
Utah	6,745,423	104,464.41	11,049,961	62,031	61,915	2,216		
Nevada	3,187,831	213,295.73	6,861,206	26,166	7,675	4,502	6,399.43	2,374
Arizona	13,727,403	217,770.65	5,266,569	269,050	5,102	859	227.07	36
California	1,714,011	410,066.77	1,079,265	10,866	1,784	236	388,600.05	27,924
Oregon	96,173	28,889.26	107,451	1,107			18,413.99	3,670
Washington	100,870	12,171.88	259,366	838	1,073		60.32	18

[1] In addition to the quantities reported, there were approximately 800 crude ounces of platinum from placer mines in California and Oregon.
[2] No metalliferous ores mined; lead and zinc bearing concentrates obtained solely as by-product in the recovery and concentration of fluorspar.
[3] Not including 57,000 tons of cobalt-nickel-copper ore.
[4] Less than 1 ton (970 pounds).

PRINCIPAL STATISTICS.

Producing and nonproducing enterprises, general summary for the United States: 1919.—Table 2 presents the principal statistics for the lode and placer mining industries as a whole, for producing and nonproducing enterprises separately and for producing enterprises for each industry separately. There were 1,979 metal-mining enterprises in 1919 engaged in working 2,142 mines. Of these, 500 enterprises operating 512 mines, or approximately one-fourth of the total number, were unproductive in 1919 and were engaged in development work only. These enterprises with a combined capital amounting to 7.2 per cent of the aggregate for all enterprises, employed 4.3 per cent of the aggregate average number of wage earners, and expended $12,366,117 for development work, which was approximately 4.5 per cent of the aggregate expenditures for all purposes by all metal-mining enterprises. Among the producing metal-mining enterprises the mining of copper ores engaged the activities of only 13.2 per cent of the total number of enterprises; but copper mining ranked first on the basis of value of products, $181,258,087, which was 55.8 per cent of the total value for all producing metal mines, and first on the basis of average number of wage earners employed, 43,717, which was 53 per cent of the total average number of wage earners for all producing metal mines. The lead and zinc mining industry embraced 29.2 per cent of the total number of producing enterprises and ranked second on the basis of value of products, $75,579,347, which was 23.3 per cent of the total for all producing industries, and second on the average number of wage earners, 21,884, which was 26.6 per cent of the total for producing enterprises. The gold and silver lode-mining industry included one-half of the producing enterprises in the metal-mining industries, but ranked third with value of products amounting to $58,832,330, or 18.1 per cent of the total value for all producing metal mines, and employed wage earners to the number of 15,436, or 18.7 per cent of the total average number for all producing enterprises. In the placer-mining industry 112 producing enterprises, or 7.6 per cent of the total number, accounted for products amounting to $9,368,561, or only 2.9 per cent of the total value of products, and 1,380 wage earners, or 1.7 per cent of the total average number in producing enterprises.

TABLE 2.—PRINCIPAL STATISTICS: 1919.

	All enterprises.	PRODUCING ENTERPRISES.					Non-producing enterprises.
		Total.	Copper.	Lead and zinc.	Gold and silver, lode mines.	Gold, placer mines.[1]	
Number of enterprises	1,979	1,479	195	432	740	112	500
Number of mines	2,142	1,630	226	473	799	132	512
Number of enterprises operating reduction mills in connection with mines	512	512	57	262	191	2	.....
Mineral land operated ... acres	909,538	733,503	392,811	135,202	142,573	62,857	176,035
Persons engaged	94,876	90,211	46,999	24,030	17,531	1,651	4,665
Proprietors and firm members, total	1,482	1,349	103	412	712	122	133
Number performing manual labor	827	810	62	186	485	77	17
Salaried employees	7,286	6,445	3,179	1,734	1,383	149	841
Wage earners (average number)	86,108	82,417	43,717	21,884	15,436	1,380	3,691
Wage earners, Dec. 15, or nearest representative day—							
Above ground	38,770	36,865	20,105	9,471	5,830	1,459	1,905
Below ground	57,389	53,068	25,704	16,697	11,492	75	3,421
Power used (aggregate horsepower)	981,220	938,444	523,591	220,541	149,680	35,632	42,785
Capital	$1,461,086,981	$1,355,825,983	$853,639,017	$197,223,814	$280,388,711	$24,574,441	$105,260,998
Principal expenses:							
Salaries	16,572,945	15,317,235	8,039,741	3,834,940	3,005,761	436,793	1,255,710
Wages	128,466,888	122,830,242	66,390,194	30,708,319	23,817,657	1,914,072	5,636,646
Contract work	3,248,392	2,655,074	421,753	863,471	1,237,043	132,807	593,318
Supplies and materials	69,557,270	64,872,542	34,275,369	15,311,548	13,040,897	2,244,728	4,684,728
Cost of ore purchased as material	6,602,398	6,602,398	1,528,056	406,051	4,668,291	.....	.....
Fuel	16,217,983	15,737,317	11,310,485	2,783,249	1,623,124	20,459	480,666
Purchased power	10,011,604	9,607,446	3,555,530	2,591,906	2,336,136	1,123,874	404,158
Royalties and rents	6,959,672	6,896,824	536,819	5,258,387	1,015,719	85,899	62,848
Taxes	18,375,870	18,237,579	12,229,046	3,320,910	2,325,491	356,132	138,291
Expenditures for development (included in the above items)	38,001,610	25,635,493	13,302,349	4,268,914	7,862,971	201,259	12,366,117
Value of products	325,038,325	325,038,325	181,258,087	75,579,347	58,832,330	9,368,561	.....

[1] Includes platinum and related metals.

The mining of gold, silver, copper, lead, and zinc, taken collectively, ranked third among the mining industries in the United States, on the basis of both the value of products and the average number of wage earners, being exceeded only by coal mining and the production of petroleum and natural gas. But, separately considered, on the basis of value of products the copper-mining industry is fourth, being outranked by the iron-ore-mining industry, the lead and zinc mining industry is fifth, the gold and silver lode-mining industry sixth, and the gold placer-mining industry fourteenth among the mining industries of the United States. On the basis of average number of wage earners employed these industries ranked respectively, fourth, sixth, seventh, and sixteenth.

The amount reported as value of products in Table 2, and other tables of this report, is the aggregate of receipts by all operators, and therefore includes a duplication of $6,602,398, the cost of gold and silver, copper, lead, and zinc ores purchased by some producers from others and after treatment included in the value of the purchasers' product. The amount of such duplication is shown separately as cost of purchased ore by states for each industry in the table of detailed statistics. The value of products also includes, in addition to the amounts received for products indicated by the industry designations, receipts for other mineral products, for other products not specified, for custom milling and other treatment of ores, etc., for power sold and for work or miscellaneous services for other enterprises. The number of enterprises reporting other receipts or by-products and the amount of such receipts from various sources in each of the metal-mining industries is shown in Table 3.

TABLE 3.—OTHER PRODUCTS OF METAL MINES: 1919.

	All industries.	Copper.	Lead and zinc.	Gold and silver, lode mines.	Gold, placer mines.
Number of enterprises reporting	113	17	30	46	14
Total value of "by-products"	$2,413,063	$995,982	$325,827	$1,022,013	$69,241
Mineral "by-products"—					
Manganese	90,734	.....	.....	90,734	.....
Pyrite	76,089	1,853	74,836	.....	.....
Platinum	67,675	.....	.....	.....	67,675
Barytes	7,600	.....	7,600	.....	.....
Tungsten	2,887	2,887	.....	.....	.....
Limestone	1,270	.....	1,270	.....	.....
Iron	693	693	.....	.....	.....
Product not specified	100,530	.....	99,338	1,201	.....
Custom milling	1,107,570	271,807	41,484	793,189	1,000
Power sold, work, or miscellaneous services for others	957,406	718,052	101,299	130,889	566

GEOGRAPHIC DISTRIBUTION.

Principal statistics by geographic divisions.—Table 4 presents by the usual geographic divisions the principal statistics for producing and nonproducing enterprises in the metal-mining industries. The table is introduced in order that the statistics for metal-mining industries may be compared or assembled with other census statistics distributed by these geographic divisions. The table shows that the Mountain division was preeminent in these industries, the West Central division second, the East North Central division third, and the Pacific division fourth in importance as measured by value of products.

TABLE 4.—PRINCIPAL STATISTICS FOR LODE AND PLACER MINES COMBINED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

Division.	Number of enterprises.	Number of mines.	Wage earners (average number).	Power used (aggregate horsepower).	Capital.	Wages.	Cost of supplies, materials, fuel, and purchased power.	Value of products.
UNITED STATES, all industries	1,979	2,142	86,108	981,229	$1,461,086,981	$128,466,888	$102,389,255	$325,038,325
Producing enterprises	1,479	1,630	82,417	938,444	1,355,825,983	122,830,242	96,819,703	325,038,325
Nonproducing enterprises	500	512	3,691	42,785	105,260,998	5,636,646	5,569,552	.....
NEW ENGLAND, MIDDLE, AND SOUTH ATLANTIC	11	12	2,075	15,723	6,301,277	2,618,419	1,208,226	3,789,277
Producing enterprises	7	8	1,969	15,301	5,555,147	2,373,858	1,123,692	3,789,277
Nonproducing enterprises	4	4	106	422	746,130	244,561	84,534	.....
EAST NORTH CENTRAL	56	73	13,736	182,613	162,122,132	16,539,523	11,777,960	38,914,543
Producing enterprises	51	68	13,552	181,325	156,071,493	16,311,199	11,561,233	38,914,543
Nonproducing enterprises	5	5	184	1,288	6,050,639	228,324	216,727	.....
EAST SOUTH CENTRAL	5	8	1,282	15,087	8,016,676	1,646,278	865,793	3,121,803
Producing enterprises	5	8	1,282	15,087	8,016,676	1,646,278	865,793	3,121,803
WEST (NORTH AND SOUTH) CENTRAL	261	280	13,216	140,113	90,925,877	17,334,402	12,425,069	45,629,425
Producing enterprises	252	271	13,136	138,342	88,286,722	17,237,968	12,268,799	45,629,425
Nonproducing enterprises	9	9	80	1,771	2,639,155	96,434	156,270	.....
MOUNTAIN	1,346	1,430	40,616	538,181	1,094,789,045	81,798,324	67,286,781	212,319,781
Producing enterprises	926	1,005	46,681	505,099	1,014,057,458	77,248,185	62,701,871	212,319,781
Nonproducing enterprises	420	425	2,935	33,082	80,731,587	4,550,139	4,584,910	.....
PACIFIC	300	339	6,183	88,612	98,031,974	8,529,942	8,825,426	21,263,496
Producing enterprises	238	270	5,797	82,390	83,338,487	8,012,754	8,298,315	21,263,496
Nonproducing enterprises	62	69	386	6,222	15,093,487	517,188	527,111	.....

Mining regions.—Except for the leading states, statistics can not be shown by states without disclosure of individual operations, and groupings or combinations of states are necessary for adequate presentation of the statistics. The standard grouping by geographic divisions, as in Table 4, does not permit, especially in the copper and the lead and zinc industries, proper combinations of states related by varieties of ore produced and by industrial conditions in mining. Therefore, in subsequent tables statistics are presented by mining regions, as follows:

1. For producing enterprises in the copper-mining industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Washington; the Lake Region, comprising Michigan; the Central, Eastern, and Southern Regions, comprising, respectively, Missouri, Vermont, and Tennessee, which are combined to avoid disclosure of individual operations.

2. For producing enterprises in the lead and zinc industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, South Dakota, Utah, and Washington; the Central Region, comprising Arkansas, Illinois, Kansas, Missouri, Oklahoma, and Wisconsin; the Eastern Region, comprising New Jersey, New York, and Pennsylvania, with which is combined the Southern Region, including only Tennessee.

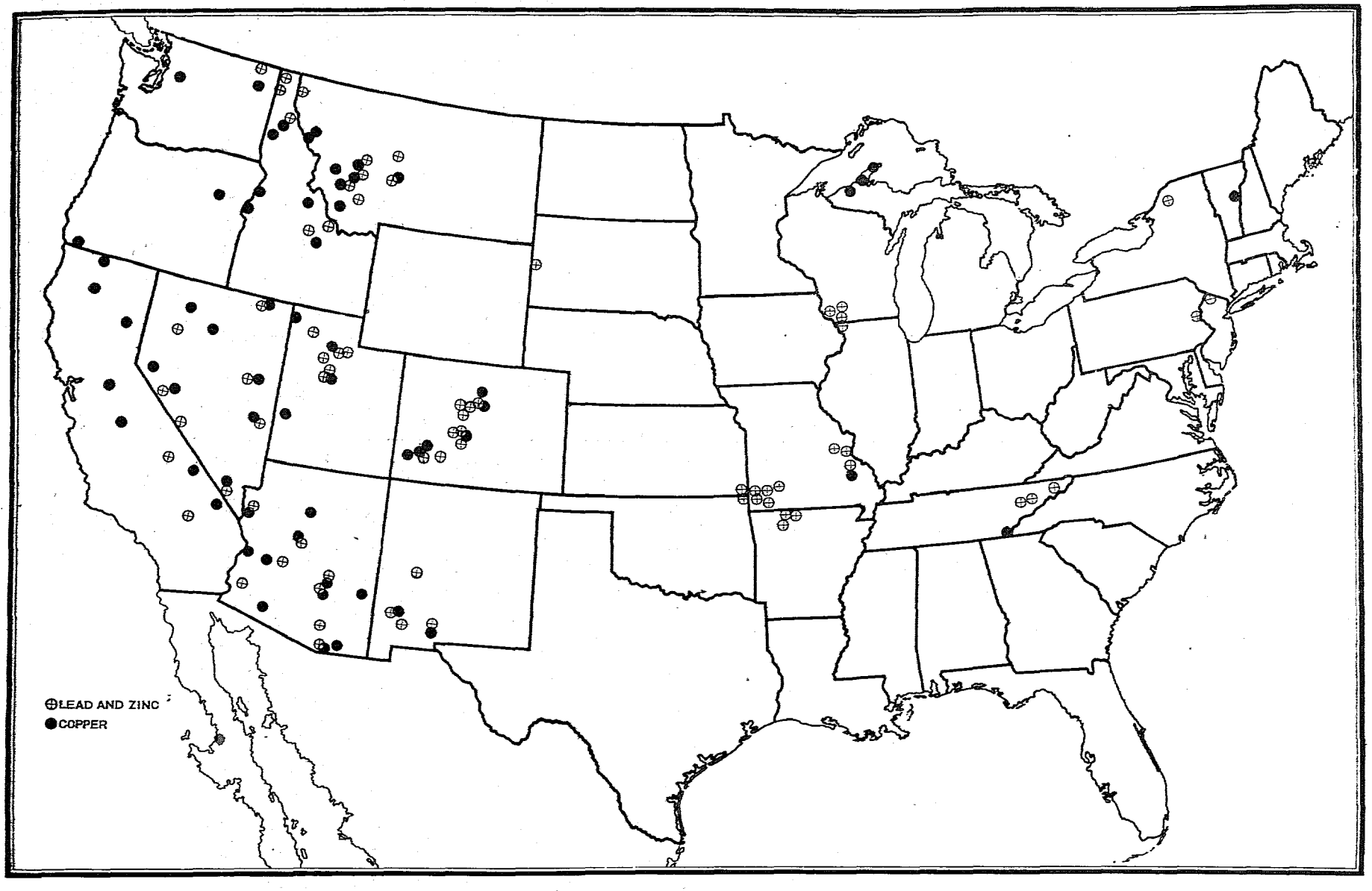
3. For producing enterprises in the gold and silver lode-mining industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Texas, Utah, Washington, and, to avoid disclosure of individual operations, the southern state, Georgia.

4. For producing enterprises in the gold placer-mining industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, and Washington.

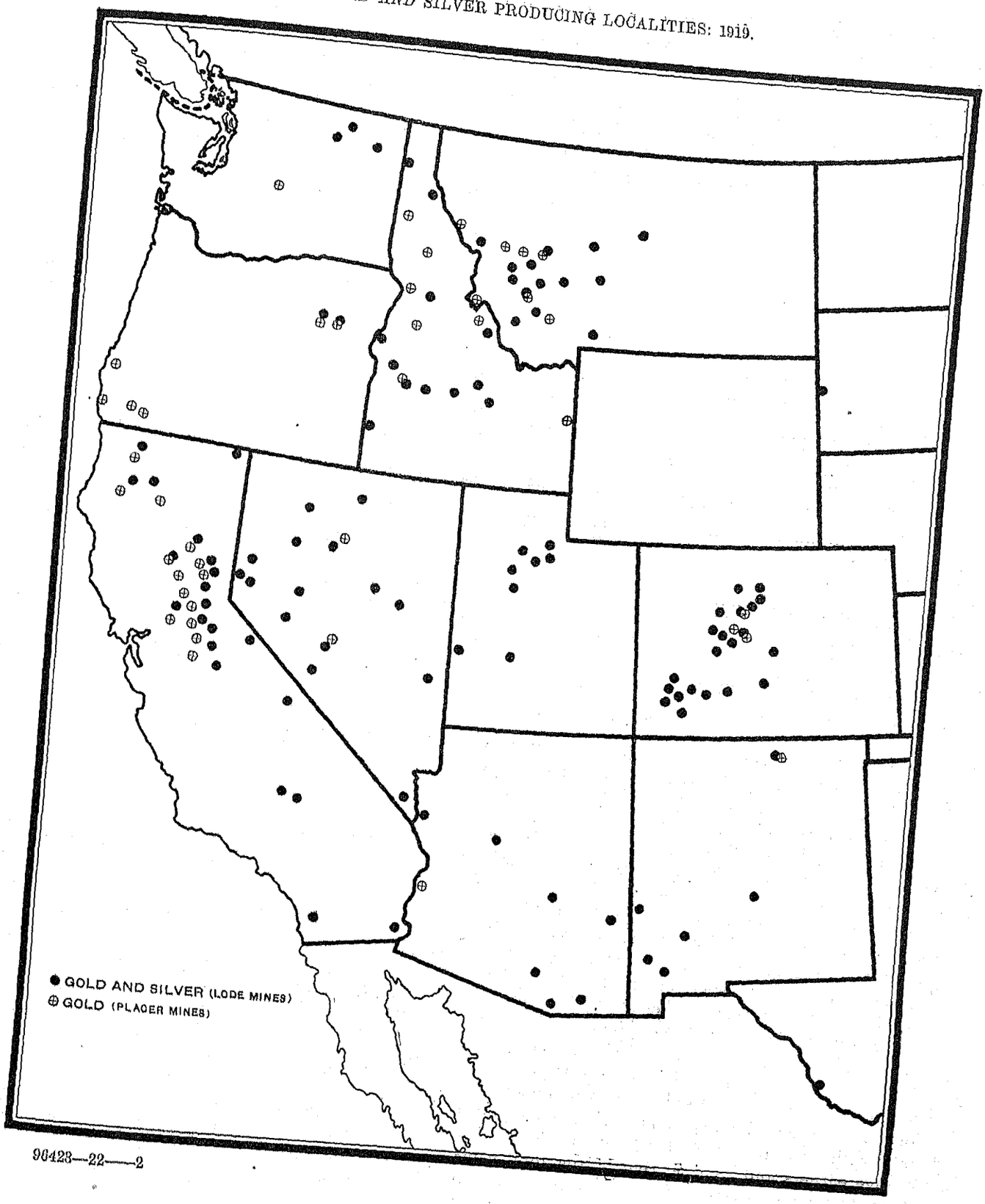
5. For nonproducing enterprises: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming; the Lake Region, comprising Michigan; the Central Region, comprising Kansas, Missouri, Oklahoma, and Wisconsin; the Eastern and Southern Regions, comprising, respectively, New York, Georgia, North Carolina, and Virginia, which are combined to avoid disclosure of individual operations.

The producing localities are shown on the maps on pages 8 and 9. These maps do not show all the gold, silver, copper, lead, and zinc resources of the United States, nor all the localities which have at one time or another been productive, but only indicate by a symbol for each industry the counties from which production was reported at the census of 1919.

LEAD, AND ZINC, AND COPPER PRODUCING LOCALITIES: 1919.



GOLD AND SILVER PRODUCING LOCALITIES: 1919.



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Distribution of metal-mining industries by mining regions and states: 1919.—Table 5 presents for producing and nonproducing enterprises, for the United States, by regions and by industries for each region, the number of enterprises and mines, the average number of wage earners, the horsepower used, and the value of products, and shows the per cent distribution for each of these items. For all metal-mining industries combined, the Western Region was the principal region, having 83.7 per cent of the total number of enterprises, 67 per cent of the total average number of wage earners, and 73.6 per cent of the total value of products. The Central Region was second in rank and the Lake Region third. The importance of the Western Region in copper mining, and of the Central Region in lead mining, is also shown in this table.

TABLE 5.—STATISTICS FOR METAL-MINING INDUSTRIES, ALL ENTERPRISES: 1919.

INDUSTRY AND MINING REGION.	ENTERPRISES.		MINES.		WAGE EARNERS.		POWER USED (AGGREGATE HORSEPOWER).		VALUE OF PRODUCTS.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.
UNITED STATES, all industries	1,979	100.0	2,142	100.0	86,108	100.0	981,229	100.0	$325,038,325	100.0
WESTERN REGION[1]	1,657	83.7	1,784	83.3	57,722	67.0	639,278	65.2	239,159,724	73.6
Producing mines—										
Copper	168	8.5	190	8.9	30,937	35.9	347,232	35.4	145,616,821	44.8
Lead and zinc	151	7.6	165	7.7	6,619	7.7	66,935	6.8	25,342,012	7.8
Gold and silver, lode[1]	740	37.4	799	37.3	15,436	17.9	149,680	15.3	58,832,330	18.1
Gold, placer	112	5.7	132	6.2	1,380	1.6	35,632	3.6	9,368,561	2.9
Nonproducing mines	486	24.6	498	23.2	3,350	3.9	39,799	4.1	.....	.....
CENTRAL REGION	281	14.2	307	14.3	12,586	14.6	137,445	14.0	44,184,673	13.6
Producing mines—										
Lead and zinc	274	13.8	300	14.0	12,532	14.6	136,049	13.9	44,184,673	13.6
Nonproducing mines	7	0.4	7	0.3	54	0.1	1,396	0.1	.....	.....
LAKE REGION	25	1.3	31	1.4	12,416	14.4	170,757	17.4	34,476,336	10.6
Producing mines—										
Copper	22	1.1	28	1.3	12,235	14.2	169,589	17.3	34,476,336	10.6
Nonproducing mines	3	0.2	3	0.1	181	0.2	1,168	0.1	.....	.....
EASTERN AND SOUTHERN REGIONS[2]	16	0.8	20	0.9	3,384	3.9	33,749	3.4	7,217,592	2.2
Producing mines—										
Lead and zinc	7	0.4	8	0.4	2,733	3.2	26,557	2.7	6,052,662	1.9
Copper	5	0.3	8	0.4	545	0.6	6,770	0.7	1,164,930	0.4
Nonproducing mines	4	0.2	4	0.2	106	0.1	422	(3)	.....	.....

[1] Includes 1 enterprise in the Southern Region. [2] Includes 1 enterprise in the Central Region. [3] Less than one-tenth of 1 per cent.

Table 6 presents, for each metal-mining industry as a whole and by regions, the average number of wage earners and the value of products and the per cent distribution of these items by industries and regions, and thus shows the relative importance of each industry and mining region. Table 7 presents by states for each metal-mining industry the average number of wage earners and value of products and shows by the per cent distribution of these items the relative importance of each state. Table 7 shows that Arizona was the principal copper-mining state, with 32.6 per cent of the total average number of wage earners and 46.5 per cent of the total value of products; that Oklahoma was the principal lead and zinc mining state, with 24 per cent of the total average of wage earners and 25.1 per cent of the total value of products; that Colorado was the principal gold and silver lode-mining state, with 22.6 per cent of the total average number of wage earners and 28.5 per cent of the total value of products; and that California was the principal placer-mining state, with 79.9 per cent of the total average number of wage earners and 84.7 per cent of the total value of products.

TABLE 6.—METAL-MINING INDUSTRIES, RANKED BY VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND MINING REGION.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.
UNITED STATES, all industries	1,479	82,417	100.0	$325,038,325	100.0
COPPER	195	43,717	53.0	181,258,087	55.8
Western Region	168	30,937	37.5	145,616,821	44.8
Lake Region	22	12,235	14.8	34,476,336	10.6
Central, Eastern, and Southern Regions	5	545	0.7	1,164,930	0.4
LEAD AND ZINC	432	21,884	26.6	75,579,347	23.3
Central Region	274	12,532	15.2	44,184,673	13.6
Western Region	151	6,619	8.0	25,342,012	7.8
Eastern and Southern Regions	7	2,733	3.3	6,052,662	1.9
GOLD AND SILVER, LODE MINES	740	15,436	18.7	58,832,330	18.1
Western Region[1]	740	15,436	18.7	58,832,330	18.1
GOLD, PLACER MINES	112	1,380	1.7	9,368,561	2.9
Western Region	112	1,380	1.7	9,368,561	2.9

[1] Includes 1 enterprise in the Southern Region.

TABLE 7.—METAL-MINING INDUSTRIES, RANKED BY VALUE OF PRODUCTS, BY STATES, PRODUCING ENTERPRISES: 1919.

MINING REGION AND STATE.	Number of enterprises.	WAGE EARNERS. Average number.	WAGE EARNERS. Per cent distribution.	VALUE OF PRODUCTS. Amount.	VALUE OF PRODUCTS. Per cent distribution.
COPPER.					
UNITED STATES	195	43,717	100.0	$181,258,087	100.0
WESTERN REGION:					
Arizona	75	14,237	32.6	84,217,141	46.5
California	15	1,055	2.4	2,397,610	1.3
Idaho	8	87	0.2	340,309	0.2
Colorado	5	35	0.1	26,723	(1)
Montana, Oregon, and Washington	30	8,599	19.7	28,365,290	15.6
Utah, New Mexico, and Nevada	35	6,924	15.8	30,260,748	16.7
LAKE REGION:					
Michigan	22	12,235	28.0	34,476,336	19.0
SOUTHERN, CENTRAL AND EASTERN REGIONS:					
Tennessee, Missouri, and Vermont	5	545	1.2	1,164,930	0.6
LEAD AND ZINC.					
UNITED STATES	432	21,884	100.0	$75,570,347	100.0
WESTERN REGION:					
Idaho	20	1,820	8.3	9,520,723	12.6
Colorado	27	936	4.3	2,622,150	3.5
California	17	115	0.5	261,454	0.3
Arizona	15	101	0.5	127,843	0.2
Montana, Utah, Nevada, New Mexico, Washington, and South Dakota	72	3,647	16.7	12,800,842	16.9
CENTRAL REGION:					
Oklahoma	111	5,253	24.0	18,979,726	25.1
Missouri	93	4,703	21.9	15,879,177	21.0
Kansas	30	1,141	5.2	4,872,968	6.4
Wisconsin	23	1,078	4.9	3,816,911	5.1
Illinois	6	239	1.1	621,296	0.8
Arkansas	11	28	0.1	14,595	(1)
EASTERN AND SOUTHERN REGIONS:					
New Jersey, Tennessee, New York, and Pennsylvania	7	2,733	12.5	6,052,362	8.0
GOLD AND SILVER, LODE MINES.					
UNITED STATES	740	15,436	100.0	$58,832,330	100.0
WESTERN REGION: [2]					
Colorado	198	3,495	22.6	16,785,716	28.5
Nevada	148	2,084	13.5	9,687,431	16.5
California	99	2,881	18.7	8,773,757	14.9
Utah	49	2,167	14.0	8,449,506	14.4
Arizona	51	642	4.2	3,523,447	6.0
Montana	116	1,107	7.2	2,817,067	4.8
Idaho	32	349	2.3	1,396,915	2.4
New Mexico	23	393	2.5	622,406	1.0
Washington	10	149	1.0	451,625	0.8
South Dakota, Texas, Oregon, and Georgia	14	2,169	14.1	6,024,460	10.2
GOLD, PLACER MINES.					
UNITED STATES	112	1,380	100.0	$9,368,561	100.0
WESTERN REGION:					
California	60	1,102	79.9	7,937,654	84.7
Colorado	5	110	8.0	570,819	6.1
Nevada	8	19	1.4	63,049	0.7
All other [3]	39	149	10.8	796,439	8.5

[1] Less than one-tenth of 1 per cent.
[2] Includes 1 enterprise in Georgia to avoid disclosure of individual operations.
[3] Includes enterprises for states listed in order of value of products as follows: Oregon, 16; Montana, 9; Idaho, 11; New Mexico, 1; Washington, 1; and Arizona, 1.

Rank of states: 1919.—Table 8 ranks all productive states, which can be shown without disclosure of individual operations, according to the value of products of all gold, silver, copper, lead, and zinc mines for 1919 and gives the per cent distribution of the average number of wage earners and the value of products. Twenty-five states were represented in the industries, but practically 50 per cent of the value of products was reported by three—Arizona, Montana, and Michigan.

TABLE 8.—RANK OF STATES FOR LODE AND PLACER MINES COMBINED, PRODUCING ENTERPRISES: 1919.

STATE.	Number of enterprises.	WAGE EARNERS. Average number.	WAGE EARNERS. Per cent distribution.	VALUE OF PRODUCTS. Amount.	VALUE OF PRODUCTS. Per cent distribution.
United States	1,479	82,417	100.0	$325,038,325	100.0
Arizona	142	14,985	18.2	[1] 87,868,481	27.0
Montana	162	11,925	14.5	[1] 39,623,472	12.2
Michigan	22	12,235	14.8	34,476,336	10.6
Utah	86	5,874	7.1	27,824,207	8.6
Colorado	235	4,576	5.6	20,005,408	6.2
California	191	5,153	6.2	19,370,475	6.0
Oklahoma	111	5,253	6.4	18,979,726	5.8
Nevada	186	3,987	4.8	17,144,472	5.3
Missouri [2]	93	4,703	5.8	15,879,177	4.9
Idaho	71	2,275	2.8	[1] 11,266,947	3.5
New Mexico	44	3,059	3.7	[1] 8,135,067	2.5
Kansas	30	1,141	1.4	4,872,964	1.5
Wisconsin	23	1,078	1.3	3,816,911	1.2
Tennessee	5	1,282	1.6	3,121,803	1.0
Oregon	27	423	0.5	1,221,552	0.4
Washington	20	221	0.3	[1] 670,869	0.2
Illinois	6	239	0.3	621,296	0.2
All other states [3]	25	3,918	4.8	9,686,831	3.0

[1] Exclusive of value of products for placer mines to avoid disclosure of individual operations. This value is, however, included in the total for the United States.
[2] Exclusive of data for 1 copper enterprise to avoid disclosure of individual operations.
[3] Includes enterprises for states listed in order of value of products as follows: South Dakota, 5; New Jersey, 2; Texas, 1; New York, 1; Vermont, 2; Arkansas, 11; Georgia, 1; and Pennsylvania, 1. Includes also 1 copper enterprise in Missouri.

PROGRESS OF THE INDUSTRY.

Comparative summary for producing enterprises: 1919, 1909, and 1902.—Table 9 presents for the producing metal-mining industries combined and for each industry separately, a summary of the principal statistics as reported at the Fourteenth Census and the two preceding censuses of mines and quarries. This table shows for the combined metal-mining industries a large decrease in the number of enterprises occurring chiefly in the last decade; an increase in the average number of wage earners in 1909 as compared with 1902, and considerable decrease in 1919 as compared with 1909; a large increase in the horsepower of mechanical equipment used which was most marked in the period 1902–1909; considerable increases in salaries and wages, in the cost of supplies and materials and of fuel and purchased power, and in the value of products which were larger for the first period than for the second period. The increases from 1909 to 1919 in the items salaries, wages, fuel and purchased power, and value of products are largely due to general price increases and do not measure growth of the industries. The very large increase in taxes in 1919 as compared with 1909 is due to the addition, since 1909, of Federal income taxes and in some states special taxes on mining.

A decline is shown in 1919 for the combined metal-mining industries which in fact suffered severe depression partly on account of the depreciated purchasing power of gold and partly because of the cessation of the war demand for the base metals and governmental regulation of metal prices.

TABLE 9.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919, 1909, AND 1902.

	1919	1909	1902	PER CENT OF INCREASE.[1] 1909–1919	1902–1909
ALL METAL-MINING INDUSTRIES.					
Number of enterprises	1,479	[2] 3,459	3,693	−57.2	−6.3
Number of mines	1,630	5,235	3,695	−68.9	41.7
Persons engaged	90,211	111,247	.....	−18.9	.....
Proprietors and firm members	1,349	4,988	(3)	−73.0	.....
Performing manual labor	810	2,837	(3)	−71.4	.....
Salaried employees	6,445	5,297	5,598	21.7	−5.4
Wage earners (av. number)	82,417	100,962	70,030	−18.4	44.2
Power used (aggregate h. p.)	938,444	715,207	436,213	31.2	64.0
Capital	$1,355,825,983	$865,080,359	(3)	56.7	.....
Principal expenses:					
Salaries	15,317,235	9,034,747	$7,671,550	69.5	17.8
Wages	122,830,242	93,398,581	61,558,168	31.5	51.7
Contract work	2,055,074	4,545,387	923,465	−41.6	392.2
Cost of purchased ore	6,602,308	18,995,638	(4)	−65.2	.....
Supplies and materials	64,872,542	44,849,457	[5] 30,294,600	44.6	48.0
Fuel and purchased power	25,344,763	21,505,736	(4)	17.9	.....
Royalties and rents	6,896,824	5,397,207	3,078,982	27.8	75.3
Taxes	18,237,579	3,305,291	(4)	451.8	.....
Value of products	325,038,325	260,103,261	[6] 148,260,265	25.0	75.4
COPPER.					
Number of enterprises	195	[2] 188	144	3.7	30.6
Number of mines	226	368	144	−38.6	155.6
Persons engaged	46,999	53,758	.....	−12.6	.....
Proprietors and firm members	103	79	(3)	.....	.....
Performing manual labor	62	42	(3)	.....	.....
Salaried employees	3,179	2,036	1,208	56.1	68.5
Wage earners (av. number)	43,717	51,643	26,007	−15.3	98.6
Power used (aggregate h. p.)	523,591	376,464	198,507	39.1	89.6
Capital	$853,639,017	$301,896,296	(3)	182.8	.....
Principal expenses:					
Salaries	8,039,741	3,714,028	$1,768,450	116.5	110.0
Wages	66,390,194	49,382,979	21,151,405	34.4	133.5
Contract work	421,753	644,562	188,768	−34.6	241.5
Cost of purchased ore	1,528,056	10,596,964	(4)	−85.6	.....
Supplies and materials	34,275,369	23,718,373	[5] 11,083,175	44.5	114.0
Fuel and purchased power	14,866,015	13,324,157	(4)	11.6	.....
Royalties and rents	536,819	1,780,656	130,215	−70.0	1274.4
Taxes	12,229,046	1,934,158	(4)	532.3	.....
Value of products	181,258,087	134,616,987	[7] 51,178,036	34.6	163.0
LEAD AND ZINC.					
Number of enterprises	432	977	557	−55.8	75.4
Number of mines	473	1,142	559	−58.6	104.3
Persons engaged	24,030	19,601	.....	22.6	.....
Proprietors and firm members	412	1,947	(3)	−78.8	.....
Performing manual labor	186	1,171	(3)	−84.1	.....
Salaried employees	1,734	847	910	104.7	−6.9
Wage earners (av. number)	21,884	16,807	7,881	30.2	113.3
Power used (aggregate h. p.)	229,541	110,559	41,901	107.6	163.9
Capital	$197,223,814	$62,627,935	(3)	214.9	.....
Principal expenses:					
Salaries	3,834,940	1,092,566	$826,327	251.0	32.2
Wages	30,708,319	10,477,657	4,329,271	193.1	142.0
Contract work	863,471	197,259	108,607	337.7	81.6
Cost of purchased ore	406,051	1,947,047	(4)	−79.1	.....
Supplies and materials	15,311,548	4,836,023	[5] 2,511,657	216.6	92.5
Fuel and purchased power	5,375,155	2,400,724	(4)	123.9	.....
Royalties and rents	5,258,387	2,301,350	1,525,368	128.4	50.9
Taxes	3,326,910	167,188	(4)	1889.9	.....
Value of products	75,579,347	31,363,094	[7] 14,600,177	141.0	114.8

TABLE 9.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES, 1919, 1909, AND 1902—Continued.

	1919	1909	1902	PER CENT OF INCREASE.[1] 1909–1919	1902–1909
GOLD AND SILVER, LODE MINES.					
Number of enterprises	740	[2] 1,616	2,017	−54.2	−19.9
Number of mines	700	2,845	2,017	−71.9	41.1
Persons engaged	17,531	33,567	.....	−47.8	.....
Proprietors and firm members	712	2,011	(3)	−64.6	.....
Performing manual labor	485	951	(3)	−49.0	.....
Salaried employees	1,383	2,128	3,205	−35.0	−33.6
Wage earners (av. number)	15,436	29,428	33,821	−47.5	−13.0
Power used (aggregate h. p.)	149,680	200,966	184,512	−25.5	8.9
Capital	$280,388,711	$443,715,258	(3)	−36.8	.....
Principal expenses:					
Salaries	3,005,761	3,797,380	$4,752,355	−20.8	−20.1
Wages	23,817,657	30,868,371	34,258,734	−22.8	−9.9
Contract work	1,237,043	3,603,984	606,137	−65.7	494.6
Cost of purchased ore	4,668,291	6,451,627	(4)	−27.6	.....
Supplies and materials	13,040,897	14,166,617	[6] 15,968,782	−7.5	−11.4
Fuel and purchased power	3,959,260	5,105,253	(4)	−22.4	.....
Royalties and rents	1,015,719	1,163,985	1,277,632	−12.7	−8.9
Taxes	2,325,491	1,084,576	(4)	114.4	.....
Value of products	58,832,330	83,885,928	[7] 77,154,326	−29.9	8.7
GOLD PLACER MINES.					
Number of enterprises	112	678	975	−83.5	−30.5
Number of mines	132	880	975	−85.0	−9.7
Persons engaged	1,651	4,321	.....	−61.8	.....
Proprietors and firm members	122	951	(3)	−87.2	.....
Performing manual labor	77	673	(3)	−88.6	.....
Salaried employees	149	280	275	−47.9	4.0
Wage earners (av. number)	1,380	3,084	2,321	−55.3	32.9
Power used (aggregate h. p.)	35,632	27,278	11,293	30.6	141.5
Capital	$24,574,441	$56,840,870	(3)	−56.8	.....
Principal expenses:					
Salaries	436,793	430,773	$324,418	1.4	32.8
Wages	1,914,072	2,669,574	1,818,758	−28.3	46.8
Contract work	132,807	99,582	19,053	33.4	399.1
Cost of purchased ore	.....	.....	.....	.....	.....
Supplies and materials	2,244,728	2,194,444	[5] 700,986	2.3	177.4
Fuel and purchased power	1,144,333	675,602	(4)	69.4	.....
Royalties and rents	85,890	141,716	145,767	−39.4	−2.8
Taxes	356,132	119,369	(4)	198.3	.....
Value of products	9,368,561	10,237,252	[8] 5,327,726	−8.5	92.2

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[2] See "Thirteenth Census of the United States—Mines and Quarries, Vol. XI," page 344.
[3] Not reported.
[4] Comparable figures not available.
[5] Includes cost of fuel.
[6] Value of products as reported is less cost of ores purchased by mills, and includes an estimated production of $1,138,181 for a number of small placer mines for which no reports were received directly from operators and for which other statistics are lacking.
[7] Value of products as reported is less cost of ores purchased by mills.
[8] Includes an estimated production of $1,138,181 for a number of small mines for which no reports were received directly from operators and for which other statistics are lacking.

In the copper-mining industry the statistics for 1909 show large increases as compared with statistics for 1902, and the statistics for 1919 show a small decrease, prices considered, as compared with 1909. In the lead and zinc mining industry, notwithstanding decrease in the number of enterprises operated in 1919 as compared with earlier years, large increases for other items in the table are indicated for both census periods. The increase in lead and zinc mining shown for 1919 as compared with 1909 is, however, due less to actual growth of the industry than to the fact that enterprises reported as lead and zinc mines for 1919 were classified as silver mines at the

census of 1909. In the gold and silver lode-mining industry notable decreases, particularly in the last decade, are shown by the statistics for the three censuses.

Comparison of quantity of products: 1919 and 1909.—As explained in the introduction, the available data on quantity of products are of limited worth because of the different bases of measurement of the many products and because of the complexity and variability in metal content of the different products. For that reason the data in Table 9 are supplemented by only a very brief summary of the quantity of ores and metals produced in 1919 and 1909 in Table 10, which shows the tonnage of all ores produced and the gross metal content of ores and placer mine products. Corresponding statistics for 1902 are not available.

TABLE 10.—METAL MINES OUTPUT: 1919 AND 1909.[1]

[Continental United States, exclusive of Alaska.]

YEAR.	Total ores (tons, 2000 pounds).	METAL CONTENT OF ORES AND PLACER MINES' PRODUCTS.				
		Gold (fine ounces).	Silver (fine ounces).	Copper (tons, 2,000 pounds).	Lead (tons, 2,000 pounds).	Zinc (tons, 2,000 pounds).
1919	61,839,245	2,207,208	51,209,756	582,555	443,007	549,242
1909	52,491,171	4,798,313	54,088,792	561,199	397,957	306,161

[1] U. S. Geological Survey, Mineral Resources.

Table 10 shows a large increase in the total tons mined, and increases in the copper, lead, and zinc metal content of the total ores mined, but large decreases in the gold and silver content of the output in 1919 as compared with 1909.

Comparison of value of products, by regions: 1919, 1909, and 1902.—Table 11 presents for the United States, for all industries combined, and by regions and by industries, the value of products of metal-mining enterprises for 1919, 1909, and 1902. The statistics for 1909 as compared with those for 1902 show large increase in the value of products of copper, and lead and zinc mining, and of placer mining. The principal increase in 1919 as compared with 1909 was also in the copper, and lead and zinc mining industries, and particularly in the Western Region for the copper and the Central Region for the lead and zinc industry. The large increase in the value of products of the lead and zinc industry as a whole, and in the Western Region locally, as shown in the table, is not a true measure of the change in that industry and region, but is principally due to the fact that many lead and zinc mines in the Western Region were classified at the census of 1909 as silver-producing mines. Correspondingly, therefore, the decrease in the gold and silver mining industry as shown by the value of products reported at the censuses of 1909 and 1919 is in excess of the actual decrease.

TABLE 11.—COMPARISON OF VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919, 1909, AND 1902.

MINING REGION AND INDUSTRY.	1919	1909	1902	INCREASE.[1]		PER CENT OF INCREASE.[1]	
				1909–1919	1902–1909	1909–1919	1902–1909
UNITED STATES, all industries	$325,038,325	$260,103,261	[2] $148,260,265	$64,935,064	$111,842,996	25.0	75.4
Western Region	239,154,524	196,374,364	(3)	42,780,160	.....	21.8	.....
Lake Region	34,476,336	30,165,443	18,247,207	4,310,893	11,918,236	14.3	65.3
Central Region	[4] 44,184,673	26,644,252	(3)	17,540,421	.....	65.8	.....
Eastern and Southern Regions	[5] 7,222,702	6,919,202	(3)	303,500	.....	4.4	.....
COPPER	181,258,087	134,616,987	51,178,036	46,641,100	83,438,951	34.6	163.0
Western Region	145,616,821	101,983,090	(3)	43,633,731	.....	42.8	.....
Lake Region	34,476,336	30,165,443	18,247,207	4,310,893	11,918,236	14.3	65.3
Central, Eastern, and Southern Regions	1,164,930	2,468,454	(3)	−1,303,524	.....	−52.8	.....
LEAD AND ZINC	75,579,347	31,363,094	14,600,177	44,216,253	16,762,917	141.0	114.8
Western Region	25,342,012	405,102	(3)	24,936,910	.....	.....	.....
Central Region	44,184,673	26,644,252	13,870,865	17,540,421	12,773,387	65.8	92.1
Eastern and Southern Regions	6,052,662	4,313,740	(3)	1,738,922	.....	40.3	.....
GOLD AND SILVER, LODE MINES [6]	58,832,330	83,885,928	77,154,326	−25,053,598	6,731,602	−29.9	8.7
GOLD, PLACER MINES	9,368,561	[6] 10,237,252	5,327,726	−868,691	4,909,526	−8.5	92.2

[1] A minus sign (−) denotes decrease. Percentages are omitted where comparable figures can not be given.
[2] Value of products as reported is less cost of ores purchased by mills and includes an estimated production of $1,138,181 for a number of small placer mines for which no reports were received directly from operators.
[3] Comparable figures not available.
[4] Exclusive of 1 enterprise included in Eastern and Southern regions.
[5] Includes 1 enterprise in Central Region.
[6] Includes Western and Southern Regions.

Power used per enterprise and per wage earner: 1919 and 1909.—Table 12 presents for 1919 and 1909, by industries and by mining regions, statistics in regard to the horsepower used per enterprise and per wage earner. The table shows that the increase in horsepower of mechanical equipment used, considerable in the absolute aggregate, is greatly augmented in the average per enterprise by the decrease in the number of enterprises operating. The horsepower used per enterprise increased more than twofold for all metal-mining industries throughout the United States, and the horsepower per wage earner also increased notably. In the metal-mining industries the horsepower used per wage earner employed has increased very considerably since the last census and is relatively large as compared with other mining industries.

TABLE 12.—POWER USED PER ENTERPRISE AND PER WAGE EARNER, PRODUCING ENTERPRISES: 1919 AND 1909.

MINING REGION AND INDUSTRY.	NUMBER OF ENTERPRISES.		WAGE EARNERS (AVERAGE NUMBER).		POWER USED (AGGREGATE HORSEPOWER).		HORSEPOWER PER ENTERPRISE.			HORSEPOWER PER WAGE EARNER.		
	1919	1909	1919	1909	1919	1909	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]
UNITED STATES, all industries	1,479	3,459	82,417	100,962	938,444	715,267	635	207	206.8	11.4	7.1	60.6
Copper	195	188	43,717	51,643	523,591	376,464	2,685	2,002	34.1	12.0	7.3	64.4
Lead and zinc	432	977	21,884	16,807	229,511	110,559	531	113	369.0	10.5	6.6	59.1
Gold and silver, lode mines	740	1,616	15,436	29,428	149,680	200,966	202	124	62.9	9.7	6.8	42.6
Gold, placer mines	112	678	1,380	3,081	35,632	27,278	318	40	695.0	25.8	8.8	193.2
COPPER:												
Western Region	168	162	30,937	31,313	347,232	222,600	2,067	1,374	50.4	11.2	7.1	57.7
Lake Region	22	21	12,235	19,125	169,589	149,749	7,709	7,131	8.1	13.9	7.8	78.2
Central, Eastern, and Southern Regions	5	5	545	1,175	6,770	4,115	1,354	823	64.5	12.4	3.5	254.3
LEAD AND ZINC:												
Western Region	151	17	6,619	178	66,935	847	443	50	786.0	10.1	4.8	110.4
Central Region	274	955	12,532	15,028	136,049	106,845	497	112	343.8	10.9	7.1	53.5
Eastern and Southern Regions	7	5	2,733	1,601	26,557	2,867	3,794	573	562.1	9.7	1.8	438.9

[1] A minus sign (—) denotes decrease.

CHARACTER OF ORGANIZATION.

The character of organizations operating producing metal-mining enterprises in 1919 is given in Table 13. The table shows for the United States as a whole, for lode mines and placer mines separately, and for selected states by mining regions the number of enterprises operated by corporations and by other forms of organization, and gives the average number of wage earners employed by each class and the value of their products in 1919. For the United States as a whole for all metal-mining industries combined, corporations conducted a majority of the enterprises, including the larger and more important ones, employed 96.7 per cent of the total average number of wage earners, and reported 97.2 per cent of the total value of products. In the placer-mining industry throughout the United States and in the lode-mining industry in California, Montana, New Mexico, and Missouri corporations were outnumbered by other forms of organization but were nevertheless preponderant as to the number of wage earners employed and value of products.

TABLE 13.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

MINING REGION, STATE, AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Wage earners (av. number).	VALUE OF PRODUCTS. Amount.	VALUE OF PRODUCTS. Per enterprise.	PER CENT DISTRIBUTION. Enterprises.	PER CENT DISTRIBUTION. Wage earners (av. number).	PER CENT DISTRIBUTION. Value of products.
UNITED STATES	1,479	82,417	$325,038,325	$219,769	100.0	100.0	100.0
Corporation	869	79,685	315,966,806	363,598	58.8	96.7	97.2
Individual	235	1,001	2,960,948	12,600	15.9	1.2	0.9
Firm	359	1,459	5,389,688	15,013	24.3	1.8	1.7
Other	16	272	720,823	45,051	1.1	0.3	0.2
LODE MINES	1,367	81,037	315,669,764	230,922	100.0	100.0	100.0
Corporation	821	78,426	307,091,718	372,575	60.3	96.8	97.3
Individual	202	923	2,622,933	12,985	14.8	1.1	0.8
Firm [1]	341	1,688	6,045,113	17,728	24.9	2.1	1.9
PLACER MINES	112	1,380	9,368,561	83,648	100.0	100.0	100.0
Corporation	45	1,259	8,965,148	199,226	40.2	91.2	95.7
Individual	33	78	338,015	10,243	29.5	5.7	3.6
Firm [2]	34	43	65,398	1,923	30.4	3.1	0.7
WESTERN REGION:							
LODE MINES—							
Arizona	141	14,980	87,868,431	623,180	100.0	100.0	100.0
Corporation	87	14,733	87,378,706	1,004,354	61.7	98.4	99.4
Individual	25	181	305,142	12,206	17.7	1.2	0.3
Firm [3]	29	66	184,493	6,362	20.6	0.4	0.2
California	131	4,051	11,432,821	87,273	100.0	100.0	100.0
Corporation	65	3,810	10,534,489	162,069	49.6	94.1	92.1
Individual	28	83	126,123	4,501	21.4	2.1	1.1
Firm [2]	38	158	772,209	20,321	29.0	3.9	6.8
Colorado	230	4,466	19,434,589	84,498	100.0	100.0	100.0
Corporation	136	4,154	18,331,412	134,812	59.1	93.0	94.3
Individual	28	119	287,151	10,255	12.1	2.7	1.5
Firm [4]	66	193	812,026	12,318	28.7	4.3	4.2
Idaho	60	2,256	11,266,947	187,782	100.0	100.0	100.0
Corporation	40	2,004	10,102,002	252,550	66.7	88.8	89.7
Individual	4	9	10,600	2,650	6.7	0.4	0.1
Firm [3]	16	243	1,154,345	72,147	26.7	10.8	10.2
Montana	153	11,862	39,623,472	258,977	100.0	100.0	100.0
Corporation	53	11,730	39,191,355	739,516	34.6	98.9	98.9
Individual	45	77	171,121	3,803	29.4	0.6	0.4
Firm [5]	55	55	257,996	4,691	35.9	0.5	0.7
Nevada	178	3,968	17,080,823	95,960	100.0	100.0	100.0
Corporation	103	3,772	16,459,439	159,800	57.9	95.1	96.4
Individual	37	71	169,727	4,587	20.8	1.8	1.0
Firm	38	125	451,657	11,886	21.3	3.2	2.6
New Mexico	43	3,057	8,135,067	189,188	100.0	100.0	100.0
Corporation	20	2,925	7,969,802	398,490	46.5	95.7	98.0
Individual	13	58	94,755	7,289	30.2	1.9	1.2
Firm	10	74	70,510	7,051	23.3	2.4	0.9
WESTERN REGION—Con.							
LODE MINES—Con.							
Utah	86	5,874	$27,824,207	$323,537	100.0	100.0	100.0
Corporation	77	5,849	27,719,741	359,997	89.5	99.6	99.6
Individual	4	10	55,794	13,948	4.7	0.2	0.2
Firm	5	15	48,672	9,734	5.8	0.3	0.2
Washington	19	221	670,869	35,309	100.0	100.0	100.0
Corporation	16	216	647,728	40,483	84.2	97.7	96.6
Firm [6]	3	5	23,141	7,714	15.8	2.3	3.4
PLACER MINES—							
California	60	1,102	7,937,654	132,294	100.0	100.0	100.0
Corporation	28	1,005	7,607,977	271,713	46.7	91.2	95.8
Individual	18	65	306,590	17,033	30.0	5.9	3.9
Firm [3]	14	32	23,087	1,649	23.3	2.9	0.3
LAKE REGION:							
LODE MINES—							
Michigan	22	12,235	34,476,336	1,567,106	100.0	100.0	100.0
Corporation	22	12,235	34,476,336	1,567,106	100.0	100.0	100.0
CENTRAL REGION:							
LODE MINES—							
Kansas	30	1,141	4,872,968	162,432	100.0	100.0	100.0
Corporation	25	1,111	4,841,010	193,640	83.3	97.4	99.3
Firm [6]	5	30	31,958	6,392	16.7	2.6	0.7
Missouri [6]	93	4,793	15,879,177	170,744	100.0	100.0	100.0
Corporation	36	4,505	15,158,827	421,079	38.7	94.0	95.5
Individual	9	59	102,967	11,441	9.7	1.2	0.6
Firm	48	229	617,383	12,862	51.6	4.8	3.9
Oklahoma	111	5,253	18,979,726	170,989	100.0	100.0	100.0
Corporation	88	4,587	16,257,559	184,745	79.3	87.3	85.7
Firm [5]	18	532	2,360,397	131,133	16.2	10.1	12.4
Other	5	134	361,770	72,354	4.5	2.6	1.9
Wisconsin	23	1,078	3,816,911	165,953	100.0	100.0	100.0
Corporation	19	1,038	3,676,721	193,512	82.6	96.3	96.3
Firm	4	40	140,190	35,048	17.4	3.7	3.7
EASTERN AND SOUTHERN REGIONS: [7]							
LODE MINES—							
Vermont, New Jersey, New York, Pennsylvania, Tennessee, and Georgia	13	3,313	7,222,792	555,599	100.0	100.0	100.0
Corporation [8]	13	3,313	7,222,792	555,599	100.0	100.0	100.0

[1] Includes 14 other forms of organization.
[2] Includes 2 other forms of organization.
[3] Includes 1 other form of organization.
[4] Includes 4 other forms of organization.
[5] Includes 2 individuals.
[6] Exclusive of 1 copper enterprise included in Eastern and Southern Regions.
[7] Includes 1 Missouri copper enterprise.
[8] Includes 1 small operation conducted by an individual.

SCALE OF OPERATION.

Size of enterprises, according to value of products.—Table 14 presents a classification of the producing metal-mining enterprises in 1919 according to the value of their products and gives the per cent distribution of enterprises and value of products for each group. The statistics are given for the United States for the metal-mining industries as a whole, for the combined lode-mining industries, and the placer-mining industry. The lode-mining and placer-mining industries are also shown separately by states for mining regions. The table shows that in the lode-mining industries 56 enterprises, constituting 4.1 per cent of the total number of such enterprises, each having products valued at more than $1,000,000, reported 70.4 per cent of the total value of products. In the placer-mining industry three enterprises out of a total of 112, each having products worth more than $500,000, reported 61.1 per cent of the total value of products. In both lode and placer mining the small enterprises greatly outnumbered the large enterprises, but contributed a very small part of the total value of products.

TABLE 14.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919.

Mining region, state, and value of product per enterprise.	Enterprises. Number.	Enterprises. Per cent distribution.	Value of products. Amount.	Value of products. Per cent distribution.
UNITED STATES	1,479	100.0	$325,038,325	100.0
Less than $5,000	650	43.9	1,179,803	0.4
$5,000 to $20,000	274	18.5	2,799,607	0.9
$20,000 to $100,000	243	16.4	12,354,338	3.8
$100,000 to $500,000	208	14.1	49,588,128	15.3
$500,000 to $1,000,000	41	2.8	31,839,102	9.7
$1,000,000 to $5,000,000	47	3.2	91,861,902	28.3
$5,000,000 and over	16	1.1	135,415,355	41.7
LODE MINES	1,367	100.0	315,669,761	100.0
Less than $5,000	576	42.1	1,060,084	0.3
$5,000 to $20,000	262	19.2	2,687,429	0.9
$20,000 to $100,000	231	16.9	11,555,733	3.7
$100,000 to $500,000	197	14.4	46,976,421	14.9
$500,000 to $1,000,000	45	3.3	31,224,297	9.9
$1,000,000 to $5,000,000	41	3.0	86,750,415	27.5
$5,000,000 and over	15	1.1	135,415,355	42.9
PLACER MINES	112	100.0	9,368,564	100.0
Less than $5,000	74	66.1	119,899	1.3
$5,000 to $20,000	12	10.7	112,178	1.2
$20,000 to $100,000	12	10.7	798,605	8.5
$100,000 to $500,000	11	9.8	2,611,707	27.9
$500,000 and over [1]	3	2.7	5,726,262	61.1
WESTERN REGION:				
LODE MINES	1,058	100.0	229,785,953	100.0
Less than $5,000	506	47.8	906,093	0.4
$5,000 to $20,000	211	19.9	2,179,945	0.9
$20,000 to $100,000	162	15.3	7,724,666	3.4
$100,000 to $500,000	107	10.1	24,765,318	10.8
$500,000 to $1,000,000	33	3.1	22,884,495	10.0
$1,000,000 to $5,000,000	26	2.5	53,696,582	23.4
$5,000,000 and over	13	1.2	117,637,864	51.2
Arizona	141	100.0	87,868,431	100.0
Less than $5,000	67	47.5	121,053	0.1
$5,000 to $20,000	24	17.0	234,804	0.3
$20,000 to $100,000	20	14.2	1,016,873	1.2
$100,000 to $500,000	12	8.5	2,708,702	3.1
$500,000 to $1,000,000	3	2.1	2,167,314	2.5
$1,000,000 to $5,000,000	7	5.0	15,230,512	17.3
$5,000,000 and over	8	5.7	66,389,173	75.6
California	131	100.0	11,432,821	100.0
Less than $5,000	58	44.3	101,065	0.9
$5,000 to $20,000	26	19.8	260,709	2.3
$20,000 to $100,000	27	20.6	1,382,913	12.1
$100,000 to $500,000	13	9.9	2,978,090	26.0
$500,000 and over [1]	7	5.3	6,710,044	58.7
Colorado	230	100.0	10,434,589	100.0
Less than $5,000	100	43.5	195,382	1.9
$5,000 to $20,000	62	27.0	652,364	3.4
$20,000 to $100,000	38	16.5	1,660,626	8.5
$100,000 to $500,000	22	9.6	4,202,039	21.6
$500,000 to $1,000,000	3	1.3	2,357,628	12.1
$1,000,000 and over [2]	5	2.2	10,366,550	53.3
Idaho	60	100.0	11,266,947	100.0
Less than $5,000	26	43.3	45,298	0.4
$5,000 to $20,000	9	15.0	82,188	0.7
$20,000 to $100,000	11	18.3	559,083	4.9
$100,000 to $500,000	9	15.0	2,977,985	26.4
$500,000 and over [1]	5	8.3	7,611,393	67.6
Montana	153	100.0	39,623,472	100.0
Less than $5,000	95	62.1	155,673	0.4
$5,000 to $20,000	27	17.6	278,304	0.7
$20,000 to $100,000	11	7.2	471,698	1.2
$100,000 to $500,000	10	6.5	2,572,160	6.5
$500,000 to $1,000,000	3	2.0	1,661,478	4.2
$1,000,000 and over [2]	7	4.6	34,484,159	87.0
Nevada	178	100.0	17,080,823	100.0
Less than $5,000	98	55.1	191,829	1.1
$5,000 to $20,000	32	18.0	303,674	1.8
$20,000 to $100,000	24	13.5	1,167,740	6.8
$100,000 to $500,000	15	8.4	3,463,759	20.3
$500,000 to $1,000,000	6	3.4	3,371,922	19.7
$1,000,000 and over [2]	3	1.7	8,581,899	50.2
New Mexico	43	100.0	8,135,067	100.0
Less than $5,000	19	44.2	25,341	0.3
$5,000 to $20,000	13	30.2	137,453	1.7
$20,000 to $100,000	3	7.0	119,042	1.5
$100,000 to $500,000	5	11.6	1,155,538	14.2
$500,000 and over [3]	3	7.0	6,697,693	82.3
Utah	86	100.0	27,824,207	100.0
Less than $5,000	28	32.6	46,435	0.2
WESTERN REGION—Continued.				
LODE MINES—Continued.				
Utah—Continued.	11	12.8	119,110	0.4
$5,000 to $20,000	22	25.6	1,052,342	3.8
$20,000 to $100,000	16	18.6	3,468,012	12.5
$100,000 to $500,000	6	7.0	4,459,018	16.0
$500,000 to $1,000,000	3	3.5	18,679,200	67.1
$1,000,000 and over [2]				
Washington	19	100.0	670,869	100.0
Less than $5,000	8	42.1	10,949	1.6
$5,000 to $20,000	5	26.3	77,197	11.5
$20,000 and over [4]	6	31.6	582,723	86.9
Oregon, South Dakota, and Texas	17	100.0	6,448,737	100.0
Less than $100,000 [5]	11	64.7	97,620	1.5
$100,000 to $500,000	3	17.6	900,249	14.0
$500,000 and over [1]	3	17.6	5,450,868	84.5
PLACER MINES—				
California	60	100.0	7,037,654	100.0
Less than $5,000	37	61.7	65,691	0.8
$5,000 to $20,000	6	10.0	47,885	0.6
$20,000 to $100,000	7	11.7	444,994	5.6
$100,000 to $500,000	7	11.7	1,052,822	20.8
$500,000 and over [1]	3	5.0	5,726,262	72.1
Other states	52	100.0	1,430,907	100.0
Less than $5,000	37	71.2	54,118	3.8
$5,000 to $20,000	6	11.5	64,293	4.5
$20,000 to $100,000	5	9.6	353,611	24.7
$100,000 to $500,000	4	7.7	958,885	67.0
LAKE REGION:				
LODE MINES—				
Michigan	22	100.0	34,476,336	100.0
$20,000 to $100,000	3	13.6	205,340	0.6
$100,000 to $500,000	8	36.4	2,036,996	5.9
$500,000 to $1,000,000	3	13.6	2,558,840	7.4
$1,000,000 and over [2]	8	36.4	29,675,160	86.1
CENTRAL REGION: [6]				
LODE MINES	274	100.0	44,184,673	100.0
Less than $5,000	69	25.2	153,271	0.3
$5,000 to $20,000	48	17.5	486,942	1.1
$20,000 to $100,000	65	23.7	3,605,007	8.2
$100,000 to $500,000	79	28.8	19,107,262	43.2
$500,000 to $1,000,000	6	2.2	4,028,574	9.1
$1,000,000 and over [2]	7	2.6	16,803,617	38.0
Arkansas	11	100.0	14,595	100.0
Less than $5,000	11	100.0	14,595	100.0
Illinois	6	100.0	621,296	100.0
Less than $100,000 [7]	3	50.0	89,503	14.4
$100,000 to $500,000	3	50.0	531,793	85.6
Kansas	30	100.0	4,872,968	100.0
Less than $5,000	5	16.7	7,047	0.1
$5,000 to $20,000	4	13.3	43,000	0.9
$20,000 to $100,000	7	23.3	442,090	9.1
$100,000 and over [1]	14	46.7	4,380,831	89.9
Missouri [6]	93	100.0	15,879,177	100.0
Less than $5,000	42	45.2	107,623	0.7
$5,000 to $20,000	20	21.5	177,241	1.1
$20,000 to $100,000	19	20.4	774,888	4.9
$100,000 to $500,000	8	8.6	1,531,775	9.6
$1,000,000 and over [2]	4	4.3	13,287,650	83.7
Oklahoma	111	100.0	18,979,726	100.0
Less than $5,000	8	7.2	20,634	0.1
$5,000 to $20,000	18	16.2	205,884	1.1
$20,000 to $100,000	31	27.9	1,854,355	9.8
$100,000 to $500,000	48	43.2	12,367,360	65.2
$500,000 and over [1]	6	5.4	4,531,493	23.9
Wisconsin	23	100.0	3,816,911	100.0
Less than $5,000	3	13.0	3,372	0.1
$5,000 to $20,000	4	17.4	35,374	0.9
$20,000 to $100,000	7	30.4	469,614	12.3
$100,000 and over [8]	9	39.1	3,308,551	86.7
EASTERN AND SOUTHERN REGIONS: [9]				
LODE MINES—				
Vermont, New Jersey, New York, Pennsylvania, Tennessee, and Georgia	13	100.0	7,222,792	100.0
Less than $100,000 [10]	5	38.5	50,982	0.7
$100,000 to $500,000	3	23.1	1,066,845	14.8
$500,000 and over [1]	5	38.5	6,104,965	84.5

[1] Includes the group "$1,000,000 to $5,000,000."
[2] Includes the group "$5,000,000 and over."
[3] Includes the groups "$500,000 to $1,000,000" and "$5,000,000 and over."
[4] Includes the group "$100,000 to $500,000."
[5] Includes the groups "Less than $5,000" and "$5,000 to $20,000."
[6] Exclusive of 1 Missouri copper enterprise.
[7] Includes the groups "$5,000 to $20,000" and "$20,000 to $100,000."
[8] Includes the groups "$500,000 to $1,000,000" and "$1,000,000 to $5,000,000."
[9] Includes 1 Missouri copper enterprise.
[10] Includes the groups "Less than $5,000"; "$5,000 to $20,000"; and "$20,000 to $100,000."

Size of enterprises according to average number of wage earners employed.—Table 15 shows for the United States and for all metal-mining industries as a whole, and by mining regions for each of the metal-mining industries, the producing enterprises classified according to the average number of wage earners employed. Of the 1,479 enterprises engaged in the metal-mining industries in the United States, 242 employed no wage earners, and 1,099, or 74.3 per cent of the total number of enterprises, had fewer than 101 wage earners each and employed only 20.9 per cent of the total average number of wage earners. On the other hand 138 enterprises, or 9.4 per cent of the total number, had more than 100 wage earners each and employed 79 per cent of the total average number of wage earners. A relatively large number of small enterprises, as measured by the average number of wage earners, is characteristic of the combined industries for the United States and of each of the industries in the several regions except copper mining in the Lake Region, and lead and zinc mining in the Eastern and Southern Regions, in which regions there are very few enterprises and most of them are large.

TABLE 15.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

Industry and mining region.	Total.		Enterprises employing—													
			No wage earners.		1 to 5 wage earners.				6 to 20 wage earners.				21 to 50 wage earners.			
					Enterprises.		Wage earners.		Enterprises.		Wage earners.		Enterprises.		Wage earners.	
	Number of enterprises.	Wage earners (average number).	Enterprises.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.
United States, all industries	1,479	82,417	242	16.4	494	33.4	1,150	1.4	334	22.6	3,687	4.5	180	12.2	6,026	7.3
Copper	195	43,717	16	8.2	53	27.2	129	0.3	35	17.9	406	0.9	27	13.8	859	2.0
Western Region	168	30,937	16	9.5	52	31.0	126	0.4	34	20.2	391	1.3	24	14.3	747	2.4
Lake Region	22	12,235	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	13.6	112	0.9
Central, Eastern, and Southern Regions	5	545	.....	.....	1	20.0	3	0.6	1	20.0	15	2.8	.....	.....	.....	.....
Lead and zinc	432	21,884	41	9.5	121	28.0	266	1.2	104	24.1	1,195	5.5	74	17.1	2,443	11.2
Western Region	151	6,619	19	12.6	56	37.1	117	1.8	36	23.8	401	6.1	12	7.9	355	5.4
Central Region	274	12,532	22	8.0	65	23.7	149	1.2	66	24.1	768	6.1	62	22.6	2,088	16.7
Eastern and Southern Regions	7	2,733	.....	.....	.....	.....	.....	.....	2	28.6	26	1.0	.....	.....	.....	.....
Gold and silver, lode mines	740	15,436	151	20.4	273	36.9	643	4.2	178	24.1	1,872	12.1	71	9.6	2,474	16.0
Western Region [1]	740	15,436	151	20.4	273	36.9	643	4.2	178	24.1	1,872	12.1	71	9.6	2,474	16.0
Gold, placer mines	112	1,380	34	30.4	47	42.0	112	8.1	17	15.2	214	15.5	8	7.1	250	18.1
Western Region	112	1,380	34	30.4	47	42.0	112	8.1	17	15.2	214	15.5	8	7.1	250	18.1

Industry and mining region.	Enterprises employing—															
	51 to 100 wage earners.				101 to 500 wage earners.				501 to 1,000 wage earners.				Over 1,000 wage earners.			
	Enterprises.		Wage earners.		Enterprises.		Wage earners.		Enterprises.		Wage earners.		Enterprises.		Wage earners.	
	Number.	Per cent of total.	Average number.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.	Number.	Per cent of total.	Average number.	Per cent of total.
United States, all industries	91	6.1	6,386	7.7	106	7.2	23,082	28.0	16	1.1	11,229	13.6	16	1.1	30,857	37.4
Copper	11	5.6	835	1.9	30	15.4	8,676	19.8	12	6.2	8,817	20.2	11	5.6	23,995	54.9
Western Region	7	4.2	549	1.8	20	11.9	6,424	20.8	7	4.2	5,323	17.2	8	4.8	17,377	56.2
Lake Region	3	13.6	224	1.8	8	36.4	1,787	14.6	5	22.7	3,494	28.6	3	13.6	6,618	54.1
Central, Eastern, and Southern Regions	1	20.0	62	11.4	2	40.0	465	85.3	.....	.....	.....	.....	.....	.....	.....	.....
Lead and zinc	45	10.4	3,054	14.0	39	9.0	7,164	32.7	4	0.9	2,412	11.0	4	0.9	5,350	24.4
Western Region	10	6.6	696	10.5	15	9.9	2,774	41.9	2	1.3	1,102	16.6	1	0.7	1,174	17.7
Central Region	35	12.8	2,358	18.8	21	7.7	3,821	30.5	1	0.4	668	5.3	2	0.7	2,680	21.4
Eastern and Southern Regions	.....	.....	.....	.....	3	42.9	569	20.8	1	14.3	642	23.5	1	14.3	1,496	54.7
Gold and silver, lode mines	31	4.2	2,244	14.5	35	4.7	6,691	43.3	.....	.....	.....	.....	1	0.1	1,512	9.8
Western Region [1]	31	4.2	2,244	14.5	35	4.7	6,691	43.3	.....	.....	.....	.....	1	0.1	1,512	9.8
Gold, placer mines	4	3.6	253	18.3	2	1.8	551	39.9	.....	.....	.....	.....	.....	.....	.....	.....
Western Region	4	3.6	253	18.3	2	1.8	551	39.9	.....	.....	.....	.....	.....	.....	.....	.....

[1] Includes 1 enterprise in the Southern Region (Georgia).

Size of enterprises according to acreage of mineral land.—Table 16 shows for the United States for all metal-mining industries as a whole, by mining regions, and by industries for each of the mining regions, the producing enterprises classified according to number of acres of mineral land operated. The greater number of enterprises were in the classes operating the least acreage, but although the enterprises operating more than 500 acres were relatively few, their holdings of mineral land were such that they reported more than four-fifths of the acreage for the United States for all metal-mining industries combined.

The enterprises having small holdings outnumbered those having large holdings in each of the industries in each region except in the copper-mining industry in the Lake and Central Regions, and in the lead and zinc mining industry in the Eastern and Southern Regions.

TABLE 16.—SIZE OF PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF MINERAL LAND OPERATED: 1919.

MINING REGION AND ACRES PER ENTERPRISE.	ENTERPRISES.		MINERAL LAND OPERATED.	
	Number.	Per cent distribution.	Acres.	Per cent distribution.
UNITED STATES, all industries	[1] 1,426	100.0	733,503	100.0
1 to 50	535	37.5	12,541	1.7
50 to 100	249	17.5	19,476	2.7
100 to 200	230	16.1	34,396	4.7
200 to 500	210	14.7	67,226	9.2
500 to 1,000	97	6.8	69,833	9.5
1,000 and over	105	7.4	530,031	72.3
WESTERN REGION	1,137		574,467	
COPPER	167	100.0	318,618	100.0
1 to 50	30	18.0	720	0.2
50 to 100	21	12.6	1,815	0.6
100 to 200	31	18.6	4,487	1.4
200 to 500	41	24.5	13,255	4.2
500 to 1,000	19	11.4	13,881	4.4
1,000 and over	25	15.0	284,460	89.3
LEAD AND ZINC	149	100.0	50,419	100.0
1 to 50	29	19.5	597	1.2
50 to 100	31	20.8	2,218	4.4
100 to 200	28	18.8	4,389	8.7
200 to 500	34	22.8	11,457	22.7
500 to 1,000	17	11.4	11,426	22.7
1,000 and over	10	6.7	20,332	40.3
GOLD AND SILVER, LODE MINES	[2] 709	100.0	142,573	100.0
1 to 50	281	39.6	6,357	4.5
50 to 100	146	20.6	11,534	8.1
100 to 200	124	17.5	18,236	12.8
200 to 500	94	13.3	29,520	20.7
500 to 1,000	39	5.5	27,500	19.3
1,000 and over	25	3.5	49,426	34.7
GOLD, PLACER MINES	112	100.0	62,857	100.0
1 to 50	24	21.4	440	0.7
50 to 100	17	15.2	1,303	2.1
WESTERN REGION—Continued.				
GOLD, PLACER MINES—Continued.				
100 to 200	14	12.5	2,435	3.9
200 to 500	23	20.5	7,679	12.2
500 to 1,000	11	9.8	8,430	13.4
1,000 and over	23	20.5	42,570	67.7
LAKE REGION	21		66,531	
COPPER	21	100.0	66,531	100.0
200 to 500	2	9.5	720	1.1
500 to 1,000	6	28.6	4,609	6.9
1,000 and over	13	61.9	61,202	92.0
CENTRAL REGION	257		65,566	
LEAD AND ZINC	256	100.0	64,654	100.0
1 to 50	171	66.8	4,427	6.8
50 to 100	33	12.9	2,546	3.9
100 to 200	30	11.7	4,361	6.7
200 to 500	15	5.9	4,375	6.8
500 to 1,000	2	0.8	1,528	2.4
1,000 and over	5	2.0	47,417	73.3
COPPER	1	100.0	912	100.0
500 to 1,000	1	100.0	912	100.0
EASTERN AND SOUTHERN REGIONS	11		26,939	
COPPER	4	100.0	6,750	100.0
50 to 100	1	25.0	60	0.9
100 to 200	1	25.0	200	3.0
200 to 500	1	25.0	220	3.3
1,000 and over	1	25.0	6,270	92.9
LEAD AND ZINC	7	100.0	20,189	100.0
100 to 200	2	28.6	288	1.4
500 to 1,000	2	28.6	1,547	7.7
1,000 and over	3	42.9	18,354	90.9

[1] Not including 53 enterprises comprising reduction works and operations on dumps and old tailings.
[2] Includes 1 enterprise in Georgia to avoid disclosure of individual operations.

PERSONS ENGAGED IN THE INDUSTRIES.

Persons according to class and sex.—Table 17 shows the persons engaged in the metal-mining industries by classes, gives the total number of males and females (except among the wage earners) in each class, and the per cent each class is of the total number of persons. For the United States, for all metal-mining industries as a whole, the salaried employees, numbering 6,445, constituted only 7.1 per cent of the total number of persons engaged in the industries. The females reported as salaried employees numbered 482, which was 7.5 per cent of the total number of salaried employees, and five-tenths of 1 per cent of the total number of persons engaged in the industries. They were mostly in the grade, "Clerks and other subordinate salaried employees," of which they constituted nearly one-sixth. The average number of wage earners reported for the year was 82,417, or 91.4 per cent of the total number of persons. As shown in the detailed statistics, Table 31, 153 wage earners, or only two-tenths of 1 per cent, of the number reported in producing enterprises on a representative day were females. Proprietors and firm members constituted 1.5 per cent of the total number of persons engaged in the metal-mining industries; 810, or three-fifths of these proprietors, performed manual labor in or about the mines. This number supplemented the wage earners by approximately 1 per cent of their number. The table shows that proprietors and firm members were relatively more numerous in gold mining than in copper and lead and zinc mining and that a larger proportion of them were engaged in manual labor, thus supplanting a relatively larger number of wage earners than in the copper and lead and zinc mining industries. These facts are in accord with data given in Table 15 which shows the large proportion of small enterprises in the gold-mining industries and with data given in Table 13 which shows the large number of enterprises in the gold placer-mining industry controlled by individuals and firms.

TABLE 17.—PERSONS ENGAGED IN PRODUCING ENTERPRISES: 1919.

INDUSTRY AND MINING REGION.	Total.	PROPRIETORS AND FIRM MEMBERS.			SALARIED OFFICERS.			SUPERINTENDENTS AND MANAGERS.			TECHNICAL EMPLOYEES.			CLERKS AND OTHER SUBORDINATE SALARIED EMPLOYEES.			WAGE EARNERS.		Proprietors performing manual labor.
		Male.	Female.	Per cent of total.	Male.	Female	Per cent of total.	Male.	Female	Per cent of total.	Male.	Female	Per cent of total.	Male.	Female.	Per cent of total.	Average number.	Per cent of total.	
UNITED STATES, all industries	90,211	1,296	53	1.5	615	10	0.7	1,707	2	1.9	1,210	7	1.3	2,431	463	3.2	82,417	91.4	810
COPPER	46,999	98	5	0.2	182	3	0.4	596	.....	1.3	713	4	1.5	1,493	188	3.6	43,717	93.0	62
Western Region	33,494	98	5	0.3	124	3	0.4	452	.....	1.3	620	3	1.9	1,112	140	3.7	30,937	92.4	62
Lake Region	12,917	.....	.....	.....	56	.....	0.4	133	.....	1.0	81	1	0.6	365	46	3.2	12,235	94.7	.....
Central, Eastern, and Southern Regions	588	.....	.....	.....	2	.....	0.3	11	.....	1.9	12	.....	2.0	16	2	3.1	545	92.7	.....
LEAD AND ZINC	24,030	394	18	1.7	105	1	0.7	546	1	2.3	247	2	1.0	593	179	3.2	21,884	91.1	186
Western Region	7,319	103	0	1.5	57	.....	0.8	161	.....	2.2	116	1	1.6	209	44	3.5	6,619	90.4	59
Central Region	13,719	290	0	2.2	105	1	0.8	355	.....	2.6	74	.....	0.5	272	81	2.6	12,532	91.3	127
Eastern and Southern Regions	2,992	1	.....	(1)	3	.....	0.1	30	1	1.0	57	1	1.9	112	54	5.5	2,733	91.4	.....
GOLD AND SILVER, LODE MINES	17,531	684	28	4.1	230	6	1.3	504	1	2.9	239	1	1.4	319	83	2.3	15,436	88.0	485
Western Region [2]	17,531	684	28	4.1	230	6	1.3	504	1	2.9	239	1	1.4	319	83	2.3	15,436	88.0	485
GOLD, PLACER MINES	1,651	120	2	7.4	38	.....	2.3	61	.....	3.7	11	.....	0.7	26	13	2.4	1,380	83.6	77
Western Region	1,651	120	2	7.4	38	.....	2.3	61	.....	3.7	11	.....	0.7	26	13	2.4	1,380	83.6	77

[1] Less than one-tenth of 1 per cent.

[2] Includes 1 enterprise in the Southern Region (Georgia).

Wage earners, by occupations.—Table 18 presents for the combined industries in the United States and for each industry separately by regions a classification by occupations of the wage earners employed in the metal-mining industries on December 15 or the nearest representative day.

TABLE 18.—WAGE EARNERS, BY OCCUPATIONS, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND MINING REGION.	NUMBER OF WAGE EARNERS, DEC. 15 OR NEAREST REPRESENTATIVE DAY.									
	All classes.					Foremen, shift bosses, etc.			Enginemen, firemen, hoistmen, electricians, mechanics, etc.		
	Total.	Above ground.		Below ground.		Number.		Per cent of total.	Number.		Per cent of total.
		Number.	Per cent of total.	Number.	Per cent of total.	Above ground.	Below ground.		Above ground.	Below ground.	
UNITED STATES, all industries	90,833	36,865	40.6	53,968	59.4	1,595	2,199	4.2	10,919	2,131	14.4
COPPER	45,809	20,105	43.9	25,704	56.1	807	1,137	4.2	6,167	1,254	16.2
Western Region	32,666	14,489	44.4	18,177	55.6	641	806	4.4	4,092	1,045	15.7
Lake Region	12,436	5,400	43.4	7,036	56.6	154	298	3.6	1,990	182	17.5
Central, Eastern, and Southern Regions	707	216	30.6	491	69.4	12	33	6.4	85	27	15.8
LEAD AND ZINC	26,168	9,471	36.2	16,697	63.8	369	573	3.6	2,576	362	11.2
Western Region	8,327	2,514	30.2	5,813	69.8	102	201	3.6	668	186	10.3
Central Region	15,170	5,702	37.6	9,468	62.4	208	324	3.5	1,611	128	11.5
Eastern and Southern Regions	2,671	1,255	47.0	1,416	53.0	59	48	4.0	297	48	12.9
GOLD AND SILVER, LODE MINES	17,322	5,830	33.7	11,492	66.3	313	485	4.6	1,713	515	12.9
Western Region [1]	17,322	5,830	33.7	11,492	66.3	313	485	4.6	1,713	515	12.9
GOLD, PLACER MINES	1,534	1,459	95.1	75	4.9	106	4	7.2	463	.....	30.2
Western Region	1,534	1,459	95.1	75	4.9	106	4	7.2	463	.....	30.2

INDUSTRY AND MINING REGION.	NUMBER OF WAGE EARNERS, DEC. 15 OR NEAREST REPRESENTATIVE DAY—continued.									
	Miners and drillmen, including their helpers.			Timbermen, trackmen, trammers, and men engaged in hauling, etc.			Muckers, loaders, and others not classified.			In mills and beneficiating plants.	
	Number.		Per cent of total.	Number.		Per cent of total.	Number.		Per cent of total.	Number (above ground).	Per cent of total.
	Above ground.	Below ground.		Above ground.	Below ground.		Above ground.	Below ground.			
UNITED STATES, all industries	1,024	21,352	25.3	1,642	14,682	18.0	7,897	13,604	23.7	13,188	14.5
COPPER	1,185	9,455	23.2	1,005	8,115	19.9	4,352	5,743	22.0	6,589	14.4
Western Region	1,185	7,246	25.8	970	5,271	19.1	3,157	3,809	21.3	4,435	13.6
Lake Region	.....	2,004	16.1	6	2,710	21.8	1,168	1,842	24.2	2,082	16.7
Central, Eastern, and Southern Regions	.....	205	29.0	20	134	21.8	27	92	16.8	72	10.2
LEAD AND ZINC	109	6,857	26.6	304	4,361	17.8	1,477	4,544	23.0	4,636	17.7
Western Region	28	2,696	32.7	72	1,451	18.3	472	1,279	21.0	1,172	14.1
Central Region	32	3,668	24.4	125	2,250	15.7	682	3,098	24.9	3,044	20.1
Eastern and Southern Regions	49	493	20.3	107	660	28.7	323	167	18.3	420	15.7
GOLD AND SILVER, LODE MINES	208	4,980	30.0	296	2,202	14.4	1,339	3,310	26.8	1,961	11.3
Western Region [1]	208	4,980	30.0	296	2,202	14.4	1,339	3,310	26.8	1,961	11.3
GOLD, PLACER MINES	122	60	11.9	37	4	2.7	729	7	48.0	2	0.1
Western Region	122	60	11.9	37	4	2.7	729	7	48.0	2	0.1

[1] Includes 1 enterprise in the Southern Region (Georgia).

The table also gives the percentage distribution by classes and the number in each class employed above ground and below ground. The table distinguishes between men engaged in the more peculiarly mining occupations, such as miners, drillmen, timbermen, trackmen, trammers, and their helpers; men in other skilled trades, such as enginemen, hoistmen, electricians, firemen, machinists, carpenters, and other mechanics; and less skilled and unclassified laborers. For the combined industries for the United States, 14.5 per cent of the total number were employed in beneficiating plants, and not in mining operations proper. Approximately 60 per cent of all the wage earners in the metal-mining industries in the United States were reported as employed below ground. For wage earners in mining proper—that is, exclusive of those employed in mills and beneficiating plants—the proportion employed below ground is high, being approximately 70 per cent, and for the several metalliferous lode-mining industries these proportions were 66 per cent in copper mining, 78 per cent in lead and zinc mining, and 75 per cent in gold and silver lode mining. In the lode-mining industries the largest class of wage earners reported comprised the miners and drillmen, including their helpers, and the next largest class the muckers, loaders, laborers, and others not classified. In the placer-mining industry, in which conditions are different, the largest number of wage earners was in the group including the unclassified laborers.

Wage earners, by months.—Table 19 shows the number of wage earners employed in all metal-mining enterprises on the 15th day or nearest representative day of each month, the average number of wage earners, and also the months of minimum and maximum employment, and the ratio of the minimum to the maximum number. The statistics are presented for producing enterprises by industries and by states, for each industry, grouped by mining regions. The same data is shown for nonproducing enterprises for all industries combined. The changes in the number employed from month to month reflect conditions prevailing in the metal-mining industries during the census year—an unusual or abnormal year in these industries. The table shows for the principal industries—copper and lead and zinc—and consequently for all industries combined, that January was the month of maximum employment and June was the month of minimum employment. This indicates the effect of the war boom in these industries and the following collapse. The statistics for gold and silver lode mining probably indicate normal fluctuation in employment, as conditions affecting gold and silver mining, although adverse, were uniform during the year.

TABLE 19.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES: 1919.

[The month of maximum employment for each industry and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY, MINING REGION, AND STATE.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
UNITED STATES	86,108	**101,766**	91,322	85,524	81,408	78,801	*78,648*	82,250	84,660	84,704	87,210	89,042	87,808	77.3
Producing enterprises	82,417	**99,201**	88,797	82,044	78,419	75,178	*74,794*	77,944	80,335	80,510	82,935	84,700	83,481	75.4
Copper	43,717	**58,025**	49,136	43,701	40,075	38,374	*37,885*	39,919	41,386	42,595	44,305	45,246	43,267	65.3
Lead and zinc	21,884	**25,124**	23,434	22,574	21,506	20,196	*19,949*	20,207	21,050	21,102	21,570	22,631	23,196	79.4
Gold and silver, lode mines	15,436	*14,778*	14,915	15,095	14,921	15,184	15,540	16,319	**16,469**	15,349	15,536	15,456	15,670	89.7
Gold, placer mines	1,380	*1,274*	1,312	*1,274*	1,317	1,424	1,420	1,499	1,430	1,404	1,425	1,433	1,348	85.0
COPPER:														
Western Region—														
Arizona	14,237	**18,079**	15,347	12,406	*11,840*	12,200	12,322	13,337	14,610	14,025	15,243	15,294	15,241	65.5
California	1,055	**1,255**	1,104	1,109	1,050	1,012	982	996	1,076	986	1,025	1,050	*955*	76.1
Colorado	35	38	37	43	31	37	35	38	35	35	32	34	*26*	58.1
Idaho	87	102	111	101	78	98	123	108	88	77	71	47	*40*	32.5
Montana, Oregon, and Washington	8,599	**12,661**	8,910	8,393	8,038	*7,713*	7,775	8,316	8,347	7,624	8,477	9,028	7,666	60.2
Utah, Nevada, and New Mexico	6,924	**10,100**	7,744	6,177	6,169	6,071	6,138	6,406	*5,929*	7,057	7,266	7,294	6,737	58.7
Lake Region—														
Michigan	12,235	15,038	**15,177**	14,856	12,934	10,088	*10,040*	10,187	10,923	11,445	11,820	11,879	11,833	66.2
Central, Eastern, and Southern Regions—														
Missouri, Vermont, and Tennessee	545	**752**	646	616	535	555	470	531	*378*	446	461	620	530	50.3
LEAD AND ZINC:														
Western Region—														
Arizona	101	**152**	111	115	127	98	85	*82*	86	89	84	90	93	53.9
California	115	**137**	130	132	135	129	112	*92*	93	95	105	108	112	67.2
Colorado	936	**1,515**	1,444	1,445	1,138	*521*	577	647	700	747	753	759	986	34.4
Idaho	1,820	2,258	2,239	1,617	1,588	1,791	1,751	1,941	1,401	877	1,281	2,452	**2,644**	33.2
Montana, Nevada, New Mexico, South Dakota, Utah, and Washington	3,047	4,268	3,876	3,538	3,393	3,390	3,643	*3,353*	3,454	3,523	3,710	3,786	3,830	78.6
Central Region—														
Arkansas	28	49	42	35	36	35	40	27	27	12	14	14	*5*	10.2
Illinois	239	234	235	237	248	248	237	253	245	238	243	220	*221*	87.4
Kansas	1,141	*850*	941	1,080	1,030	1,122	1,028	1,122	1,309	1,277	1,346	1,264	1,323	63.2
Missouri	4,793	5,748	5,233	4,971	4,820	4,586	4,475	*4,402*	4,684	4,820	4,667	4,548	4,544	76.6
Oklahoma	5,253	5,429	4,950	5,004	5,024	4,663	*4,503*	4,857	5,346	5,847	5,759	5,745	**5,849**	77.0
Wisconsin	1,078	1,413	1,234	1,237	1,118	1,078	986	987	1,040	976	970	980	*917*	64.9
Eastern and Southern Regions—														
New Jersey, New York, Pennsylvania, and Tennessee	2,733	3,071	2,999	3,103	2,840	2,535	2,512	*2,444*	2,605	2,652	2,647	2,656	2,672	78.8

TABLE 19.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES: 1919—Continued.

INDUSTRY, MINING REGION, AND STATE.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
GOLD AND SILVER, LODE MINES:														
Western Region—														
Arizona	642	607	580	*579*	581	628	655	710	589	658	739	710	668	78.3
California	2,881	2,864	2,911	2,894	2,778	2,914	2,846	2,964	2,903	*2,768*	2,821	2,927	2,982	92.8
Colorado	3,495	*3,235*	3,244	3,322	3,329	3,596	3,751	3,655	3,813	3,471	3,581	3,452	3,491	84.8
Idaho	349	244	*207*	214	240	326	404	447	466	456	425	378	381	44.4
Montana	1,107	975	*915*	970	1,005	1,012	1,106	1,216	1,233	1,221	1,313	1,239	1,079	69.7
Nevada	2,084	1,763	1,972	2,076	2,018	2,212	2,383	2,457	2,394	*1,630*	1,817	2,061	2,225	66.3
New Mexico	393	408	413	424	368	*357*	365	405	417	408	399	378	374	84.2
Utah	2,167	2,286	2,276	2,228	2,243	1,778	*1,608*	2,005	2,241	2,357	2,281	2,299	2,402	66.9
Washington	149	153	131	144	161	163	160	166	165	167	140	123	*110*	65.5
Oregon, South Dakota, and Texas[1]	2,169	2,243	2,266	2,244	2,198	2,193	2,262	2,294	2,248	2,213	2,020	*1,889*	1,958	82.3
GOLD, PLACER MINES:														
California	1,102	1,011	1,047	*1,009*	1,010	1,106	1,110	1,210	1,148	1,136	1,155	1,183	1,099	83.4
Colorado	110	99	107	109	118	119	115	121	121	*95*	108	108	100	78.5
Nevada	19	28	26	27	24	18	15	17	18	18	16	*10*	11	35.7
Arizona, Idaho, Montana, New Mexico, Oregon, and Washington	149	136	*132*	129	165	181	180	151	143	155	146	*132*	138	72.9
Nonproducing enterprises	3,691	2,565	*2,525*	2,880	3,079	3,623	3,848	4,306	4,325	4,254	4,284	4,276	4,327	58.4
Western Region—														
California, Oregon, and Washington	386	*246*	264	255	263	318	323	352	442	522	518	565	564	43.5
Idaho, Montana, and Wyoming	617	*400*	436	429	487	578	673	805	725	722	769	703	677	49.7
Arizona, Nevada, and Utah	1,801	1,175	*1,106*	1,456	1,586	1,876	1,989	2,122	2,122	1,964	2,021	2,053	2,142	51.6
Colorado, South Dakota, and New Mexico	546	*406*	410	441	452	516	597	648	632	657	588	605	600	61.8
Lake Region—														
Michigan	181	181	177	164	173	191	*113*	209	223	208	196	170	167	50.7
Central Region—														
Kansas, Missouri, Oklahoma, and Wisconsin	54	29	*18*	36	30	51	58	65	72	70	77	75	67	23.4
Eastern and Southern Regions—														
New York, Georgia, North Carolina, and Virginia	106	128	114	99	*88*	93	95	105	109	111	115	105	110	68.8

[1] Includes Georgia.

It will be noted that the number of wage earners reported for enterprises on the representative day, which is presented in several other tables, differs from the numbers shown in Table 21 for any month. This is for the reason that the representative day selected for reporting wage earners in detail was different for different enterprises. Therefore, the aggregate for the representative day does not agree with the total of the numbers reported by each enterprise for any one month.

Days in operation. The number of working days during the census year varied considerably for different enterprises in the metal-mining industries.

TABLE 20.—ALL ENTERPRISES, CLASSIFIED ACCORDING TO TIME IN OPERATION: 1919.

MINING REGION AND CLASS OF MINE.	Total.	ENTERPRISES OPERATING—				
		75 days and less.	76 to 150 days.	151 to 225 days.	226 to 300 days.	301 days and over.
UNITED STATES	1,979	120	364	353	384	758
Producing lode mines	1,367	89	249	210	282	537
Producing placer mines	112	18	33	16	10	35
Nonproducing mines	500	13	82	127	92	186
WESTERN REGION	1,650	78	301	295	298	684
Producing lode mines	1,058	49	188	153	197	471
Producing placer mines	112	18	33	16	10	35
Nonproducing mines	486	11	80	126	91	178
LAKE REGION	25	.....	3	1	10	11
Producing lode mines	22	.....	3	1	10	8
Nonproducing mines	3	.....	.....	.....	.....	3
CENTRAL REGION	281	41	58	56	73	53
Producing lode mines	274	39	57	55	72	51
Nonproducing mines	7	2	1	1	1	2
EASTERN AND SOUTHERN REGIONS	17	1	2	1	3	10
Producing lode mines	13	1	1	1	3	7
Nonproducing mines	4	.....	1	.....	.....	3

Table 20 gives for the United States and for mining regions for producing lode and placer mines, and for nonproducing mines, the distribution of enterprises according to number of days in operation in 1919. The table shows for the United States as a whole that slightly less than one-fourth of the producing lode mines were in operation less than half time (under 151 days), and that approximately three-fifths were in operation less than full time (under 301 days). The percentages of short-time operations were greatest in the Western and Central Regions, which are the leading regions in the metal-mining industry.

Prevailing hours of labor.—In Table 21 all enterprises in the metal-mining industries are classified in accordance with prevailing hours of labor, and the number of enterprises and wage earners are given for each class. The statistics are given by states for mining regions for producing lode and placer and for nonproducing mines. Different hours for different classes of wage earners, such as those working above and below ground, or outside or inside of the mines, or wage earners in mills as distinct from those employed in mining operations, are the rule in the metalliferous lode-mining enterprises, in many districts. In the tabulation of census statistics, however, the wage earners of each enterprise are classed as a unit in accordance with the hours prevailing for the majority regardless of the fact that some worked more or fewer hours. For the combined producing and nonproducing industries in the United States, for nearly three-fifths of the enterprises employing wage earners, and for one-half of the total average

number of wage earners the prevailing hours of labor were 54 to 62 per week; and for approximately two-fifths of the enterprises and nearly one-half of the wage earners the prevailing hours were 44 to 53 per week. Enterprises and wage earners for which less than 44 and more than 63 hours per week prevailed were very few. In the Western Region hours ranging from 54 to 62 per week, resulting principally from the 9 or 10 hour day and 6-day week, but also from the 8-hour day and 7-day week in many enterprises, were most frequently reported, while hours ranging from 44 to 53 per week, indicating the 8-hour day and 6-day week, were reported by about a third of the enterprises. In the Lake Region the hours were 44 to 53 per week and the 8-hour day and 6-day week was the rule. These hours prevailed in the Central Region for more than four-fifths of the enterprises, but a considerable number of the wage earners employed in mills in these enterprises worked longer hours.

TABLE 21.—NUMBER OF PRODUCING AND OF NONPRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

Mining region and state.	Total.		Number where the prevailing hours of labor per week were—							
			43 and under.		44 to 53.		54 to 62.		63 and over.	
	Enterprises.[1]	Wage earners (av. number).	Enterprises.	Wage earners (av. number).	Enterprises.	Wage earners (av. number).	Enterprises.	Wage earners (av. number).	Enterprises.	Wage earners (av. number).
UNITED STATES	1,720	86,108	8	130	683	40,996	1,010	43,239	19	1,734
Producing lode mines	1,159	81,037	5	125	520	39,827	620	39,436	8	1,649
Producing placer mines	78	1,380	...	...	17	62	52	1,243	9	75
Nonproducing mines	483	3,691	3	14	140	1,107	338	2,560	2	10
WESTERN REGION:[2]										
Producing lode mines	873	52,992	4	122	289	13,710	574	37,514	6	1,646
Producing placer mines	78	1,380	...	...	17	62	52	1,243	9	75
Nonproducing mines	471	3,355	3	14	131	829	335	2,502	2	10
ARIZONA—										
Producing lode mines	127	14,980	...	...	43	6,859	83	8,119	1	2
Producing placer mines	1	5	...	...	1	5	...	...	...	...
Nonproducing mines	89	778	...	...	23	196	66	582	...	...
CALIFORNIA—										
Producing lode mines	104	4,051	...	...	23	1,066	79	2,755	2	230
Producing placer mines	49	1,102	...	...	11	47	31	984	7	71
Nonproducing mines	46	306	...	...	16	130	30	176	...	...
COLORADO—										
Producing lode mines	188	4,466	2	116	93	1,532	93	2,818	...	...
Producing placer mines	4	110	...	...	...	...	4	110	...	...
Nonproducing mines	57	407	...	...	25	101	32	306	...	...
IDAHO—										
Producing lode mines	54	2,256	...	...	21	1,109	33	1,147	...	...
Producing placer mines	5	19	...	...	1	4	4	15	...	...
Nonproducing mines	46	340	1	9	10	77	35	254	...	...
MONTANA—										
Producing lode mines	99	11,862	...	...	31	1,030	68	10,832	...	...
Producing placer mines	7	63	...	...	2	3	5	60	...	...
Nonproducing mines	35	263	...	...	10	60	25	203	...	...
NEVADA—										
Producing lode mines	144	3,968	1	2	23	325	119	3,640	1	1
Producing placer mines	3	19	...	...	...	...	3	19	...	...
Nonproducing mines	114	646	...	...	9	40	105	606	...	...
NEW MEXICO—										
Producing lode mines	40	3,057	...	...	17	914	22	749	1	1,394
Producing placer mines	1	2	...	...	1	2	...	...	...	...
Nonproducing mines	17	110	...	...	12	85	5	25	...	...
OREGON—										
Producing lode mines	10	363	...	...	4	24	6	339	...	...
Producing placer mines	8	60	...	...	1	1	5	55	2	4
Nonproducing mines	4	30	...	...	2	17	2	13	...	...
UTAH—										
Producing lode mines	84	5,874	1	4	27	835	55	5,016	1	19
Nonproducing mines	45	377	2	5	17	97	24	265	2	10
SOUTH DAKOTA, TEXAS, AND GEORGIA—										
Producing lode mines	6	1,894	...	...	1	2	5	1,892	...	...
Nonproducing mines	4	34	...	...	2	8	2	26	...	...
WASHINGTON—										
Producing lode mines	17	221	...	...	6	14	11	207	...	...
Nonproducing mines	11	50	...	...	5	18	6	32	...	...

Mining region and state.	Total.		Number where the prevailing hours of labor per week were—							
			43 and under.		44 to 53.		54 to 62.		63 and over.	
	Enterprises.[1]	Wage earners (av. number).	Enterprises.	Wage earners (av. number).	Enterprises.	Wage earners (av. number).	Enterprises.	Wage earners (av. number).	Enterprises.	Wage earners (av. number).
WESTERN REGION—Con.										
WYOMING—										
Nonproducing mines	3	14	...	...	...	...	3	14	...	...
LAKE REGION:										
Producing lode mines	22	12,235	...	...	22	12,235	...	...	...	...
Nonproducing mines	3	181	...	...	3	181	...	...	...	...
MICHIGAN—										
Producing lode mines	22	12,235	...	...	22	12,235	...	...	...	...
Nonproducing mines	3	181	...	...	3	181	...	...	...	...
E RAL REGION:										
Producing lode mines	253	12,594	...	...	209	10,878	42	1,713	2	3
Nonproducing mines	6	54	...	...	4	51	2	3	...	...
ARKANSAS—										
Producing lode mines	10	28	...	...	5	11	5	17	...	...
ILLINOIS—										
Producing lode mines	6	239	...	...	2	89	4	150	...	...
KANSAS—										
Producing lode mines	30	1,141	...	...	25	718	4	422	1	1
Nonproducing mines	2	34	...	...	2	34	...	...	...	...
MISSOURI—										
Producing lode mines	75	4,855	...	...	66	4,796	9	59	...	...
Nonproducing mines	1	11	...	...	1	11	...	...	...	...
OKLAHOMA—										
Producing lode mines	111	5,253	...	...	104	5,178	6	73	1	2
Nonproducing mines	1	6	...	...	1	6	...	...	...	...
WISCONSIN—										
Producing lode mines	21	1,078	...	...	7	86	14	992	...	...
Nonproducing mines	2	3	...	...	...	...	2	3	...	...
EASTERN AND SOUTHERN REGIONS:										
Producing lode mines	11	3,216	1	3	6	3,004	4	209	...	...
Nonproducing mines	3	101	...	...	2	46	1	55	...	...
NEW JERSEY—										
Producing lode mines	2	1,770	...	...	2	1,770	...	...	...	...
NEW YORK—										
Producing lode mines	1	118	...	...	1	118	...	...	...	...
Nonproducing mines	1	20	...	...	1	20	...	...	...	...
NORTH CAROLINA—										
Nonproducing mines	1	26	...	...	1	26	...	...	...	...
PENNSYLVANIA—										
Producing lode mines	1	19	...	...	...	...	1	19	...	...
TENNESSEE—										
Producing lode mines	5	1,282	...	...	3	1,107	2	175	...	...
VERMONT—										
Producing lode mines	2	18	1	3	...	...	1	15	...	...
VIRGINIA—										
Nonproducing mines	1	55	...	...	...	...	1	55	...	...

[1] U. S. total is exclusive of 259 enterprises—producing, 242, and nonproducing, 17—employing no wage earners.

[2] Includes Georgia.

LAND TENURE AND ROYALTIES.

Land tenure.—Table 22 shows for 1919, by states, for producing lode-mining and placer-mining enterprises and for nonproducing enterprises, the number of acres of land controlled. The table distinguishes mineral land (that is, land held for its content of gold, silver, copper, lead, or zinc) from timber and other lands, shows the mineral land classified according to the form of tenure, and gives the number of acres operated. In this table, and in others relating to acreage, the number of acres of mineral land controlled by the mining enterprises is greater by the amount of acreage leased to other operators and by the idle acreage than the number of acres reported operated. "Acres operated" is exclusive of the duplication in "Acres controlled" of acreage reported by both owners and lessees.

TABLE 22.—LAND OPERATED AND CONTROLLED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

CLASS OF MINE AND STATE.	Mineral land operated (acres).	LAND CONTROLLED.				
		Aggregate (acres).	Mineral land.			Timber and other lands (acres).
			Total (acres).	Owned (acres).	Held under lease (acres).	
UNITED STATES	909,538	1,282,347	910,801	779,195	131,606	371,546
Producing enterprises	733,503	1,099,966	734,068	642,743	91,325	365,898
LODE MINES	670,646	1,020,149	671,111	591,524	79,587	349,038
Arizona	64,886	82,164	64,886	51,811	13,075	17,278
Arkansas	1,028	1,028	1,028	342	686	
California	30,665	44,166	30,685	28,036	2,649	13,481
Colorado	33,963	36,220	34,049	22,229	11,820	2,171
Georgia	1,705	1,705	1,705	320	1,385	
Idaho	19,262	22,238	19,362	17,715	1,647	2,876
Illinois	898	898	898	368	530	
Kansas	1,686	1,686	1,686		1,686	
Michigan	66,531	262,865	66,531	65,655	876	196,334
Missouri	50,749	50,749	50,749	47,905	2,844	
Montana	19,076	22,614	19,168	13,004	6,164	3,446
Nevada	36,580	43,628	36,603	28,048	8,555	7,025
New Jersey	1,547	11,457	1,547	1,547		9,910
New Mexico	23,012	45,797	23,072	19,370	3,702	22,725
New York	10,500	10,500	10,500	500	10,000	
Oklahoma	4,914	4,994	4,994		4,994	
Oregon	4,135	4,135	4,135	3,300	835	
Pennsylvania	113	113	113		113	
South Dakota	9,542	40,652	9,542	9,527	15	31,110
Tennessee	14,519	46,417	14,519	14,249	270	31,898
Texas	1,417	1,417	1,417	1,417		
Utah	264,360	268,546	264,364	261,283	3,081	4,182
Vermont	260	260	260	260		
Washington	3,007	3,567	3,007	2,257	750	560
Wisconsin	6,291	12,333	6,291	2,381	3,910	6,042
PLACER MINES	62,857	79,817	62,957	51,219	11,738	16,860
Arizona	3,000	3,000	3,000	3,000		
California	30,356	44,185	30,356	21,946	8,410	13,829
PLACER MINES—Contd.						
Colorado	6,238	6,238	6,238	4,839	1,399	
Idaho	5,210	5,210	5,210	3,760	1,450	
Montana	5,534	6,985	5,534	5,392	142	1,451
Nevada	2,848	2,848	2,848	2,782	66	
New Mexico	59	59	59		59	
Oregon	9,532	11,212	9,632	9,420	212	1,580
Washington	80	80	80	80		
Nonproducing enterprises	176,035	182,381	176,733	136,452	40,281	5,648
Arizona	36,299	36,527	36,299	34,530	1,769	228
California	26,317	26,677	26,330	23,358	2,972	347
Colorado	8,320	8,702	8,403	5,938	2,465	299
Georgia	120	120	120		120	
Idaho	19,693	19,833	19,693	16,863	2,830	140
Kansas	21,715	22,317	22,317	626	21,691	
Michigan	5,100	5,100	5,100	5,100		
Missouri	40	40	40		40	
Montana	6,139	6,639	6,139	4,152	1,987	500
Nevada	18,456	18,595	18,456	17,528	928	139
New Mexico	5,965	6,153	5,965	4,982	983	188
New York	125	125	125	125		
North Carolina	390	390	390	390		
Oklahoma	360	360	360		360	
Oregon	3,130	3,130	3,130	2,660	470	
South Dakota	2,181	2,821	2,181	1,181	1,000	640
Utah	16,378	18,098	16,378	14,742	1,636	1,720
Virginia	1,846	2,544	1,846	1,846		698
Washington	2,381	3,130	2,381	1,911	470	749
Wisconsin	400	400	400		400	
Wyoming	680	680	680	520	160	

Table 23 presents comparative statistics for 1919 and 1909 relating to the number of acres of mineral land and of timber and other lands controlled by producing enterprises and shows the per cent of increase for each class of land.

TABLE 23.—COMPARATIVE STATISTICS, LAND CONTROLLED, PRODUCING ENTERPRISES: 1919 AND 1909.

INDUSTRY AND STATE.	TOTAL LAND CONTROLLED (ACRES).			MINERAL LAND (ACRES).			TIMBER AND OTHER LANDS (ACRES)		
	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]
UNITED STATES, all industries [2]	1,099,966	989,183	11.2	734,068	699,861	4.9	365,898	289,322	26.5
Copper [2]	648,703	275,598	135.4	392,884	126,851	209.7	255,819	148,747	72.0
Lead and zinc [2]	182,509	125,322	45.6	135,456	103,555	30.8	47,053	21,767	116.2
Gold and silver, lode mines [2]	188,937	374,685	−49.6	142,771	276,857	−48.4	46,166	97,828	−52.8
Gold, placer mines [2]	79,817	213,578	−62.6	62,957	192,598	−67.3	16,860	20,980	−19.6
COPPER, LEAD AND ZINC, AND GOLD AND SILVER, LODE MINES:									
Arizona	82,164	42,290	94.3	64,886	36,980	75.5	17,278	5,310	225.4
Arkansas	1,028	970	6.0	1,028	970	6.0			
California	44,166	118,752	−62.8	30,685	105,119	−70.8	13,481	13,633	−1.1
Colorado	36,220	38,649	−6.3	34,049	35,391	−3.8	2,171	3,258	−33.4
Idaho	22,238	19,730	12.7	19,362	17,003	13.9	2,876	2,727	5.5
Illinois	898	710	26.5	898	710	26.5			
Kansas	1,686	1,258	34.0	1,686	1,247	35.2		11	
Michigan	262,865	160,153	64.1	66,531	67,369	−1.2	196,334	92,784	111.6
Missouri	50,749	106,001	−52.1	50,749	85,489	−40.6		20,512	
Montana	22,614	48,844	−53.7	19,168	19,058	0.6	3,446	29,786	−88.4
Nevada	43,628	33,872	28.8	36,603	26,965	35.7	7,025	6,907	1.7
New Jersey	11,457	1,653	593.1	1,547	1,253	23.5	9,910	400	
New Mexico	45,797	79,973	−42.7	23,072	29,146	−20.8	22,725	50,827	−55.3
Oklahoma	4,994	715	598.5	4,994	715	598.5			
Oregon	4,135	8,509	−51.4	4,135	6,293	−34.3		2,216	
South Dakota	40,652	30,420	33.6	9,542	10,225	−6.7	31,110	20,195	54.0
Tennessee	46,417	19,413	139.1	14,519	8,513	70.6	31,898	10,900	192.6
Texas	1,417	713	98.7	1,417	640	121.4		73	
Utah	268,546	31,202	760.7	264,364	24,217	991.6	4,182	6,985	−40.1
Washington	3,567	5,588	−36.2	3,007	4,118	−27.0	560	1,470	−61.9
Wisconsin	12,333	10,669	15.6	6,291	10,445	−39.8	6,042	224	
GOLD, PLACER MINES:									
Arizona	3,000	123		3,000	123				
California	44,185	123,158	−64.1	30,356	116,251	−73.9	13,829	6,907	100.2
Colorado	6,238	7,477	−16.6	6,238	7,477	−16.6			
Idaho	5,210	25,978	−79.9	5,210	25,248	−79.4		730	
Montana	6,985	13,490	−48.2	5,534	13,300	−58.4	1,451	190	663.7
Nevada	2,848	1,774	60.5	2,848	1,774	60.5			
New Mexico	59	780	−92.4	59	780	−92.4			
Oregon	11,212	18,015	−37.8	9,632	12,696	−24.1	1,580	5,319	−70.3
Washington	80	854	−90.6	80	854	−90.6			

[1] A minus sign (−) denotes decrease.

[2] Includes statistics for states not shown separately because comparable statistics are not available.

These statistics are given for all metal-mining industries combined, for each industry separately, and for lode and placer mines by selected states. The table shows increases in the acreage controlled by the copper, and lead and zinc mining industries, and considerable decrease in the acreage controlled by the gold and silver lode mining and the gold placer-mining industries, which decreases are in accord with the large decreases shown for these industries in the comparative summary, Table 9.

In Table 24 producing metal-mining enterprises are grouped according to the form of tenure of mineral land—whether held by ownership, under lease, or held partly by ownership and partly under lease. The table also shows the per cent the total owned acreage is of the aggregate of mineral land and also the per cent which the total under each class of tenure is of the aggregate acreage of mineral land. The statistics are presented by states for mining regions for lode and placer mines separately. For all industries combined, nearly one-half of the enterprises were in the class which operated owned land exclusively. The acreage operated by these enterprises was 83.3 per cent of all mineral land controlled by metal-mining enterprises. A very large part of the land was owned by the operators in all but nine states. These were principally in the Central Region, where Missouri was the only state in which most of the land was owned by the operators, whereas in Kansas and Oklahoma none of the land was owned by the mining enterprises, and less than one-half was owned by operators in the other states of this region.

TABLE 24.—NUMBER OF PRODUCING ENTERPRISES AND ACRES OF MINERAL LAND CONTROLLED, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

MINING REGION AND STATE.	ALL CLASSES.					ENTERPRISES OPERATING ONLY OWNED LAND.			ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE.			ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE.				
	Number of enterprises.	Acres controlled.				Number.	Acres controlled.		Number.	Acres controlled.		Number.	Acres controlled.			
		Aggregate.	By ownership.	By lease.	Per cent owned is of aggregate.		By ownership.	Per cent of aggregate.		By lease.	Per cent of aggregate.		Total.	By ownership.	By lease.	Per cent of aggregate.
UNITED STATES, all industries	[1] 1,426	734,068	642,743	91,325	87.6	697	611,351	83.3	653	62,202	8.5	76	60,515	31,392	29,123	8.2
Lode mines	[1] 1,314	671,111	591,524	79,587	88.1	628	565,882	84.3	616	52,065	7.8	70	53,164	25,642	27,522	7.9
Placer mines	112	62,957	51,219	11,738	81.4	69	45,469	72.2	37	10,137	16.1	6	7,351	5,750	1,601	11.7
LODE MINES:																
Western Region—																
Arizona	141	64,886	51,811	13,075	79.8	77	49,181	75.8	54	11,002	17.0	10	4,703	2,630	2,073	7.2
California	125	30,685	28,036	2,649	91.4	90	27,618	90.0	31	2,597	8.5	4	470	418	52	1.5
Colorado	223	34,049	22,229	11,820	65.3	90	18,670	54.8	115	6,493	19.1	18	8,883	3,559	5,324	26.1
Idaho	57	19,362	17,715	1,647	91.5	45	17,170	88.7	7	1,157	6.0	5	1,035	545	490	5.3
Montana	145	19,168	13,004	6,164	67.8	66	11,630	60.7	74	5,089	26.5	5	2,449	1,374	1,075	12.8
Nevada	171	36,603	28,048	8,555	76.6	107	25,691	70.2	58	7,027	19.2	6	3,885	2,357	1,528	10.6
New Mexico	43	23,072	19,370	3,702	84.0	18	17,292	74.9	18	1,896	8.2	7	3,884	2,078	1,806	16.8
Oregon	11	4,135	3,300	835	79.8	5	2,940	71.1	4	635	15.4	2	560	360	200	13.5
South Dakota	5	9,542	9,527	15	99.8	4	9,527	99.8	1	15	0.2	.....	.....	.....	.....	.....
Texas	1	1,417	1,417	.....	100.0	1	1,417	100.0	.....	.....	.....	.....	.....	.....	.....	.....
Utah	83	264,364	261,283	3,081	98.8	72	260,283	98.5	10	2,081	0.8	1	2,000	1,000	1,000	0.8
Washington	19	3,007	2,257	750	75.1	11	2,032	67.6	6	630	21.0	2	345	225	120	11.5
Lake Region—																
Michigan	21	66,531	65,655	876	98.7	20	62,264	93.6	.....	.....	.....	1	4,267	3,391	876	6.4
Central Region—																
Arkansas	11	1,028	342	686	33.3	3	342	33.3	8	680	66.7	.....	.....	.....	.....	.....
Illinois	5	898	368	530	41.0	1	317	35.3	3	356	39.0	1	231	51	180	25.7
Kansas	27	1,686	.....	1,686	.....	.....	.....	.....	27	1,686	100.0	.....	.....	.....	.....	.....
Missouri	86	50,749	47,905	2,844	94.4	8	47,835	94.3	77	2,794	5.5	1	120	70	50	0.2
Oklahoma	106	4,994	.....	4,994	.....	.....	.....	.....	106	4,994	100.0	.....	.....	.....	.....	.....
Wisconsin	22	6,291	2,381	3,910	37.8	2	1,617	25.7	16	2,817	44.8	4	1,857	764	1,093	29.5
Eastern and Southern Regions—																
Georgia	1	1,705	320	1,385	18.8	.....	.....	.....	.....	.....	.....	1	1,705	320	1,385	100.0
New Jersey	2	1,547	1,547	.....	100.0	2	1,547	100.0	.....	.....	.....	.....	.....	.....	.....	.....
New York	1	10,500	500	10,000	4.8	.....	.....	.....	.....	.....	.....	1	10,500	500	10,000	100.0
Pennsylvania	1	113	.....	113	.....	.....	.....	.....	1	113	100.0	.....	.....	.....	.....	.....
Tennessee	5	14,519	14,249	270	98.1	4	8,249	56.8	.....	.....	.....	1	6,270	6,000	270	43.2
Vermont	2	260	260	.....	100.0	2	260	100.0	.....	.....	.....	.....	.....	.....	.....	.....
PLACER MINES:																
Western Region—																
Arizona	1	3,000	3,000	.....	100.0	1	3,000	100.0	.....	.....	.....	.....	.....	.....	.....	.....
California	60	30,356	21,946	8,410	72.3	37	21,475	70.7	20	7,353	24.2	3	1,528	471	1,057	5.0
Colorado	5	6,238	4,839	1,399	77.6	1	200	3.2	3	1,115	17.9	1	4,923	4,639	284	78.9
Idaho	11	5,210	3,760	1,450	72.2	8	3,760	72.2	3	1,450	27.8	.....	.....	.....	.....	.....
Montana	9	5,534	5,392	142	97.4	5	4,852	87.7	3	82	1.5	1	600	540	60	10.8
Nevada	8	2,848	2,782	66	97.7	4	2,782	97.7	4	66	2.3	.....	.....	.....	.....	.....
New Mexico	1	59	.....	59	.....	.....	.....	.....	1	59	100.0	.....	.....	.....	.....	.....
Oregon	16	9,632	9,420	212	97.8	12	9,320	96.8	3	12	0.1	1	300	100	200	3.1
Washington	1	80	80	.....	100.0	1	80	100.0	.....	.....	.....	.....	.....	.....	.....	.....

[1] Not including 53 enterprises comprising reduction works and operations on dumps and old tailings in states as follows: California, 6; Colorado, 7; Idaho, 3; Illinois, 1; Kansas, 3; Michigan 1: Missouri, 8; Montana, 8; Nevada, 7; Oklahoma, 5; Utah, 3; and Wisconsin, 1.

Royalties.—The census of mines and quarries, 1919, did not distinguish between royalties or rent paid for mineral land and rents of other kinds. In the metal-mining industries rents of other kinds, such as for buildings, equipment, right of way, and other easements or privileges, and royalties on the use of treatment processes, were important items of expense for some enterprises. For the most part, however, the statistics presented relating to royalties and rents, especially for enterprises operating lands held under lease, include only royalties on production or rents of mineral land. Such royalties and rents, which are compensations for the privilege of mining leased land, are either fixed shares of the product or of the value of the product. Table 25 gives for each industry and by regions for copper and lead and zinc mining statistics in regard to royalties and rents paid, together with the number of producing enterprises paying them, and the value of products of these enterprises. The enterprises are classified according to the form of tenure of the mineral land operated by them. Nearly one-half of the enterprises operating land held by ownership, and producing 84.6 cer cent of the total value of the output, reported 12.9 per cent of the royalties and rents paid. However, the copper-mining enterprises in this class reported over three-fifths of the royalties and rents paid by the entire copper-mining industry and this was principally for the use of treatment processes. On the other hand, 46 per cent of the metal-mining enterprises, reporting only 12.1 per cent of the total value of products, operated leased land entirely and paid 80.2 per cent of the total royalties and rents.

TABLE 25.—VALUE OF PRODUCTS AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF MINERAL LAND: 1919.

Industry and mining region.	All classes.			Enterprises operating only owned land.					Enterprises operating only land held under lease.					Enterprises operating land partly owned and partly held under lease.				
	Number of enterprises.	Value of products.	Royalties and rents.	Number.	Value of products.		Royalties and rents.		Number.	Value of products.		Royalties and rents.		Number.	Value of products.		Royalties and rents.	
					Amount.	Per cent of total.	Amount.	Per cent of total.		Amount.	Per cent of total.	Amount.	Per cent of total.		Amount.	Per cent of total.	Amount.	Per cent of total.
United States, all industries[1]	1,426	$315,140,567	$6,740,129	697	$266,615,099	84.6	$866,325	12.9	653	$38,050,812	12.1	$5,406,890	80.2	76	$10,474,656	3.3	$466,914	6.9
Copper	193	179,990,211	536,819	128	174,088,500	96.7	330,758	61.6	54	2,704,796	1.5	157,231	29.3	11	3,196,915	1.8	48,830	9.1
Lead and zinc	412	74,100,844	5,236,862	109	39,158,313	52.8	312,348	6.0	286	31,579,989	42.6	4,671,557	89.2	17	3,362,542	4.5	252,957	4.8
Gold and silver, lode mines	709	51,680,951	880,549	391	45,460,026	88.0	211,200	24.0	276	3,226,283	6.2	511,299	58.1	42	2,994,642	5.8	158,050	17.9
Gold, placer mines	112	9,368,561	85,899	69	7,908,260	84.4	12,019	14.0	37	539,744	5.8	66,803	77.8	6	920,557	9.8	7,077	8.2
Copper:																		
Western Region	167	144,554,642	531,984	104	139,295,601	96.4	330,758	62.2	54	2,704,796	1.9	157,231	29.6	9	2,554,245	1.8	43,995	8.3
Lake Region	21	34,270,639	.....	20	34,183,325	99.7	.....	.....	.....	.....	.....	.....	.....	1	87,314	0.3	.....	.....
Central, Eastern, and Southern Regions	5	1,164,930	4,835	4	609,574	52.3	.....	.....	.....	.....	.....	.....	.....	1	555,356	47.7	4,835	100.0
Lead and zinc:																		
Western Region	149	24,244,249	659,504	91	19,053,036	78.6	94,274	14.3	48	4,334,982	17.9	478,203	72.5	10	856,231	3.5	87,027	13.2
Central Region	256	48,803,933	4,365,229	13	14,549,776	33.2	12,487	0.3	237	27,244,287	62.2	4,192,854	96.1	6	2,009,870	4.6	159,888	3.7
Eastern and Southern Regions	7	6,052,662	212,129	5	5,555,501	91.8	205,587	96.9	1	720	(2)	500	0.2	1	496,441	8.2	6,042	2.8

[1] Exclusive of statistics for 23 reduction works operated independently of mines and for 30 operations on dumps and old tailings.
[2] Less than one-tenth of 1 per cent.

POWER.

Power equipment used: 1919.—Statistics for power equipment used by all metal-mining enterprises in 1919 are given in the table of detailed statistics and are summarized for mining regions in Table 26, which also shows the per cent which the horsepower of each class is of the aggregate horsepower used. Nearly three-fifths of the horsepower of equipment used by all the metal-mining industries in the United States was in prime movers, and of this 54.6 per cent was in reciprocating steam engines and 28.3 per cent in steam turbines, 12.7 per cent in internal-combustion engines, and 4.5 per cent in water wheels and turbines. The extent of electrification for all industries combined is indicated by the ratio of the horsepower of electric motors of all classes, 603,815, to the horsepower of prime movers, 579,282. In the copper-mining industry the principal source of power was from prime movers, and steam engines and turbines in particular; in the lead and zinc-mining industry purchased electric current was an important source of power, only slightly less so than prime movers; in the gold and silver lode-mining and gold placer-mining industries the principal source of power used was purchased electric current.

TABLE 26.—POWER USED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

Industry and region.	Aggregate horsepower.	Prime movers.												Equipment operated by purchased power.					Electric motors run by current generated by the enterprise reporting.	
		Total horsepower.	Steam engines (not turbines).			Steam turbines.			Internal-combustion engines.			Water wheels and turbines.			Electric motors.			Other.		
			Number.	Horsepower.		Number.	Horsepower.		Number.	Horsepower.		Number.	Horsepower.		Number.	Horsepower.		Horsepower.		
				Amount.	Per cent of aggregate.		Amount.	Per cent of aggregate.		Amount.	Per cent of aggregate.		Amount.	Per cent of aggregate.		Amount.	Per cent of aggregate.	Amount.	Per cent of aggregate.	Number.	Horsepower.
United States, all industries	981,229	579,282	1,579	316,389	32.2	106	163,723	16.7	1,292	73,325	7.5	242	25,845	2.6	9,723	399,645	40.7	2,302	0.2	4,441	204,170
Producing enterprises	938,444	557,828	1,437	308,392	32.9	104	163,393	17.4	948	63,610	6.8	200	22,433	2.4	9,183	378,731	40.4	1,885	0.2	4,393	203,401
Copper	523,591	386,458	842	245,398	46.9	79	123,223	23.5	129	16,327	3.1	10	1,510	0.3	3,647	135,968	26.0	1,165	0.2	3,252	161,024
Western Region	347,232	223,080	509	115,912	33.4	68	89,993	25.9	125	16,165	4.7	8	1,010	0.3	3,199	122,987	35.4	1,165	0.3	2,347	104,706
Lake Region	169,589	161,353	326	127,961	75.5	11	33,230	19.6	4	162	0.1	.....	.....	.....	261	8,236	4.9	.....	.....	888	56,088
Central, Eastern, and Southern Regions	6,770	2,025	7	1,525	22.5	.....	.....	.....	.....	.....	.....	2	500	7.4	187	4,745	70.1	.....	.....	17	230
Lead and zinc	229,541	117,527	411	42,821	18.7	21	35,420	15.4	433	35,415	15.4	30	3,871	1.7	2,389	111,874	48.7	140	0.1	625	22,884
Western Region	66,935	12,546	38	4,768	7.1	3	1,305	1.9	108	3,487	5.2	21	2,986	4.5	1,230	54,339	81.2	50	0.1	114	3,377
Central Region	136,049	92,901	366	34,976	25.7	14	25,115	18.5	324	31,925	23.5	9	885	0.7	902	43,058	31.6	90	0.1	345	13,639
Eastern and Southern Regions	26,557	12,080	7	3,077	11.6	4	9,000	33.9	1	3	(1)	.....	.....	.....	257	14,477	54.5	.....	.....	166	5,868
Gold and silver, lode mines	149,680	50,437	182	20,133	13.5	4	4,750	3.2	370	11,149	7.4	135	14,405	9.6	2,523	98,663	65.9	580	0.4	494	18,892
Western Region	149,680	50,437	182	20,133	13.5	4	4,750	3.2	370	11,149	7.4	135	14,405	9.6	2,523	98,663	65.9	580	0.4	494	18,892
Gold, placer mines	35,632	3,406	2	40	0.1	.....	.....	.....	16	719	2.0	25	2,647	7.4	624	32,226	90.4	.....	.....	22	601
Western Region	35,632	3,406	2	40	0.1	.....	.....	.....	16	719	2.0	25	2,647	7.4	624	32,226	90.4	.....	.....	22	601
Nonproducing enterprises	42,785	21,454	142	7,997	18.7	2	330	0.8	344	9,715	22.7	42	3,412	8.0	540	20,914	48.9	417	1.0	48	769
Western Region	39,799	19,653	133	6,961	17.5	.....	.....	.....	335	9,355	23.5	41	3,337	8.4	513	19,829	49.8	317	0.8	48	769
Lake Region	1,168	980	4	650	55.7	2	330	28.3	.....	.....	.....	.....	.....	.....	13	188	16.1	.....	.....	.....	.....
Central Region	1,396	606	3	286	20.5	.....	.....	.....	7	320	22.9	.....	.....	.....	11	690	49.4	100	7.2	.....	.....
Eastern and Southern Regions	422	215	2	100	23.7	.....	.....	.....	2	40	9.5	1	75	17.8	3	207	49.1	.....	.....	.....	.....

[1] Less than one-tenth of 1 per cent.

Comparative statistics for power: 1919 and 1909.—Table 27 presents by industries and mining regions the number and horsepower of steam engines and other prime movers, and of electric motors used by producing metal-mining enterprises in 1919 and 1909, and gives the per cent increase for 1919 as compared with 1909. The table shows a considerable increase in aggregate horsepower of equipment used; a slight decrease in the total horsepower of prime movers used; and very large increase in the number and horsepower of electric motors used, including motors operated by purchased current and motors run by current generated by the enterprises reporting them. The statistics show great advance during the decade in the use of electrically driven equipment, and a marked decrease in the number and horsepower of water wheels and turbines.

TABLE 27.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

Industry and mining region.	Census year.	Aggregate horsepower.	Prime movers.							Equipment operated by purchased power.			Electric motors run by current generated by the enterprise reporting.	
			Total horsepower.	Steam engines.		Internal-combustion engines.		Water wheels and turbines.		Electric motors.		Other.		
				Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Horsepower.	Number.	Horsepower.
United States, all industries	1919	938,444	557,828	1,541	471,785	948	63,610	200	22,433	9,183	378,731	1,885	4,393	203,401
	1909	715,267	575,956	3,931	483,021	714	25,008	722	67,927	3,020	139,311	.....	1,471	53,990
Per cent of increase [1]	.....	31.2	−3.1	−60.8	−2.3	32.8	154.4	−72.3	−67.0	204.1	171.9	.....	198.6	276.7
Copper	1919	523,591	386,458	921	368,621	129	16,327	10	1,510	3,647	135,968	1,165	3,252	161,024
	1909	376,464	324,178	699	303,848	71	2,325	15	18,005	819	52,286	.....	536	25,888
Per cent of increase [1]	.....	39.1	19.2	31.8	21.3	.....	602.2	.....	−91.6	345.3	160.0	.....	506.7	522.0
Lead and zinc	1919	229,541	117,527	432	78,241	433	35,415	30	3,871	2,389	111,874	140	625	22,884
	1909	110,559	107,276	2,158	94,220	214	12,987	3	69	59	3,283	.....	361	12,048
Per cent of increase [1]	.....	107.6	9.6	−80.0	−17.0	102.3	172.7	.....	.....	.....	3,307.7	.....	73.1	89.9
Gold and silver, lode mines	1919	149,680	50,437	186	24,883	370	11,149	135	14,405	2,523	98,663	580	494	18,892
	1909	200,966	136,094	1,003	82,295	394	9,193	587	44,606	1,662	64,872	.....	538	14,892
Per cent of increase [1]	.....	−25.5	−62.9	−81.5	−69.8	−6.1	21.3	−77.0	−67.7	51.8	52.1	.....	−8.2	26.9
Gold, placer mines	1919	35,632	3,406	2	40	16	719	25	2,647	624	32,226	.....	22	601
	1909	27,278	8,408	71	2,658	35	503	117	5,247	480	18,870	.....	36	1,162
Per cent of increase [1]	.....	30.6	−59.5	.....	−98.5	.....	42.9	−78.6	−49.6	30.0	70.8	.....	.....	−48.3

TABLE 27.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909—Continued.

INDUSTRY AND MINING REGION.	Census year.	Aggregate horsepower.	PRIME MOVERS.							EQUIPMENT OPERATED BY PURCHASED POWER.			ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING.	
			Total horsepower.	Steam engines.		Internal-combustion engines.		Water wheels and turbines.		Electric motors.		Other.		
				Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Horsepower.	Number.	Horsepower.
COPPER:														
Western Region	1919	347,232	223,080	577	205,905	125	16,165	8	1,010	3,199	122,987	1,165	2,347	104,706
	1909	222,600	171,498	386	155,218	70	2,275	14	14,005	789	51,102	.....	413	17,422
Per cent of increase [1]	.....	56.0	30.1	49.5	32.7	.....	610.5	.....	−92.8	305.4	140.7	.....	468.3	501.0
Lake Region	1919	169,589	161,353	337	161,191	4	162	.....	.....	261	8,236	.....	888	56,088
	1909	149,749	148,565	261	144,515	1	50	1	4,000	30	1,184	.....	72	6,908
Per cent of increase [1]	.....	13.2	8.6	29.1	11.5	.....	.....	.....	.....	.....	595.6	.....	.....	711.9
Central, Eastern, and Southern Regions.	1919	6,770	2,025	7	1,525	.....	.....	2	500	187	4,745	.....	17	230
	1909	4,115	4,115	52	4,115	.....	.....	.....	.....	.....	.....	.....	51	1,558
Per cent of increase [1]	.....	64.5	−50.8	.....	−62.9	.....	.....	.....	.....	.....	.....	.....	.....	−85.2
LEAD AND ZINC:														
Western Region	1919	66,935	12,546	41	6,073	108	3,487	21	2,986	1,230	54,339	50	114	3,377
	1909	847	827	9	715	4	112	.....	.....	1	20	.....	2	90
Per cent of increase [1]	.....	7,802.6	1,417.0	.....	749.4	.....	3,013.4	.....	.....	.....	.....	.....	.....	.....
Central Region	1919	136,049	92,901	380	60,091	324	31,925	9	885	902	43,058	90	345	13,639
	1909	106,845	103,582	2,122	90,638	210	12,875	3	69	58	3,263	.....	312	9,543
Per cent of increase [1]	.....	27.3	−10.3	−82.1	−33.7	54.3	148.6	.....	.....	.....	1,219.6	.....	10.6	42.9
Eastern and Southern Regions	1919	26,557	12,080	11	12,077	1	3	.....	.....	257	14,477	.....	166	5,868
	1909	2,867	2,867	27	2,867	.....	.....	.....	.....	.....	.....	.....	47	2,415
Per cent of increase [1]	.....	826.3	321.3	.....	321.2	.....	.....	.....	.....	.....	.....	.....	.....	143.0
GOLD AND SILVER, LODE MINES:														
Western Region	1919	149,500	50,257	183	24,783	369	11,069	135	14,405	2,523	98,663	580	493	18,886
	1909	199,583	134,711	974	81,312	394	9,193	584	44,206	1,662	64,872	.....	536	14,687
Per cent of increase [1]	.....	−25.1	−62.7	−81.2	−69.5	−6.3	20.4	−76.9	−67.4	51.8	52.1	.....	−8.0	28.6
Eastern and Southern Regions	1919	180	180	3	100	1	80	.....	.....	.....	.....	.....	1	6
	1909	1,383	1,383	29	983	.....	.....	3	400	.....	.....	.....	2	205
Per cent of increase [1]	.....	−87.0	−87.0	.....	−89.8	.....	.....	.....	.....	.....	.....	.....	.....	−97.1
GOLD, PLACER MINES:														
Western Region	1919	35,632	3,406	2	40	16	719	25	2,647	624	32,226	.....	22	601
	1909	25,863	6,993	58	2,143	35	503	108	4,347	480	18,870	.....	34	1,126
Per cent of increase [1]	.....	37.8	−51.3	.....	−98.1	.....	42.9	−76.9	−39.1	30.0	70.8	.....	.....	−46.6

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.

METHOD OF OPERATION.

Classes of placer mines according to mining method.—Table 28 presents, for the United States and California, the leading state, the principal statistics for placer-mining enterprises classified according to method of operation. The table also gives the per cent of total for the several items for each method of operation. Except in number of enterprises, dredging operations far outranked other kinds of placer mining in 1919. Placer mining by sluicing, drifting, and hydraulicking has declined to insignificance in the United States during recent decades.

TABLE 28.—STATISTICS FOR PLACER MINES, CLASSIFIED ACCORDING TO METHOD OF OPERATION, PRODUCING ENTERPRISES: 1919.

	PLACER MINES, OPERATED BY—								
	All methods.	Sluicing.		Drifting.		Hydraulicking.		Dredging.	
		Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.
UNITED STATES.									
Number of enterprises	112	27	24.1	21	18.7	37	33.0	27	24.1
Wage earners (average number)	1,380	29	2.1	70	5.1	93	6.7	1,188	86.1
Wages	$1,914,072	$39,422	2.1	$91,480	4.8	$103,412	5.4	$1,679,758	87.8
Cost of supplies and materials	$2,244,728	$15,866	0.7	$60,125	2.7	$41,209	1.8	$2,127,528	94.8
Cost of fuel	$20,459	$1,022	5.0	$2,252	11.0	$281	1.4	$16,904	82.6
Cost of purchased power	$1,123,874	$100	(1)	$2,058	0.2	$412	(1)	$1,121,304	99.8
Value of products	$9,368,561	$77,755	0.8	$42,879	0.5	$153,830	1.6	$9,094,097	97.1
CALIFORNIA.									
Number of enterprises	60	6	10.0	15	25.0	23	38.3	16	26.7
Wage earners (average number)	1,102	2	0.2	66	6.0	63	5.7	971	88.1
Wages	$1,475,406	$1,610	0.1	$84,380	5.7	$70,633	4.8	$1,318,783	89.4
Cost of supplies and materials	$1,941,920	$548	(1)	$58,875	3.0	$20,831	1.1	$1,861,666	95.9
Cost of fuel	$5,571	.....	.....	$2,252	40.4	$149	2.7	$3,170	56.9
Cost of purchased power	$946,936	.....	.....	$614	0.1	$412	(1)	$945,910	99.9
Value of products	$7,937,654	$8,592	0.1	$25,999	0.3	$99,219	1.2	$7,803,844	98.3

[1] Less than one-tenth of 1 per cent.

Classes of lode mines according to treatment of ores.—Table 29 presents for the metalliferous lode-mining industry as a whole and for each industry separately the principal statistics for enterprises operated without beneficiating plants and for enterprises operated with reduction works of different kinds, and gives the per cent distribution for each class. The table shows for all industries combined that enterprises operated without beneficiating plants or reduction works were relatively unimportant although numerically predominant. In the copper and gold and silver mining industries such enterprises numbered more than two-thirds of the total but produced only a little more than one-sixth and one-fourth, respectively, of the total value of products. In the lead and zinc mining industry only one-third of the enterprises were without reduction works and this class accounted for about one-tenth of the value of products of the industry.

TABLE 29.—STATISTICS FOR LODE MINES, CLASSIFIED ACCORDING TO TREATMENT OF ORES, PRODUCING ENTERPRISES: 1919.

INDUSTRY AND ENTERPRISE, CLASSIFIED ACCORDING TO TREATMENT OF ORE.	Number of enterprises.	Per cent distribution.	WAGE EARNERS.		WAGES.		COST OF SUPPLIES AND MATERIALS.		COST OF FUEL.		COST OF PURCHASED POWER.		VALUE OF PRODUCTS.	
			Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.
ALL INDUSTRIES, LODE MINES	1,367	100.0	81,037	100.0	$120,916,170	100.0	$69,230,212	100.0	$15,716,858	100.0	$8,483,572	100.0	$315,669,764	100.0
Enterprises without beneficiating plants	801	58.6	14,408	17.8	23,881,380	19.8	8,980,997	13.0	1,916,160	12.2	1,198,960	14.1	54,664,745	17.3
Enterprises with beneficiating plants [1]	566	41.4	66,629	82.2	97,034,790	80.2	60,249,215	87.0	13,800,698	87.8	7,284,612	85.9	261,005,019	82.7
COPPER	195	100.0	43,717	100.0	66,390,194	100.0	35,803,425	100.0	11,310,485	100.0	3,555,530	100.0	181,258,087	100.0
Mines without reduction works	135	69.2	7,507	17.2	12,661,795	19.1	4,659,619	13.0	1,296,863	11.5	560,595	15.8	31,149,428	17.2
Mines with concentrating plants [2]	45	23.1	20,426	46.7	31,586,817	47.6	22,475,561	62.8	6,672,194	59.0	1,756,851	49.4	101,704,235	56.1
Mines with concentrating plants operated in connection with smelters	8	4.1	14,588	33.4	20,433,714	30.8	7,672,914	21.4	3,241,851	28.7	1,113,487	31.3	44,782,175	24.7
Mines without concentrating plants and operated in connection with smelters	7	3.6	1,196	2.7	1,707,868	2.6	995,331	2.8	99,577	0.9	124,597	3.5	3,622,249	2.0
LEAD AND ZINC	432	100.0	21,884	100.0	30,708,319	100.0	15,717,599	100.0	2,783,249	100.0	2,591,906	100.0	75,579,347	100.0
Mines without reduction works	149	34.5	2,314	10.6	3,675,450	12.0	1,282,344	8.2	182,037	6.5	194,279	7.5	8,272,568	10.9
Mines with concentrating plants	260	60.2	18,582	84.9	25,475,088	83.0	13,136,232	83.6	2,517,026	90.4	2,151,948	83.0	62,152,532	82.2
Mines, with or without concentrating plants, operated in connection with smelters	3	0.7	649	3.0	1,040,368	3.4	384,317	2.4	55,244	2.0	82,930	3.2	3,675,744	4.9
Reduction mills operated independently of mines	10	2.3	287	1.3	452,428	1.5	880,958	5.6	26,664	1.0	135,186	5.2	1,346,790	1.8
Operations on dumps and old tailings	10	2.3	52	0.2	64,985	0.2	33,748	0.2	2,278	0.1	27,563	1.1	131,713	0.2
GOLD AND SILVER	740	100.0	15,436	100.0	23,817,657	100.0	17,709,188	100.0	1,623,124	100.0	2,336,136	100.0	58,832,330	100.0
Mines without reduction works	517	69.9	4,587	29.7	7,544,135	31.7	3,039,034	17.2	437,260	26.9	444,086	19.0	15,242,749	25.9
Mines with amalgamating or cyaniding plants, or both, but without concentrating plants	79	10.7	3,868	25.1	5,912,356	24.8	3,809,529	21.5	466,763	28.8	525,604	22.5	16,126,006	27.4
Mines with concentrating plants producing concentrates only	55	7.4	2,339	15.2	3,651,365	15.3	1,664,608	9.4	205,360	12.7	365,252	15.6	6,296,210	10.7
Mines with concentrating and amalgamating or cyaniding plants, or both	58	7.8	4,249	27.5	6,180,625	25.9	3,624,618	20.5	369,424	22.8	863,505	37.0	14,015,986	23.8
Reduction mills operated independently of mines	12	1.6	298	1.9	395,869	1.7	5,478,684	30.9	132,450	8.2	118,414	5.1	6,710,958	11.4
Operations on dumps and old tailings	19	2.6	95	0.6	133,307	0.6	92,715	0.5	11,867	0.7	19,275	0.8	440,421	0.7

[1] Includes reduction works operated independently of mines, and operations on dumps and old tailings.
[2] Includes, to avoid disclosure, 1 reduction mill and 1 operation on a dump or old tailing.

FUEL USED.

Table 30 shows for all enterprises in the metal-mining industries for the United States as a whole, and by states for mining regions, for each of the industries, the kinds and quantity of fuel used in mining operations. In the United States for all industries combined, the principal fuel was bituminous coal. In the Western Region, particularly in copper mining, fuel oils were important; and in the Central Region in the lead and zinc industry natural gas was an important fuel.

TABLE 30.—QUANTITY OF FUEL USED, BY KINDS, ALL ENTERPRISES: 1919.

INDUSTRY, REGION, AND STATE.	COAL. Anthracite (tons, 2,240 pounds).	COAL. Bituminous (tons, 2,000 pounds).	Coke (tons, 2,000 pounds).	Wood (cords).	Fuel oils (barrels).	Gasoline and other volatile oils (barrels).	Natural gas (1,000 cubic feet).
UNITED STATES	48,534	2,080,595	10,398	43,722	1,551,980	40,280	1,446,846
Producing enterprises	48,532	2,059,968	10,386	28,252	1,525,000	29,505	1,423,554
Copper	14,889	1,364,172	9,744	5,236	1,322,100	6,932	33,456
Lead and zinc	33,526	503,278	272	3,570	72,517	6,261	1,390,098
Gold and silver, lode mines	45	191,526	369	17,755	130,269	15,821	.....
Gold, placer mines	72	992	1	1,691	114	491	.....
COPPER:							
Western Region—							
Arizona	.....	83,429	174	20	1,258,708	2,473	.....
California	80	1,673	556	5,080	23,724	458	.....
Colorado	.....	10	.....	.....	.....	.....	.....
Idaho	.....	174	.....	25	165	343	.....
Montana, Oregon, and Washington	.....	127,220	4,743	111	190	1,125	.....
Utah, Nevada, and New Mexico	.....	359,725	1,484	.....	36,037	1,467	.....
Lake Region—							
Michigan	14,809	782,742	2,758	.....	2,476	1,066	33,456
Central, Eastern, and Southern Regions—							
Missouri, Tennessee, and Vermont	.....	9,199	29	.....	800	.....	.....
LEAD AND ZINC:							
Western Region—							
Arizona	.....	2	.....	.....	85	982	.....
California	.....	94	.....	.....	1,639	185	.....
Colorado	34	6,274	.....	.....	120	4	.....
Idaho	.....	12,432	84	1,516	561	290	.....
Montana, Nevada, New Mexico, South Dakota, Utah, and Washington	.....	39,138	188	572	8,841	1,859	.....
Central Region—							
Arkansas	.....	6	.....	246	195	.....	.....
Illinois	.....	786	.....	.....	.....	.....	.....
Kansas	.....	30,080	.....	687	12,133	.....	318,819
Missouri	.....	309,657	.....	467	7,219	679	21,898
Oklahoma	.....	90,022	.....	40	21,627	2,064	1,049,381
Wisconsin	.....	5,050	.....	42	1,402	190	.....
Eastern and Southern Regions—							
New Jersey, New York, Pennsylvania, and Tennessee	33,492	9,737	.....	.....	18,695	8	.....

INDUSTRY, REGION, AND STATE.	COAL. Anthracite (tons, 2,240 pounds).	COAL. Bituminous (tons, 2,000 pounds).	Coke (tons, 2,000 pounds).	Wood (cords).	Fuel oils (barrels).	Gasoline and other volatile oils (barrels).	Natural gas (1,000 cubic feet).
GOLD AND SILVER, LODE MINES:							
Western Region—							
Arizona	.....	297	.....	1,508	10,687	2,763	.....
California	37	85	3	1,227	48,985	4,194	.....
Colorado	8	107,748	110	102	2,395	288	.....
Idaho	.....	383	.....	1,918	.....	58	.....
Montana	.....	7,600	5	5,381	441	442	.....
Nevada	.....	1,802	.....	2,289	49,306	5,603	.....
New Mexico	.....	1,164	.....	87	8,820	494	.....
Utah	.....	31,003	15	.....	978	777	.....
Washington	.....	.....	.....	1,081	484	605	.....
Oregon, South Dakota, and Texas [1]	.....	41,444	236	4,162	8,173	597	.....
GOLD, PLACER MINES:							
Western Region—							
California	2	10	1	502	80	186	.....
Colorado	70	350	.....	717	34	2	.....
Nevada	.....	25	.....	.....	.....	25	.....
All other [2]	.....	607	.....	472	.....	278	.....
Nonproducing enterprises	2	20,627	12	15,470	26,980	10,775	23,292
Western Region—							
California, Oregon, and Washington	2	77	2	4,147	288	525	.....
Idaho, Montana, and Wyoming	.....	5,187	6	4,712	863	845	.....
Arizona, Nevada, and Utah	.....	1,873	.....	1,255	25,206	8,794	.....
Colorado, South Dakota, and New Mexico	.....	6,493	.....	3,356	465	354	.....
Lake Region—							
Michigan	.....	5,643	4	.....	.....	57	.....
Central Region—							
Kansas, Missouri, Oklahoma, and Wisconsin	.....	794	.....	.....	.....	156	23,292
Eastern and Southern Regions—							
Georgia, New York, North Carolina, and Virginia	.....	560	.....	2,000	158	44	.....

[1] Includes Georgia.

[2] Includes Arizona, Idaho, Montana, New Mexico, Oregon, and Washington.

GENERAL TABLE.

Table 31 presents in detail for 1919 the statistics relating to the metal-mining industries in the United States as a whole, for each industry separately, for each of the industries by mining regions and by states in so far as they can be shown separately without the disclosure of individual operations. It shows separately the statistics for the enterprises and mines which were productive in 1919, and statistics for those enterprises in which all operations were confined to development work. The table gives the number of enterprises and mines; the acreage of mineral land, classified according to form of tenure, and of other land; persons engaged in the industry by classes; capital invested; the principal expenses of operation and development; the value of products; and statistics with regard to power equipment used.

TABLE 31.—DETAILED STATISTICS FOR THE GOLD, SILVER,

	INDUSTRY, REGION, AND STATE.	Number of enterprises.	Number of mines.	Number of enterprises operating beneficiating plants.	LAND CONTROLLED (ACRES). Mineral land. Operated.	Owned.	Leased.	Timber and other lands.	PERSONS ENGAGED IN INDUSTRY. Aggregate.	Proprietors and officials. Total.	Proprietors and firm members. Total.	Performing manual labor.	Salaried officers.	Superintendents and managers.	Technical employees.	Clerks and other subordinate salaried employees. Male.	Female.
1	**UNITED STATES**, all industries.	1,979	2,142	512	909,538	779,195	131,606	371,546	94,876	5,701	1,482	827	826	2,089	1,304	2,553	514
2	**Producing enterprises**	1,479	1,630	512	733,503	642,743	91,325	365,898	90,211	4,900	1,349	810	625	1,709	1,217	2,431	463
3	**Copper**	195	226	57	392,811	378,839	14,045	255,819	46,999	1,601	103	62	185	596	717	1,493	188
4	**Lead and zinc**	432	473	262	135,262	99,338	36,118	47,053	24,030	1,374	412	186	166	547	249	593	179
5	**Gold and silver, lode mines**	740	799	191	142,573	113,347	29,424	46,166	17,531	1,693	712	485	236	505	240	319	83
6	**Gold, placer mines**[1]	112	132	2	62,857	51,219	11,738	16,860	1,651	232	122	77	38	61	11	26	13
	COPPER:																
	Western Region—																
7	Arizona	75	89	15	50,136	41,500	8,636	17,278	15,634	760	37	22	76	264	383	558	79
8	California	15	16	7	7,804	7,464	340	5,072	1,140	55	7	3	7	21	20	27	3
9	Colorado	5	5	.....	709	638	71	44	45	9	3	3	1	4	1	.....	1
10	Idaho	8	8	1	1,560	1,295	265	25	114	23	11	.....	3	8	1	3	1
11	Montana, Oregon, and Washington.	30	32	7	7,582	6,059	1,523	2,216	9,119	234	24	15	18	94	98	269	17
12	Utah, Nevada, and New Mexico.	35	40	6	250,827	248,836	2,064	28,210	7,442	224	21	19	22	61	120	255	39
	Lake Region—																
13	Michigan	22	28	16	66,531	65,655	876	196,334	12,917	271	.....	.....	56	133	82	365	46
	Central, Eastern, and Southern Regions—																
14	Missouri, Tennessee, and Vermont.	5	8	5	7,662	7,392	270	6,640	588	25	.....	.....	2	11	12	16	2
	LEAD AND ZINC:																
	Western Region—																
15	Arizona	15	16	3	4,575	2,383	2,192	.....	129	24	13	8	3	8	.....	2	2
16	California	17	18	3	3,663	3,173	490	5	141	22	11	7	4	6	1	3	1
17	Colorado	27	37	7	7,596	5,442	2,164	901	1,094	95	32	15	13	26	24	56	7
18	Idaho	20	21	11	10,754	10,414	440	2,181	1,976	95	20	3	11	36	28	49	12
19	Montana, Nevada, New Mexico, South Dakota, Utah, and Washington.	72	73	10	23,831	17,766	6,069	2,756	3,979	211	36	26	26	85	64	99	22
	Central Region—																
20	Arkansas	11	11	11	1,028	342	686	.....	45	16	12	3	2	2	.....	.....	1
21	Illinois	6	6	5	898	368	530	.....	262	15	2	.....	1	9	3	3	5
22	Kansas	30	30	27	1,686	.....	1,686	.....	1,234	68	10	1	27	27	4	20	5
23	Missouri	93	96	53	49,837	46,993	2,844	.....	5,329	381	193	108	20	134	34	116	39
24	Oklahoma	111	123	105	4,914	.....	4,994	.....	5,635	267	68	2	46	133	20	98	17
25	Wisconsin	23	34	22	6,291	2,381	3,910	6,042	1,214	87	14	13	10	50	13	35	14
	Eastern and Southern Regions—																
26	New Jersey, New York, Pennsylvania, and Tennessee.	7	8	5	20,189	10,076	10,113	35,168	2,992	93	1	.....	3	31	58	112	54
	GOLD AND SILVER, LODE MINES:																
	Western Region—																
27	Arizona	51	51	14	10,175	7,928	2,247	.....	754	89	50	38	11	21	7	16	7
28	California	99	109	68	19,198	17,399	1,819	8,404	3,167	250	111	62	33	67	39	27	9
29	Colorado	198	234	27	25,658	16,149	9,585	1,226	4,077	485	220	144	66	153	46	77	20
30	Idaho	32	32	7	6,948	6,006	942	670	428	61	32	17	9	15	5	13	5
31	Montana	116	121	12	14,286	9,461	4,917	1,210	1,339	207	146	117	10	36	15	18	7
32	Nevada	148	148	38	23,615	17,849	5,776	1,075	2,515	337	112	89	66	106	53	83	11
33	New Mexico	23	25	7	5,018	3,035	1,983	200	453	47	21	7	1	15	10	13	.....
34	Utah	49	50	6	22,814	22,674	140	2,111	2,370	145	11	4	31	69	34	45	13
35	Washington	10	10	1	767	577	190	160	166	14	2	2	4	5	3	2	1
36	Oregon, South Dakota, and Texas.[2]	14	19	11	14,094	12,269	1,825	31,110	2,262	58	7	5	5	18	28	25	10
	GOLD, PLACER MINES:																
	Western Region—																
37	California	60	78	2	30,356	21,946	8,410	13,829	1,270	137	55	32	29	45	8	20	11
38	Colorado	5	7	.....	6,238	4,839	1,399	.....	122	10	3	3	2	5	.....	1	1
39	Nevada	8	8	.....	2,848	2,782	66	.....	32	13	13	12	.....	.....	.....	.....	.....
40	All other[4]	39	39	.....	23,415	21,652	1,863	3,031	227	72	51	30	7	11	3	5	1
41	**Nonproducing enterprises**	500	512	.....	176,035	136,452	40,281	5,648	4,665	801	133	17	201	380	87	122	51
	Western Region—																
42	California, Oregon, and Washington	62	69	.....	31,828	27,929	3,912	1,096	512	111	39	5	13	49	10	12	3
43	Idaho, Montana, and Wyoming	87	87	.....	26,512	21,535	4,977	640	756	122	12	2	24	74	12	11	6
44	Arizona, Nevada, and Utah	258	259	.....	71,133	66,800	4,333	2,087	2,289	396	38	5	136	188	34	63	29
45	Colorado, New Mexico, and South Dakota.	79	83	.....	16,466	12,101	4,448	1,127	709	135	32	5	25	55	23	22	6
	Lake Region—																
46	Michigan	3	3	.....	5,100	5,100	.....	.....	197	9	.....	.....	2	4	3	3	4
	Central Region—																
47	Kansas, Missouri, Oklahoma, and Wisconsin.	7	7	.....	22,515	626	22,491	.....	78	18	10	.....	1	6	1	4	2
	Eastern and Southern Regions—																
48	Georgia, New York, North Carolina, and Virginia.	4	4	.....	2,481	2,361	120	698	124	10	2	.....	.....	4	4	7	1

[1] Includes mines of platinum and related metals.
[2] Includes 1 enterprise in Georgia.

COPPER, LEAD, AND ZINC MINING INDUSTRIES: 1919.

PERSONS ENGAGED IN INDUSTRY—continued.

Wage earners.					Wage earners, Dec. 15, or nearest representative day.																
Average number.	Number, 15th day of—				Total.		Foremen, shift bosses, etc.		Enginemen, firemen, hoistmen, electricians, mechanics, etc.		Miners and drillmen, including their helpers.		Timbermen, trackmen, trammers, and men engaged in hauling, etc.		Muckers, loaders, and others not classified.		In mills and beneficiating plants (above ground).	Under 16 years of age (above ground).	Females (above ground).	
	Maximum month.		Minimum month.		Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.				
86,108	Ja	101,766	Je	78,642	38,770	57,389	1,750	2,425	11,703	2,293	1,827	23,200	1,798	15,118	8,504	14,353	13,188	9	212	1
82,417	Ja	99,201	Je	74,794	36,865	53,968	1,595	2,199	10,919	2,131	1,624	21,352	1,642	14,682	7,897	13,604	13,188	9	153	2
43,717	Ja	58,025	Je	37,885	20,105	25,704	807	1,137	6,167	1,254	1,185	9,455	1,005	8,115	4,352	5,743	6,589	4	74	3
21,884	Ja	25,124	Je	19,949	9,471	16,697	369	573	2,576	362	109	6,857	304	4,361	1,477	4,544	4,636	4	18	4
15,436	Au	16,469	Ja	14,778	5,830	11,492	313	485	1,713	515	208	4,980	296	2,202	1,339	3,310	1,961	.....	49	5
1,380	Jy	1,499	Ja[1]	1,274	1,459	75	106	4	463	.....	122	60	37	4	729	7	2	1	12	6
14,237	Ja	18,079	Ap	11,840	6,702	9,028	215	297	2,158	514	806	3,151	201	2,434	1,864	2,632	1,458	.....	3	7
1,055	Ja	1,255	De	955	509	579	12	31	144	20	11	218	31	92	147	218	164	1	.....	8
35	Mh	43	De	25	3	30	1	3	2	2	.....	17	.....	3	.....	5	.....	.....	1	9
87	Je	123	De	40	60	82	2	6	8	6	6	46	3	19	16	5	25	.....	3	10
8,599	Ja	12,661	Se	7,624	2,136	6,548	113	359	475	279	12	3,208	20	2,455	614	247	902	.....	4	11
6,924	Ja	10,100	Au	5,929	5,079	1,910	298	110	1,305	224	350	606	724	268	516	702	1,886	1	14	12
12,235	Fe	15,177	Je	10,040	5,400	7,036	154	298	1,990	182	.....	2,004	6	2,710	1,168	1,842	2,082	2	49	13
545	Ja	752	Au	378	216	491	12	33	85	27	.....	205	20	134	27	92	72	.....	.....	14
101	Ja	152	Jy	82	34	127	2	9	12	1	3	45	.....	25	7	47	10	.....	.....	15
115	Ja	137	Jy	92	61	81	5	8	15	2	.....	48	15	10	4	13	22	.....	.....	16
936	Ja	1,515	My	521	384	824	17	33	127	49	3	377	19	168	40	197	178	.....	3	17
1,820	De	2,644	Se	877	1,054	1,757	48	55	209	79	16	595	13	367	262	661	506	.....	3	18
3,647	Ja	4,268	Jy	3,353	981	3,024	30	96	305	55	6	1,631	25	881	159	361	456	.....	2	19
28	Ja	49	De	5	30	58	3	6	5	.....	.....	49	3	1	.....	2	19	.....	.....	20
239	Jy	253	De	221	92	129	1	7	18	.....	.....	23	9	52	12	47	52	.....	.....	21
1,141	Oc	1,346	Ja	850	581	866	20	24	186	3	.....	389	12	227	35	223	328	.....	.....	22
4,793	Ja	5,748	Jy	4,402	2,341	3,172	57	106	582	61	13	956	71	882	317	1,167	1,301	4	.....	23
5,253	De	5,849	Je	4,503	2,174	4,580	117	151	674	58	1	2,054	27	925	214	1,392	1,141	.....	.....	24
1,078	Ja	1,413	De	917	484	663	10	30	146	6	18	197	3	163	104	267	203	.....	10	25
2,733	Mh	3,103	Jy	2,444	1,255	1,416	59	48	297	48	49	493	107	660	323	167	420	.....	.....	26
642	Oc	739	Mh	579	198	544	34	22	51	27	24	264	8	92	41	139	40	.....	5	27
2,881	De	2,982	Se	2,768	862	2,334	36	88	292	84	14	1,075	38	375	176	712	306	.....	12	28
3,495	Au	3,813	Ja	3,235	1,442	2,509	83	109	344	117	34	1,115	60	700	343	468	578	.....	16	29
349	Au	466	Fe	207	135	315	9	16	41	5	11	138	6	72	21	84	47	.....	4	30
1,107	Oc	1,313	Fe	915	356	895	11	39	138	34	6	410	20	237	79	175	102	.....	1	31
2,084	Jy	2,457	Se	1,630	851	1,720	52	82	260	32	28	815	52	380	167	411	292	.....	4	32
393	Mh	424	My	357	207	302	13	15	72	11	8	179	4	61	49	36	61	.....	.....	33
2,167	De	2,402	Je	1,608	607	1,831	17	63	143	153	15	601	30	159	191	855	211	.....	2	34
149	My	168	De	110	55	112	5	6	17	7	5	38	1	33	6	28	21	.....	.....	35
2,169	Jy	2,294	No	1,889	1,117	930	53	45	355	45	63	345	77	93	266	402	303	.....	5	36
1,102	Jy	1,210	Mh	1,009	1,125	72	84	4	405	.....	54	57	9	4	571	7	2	.....	3	37
110	Jy[3]	121	Se	95	112	.....	6	.....	24	.....	22	.....	3	.....	57	.....	.....	1	6	38
19	Ja	28	No	10	8	3	.....	.....	1	.....	5	3	1	.....	1	.....	.....	.....	.....	39
149	.....	.....	.....	.....	214	.....	16	.....	33	.....	41	.....	24	.....	100	.....	.....	.....	3	40
3,691	De	4,327	Fe	2,525	1,905	3,421	155	226	784	162	203	1,848	156	436	607	749	.....	.....	59	41
386	No	565	Ja	246	273	386	17	27	92	12	34	204	27	59	103	84	.....	.....	2	42
617	Jy	805	Ja	400	277	578	25	36	100	11	24	334	17	75	111	122	.....	.....	20	43
1,801	De	2,142	Fe	1,106	854	1,754	70	114	359	108	109	906	74	193	242	433	.....	.....	21	44
546	Se	657	Ja	406	316	519	33	34	128	26	36	325	16	58	103	76	.....	.....	16	45
181	Au	223	Je	113	80	87	3	8	40	.....	.....	44	4	31	33	4	.....	.....	.....	46
54	Oc	77	Fe	18	43	43	3	4	25	4	.....	17	1	15	14	3	.....	.....	.....	47
106	Ja	128	Ap	88	62	54	4	3	40	1	.....	18	17	5	1	27	.....	.....	.....	48

[3] Same number reported for one or more other months.
[4] Includes enterprises in states as follows: Arizona, 1; Idaho, 11; Montana, 9; New Mexico, 1; Oregon, 16; Washington, 1.

TABLE 31.—DETAILED STATISTICS FOR THE GOLD, SILVER,

	INDUSTRY, REGION, AND STATE.	PRINCIPAL EXPENSES OF OPERATION AND DEVELOPMENT.										
			SALARIES AND WAGES.									
		Total.	Salaried officers, superintendents, managers, and technical employees.	Clerks and other subordinate salaried employees.	Wage earners.	Supplies and materials.	Cost of ore purchased as material.	Cost of fuel.	Cost of purchased power.	Royalties and rents.	Taxes—Federal, state, county, and local.	Contract work.
1	UNITED STATES, all industries.	$276,013,022	$11,703,062	$4,869,883	$128,466,888	$69,557,270	$6,602,398	$16,217,983	$10,011,604	$6,959,672	$18,375,870	$3,248,392
2	Producing enterprises	262,756,657	10,580,771	4,736,464	122,830,242	64,872,542	6,602,398	15,737,317	9,607,446	6,896,824	18,237,579	2,655,074
3	Copper	138,286,993	5,018,974	3,020,767	66,390,194	34,275,369	1,528,056	11,310,485	3,555,530	536,819	12,229,046	421,753
4	Lead and zinc	65,084,781	2,714,694	1,120,246	30,708,319	15,311,548	406,051	2,783,249	2,591,906	5,258,387	3,326,910	863,471
5	Gold and silver, lode mines	53,070,119	2,466,693	539,068	23,817,657	13,040,897	4,668,291	1,623,124	2,336,136	1,015,719	2,325,491	1,237,043
6	Gold, placer mines[1]	6,314,764	380,410	56,383	1,914,072	2,244,728	.....	20,459	1,123,874	85,899	356,132	132,807
	COPPER:											
	Western Region—											
7	Arizona	56,817,409	2,289,584	1,249,797	24,855,574	13,454,473	1,528,056	4,034,605	1,161,670	383,213	7,568,314	292,123
8	California	3,374,294	153,876	36,730	1,550,430	1,078,351	.....	119,255	271,298	8,695	117,339	38,320
9	Colorado	76,613	12,350	100	43,032	17,448	.....	85	490	392	2,716	.....
10	Idaho	300,903	27,687	5,962	159,033	72,515	.....	7,603	11,295	9,283	3,951	3,514
11	Montana, Oregon, and Washington.	22,722,159	830,682	706,766	13,486,350	5,036,185	.....	755,257	1,127,257	99,412	672,525	7,725
12	Utah, Nevada, and New Mexico.	25,547,905	754,807	457,438	10,989,694	8,720,510	.....	2,199,533	806,203	30,989	1,508,660	80,071
	Lake Region—											
13	Michigan	28,249,795	891,438	548,567	14,608,804	5,612,077	.....	4,146,775	114,048	.....	2,328,086	.....
	Central, Eastern, and Southern Regions—											
14	Missouri, Tennessee, and Vermont.	1,197,915	58,550	15,407	697,277	283,810	.....	47,312	63,269	4,835	27,455	.....
	LEAD AND ZINC:											
	Western Region—											
15	Arizona	269,448	29,041	2,398	114,651	89,344	.....	10,896	.....	2,472	3,156	17,490
16	California	323,460	38,245	4,455	160,334	57,755	.....	9,290	3,693	3,993	10,106	35,589
17	Colorado	3,123,401	184,673	134,947	1,435,521	523,492	310,952	34,798	191,572	199,660	75,948	31,838
18	Idaho	6,441,901	292,005	111,026	3,251,942	1,558,866	.....	118,176	280,312	135,303	537,512	156,759
19	Montana, Nevada, New Mexico, South Dakota, Utah, and Washington.	11,195,204	562,620	213,354	6,038,184	3,003,626	.....	237,669	465,305	318,076	241,151	115,219
	Central Region—											
20	Arkansas	41,187	7,420	900	17,965	10,310	.....	1,784	.....	2,018	790	.....
21	Illinois	643,751	35,485	7,642	312,046	136,213	.....	4,820	95,526	51,142	877	.....
22	Kansas	4,088,448	148,840	32,069	1,760,200	977,212	10,628	261,020	107,797	697,874	24,716	68,092
23	Missouri	12,590,239	488,909	190,998	5,955,929	2,567,624	669	1,106,807	98,415	295,427	1,819,663	65,798
24	Oklahoma	16,982,539	537,463	147,006	6,908,259	4,218,142	.....	733,285	743,944	3,106,495	359,546	228,399
25	Wisconsin	3,442,390	168,561	60,105	1,390,349	930,990	83,802	31,143	405,839	233,798	41,776	96,027
	Eastern and Southern Regions—											
26	New Jersey, New York, Pennsylvania, and Tennessee.	5,942,813	221,432	215,346	3,362,939	1,237,974	.....	233,561	199,503	212,129	211,669	48,260
	GOLD AND SILVER, LODE MINES:											
	Western Region—											
27	Arizona	2,884,667	117,352	33,791	984,828	1,018,012	.....	64,091	74,388	50,297	175,095	366,813
28	California	7,805,017	319,304	46,913	3,870,121	2,172,364	334,213	150,402	572,413	43,464	275,316	20,507
29	Colorado	15,815,498	545,540	117,991	5,675,926	3,259,774	3,964,401	517,290	679,716	523,205	354,525	177,130
30	Idaho	1,077,544	47,959	14,930	541,206	275,682	.....	17,842	43,591	25,521	94,959	15,854
31	Montana	3,335,811	172,078	32,726	2,033,815	679,786	62,210	88,255	100,273	126,777	59,457	30,434
32	Nevada	8,617,109	629,246	134,179	3,808,482	2,696,091	.....	265,463	534,707	121,179	250,450	177,312
33	New Mexico	1,032,212	55,767	15,636	456,555	315,865	9,506	79,797	1,749	51,101	43,035	3,201
34	Utah	6,771,845	362,959	78,144	3,300,293	1,259,813	297,961	160,125	251,993	69,879	558,281	432,397
35	Washington	462,433	27,922	2,451	255,472	106,465	.....	9,419	30,234	2,830	17,857	9,783
36	Oregon, South Dakota, and Texas.[2]	5,217,983	188,566	62,307	2,890,959	1,257,045	.....	270,440	47,072	1,466	496,516	3,612
	GOLD, PLACER MINES:											
	Western Region—											
37	California	5,197,855	302,542	45,689	1,475,406	1,941,920	.....	5,571	946,936	35,157	317,664	126,970
38	Colorado	510,390	24,155	3,420	190,508	141,936	.....	5,388	96,202	37,427	11,354	.....
39	Nevada	46,170	.....	.....	30,662	11,780	.....	500	1,544	928	756	.....
40	All other[3]	560,349	53,713	7,274	217,496	149,092	.....	9,000	79,192	12,387	26,358	5,837
41	Nonproducing enterprises	13,256,365	1,122,291	133,419	5,636,646	4,684,728	.....	480,666	404,158	62,848	138,291	593,318
	Western Region—											
42	California, Oregon, and Washington.	1,244,649	124,218	9,349	517,188	459,832	.....	23,810	43,469	2,169	14,336	50,278
43	Idaho, Montana, and Wyoming	1,842,723	160,974	9,690	965,209	533,792	.....	79,201	24,373	16,638	13,108	39,738
44	Arizona, Nevada, and Utah	7,430,899	592,277	64,407	2,805,808	2,960,013	.....	230,838	241,842	19,207	62,534	453,973
45	Colorado, South Dakota, and New Mexico.	1,635,090	176,977	26,717	819,467	422,385	.....	84,837	43,850	488	22,657	37,712
	Lake Region—											
46	Michigan	492,056	20,929	6,662	225,220	167,959	.....	40,446	5,632	.....	24,522	686
	Central Region—											
47	Kansas, Missouri, Oklahoma, and Wisconsin.	252,549	28,198	6,130	59,193	77,096	.....	12,400	33,243	24,346	1,012	10,931
	Eastern and Southern Regions—											
48	Georgia, New York, North Carolina, and Virginia.	358,399	18,718	10,464	244,561	63,651	.....	9,134	11,749	.....	122	.....

[1] Includes mines of platinum and related metals.
[2] Includes 1 enterprise in Georgia.
[3] Includes enterprises in states as follows: Arizona, 1; Idaho, 11; Montana, 9; New Mexico, 1; Oregon, 16; Washington, 1.

COPPER, LEAD, AND ZINC MINING INDUSTRIES: 1919.

Capital.	Expenditures for development (included in principal expenses).	Value of products.	POWER USED. Aggregate.	Prime movers. Total horsepower.	Steam engines (not turbines). Number.	Steam engines (not turbines). Horsepower.	Steam turbines. Number.	Steam turbines. Horsepower.	Internal-combustion engines. Number.	Internal-combustion engines. Horsepower.	Water wheels and turbines. Number.	Water wheels and turbines. Horsepower.	Equipment operated by purchased power. Electric motors. Number.	Electric motors. Horsepower.	Other. Horsepower.	Electric motors run by current generated by the enterprise reporting. Number.	Electric motors run by current generated by the enterprise reporting. Horsepower.	
$1,461,086,981	$38,001,610	$325,038,325	981,229	579,282	1,579	316,389	106	163,723	1,292	73,325	242	25,845	9,723	399,645	2,392	4,441	204,170	1
1,355,825,983	25,635,493	325,038,325	938,444	557,828	1,437	308,392	104	163,393	948	63,610	200	22,433	9,183	378,731	1,885	4,393	203,401	2
853,639,017	13,302,349	181,258,087	523,591	386,458	842	245,398	79	123,223	129	16,327	10	1,510	3,647	135,968	1,165	3,252	161,024	3
197,223,814	4,268,914	75,579,347	229,541	117,527	411	42,821	21	35,420	433	35,415	30	3,871	2,389	111,874	140	625	22,884	4
280,388,711	7,862,971	58,832,330	149,680	50,437	181	20,133	4	4,750	370	11,149	135	14,405	2,523	98,663	580	494	18,892	5
24,574,441	201,259	9,368,561	35,632	3,406	2	40	.....	.....	16	719	25	2,647	624	32,226	.....	22	601	6
387,759,328	6,393,094	84,217,141	158,614	133,762	233	50,778	21	73,037	64	9,947	.....	.....	528	23,837	1,015	1,139	77,126	7
17,906,644	540,738	2,397,610	12,648	2,670	3	400	3	1,500	16	235	2	535	179	9,978	.....	.....	.....	8
722,255	35,149	26,723	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	25	.....	.....	.....	9
3,814,280	96,439	340,309	985	235	.....	.....	.....	.....	6	235	.....	.....	18	750	.....	.....	.....	10
146,138,993	1,426,236	28,365,290	84,765	24,375	30	23,555	.....	.....	13	345	6	475	741	60,390	.....	8	105	11
143,489,317	4,131,776	30,269,748	90,195	62,038	243	41,179	44	15,456	26	5,403	.....	.....	1,731	28,007	150	1,260	27,475	12
147,786,096	559,630	34,476,336	169,589	161,353	326	127,961	11	33,230	4	162	.....	.....	261	8,236	.....	888	56,088	13
6,022,104	119,287	1,164,930	6,770	2,025	7	1,525	.....	.....	.....	.....	2	500	187	4,745	.....	17	230	14
1,011,764	101,006	127,843	634	634	2	65	.....	.....	18	569	.....	.....	.....	.....	.....	.....	.....	15
5,919,640	142,854	261,454	826	536	6	155	.....	.....	15	381	.....	.....	9	290	.....	.....	.....	16
16,556,300	760,131	2,622,150	12,384	1,979	5	650	.....	.....	1	4	6	1,325	240	10,405	.....	50	1,000	17
54,762,584	200,577	9,529,723	25,479	1,171	3	138	2	930	2	42	12	61	444	24,258	50	7	750	18
42,892,955	1,287,109	12,800,842	27,612	8,226	22	3,760	1	375	72	2,491	3	1,600	537	19,386	.....	57	1,627	19
228,500	3,500	14,595	547	547	4	270	.....	.....	6	277	.....	.....	.....	.....	.....	.....	.....	20
460,642	16,534	621,296	1,978	30	1	30	.....	.....	.....	.....	.....	.....	61	1,948	.....	.....	.....	21
4,465,307	221,372	4,872,968	11,496	8,367	45	3,135	.....	.....	53	4,647	7	585	56	3,129	.....	.....	.....	22
26,758,399	586,047	15,879,177	57,088	50,545	187	21,301	14	25,115	35	4,129	.....	.....	105	6,453	90	332	13,149	23
27,628,036	590,701	18,979,726	55,182	33,324	127	10,210	.....	.....	227	22,814	2	300	346	21,858	.....	13	490	24
7,824,755	149,892	3,816,911	9,758	88	2	30	.....	.....	3	58	.....	.....	334	9,670	.....	.....	.....	25
8,714,932	209,191	6,052,662	26,557	12,080	7	3,077	4	9,000	1	3	.....	.....	257	14,477	.....	166	5,868	26
12,936,527	659,105	3,523,447	5,107	2,762	17	1,601	.....	.....	61	1,161	.....	.....	98	2,345	.....	5	32	27
34,494,493	1,027,359	8,773,757	33,412	11,949	10	1,871	2	250	67	1,365	82	8,463	527	21,463	.....	52	2,770	28
54,043,972	1,455,315	16,785,716	32,506	9,436	75	6,711	.....	.....	10	150	13	2,575	638	22,985	85	13	698	29
8,525,765	211,728	1,396,915	2,693	377	10	280	.....	.....	6	44	3	53	54	2,186	130	9	260	30
39,374,264	1,045,264	2,817,067	9,121	2,650	16	945	.....	.....	19	302	11	1,403	124	6,471	.....	19	817	31
38,262,116	1,672,213	9,687,431	32,605	5,202	13	590	.....	.....	142	4,444	5	168	705	27,403	.....	8	255	32
10,396,916	297,521	922,406	2,311	2,196	8	195	.....	.....	27	2,001	.....	.....	5	115	.....	39	1,057	33
50,847,549	1,269,222	8,449,506	16,249	4,521	18	2,855	.....	.....	9	203	5	1,463	242	11,563	165	21	828	34
2,494,621	58,099	451,625	1,264	411	3	120	.....	.....	6	291	.....	.....	15	653	200	.....	.....	35
29,012,488	167,145	6,024,460	14,412	10,933	12	4,965	2	4,500	23	1,188	16	280	115	3,479	.....	328	12,175	36
19,087,232	140,076	7,937,654	29,488	2,180	2	40	.....	.....	3	50	18	2,090	502	27,308	.....	5	95	37
1,827,400	.....	570,819	2,365	150	.....	.....	.....	.....	.....	.....	1	150	51	2,215	.....	.....	.....	38
76,500	.....	63,649	140	24	.....	.....	.....	.....	4	24	.....	.....	21	116	.....	.....	.....	39
3,583,309	61,183	796,439	3,639	1,052	.....	.....	.....	.....	9	645	6	407	50	2,587	.....	17	506	40
105,260,998	12,366,117	.....	42,785	21,454	142	7,997	2	330	344	9,715	42	3,412	540	20,914	417	48	769	41
15,093,487	1,064,239	.....	6,222	3,102	20	579	.....	.....	22	473	22	2,050	63	3,120	.....	13	281	42
14,432,652	1,756,319	.....	5,910	3,951	44	2,534	.....	.....	49	862	12	555	37	1,927	32	1	15	43
52,622,547	7,282,269	.....	21,166	9,057	21	1,391	.....	.....	242	7,626	1	40	330	11,979	130	33	448	44
14,811,388	1,522,323	.....	6,501	3,543	48	2,457	.....	.....	22	394	6	692	83	2,803	155	1	25	45
6,043,839	394,687	.....	1,168	980	4	650	2	330	.....	.....	.....	.....	13	188	.....	.....	.....	46
1,510,955	148,129	.....	1,396	606	3	286	.....	.....	7	320	.....	.....	11	690	100	.....	.....	47
746,130	198,151	.....	422	215	2	100	.....	.....	2	40	1	75	3	207	.....	.....	.....	48

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DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES

MINES AND QUARRIES: 1919

GYPSUM

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, which did neither productive work nor development work during the entire year; or enterprises the products of which were valued at less than $500 or, in the bituminous coal-mining industry, producing less than 1,000 tons; or, if nonproducing enterprises, those doing development work amounting to less than $5,000.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same state operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same state. If plants under unified control were not all located within the same state, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the states in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, was reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Geographic presentation.—The general tables at the end of the bulletin give statistics of the industry in detail for each state or group of states which can be shown without disclosure of individual operations. Other tables present statistics by mining regions, producing provinces, or fields, these divisions comprising groups of states related by features peculiar to the industry.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of such employees does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The total number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation for the representative day. This number is not used in any other way because it is believed to be less significant than the average number. The number reported for the representative day, on account of the unavoidable variations of date, involves more or less duplication of persons working in different industries at different times; does not represent the total number employed in all industries at any one time; and gives undue weight to seasonal industries as compared with industries in continuous operation.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class in which the majority belong. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. Do not include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the Census of 1909. The reports received in respect to capital, however at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported at the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of these used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Contract work.—The amounts reported under this head include expenditures for both productive operations and those prosecuted for development only; they are in effect indirect expenditures for salaries, wages, supplies, materials, and fuel and power.

Royalties and rents.—The amounts given under this head represent the payment to fee holders or the value of the share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock, corporation income, and excess profits taxes; and also state, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation for mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics on producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product mined in 1919 under the terms by which it was disposed of, and includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Lands controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

GYPSUM.

INTRODUCTION.

This report presents the results of the census of mines and quarries for the year 1919 relating to the production of gypsum. It includes statistics showing the progress of the industry by comparison of results of the 1919 census with those of the preceding censuses of mines and quarries; also statistics for 1919 showing the character of organization of operating enterprises, scale of operation, persons engaged in the industry, acreage of mineral and other lands controlled, power equipment used, and a general table presenting statistics in detail for the United States, and separately for such states as can be shown without disclosure of individual operations.

Definitions and explanations.—Gypsum, either in the form of massive or rock gypsum, or the earthy material gypsite, is the raw material mined for use in the manufacture of plaster of Paris; wall plaster; stucco; plaster board and wall board; partition, roof, and other tiles; Portland cement; and as agricultural gypsum. Gypsum is sometimes sold crude; more often sold calcined as plaster; for the most part, however, it is not sold crude, or simply calcined, but is used by the producer in the manufacture of gypsum products and enters the market only in manufactured form. The principal producers of gypsum operate mills or manufacturing plants at the gypsum mines and quarries. The statistics herein presented relate primarily to the gypsum-mining industry with which is included the calcining of gypsum and its preparation for further manufacture. Returns were received from some producers reporting separately the mining activities of the business, and from other producers making combined reports on mining and manufacturing activities. The latter were, so far as possible, segregated so that mining and manufacturing statistics could be separately tabulated. For some establishments insufficient information was available for such segregation, and in these cases the full reports covering both mining and manufacturing activities have been included in the statistics of the gypsum-mining industry.

Gypsum is obtained both by quarrying or mining in open pits and by mining under ground. Either method may be practiced in any region as the thickness of the overburden chiefly determines the method of operation.

The gypsum resources of the United States include deposits in the east in New York, Virginia, Ohio, and Michigan; in the western Mississippi Valley in Iowa, South Dakota, Kansas, Oklahoma, and Texas; and in the western region in Arizona, California, Colorado, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming.

Method of reporting quantity and value of products.—The statistics relating to the production of gypsum were collected in cooperation with the United States Geological Survey, for which purpose there was provided, in addition to the general schedule for the census, a supplemental schedule requesting special information desired by the Geological Survey. These schedules called for the quantity and value at the mine of gypsum produced and also for the quantity and value at the mill of gypsum in gypsum products manufactured and in gypsum products used or sold. The Census Bureau required the value of products at the mine or plant; the Geological Survey, the total quantity mined and the quantity and value of gypsum sold or used by the producer. The value of products as reported by the two bureaus for 1919 are compared in the following statement:

	Bureau of the Census.	Geological Survey.
United States	$6,805,940	$15,727,907
New York	1,110,463	3,530,703
Iowa	1,092,920	2,634,444
All other states[1]	4,602,557	9,562,720

[1] Includes Arizona, California, Colorado, Kansas, Michigan, Nevada, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Utah, Virginia, and Wyoming for both bureaus' figures; the Geological Survey figures include also the production of Alaska and Montana and a small quantity of gypsum sold by warehouses.

Practically all of the differences here shown are accounted for by the fact that the Geological Survey reports as value of products the value of gypsum sold as such and gypsum in manufactured products sold or used by the producer, while the Bureau of the Census reports the value to the producer of his output, whether raw or calcined gypsum or gypsum products.

As the Bureau of the Census did not tabulate the quantity of gypsum produced in 1919, available information is limited to that contained in the United States Geological Survey's publication "Mineral Resources of the United States: 1919," from which Table 1 is quoted.

TABLE 1.—GYPSUM PRODUCED AND SOLD IN THE UNITED STATES, BY STATES: 1919.[1]

STATE.	Number of plants reporting.	Total quantity mined (tons, 2,000 pounds).	SOLD WITHOUT CALCINING.				SOLD AS CALCINED PLASTER.		Total value.
			Agricultural gypsum.		For Portland cement, paint, and other purposes.		Quantity (tons, 2,000 pounds).	Value.	
			Quantity (tons, 2,000 pounds).	Value.	Quantity (tons, 2,000 pounds).	Value.			
United States	57	2,420,163	39,978	$185,566	470,267	$1,332,637	1,593,020	$14,209,704	$15,727,907
Iowa	6	421,279	2,405	8,760	66,619	222,672	264,656	2,403,012	2,634,444
Kansas	3	78,479	(2)	(2)	(2)	(2)	[2] 66,008	[2] 520,673	520,673
Michigan	6	339,125	1,597	10,422	57,157	163,688	250,687	2,216,257	2,390,367
Nevada	3	91,756	(2)	(2)	(2)	(2)	[2] 79,181	[2] 497,561	497,561
New York	8	591,153	5,458	23,984	210,959	596,355	316,767	2,910,404	3,530,743
Ohio	3	251,259	1,435	6,363	6,390	20,373	219,900	2,022,987	2,049,723
Oklahoma	5	114,313	(2)	(2)	24,761	63,920	[2] 72,013	[2] 644,740	708,660
Texas	5	176,607	(2)	(2)	10,637	16,442	[2] 130,656	[2] 1,064,312	1,080,754
Wyoming	3	51,079					37,314	282,587	282,587
All other states [3]	15	305,113	24,902	128,840	69,662	193,794	187,101	1,709,761	2,032,395

[1] U. S. Geological Survey, Mineral Resources of the United States: 1919.
[2] Crude gypsum is included with calcined plaster.
[3] Includes Alaska, Arizona, California, Colorado, Montana, New Mexico, Oregon, South Dakota, Utah, and Virginia; and also a small quantity sold by warehouses and not accounted for elsewhere.

PRINCIPAL STATISTICS.

Table 2 presents by states and groups of states the principal statistics for producing gypsum mines in 1919. No activities on unproductive properties were reported for that year. On the basis of total value of products—$6,805,940—this industry ranked fifteenth, and on the basis of average number of wage earners employed—2,191—it ranked fourteenth among the mining industries in the United States in 1919.

TABLE 2.—PRINCIPAL STATISTICS, PRODUCING ENTERPRISES: 1919.

	United States.	New York.	Other eastern states.[1]	Iowa.	Western states.[2]
Number of enterprises	47	6	8	5	28
Number of mines	48	6	8	5	29
Mineral land operated..acres.	41,703	2,471	5,783	1,519	31,930
Persons engaged	2,477	446	694	487	850
Proprietors and firm members, total	4	1			3
Number performing manual labor	3	1			2
Salaried employees	282	45	73	43	121
Wage earners (average number)	2,191	400	621	444	726
Power used (aggregate horsepower)	15,032	1,706	5,179	2,057	6,090
Capital	$13,541,548	$1,559,514	$4,816,157	$2,124,006	$5,041,871
Principal expenses:					
Salaries	555,450	78,923	152,756	85,467	238,304
Wages	2,478,391	515,650	709,035	495,747	757,959
Contract work	3,747				3,747
Supplies and materials	1,530,338	263,914	421,754	206,180	638,490
Fuel and purchased power	660,420	84,486	171,786	132,600	271,548
Royalties and rents	69,403	31,946	14,032	21,021	2,404
Taxes	81,983	9,576	23,976	7,546	40,885
Value of all products	6,805,940	1,110,463	1,857,633	1,092,920	2,744,924

[1] Includes enterprises in states listed in order of value of products as follows: Michigan, 4; Virginia, 2; Ohio, 2.
[2] Includes enterprises in states listed in order of value of products as follows: Nevada, 3; Texas, 3; Wyoming, 4; Oklahoma, 5; Kansas, 3; Utah, 2; New Mexico, 1; Oregon, 1; Arizona, 1; South Dakota, 2; Colorado, 2; California, 1.

There were 25 operators during the census year who reported for 47 enterprises and 48 mines. Three operators reported a majority of the enterprises, and each of these three operated in various parts of the United States. As the industry is so largely controlled by a few operators, analysis of the statistics can not be presented in detail without disclosure of individual operations.

GEOGRAPHIC DISTRIBUTION.

Statistics can be shown separately for only the two leading states, New York and Iowa; other producing states are grouped as "Other eastern states" and as "Western states." Table 2 shows the principal statistics for these states and groups of states, and Table 3 shows the rank by the per cent distribution of the value of products and average number of wage earners for these states and groups. On the basis of value of products New York and Iowa, with six and five enterprises, respectively, each accounted for approximately one-sixth of the production. Measured either by value of products or by average number of wage earners, the region west of the Mississippi River was the most important in the industry, reporting 56.4 per cent of the total value of products and 53.4 per cent of the total average number of wage earners.

TABLE 3.—STATES, RANKED BY VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919.

STATE.	Number of enterprises.	WAGE EARNERS.		VALUE OF PRODUCTS.	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.
United States	47	2,191	100.0	$6,805,940	100.0
New York	6	400	18.3	1,110,463	16.3
Iowa	5	444	20.3	1,092,920	16.1
Other eastern states [1]	8	621	28.3	1,857,633	27.3
Western states [2]	28	726	33.1	2,744,924	40.3

[1] Includes states listed in order of value of products as follows: Michigan, Virginia, Ohio.
[2] Includes states listed in order of value of products as follows: Nevada, Texas, Wyoming, Oklahoma, Kansas, Utah, New Mexico, Oregon, Arizona, South Dakota, Colorado, California.

PROGRESS OF THE INDUSTRY.

Comparative statistics for producing enterprises in the United States: 1889–1919.—Table 4 presents, for producing gypsum enterprises in the United States as a whole, the principal statistics reported at the Fourteenth Census and the three preceding censuses of mines and quarries. This table indicates large increase in the gypsum-mining industry during the two decades 1889 to 1909. The average number of wage earners in 1909 was more than four times the number in 1889 and the value of products increased nearly 700 per cent. In contrast to this progress, the statistics show decreases, during the decade 1909 to 1919, in the number of enterprises, mines, persons engaged, and power used; the increases shown for wages, cost of supplies and materials and fuel and power, and value of products are in accord with these decreases because they are less than sufficient to offset the general price increases during the decade. These figures should be interpreted, not as indicating an actual decline in the industry, but rather as a measure of the effect on the gypsum industry of business depression during the census year. The Geological Survey's annual figures on the production of gypsum, as presented in Table 5, show a large growth in the industry from 1889 up to 1917, when it was checked by the war's effect on construction work in which gypsum products are largely used.

TABLE 4.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919, 1909, 1902, AND 1889.

	1919	1909	1902	1889	PER CENT OF INCREASE.[1]		
					1909–1919	1902–1909	1889–1902
Number of enterprises	47	78	45	(2)			
Number of mines	48	222	62	(2)	−78.4		
Persons engaged	2,477	3,899			−36.5		
Proprietors and firm members, total	4	6	(2)	(2)			
Number performing manual labor	3	4	(2)	(2)			
Salaried employees	282	431	249	(2)	−34.6	73.1	
Wage earners (average number)	2,191	3,462	1,472	761	−36.7	135.2	93.4
Power used (aggregate horsepower)	15,032	17,685	7,319	(3)	−15.0	141.6	
Capital	$13,541,548	$10,213,284	(2)	$2,473,175	32.6		
Principal expenses:							
Salaries	555,450	551,889	$300,420	249,200	0.6	83.7	
Wages	2,478,391	1,820,877	759,258		36.1	139.8	
Contract work	3,747	16,558	406	10,631	−77.4		
Supplies and materials	1,530,338	985,658	[4] 341,760	128,854	55.1		
Fuel and purchased power	660,420	573,459	(2)	(3)	15.2		
Royalties and rents	69,403	74,916	49,912	(3)	−7.4	50.1	
Taxes	81,983	39,062	(2)	(3)	109.9		
Value of products	6,805,940	5,812,810	2,089,341	764,118	17.1	178.2	173.4

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[2] Not reported.
[3] Comparable figures not available.
[4] Includes cost of fuel.

TABLE 5.—CRUDE GYPSUM MINED IN THE UNITED STATES: 1889 TO 1919.[1]

YEAR.	Quantity (tons, 2,000 pounds).	YEAR.	Quantity (tons, 2,000 pounds).	YEAR.	Quantity (tons, 2,000 pounds).	YEAR.	Quantity (tons, 2,000 pounds).	YEAR.	Quantity (tons, 2,000 pounds).	YEAR.	Quantity (tons, 2,000 pounds).
1889	267,769	1895	265,503	1900	594,462	1905	1,043,202	1910	2,379,057	1915	2,447,611
1890	182,995	1896	224,254	1901	633,791	1906	1,540,585	1911	2,323,970	1916	2,757,730
1891	208,126	1897	288,982	1902	816,478	1907	1,751,748	1912	2,500,757	1917	2,696,226
1892	250,259	1898	291,638	1903	1,041,704	1908	1,721,829	1913	2,599,508	1918	2,057,015
1893	253,615	1899	486,235	1904	940,917	1909	2,252,785	1914	2,476,465	1919	2,420,163
1894	239,312										

[1] U. S. Geological Survey, Mineral Resources of the United States.

Power per enterprise and per wage earner: 1919 and 1909.—Table 6 presents comparative statistics for 1919 and 1909 in regard to power used. Although there was a decrease in the average number of wage earners and in the aggregate horsepower used in the gypsum industry in 1919 as compared with 1909, the horsepower per enterprise and the horsepower per wage earner increased 41 and 40 per cent, respectively, during that decade. Progress or development in the industry indicated by increased use of mechanical equipment.

TABLE 6.—POWER USED PER ENTERPRISE AND PER WAGE EARNER. PRODUCING ENTERPRISES: 1919 AND 1909.

	1919	1909	Per cent of increase.[1]
Number of enterprises	47	78	
Wage earners (average number)	2,191	3,462	−36.7
Power used (aggregate horsepower)	15,032	17,685	−15.0
Horsepower per enterprise	320	227	41.0
Horsepower per wage earner	7	5	

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.

CHARACTER OF ORGANIZATION.

The character of organization of operating enterprises in the gypsum-mining industry in the United States as a whole is shown in Table 7. Forty-three of the 47 enterprises were operated by corporations which employed 99.3 per cent of the average number of wage earners and reported 99.7 per cent of the total value of products; the other enterprises were conducted by individuals and were small.

TABLE 7.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

CHARACTER OF ORGANIZATION.	Number of enterprises.	Wage earners (average number).	VALUE OF PRODUCTS.		PER CENT DISTRIBUTION.		
			Total.	Per enterprise.	Enterprises.	Wage earners (average number).	Value of products.
All classes	47	2,191	$6,805,940	$144,807	100.0	100.0	100.0
Corporation	43	2,176	6,782,826	157,740	91.5	99.3	99.7
Individual	4	15	23,114	5,779	8.5	0.7	0.3

SCALE OF OPERATION.

Size of enterprises according to value of products.—In Table 8 the gypsum-producing enterprises in the United States in 1919 are grouped according to the value of their products, and the value of products and the per cent distribution is given for each group. The largest enterprises, although less than one-half the total number of enterprises, produced 85.1 per cent of the total value of products.

TABLE 8.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919.

VALUE OF PRODUCTS PER ENTERPRISE.	ENTERPRISES.		VALUE OF PRODUCTS.	
	Number.	Per cent distribution.	Amount.	Per cent distribution.
All classes	47	100.0	$6,805,940	100.0
Less than $5,000	3	6.4	5,042	0.1
$5,000 to $20,000	5	10.6	69,164	1.0
$20,000 to $100,000	18	38.3	941,620	13.8
$100,000 and over [1]	21	44.7	5,970,114	85.1

[1] Includes the group "$500,000 to $1,000,000."

Size of enterprises according to the average number of wage earners employed.—Table 9 shows, for the United States as a whole, and separately for the leading states and groups of states, the enterprises classified according to the average number of wage earners employed. In the United States as a whole, 41 of the total of 47 enterprises had fewer than 101 wage earners each and employed 55.9 per cent of the total average number of wage earners. Six enterprises had more than 100 wage earners each and employed 44.1 per cent of the total average number of wage earners. The larger enterprises—that is, those employing an average of more than 100 wage earners each—were in Iowa, New York, and other eastern states.

TABLE 9.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

STATE AND WAGE EARNERS PER ENTERPRISE.	ENTERPRISES.		WAGE EARNERS.	
	Number.	Per cent distribution.	Average number.	Per cent distribution.
UNITED STATES	47	100.0	2,191	100.0
1 to 5	4	8.5	11	0.5
6 to 20	14	29.8	190	8.7
21 to 50	15	31.9	506	23.1
51 to 100	8	17.0	518	23.6
101 to 500	6	12.8	966	44.1
NEW YORK	6	100.0	400	100.0
1 to 5	1	16.7	1	0.2
6 to 20	1	16.7	15	3.8
21 to 50	1	16.7	40	10.0
51 to 100	1	16.7	59	14.8
101 to 500	2	33.3	285	71.2
IOWA	5	100.0	444	100.0
6 to 20	1	20.0	9	2.0
21 to 50	2	40.0	78	17.6
101 to 500	2	40.0	357	80.4
OTHER EASTERN STATES	8	100.0	621	100.0
6 to 20	1	12.5	19	3.1
21 to 50	2	25.0	86	13.8
51 to 100	3	37.5	192	30.9
101 to 500	2	25.0	324	52.2
WESTERN STATES	28	100.0	726	100.0
1 to 5	3	10.7	10	1.4
6 to 20	11	39.3	147	20.2
21 to 50	10	35.7	302	41.6
51 to 100	4	14.3	267	36.8

Size of enterprises according to acreage of mineral land.—Table 10 shows, for the United States as a whole, the enterprises classified according to the number of acres of mineral land controlled and shows for each class the number of mines and the number of acres controlled. The largest number of enterprises was in the group operating from 100 to 200 acres, and this group, constituting 29.8 per cent of the total number of enterprises, operated only 5.3 per cent of the total acreage. The group controlling more than 1,000 acres per enterprise was the next largest, embracing 25.5 per cent of the total number of enterprises and controlling 76.6 per cent of the total number of acres of mineral land reported.

TABLE 10.—SIZE OF PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF MINERAL LAND: 1919.

ACRES PER ENTERPRISE.	ENTERPRISES.		Number of mines.	MINERAL LAND.	
	Number.	Per cent distribution.		Acres.	Per cent distribution.
All classes	47	100.0	48	41,703	100.0
1 to 50	2	4.3	2	26	0.1
50 to 100	4	8.5	4	314	0.8
100 to 200	14	29.8	14	2,202	5.3
200 to 500	8	17.0	8	2,556	6.1
500 to 1,000	7	14.9	7	4,665	11.2
1,000 and over	12	25.5	13	31,940	76.6

PERSONS ENGAGED IN THE INDUSTRY.

Persons according to class and sex.—Table 11 gives the persons engaged in the gypsum industry by classes, showing the number of males and females and the per cent distribution for each class of employees. The number of salaried employees—282—

constituted only 11.4 per cent of the total number of persons engaged in the industry. Only 60 females were reported in all grades and they constituted less than 3 per cent of the total number of persons employed.

TABLE 11.—PERSONS ENGAGED IN THE INDUSTRY, PRODUCING ENTERPRISES: 1919.

	Number.	Per cent distribution.
Persons engaged	2,477	100.0
Proprietors and firm members, total (male)	4	0.2
Number performing manual labor	3	0.1
Salaried officers (male)	28	1.1
Superintendents and managers—		
Male	65	2.6
Female	1	(1)
Technical employees (male)	5	0.2
Clerks—		
Male	135	5.4
Female	48	1.9
Wage earners (average number)	2,191	88 5
Wage earners, Dec. 15, or nearest representative day—		
Male	2,545	.....
Female	11	.....

[1] Less than one-tenth of 1 per cent.

Wage earners, by occupations.—Table 12 shows the number of wage earners employed in the gypsum industry on December 15, 1919, or the nearest representative day, classified according to occupation, gives the per cent distribution by occupational classes, and the number in each class employed above and below ground. Wage earners in quarries or open-pit mines were classed as employed above ground. The table distinguishes between men engaged in the more peculiarly mining occupations, such as miners, quarrymen, drillmen, timbermen, trackmen, trammers, and their helpers; men in other skilled trades such as enginemen, hoistmen, firemen, machinists, electricians, carpenters and other mechanics; and less skilled and unclassified laborers. Forty-six per cent of the total number of wage earners were employed below ground; exclusive of those in beneficiating plants, 67.5 per cent of the number in all classes were employed below ground. Of the total number of wage earners reported, 68 per cent were engaged in actual mining operations; 32 per cent being employed in mills or beneficiating plants in which the gypsum was calcined or further prepared for manufacture.

TABLE 12.—WAGE EARNERS, BY OCCUPATIONS, PRODUCING ENTERPRISES: 1919.

CLASS OF WAGE EARNERS.	NUMBER OF WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.			
	Total.	Per cent distribution.	Above ground.	Below ground.
All classes	2,556	100.0	1,381	1,175
Foremen, shift bosses, etc.	77	3.0	37	40
Enginemen, hoistmen, electricians, mechanics, etc.	145	5.7	105	40
Miners, quarrymen, and drillmen, including their helpers	604	23.6	159	445
Timbermen, trackmen, and men engaged in hauling, tramming, etc.	233	9.1	25	208
Muckers, loaders, laborers, and others not classified	681	26.6	239	442
Wage earners employed in mills and beneficiating plants	816	31.9	816	.....

Wage earners, by months.—Table 13 shows for the United States as a whole, and for the principal states and groups of states, the number of wage earners employed on the 15th day or nearest representative day of each month, the average number, the months of minimum and maximum employment, and the ratio of the minimum to the maximum number. The changes in the number employed from month to month reflect conditions prevailing in the gypsum industry during the census year. The month of maximum employment for the industry was November, and the month of minimum employment January, and the minimum number employed was 58 per cent of the maximum number.

It will be noted that the number of wage earners reported for all enterprises on a representative day, which is presented in several other tables, aggregated 2,556, or somewhat more than the number shown for December 15 in Table 13. While for most mines the representative day selected for reporting wage earners in detail was December 15, for other mines December was not a representative month and reports were made for some other date. Therefore, the aggregate for the representative day differs from the total of the numbers reported by each enterprise for the month of December.

TABLE 13.—WAGE EARNERS BY MONTHS, PRODUCING ENTERPRISES: 1919.

[The month of maximum employment for each state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

STATE.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
United States	2,191	*1,574*	1,649	1,782	1,918	2,078	2,092	2,350	2,327	2,582	2,713	**2,715**	2,512	58.0
New York	400	350	359	378	372	383	366	368	340	435	475	**504**	470	67.5
Iowa	444	*233*	240	272	320	389	453	540	545	611	**619**	613	483	37.6
Other Eastern states	621	*484*	498	522	562	613	604	666	666	674	724	725	684	64.2
Western states	726	*507*	552	610	654	693	669	776	776	862	865	873	**875**	57.9

Prevailing hours of labor.—Table 14 shows the enterprises classified according to the prevailing hours of labor per week and gives the average number of wage earners employed in each class. In the industry as a whole, for a majority of the enterprises and for 60 per cent of the wage earners employed, the hours of labor were 54 to 62 per week, that is, the 10-hour day and 6-day week prevailed. In Iowa, however, the prevailing hours of labor were 44 to 53 per week, and the 8-hour day and 6-day week was the rule.

TABLE 14.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

STATE.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—							
			36 to 43.		44 to 53.		54 to 62.		63 to 71.	
	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
United States	47	2,191	1	1	12	830	32	1,317	2	43
New York	6	400	....	....	1	143	5	257	....	....
Iowa	5	444	....	....	5	444	....	....	....	....
Other eastern states	8	621	....	....	1	161	7	460	....	....
Western states	28	726	1	1	5	82	20	600	2	43

LAND TENURE AND ROYALTIES.

Land tenure.—Table 15 shows for 1919 the number of acres of land controlled by producing enterprises. The table distinguishes mineral land (that is, land held for its content of gypsum) from timber and other lands, and shows the mineral land according to form of tenure. Approximately 90 per cent of the gypsum land controlled in the United States was held by ownership, but in New York, on the contrary, the larger part of the operated land was held under lease.

TABLE 15.—LAND CONTROLLED, PRODUCING ENTERPRISES: 1919.

STATE.	Aggregate (acres).	MINERAL LAND (ACRES).			Timber and other lands (acres).
		Total.	Owned.	Held under lease.	
United States	42,193	41,703	36,581	5,122	490
New York	2,471	2,471	759	1,712	.....
Iowa	1,519	1,519	1,160	359	.....
Other eastern states	6,273	5,783	4,022	1,761	490
Western states	31,930	31,930	30,640	1,290	.....

In Table 16 the enterprises are classified according to form of tenure of mineral land—whether held by ownership, under lease, or partly held by ownership and partly under lease. The table also shows the per cent the total owned acreage is of the aggregate of mineral land, and also the per cent which the total under each class of tenure is of the aggregate acreage of mineral land. In New York and in Iowa, most of the land was held under mixed form of tenure, whereas in other states the control of mineral land was chiefly by ownership.

TABLE 16.—NUMBER OF PRODUCING ENTERPRISES AND ACRES OF MINERAL LAND CONTROLLED, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

STATE.	TOTAL.					ENTERPRISES OPERATING ONLY OWNED LAND.			ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE.			ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE.				
	Number of enterprises.	Acres controlled—				Number of enterprises.	Acres controlled—		Number of enterprises.	Acres controlled—		Number of enterprises.	Acres controlled—			
		Aggregate.	By ownership.	By lease.	Per cent owned is of aggregate.		By ownership.	Per cent of aggregate.		By lease.	Per cent of aggregate.		Total.	Per cent of aggregate.	By ownership.	By lease.
United States	47	41,703	36,581	5,122	87.7	31	34,198	82.0	7	2,277	5.5	9	5,228	12.5	2,383	2,845
New York	6	2,471	759	1,712	30.7	2	135	5.5	1	422	17.1	3	1,914	77.5	624	1,290
Iowa	5	1,519	1,160	359	76.4	1	160	10.5	3	334	22.0	1	1,025	67.5	1,000	25
Other eastern states	8	5,783	4,022	1,761	69.5	5	3,822	66.1	2	1,361	23.5	1	600	10.4	200	400
Western states	28	31,930	30,640	1,290	96.0	23	30,081	94.2	1	160	0.5	4	1,689	5.3	559	1,130

Table 17 presents comparative statistics for 1919 and 1909, showing the acreage of mineral land and timber and other lands controlled. There was a slight increase in the number of acres of owned mineral land operated, but large decrease in the other classes of land shown. These changes are in accord with the decrease in the number of mines operated, as shown in Table 4.

TABLE 17.—COMPARATIVE STATISTICS, LAND CONTROLLED, PRODUCING ENTERPRISES: 1919 AND 1909.

CHARACTER AND TENURE OF LAND.	ACRES.		
	1919	1909	Per cent of increase.[1]
Total land	42,193	54,215	−22.2
Mineral land	41,703	52,900	−21.2
Owned	36,581	35,592	2.8
Leased	5,122	17,308	−70.4
Timber and other lands	490	1,315	−62.7

[1] A minus sign (−) denotes decrease.

Royalties.—The census of mines and quarries, 1919, did not distinguish between royalties or rent paid for mineral land and rents of other kinds, but as these other rents are known to be insignificant in amount the statistics presented for royalties and rents may be taken to represent only royalties or rent of mineral land. Royalty, which is a compensation for the privilege of mining leased lands, is either a fixed share of the product or a percentage of the value of product.

Table 18 shows the enterprises classified according to form of land tenure, and gives the value of products and the royalties and rents paid. Thirty-one enterprises operated only owned land, produced approximately 60 per cent of the total value of products, and reported a negligible amount of rent; 7 enterprises operated leased lands only, reported products amounting to 17 per cent of the total and royalties amounting to 3 per cent of the value of their products; and 9 enterprises operated land partly owned and partly held under lease, but which, as shown in Table 16, was more than half leased land, and reported royalties amounting to 2.5 per cent of the value of their products.

TABLE 18.—VALUE OF PRODUCTS AND ROYALTIES AND RENTS, FOR PRODUCING ENTERPRISES CLASSIFIED ACCORDING TO TENURE OF MINERAL LAND: 1919.

CLASSES OF ENTERPRISES.	Number of enterprises.	Value of products.	Royalties and rents.
All classes	47	$6,805,940	$69,403
Enterprises operating:			
Only owned land	31	4,290,600	480
Only land held under lease	7	1,144,989	35,021
Land partly owned and partly held under lease	9	1,370,351	33,902

POWER.

Power equipment used.—The number and horsepower of the several types of prime movers and of electric motors used by the gypsum-mining enterprises in 1919 are presented for the United States as a whole and separately for states, in so far as they can be shown without disclosure, in the table of detailed statistics. Comparative statistics for 1919 and 1909 are presented for the United States in Table 19, which shows the number and horsepower of power equipment used by producing enterprises and the per cent of increase or decrease in horsepower for each class of equipment used. A decrease is shown in the aggregate horsepower used which, as indicated in the section on progress of the industry, is largely due to a decrease in the number of operating enterprises because of depressed business conditions. In contrast to the general decrease, an increase of 200 per cent is shown in horsepower of electric motors operated by purchased power. In 1909, 85 per cent of the aggregate horsepower used was generated by prime movers and only 15 per cent furnished by electric motors operated by purchased current. On the other hand, in 1919, the horsepower of prime movers was only 46.8 per cent, while the horsepower of electric motors operated by purchased current constituted 53.2 per cent of the aggregate horsepower. An increase is also shown in the number of electric motors operated by current generated by the enterprises reporting them.

TABLE 19.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

	1919	1909	Per cent of increase.[1]
Power used: Aggregate horsepower	15,032	17,685	−15.0
Prime movers (total horsepower)	7,038	15,025	−53.2
Steam engines—			
Number	47	90	.....
Horsepower	6,132	13,399	−54.2
Internal-combustion engines—			
Number	9	18	.....
Horsepower	572	681	−16.0
Water wheels and turbines—			
Number	3	10	.....
Horsepower	334	945	−64.7
Equipment operated by purchased power (total horsepower)	7,994	2,660	200.5
Electric motors—			
Number	290	81	.....
Horsepower	7,994	2,660	200.5
Electric motors run by current generated by the enterprise reporting:			
Number	103	49	.....
Horsepower	1,447	1,333	8.6

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.

GENERAL TABLE.

Table 20 presents in detail for 1919 the statistics of gypsum mines in the United States as a whole, in the two leading states, and in all other producing states grouped as "Other eastern states" and "Western states." The table gives the number of enterprises and mines, and the number of enterprises operating beneficiating plants; acreage of land controlled according to kind and the tenure of mineral land; the capital invested; the principal expenses of operation and development; the persons engaged in the industry, by classes and the wage earners according to occupation; and detailed statistics with regard to number and horsepower of power equipment, and with regard to fuel used. As all the gypsum-mining activities reported in 1919 were confined to productive operations, there are no statistics for nonproducing enterprises.

TABLE 20.—DETAILED STATISTICS FOR THE GYPSUM-MINING INDUSTRY, BY STATES: 1919.

	PRODUCING ENTERPRISES.				
	Total.	New York.	Iowa.	Other eastern states.[1]	Western states.[2]
Number of enterprises	47	6	5	8	28
Number of mines	48	6	5	8	29
Number of enterprises operating beneficiating plants	27	2	3	4	18
Mineral land operated ... acres	41,703	2,471	1,519	5,783	31,930
Land controlled ... acres	42,193	2,471	1,519	6,273	31,930
Mineral land owned ... acres	36,581	759	1,160	4,022	30,640
Mineral land held under lease ... acres	5,122	1,712	359	1,761	1,290
Timber and other lands ... acres	490	.....	.....	490	.....
Capital	$13,541,548	$1,559,514	$2,124,006	$4,816,157	$5,041,871
Principal expenses	$5,379,732	$984,495	$948,561	$1,493,339	$1,953,337
Salaries and wages—					
Officers, superintendents, managers, and technical employees	$275,145	$43,455	$33,687	$63,504	$134,499
Clerks, etc.	$280,305	$35,468	$51,780	$89,252	$103,805
Wage earners	$2,478,391	$515,650	$495,747	$709,035	$757,959
Supplies and materials	$1,530,338	$263,914	$206,180	$421,754	$638,490
Fuel	$516,148	$36,719	$119,579	$139,660	$220,190
Purchased power	$144,272	$47,767	$13,021	$32,126	$51,358
Royalties and rents	$69,403	$31,946	$21,021	$14,032	$2,404
Taxes—Federal, state, county, and local	$81,983	$9,576	$7,546	$23,976	$40,885
Contract work	$3,747	.....	.....	.....	$3,747
Expenditures for development (included in principal expenses)	$12,050	.....	$8,000	$3,250	$800
Value of products	$6,805,940	$1,110,463	$1,092,920	$1,857,633	$2,744,924
Persons engaged in industry	2,477	446	487	694	850
Proprietors and officials (total)	103	20	10	17	56
Proprietors and firm members (total)	4	1	.....	.....	3
Number performing manual labor	3	1	.....	.....	2
Salaried officers	28	5	1	5	17
Superintendents and managers	66	10	9	12	35
Technical employees	5	4	.....	.....	1
Clerks, etc.—					
Male	135	19	25	42	49
Female	48	7	8	14	19
Wage earners (average number)	2,191	400	444	621	726
Wage earners 15th day of—					
Maximum month	Nov. 2,715	Nov. 504	Oct. 619	Oct. 754	Dec. 875
Minimum month	Jan. 1,574	Aug. 340	Jan. 233	Jan. 484	Jan. 507
Wage earners by occupation, Dec. 15, or nearest representative day—					
Above ground (total)	1,381	167	171	331	712
Below ground (total)	1,175	304	355	353	163
Foremen, shift bosses, etc.—					
Above ground	37	2	2	10	23
Below ground	40	8	12	15	5
Enginemen, hoistmen, electricians, mechanics, etc.—					
Above ground	105	11	17	37	40
Below ground	40	18	1	18	3
Miners, quarrymen, and drillmen, including their helpers—					
Above ground	159	.....	.....	2	157
Below ground	445	97	109	124	115
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—					
Above ground	25	1	5	2	17
Below ground	208	48	86	58	16
Muckers, loaders, laborers, and others not classified—					
Above ground	239	50	21	41	127
Below ground	442	133	147	138	24
Wage earners employed in mills and beneficiating plants—					
Above ground	816	103	126	239	348
Number of females included in wage earners reported above—					
Above ground	11	.....	.....	9	2
Power used: Aggregate horsepower	15,032	1,706	2,057	5,179	6,090
Prime movers (horsepower, total)	7,038	725	1,256	2,190	2,867
Steam engines—					
Number	47	3	4	13	27
Horsepower	6,132	707	1,256	2,065	2,104
Internal-combustion engines—					
Number	9	1	.....	1	7
Horsepower	572	18	.....	125	429
Water wheels and turbines—					
Number	3	.....	.....	.....	3
Horsepower	334	.....	.....	.....	334
Equipment operated by purchased power (horsepower, total)	7,994	981	801	2,989	3,223
Electric motors—					
Number	290	25	40	116	109
Horsepower	7,994	981	801	2,989	3,223
Electric motors run by current generated by the enterprise reporting:					
Number	103	41	21	21	20
Horsepower	1,447	392	551	318	186
Fuel used:					
Coal, bituminous ... tons, 2,000 pounds	76,086	10,835	18,360	29,734	17,157
Coke ... tons, 2,000 pounds	1,534	428	465	641	.....
Wood ... cords	43	.....	.....	.....	43
Fuel oils ... barrels	62,893	.....	.....	.....	62,893
Gasoline and other volatile oils ... barrels	1,752	3	.....	93	1,656

[1] Includes enterprises in states as follows: Michigan, 4; Ohio, 2; Virginia, 2.

[2] Includes enterprises in states as follows: Arizona, 1; California, 1; Colorado, 2; Kansas, 3; Nevada, 3; New Mexico, 1; Oklahoma, 5; Oregon, 1; South Dakota, 2; Texas, 3; Utah, 2; Wyoming, 4.

DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES

MINES AND QUARRIES: 1919

IRON ORE

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures
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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, which did neither productive work nor development work during the entire year; or enterprises the products of which were valued at less than $500 or, in the bituminous coal-mining industry, producing less than 1,000 tons; or, if nonproducing enterprises, those doing development work amounting to less than $5,000.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same state operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same state. If plants under unified control were not all located within the same state, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the states in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, was reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Geographic presentation.—The general tables at the end of the bulletin give statistics of the industry in detail for each state or group of states which can be shown without disclosure of individual operations. Other tables present statistics by mining regions, producing provinces, or fields, these divisions comprising groups of states related by features peculiar to the industry.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of such employees does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The total number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation for the representative day. This number is not used in any other way because it is believed to be less significant than the average number. The number reported for the representative day, on account of the unavoidable variations of date, involves more or less duplication of persons working in different industries at different times; does not represent the total number employed in all industries at any one time; and gives undue weight to seasonal industries as compared with industries in continuous operation.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class in which the majority belong. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. Do not include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the Census of 1909. The reports received in respect to capital, however at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported at the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of these used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Contract work.—The amounts reported under this head include expenditures for both productive operations and those prosecuted for development only; they are in effect indirect expenditures for salaries, wages, supplies, materials, and fuel and power.

Royalties and rents.—The amounts given under this head represent the payment to fee holders or the value of the share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock, corporation income, and excess profits taxes; and also state, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation for mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics on producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product mined in 1919 under the terms by which it was disposed of, and includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Lands controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

IRON ORE.

INTRODUCTION.

Scope of the report.—This report presents the results of the census of mines and quarries for the year 1919 for the iron-ore mining industry. It includes statistics showing: The geographic distribution of the industry by states and mining regions; the progress of the industry by comparison of results of the census of 1919 with those of the three preceding censuses of mines and quarries; the character of organization and the size of operating enterprises; persons engaged in the industry; the acreage of mineral and other lands controlled; and power equipment and fuel used. It includes also a general table presenting statistics in detail for the United States as a whole and separately for such states as can be shown without the disclosure of individual operations.

Definitions and explanations.—Iron ore of various kinds, such as magnetite, hematite, limonite or brown ore, carbonate or spathic ore, and variously designated varieties of these, are mined and used chiefly for the manufacture of iron. A small part of the production reported in 1919 was used as pigment in the manufacture of metallic paint, and a very small quantity for other special uses.

Many iron ores contain manganese and are designated manganiferous ores when the manganese content is sufficient to be of special worth. The difference between iron ore and manganiferous iron ore is arbitrarily determined and commonly a content of more than 5 per cent manganese is sufficient for designation of ores as manganiferous. As some enterprises, and, indeed, some individual mines produced both iron ore and manganiferous ores, the classification of these enterprises for purposes of tabulation has resulted in the inclusion of statistics on mining and production of manganiferous ores with the statistics for iron ore.

Iron ore is to a large extent used crude as obtained from the mine, but at many mines the quality of the ore as mined must be improved by some process of washing, or crushing and concentrating, or sintering before the material is suitable for most advantageous use. Such beneficiation was practiced by about one-fourth of the iron-ore mining enterprises in 1919, and the statistics herein presented, relating primarily to iron-ore mining, cover also the operation of beneficiating plants at the mines.[1]

[1] The quantity of beneficiated ore shipped in 1919 was approximately 13 per cent of the total shipments.—U. S. Geological Survey, Mineral Resources, 1919.

Iron ore is mined from both underground workings, such as are entered by shaft, slope, or adit, and from surface or open-cut workings. In some mines productive operations are conducted both underground and at the surface or in open pits. In other mines the pits are so large and deep that the operations partake of both the hazards and expense of underground operations. Therefore, the classification of iron-ore mining enterprises according to method of mining, as by open-pit or underground work, is unsatisfactory, and statistical data are not presented separately for open-pit and underground mines. Wage earners, however, are classified as employed above and below ground in accordance with reports made by the operators.

Method of reporting quantity and value of products.—The statistics on production of iron ore were collected in cooperation with the United States Geological Survey, for which purpose there was provided, in addition to the general schedule of the census, a supplemental schedule requesting special information desired by the Geological Survey. These schedules called for the quantity of crude iron ore mined, the quantity of crude ore treated if the ore was subjected to any beneficiation, and the quantity of beneficiated ore recovered. The supplemental schedule also called for the quantity and value of crude ore and of cleaned or concentrated ore shipped or used, including withdrawal from stock, and for information as to stocks on hand. These data furnished a basis for computing the value for the year f. o. b. mines of iron ore produced and thus checked the value of products on the general schedule or supplied it when that schedule did not correctly report the total value of crude and beneficiated ores produced during the year. The Bureau of the Census tabulated only the quantity and value of ore produced during the census year. The Geological Survey reported the quantity of ore produced, and the quantity and value of ore shipped or used. The first quantity is designated "ore mined" by the Geological Survey, and is in accord with the quantity designated "iron ore produced" by the Bureau of the Census. The unit of quantity used is the long ton of 2,240 pounds.

Table 1 shows for 1919 for all states that can be presented separately the quantity and value of iron ore shipped as reported by the United States Geological Survey. Table 2 repeats these figures for selected states and gives the quantities of iron ore mined as reported by the United States Geological Survey and the quantities and values of iron ore produced as reported by the Bureau of the Census.

TABLE 1.—IRON ORE SHIPPED FROM MINES: 1919.[1]

STATE.	Quantity (tons, 2,240 pounds.)	Value.
United States	56,372,784	$197,312,517
Alabama	4,895,309	11,954,425
California	2,053	13,796
Georgia	74,007	294,619
Michigan	12,911,727	49,774,212
Minnesota	34,547,356	121,107,247
Missouri	53,626	223,144
New Jersey	336,629	1,712,255
New Mexico	224,553	506,538
New York	701,688	4,002,312
North Carolina	58,778	231,530
Pennsylvania	616,271	1,340,219
Tennessee	282,988	817,549
Utah	44,185	177,327
Virginia	304,920	1,139,349
Wisconsin	881,740	3,253,290
Other states[2]	436,954	764,705

[1] U. S. Geological Survey, Mineral Resources of the United States, 1919.
[2] Includes Colorado, Connecticut, Idaho, Maryland, Massachusetts, Montana, Texas, Washington, and Wyoming.

TABLE 2.—COMPARISON OF REPORTS ON PRODUCTION, BUREAU OF THE CENSUS AND UNITED STATES GEOLOGICAL SURVEY: 1919.

STATE.	BUREAU OF THE CENSUS.		GEOLOGICAL SURVEY.		
	Iron ore produced.		Iron ore mined.	Iron ore shipped.	
	Quantity (tons, 2,240 pounds).	Value.	Quantity (tons, 2,240 pounds).	Quantity (tons, 2,240 pounds).	Value.
United States	61,173,251	$217,949,311	60,965,418	56,372,784	$197,312,517
Alabama	5,053,035	12,291,760	5,053,035	4,895,309	11,954,425
Georgia	71,224	283,487	71,224	74,007	294,619
Michigan	15,410,494	60,785,446	15,438,930	12,911,727	49,774,212
Minnesota	36,258,483	128,333,021	36,000,620	34,547,356	121,107,247
New York	868,995	5,215,316	871,495	701,688	4,002,312
Tennessee	282,988	823,407	283,792	282,988	817,549
Virginia	304,524	1,186,127	305,096	304,920	1,139,349
Wisconsin	1,002,948	3,826,872	1,087,247	881,740	3,253,290
Other states[1]	1,860,563	5,203,851	1,853,973	1,773,049	4,969,514

[1] Includes California, Connecticut, Idaho, Maryland, Massachusetts, Missouri, Montana, New Jersey, New Mexico, North Carolina, Pennsylvania, Texas, Utah; Washington, and Wyoming; in the Bureau of the Census statistics also Arkansas, and in the Geological Survey statistics also Colorado.

The apparent discrepancy, a net excess in the census figures for the United States of 207,836 tons mined, comprises the difference in the quantities reported for certain states—principally Minnesota, Michigan, and Wisconsin. The figures for Minnesota are different because the Bureau of the Census classified as iron-ore mining enterprises some that produced manganiferous ores, and the differences in Michigan and Wisconsin are due to inclusion by the Geological Survey of figures for iron ore used for flux, paint, and other purposes not reported to the Bureau of the Census. Other minor differences are due principally to inclusion in the Geological Survey tabulation of reports of products by enterprises too small to come within the scope of the census. The value of products as reported by the Bureau of the Census in other tables, includes, in addition to the value of the quantity of iron ore reported, the value of other mineral products and other receipts from mining operations which are shown in the following statement:

Copper ore, manganese ore, limestone, and sandstone	$150,756
Products not specified and receipts for power, work, miscellaneous services, etc.	117,838
Total	268,594

Differences between the census of 1919 and the census of 1909.—As explained in the foregoing paragraphs, the value of product of the iron-ore mining industry as reported by the Fourteenth Census is the value of the iron ore mined or recovered by beneficiation during the census year. It is the value which bears a direct relation to the data furnished in reply to other census inquiries on mining operations. The value of products of iron-ore mines reported by the census of 1909, unless otherwise specified, is that of the ore used and sold, conforming to the Geological Survey's figures and is not the value of the ore actually produced during the census year. In Tables 6 and 7 of this report the estimated value of ore mined in 1909 is used in order to present comparable figures.

PRINCIPAL STATISTICS.

Producing and nonproducing mines, general summary for the United States.—The following summary, Table 3, presents for the United States the principal statistics for producing and nonproducing iron-ore mines in 1919.

TABLE 3.—PRINCIPAL STATISTICS: 1919.

	Total.	Producing enterprises.	NONPRODUCING ENTERPRISES.	
			Number or amount.	Per cent of total.
Number of enterprises	308	290	18	5.8
Number of mines	424	406	18	4.2
Number of enterprises operating beneficiating plants	74	74	.....	.....
Mineral land operated.....acres	246,014	241,508	4,506	1.8
Land controlled, total.....acres	943,826	938,716	5,110	0.5
Mineral land owned....acres	179,635	177,296	2,339	1.3
Mineral land leased.....acres	67,447	65,280	2,167	3.2
Timber and other lands.acres	696,744	696,140	604	0.1
Persons engaged	49,417	48,767	650	1.3
Proprietors and firm members, total	41	41	.....	.....
Number performing manual labor	9	9	.....	.....
Salaried employees	3,037	2,985	52	1.7
Wage earners (average number)	46,339	45,741	598	1.3
Wage earners, Dec. 15 or nearest representative day—				
Above ground	19,475	19,050	425	2.2
Below ground	28,909	28,690	219	0.8
Power used (aggregate horsepower)	381,044	370,869	10,175	2.7
Capital	$512,280,704	$501,396,044	$10,884,660	2.1
Principal expenses:				
Salaries	$7,044,573	$6,936,660	$107,913	1.5
Wages	$76,698,551	$75,713,459	$985,092	1.3
Contract work	$2,469,117	$1,671,783	$797,334	32.3
Supplies and materials	$27,841,973	$27,187,832	$654,141	2.3
Fuel	$8,870,864	$8,700,358	$170,506	1.9
Purchased power	$1,635,574	$1,594,231	$41,343	2.5
Royalties and rents	$25,080,918	$24,944,936	$135,982	0.5
Taxes	$31,150,247	$30,829,610	$320,637	1.0
Expenditures for development (included in the above items)	$17,360,294	$14,657,841	$2,702,453	15.6
Value of all products	$218,217,905	$218,217,905	.....	.....
Iron ore—				
Quantity (tons, 2,240 pounds)	61,173,254	61,173,254	.....	.....
Value at mine	$217,949,311	$217,949,311	.....	.....
Other products	$268,594	$268,594	.....	.....

There were 308 iron-ore mining enterprises in operation in 1919 engaged in working 424 mines. The number of individual operators is not determinable and bears no fixed relation to the num-

ber of enterprises and the number of mines for the reason that some operators reported separately for each mine or enterprise, and others made consolidated reports on several enterprises and mines controlled by them and by their affiliated companies.

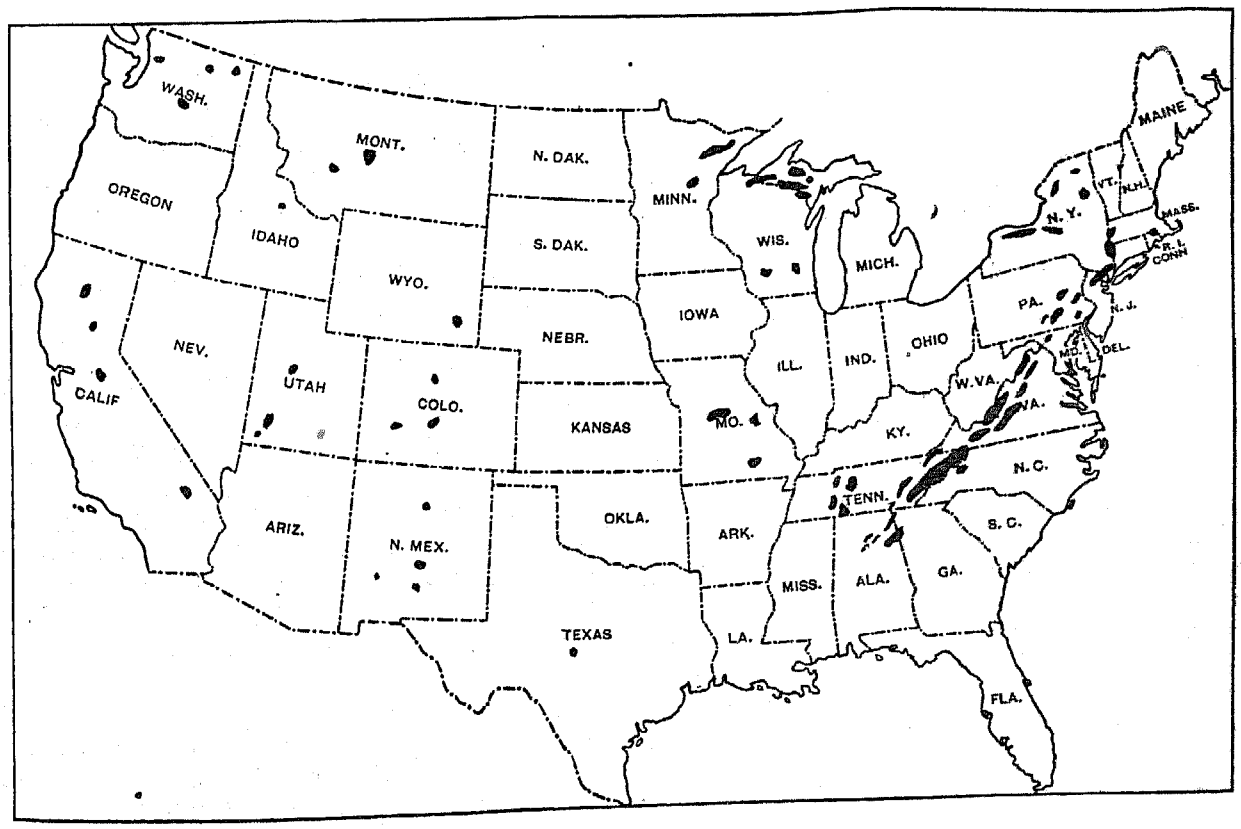
As measured by the average number of wage earners and by value of products, iron-ore mining ranked third among the mining industries in the United States, being outranked only by coal mining and petroleum and natural-gas production. The average number of wage earners employed in producing iron-ore mining enterprises constituted 4.7 per cent of the total average number of wage earners (981,560) in producing mining enterprises in the United States. The total value of all products reported by the iron-ore mining industry was $218,217,905, which was 6.9 per cent of the total value of products of all mining industries in the United States ($3,158,463,966) in 1919.

Table 3 also shows that the nonproducing mines, which were operated as separate enterprises, represented a very small part of the iron-ore mining industry. The average number of wage earners employed was only 1.3 per cent of the number employed in all iron-ore mining enterprises and the expenditures for development work by nonproducing enterprises amounted to less than one-fifth of corresponding expenditures by producing enterprises, and less than 2 per cent of the aggregate expenditures reported for all mining operations in the industry.

GEOGRAPHIC DISTRIBUTION.

Iron-ore mining regions.—The iron-ore producing states in 1919 were Connecticut and Massachusetts in the New England division of the United States; New York, New Jersey, and Pennsylvania in the Middle Atlantic division; Michigan and Wisconsin in the East North Central division; Minnesota and Missouri in the West North Central division; Maryland, Virginia, North Carolina, and Georgia in the South Atlantic division; Tennessee and Alabama in the East South Central division; Arkansas and Texas in the West South Central division; Idaho, Montana, Wyoming, New Mexico, and Utah in the Mountain division; and Washington and California in the Pacific division. The principal localities productive in recent years are shown by the map below, which does not, however, show all the iron-ore resources of the United States. Except for the leading states, statistics can not be shown by states without disclosure of individual operations, and groupings or combinations of states are necessary for adequate presentation of the statistics. Special grouping by geographic divisions is required for presentation of statistics for states or parts of states related by varieties of ore produced, and by mining and industrial conditions. Statistics so presented by mining districts are of more general interest and of greater importance than statistics presented by individual states.

PRINCIPAL IRON-ORE PRODUCING LOCALITIES.



The principal mining districts are as follows: The Lake Superior district, comprising all the mines in Minnesota and Michigan and those in northern Wisconsin; the Birmingham district in north central Alabama; the Chattanooga district in eastern Tennessee, western North Carolina, northwestern Georgia, and northeastern Alabama; the Adirondack district in northern New York; and the northern New Jersey-southeastern New York district. The statistics compiled by the United States Geological Survey on iron ore mined showing the varieties of ores are presented separately for these districts in Table 4.

TABLE 4.—QUANTITY OF IRON ORE MINED BY VARIETIES: 1919.[1]

DISTRICT.	Total (tons, 2,240 pounds).	Hematite (tons, 2,240 pounds).	Brown ore (tons, 2,240 pounds).	Magnetite (tons, 2,240 pounds).
United States	60,955,418	[2] 57,719,582	1,127,397	[2] 2,118,439
Lake Superior [3]	52,392,339	52,392,339	.....	.....
Birmingham	4,531,032	4,253,167	277,865	.....
Chattanooga	546,938	350,116	196,822	.....
Adirondack	740,315	.....	.....	740,315
Northern New Jersey and southeastern New York	491,458	.....	.....	491,458
Other districts	2,263,336	[2] 723,960	652,710	[2] 886,666

[1] U. S. Geological Survey, Mineral Resources of the United States, 1919.
[2] Some magnetite included with hematite.
[3] Includes only those mines in Wisconsin that are in the true Lake Superior district.

As the census statistics can not be shown for parts of some states, presentation by mining districts is not possible, but in order to approximate the ideal presentation, and to make as logical groupings as possible, the statistics are given by regions, as follows:

1. The Lake Superior Region, including all mines in Minnesota, Michigan, and Wisconsin. This is, except for a few mines in southern Wisconsin, identical with the Lake Superior district.
2. The Northeastern Region, including Connecticut, Massachusetts, New York, New Jersey, and Pennsylvania. This region is a combination of the Adirondack district, the northern New Jersey-southeastern New York district, and the western New York district with Pennsylvania, and the New England states.
3. The Southeastern Region, including Alabama, Georgia, Maryland, North Carolina, Virginia, and Tennessee. This is the Chattanooga district and the Birmingham district combined with Virginia and western Tennessee, in which production is important, and with Maryland, in which production is insignificant.
4. The Central Region, including Arkansas, Missouri, and Texas.
5. The Western Region, including California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

Rank of regions and states.—Table 5 presents for producing enterprises the average number of wage earners and the value of products for each of the regions and selected states, and gives the per cent distribution of wage earners and value of products. The predominance of the Lake Superior Region in iron-ore mining is shown conspicuously in this table. Minnesota and Michigan, the two leading iron-ore producing states in the United States, employed 70.8 per cent of the average number of wage earners in the iron-ore mining industry and produced 86.7 per cent of the total value of products of the industry. The Southeastern Region, including the Birmingham district in Alabama, was second in importance, and Alabama ranked third among the iron-ore producing states. The Northeastern Region was third in importance, and New York, the leading state in the region, ranked fourth in the United States.

TABLE 5.—MINING REGIONS AND STATES RANKED BY VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919.

REGION AND STATE.	Number of enterprises.	WAGE EARNERS. Average number.	WAGE EARNERS. Per cent distribution.	VALUE OF PRODUCTS. Amount.	VALUE OF PRODUCTS. Per cent distribution.
UNITED STATES	290	45,741	100.0	$218,217,905	100.0
LAKE SUPERIOR REGION	160	33,541	73.3	193,110,738	88.5
Minnesota	89	16,236	35.5	128,377,174	58.8
Michigan	65	16,160	35.3	60,906,692	27.9
Wisconsin	6	1,145	2.5	3,826,872	1.8
SOUTHEASTERN REGION	88	8,324	18.2	14,824,021	6.8
Alabama	39	6,485	14.2	12,291,760	5.6
Virginia	21	623	1.4	1,186,127	0.5
Tennessee	12	824	1.8	829,118	0.4
Georgia	9	215	0.5	283,487	0.1
All other [1]	7	177	0.4	233,529	0.1
NORTHEASTERN REGION	19	3,160	6.9	8,636,226	4.0
New York	7	1,811	4.0	5,264,443	2.4
All other [2]	12	1,349	2.9	3,371,783	1.5
CENTRAL REGION [3]	10	188	0.4	303,948	0.1
WESTERN REGION [4]	13	528	1.2	1,342,972	0.6

[1] Includes enterprises in states as follows: Maryland, 1; North Carolina, 6.
[2] Includes enterprises in states as follows: Connecticut, 1; Massachusetts, 1; New Jersey, 5; Pennsylvania, 5.
[3] Includes enterprises in states as follows: Arkansas, 1; Missouri, 8; Texas, 1.
[4] Includes enterprises in states as follows: California, 1; Idaho, 1; Montana, 2; New Mexico, 5; Utah, 2; Washington, 1; Wyoming, 1.

Examination of Table 5 shows not only that the Lake Superior Region is by far the most important region but also that the scale of individual operations, as measured by the average number of wage earners per enterprise and the value of products per enterprise, were much larger there than elsewhere. There is also shown, in Table 11, that the use of mechanical power, as measured by the aggregate horsepower used per mine, was more extensive in the Lake Superior Region than in all other regions except the Northeastern Region, in which mines in New York outclassed all others in this respect.

The relative importance of the states in iron-ore mining is illustrated by the circular diagram 3, page 10, which shows the proportion of ore produced by each of the principal states in 1919.

PROGRESS OF THE INDUSTRY.

Comparative summary for producing enterprises in the United States: 1889–1919.—Table 6 presents for producing iron-ore mines in the United States as a whole, the principal statistics as reported at the Fourteenth Census and the three preceding censuses of mines and quarries. This table shows a large and rapid increase in iron-ore production. The total quantity of iron ore produced was more than four times as great in 1919 as in 1889. The production of ore more than doubled in the first period 1889–1902, increased by nearly one-half from 1902 to 1909 and by more than one-sixth from 1909 to 1919. A notable

feature of this table is the large increase from 1889 to 1909 in power used, and the small increase during the last decade. In contrast to these increases in quantity of product and in the use of mechanical power, are the small or moderate increases during the first two decades and the decrease duri the last decade in the average number of wage earners employed.

It should be noted that the changes indicated by the statistics for the years 1909 and 1919 are not a fair measure of progress during the decade because, as shown in Table 9, which presents the production of iron ore annually, the year 1919 was one of abnormal depression in the iron-ore mining industry.

The large increases from 1909 to 1919 in salaries and wages and cost of supplies and materials and of fuel and power and in the value of products are largely due to general price increases, and are not a measure of growth in the industry. The very large increase in taxes is due to the addition since 1909 of Federal and state income taxes and to state taxes on output and other special taxes.

TABLE 6.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919, 1909, 1902, AND 1889.

	1919	1909	1902	1889	PER CENT OF INCREASE.[1]		
					1909-1919	1902-1909	1889-1902
Number of enterprises	290	[2] 300	332	(3)	−3.3	−10.7	.....
Number of mines	406	483	525	592	−15.9	−8.0	−11.3
Persons engaged	48,767	50,191	.....	.....	−2.8	.....	.....
Proprietors and firm members, total	41	76	(3)	(3)	.....	.....	.....
Number performing manual labor	9	21	(3)	(3)	.....	.....	.....
Salaried employees	2,985	2,870	2,405	520	4.0	19.3	362.3
Wage earners (average number)	45,741	47,245	38,851	37,707	−3.2	21.6	3.0
Wage earners, Dec. 15, total	47,740	52,230	(3)	(3)	−8.6	.....	.....
Above ground	19,050	24,889	[4] 15,769	[4] 17,999	−23.5	57.8	−12.4
Below ground	28,690	27,341	[4] 23,082	[4] 19,708	4.9	18.4	17.1
Power used (aggregate horsepower)	370,869	346,534	119,558	[5] 57,976	7.0	189.8	.....
Capital	$501,396,044	$300,735,917	(3)	$109,766,199	66.7	.....	.....
Principal expenses:							
Salaries	$6,936,660	$3,389,962	$2,113,230	$529,043	104.6	60.4	299.4
Wages	$75,713,459	$29,731,456	$21,531,792	$13,880,108	154.7	38.1	55.1
Contract work	$1,671,783	$2,698,842	$425,292	$1,578,010	−38.1	534.6	−73.0
Supplies and materials	$27,187,832	$12,597,428	[6] $9,005,608	$4,998,988	115.8	.....	.....
Fuel and purchased power	$10,291,589	$4,632,289	(7)	(7)	122.2	.....	.....
Royalties and rents	$21,944,936	$15,174,735	$6,503,908	(7)	64.4	133.3	.....
Taxes	$30,829,610	$3,970,355	(7)	(7)	676.5	.....	.....
Value of all products	$218,217,905	$109,881,090	$65,465,321	$33,351,978	98.6	67.8	96.3
Quantity of iron ore produced (tons, 2,240 pounds)	61,173,254	51,947,129	35,567,410	14,518,041	17.8	46.1	145.0

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100, or where figures are not comparable.
[2] See "Thirteenth Census of the United States—Mines and Quarries, Vol. XI," page 344.
[3] Not reported.
[4] Average number.
[5] Horsepower for steam boilers only.
[6] Includes cost of fuel.
[7] Comparable figures not available.

Comparative summary for producing enterprises, by regions and states: 1919 and 1909.—Table 7 presents for producing iron-ore mining enterprises, by regions and states, the principal comparable statistics for 1909 and 1919. The table shows that the principal increases were in the Lake Superior Region and in particular in Michigan and Minnesota. In this region and in these states there was an increase in the number of mines operated in contrast to decrease in the number operated in other important regions and states. The increase in iron ore produced in the United States was practically all accounted for by increase in the Lake Superior Region. Alabama was the only state outside that region which showed an increase in ore produced. In the Lake Superior Region and in the states of Michigan and Minnesota there was a small increase in wage earners as compared with a considerable increase in quantity of production and very large increase in value of products; whereas in Alabama there was a larger increase in wage earners and only a small increase in quantity of production and very large increase in value of products.

TABLE 7.—COMPARATIVE STATISTICS, BY REGIONS AND STATES, PRODUCING ENTERPRISES: 1919 AND 1909.

REGION AND STATE.	Census year.	Number of enterprises.	Number of mines.	Wage earners (average number).	EXPENSES OF OPERATION AND DEVELOPMENT. Salaries and wages.	Supplies and materials.[1]	Royalties and rents.	Contract work.	Total value of all products.	Iron ore produced (tons, 2,240 pounds).	Average value per ton.[2]	Power used (aggregate horsepower).
UNITED STATES	1919	290	406	45,741	$82,650,119	$37,482,421	$24,914,936	$1,671,783	$218,217,905	61,173,254	3.56	370,869
	1909	[3] 300	483	47,245	33,121,418	17,229,717	15,174,735	2,698,842	109,881,000	51,947,129	2.12	346,534
Per cent of increase [4]		−3.3	−15.9	−3.2	149.5	117.5	64.4	−38.1	98.6	17.8	67.9	7.0
LAKE SUPERIOR REGION	1919	160	249	33,541	67,840,766	30,381,029	24,408,670	1,499,799	193,110,738	52,731,925	3.66	285,215
	1909	97	195	31,228	25,230,687	13,901,022	14,784,131	2,613,823	94,104,000	42,095,627	2.24	262,470
Per cent of increase [4]			27.7	7.4	168.8	118.6	65.1	−42.6	105.2	25.3	63.4	8.7
Michigan	1919	65	100	16,160	34,567,629	11,283,720	6,598,825	23,580	60,996,692	15,410,494	3.94	142,559
	1909	44	83	14,989	11,764,957	4,909,979	3,827,852	436,148	32,380,000	11,992,693	2.70	108,427
Per cent of increase [4]				7.8	193.8	129.8	72.4	−94.6	88.1	28.5	45.9	31.5
Minnesota	1919	89	141	16,236	31,284,342	18,385,513	17,532,030	1,444,256	128,377,174	36,258,483	3.54	135,924
	1909	46	101	14,978	12,530,232	8,548,861	10,686,407	2,157,075	58,838,000	29,127,918	2.02	145,068
Per cent of increase [4]			39.6	8.4	149.7	115.1	64.1	−33.0	118.2	24.5	75.2	−6.3
Wisconsin	1919	6	8	1,145	1,988,795	711,796	277,815	31,963	3,826,872	1,032,948	3.60	6,732
	1909	7	11	1,261	941,498	442,182	269,872	20,609	2,886,000	975,016	2.96	8,975
Per cent on increase [4]				−9.2	111.2	61.0	2.9	55.2	32.6	9.0	21.6	−25.0
SOUTHEASTERN REGION	1919	88	110	8,324	9,258,063	3,329,964	229,902	74,498	14,824,021	5,770,906	2.57	44,828
	1909	133	191	10,315	4,900,727	1,771,757	288,196	7,040	8,488,000	6,555,170	1.29	48,724
Per cent of increase [4]			−42.4	−19.3	88.9	87.9	−20.2	958.2	74.6	−12.0	99.2	−8.0
Alabama	1919	39	48	6,485	7,546,269	2,548,666	144,631	74,498	12,291,760	5,053,035	2.43	36,890
	1909	41	52	5,176	3,022,435	1,100,591	90,190	5,700	5,391,000	4,687,468	1.15	31,838
Per cent of increase [4]				25.3	149.7	131.6	60.4	1,207.0	128.0	7.8	111.3	15.9
Georgia	1919	9	9	215	146,637	77,924	17,714	.....	283,487	71,224	3.98	1,150
	1909	13	18	507	191,428	75,190	18,468	.....	331,000	219,976	1.50	3,496
Per cent of increase [4]				−57.6	−23.4	3.6	−4.1	.....	−14.4	−67.6	165.3	−67.1
Tennessee	1919	12	24	824	636,846	231,697	16,084	.....	829,118	282,988	2.91	3,659
	1909	19	46	1,395	583,877	181,175	28,065	.....	818,000	649,394	1.26	5,581
Per cent of increase [4]				−40.9	9.1	27.9	−42.7	.....	1.4	−56.4	131.0	−34.4
Virginia	1919	21	22	623	714,685	290,122	47,777	.....	1,186,127	304,524	3.90	2,304
	1909	44	58	2,772	900,756	325,242	148,130	945	1,692,000	841,709	2.01	6,458
Per cent of increase [4]				−77.5	−20.7	−10.8	−67.7	.....	−29.9	−63.8	94.0	−64.3
Other states [5]	1919	7	7	177	213,626	181,555	3,696	.....	233,529	59,135	3.94	825
	1909	16	17	465	202,231	89,559	3,343	395	256,000	156,623	1.63	1,351
Per cent of increase [4]				−61.9	5.6	102.7	10.6	.....	−8.8	−62.2	141.7	−38.9
NORTHEASTERN REGION	1919	19	21	3,160	4,575,181	3,312,470	277,625	79,730	8,636,226	1,914,967	4.46	36,493
	1909	45	54	4,805	2,354,088	1,258,225	73,019	76,880	6,284,000	2,493,319	2.52	33,261
Per cent of increase [4]				−34.2	94.4	163.3	280.2	3.7	37.4	−23.2	77.0	9.7
New York	1919	7	7	1,811	2,680,350	1,953,590	91,860	44,778	5,264,443	868,995	6.00	21,172
	1909	14	19	2,082	1,140,235	756,814	62,668	20,632	3,741,000	1,238,720	3.02	22,520
Per cent of increase [4]				−13.0	135.1	158.1	46.6	117.0	40.7	−29.8	98.7	−6.0
Other states [6]	1919	12	14	1,349	1,894,831	1,358,880	185,765	34,952	3,371,783	1,045,972	3.19	15,321
	1909	31	35	2,723	1,213,853	501,411	10,351	56,248	2,543,000	1,254,599	2.03	10,741
Per cent of increase [4]				−50.5	56.1	171.0	1,694.7	−37.9	32.6	−16.6	57.1	42.6
CENTRAL REGION [7]	1919	10	10	188	191,811	120,947	16,334	15,090	303,948	74,371	4.08	1,223
	1909	18	34	243	115,067	25,531	12,033	1,099	213,000	93,585	2.28	403
Per cent of increase [4]				−22.6	66.7	373.7	35.7	1,273.1	42.7	−20.5	78.9	203.5
WESTERN REGION [8]	1919	13	16	528	784,298	338,011	12,405	2,666	1,342,972	681,085	1.96	3,110
	1909	7	9	654	514,849	273,182	17,356	.....	792,000	709,428	1.12	1,676
Per cent of increase [4]				−19.3	52.3	23.7	−28.5	.....	69.6	−4.0	75.0	85.6

[1] Includes cost of fuel and purchased power.
[2] Based on value of iron ore only.
[3] See "Thirteenth Census of the United States—Mines and Quarries, Vol. XI," page 344.
[4] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[5] Includes Maryland and North Carolina for 1919 and 1909, and also Kentucky and West Virginia for 1909.
[6] Includes Connecticut, Massachusetts, New Jersey, and Pennsylvania for 1919 and 1909, and also Ohio for 1909.
[7] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[8] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, Utah, New Mexico, and Wyoming for 1909.

Population and iron-ore production: 1879–1919.—In Table 8 the growth of population is compared with the increase in output of iron ore during the period from 1879 to 1919. This table shows larger increases in the production of iron ore than in population during the three decades 1879–1909. In that period the tons produced per capita practically doubled each decade from about one-eighth of a ton in 1879 to nearly one-quarter of a ton in 1889 and to over one-half of a ton in 1909.

The increase in iron-ore production in the last decade was only a little in advance of population, the iron ore produced per capita in 1919 being inappreciably more than in 1909.

TABLE 8.—COMPARATIVE GROWTH OF POPULATION AND IRON-ORE PRODUCTION.

YEAR.	POPULATION.[1]		IRON-ORE PRODUCTION.		
	Number.	Per cent of increase over preceding census.	Quantity (tons, 2,240 pounds).	Per cent of increase over preceding census.	Tons per capita.
1879	50,155,783	.....	6,307,883	.....	0.13
1889	62,917,714	25.5	14,518,041	130.2	0.23
1909	91,972,266	46.1	51,917,129	257.8	0.56
1919	105,710,620	14.9	61,173,254	17.8	0.58

[1] Population is for the year following that covered by the statistics for iron ore.

Production of iron ore, by states: 1879–1920.—Table 9, compiled from the reports of the United States Geological Survey, shows the production of iron ore in the United States in 1879, 1889, and annually thereafter. The growth of the industry as shown by the data presented in this table is displayed graphically by the curve in the accompanying diagram, which shows the production of iron ore in the United States, in the Lake Superior Region, in the Southern states, Alabama and Tennessee, and in "All other states," from year to year.

TABLE 9.—PRODUCTION OF IRON ORE: 1879 TO 1920.[1]

YEAR.	IRON ORE MINED (THOUSANDS OF TONS[2]).									
	United States.	Minnesota.	Michigan.	Wisconsin.	Alabama.	Tennessee.	New York.	Pennsylvania.	New Jersey.	All other states.
1879	7,120	.....	1,641	37	171	93	1,127	1,951	676	1,424
1889	14,518	865	5,856	837	1,570	473	1,248	1,560	416	1,693
1890	16,036	892	7,142	949	1,898	466	1,253	1,362	496	1,578
1891	14,591	945	6,127	589	1,987	544	1,017	1,273	526	1,583
1892	16,297	1,255	7,544	790	2,312	407	891	1,084	465	1,549
1893	11,588	1,500	4,668	439	1,742	373	534	698	356	1,278
1894	11,880	2,968	4,419	348	1,493	293	243	532	277	1,307
1895	15,958	3,866	5,812	649	2,199	520	307	900	282	1,423
1896	16,005	4,284	5,707	607	2,042	535	385	748	265	1,432
1897	17,518	5,601	6,087	554	2,099	604	336	724	254	1,259
1898	19,434	5,964	7,347	510	2,402	593	180	773	275	1,390
1899	24,683	8,161	9,146	580	2,663	632	444	1,009	256	1,792
1900	27,553	9,834	9,927	746	2,759	594	441	878	344	2,030
1901	28,887	11,110	9,654	739	2,802	789	420	1,041	402	1,930
1902	35,554	15,138	11,135	784	3,574	875	555	823	442	2,228
1903	35,019	15,371	10,600	675	3,685	853	540	645	485	2,165
1904	27,644	12,729	7,090	483	3,700	501	842	397	500	1,402
1905	42,526	21,735	10,886	859	3,783	735	1,140	809	526	2,053
1906	47,750	25,364	11,823	848	3,995	871	1,042	949	543	2,315
1907	51,721	28,970	11,830	839	4,039	814	1,375	837	550	2,467
1908	35,983	18,652	8,839	734	3,734	635	697	443	395	1,854
1909	51,294	28,975	11,900	1,068	4,321	658	1,015	667	544	2,146
1910	57,015	31,967	13,304	1,150	4,801	732	1,287	740	522	2,512
1911	43,877	24,645	10,329	699	3,828	464	1,061	538	466	1,847
1912	55,150	34,432	11,191	860	4,564	417	1,217	517	365	1,587
1913	61,980	38,659	12,841	1,018	5,216	370	1,460	489	325	1,602
1914	41,440	21,947	10,796	887	4,839	330	786	406	350	1,099
1915	55,526	33,465	12,515	1,095	5,309	284	999	363	415	1,081
1916	75,168	44,585	18,071	1,305	6,748	456	1,343	559	493	1,608
1917	75,289	44,595	17,869	1,202	7,038	508	1,304	547	490	1,736
1918	69,658	41,954	16,899	1,089	5,755	409	906	523	423	1,700
1919	60,965	36,001	15,439	1,087	5,053	284	871	627	404	1,199
1920	67,604	39,453	17,511	981	5,894	375	920	734	432	1,304

[1] U. S. Geological Survey, Mineral Resources of the United States.
[2] Tons of 2,240 pounds.

DIAGRAM 1.—PRODUCTION OF IRON ORE, UNITED STATES AND PRINCIPAL PRODUCING REGIONS: 1879-1920.

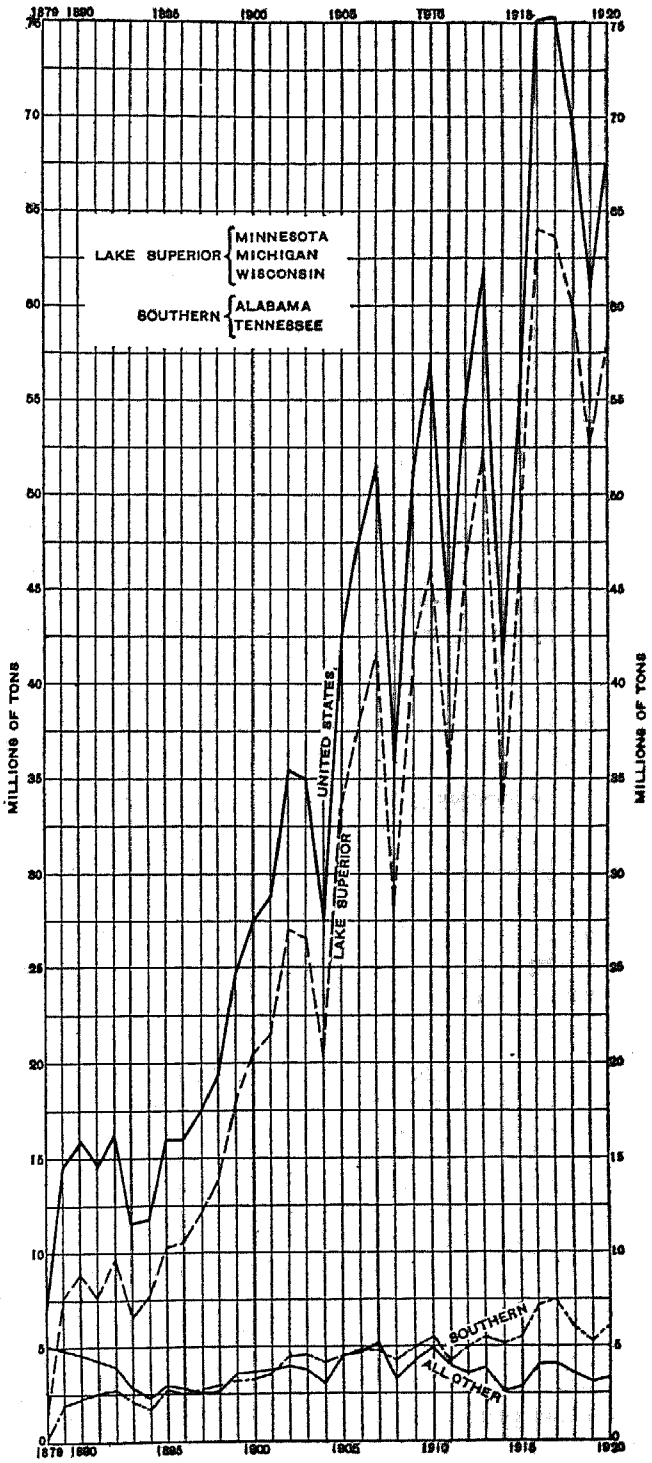


Diagram 2, on page 10, shows by relative length of bars the growth of production of iron ore in the principal states, by decennial periods 1879–1919.

DIAGRAM 2.—PRODUCTION OF IRON ORE, BY PRINCIPAL STATES: 1919, 1909, 1899, 1889, AND 1879.

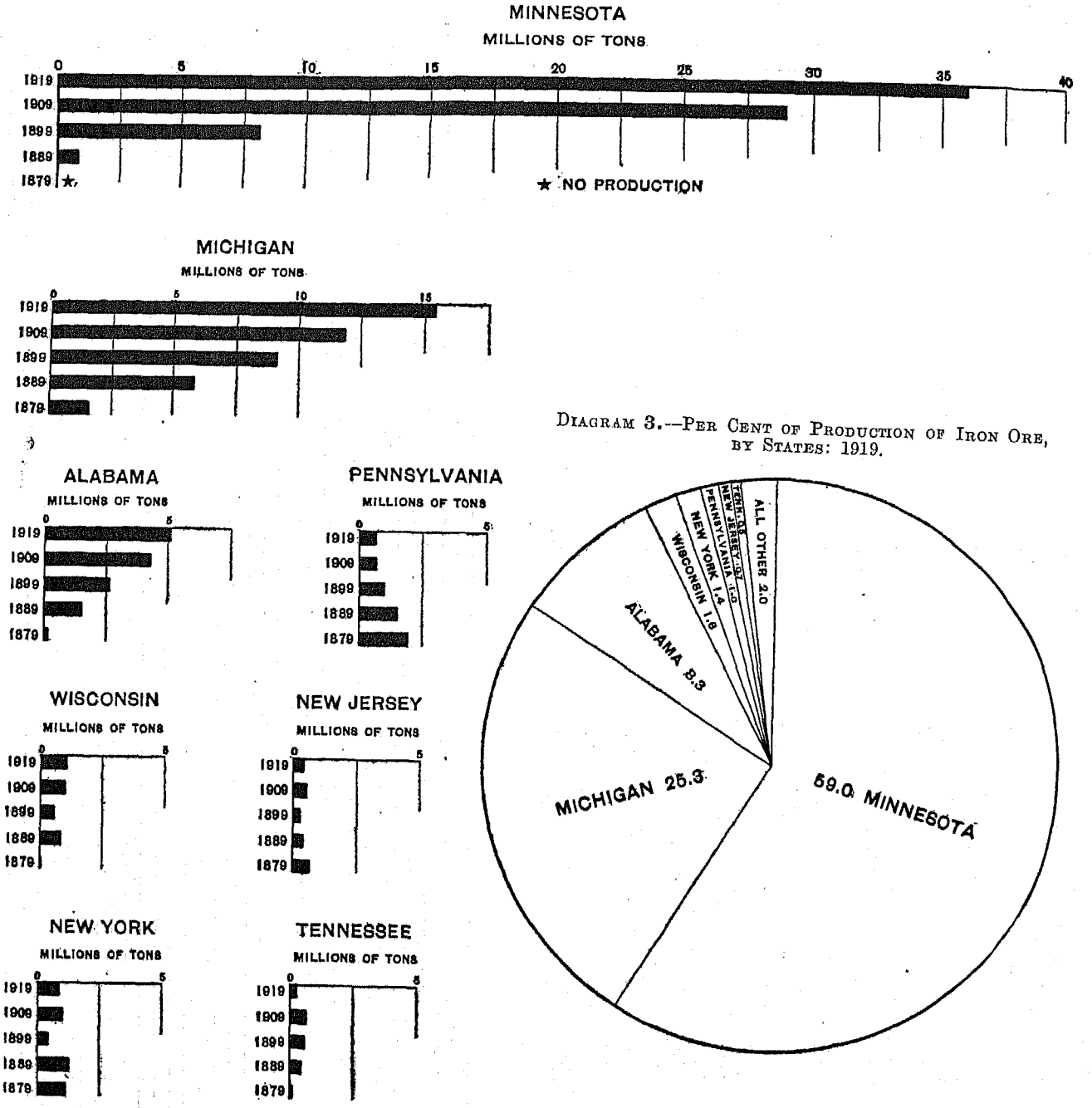


DIAGRAM 3.—PER CENT OF PRODUCTION OF IRON ORE, BY STATES: 1919.

Comparison of mechanical power equipment: 1919 and 1909.—Table 10 shows, for the United States as a whole, the number and horsepower of steam engines and other prime movers and of electric motors used by producing iron-ore mines in 1909 and 1919, and gives the per cent of increase for 1919 as compared with 1909.

The table shows a slight increase in the aggregate horsepower of equipment used; a large decrease, both absolute and relative, in the total horsepower of prime movers used; and large increases in the number and horsepower of electric motors used. The extraordinary increase in electric motors operated by purchased power more than offset the decrease in prime movers. The statistics show a marked advance during the decade in the use of electrically driven equipment.

TABLE 10.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

	1919	1909	Per cent of increase.[1]
Power used: Aggregate horsepower	370,869	346,534	7.0
Prime movers (horsepower, total)	273,477	342,069	−20.1
Steam engines—			
Number	2,358	3,563	−33.8
Horsepower	259,705	326,753	−20.5
Internal-combustion engines—			
Number	45	27	.....
Horsepower	5,397	2,651	103.6
Water wheels and turbines—			
Number	22	30	.....
Horsepower	8,375	12,665	−33.9
Equipment operated by purchased power—			
Electric motors—			
Number	1,341	55	.....
Horsepower	[2] 97,392	4,465	2,081.2
Electric motors run by current generated by the enterprise reporting:			
Number	1,112	326	241.1
Horsepower	67,595	13,295	408.4

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.

[2] Includes 10 horsepower reported for equipment other than electric motors.

Table 11 compares for 1919 and 1909 for producing iron mines in the United States and for regions and selected states, the horsepower used per mine, per thousand tons of iron ore produced, and per wage earner.

TABLE 11.—POWER USED BY PRODUCING ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER THOUSAND TONS OF ORE PRODUCED: 1919 AND 1909.

REGION AND STATE.		Number of mines.	Iron ore produced (tons, 2,240 pounds).	Wage earners (average number).	POWER USED (AGGREGATE HORSEPOWER).			
					Total.	Per mine.	Per 1,000 tons of iron ore produced.	Per wage earner.
UNITED STATES	1919	406	61,173,254	45,741	370,869	913	6.1	8.1
	1909	483	51,947,129	47,245	346,534	717	6.7	7.3
Per cent of increase [1]		.....	.....	.....	7.0	27.3	−9.0	11.0
LAKE SUPERIOR REGION	1919	249	52,731,925	33,541	285,215	1,145	5.4	8.5
	1909	195	42,095,627	31,228	262,470	1,346	6.2	8.4
Per cent of increase [1]		.....	.....	.....	8.7	−14.9	−12.9	1.2
Michigan	1919	100	15,410,494	16,160	142,559	1,426	9.3	8.8
	1909	83	11,992,693	14,989	108,427	1,306	9.0	7.2
Per cent of increase		.....	.....	.....	31.5	9.2	3.3	22.2
Minnesota	1919	141	36,258,483	16,236	135,924	964	3.7	8.4
	1909	101	29,127,918	14,978	145,068	1,436	5.0	9.7
Per cent of increase [1]		.....	.....	.....	−6.3	−32.9	−26.0	−13.4
Wisconsin	1919	8	1,062,948	1,145	6,732	842	6.3	5.9
	1909	11	975,016	1,261	8,975	816	9.2	7.1
Per cent of increase [1]		.....	.....	.....	−25.0	3.1	−31.5	−16.9
SOUTHEASTERN REGION	1919	110	5,770,906	8,324	44,828	408	7.8	5.4
	1909	191	6,555,170	10,315	48,724	255	7.4	4.7
Per cent of increase [1]		.....	.....	.....	−8.0	59.6	5.4	14.9
Alabama	1919	48	5,053,035	6,485	36,890	768	7.3	5.7
	1909	52	4,687,468	5,176	31,838	612	6.8	6.2
Per cent of increase [1]		.....	.....	.....	15.9	25.5	7.4	− 8.1
Georgia	1919	9	71,224	215	1,150	128	16.1	5.3
	1909	18	219,976	507	3,496	194	15.9	6.9
Per cent of increase [1]		.....	.....	.....	−67.1	−34.0	1.2	−23.2
Tennessee	1919	24	282,988	824	3,659	152	12.9	4.4
	1909	46	649,394	1,395	5,581	121	8.6	4.0
Per cent of increase [1]		.....	.....	.....	−34.4	25.6	50.0	10.0
Virginia	1919	22	304,524	623	2,304	104	7.6	3.7
	1909	58	841,709	2,772	6,458	111	7.7	2.3
Per cent of increase [1]		.....	.....	.....	−64.3	−6.3	−1.3	60.9
NORTHEASTERN REGION	1919	21	1,914,967	3,160	36,493	1,738	19.1	11.5
	1909	54	2,493,319	4,805	33,261	616	13.3	6.9
Per cent of increase		.....	.....	.....	9.7	182.1	43.6	66.7
New York	1919	7	868,995	1,811	21,172	3,025	24.4	11.7
	1909	19	[2] 1,238,720	2,082	22,520	1,185	18.2	10.8
Per cent of increase [1]		.....	.....	.....	−6.0	155.3	34.0	8.3
CENTRAL REGION [3]	1919	10	74,371	188	1,223	122	16.4	6.5
	1909	34	93,585	243	403	12	4.3	1.7
Per cent of increase		.....	.....	.....	203.5	916.7	281.4	282.4
WESTERN REGION [4]	1919	16	681,085	528	3,110	194	4.6	5.9
	1909	9	709,428	654	1,676	186	2.4	2.6
Per cent of increase		.....	.....	.....	85.6	4.3	91.7	126.9

[1] A minus sign (—) denotes decrease.
[2] All crude ore, and therefore not entirely comparable with figures for 1919 which are for concentrates chiefly.
[3] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[4] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, Utah, New Mexico, and Wyoming for 1909.

The table shows that while there was small increase in the total horsepower used by all mines there was considerable increase, 27.3 per cent, in the horsepower per mine throughout the United States. In the Lake Superior Region there was a decrease in the horsepower used per mine due to the decrease in the horsepower reported per mine in Minnesota. In each of the other regions taken as a whole there was increase in the horsepower per mine. The figures for the United States as a whole show a relatively small decrease during the decade in the horsepower per thousand tons of ore mined, and excepting New York and Tennessee, where there was large increase, and Minnesota and Wisconsin, where there was notable decrease, the states in the principal regions show little change in this respect. The horsepower per wage earner employed increased slightly for the United States as a whole, but increased and decreased variously in different states. The range in horsepower per wage earner employed in the leading states was from 3.7 to 11.7 in 1919 and 2.3 to 10.8 in 1909. New York and Virginia were the states showing the maximum and minimum horsepower per wage earner, respectively, in both 1919 and 1909.

CHARACTER OF ORGANIZATION.

Enterprises operating iron-ore mines in 1919 are classified according to character of organization in Table 12. The table shows for the United States as a whole and for each of the mining regions the number of enterprises operated by corporations and by other forms of organization and gives for each class the average number of wage earners employed and the value of the products. In order to avoid disclosure of individual operations these data are not given by states. Throughout the United States corporations conducted the most important enterprises in the industry, employed nearly all the wage earners, and produced practically all of the iron ore mined.

TABLE 12.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

REGION AND CHARACTER OF ORGANIZATION.	Number of enterprises.	Wage earners (average number).	VALUE OF PRODUCTS.		PER CENT DISTRIBUTION.		
			Amount.	Per enterprise.	Enterprises.	Wage earners (average number).	Value of products.
UNITED STATES	290	45,741	$218,217,905	$752,476	100.0	100.0	100.0
Corporation	267	45,152	216,718,813	811,681	92.1	98.7	99.3
Individual [1]	13	421	1,064,986	81,922	4.5	0.9	0.5
Firm	10	168	434,106	43,411	3.4	0.4	0.2
LAKE SUPERIOR REGION	160	33,541	193,110,738	1,206,942	100.0	100.0	100.0
Corporation	156	33,359	192,585,121	1,234,520	97.5	99.5	99.7
Individual [2]	4	182	525,617	131,404	2.5	0.5	0.3
SOUTHEASTERN REGION	88	8,324	14,824,021	168,455	100.0	100.0	100.0
Corporation	78	8,209	14,701,757	188,484	88.6	98.6	99.2
Individual	7	98	85,389	12,198	8.0	1.2	0.6
Firm	3	17	36,875	12,292	3.4	0.2	0.2
NORTHEASTERN REGION	19	3,160	8,636,226	454,538	100.0	100.0	100.0
Corporation	16	2,892	7,817,571	488,598	84.2	91.5	90.5
Individual [3]	3	268	818,655	272,885	15.8	8.5	9.5
CENTRAL REGION	10	188	303,948	30,395	100.0	100.0	100.0
Corporation [4]	10	188	303,948	30,395	100.0	100.0	100.0
WESTERN REGION	13	528	1,342,972	103,306	100.0	100.0	100.2
Corporation	9	511	1,313,791	145,977	69.2	96.8	97.8
Firm	4	17	29,181	7,295	30.8	3.2	2.0

[1] Includes 1 other form of organization.
[2] Includes 1 firm.
[3] Includes 1 firm and 1 other form of organization.
[4] Includes 2 small enterprises operated by a firm and an individual.

SCALE OF OPERATION.

Size of enterprises according to value of products.—In Table 13 producing enterprises in the iron-ore mining industry in 1919 are classified according to the value of

their products and the percentage distribution for each class is given. The table shows that 38 enterprises, or 13.1 per cent of the total, had products valued at over $1,000,000 each and reported 73 per cent of the total value of products of the industry. Thirty-three of these 38 enterprises were in the Lake Superior Region and the value of their products, averaging between $4,000,000 and $5,000,000 each, amounted to 76.7 per cent of the total value of the products of the region and 68 per cent of the value of products of the United States. In the Lake Superior Region a majority of the enterprises were in classes having products valued at less than $500,000, but the value of products of these classes was only 11.2 per cent of the total for the region. In the Northeastern Region enterprises in the class having products valued at more than $500,000 accounted for 82.6 per cent of the total value of products for the region, whereas the smaller enterprises, which were more numerous, accounted for only 17.4 per cent.

TABLE 13.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919.

REGION, STATE, AND VALUE OF PRODUCT PER ENTERPRISE.	ENTERPRISES.		VALUE OF PRODUCTS.	
	Number.	Per cent distribution.	Amount.	Per cent distribution.
UNITED STATES	290	100.0	$218,217,905	100.0
Less than $5,000	15	5.2	36,040	(1)
$5,000 to $20,000	29	10.0	392,775	0.2
$20,000 to $100,000	69	23.8	3,774,321	1.7
$100,000 to $500,000	98	33.8	26,453,784	12.1
$500,000 to $1,000,000	41	14.1	28,239,920	12.9
$1,000,000 and over [2]	38	13.1	159,321,065	73.0
LAKE SUPERIOR REGION	160	100.0	193,110,738	100.0
Less than $20,000 [3]	7	4.4	74,838	(1)
$20,000 to $100,000	18	11.2	1,102,297	0.6
$100,000 to $500,000	69	43.1	20,565,197	10.6
$500,000 to $1,000,000	33	20.6	23,295,572	12.1
$1,000,000 and over [2]	33	20.6	148,072,834	76.7
MINNESOTA	89	100.0	128,377,174	100.0
Less than $20,000 [3]	5	5.6	51,770	(1)
$20,000 to $100,000	9	10.1	552,437	0.4
$100,000 to $500,000	41	46.1	12,051,538	9.4
$500,000 to $1,000,000	17	19.1	12,067,369	9.4
$1,000,000 and over [2]	17	19.1	103,654,060	80.7
MICHIGAN	65	100.0	60,906,692	100.0
Less than $100,000 [4]	10	15.4	474,111	0.8
$100,000 to $500,000	26	40.0	7,920,426	13.0
$500,000 to $1,000,000	14	21.5	9,799,144	16.1
$1,000,000 and over [2]	15	23.1	42,713,011	70.1
WISCONSIN	6	100.0	3,826,872	100.0
Less than $500,000 [5]	3	50.0	692,050	18.1
$500,000 and over [6]	3	50.0	3,134,822	81.9
SOUTHEASTERN REGION	88	100.0	14,824,021	100.0
Less than $5,000	8	9.1	19,346	0.1
$5,000 to $20,000	16	18.2	231,330	1.6
$20,000 to $100,000	37	42.0	1,971,340	13.3
$100,000 to $500,000	22	25.0	4,126,947	27.8
$500,000 and over [6]	5	5.7	8,475,058	57.2
ALABAMA	39	100.0	12,291,760	100.0
Less than $20,000 [3]	6	15.4	74,981	0.6
$20,000 to $100,000	12	30.8	655,071	5.3
$100,000 to $500,000	16	41.0	3,086,650	25.1
$500,000 and over [6]	5	12.8	8,475,058	68.9
SOUTHEASTERN REGION—Con.				
VIRGINIA	21	100.0	$1,186,127	100.0
Less than $20,000 [3]	7	33.3	76,162	6.4
$20,000 to $100,000	11	52.4	708,982	59.8
$100,000 to $500,000	3	14.3	400,983	33.8
TENNESSEE	12	100.0	829,118	100.0
Less than $20,000 [3]	4	33.3	43,998	5.3
$20,000 and over [7]	8	66.6	785,120	94.7
GEORGIA	9	100.0	283,487	100.0
Less than $100,000 [4]	9	100.0	283,487	100.0
NORTH CAROLINA AND MARYLAND	7	100.0	233,529	100.0
Less than $5,000	4	57.1	6,853	2.9
$5,000 and over [8]	3	42.9	226,676	97.1
NORTHEASTERN REGION	19	100.0	8,636,226	100.0
Less than $100,000 [4]	8	42.1	406,576	4.7
$100,000 to $500,000	4	21.0	1,093,980	12.7
$500,000 and over [6]	7	36.8	7,135,670	82.6
NEW YORK	7	100.0	5,264,443	100.0
Less than $500,000 [5]	4	57.1	590,418	11.2
$500,000 and over [6]	3	42.9	4,674,025	88.8
CONNECTICUT, MASSACHUSETTS, NEW JESREY, AND PENNSYLVANIA	12	100.0	3,371,783	100.0
Less than $100,000 [4]	5	41.7	188,829	5.6
$100,000 and over [9]	7	58.3	3,182,954	94.4
CENTRAL REGION [10]	10	100.0	303,948	100.0
Less than $20,000 [3]	5	50.0	22,008	7.2
$20,000 and over [6]	5	50.0	281,940	92.8
WESTERN REGION [11]	13	100.0	1,342,972	100.0
Less than $20,000 [3]	7	53.8	75,411	5.6
$20,000 to $100,000	3	23.1	162,050	12.1
$100,000 and over [9]	3	23.1	1,105,511	82.3

[1] Less than one-tenth of 1 per cent.
[2] Includes the group "$5,000,000 and over."
[3] Includes the group "Less than $5,000."
[4] Includes the group "$5,000 to $20,000."
[5] Includes the group "$20,000 to $100,000."
[6] Includes the group "$1,000,000 to $5,000,000."
[7] Includes the group "$100,000 to $500,000."
[8] Includes the groups "$20,000 to $100,000" and "$100,000 to $500,000."
[9] Includes the group "$500,000 to $1,000,000."
[10] Includes Arkansas, Missouri, and Texas.
[11] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

In the Southeastern Region only five enterprises were in the class having products valued at $500,000 or more, but they contributed 57.2 per cent of the total value of products for the region. In this region alone of the three principal regions, the smaller enterprises furnished a relatively large share of the products.

Size of enterprises according to quantity of product.—Table 14 shows the producing enterprises in the iron-ore mining industry, classified according to the quantity of ore produced, and gives the total output for each group.[1]

[1] It should be noted in connection with this table that the quantity of output per mine is not indicated, for the reason that enterprises as defined by the census may comprise the operations of several mines in any one state. Statistics on the number of tons of iron ore produced by individual mines reporting 50,000 tons or more annually are given in the U. S. Geological Survey's publication "Mineral Resources."

TABLE 14.—SIZE OF PRODUCING ENTERPRISES, BY QUANTITY OF PRODUCT: 1919.

Region, state, and quantity of product per enterprise (tons, 2,240 pounds).	Enterprises.		Quantity produced.		Average output per enterprise (tons, 2,240 pounds).
	Number.	Per cent distribution.	Iron ore (tons, 2,240 pounds).	Per cent distribution.	
UNITED STATES	290	100.0	61,173,254	100.0	210,942
Less than 25,000	103	35.5	887,971	1.5	8,621
25,000 to 50,000	34	11.7	1,262,155	2.1	37,122
50,000 to 100,000	45	15.5	3,516,475	5.7	78,144
100,000 to 200,000	55	19.0	7,960,786	13.0	144,742
200,000 to 500,000	37	12.8	12,282,635	20.1	331,963
500,000 to 1,000,000	10	3.4	5,932,526	9.7	593,253
1,000,000 and over	6	2.1	29,330,706	47.9	4,888,451
LAKE SUPERIOR REGION	160	100.0	52,731,925	100.0	329,575
Less than 25,000	20	12.5	219,099	0.4	10,955
25,000 to 50,000	14	8.8	524,147	1.0	37,439
50,000 to 100,000	33	20.6	2,565,403	4.9	77,739
100,000 to 200,000	47	29.4	6,858,500	13.0	145,926
200,000 to 500,000	33	20.6	10,718,293	20.3	324,797
500,000 and over [1]	13	8.1	31,846,483	60.4	2,449,729
MICHIGAN	65	100.0	15,410,494	100.0	237,085
Less than 25,000	7	10.8	73,447	0.5	10,492
25,000 to 50,000	6	9.2	236,461	1.5	39,410
50,000 to 100,000	16	24.6	1,248,816	8.1	78,051
100,000 to 200,000	18	27.7	2,681,683	17.4	148,982
200,000 to 500,000	14	21.5	4,597,959	29.8	328,426
500,000 and over [1]	4	6.2	6,572,128	42.6	1,643,032
MINNESOTA	89	100.0	36,258,483	100.0	407,399
Less than 25,000	13	14.6	145,652	0.4	11,204
25,000 to 50,000	7	7.9	248,986	0.7	35,569
50,000 to 100,000	16	18.0	1,221,909	3.4	76,369
100,000 to 200,000	27	30.3	3,873,014	10.7	143,445
200,000 to 500,000	17	19.1	5,494,567	15.2	323,210
500,000 and over [1]	9	10.1	25,274,355	69.7	2,808,262
WISCONSIN	6	100.0	1,062,948	100.0	177,158
25,000 to 500,000 [2]	6	100.0	1,062,948	100.0	177,158
SOUTHEASTERN REGION	88	100.0	5,770,906	100.0	65,578
Less than 25,000	57	64.8	491,054	8.5	8,615
25,000 to 50,000	16	18.2	617,596	10.7	38,600
50,000 to 100,000	7	8.0	555,776	9.6	79,397
100,000 to 200,000	4	4.5	539,945	9.4	134,986
200,000 and over [3]	4	4.5	3,566,535	61.8	891,634
ALABAMA	39	100.0	5,053,035	100.0	129,565
Less than 25,000	16	41.0	158,237	3.1	9,890
25,000 to 50,000	9	23.1	352,159	7.0	39,129
50,000 to 100,000	7	17.9	555,776	11.0	79,397
100,000 to 200,000	3	7.7	420,328	8.3	140,109
200,000 and over [3]	4	10.3	3,566,535	70.6	891,634
SOUTHEASTERN REGION—Con.					
GEORGIA	9	100.0	71,224	100.0	7,914
Less than 25,000	9	100.0	71,224	100.0	7,914
MARYLAND AND NORTH CAROLINA	7	100.0	59,135	100.0	8,448
Less than 50,000 [4]	7	100.0	59,135	100.0	8,448
TENNESSEE	12	100.0	282,988	100.0	23,582
Less than 25,000	8	66.7	58,875	20.8	7,359
25,000 to 200,000 [5]	4	33.3	224,113	79.2	56,028
VIRGINIA	21	100.0	304,524	100.0	14,501
Less than 25,000	18	85.7	186,674	61.3	10,371
25,000 to 50,000	3	14.3	117,850	38.7	39,283
NORTHEASTERN REGION	19	100.0	1,914,967	100.0	100,788
Less than 25,000	7	36.8	71,829	3.8	10,262
25,000 to 100,000 [6]	7	36.8	455,780	23.8	65,111
100,000 to 1,000,000 [7]	5	26.3	1,387,358	72.4	277,472
NEW YORK	7	100.0	868,995	100.0	124,142
Less than 50,000 [4]	3	42.9	56,485	6.5	18,828
50,000 to 1,000,000 [8]	4	57.1	812,510	93.5	203,128
CONNECTICUT, MASSACHUSETTS, NEW JERSEY, AND PENNSYLVANIA	12	100.0	1,045,972	100.0	87,164
Less than 25,000	5	41.7	43,387	4.1	8,677
25,000 to 100,000 [6]	4	33.3	276,263	26.4	69,066
100,000 to 500,000 [9]	3	25.0	726,322	69.4	242,107
CENTRAL REGION [10]	10	100.0	74,371	100.0	7,437
Less than 50,000 [4]	10	100.0	74,371	100.0	7,437
WESTERN REGION [11]	13	100.0	681,085	100.0	52,391
Less than 25,000	10	76.9	63,618	9.3	6,362
25,000 and over [12]	3	23.1	617,467	90.7	205,822

[1] Includes the groups "500,000 to 1,000,000" and "1,000,000 and over."
[2] Includes the groups "25,000 to 50,000;" "50,000 to 100,000;" "100,000 to 200,000;" and "200,000 to 500,000."
[3] Includes the groups "200,000 to 500,000;" "500,000 to 1,000,000;" and "1,000,000 and over."
[4] Includes the groups "Less than 25,000" and "25,000 to 50,000."
[5] Includes the groups "25,000 to 50,000" and "100,000 to 200,000."
[6] Includes the groups "25,000 to 50,000" and "50,000 to 100,000."
[7] Includes the groups "100,000 to 200,000;" "200,000 to 500,000;" and "500,000 to 1,000,000."
[8] Includes the groups "50,000 to 100,000;" "100,000 to 200,000;" and "500,000 to 1,000,000."
[9] Includes the groups "100,000 to 200,000" and "200,000 to 500,000."
[10] Includes Arkansas, Missouri, and Texas.
[11] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.
[12] Includes the groups "25,000 to 50,000;" "100,000 to 200,000;" and "200,000 to 500,000."

The table shows that 6 enterprises producing more than 1,000,000 tons, and in fact averaging nearly 5,000,000 tons each, accounted for 47.9 per cent of the total production for the industry. These enterprises were in the Lake Superior district in Michigan and Minnesota and in the Birmingham district of Alabama. Enterprises producing between 500,000 and 1,000,000 tons each, numbered only 10 in the United States and supplied 9.7 per cent of the iron-ore output. The 16 enterprises in these groups of largest producers accounted for 57.6 per cent of the output of the industry. Practically two-thirds of the enterprises

produced less than 100,000 each and more than one-third produced less than 25,000 tons each. All these small enterprises together contributed less than one-tenth of the total output.

In Table 15 producing enterprises in the United States as a whole are classified as in Table 14, but additional information—the number of mines and the average number of wage earners employed in each group—is given. The table indicates an average output per mine in each class of enterprises which is within the specified range for the enterprise except in the two classes having largest output. In these largest classes, producing more than 500,000 tons per enterprise, the large number of mines per enterprise reduced the output per mine to less than 500,000 tons. The table also shows that the number of tons of output per wage earner employed increased progressively from less than 350 tons per wage earner in classes producing less than 25,000 tons to 1,800 tons per wage earner in the class producing more than 1,000,000 tons.

TABLE 15.—NUMBER OF MINES AND AVERAGE NUMBER OF WAGE EARNERS FOR PRODUCING ENTERPRISES, ACCORDING TO QUANTITY OF PRODUCTS: 1919.

QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,240 POUNDS).	Number of enterprises.	Number of mines.	Wage earners (average number).	Iron ore produced (tons, 2,240 pounds).
All classes	290	406	45,741	61,173,254
Less than 25,000	103	111	2,625	887,971
25,000 to 50,000	34	37	2,107	1,262,155
50,000 to 100,000	45	52	4,424	3,516,475
100,000 to 200,000	55	74	7,126	7,960,786
200,000 to 500,000	37	54	9,527	12,282,635
500,000 to 1,000,000	10	17	3,721	5,932,526
1,000,000 and over	6	61	16,211	29,330,706

Table 16 shows by mining regions and states the average output (in tons per mine) of iron-ore mines. The Lake Superior Region, and the states in that region, outclassed all others in average tons produced per mine. New York and the Northeastern Region stood next, followed by Alabama and the Southeastern Region.

TABLE 16.—AVERAGE OUTPUT PER MINE, PRODUCING ENTERPRISES: 1919.

REGION AND STATE.	Number of mines.	Iron ore produced (tons, 2,240 pounds).	Average output per mine (tons 2,240 pounds).
UNITED STATES	406	61,173,254	150,673
LAKE SUPERIOR REGION	249	52,731,925	211,775
Michigan	100	15,410,494	154,105
Minnesota	141	36,258,483	257,152
Wisconsin	8	1,062,948	132,868
SOUTHEASTERN REGION	110	5,770,906	52,463
Alabama	48	5,053,035	105,272
Georgia	9	71,224	7,914
Maryland and North Carolina	7	59,135	8,448
Tennessee	24	282,988	11,791
Virginia	22	304,524	13,842
NORTHEASTERN REGION	21	1,914,967	91,189
New York	7	868,995	124,142
Connecticut, Massachusetts, New Jersey, and Pennsylvania	14	1,045,972	74,712
CENTRAL REGION [1]	10	74,371	7,437
WESTERN REGION [2]	16	681,085	42,568

[1] Includes Arkansas, Missouri, and Texas.
[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

Size of enterprises according to average number of wage earners employed.—Table 17 shows for the United States as a whole, and by mining regions and states, the producing enterprises classified according to the average number of wage earners employed. Of the 290 enterprises engaged in the industry in the United States, 5 employed no wage earners, and 175 had fewer than 101 each and employed only 14.6 per cent of the total average number of wage earners. On the other hand, 110 enterprises had more than 100 wage earners each and employed 85.4 per cent of the total number. A relatively large number of small enterprises, as measured by the average number of wage earners employed, is characteristic of the industry for the United States as a whole but not of the Lake Superior and Northeastern Regions where one-half or more than one-half of the enterprises employing wage earners had more than 100 each.

TABLE 17.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

Region, state, and wage earners per enterprise.	Enterprises.		Wage earners.	
	Number.	Per cent distribution.	Average number.	Per cent distribution.
UNITED STATES	290	100.0	45,741	100.0
No wage earners	5	1.7		
1 to 5	21	7.2	63	0.1
6 to 20	43	14.8	574	1.3
21 to 50	57	19.7	2,180	4.8
51 to 100	54	18.6	3,822	8.4
101 to 500	102	35.2	31,032	67.8
501 to 1,000	7	2.4	5,535	12.1
Over 1,000	1	0.3	2,535	5.5
LAKE SUPERIOR REGION	160	100.0	33,541	100.0
No wage earners	1	0.6		
1 to 5	2	1.3	9	(1)
6 to 20	14	8.8	194	0.6
21 to 50	24	15.0	932	2.8
51 to 100	40	25.0	2,848	8.5
101 to 500	76	47.5	26,487	79.0
501 to 1,000	3	1.9	3,071	9.2
MINNESOTA	89	100.0	16,236	100.0
No wage earners	1	1.1		
1 to 5	1	1.1	4	(1)
6 to 20	11	12.4	154	0.9
21 to 50	15	16.9	617	3.8
51 to 100	26	29.2	1,834	11.3
101 to 500	35	39.3	13,627	83.9
MICHIGAN	65	100.0	16,160	100.0
1 to 5	1	1.5	5	(1)
6 to 20	3	4.6	40	0.2
21 to 50	8	12.3	275	1.7
51 to 100	13	20.0	963	6.0
101 to 500	37	56.9	11,806	73.1
501 to 1,000	3	4.6	3,071	19.0
WISCONSIN	6	100.0	1,145	100.0
21 to 50	1	16.7	40	3.5
51 to 100	1	16.7	51	4.5
101 to 500	4	66.7	1,054	92.1
SOUTHEASTERN REGION	88	100.0	8,324	100.0
No wage earners	1	1.1		
1 to 5	11	12.5	29	0.3
6 to 20	21	23.9	276	3.3
21 to 50	25	28.4	973	11.7
51 to 100	12	13.6	852	10.2
101 to 500	15	17.0	2,527	30.4
501 to 1,000	2	2.3	1,132	13.6
Over 1,000	1	1.1	2,535	30.5
ALABAMA	39	100.0	6,485	100.0
No wage earners	1	2.6		
1 to 5	1	2.6	2	(1)
6 to 20	7	17.9	76	1.2
21 to 50	9	23.1	325	5.0
51 to 100	6	15.4	462	7.1
101 to 500	12	30.8	1,953	30.1
501 to 1,000	2	5.1	1,132	17.5
Over 1,000	1	2.6	2,535	39.1
SOUTHEASTERN REGION—Con.				
TENNESSEE	12	100.0	824	100.0
1 to 5	1	8.3	2	0.2
6 to 20	2	16.7	38	4.6
21 to 50	3	25.0	112	13.6
51 to 100	4	33.3	244	29.6
101 to 500	2	16.7	428	51.9
VIRGINIA	21	100.0	623	100.0
1 to 5	5	23.8	18	2.9
6 to 20	5	23.8	59	9.5
21 to 50	9	42.9	400	64.2
51 to 100	2	9.5	146	23.4
GEORGIA	9	100.0	215	100.0
6 to 20	5	55.6	79	36.7
21 to 50	4	44.4	136	63.3
NORTH CAROLINA AND MARYLAND	7	100.0	177	100.0
1 to 5	4	57.1	7	4.0
6 to 20	2	28.6	24	13.6
101 to 500	1	14.3	146	82.5
NORTHEASTERN REGION	19	100.0	3,160	100.0
No wage earners	1	5.3		
1 to 5	1	5.3	2	0.1
6 to 20	1	5.3	20	0.6
21 to 50	4	21.0	134	4.2
51 to 100	1	5.3	65	2.1
101 to 500	9	47.4	1,607	50.9
501 to 1,000	2	10.5	1,332	42.2
NEW YORK	7	100.0	1,811	100.0
21 to 50	2	28.6	74	4.1
101 to 500	3	42.9	405	22.4
501 to 1,000	2	28.6	1,332	73.6
NEW JERSEY, PENNSYLVANIA, MASSACHUSETTS, AND CONNECTICUT	12	100.0	1,349	100.0
No wage earners	1	8.3		
1 to 5	1	8.3	2	0.1
6 to 20	1	8.3	20	1.5
21 to 50	2	16.7	60	4.4
51 to 100	1	8.3	65	4.8
101 to 500	6	50.0	1,202	89.1
CENTRAL REGION [2]	10	100.0	188	100.0
No wage earners	2	20.0		
1 to 5	2	20.0	7	3.7
6 to 20	2	20.0	21	11.2
21 to 50	3	30.0	103	54.8
51 to 100	1	10.0	57	30.3
WESTERN REGION [3]	13	100.0	528	100.0
1 to 5	5	38.5	16	3.0
6 to 20	5	38.5	63	11.9
21 to 50	1	7.7	38	7.2
101 to 500	2	15.4	411	77.8

[1] Less than one-tenth of 1 per cent.
[2] Includes states listed in order of average number of wage earners as follows: Missouri, Texas, and Arkansas.
[3] Includes states listed in order of average number of wage earners as follows: New Mexico, Wyoming, Utah, Idaho, Montana, California, and Washington.

Size of enterprises according to acreage of mineral land.—Table 18 shows, by mining regions and states, the producing enterprises classified according to acres of mineral land operated. For the United States as a whole, the largest number of enterprises was in the class operating from 1 to 50 acres each; but the enterprises in the group operating more than 1,000 acres each, which constituted only 12.8 per cent of the total number of enterprises, operated 78.6 per cent of the total acreage. In the Lake Superior Region the mineral land per enterprise, and particularly the mineral land per mine, was relatively small. The large holdings per enterprise and per mine were reported principally from the Southeastern and Northeastern Regions.

Table 19, relating to the United States as a whole, shows, for producing enterprises, the number of acres of mineral and other land controlled, the form of tenure of mineral land, and the number of mines operated.

TABLE 18.—SIZE OF PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF MINERAL LAND OPERATED: 1919.

REGION, STATE, AND ACRES PER ENTERPRISE.	ENTERPRISES.		Number of mines.	MINERAL LAND OPERATED.	
	Number.	Per cent distribution.		Acres.	Per cent distribution.
UNITED STATES	290	100.0	406	241,508	100.0
1 to 50	70	24.1	73	2,420	1.0
50 to 100	41	14.1	44	3,260	1.3
100 to 200	64	22.1	86	9,819	4.1
200 to 500	51	17.6	61	16,242	6.7
500 to 1,000	27	9.3	37	19,824	8.2
1,000 and over	37	12.8	105	189,943	78.6
LAKE SUPERIOR REGION	160	100.0	249	44,696	100.0
1 to 50	37	23.1	38	1,395	3.1
50 to 100	33	20.6	36	2,548	5.7
100 to 200	47	29.4	58	7,241	16.2
200 to 500	26	16.2	31	8,161	18.3
500 to 1,000	11	6.9	16	7,777	17.4
1,000 and over	6	3.8	70	17,574	39.3
MICHIGAN	65	100.0	100	20,025	100.0
1 to 50	6	9.2	6	235	1.2
50 to 100	15	23.1	15	1,169	5.8
100 to 200	22	33.8	26	3,398	17.0
200 to 500	12	18.5	14	4,149	20.7
500 to 1,000	6	9.2	8	3,883	19.4
1,000 and over	4	6.2	31	7,191	35.9
MINNESOTA	89	100.0	141	21,971	100.0
1 to 50	31	34.8	32	1,160	5.3
50 to 100	16	18.0	18	1,259	5.7
100 to 200	25	28.1	32	3,843	17.5
200 to 500	12	13.5	14	3,312	15.1
500 to 1,000	3	3.4	6	2,014	9.2
1,000 and over	2	2.2	39	10,383	47.3
WISCONSIN	6	100.0	8	2,700	100.0
50 to 100	2	33.3	3	120	4.4
200 to 500	2	33.3	3	700	25.9
500 to 1,000	2	33.3	2	1,880	69.6
SOUTHEASTERN REGION	88	100.0	110	110,491	100.0
1 to 50	25	28.4	27	764	0.7
50 to 100	5	5.7	5	432	0.4
100 to 200	9	10.2	19	1,464	1.3
200 to 500	15	17.0	20	5,169	4.7
500 to 1,000	14	15.9	17	10,812	9.8
1,000 and over	20	22.7	22	91,850	83.1
ALABAMA	39	100.0	48	65,208	100.0
1 to 50	11	28.2	11	367	0.6
50 to 100	3	7.7	3	247	0.4
100 to 200	5	12.8	8	739	1.1
200 to 500	5	12.8	6	1,549	2.4
500 to 1,000	5	12.8	8	4,160	6.4
1,000 and over	10	25.6	12	58,146	89.2
GEORGIA	9	100.0	9	2,770	100.0
1 to 50	4	44.4	4	85	3.1
50 to 100	1	11.1	1	100	3.6
100 to 200	1	11.1	1	125	4.5
200 to 500	2	22.2	2	800	28.9
1,000 and over	1	11.1	1	1,660	59.9
SOUTHEASTERN REGION—Con.					
MARYLAND AND NORTH CAROLINA	7	100.0	7	4,267	100.0
1 to 50	5	71.4	5	186	4.4
200 to 500	1	14.3	1	201	4.7
1,000 and over	1	14.3	1	3,880	90.9
TENNESSEE	12	100.0	24	4,494	100.0
1 to 50	3	25.0	5	61	1.4
50 to 100	1	8.3	1	85	1.9
100 to 200	1	8.3	8	200	4.5
200 to 500	4	33.3	7	1,263	28.1
500 to 1,000	2	16.7	2	1,385	30.8
1,000 and over	1	8.3	1	1,500	33.4
VIRGINIA	21	100.0	22	33,752	100.0
1 to 50	2	9.5	2	65	0.2
100 to 200	2	9.5	2	400	1.2
200 to 500	3	14.3	4	1,356	4.0
500 to 1,000	7	33.3	7	5,267	15.6
1,000 and over	7	33.3	7	26,664	79.0
NORTHEASTERN REGION	19	100.0	21	38,186	100.0
1 to 50	1	5.3	1	40	0.1
50 to 100	1	5.3	1	100	0.3
100 to 200	5	26.3	6	679	1.8
200 to 500	5	26.3	5	1,477	3.9
1,000 and over	7	36.8	8	35,890	94.0
NEW YORK	7	100.0	7	20,121	100.0
200 to 500	4	57.1	4	1,231	6.1
1,000 and over	3	42.9	3	18,890	93.9
CONNECTICUT, MASSACHUSETTS, NEW JERSEY, AND PENNSYLVANIA	12	100.0	14	18,065	100.0
1 to 50	1	8.3	1	40	0.2
50 to 100	1	8.3	1	100	0.6
100 to 200	5	41.7	6	679	3.8
200 to 500	1	8.3	1	246	1.4
1,000 and over	4	33.3	5	17,000	94.1
CENTRAL REGION [1]	10	100.0	10	43,727	100.0
1 to 50	2	20.0	2	45	0.1
50 to 100	2	20.0	2	180	0.4
100 to 200	2	20.0	2	315	0.7
200 to 500	1	10.0	1	280	0.6
1,000 and over	3	30.0	3	42,907	98.1
WESTERN REGION [2]	13	100.0	16	4,408	100.0
1 to 50	5	38.5	5	176	4.0
100 to 200	1	7.7	1	120	2.7
200 to 500	4	30.8	4	1,155	26.2
500 to 1,000	2	15.4	4	1,235	28.0
1,000 and over	1	7.7	2	1,722	39.1

[1] Includes Arkansas, Missouri, and Texas.

[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

TABLE 19.—LAND CONTROLLED, AND TENURE OF MINERAL LAND ACCORDING TO NUMBER OF ACRES OPERATED, PRODUCING ENTERPRISES: 1919.

ACRES PER ENTERPRISE.	Number of enterprises.	Per cent distribution.	Number of mines.	LAND CONTROLLED (ACRES.)				
				Mineral land.				Timber and other lands (acres.)
				Operated.	Per cent distribution.	Owned.	Held under lease.	
All classes	290	100.0	406	241,508	100.0	177,296	65,280	696,140
1 to 50	70	24.1	73	2,420	1.0	552	1,873	8,235
50 to 100	41	14.1	44	3,260	1.3	705	2,555	1,548
100 to 200	64	22.1	86	9,819	4.1	2,336	7,523	6,129
200 to 500	51	17.6	61	16,242	6.7	7,064	9,178	33,923
500 to 1,000	27	9.3	37	19,824	8.2	12,308	8,056	1,157
1,000 and over	37	12.8	105	189,943	78.6	154,331	36,095	645,148

PERSONS ENGAGED IN THE INDUSTRY.

All classes of persons according to class and sex.—Table 20 shows the persons engaged in the iron-ore mining industry in 1919 and gives the number of males and females (except among wage earners) and the per cent distribution of each class of employees. The salaried employees, numbering 2,985, constituted only 6.1 per cent of the total number of persons engaged in the industry. Three hundred females, or six-tenths of 1 per cent of the total number of persons engaged in the industry, were reported among the salaried employees and almost entirely in the class "Clerk and other subordinate salaried employees." The average number of wage earners reported for the year was 45,741, which constituted 93.8 per cent of the total number of persons engaged in producing iron-ore enterprises. As shown in the detailed statistics (Table 30), 7 of the wage earners reported by producing enterprises on the representative day were females. Table 20 also shows that 9 of the 41 proprietors performed manual labor in or about the mines.

TABLE 20.—PERSONS ENGAGED, PRODUCING ENTERPRISES: 1919.

REGION AND STATE.	Total.	PROPRIETORS AND OFFICIALS.												CLERKS AND OTHER SUBORDINATE SALARIED EMPLOYEES.			WAGE EARNERS.		PROPRIETORS PERFORMING MANUAL LABOR.	
		Proprietors and firm members.			Salaried officers of corporations.			Superintendents and managers.			Technical employees.									
		Male.	Female.	Per cent of total.	Male.	Female.	Per cent of total.	Male.	Female.	Per cent of total.	Male.	Female.	Per cent of total.	Male.	Female.	Per cent of total.	Average number.	Per cent of total.	Number.	Per cent of total.
United States	48,767	37	4	0.1	129	1	0.3	615	1	1.3	487	12	1.0	1,454	286	3.6	45,741	93.8	9	22.0
LAKE SUPERIOR REGION	35,785	5	.....	(1)	91	.....	0.3	427	1	1.2	411	12	1.2	1,117	180	3.6	33,541	93.7	.....	.....
Michigan	17,169	2	.....	(1)	40	.....	0.2	184	1	1.1	225	10	1.4	447	100	3.2	16,160	94.1	.....	.....
Minnesota	17,422	2	.....	(1)	50	.....	0.3	232	.....	1.3	179	.....	1.0	649	74	4.1	16,236	93.2	.....	.....
Wisconsin	1,194	1	.....	0.1	1	.....	0.1	11	.....	0.9	7	2	0.8	21	6	2.3	1,145	95.9	.....	.....
SOUTHEASTERN REGION	8,818	14	.....	0.2	11	1	0.1	112	.....	1.3	38	.....	0.4	240	78	3.6	8,324	94.4	1	7.1
Alabama	6,877	2	.....	(1)	7	1	0.1	69	.....	1.0	31	.....	0.5	212	70	4.1	6,485	94.3	1	50.0
Georgia	229	2	.....	0.9	.....	.....	.....	6	.....	2.6	1	.....	0.4	5	.....	2.2	215	93.9	.....	.....
Maryland and North Carolina	190	8	.....	4.2	1	.....	0.5	1	.....	0.5	1	.....	0.5	2	.....	1.1	177	93.2	.....	.....
Tennessee	859	2	.....	0.2	2	.....	0.2	13	.....	1.5	2	.....	0.2	14	2	1.9	824	95.9	.....	.....
Virginia	663	.....	.....	.....	1	.....	0.2	23	.....	3.5	3	.....	0.4	7	6	2.0	623	94.0	.....	.....
NORTHEASTERN REGION	3,383	5	4	0.3	19	.....	0.6	55	.....	1.6	32	.....	0.9	85	23	3.2	3,160	93.4	.....	.....
New York	1,943	.....	1	0.1	11	.....	0.6	24	.....	1.2	17	.....	0.9	63	16	4.1	1,811	93.2	.....	.....
Connecticut, Massachusetts, New Jersey, and Pennsylvania	1,440	5	3	0.6	8	.....	0.6	31	.....	2.2	15	.....	1.0	22	7	2.0	1,349	93.7	.....	.....
CENTRAL REGION [2]	216	3	.....	1.4	6	.....	2.8	8	.....	3.7	2	.....	0.9	5	4	4.2	188	87.0	1	33.3
WESTERN REGION [3]	565	10	.....	1.8	2	.....	0.4	13	.....	2.3	4	.....	0.7	7	1	1.4	528	93.5	7	70.0

[1] Less than one-tenth of 1 per cent.
[2] Includes Arkansas, Missouri, and Texas.
[3] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

Wage earners, by occupations.—Table 21 shows the number of wage earners employed on December 15 or the nearest representative day according to occupations, gives the per cent each group is of the total and the number in each group employed above ground and below ground.

TABLE 21.—WAGE EARNERS BY OCCUPATIONS, DECEMBER 15, OR NEAREST REPRESENTATIVE DAY, PRODUCING ENTERPRISES: 1919.

REGION AND STATE.	ALL CLASSES.					FOREMEN, SHIFT BOSSES, ETC.			ENGINEMEN, HOISTMEN, ELECTRICIANS, MECHANICS, ETC.			MINERS AND DRILLERS, INCLUDING THEIR HELPERS.			TIMBERMEN, TRACKMEN, AND MEN ENGAGED IN HAULING, ETC.			MUCKERS, LOADERS, LABORERS, AND OTHERS NOT CLASSIFIED.			IN MILLS AND BENEFICIATING PLANTS.	
	Total.	Above ground.		Below ground.		Number.			Number.			Number.			Number.			Number.				
		Number.	Per cent of total.	Number.	Per cent of total.	Above ground.	Below ground.	Per cent of total.	Above ground.	Below ground.	Per cent of total.	Above ground.	Below ground.	Per cent of total.	Above ground.	Below ground.	Per cent of total.	Above ground.	Below ground.	Per cent of total.	Number above ground.	Per cent of total.
UNITED STATES	47,740	19,050	39.9	28,690	60.1	789	878	3.5	6,526	1,053	15.9	1,354	15,326	34.9	1,677	5,495	15.0	7,436	5,938	28.0	1,268	2.7
LAKE SUPERIOR REGION	34,700	13,368	38.5	21,332	61.5	569	607	3.4	5,169	725	17.0	689	12,609	38.3	1,231	4,302	15.9	5,236	3,089	24.0	474	1.4
Michigan	16,351	4,760	29.1	11,591	70.9	157	323	2.9	1,916	399	14.2	117	7,050	43.8	469	2,699	19.4	2,068	1,120	19.5	33	0.2
Minnesota	17,127	8,350	48.8	8,777	51.2	400	249	3.8	3,165	253	20.0	552	4,974	32.3	742	1,431	12.7	3,052	1,870	28.7	439	2.6
Wisconsin	1,222	258	21.1	964	78.9	12	35	3.8	88	73	13.2	20	585	49.5	20	172	15.7	116	99	17.6	2	0.2
SOUTHEASTERN REGION	9,155	3,798	41.5	5,357	58.5	144	154	3.3	866	150	11.1	469	2,005	27.0	359	1,049	15.4	1,470	1,999	37.9	490	5.4
Alabama	6,961	2,320	33.3	4,641	66.7	69	139	3.0	683	114	11.4	136	1,542	25.5	206	952	16.6	950	1,794	39.4	276	4.0
Georgia	247	225	91.1	22	8.9	7	2	3.6	36	.....	14.6	34	20	21.9	67	.....	27.1	34	.....	13.8	47	19.0
Maryland and North Carolina	129	85	65.9	44	34.1	2	2	3.1	7	2	7.0	25	2	20.9	.....	.....	.....	4	38	32.6	47	36.4
Tennessee	995	680	68.3	315	31.7	25	1	2.6	80	8	8.8	121	201	32.4	69	39	10.9	322	66	39.0	63	6.3
Virginia	823	488	59.3	335	40.7	41	10	6.2	60	26	10.4	153	140	35.6	17	58	9.1	160	101	31.7	57	6.9
NORTHEASTERN REGION	2,991	1,410	47.1	1,581	52.9	44	91	4.5	401	160	18.8	69	592	22.1	73	84	5.2	522	654	39.3	301	10.1
New York	1,632	749	45.9	883	54.1	24	60	5.1	150	100	15.3	59	254	19.2	22	35	3.5	321	434	46.3	173	10.6
Connecticut, Massachusetts, New Jersey, and Pennsylvania	1,359	661	48.6	698	51.4	20	31	3.8	251	60	22.9	10	338	25.6	51	49	7.4	201	220	31.0	128	9.4
CENTRAL REGION [1]	192	161	83.9	31	16.1	12	6	9.4	14	.....	7.3	55	25	41.7	4	.....	2.1	76	.....	39.6	.....	.....
WESTERN REGION [2]	702	313	44.6	389	55.4	20	20	5.7	76	18	13.4	72	95	23.8	10	60	10.0	132	196	46.7	3	0.4

[1] Includes Arkansas, Missouri, and Texas.
[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

The table shows that for the United States as a whole 2.7 per cent of the total number were employed in beneficiating plants and not in mining operations proper. In the Lake Superior Region the proportion of wage earners in beneficiating plants was less because the ratio of enterprises operating such plants to the total number of enterprises was small in the region, as shown in Table 30. In the Northeastern and Southeastern

Regions the proportion was much greater. Sixty per cent of all wage earners reported by producing iron-ore enterprises in the United States in 1919 were employed below ground. In all regions except the Central Region a majority of the wage earners were reported as employed below ground, but in the Southeastern Region the only state which reported a majority of the wage earners below ground was Alabama. It should be noted, however, that the number reported below ground in iron-ore mining includes men employed in some deep open pits, particularly in Minnesota. For the industry as a whole, and in the Lake Superior Region, the largest class of wage earners reported were the miners, drillmen, and their helpers, and the next largest class, the muckers, loaders, laborers, and others not classified, which may be considered the unskilled class. In the Northeastern, Southeastern, and Western Regions the largest number of wage earners is reported in this unskilled class.

Wage earners, by months.—Table 22 shows, for producing and nonproducing enterprises, for the United States as a whole, and by mining regions and states, the number of wage earners employed on the 15th day or the nearest representative day of each month. The table also shows the average number of wage earners, indicates the months of maximum and minimum employment, and gives the ratio of the minimum to the maximum number. The changes in number employed from month to month reflect conditions prevailing in the industry during the year.

It will be noted that the number of wage earners reported for enterprises on the representative day, which is presented in several other tables, differs from the numbers shown in Table 22 for any month. This is accounted for by the fact that the representative day selected for reporting wage earners in detail was different for different enterprises. Therefore, the aggregate for the representative day does not agree with the total reported by each enterprise for any one month.

TABLE 22.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES: 1919.

[The month of maximum employment for each region and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

REGION AND STATE.	Average number employed during year.	NUMBER EMPLOYED ON THE 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
UNITED STATES	46,339	48,312	47,800	47,287	45,456	46,329	45,264	46,892	47,378	47,438	46,224	44,603	*43,085*	89.2
Producing enterprises	45,741	47,493	47,205	46,712	44,822	45,631	44,625	46,286	46,754	46,911	45,772	44,126	*42,555*	89.6
LAKE SUPERIOR REGION	33,541	32,751	33,021	33,013	33,194	34,893	34,446	34,983	34,769	34,588	33,797	32,218	*30,819*	88.1
Minnesota	16,236	14,961	15,252	15,132	16,088	17,716	17,605	17,753	17,574	17,069	16,225	15,338	*14,119*	79.5
Michigan	16,160	16,584	16,527	**16,670**	15,927	15,999	15,710	16,115	16,096	16,472	16,464	15,774	*15,582*	93.5
Wisconsin	1,145	1,206	1,242	1,211	1,179	1,178	1,131	1,115	1,099	*1,047*	1,108	1,106	1,118	84.3
SOUTHEASTERN REGION	8,324	9,691	9,577	9,178	7,429	6,815	*6,716*	7,530	8,273	8,608	8,749	8,779	8,543	69.3
Alabama	6,485	7,450	7,423	7,034	5,641	5,261	*5,213*	5,827	6,625	6,798	6,873	7,028	6,647	70.0
Tennessee	824	**1,007**	953	960	790	644	*604*	689	763	822	885	849	922	60.0
Virginia	623	791	764	761	598	543	536	549	*534*	556	589	613	642	67.5
Georgia	215	250	240	245	212	180	182	241	218	226	213	*162*	211	64.8
North Carolina and Maryland	177	193	197	178	188	187	181	224	133	206	189	127	*121*	54.0
NORTHEASTERN REGION	3,160	4,259	3,789	3,667	3,310	2,957	*2,555*	2,908	2,822	2,840	2,944	2,896	2,973	60.0
New York	1,811	2,599	2,127	1,953	1,842	1,758	1,740	1,724	1,582	1,587	1,617	*1,571*	1,632	60.4
New Jersey, Pennsylvania, Massachusetts, and Connecticut	1,349	1,660	1,662	1,714	1,468	1,199	*815*	1,184	1,240	1,253	1,327	1,325	1,341	47.5
CENTRAL REGION [1]	188	148	165	173	202	286	233	191	173	191	191	163	*140*	49.0
WESTERN REGION [2]	528	644	653	681	687	680	675	674	717	684	91	*70*	80	9.8
Nonproducing enterprises	598	819	595	575	634	698	639	606	624	527	*452*	477	530	55.2
Minnesota	275	463	286	275	292	326	296	275	293	220	*168*	180	226	36.3
All other [3]	323	356	309	300	342	372	343	331	331	307	*284*	297	304	76.3

[1] Includes states listed in order of average number of wage earners as follows: Missouri, Texas, and Arkansas.
[2] Includes states listed in order of average number of wage earners as follows: New Mexico, Wyoming, Utah, Idaho, Montana, California, and Washington.
[3] Includes states listed in order of average number of wage earners as follows: Alabama, Wisconsin, Michigan, and Utah.

Prevailing hours of labor.—In Table 23 the producing enterprises are classified according to prevailing hours of labor per week, and the number of wage earners in each group is given. The wage earners of each enterprise are classed as a total, regardless of the fact that some work more or fewer hours than those prevailing for the majority. In the industry as a whole 44 to 53 hours per week, that is, the 8-hour day and 6-day week prevailed for a majority of the enterprises employing wage earners, but only for 44.4 per cent of the total average number of wage earners. In 43.5 per cent of the enterprises employing wage earners and for 53.9 per cent of the wage earners the prevailing hours of labor were 54 to 62 per week with the 10-hour day and 6-day week ruling.

In Michigan and Wisconsin the 48-hour week prevailed, but in Minnesota a large majority of the wage earners worked 60 hours per week, and as a consequence 60 hours was the prevailing time in the Lake Superior Region. In the Northeastern Region the prevailing hours were 44 to 53 per week and the 8-hour day and 6-day week were most common. In the Southeastern Region longer hours prevailed, chiefly 10 a day and 60 a week.

TABLE 23.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

REGION AND STATE.	TOTAL.		NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—									
			35 and under.		36 to 43.		44 to 53.		54 to 62.		63 to 71.	
	Enterprises.	Wage earners (average number).	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.	Enterprises.	Wage earners.
UNITED STATES	[1] 285	45,741	1	11	4	219	151	20,311	124	24,637	5	563
LAKE SUPERIOR REGION	159	33,541	1	11	1	8	111	15,671	43	17,472	3	379
Minnesota	88	16,236	1	11	1	8	50	5,240	33	10,598	3	379
Michigan	65	16,160	.....	.....	.....	.....	55	9,286	10	6,874	.....	.....
Wisconsin	6	1,145	.....	.....	.....	.....	6	1,145	.....	.....	.....	.....
SOUTHEASTERN REGION	87	8,324	.....	.....	2	204	18	1,427	66	6,547	1	146
Alabama	38	6,485	.....	.....	2	204	11	1,274	25	5,067	.....	.....
Tennessee	12	824	.....	.....	.....	.....	1	19	11	805	.....	.....
Virginia	21	623	.....	.....	.....	.....	3	56	18	567	.....	.....
Georgia	9	215	.....	.....	.....	.....	2	77	7	138	.....	.....
North Carolina and Maryland	7	177	.....	.....	.....	.....	1	1	5	30	1	146
NORTHEASTERN REGION	18	3,160	.....	.....	.....	.....	14	2,871	4	289	.....	.....
New York	7	1,811	.....	.....	.....	.....	6	1,774	1	37	.....	.....
New Jersey, Pennsylvania, Massachusetts, and Connecticut	11	1,349	.....	.....	.....	.....	8	1,097	3	252	.....	.....
CENTRAL REGION [2]	8	188	.....	.....	1	7	3	69	3	74	1	38
WESTERN REGION [3]	13	528	.....	.....	.....	.....	5	273	8	255	.....	.....

[1] Exclusive of 5 enterprises employing no wage earners in the following states: Alabama, Arkansas, Minnesota, Missouri, and Pennsylvania.
[2] Includes Missouri, Texas, and Arkansas.
[3] Includes New Mexico, Wyoming, Utah, Idaho, Montana, California, and Washington.

LAND TENURE AND ROYALTIES.

Land tenure.—Table 24 shows for 1919 the number of acres controlled by producing iron-ore mining enterprises in 1919. The table distinguishes mineral land (that is, land held for its content of iron ore) from timber and other lands, and classifies the mineral land according to form of tenure. In this table, and in others relating to acreage, the number of acres of mineral land controlled by the mining enterprises is greater by the amount of acreage leased to other operators and by the idle acreage, than the number of acres reported operated. "Acres operated" is exclusive of the duplication in "Acres controlled" of acreage reported by both owners and lessees or prior lessees and sublessees.

TABLE 24.—LAND OPERATED AND CONTROLLED, PRODUCING ENTERPRISES: 1919.

REGION AND STATE.	Mineral land operated (acres).	LAND CONTROLLED (ACRES).				
		Aggregate.	Mineral land.			Timber and other lands.
			Total.	Owned.	Held under lease.	
UNITED STATES	241,508	938,716	242,576	177,296	65,280	696,140
LAKE SUPERIOR REGION	44,696	538,336	45,759	10,788	34,971	492,577
Michigan	20,025	252,949	20,151	4,775	15,376	232,798
Minnesota	21,971	282,598	22,908	4,073	18,835	259,690
Wisconsin	2,700	2,789	2,700	1,940	760	89
SOUTHEASTERN REGION	110,491	177,250	110,491	99,750	10,741	66,759
Alabama	65,208	117,626	65,208	64,631	577	52,418
Georgia	2,770	3,170	2,770	2,160	610	400
Maryland and North Carolina	4,267	4,267	4,267	617	3,650	.....
Tennessee	4,494	11,544	4,494	1,386	3,108	7,050
Virginia	33,752	40,643	33,752	30,956	2,796	6,891
NORTHEASTERN REGION	38,186	154,649	38,186	20,028	18,158	116,463
New York	20,121	136,550	20,121	8,461	11,660	116,429
Connecticut, Massachusetts, New Jersey, and Pennsylvania	18,065	18,099	18,065	11,567	6,498	34
CENTRAL REGION [1]	43,727	64,073	43,732	42,947	785	20,341
WESTERN REGION [2]	4,408	4,408	4,408	3,783	625	.....

[1] Includes the following states: Arkansas, Missouri, and Texas.
[2] Includes the following states: California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

Table 25 presents, for all iron-ore mining enterprises, statistics for 1919 and 1909 relating to acreage of mineral land and other lands controlled. The table shows increase in acreage of iron-ore lands controlled by producing enterprises in Alabama, Michigan, and Minnesota, and in the Lake Superior Region as a whole, but decrease in the other principal regions and states and for the United States. The table also shows for the United States and principal regions and states except Michigan and Alabama decrease in timber and other lands controlled by producing enterprises.

In Table 26 all enterprises in the iron-ore industry are grouped according to form of tenure of mineral land; that is, whether held by ownership, under lease, or partly by ownership and partly under lease. This table shows for the United States as a whole that 72.7 per cent of the iron-ore land controlled by all active enterprises and 73.1 per cent by the producing enterprises was owned by the operators. However, in the leading states, Michigan and Minnesota, the operators of producing enterprises owned less than one-fourth of the iron-ore land controlled by them.

TABLE 25.—COMPARATIVE STATISTICS, LAND CONTROLLED: 1919 AND 1909.

REGION AND STATE.	ACREAGE CONTROLLED.														
	All land.			Mineralland.									Timber and other lands.		
				Total.			Owned.			Leased.					
	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]	1919	1909	Per cent of increase.[1]
UNITED STATES	943,826	1,343,634	−29.8	247,082	416,016	−40.6	179,635	306,257	−41.3	67,447	109,759	−38.5	696,744	927,618	−24.9
Producing enterprises	938,716	1,313,214	−28.5	242,576	387,608	−37.4	177,296	282,661	−37.3	65,280	104,947	−37.8	696,140	925,606	−24.8
LAKE SUPERIOR REGION	538,336	600,283	−10.3	45,759	39,624	15.5	10,788	13,338	−19.1	34,971	26,286	33.0	492,577	560,659	−12.1
Michigan	252,949	247,656	2.1	20,151	17,205	17.1	4,775	4,464	7.0	15,376	12,741	20.7	232,798	230,451	1.0
Minnesota	282,598	332,233	−14.9	22,908	14,336	59.8	4,073	2,510	62.3	18,835	11,826	59.3	259,690	317,897	−18.3
Wisconsin	2,789	20,394	−86.3	2,700	8,083	−66.6	1,940	6,364	−69.5	760	1,719	−55.8	89	12,311	−99.3
SOUTHEASTERN REGION	177,250	332,822	−46.7	110,491	208,904	−47.1	99,750	153,670	−35.1	10,741	55,234	−80.6	66,759	123,918	−46.1
Alabama	117,626	63,226	86.0	65,208	52,000	25.4	64,631	42,337	52.7	577	9,663	−94.0	52,418	11,226	366.9
Georgia	3,170	73,683	−95.7	2,770	70,570	−96.1	2,160	69,160	−96.9	610	1,410	−56.7	400	3,113	−87.2
Maryland and North Carolina[2]	4,267	24,278	−82.4	4,267	7,878	−45.8	617	5,788	−89.3	3,650	2,090	74.6	.....	16,400	.....
Tennessee	11,544	75,256	−84.7	4,494	14,250	−68.5	1,386	10,001	−86.0	3,108	4,249	−26.9	7,050	61,006	−88.4
Virginia	40,643	96,379	−57.8	33,752	64,206	−47.4	30,956	26,384	17.3	2,796	37,822	−92.6	6,891	32,173	−78.6
NORTHEASTERN REGION	154,649	284,682	−45.7	38,186	125,509	−69.6	20,028	103,853	−80.7	18,158	21,656	−16.2	116,463	159,173	−26.8
New York	136,550	247,783	−44.9	20,121	95,920	−79.0	8,461	87,701	−90.4	11,660	8,219	41.9	116,429	151,863	−23.3
Connecticut, Massachusetts, New Jersey, and Pennsylvania[3]	18,099	36,899	−50.9	18,065	29,589	−38.9	11,567	16,152	−28.4	6,498	13,437	−51.6	34	7,310	−99.5
CENTRAL REGION[4]	64,073	94,209	−32.0	43,732	12,353	254.0	42,947	11,167	284.6	785	1,186	−33.8	20,341	81,856	−75.2
WESTERN REGION[5]	4,408	1,218	261.9	4,408	1,218	261.9	3,783	633	497.6	625	585	6.8	.....	.....	.....
Nonproducing enterprises	5,110	30,420	−83.2	4,506	28,408	−84.1	2,339	23,596	−90.1	2,167	4,812	−55.0	604	2,012	−70.0
Minnesota	1,532	1,589	−3.6	1,292	1,469	−12.0	.....	200	.....	1,292	1,269	1.8	240	120	100.0
All other states[6]	3,578	28,831	−87.6	3,214	26,939	−88.1	2,339	23,396	−90.0	875	3,543	−75.3	364	1,892	−80.8

[1] A minus sign (−) denotes decrease.
[2] Also Kentucky and West Virginia in 1909.
[3] Also Ohio in 1909.
[4] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[5] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, Utah, New Mexico, and Wyoming for 1909.
[6] Includes Alabama, Michigan, Utah, and Wisconsin for 1919 and Iowa, Michigan, Missouri, Pennsylvania, Tennessee, Utah, Virginia, and Wisconsin for 1909.

TABLE 26.—NUMBER OF PRODUCING AND NONPRODUCING ENTERPRISES AND ACRES OF MINERAL LAND CONTROLLED, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

REGION AND STATE.	ALL CLASSES.					ENTERPRISES OPERATING ONLY OWNED LAND.			ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE.			ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE.				
	Number of enterprises.	Acres controlled.				Number.	Acres controlled.		Number.	Acres controlled.		Number.	Acres controlled.			
		Aggregate.	By ownership.	By lease.	Per cent owned is of aggregate.		By ownership.	Per cent of aggregate.		By lease.	Per cent of aggregate.		Total.	Per cent of aggregate.	By ownership.	By lease.
UNITED STATES	308	247,082	179,635	67,447	72.7	99	163,059	66.0	184	40,691	16.5	25	43,332	17.5	16,576	26,756
Producing enterprises	290	242,576	177,296	65,280	73.1	95	160,799	66.3	171	38,726	16.0	24	43,051	17.7	16,497	26,554
LAKE SUPERIOR REGION	160	45,759	10,788	34,971	23.6	10	3,346	7.3	135	22,464	49.1	15	19,949	43.6	7,442	12,507
Michigan	65	20,151	4,775	15,376	23.7	8	2,286	11.3	47	9,904	49.1	10	7,961	39.5	2,489	5,472
Minnesota	89	22,908	4,073	18,835	17.8	.....	.....	.....	86	12,160	53.1	3	10,748	46.9	4,073	6,675
Wisconsin	6	2,700	1,940	760	71.9	2	1,060	39.3	2	400	14.8	2	1,240	45.9	880	360
SOUTHEASTERN REGION	88	110,491	99,750	10,741	90.3	61	98,805	89.4	22	6,054	5.5	5	5,632	5.1	945	4,687
Alabama	39	65,208	64,631	577	99.1	32	64,578	99.0	6	497	0.8	1	133	0.2	53	80
Georgia	9	2,770	2,160	610	78.0	3	2,160	78.0	6	610	22.0	.....	.....	.....	.....	.....
Maryland and North Carolina	7	4,267	617	3,650	14.5	5	337	7.9	1	50	1.2	1	3,880	90.9	280	3,600
Tennessee	12	4,494	1,386	3,108	30.8	6	1,140	25.4	4	2,886	64.2	2	468	10.4	246	222
Virginia	21	33,752	30,956	2,796	91.7	15	30,590	90.6	5	2,011	6.0	1	1,151	3.4	366	785
NORTHEASTERN REGION	19	38,186	20,028	18,158	52.4	11	11,913	31.2	4	8,798	23.0	4	17,470	45.7	8,110	9,360
New York	7	20,121	8,461	11,660	42.1	4	2,711	13.5	1	8,400	41.7	2	9,010	44.8	5,750	3,260
Connecticut, Massachusetts, New Jersey, and Pennsylvania	12	18,065	11,567	6,498	64.0	7	9,207	51.0	3	398	2.2	2	8,460	46.8	2,360	6,100
CENTRAL REGION[1]	10	43,732	42,947	785	98.2	4	42,947	98.2	6	785	1.8	.....	.....	.....	.....	.....
WESTERN REGION[2]	13	4,408	3,783	625	85.8	9	3,783	85.8	4	625	14.2	.....	.....	.....	.....	.....
Nonproducing enterprises	18	4,506	2,339	2,167	51.9	4	2,260	50.2	13	1,965	43.6	1	281	6.2	79	202
Minnesota	10	1,292	.....	1,292	.....	.....	.....	.....	10	1,292	100.0	.....	.....	.....	.....	.....
All other[3]	8	3,214	2,339	875	72.8	4	2,260	70.3	3	673	20.9	1	281	8.7	79	202

[1] Includes Arkansas, Missouri, and Texas.
[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.
[3] Includes Alabama, Michigan, Utah, and Wisconsin.

Royalties.—The census of 1919 did not distinguish between royalties or rents paid for mineral land and rents of other kinds, but as in the iron-ore mining industry these other rents are generally insignificant, statistics presented on royalties and rents may, where mineral lands are leased, be interpreted as royalties or rents of mineral land. Royalty, which is a compensation for the privilege of mining leased lands, is either a fixed share of the product or a percentage of the value of product.

Table 27, in which the producing enterprises are classified according to form of land tenure, shows for each class the number of enterprises, the quantity and value of products, and the royalties and rents paid. One-third of the enterprises operated land held by ownership and produced nearly one-seventh of the total output and reported only a very small amount of rents. Three-fifths of the enterprises, producing nearly two-fifths of the total output, operated leased lands only and reported $14,304,974 in royalties and rents which was approximately three-fifths of all royalties and rents paid. Less than one-tenth of the total number of enterprises operated both owned and leased land, produced 47 per cent of the total output, and reported royalties and rents amounting to $10,515,923, or 42 per cent of the total for the United States.

TABLE 27.—QUANTITY AND VALUE OF IRON ORE PRODUCED AND ROYALTIES AND RENTS, FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF MINERAL LAND: 1919.

REGION AND STATE.	ALL CLASSES.				ENTERPRISES OPERATING ONLY OWNED LAND.			
	Number of enterprises.	Iron ore. Quantity (tons, 2,240 pounds).	Iron ore. Value.	Royalties and rents.	Number.	Iron ore. Quantity (tons, 2,240 pounds).	Iron ore. Value.	Royalties and rents.
UNITED STATES	290	61,173,254	$217,949,311	$24,944,936	95	8,586,710	$27,052,174	$124,039
LAKE SUPERIOR REGION	160	52,731,925	192,945,333	24,408,670	10	1,366,290	6,245,091	.....
Michigan	65	15,410,494	60,785,440	6,598,825	8	1,232,912	5,814,901	.....
Minnesota	89	36,258,483	128,333,021	17,532,030	.....	.....	.....	.....
Wisconsin	6	1,062,948	3,826,872	277,815	2	133,378	430,190	.....
SOUTHEASTERN REGION	88	5,770,906	14,818,310	229,902	61	5,415,612	13,721,425	117,398
Alabama	39	5,053,035	12,291,760	144,631	32	4,856,366	11,894,677	70,717
Georgia	9	71,224	283,487	17,714	3	28,727	112,977	.....
Maryland and North Carolina	7	59,135	233,529	3,696	5	15,652	55,728	.....
Tennessee	12	282,988	823,407	16,084	6	224,887	620,576	4,656
Virginia	21	304,524	1,186,127	47,777	15	289,980	1,037,457	42,025
NORTHEASTERN REGION	19	1,914,967	8,543,006	277,625	11	1,101,099	5,702,371	.....
New York	7	868,995	5,215,346	91,860	4	705,186	4,013,558	.....
Connecticut, Massachusetts, New Jersey, and Pennsylvania	12	1,045,972	3,332,660	185,765	7	395,913	1,688,813	.....
CENTRAL REGION [1]	10	74,371	303,448	16,334	4	33,747	116,003	.....
WESTERN REGION [2]	13	681,085	1,334,214	12,405	9	669,962	1,267,284	6,641

REGION AND STATE.	ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE.				ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE.			
	Number.	Iron ore. Quantity (tons, 2,240 pounds).	Iron ore. Value.	Royalties and rents.	Number.	Iron ore. Quantity (tons, 2,240 pounds).	Iron ore. Value.	Royalties and rents.
UNITED STATES	171	23,947,670	$79,239,795	$14,304,974	24	28,638,874	$111,657,342	$10,515,923
LAKE SUPERIOR REGION	135	23,124,522	77,428,255	13,954,251	15	28,241,113	109,271,987	10,454,419
Michigan	47	7,223,265	26,858,564	4,139,201	10	6,954,317	28,111,975	2,459,624
Minnesota	86	15,530,951	49,395,114	9,584,665	3	20,727,532	78,937,907	7,847,365
Wisconsin	2	370,306	1,174,577	130,385	2	559,264	2,222,105	147,430
SOUTHEASTERN REGION	22	282,273	791,594	101,929	5	73,021	305,291	10,575
Alabama	6	185,574	359,077	70,314	1	11,095	38,006	3,600
Georgia	6	42,497	170,510	17,714	.....	.....	.....	.....
Maryland and North Carolina	1	392	1,118	196	1	43,091	176,673	3,500
Tennessee	4	50,588	168,863	9,096	2	7,513	33,968	2,332
Virginia	5	3,222	92,026	4,609	1	11,322	56,644	1,143
NORTHEASTERN REGION	4	489,128	765,571	226,696	4	324,740	2,080,064	50,929
New York	1	12,335	67,842	60,000	2	151,474	1,133,946	31,860
Connecticut, Massachusetts, New Jersey, and Pennsylvania	3	476,793	697,729	166,696	2	173,266	946,118	19,069
CENTRAL REGION [1]	6	40,624	187,445	16,334	.....	.....	.....	.....
WESTERN REGION [2]	4	11,123	66,930	5,764	.....	.....	.....	.....

[1] Includes Arkansas, Missouri, and Texas.

[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

The royalties and rents paid by the iron-ore industry, in the United States as a whole, amounted to 40.78 cents per ton of ore produced, and was 11.4 per cent of the total value of products of the industry. For the class of enterprises operating leased lands only, royalties amounted to 59.73 cents per ton of ore produced, and constituted 18.1 per cent of the total value of products for that group.

POWER.

Power equipment used: 1919.—The number and horsepower of the several types of prime movers and of the electric motors used by all iron-ore mining enterprises in 1919 are given, by regions and states, in the table of detailed statistics at the end of this report. As there shown, nearly three-fourths of the horsepower of equipment used by the industry in the United States as a whole was in prime movers of which 85 per cent was in reciprocating steam engines and 10 per cent in steam turbines. The extent of electrification in the industry as a whole is indicated by the ratio of the horsepower of electric motors of all classes to horsepower of prime movers, which was practically 60 per cent.

TABLE 28.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

REGION AND STATE.	Census year.	Aggregate horsepower.	PRIME MOVERS.							Electric motors operated by purchased current.		Electric motors run by current generated by the enterprise reporting.	
			Total horsepower.	Steam engines.		Internal-combustion engines.		Water wheels and turbines.					
				Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.[1]	Number.	Horsepower.
UNITED STATES	1919	370,869	273,477	2,358	259,705	45	5,397	22	8,375	1,341	97,392	1,112	67,595
	1909	346,534	342,069	3,563	326,753	27	2,651	30	12,665	55	4,465	326	13,295
Per cent of increase [2]		7.0	−20.1	−33.8	−20.5		103.6		−33.9		2,081.2	241.1	408.4
THE SUPERIOR REGION	1919	285,215	208,494	1,903	199,448	22	821	20	8,225	1,014	76,721	946	54,520
	1909	262,470	262,305	2,739	249,986	11	109	24	12,210	13	165	271	11,687
Per cent of increase [2]		8.7	−20.5	−30.5	−20.2		653.2		−32.6			249.1	366.5
Michigan	1919	142,559	94,778	668	86,629	4	49	16	8,100	507	47,781	504	40,572
	1909	108,427	108,262	1,205	96,017	4	35	24	12,210	13	165	149	7,341
Per cent of increase [2]		31.5	−12.5	−44.6	−9.8				−33.7			238.3	452.7
Minnesota	1919	135,924	110,831	1,216	110,059	18	772			462	25,093	436	13,563
	1909	145,068	145,068	1,412	145,010	5	58					121	4,338
Per cent of increase [2]		−6.3	−23.6	−13.9	−24.1							260.3	212.7
Wisconsin	1919	6,732	2,885	19	2,760			4	125	45	3,847	6	385
	1909	8,975	8,975	122	8,959	2	16					1	8
Per cent of increase [2]		−25.0	−67.9	−84.4	−69.2								
SOUTHEASTERN REGION	1919	44,828	36,648	357	36,595	3	53			105	8,180	28	4,674
	1909	48,724	48,724	546	48,456	4	63	4	205			8	95
Per cent of increase [2]		−8.0	−24.8	−34.6	−24.5								
Alabama	1919	36,890	28,720	251	28,690	1	30			105	8,170	26	4,614
	1909	31,838	31,838	268	31,838							6	50
Per cent of increase [2]		15.9	−9.8	−6.3	−9.9								
Georgia	1919	1,150	1,150	16	1,150							1	50
	1909	3,496	3,496	41	3,496								
Per cent of increase [2]		−67.1	−67.1		−67.1								
Tennessee	1919	3,659	3,649	47	3,646	1	3				[1] 10		
	1909	5,581	5,581	74	5,571	1	10					1	25
Per cent of increase [2]		−34.4	−34.6		−34.6								
Virginia	1919	2,304	2,304	34	2,304							1	10
	1909	6,458	6,458	141	6,200	3	53	4	205			1	20
Per cent of increase [2]		−64.3	−64.3	−75.9	−62.8								
Other states [3]	1919	825	825	9	805	1	20						
	1909	1,351	1,351	22	1,351								
Per cent of increase [2]		−38.9	−38.9		−40.4								
NORTHEASTERN REGION	1919	36,493	24,142	75	20,392	3	3,600	2	150	218	12,351	124	7,983
	1909	33,261	28,961	250	26,250	10	2,461	2	250	42	4,300	41	1,511
Per cent of increase [2]		9.7	−16.6	−70.0	−22.3		46.3		−40.0		187.2		428.3
New York	1919	21,172	13,175	30	13,025			2	150	167	7,997	43	2,984
	1909	22,520	18,220	124	17,223	6	747	2	250	42	4,300	30	966
Per cent of increase [2]		−6.0	−27.7	−75.8	−24.4				−40.0		86.0		208.9
Other states [4]	1919	15,321	10,967	45	7,367	3	3,600			51	4,354	81	4,999
	1909	10,741	10,741	126	9,027	4	1,714					11	545
Per cent of increase [2]		42.6	2.1	−64.3	−18.4		110.0						817.2
CENTRAL REGION [5]	1919	1,223	1,223	8	1,005	6	218						
	1909	403	403	13	391	1	12						
Per cent of increase [2]		203.5	203.5		157.0								
WESTERN REGION [6]	1919	3,110	2,970	15	2,265	11	705			4	140	14	418
	1909	1,676	1,676	15	1,670	1	6					6	2
Per cent of increase [2]		85.6	77.2		35.6								

[1] Includes 10 horsepower reported for equipment other than electric motors.
[2] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[3] Includes Maryland and North Carolina for 1919 and 1909, and also Kentucky and West Virginia for 1909.
[4] Includes Connecticut, Massachusetts, New Jersey, and Pennsylvania for 1919, and also Ohio for 1909.
[5] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[6] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, New Mexico, Utah, and Wyoming for 1909.

For producing mines in the Northeastern region the horsepower of all electric motors was about four-fifths, in the Lake Superior Region more than three-fifths, and in the Southeastern Region about one-third of the horsepower of prime movers.

Comparative statistics for power, by regions and states: 1919 and 1909.—Table 28 shows for the iron-ore mining industry in the United States as a whole, and by mining regions and states, the number and horsepower of prime movers and electric motors used by producing enterprises and also the per cent increase or decrease for the decade for each class of equipment. The table shows, for the industry as a whole and for the Lake Superior Region, a small increase in the aggregate horsepower used, whereas there was some decrease in the Southeastern Region and some important states. There was a decrease of 20.1 per cent in horsepower of prime movers used in the industry throughout the United States, and an extraordinarily large increase in electric motors operated by purchased current, which amounted to more than 2,000 per cent. In 1909, 98.7 per cent of the aggregate horsepower used was in prime movers, and 1.3 per cent in electric motors operated by purchased current. In 1919 the horsepower of prime movers was 73.7 per cent, and the horsepower of electric motors operated by purchased current constituted 26.3 per cent of the aggregate horsepower. The change was most marked in the Lake Superior Region where the horsepower of electric motors operated by purchased current in 1909 was less than one-tenth of 1 per cent and in 1919 amounted to 26.9 per cent of the aggregate horsepower used. A large increase in the number of electric motors operated by current generated by the enterprises reporting them is shown for the United States as a whole and for each of the mining regions.

FUEL USED.

Table 29 presents for all iron-ore mining enterprises in the United States and for mining regions and states, the quantities of fuel used by kinds. The industry used bituminous coal almost exclusively except in the Northeastern Region where more anthracite than bituminous coal was used.

TABLE 29.—FUEL USED, ALL ENTERPRISES: 1919. [1]

REGION AND STATE.	COAL.		Coke (tons, 2,000 pounds).	Wood (cords).	Fuel oils (barrels).	Gasoline and other volatile oils (barrels).
	Anthracite (tons, 2,240 pounds).	Bituminous (tons, 2,000 pounds).				
UNITED STATES	69,753	1,532,110	30,057	1,262	3,807	3,633
Producing enterprises	69,753	1,499,612	24,070	912	3,807	3,550
LAKE SUPERIOR REGION	4,580	1,172,787	1,112	322	1,798	2,574
Michigan	1,332	431,760	255	.....	310	253
Minnesota	3,248	714,873	758	322	1,200	2,223
Wisconsin	.....	26,154	99	.....	288	98
SOUTHEASTERN REGION	.....	272,423	17,072	190	60	47
Alabama	.....	217,263	17,072	.....	50	.....
Georgia	.....	7,361	.....	.....	.....	.....
Maryland and North Carolina	.....	15,346	.....	.....	10	45
Tennessee	.....	19,523	.....	20	.....	2
Virginia	.....	12,930	.....	170	.....	.....
NORTHEASTERN REGION	65,173	44,379	722	.....	179	553
New York	43,557	15,801	670	.....	149	429
Connecticut, Massachusetts, New Jersey, and Pennsylvania	21,616	28,578	52	.....	30	124
CENTRAL REGION [2]	.....	1,500	5,150	400	180	88
WESTERN REGION [3]	.....	8,523	14	.....	1,590	288
Nonproducing enterprises	.....	32,498	5,987	350	.....	83
Minnesota	.....	12,358	.....	.....	.....	50
All other [4]	.....	20,140	5,987	350	.....	33

[1] In addition to the fuels shown there was 89,354 M cubic feet of manufactured gas used in Pennsylvania.
[2] Includes Arkansas, Missouri, and Texas.
[3] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.
[4] Includes Alabama, Michigan, Utah, and Wisconsin.

GENERAL TABLE.

Table 30 presents in detail for 1919 statistics relating to iron-ore mines for the United States as a whole, for each of the mining regions, and for each of the states which can be shown separately without disclosure of individual operations. It shows separately statistics for the enterprises and mines which produced ore in 1919 and for those enterprises in which all operations were confined to development work. The table gives the number of enterprises and mines; the acreage of land controlled according to character of land, and classified according to form of tenure in the case of mineral land; persons engaged, by classes and occupations; capital invested; the principal expenses of operation and development; the quantity and value of products; and statistics with regard to power equipment used.

TABLE 30.—DETAILED STATISTICS FOR THE IRON-ORE

	Region and state.	Number of enterprises.	Number of mines.	Number of enterprises operating beneficiating plants.	Land controlled (acres). Mineral land. Operated.	Owned.	Held under lease.	Timber and other lands.	Persons engaged in industry. Aggregate.	Proprietors and officials. Total.	Proprietors and firm members. Total.	Performing manual labor.	Salaried officers.	Superintendents and managers.	Technical employees.	Clerks and other subordinate salaried employees. Male.	Female.
1	**United States**	**308**	**424**	**74**	**246,014**	**179,635**	**67,447**	**696,744**	**49,417**	**1,315**	**41**	**9**	**136**	**631**	**507**	**1,470**	**293**
2	**Producing enterprises**	**290**	**406**	**74**	**241,508**	**177,296**	**65,280**	**696,140**	**48,767**	**1,286**	**41**	**9**	**130**	**616**	**499**	**1,454**	**286**
3	Lake Superior Region	160	249	19	44,696	10,788	34,971	492,577	35,785	947	5	.....	91	428	423	1,117	180
4	Michigan	65	100	2	20,025	4,775	15,376	232,798	17,169	462	2	.....	40	185	235	447	100
5	Minnesota	89	141	16	21,971	4,073	18,835	259,690	17,422	463	2	.....	50	232	179	649	74
6	Wisconsin	6	8	1	2,700	1,940	760	89	1,194	22	1	.....	1	11	9	21	6
7	Southeastern Region	88	110	43	110,491	99,750	10,741	66,759	8,818	176	14	1	12	112	38	240	78
8	Alabama	39	48	20	65,208	64,631	577	52,418	6,877	110	2	1	8	69	31	212	70
9	Georgia	9	9	7	2,770	2,160	610	400	229	9	2	.....	.....	6	1	5	.....
10	Maryland and North Carolina.[1]	7	7	5	4,267	617	3,650	.....	190	11	8	.....	1	1	1	2	.....
11	Tennessee	12	24	6	4,494	1,386	3,108	7,050	859	19	2	.....	2	13	2	14	2
12	Virginia	21	22	5	33,752	30,956	2,796	6,891	663	27	.....	.....	1	23	3	7	6
13	Northeastern Region	19	21	11	38,186	20,028	18,158	116,463	3,383	115	9	.....	19	55	32	85	23
14	New York	7	7	3	20,121	8,461	11,660	116,429	1,943	53	1	.....	11	24	17	63	16
15	Connecticut, Massachusetts, New Jersey, and Pennsylvania.[2]	12	14	8	18,065	11,567	6,498	34	1,440	62	8	.....	8	31	15	22	7
16	Central Region [3]	10	10	.....	43,727	42,947	785	20,341	216	19	3	1	6	8	2	5	4
17	Western Region [4]	13	16	1	4,408	3,783	625	.....	565	29	10	7	2	13	4	7	1
18	**Nonproducing enterprises**	**18**	**18**	.....	**4,506**	**2,339**	**2,167**	**604**	**650**	**29**	.....	.....	**6**	**15**	**8**	**16**	**7**
19	Minnesota	10	10	.....	1,292	.....	1,292	240	302	15	.....	.....	6	6	3	8	4
20	All other [5]	8	8	.....	3,214	2,339	875	364	348	14	.....	.....	.....	9	5	8	3

	Region and state.	Capital.	Principal expenses of operation and development. Total.	Salaries and wages. Salaried officers, superintendents, managers, and technical employees.	Clerks and other subordinate salaried employees	Wage earners.	Supplies and materials.	Cost of fuel.	Cost of purchased power.	Royalties and rents.	Taxes—Federal, state, county, and local.	Contract work.
		Dollars.	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*
1	**United States**	**512,280,704**	**180,791,817**	**4,275,098**	**2,769,475**	**76,698,551**	**27,841,973**	**8,870,864**	**1,635,574**	**25,080,918**	**31,150,247**	**2,463,117**
2	**Producing enterprises**	**501,396,044**	**177,578,869**	**4,198,832**	**2,737,828**	**75,713,459**	**27,187,832**	**8,700,358**	**1,594,231**	**24,944,936**	**30,829,610**	**1,671,783**
3	Lake Superior Region	427,149,435	154,073,424	3,300,654	2,147,612	62,392,500	22,211,944	6,884,147	1,284,938	24,408,670	29,943,160	1,499,799
4	Michigan	116,799,825	56,259,260	1,580,418	800,807	32,186,404	7,845,035	2,669,228	769,457	6,598,825	3,785,506	23,580
5	Minnesota	304,386,006	94,659,227	1,637,664	1,313,203	28,333,475	13,870,897	4,059,293	455,323	17,532,030	26,013,086	1,444,256
6	Wisconsin	5,963,604	3,154,937	82,572	33,602	1,872,621	496,012	155,626	60,158	277,815	144,568	31,963
7	Southeastern Region	23,846,543	13,381,053	469,310	405,092	8,383,661	2,158,940	1,065,275	105,749	229,902	488,626	74,498
8	Alabama	17,349,604	10,723,357	364,428	371,540	6,810,301	1,596,074	846,963	105,629	144,631	409,293	74,498
9	Georgia	215,516	263,453	11,750	3,605	131,282	38,741	39,183	.....	17,714	21,178	.....
10	Maryland and North Carolina.[1]	161,993	399,952	6,097	1,310	206,219	115,857	65,698	.....	3,696	1,075	.....
11	Tennessee	3,788,115	890,826	40,913	12,900	583,033	169,791	61,786	120	16,084	6,199	.....
12	Virginia	2,331,315	1,103,465	46,122	15,737	652,826	238,477	51,645	.....	47,777	50,881	.....
13	Northeastern Region	43,635,788	8,593,746	346,910	161,093	4,067,178	2,512,034	601,034	199,402	277,625	348,740	79,730
14	New York	35,272,596	4,954,685	184,362	130,393	2,365,595	1,484,681	350,522	118,387	91,860	184,107	44,778
15	Connecticut, Massachusetts, New Jersey, and Pennsylvania.[2]	8,363,192	3,639,061	162,548	30,700	1,701,583	1,027,353	250,512	81,015	185,765	164,633	34,952
16	Central Region [3]	2,802,002	356,575	27,878	10,163	153,770	42,488	78,459	.....	16,334	12,393	15,090
17	Western Region [4]	3,962,276	1,174,071	54,080	13,868	716,350	262,426	71,443	4,142	12,405	36,691	2,666
18	**Nonproducing enterprisse**	**10,884,660**	**3,212,948**	**76,266**	**31,647**	**985,092**	**654,141**	**170,506**	**41,343**	**135,982**	**320,637**	**797,334**
19	Minnesota	6,427,966	2,027,079	29,480	12,401	452,071	340,312	78,209	27,028	103,591	308,192	675,795
20	All other [5]	4,456,694	1,185,869	46,786	19,246	533,021	313,829	92,297	14,315	32,391	12,445	121,539

[1] Includes enterprises as follows: Maryland, 1; North Carolina, 6.
[2] Includes enterprises as follows: Connecticut, 1; Massachusetts, 1; New Jersey, 5; Pennsylvania, 5.
[3] Includes enterprises in states as follows: Arkansas, 1; Missouri, 8; Texas, 1.

MINING INDUSTRY, BY REGIONS AND STATES: 1919.

PERSONS ENGAGED IN INDUSTRY—continued.																				
Wage earners.				Wage earners, Dec. 15, or nearest representative day.																
Average number.	Number, 15th day of—			Total.		Foremen, shift bosses, etc.		Enginemen, hoistmen, electricians, mechanics, etc.		Miners and drillers, including their helpers.		Timberman, trackmen, and men engaged in hauling, tramming, etc.		Muckers, loaders, laborers, and others not classified.		In mills and beneficiating plants (above ground).	Under 16 years of age (above ground).	Females (above ground).	
	Maximum month.		Minimum month.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.				
46,339	Ja	48,312	De	43,085	19,475	28,909	809	894	6,677	1,077	1,400	15,393	1,735	5,576	7,586	5,969	1,268	6	8	1
45,741	Ja	47,493	De	42,555	19,050	28,690	789	878	6,526	1,053	1,354	15,326	1,677	5,495	7,436	5,938	1,268	6	7	2
33,541	Jy	34,983	De	30,819	13,368	21,332	569	607	5,169	725	689	12,609	1,231	4,302	5,236	3,089	474	2	6	3
16,160	Mh	16,670	De	15,582	4,760	11,591	157	323	1,916	399	117	7,050	469	2,699	2,068	1,120	33	.....	4	4
16,236	Jy	17,753	De	14,119	8,350	8,777	400	249	3,165	253	552	4,974	742	1,431	3,052	1,870	439	2	2	5
1,145	Fe	1,242	Se	1,047	258	964	12	35	88	73	20	585	20	172	116	99	2	.....	.....	6
8,324	Ja	9,691	Je	6,716	3,798	5,357	144	154	866	150	469	2,005	359	1,049	1,470	1,999	499	.....	.....	7
6,485	Ja	7,450	Je	5,213	2,320	4,641	69	139	683	114	136	1,642	206	952	950	1,794	276	.....	.....	8
215	Ja	250	No	162	225	22	7	2	36	.....	34	20	67	.....	34	.....	47	.....	.....	9
177	.....	.....	.....	.....	85	44	2	2	7	2	25	2	.....	.....	4	38	47	.....	.....	10
824	Ja	1,007	Je	604	680	315	25	1	80	8	121	201	69	39	322	66	63	.....	.....	11
623	Ja	791	Au	534	488	335	41	10	60	26	153	140	17	58	160	101	57	.....	.....	12
3,160	Ja	4,259	Je	2,555	1,410	1,581	44	91	401	160	69	592	73	84	522	654	301	.....	1	13
1,811	Ja	2,509	No	1,571	749	883	24	60	150	100	59	254	22	35	321	434	173	.....	.....	14
1,349	.....	.....	.....	.....	661	698	20	31	251	60	10	338	51	49	201	220	128	.....	1	15
188	My	286	De	140	161	31	12	6	14	.....	55	25	4	.....	76	.....	.....	1	.....	16
528	Au	717	No	70	313	389	20	20	76	18	72	95	10	60	132	196	3	3	.....	17
598	Ja	819	Oc	452	425	219	20	16	151	24	46	67	58	81	150	31	.....	.....	1	18
275	Ja	463	Oc	168	270	59	15	6	73	11	30	8	34	21	118	13	.....	.....	1	19
323	.....	.....	.....	.....	155	160	5	10	78	13	16	59	24	60	32	18	.....	.....	.....	20

Expenditures for development (included in principal expenses).	Value of products.	Iron ore produced (tons, 2,240 pounds).	POWER USED.															
			Aggregate horsepower.	Prime movers.										Equipment operated by purchased power.[6]		Electric motors run by current generated by the enterprise reporting.		
				Total horsepower.	Steam engines (not turbines).		Steam turbines.		Internal-combustion engines.		Water wheels, and turbines.		Electric motors.					
					Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.	Number.	Horsepower.		
Dollars. 17,360,294	*Dollars.* 218,217,905	61,173,254	381,044	279,712	2,374	237,385	25	28,521	47	5,431	22	8,375	1,385	101,332	1,118	68,345		1
14,657,841	218,217,905	61,173,254	370,869	273,477	2,333	231,184	25	28,521	45	5,397	22	8,375	1,341	97,392	1,112	67,595		
12,189,195	193,110,738	52,731,925	285,215	208,494	1,886	180,687	17	18,761	22	821	20	8,225	1,014	76,721	946	54,520		3
1,912,393	60,906,692	15,410,494	142,559	94,778	655	69,497	13	17,132	4	49	16	8,100	507	47,781	504	40,572		4
9,812,648	128,377,174	36,258,483	135,924	110,831	1,212	108,430	4	1,629	18	772	.....	.....	462	25,093	436	13,563		5
464,154	3,826,872	1,062,948	6,732	2,885	19	2,760	.....	.....	.....	.....	4	125	45	3,847	6	385		6
499,867	14,824,021	5,770,906	44,828	36,648	357	36,595	.....	.....	3	53	.....	.....	105	8,180	28	4,674		7
359,208	12,291,760	5,053,035	36,890	28,720	251	28,690	.....	.....	1	30	.....	.....	105	8,170	26	4,614		8
3,000	283,487	71,224	1,150	1,150	16	1,150	.....	.....	.....	.....	.....	.....	.....	.....	1	50		9
3,652	233,529	59,135	825	825	9	805	.....	.....	1	20	.....	.....	.....	.....	.....	.....		10
102,871	829,118	282,988	3,659	3,649	47	3,646	.....	.....	1	3	.....	.....	.....	[6] 10	.....	.....		11
31,136	1,186,127	304,524	2,304	2,304	34	2,304	.....	.....	.....	.....	.....	.....	.....	.....	1	10		12
1,811,002	8,636,226	1,914,967	36,493	24,142	67	10,632	8	9,760	3	3,600	2	150	218	12,351	124	7,983		13
922,865	5,204,443	868,995	21,172	13,175	24	4,405	6	8,620	.....	.....	2	150	167	7,997	43	2,984		14
888,137	3,371,783	1,045,972	15,321	10,967	43	6,227	2	1,140	3	3,600	.....	.....	51	4,354	81	4,999		15
150,095	303,948	74,371	1,223	1,223	8	1,005	.....	.....	6	218	.....	.....	.....	.....	.....	.....		16
7,682	1,342,972	681,085	3,110	2,970	15	2,265	.....	.....	11	705	.....	.....	4	140	14	418		17
2,702,453	.....	.....	10,175	6,235	41	6,201	.....	.....	2	34	.....	.....	44	3,940	6	750		18
1,583,584	.....	.....	3,816	1,875	22	1,866	.....	.....	1	9	.....	.....	25	1,941	.....	.....		19
1,118,869	.....	.....	6,359	4,360	19	4,335	.....	.....	1	25	.....	.....	19	1,999	6	750		20

[4] Includes enterprises in states as follows: California, 1; Idaho, 1; Montana, 2; New Mexico, 5; Utah, 2; Washington, 1; Wyoming, 1.
[5] Includes enterprises in states as follows: Alabama, 2; Michigan, 3; Utah, 1; Wisconsin, 2.
[6] Includes 10 horsepower reported for equipment other than electric motors.