

DEPARTMENT OF COMMERCE  
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FOURTEENTH CENSUS OF THE UNITED STATES  
MINES AND QUARRIES: 1919

NEW YORK, NEW JERSEY  
PENNSYLVANIA

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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 1900 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 18 or 18 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 1900. 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 1900 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 amounts 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.

**Land 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.

## NEW YORK.

New York, which ranks twenty-ninth among the states in size (land area 47,654 square miles) and first in population (10,385,227 in 1920), ranked twenty-second in value of mineral products for 1919. The state ranked twenty-third in the total number of persons engaged in the mining industries and twenty-fourth in the average number of wage earners employed.

The gross value of products of all mines, quarries, and wells in New York in 1919 was \$25,131,093 which was an increase of 88.5 per cent over the amount reported at the census of 1909. The value of products for 1919 includes receipts for mineral and other unspecified by-products, for power sold, and work or miscellaneous services for other enterprises. It also includes a duplication of \$2,692,086, the value of natural gas sold by some producers to others who used it as material or resold it and included it in their products. Deducting this duplicated amount leaves as net product for 1919 \$22,439,007, which was an increase of 69.1 per cent over the corresponding amount reported at the census of 1909.

The increase in value of products and the increases in capital, wages, cost of supplies and materials and fuel and power, as shown in Table 1, are largely due to general price increases during the census interval and therefore are not a measure of growth in mining. A decline in mining in 1919 as compared with 1909 is indicated by the decreases in the number of enterprises, individual mines and quarries operated, and average number of wage earners employed.

The mining industries reported in New York in 1919, classified according to principal products and listed in order of value of products, were petroleum and natural gas, iron ore, limestone, gypsum, talc and soapstone, basalt or trap rock, lead and zinc, pyrite, slate, graphite, abrasive materials, sandstone, marble, granite, feldspar, millstones, and clay. The production of salt was an important mineral industry in New York but was not included in the census of mines and quarries. The industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The principal mineral industry in New York was the production of petroleum and natural gas. The statistics for this industry include the operation of plants engaged in the extraction of gasoline from natural gas, whether such plants were connected with well operations or operated independently. Petroleum and natural-gas enterprises numbered 561, or 80.1

per cent of all mining enterprises in the state. The industry employed 14 per cent of the total number of wage earners and reported products valued at \$9,900,894, or 39.4 per cent of the total gross value of products of the state. Petroleum and natural gas were reported from 3 counties along the Pennsylvania state line in the western part of the state, and natural gas only was reported from 10 other western counties.

The industry second in importance on the basis of value of products, but first in the average number of wage earners employed, was the mining of iron ore. Seven enterprises in this industry employed 29.2 per cent of the total number of wage earners and contributed products valued at \$5,264,443, or 20.9 per cent of the total for the state. New York ranked fourth among the states in the value of iron ore produced in 1919.

Limestone ranked third among the mining industries in New York on the basis of value of products and second on average number of wage earners employed, and the state was fourth in the United States in the production of limestone in 1919. Fifty-five enterprises employed 28 per cent of the total number of wage earners and reported products valued at \$4,597,942, or 18.3 per cent of the total for the state. The producing limestone quarries were well distributed over the state; 27 countries reported. The product was used for construction work and in manufacturing industries.

The mining industry fourth in importance in New York in 1919 was the production of gypsum, in which six enterprises employed 6.4 per cent of the total number of wage earners and contributed products valued at \$1,110,463, or 4.4 per cent of the total value of products of the state. In this industry New York ranked first in the United States. The producing enterprises were in Erie, Genesee, Madison, and Monroe Counties.

Thirteen other mineral industries in New York together reported only 17 per cent of the total value of products and on this basis are of relatively minor importance as compared with the principal mining and quarrying industries. In several of these industries, however, which produce materials important industrially, New York ranked high; in value of talc and soapstone, graphite, and abrasive materials (principally garnet and emery) the state was first and in value of pyrite and slate, third.

Operations for the purpose of development of non-productive mineral properties were reported by only one enterprise, therefore, statistics are not presented.

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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 1900.

	MINING INDUSTRIES.		Per cent of increase. <sup>1</sup>		MINING INDUSTRIES.		Per cent of increase. <sup>1</sup>
	1919	1900			1919	1900	
Number of enterprises.....	2,283	1,876	21.7	Capital.....	\$256,057,000	\$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	( <sup>2</sup> )	.....	Wages.....	58,109,004	20,700,220	117.1
Persons engaged.....	56,736	56,250	0.9	Contract work.....	3,020,476	2,070,544	32.3
Proprietors and firm members, total.....	3,309	3,064	8.0	Supplies and materials <sup>3</sup> .....	10,209,510	12,730,355	50.8
Number performing manual labor in or about the mines, quarries, and wells.....	509	571	-10.0	Fuel and power.....	4,131,068	802,071	362.8
Salaried employees.....	4,129	2,625	57.3	Royalties and rents.....	6,339,816	3,067,382	72.0
Wage earners (average number).....	49,208	50,567	-2.5	Taxes.....	4,028,789	850,706	370.2
Power used (horsepower).....	337,611	294,763	14.5	Value of products.....	134,518,505	63,767,112	111.0

<sup>1</sup> A minus sign (-) denotes decrease.<sup>2</sup> Figures not available.<sup>3</sup> 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	\$6,742,496	5.0
Coal, bituminous.....	788	40,452	82.1	77,988,002	58.0	Sandstone.....	21	875	1.8	2,750,352	2.1
Petroleum and natural gas.....	1,333	5,123	10.4	45,483,525	33.8	All other industries <sup>1</sup> .....	51	586	1.2	1,544,630	1.1

<sup>1</sup> Includes enterprises in industries as follows: Clay, 40; gypsum, 2.

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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.....	700	6,202	\$25,131,093	\$35,902	100.0	100.0	100.0
Corporation.....	140	5,414	21,431,050	146,792	20.9	87.3	85.3
Individual.....	183	213	930,805	5,086	26.1	3.4	3.7
Firm.....	243	495	2,045,660	8,418	34.7	8.0	8.1
Other.....	128	80	722,978	5,648	18.3	1.3	2.0
PETROLEUM AND NATURAL GAS.....	561	868	9,900,894	17,649	100.0	100.0	100.0
Corporation.....	61	558	7,179,452	117,696	10.9	64.3	72.5
Individual.....	155	77	663,741	4,282	27.6	8.9	6.7
Firm.....	217	153	1,334,723	6,151	38.7	17.6	13.5
Other.....	128	80	722,978	5,648	22.8	9.2	7.3
LIMESTONE.....	55	1,739	4,597,942	83,599	100.0	100.0	100.0
Corporation.....	36	1,561	4,220,582	117,238	65.5	89.8	91.8
Individual.....	10	36	81,279	8,128	18.2	2.1	1.8
Firm.....	9	142	206,081	32,898	16.4	8.2	6.4
SLATE.....	9	134	445,027	49,447	100.0	100.0	100.0
Corporation.....	5	111	397,183	79,437	55.6	82.8	89.2
Firm.....	4	23	47,844	11,961	44.4	17.2	10.8
SANDSTONE.....	22	140	301,315	13,696	100.0	100.0	100.0
Corporation.....	8	88	186,124	23,266	36.4	60.3	61.8
Individual.....	7	20	66,140	9,449	31.8	19.9	21.9
Firm.....	7	29	49,051	7,007	31.8	19.9	16.3

<sup>1</sup> Includes 1 individual.

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.....	700	100.0	6,202	100.0	GYPSUM.....	6	100.0	400	100.0
No wage earners.....	321	45.9	.....	.....	1 to 5.....	1	16.7	1	0.2
1 to 5.....	208	29.8	431	6.8	6 to 20.....	1	16.7	15	3.8
5 to 20.....	50	8.4	671	10.8	21 to 50.....	1	16.7	40	10.0
21 to 50.....	23	3.3	773	12.5	51 to 100.....	1	16.7	59	14.8
51 to 100.....	13	1.9	883	14.2	101 to 500.....	2	33.3	285	71.2
101 to 500.....	14	2.0	2,122	34.2	SANDSTONE.....	22	100.0	140	100.0
501 to 1,000.....	2	0.3	1,332	21.5	No wage earners.....	2	9.1	.....	.....
IRON ORE.....	7	100.0	1,811	100.0	1 to 5.....	10	45.5	16	11.0
21 to 50.....	2	28.6	74	4.1	6 to 20.....	9	40.9	109	74.7
51 to 500.....	3	42.9	405	22.4	21 to 50.....	1	4.5	21	14.4
501 to 1,000.....	2	28.6	1,332	73.6	SLATE.....	9	100.0	134	100.0
LIMESTONE.....	55	100.0	1,739	100.0	1 to 5.....	3	33.3	9	6.7
No wage earners.....	2	3.6	.....	.....	6 to 20.....	3	33.3	26	19.4
1 to 5.....	10	18.2	25	1.4	21 to 50.....	3	33.3	99	73.9
6 to 20.....	24	43.6	270	15.6	GRANITE.....	7	100.0	101	100.0
21 to 50.....	8	14.5	287	16.5	1 to 5.....	3	42.9	8	7.9
51 to 100.....	8	14.5	500	32.2	6 to 20.....	2	28.6	24	23.8
101 to 500.....	3	5.5	501	34.0	21 to 50.....	2	28.6	69	68.3
PETROLEUM AND NATURAL GAS.....	561	100.0	868	100.0	MARBLE.....	0	100.0	100	100.0
No wage earners.....	310	55.3	.....	.....	6 to 20.....	5	83.3	65	65.0
1 to 5.....	236	42.1	351	40.4	21 to 50.....	1	16.7	35	35.0
6 to 20.....	10	1.8	93	10.7					
21 to 50.....	2	0.3	70	8.1					
51 to 100.....	2	0.3	132	15.2					
101 to 500.....	1	0.2	222	25.6					

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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—											
	Enter-prises.	Wage earners.	35 and under.		36 to 43.		44 to 53.		54 to 62.		63 to 71.		72 to 84.	
			Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.	Enter-prises.	Wage earners.
All industries.....	1 379	6,202	57	64	13	16	117	2,072	174	3,082	13	39	5	20
Iron ore.....	7	1,811					6	1,774	1	37				
Limestone.....	53	1,739	1	6			11	238	41	1,495				
Petroleum and natural gas.....	251	868	56	58	13	16	77	207	89	558	12	20	4	9
Gypsum.....	6	400					1	143	5	257				
Sandstone.....	20	146					5	15	14	112	1	19		
Slate.....	9	134					2	14	7	120				
Granite.....	7	101					4	32	3	69				
Marble.....	6	100					1	11	5	89				
All other industries.....	20	903					10	538	9	345			1	20

<sup>1</sup> Exclusive of 321 enterprises employing no wage earners in industries as follows: Abrasive materials, 2; limestone, 2; millstones, 5; petroleum and natural gas, 310; sandstone, 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 OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries.....	6,202	6,180	<b>5,553</b>	<b>5,627</b>	6,040	6,420	6,450	<b>6,690</b>	6,669	6,537	6,474	6,108	5,767	83.0
Iron ore.....	1,811	<b>2,599</b>	<b>2,127</b>	1,953	1,842	1,758	1,740	1,724	1,582	1,587	1,617	<b>1,571</b>	1,632	90.4
Limestone.....	1,739	<b>1,356</b>	<b>1,134</b>	1,409	1,764	2,032	1,955	2,085	<b>2,111</b>	1,989	1,901	1,959	1,423	56.1
Petroleum and natural gas.....	868	827	802	<b>798</b>	801	826	803	834	917	919	905	881	859	84.3
Gypsum.....	400	350	359	378	372	383	390	368	<b>340</b>	435	475	<b>504</b>	470	67.5
Sandstone.....	146	40	55	82	127	174	185	191	205	<b>211</b>	206	188	88	19.0
Slate.....	134	86	78	<b>65</b>	101	122	127	137	160	164	177	191	<b>200</b>	32.5
Granite.....	101	29	<b>26</b>	31	65	126	146	149	158	155	148	104	75	16.5
Marble.....	100	<b>51</b>	68	73	76	77	123	<b>128</b>	128	125	125	118	108	39.8
Millstones.....	1			2		2	2	2	2	2				
All other industries.....	902	842	854	842	<b>802</b>	920	943	<b>972</b>	966	950	920	892	912	82.5

## MINES AND QUARRIES—NEW YORK.

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

	Total.	PRODUCING ENTERPRISES.									
		Petroleum and natural gas. <sup>1</sup>	Iron ore.	Limestone.	Gypsum.	Slate.	Sandstone.	Marble.	Granite.	Millstones.	All other. <sup>2</sup>
Number of enterprises.....	700	501	7	55	6	9	22	6	7	6	21
Number of mines and quarries.....	147		7	56	6	10	26	6	7	6	23
Number of petroleum and natural-gas wells.....	14,186	14,186									
Number of natural-gas gasoline plants.....	6	6									
Capital.....	\$85,446,438	\$30,709,123	\$35,272,596	\$11,185,400	\$1,559,514	\$481,000	\$534,031	\$416,070	\$439,047	\$1,305	\$5,777,626
Principal expenses:											
Salaries and wages.....											
Officers.....	\$400,385	\$38,077	\$61,125	\$136,086	\$13,102		\$10,200	\$7,750	\$3,410		\$79,075
Superintendents and managers.....	\$376,306	\$77,606	\$84,827	\$108,402	\$21,500	\$8,807	\$12,480	\$1,407	\$8,123		\$53,133
Technical employees.....	\$75,350	\$18,213	\$38,410		\$8,793		\$780		\$1,800		\$7,300
Clerks, etc.....	\$579,655	\$265,702	\$130,393	\$78,805	\$35,408	\$1,630	\$7,640	\$6,614	\$2,403		\$50,720
Wage earners.....	\$7,490,781	\$1,087,232	\$2,305,895	\$2,109,671	\$515,050	\$135,820	\$149,051	\$102,097	\$87,661	\$400	\$943,998
Supplies and materials.....	\$1,724,500	\$1,215,807	\$1,484,081	\$1,119,461	\$263,014	\$60,436	\$40,505	\$34,813	\$29,408	\$1,560	\$476,354
Cost of natural gas purchased as material and for resale.....	\$2,002,083	\$2,002,080									
Fuel.....	\$607,027	\$101,476	\$356,522	\$177,072	\$36,719	\$10,280	\$9,320	\$17,340	\$6,888		\$167,351
Power.....	\$435,218		\$118,387	\$159,860	\$47,707	\$25,765	\$2,124	\$4,952	\$5,861		\$70,562
Royalties and rents.....	\$649,472	\$395,066	\$91,800	\$47,125	\$31,946	\$2,206	\$4,085	\$1,282	\$1,449		\$73,873
Taxes.....	\$804,416	\$455,307	\$184,107	\$87,343	\$9,570	\$6,301	\$2,735	\$5,478	\$1,042		\$61,837
Contract work.....	\$780,360	\$617,083	\$44,778	\$8,958		\$3,483	\$117	\$10,203			\$95,078
Expenditures for development (included in the above items).....	\$2,232,800	\$1,210,835	\$922,805	\$10,577		\$1,500	\$5,025				\$83,407
Value of products.....	\$25,131,003	\$6,000,894	\$5,204,443	\$4,507,042	\$1,110,463	\$445,027	\$301,315	\$249,286	\$173,404	\$7,827	\$3,080,492
Persons engaged in industry.....	7,013	2,014	1,943	1,032	416	148	192	115	115	9	990
Proprietors and firm members (total).....	896	810	1	31	1	8	22	1	3	8	11
Number performing manual labor.....	202	173		4	1		15		1	6	2
Salaried officers.....	144	40	11	47	5		5	6	1		20
Superintendents and managers.....	108	40	24	40	10	5	9	2	6		23
Technical employees.....	38	11	17		4		1		1		4
Clerks, etc.....	405	280	79	66	26	1	9	6	3		39
Wage earners (average number).....	6,202	868	1,811	1,730	400	134	146	100	101	1	902
Wage earners by occupation (Dec. 15):											
Above ground (total).....	4,032	580	740	1,801	167	159	204	128	120	1	714
Below ground (total).....	1,494		883		304	40					257
Foremen, shift bosses, etc.—											
Above ground.....	194		24	95	2	11	11	7	5		39
Below ground.....	81		60		8	2					11
Engineers, holstoners, electricians, mechanics, etc.—											
Above ground.....	1,261	612	150	282	11	23	11	15	7		150
Below ground.....	120		109		18						2
Miners, quarrymen, and drillmen, including their helpers—											
Above ground.....	754		59	440		18	72	48	69		48
Below ground.....	454		254		97	18					85
Timbermen, trackmen, and men engaged in hauling, trimming, etc.—											
Above ground.....	248		22	166	1	0	11	20			22
Below ground.....	167		35		48						74
Muckers, loaders, laborers, and others not classified—											
Above ground.....	1,547	277	321	801	50	45	40	25	13	1	268
Below ground.....	672		434		183	20					85
Wage earners employed in mills and beneficiating plants—											
Above ground.....	628		173	17	103	56	53	18	26		187
Mineral and all lands operated..... acres.....	305,403	318,780	20,121	5,304	2,471	448	246	107	301	7	17,728
Land controlled, total..... acres.....	484,031	318,780	130,550	4,129	2,471	448	649	353	311	7	18,983
Mineral and oil land owned.....	79,098	58,913	8,461	5,046	769	206	190	97	267	7	5,051
Mineral and oil land leased.....	285,795	259,817	11,660	258	1,712	182	457	10	34		12,075
Timber and other lands owned and leased.....	119,138		116,420	825			403	240	10		1,255
Power used: Aggregate horsepower.....	91,330	30,190	21,172	22,370	1,706	2,022	1,234	495	2,208		9,036
Prime movers (horsepower, total).....	92,426	30,190	13,175	10,243	725	212	981	275	808		5,811
Steam engines—											
Number.....	600	652	24	147	3	5	16	9	18		28
Horsepower.....	30,065	8,907	4,405	9,968	707	212	842	275	803		3,030
Steam turbines—											
Number.....	8		6								2
Horsepower.....	9,720		8,320								1,100
Internal-combustion engines—											
Number.....	1,033	1,500	12	1			10		1		
Horsepower.....	21,726	21,280	275	18			139		5		
Water wheels, turbines, and motors—											
Number.....	4		2								2
Horsepower.....	925	150	7,697	12,127	981	1,810	253	220	1,400		775
Purchased power (horsepower, total).....	28,913										4,125
Electric motors operated by purchased current—											
Number.....	505		107	237	25	44	8	8	18		90
Horsepower.....	28,913		7,997	12,127	981	1,810	253	220	1,400		4,125
Electric motors run by current generated by enterprise using:											
Number.....	130	4	43	18	41		8				25
Horsepower.....	9,321	10	2,984	1,195	302		233				1,507
Fuel used:											
Coal, anthracite..... tons, 2,240 pounds.....	52,350		43,557	270		100	30	4	15		8,380
Coal, bituminous..... tons, 2,000 pounds.....	82,852	1,243	15,801	34,764	10,835	1,410	2,255	1,928	1,225		13,382
Coke..... tons, 2,000 pounds.....	1,128		670	25	423						250
Wood..... cords.....	250			201			20				
Fuel oils..... barrels.....	430		149	484	3		144	18	5		
Gasoline and other volatile oils..... barrels.....	1,084		420								
Natural gas..... 1,000 cubic feet.....	1,097,257	1,097,257									

<sup>1</sup> Exclusive of a small operation inseparably combined with report on Pennsylvania operations.<sup>2</sup> Includes enterprises as follows: Abrasive materials, 4; basalt, 4; clay, 2; felspar, 2; graphite, 2; lead and zinc, 1; pyrite, 2; talc and soapstone, 4.



## NEW JERSEY.

New Jersey, which ranks forty-fifth among the states in size (land area 7,514 square miles) and tenth in population (3,155,900 in 1920), ranked thirty-first in the value of mineral products for 1919. The state ranked twenty-eighth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The total value of products of all mines and quarries in New Jersey in 1919 was \$9,308,902, an increase of 11.5 per cent over the amount reported at the census of 1909. This increase and the increases in capital, wages, cost of supplies and materials and fuel and power, as shown in Table 1, are largely due to general price increases during the census interval and are, therefore, not a measure of growth in mining. There is, on the contrary, a decline indicated by the decrease in number of enterprises and in number of individual mines and quarries operated, and in the average number of wage earners employed.

The mining industries reported in New Jersey in 1919, classified according to principal products and listed in order of value of products, were zinc, iron ore, basalt or trap rock, clay, limestone, granite, and sandstone.

Statistics for the leading industries, zinc and iron ore, are not shown separately in order to avoid disclosure of individual operations, but are shown as "All other industries" in Table 2, which ranks the industries that can be shown according to value of products. Seven of the 97 mining enterprises were engaged in the zinc and iron-ore-mining industries, and together employed 60 per cent of the total number of wage earners and contributed 57.1 per cent of the total value of mineral products of the state.

The industries next in importance after metal mining were the quarrying of basalt or trap rock and the mining of clay, and in both of these industries New Jersey ranked second in the United States. The first included 36 enterprises, which employed 13.9 per cent of the total number of wage earners and reported products valued at \$1,928,025, or 20.7 per cent of the total for the state. The second included 35 enterprises, employed 19 per cent of the total

number of wage earners, and reported products valued at \$1,482,359, or 15.9 per cent of the total for the state.

The quarry industries, which included production of basalt or trap rock, limestone, granite, and sandstone, comprised 55 out of a total of 97 enterprises in the state, employed 21 per cent of the total number of wage earners, and reported products valued at \$2,515,057, or 27 per cent of the total for the state.

The mining enterprises in New Jersey in 1919 are classified according to character of operating organization in Table 3, which shows, for the state as a whole and for the industries presented separately, that corporations conducted the majority of operations and were preponderant as to number of wage earners employed and total value of products reported.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the total number of mining enterprises, 1 employed no wage earners, and 88 employed fewer than 101 each. On the other hand, 8 enterprises had more than 100 wage earners each and employed practically two-thirds of the total number. These larger enterprises were in the zinc, iron-ore, and clay-mining industries.

Table 5 shows that in less than one-third of the enterprises but for 68.6 per cent of the total number of wage earners the hours of labor were 44 to 53 per week, while in more than two-thirds of the enterprises but for only 31.4 per cent of the wage earners the hours were 54 to 62 per week. In the clay-mining and quarrying industries the longer hours and the 6-day week prevailed with a 10-hour day in clay mining and, as a rule, a 9-hour day in quarrying. In the zinc and iron-ore-mining industries shorter hours with an 8-hour day and 6-day week prevailed.

The statistics for wage earners presented in Table 6, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

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



# MINES AND QUARRIES—NEW JERSEY.

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

	MINING INDUSTRIES.		Per cent of increase. <sup>1</sup>		MINING INDUSTRIES.		Per cent of increase. <sup>1</sup>
	1919	1909			1919	1909	
Number of enterprises.....	97	131	-26.0	Principal expenses:			
Number of mines and quarries.....	102	151	-32.5	Salaries.....	\$726,550	\$263,181	176.1
Persons engaged.....	5,029	6,090	-24.8	Wages.....	5,392,861	2,801,066	92.5
Proprietors and firm members, total.....	40	99		Contract work.....	57,948	44,489	30.3
Number performing manual labor in or about the mines and quarries.....	20	14		Supplies and materials.....	2,194,539	674,962	225.1
Salaried employees.....	413	279	48.0	Fuel and power.....	719,938	319,329	125.5
Wage earners (average number).....	4,576	6,815	-27.5	Royalties and rents.....	276,555	101,026	173.7
Power used (horsepower).....	33,901	18,048	87.8	Taxes.....	371,765	47,354	685.1
Capital.....	\$10,905,356	\$8,613,663	90.3	Value of products.....	9,308,902	8,347,501	11.5

<sup>1</sup> A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.

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.....	97	4,576	100.0	\$9,308,902	100.0	Limestone.....	10	258	5.6	\$459,059	4.9
Basalt.....	36	637	13.9	1,928,025	20.7	Granite.....	4	48	1.0	81,198	0.9
Clay.....	35	808	10.0	1,482,359	15.9	Sandstone.....	5	20	0.4	40,775	0.5
						All other industries.....	7	2,745	60.0	5,311,486	57.1

<sup>1</sup> Includes enterprises in industries as follows: Iron ore, 5; zinc, 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.....	97	4,576	\$9,308,902	\$95,968	100.0	100.0	100.0
Corporation.....	60	4,224	8,567,040	142,794	61.9	92.3	92.0
Individual.....	34	342	719,412	21,159	35.1	7.5	7.7
Firm.....	3	10	21,850	7,283	3.1	0.2	0.2
BASALT.....	36	637	1,928,025	53,556	100.0	100.0	100.0
Corporation.....	23	540	1,665,957	72,433	63.9	84.8	86.4
Individual.....	13	97	262,068	20,159	36.1	15.2	13.6
CLAY.....	35	808	1,482,359	42,353	100.0	100.0	100.0
Corporation.....	19	687	1,106,225	58,222	54.3	79.1	74.6
Individual.....	16	181	376,134	23,508	45.7	20.9	25.4
LIMESTONE, GRANITE, AND SANDSTONE.....	19	326	587,082	30,896	100.0	100.0	100.0
Corporation.....	11	252	488,972	43,997	57.9	77.3	82.4
Individual.....	8	74	108,060	12,882	42.1	22.7	17.6

<sup>1</sup> Includes 1 firm.

## MINES AND QUARRIES—NEW JERSEY.

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 distribu- tion.	Number.	Per cent distribu- tion.		Number.	Per cent distribu- tion.	Number.	Per cent distribu- tion.
ALL INDUSTRIES.....	97	100.0	4,576	100.0	BASALT.....	36	100.0	637	100.0
No wage earners.....	1	1.0	70	1.7	1 to 5.....	10	27.8	41	6.4
1 to 5.....	23	23.7	449	9.8	6 to 20.....	16	44.4	185	29.0
6 to 20.....	41	42.3	571	12.5	21 to 50.....	8	22.2	288	45.2
21 to 50.....	17	17.5	450	9.8	51 to 100.....	2	5.6	123	19.3
51 to 100.....	7	7.2	1,531	33.5	LIMESTONE, GRANITE, AND SAND- STONE.....	19	100.0	326	100.0
101 to 500.....	7	7.2	1,496	32.7	1 to 5.....	5	26.3	16	4.6
Over 1,000.....	1	1.0			6 to 20.....	9	47.4	96	29.4
CLAY.....	35	100.0	808	100.0	21 to 50.....	4	21.1	137	42.0
No wage earners.....	1	2.0	23	2.6	51 to 100.....	1	5.3	78	23.9
1 to 5.....	8	22.9	108	13.4					
6 to 20.....	16	45.7	146	18.8					
21 to 50.....	5	14.3	184	22.2					
51 to 100.....	3	8.6	347	40.0					
101 to 500.....	2	5.7							

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 PREVAIL- ING HOURS OF LABOR PER WEEK WERE—				INDUSTRY.	TOTAL.		NUMBER WHERE THE PREVAIL- ING HOURS OF LABOR PER WEEK WERE—			
	Enter- prises.	Wage earnors.	44 to 53.		54 to 62.			Enter- prises.	Wage earnors.	44 to 53.		54 to 62.	
			Enter- prises.	Wage earnors.	Enter- prises.	Wage earnors.				Enter- prises.	Wage earnors.	Enter- prises.	Wage earnors.
All industries.....	196	4,576	27	3,141	60	1,435	Limestone, granite, and sandstone.....	19	326	6	117	13	200
Clay.....	34	868	4	146	30	722	All other industries.....	7	2,745	7	2,745	.....	.....
Basalt.....	36	637	10	133	26	504							

<sup>1</sup> Exclusive of 1 enterprise in the clay industry employing no wage earners.

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.	Aver- age num- ber em- ployed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent mini- mum is of maxi- mum.
		Janu- ary.	Febru- ary.	March.	April.	May.	June.	July.	August.	Septem- ber.	Octo- ber.	Novem- ber.	Decem- ber.	
All industries.....	4,576	4,704	4,592	4,647	4,763	4,526	4,108	4,713	4,741	4,780	4,078	4,328	4,278	87.1
Clay.....	808	611	590	595	917	1,076	1,057	1,105	1,114	1,129	934	934	945	52.7
Basalt.....	637	350	352	385	578	760	706	808	770	770	704	715	570	45.6
Limestone.....	258	290	288	276	237	222	230	242	258	255	260	253	264	74.2
Granite.....	48	27	28	51	48	48	85	35	35	37	81	70	72	35.3
Sandstone.....	20	7	7	7	30	20	20	20	20	20	22	11	11	25.3
All other industries.....	2,745	3,401	3,318	3,333	2,953	2,401	2,009	2,494	2,520	2,551	2,011	2,036	2,707	60.1

# MINES AND QUARRIES—NEW JERSEY.

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

	PRODUCING ENTERPRISES.						
	Total.	Basalt.	Clay.	Limestone.	Granite.	Sandstone.	All other.*
Number of enterprises.....	97	36	35	10	4	5	7
Number of mines and quarries.....	102	36	35	10	6	6	9
Capital.....	\$16,905,356	\$1,373,890	\$2,840,074	\$1,586,492	\$86,900	\$25,000	\$10,993,000
Principal expenses:							
Salaries and wages—							
Officers.....	\$106,403	\$49,515	\$69,153	\$3,625	\$2,500	.....	\$36,670
Superintendents and managers.....	\$197,358	\$45,610	\$48,597	\$11,208	\$900	\$1,300	\$89,842
Technical employees.....	\$112,002	\$3,900	\$2,470	.....	.....	.....	\$106,532
Clerks.....	\$249,820	\$31,441	\$27,435	\$3,056	.....	.....	\$186,997
Wage earners.....	\$5,302,881	\$750,000	\$887,086	\$255,203	\$42,631	\$27,209	\$3,420,836
Supplies and materials.....	\$2,104,539	\$427,846	\$118,293	\$109,198	\$6,480	\$1,218	\$1,531,504
Fuel.....	\$621,584	\$142,358	\$61,227	\$37,580	\$5,500	\$3,500	\$381,359
Power.....	\$98,354	\$10,420	\$978	\$480	.....	.....	\$86,476
Royalties and rents.....	\$276,555	\$90,954	\$11,008	\$14,053	\$2,242	\$2,000	\$156,298
Taxes.....	\$371,705	\$20,819	\$38,260	\$5,835	\$495	\$434	\$302,026
Contract work.....	\$57,948	\$10,562	\$14,058	\$330	.....	.....	\$23,398
Expenditures for development (included in the above items).....	\$831,085	\$25,995	.....	\$8,399	.....	.....	\$797,591
Value of products.....	\$9,308,902	\$1,928,025	\$1,482,359	\$450,059	\$81,198	\$46,775	\$5,811,486
Persons engaged in industry.....	5,029	727	962	273	52	26	2,989
Proprietors and firm members (total).....	40	14	17	2	2	5	.....
Number performing manual labor.....	20	7	11	.....	1	1	.....
Salaried officers.....	53	20	24	2	1	.....	6
Superintendents and managers.....	80	28	18	6	1	1	28
Technical employees.....	57	2	2	.....	.....	.....	53
Clerks, etc.....	223	28	33	5	.....	.....	157
Wage earners (average number).....	4,576	637	868	258	48	20	2,745
Wage earners by occupation (Dec. 15):							
Above ground (total).....	2,353	721	1,107	272	72	36	1,325
Below ground (total).....	1,378	.....	6	.....	.....	.....	1,372
Foremen, shift bosses, etc.—							
Above ground.....	124	26	19	11	2	4	62
Below ground.....	48	.....	.....	.....	.....	.....	48
Enginemen, holstmen, electricians, mechanics, etc.—							
Above ground.....	545	91	38	40	5	1	370
Below ground.....	60	.....	.....	.....	.....	.....	60
Miners, quarrymen, and drillmen, including their helpers—							
Above ground.....	420	221	56	84	29	5	34
Below ground.....	693	.....	.....	.....	.....	.....	693
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—							
Above ground.....	130	1	25	10	3	.....	91
Below ground.....	391	.....	.....	.....	.....	.....	391
Muckers, loaders, laborers, and others not classified—							
Above ground.....	1,885	374	960	127	33	23	368
Below ground.....	186	.....	6	.....	.....	.....	180
Wage earners employed in mills and beneficiating plants—							
Above ground.....	420	8	9	.....	.....	3	400
Number of females included in wage earners reported above—							
Above ground.....	1	.....	.....	.....	.....	.....	1
Mineral land operated.....acres..	27,006	1,445	6,090	428	250	67	18,717
Land controlled, total.....acres..	37,852	1,689	6,626	497	305	108	28,027
Mineral land owned.....	19,885	981	5,600	325	225	37	12,717
Mineral land leased.....	7,121	464	499	103	25	30	6,000
Timber and other lands owned and leased.....	10,846	244	527	69	55	41	9,910
Power used: Aggregate horsepower.....	33,901	6,340	2,817	1,372	195	89	23,088
Prime movers (horsepower, total).....	20,847	5,298	2,683	1,387	195	89	17,245
Steam engines—							
Number.....	137	51	38	9	3	4	32
Horsepower.....	16,387	5,011	2,435	537	195	74	8,105
Steam turbines—							
Number.....	7	1	.....	1	.....	.....	5
Horsepower.....	10,065	125	.....	800	.....	.....	9,140
Internal-combustion engines—							
Number.....	35	14	20	.....	.....	1	.....
Horsepower.....	425	102	248	.....	.....	15	.....
Purchased power (horsepower, total).....	7,054	1,042	134	35	.....	.....	5,843
Electric motors operated by purchased current—							
Number.....	104	20	7	1	.....	.....	78
Horsepower.....	7,054	1,042	134	35	.....	.....	5,843
Electric motors run by current generated by enterprise using:							
Number.....	213	.....	.....	18	.....	.....	195
Horsepower.....	8,742	.....	.....	634	.....	.....	8,108
Fuel used:							
Coal, anthracite.....tons, 2,240 pounds..	57,267	2,041	8	180	.....	.....	55,058
Coal, bituminous.....tons, 2,000 pounds..	62,486	22,058	13,498	7,579	826	519	18,006
Coke.....tons, 2,000 pounds..	151	.....	.....	139	.....	.....	12
Wood.....cords..	21	.....	.....	21	.....	.....	.....
Fuel oils.....barrels..	18,880	4	115	86	.....	.....	18,695
Gasoline and other volatile oils.....barrels..	618	228	200	102	.....	10	78

\* Includes enterprises as follows: Iron ore, 5; zinc, 2.

\* Includes 1 wage earner under 16 years of age.

## PENNSYLVANIA.

Pennsylvania, which ranks thirty-second among the states in size (land area 44,832 square miles) and second in population (8,720,017 in 1920), ranked first in the value of mineral products for 1919. The state also ranked first in the number of enterprises in the mineral industries, in the total number of persons engaged in them, and in the average number of wage earners employed.

The gross value of products of all mines, quarries, and wells in Pennsylvania in 1919 was \$819,451,109. This amount includes, in addition to the value of the principal mineral products, \$353,607, the value of mineral by-products; \$253,371, the value of other unspecified products; and \$1,276,785 received for power sold and for work or miscellaneous services for other enterprises. The gross value of products also includes duplication to the amount of \$433,318, the value of anthracite coal sold by some operators to others who resold it after preparing it for market, and \$5,077,115, the value of natural gas sold by some producers to others who used it as material or resold it and included the value of this gas in their reports on value of products. Deducting these duplications leaves \$813,940,676 as the net value of products for 1919.

The gross value of products for 1919 is an increase of 134.8 per cent, and the net value is an increase of 135.3 per cent as compared with the corresponding values reported at the census of 1909. The 1909 census of mines and quarries included data on coke manufacture with the statistics on coal-mining operations and, therefore, the value of products reported by the 1909 census includes approximately \$18,000,000, the value added by the manufacture of coke, which has no counterpart in the statistics for 1919. Taking into consideration this difference, the value of products reported for 1919 was approximately 150 per cent greater than the comparable amount for 1909.

The increase in value of products and the increases in wages, cost of supplies and materials and fuel and power, as shown in Table 1, are in large part due to general price increases during the census interval. They are, therefore, not a correct measure of the growth of mining but they do indicate progress as is also indicated by the increases in number of enterprises and number of individual mines and quarries operated. These increases preclude the interpretation of the small decrease in average number of wage earners as marking a decline in mining.

The mining industries reported in Pennsylvania in 1919, classified according to principal products and listed in order of value of products, were anthracite coal, bituminous coal, petroleum and natural gas, limestone, sandstone, slate, clay, basalt, iron ore, granite, mineral pigments, abrasive materials, talc and soapstone, silica, graphite, and lead and zinc. The industries for which statistics can be shown without dis-

closure of individual operations are ranked by value of products in Table 2. The leading industries engaged in the production of the fuels, anthracite and bituminous coal and petroleum and natural gas, accounted for 96.8 per cent of the total value of products for the state.

The leading mineral industry in Pennsylvania in 1919 as determined by value of products was the production of anthracite coal. All the coal-mining enterprises classified by the census of 1919 as anthracite were in Pennsylvania. Anthracite is also mined in the Rocky Mountain Province but, for convenience and to avoid disclosure of individual operations, the data for such anthracite production are included with statistics for bituminous coal. The Pennsylvania anthracite region is restricted to 10 eastern counties in which it occupies areas aggregating approximately 500 square miles. The 254 enterprises reported in this industry include the following: 156 colliery enterprises, which operated 374 mines, 245 breakers, and 60 culm washeries; 19 enterprises, which operated 19 culm washeries independently of mines; and 79 enterprises, which operated 81 river dredges. The average number of wage earners employed in these enterprises was 147,372, or 45.6 per cent of the total number in the mining industries of the state, and the gross value of products reported was \$364,084,142, or 44.4 per cent of the total value of the mineral products of the state.

The mining of bituminous coal was second in importance in 1919 on the basis of value of products and first on that of the average number of wage earners employed. One-third of the mining enterprises in Pennsylvania were engaged in this industry, employed 154,992 wage earners, or 47.9 per cent of the total number, and reported products valued at \$362,973,952, or 44.3 per cent of the total for the state. The output of bituminous coal for this state was nearly one-third of the total for the United States. The bituminous coal field of Pennsylvania, which is continuous with the coal fields of Ohio, West Virginia, and Maryland, embraces the north-eastern part of the Appalachian Coal Province and extends over most of the western part of the state. The productive area occupies some 12,000 square miles in 27 counties, 6 of which, in the southwestern part of the state, reported more than three-fourths of the total product. The coals mined are bituminous and semibituminous in varieties suitable for all uses. In addition to coal, 11 enterprises in this industry produced clay as a by-product which was valued at \$118,166, and 34 enterprises reported receipts for power sold and for work or miscellaneous services for other enterprises which amounted to \$684,924.

The production of petroleum and natural gas was third in importance among the mineral industries in

Pennsylvania in 1919, and the state ranked sixth in the United States in this industry. There were 3,140 productive enterprises, or 54.1 per cent of the total number in the state. They employed, however, only 2.8 per cent of the total number of wage earners and reported products valued at \$66,271,961, or only 8.1 per cent of the total for the state. The statistics for this industry include data on the operation of plants engaged in the extraction of gasoline from natural gas, whether such plants were connected with well operations or operated independently. The productive petroleum and natural-gas area in Pennsylvania is limited chiefly to a belt occupying approximately 10,000 square miles extending northeastward across the state from the southwest corner. There is also a gas-producing zone along the shore of Lake Erie. The production of petroleum and natural gas in 1919 was from 24 counties.

The industries fourth, fifth, and sixth in importance in Pennsylvania were the quarrying of limestone, sandstone, and slate in which Pennsylvania ranked first among the states. These industries, together with basalt and granite quarrying, employed practically 10,000 wage earners, or 3 per cent of the total number, and reported products valued at \$21,801,754, or 2.7 per cent of the total value of products. In addition to the products indicated by the industry designations the quarrying enterprises in the state reported other mineral products valued at \$281,590, including a small amount of lime manufactured at limestone quarries and not included in the census of manufactures. This amount and also \$118,000 received for power sold or for work or miscellaneous services for other enterprises are included in the total value of products reported for these industries.

Clay mining was seventh in importance in Pennsylvania in 1919 and the state ranked first in the clay industry in the United States. Twelve of the clay enterprises reported coal valued at \$161,321 as a by-product of clay mining.

Although small in comparison with other mining industries in the state, the production of mineral pigments in Pennsylvania was important and outranked production from other states.

Work on unproductive mineral properties for the purpose of development was reported in 1919 by 10 coal-mining and 3 petroleum and natural-gas enterprises. These enterprises, with a combined capital of \$3,244,212, employed 110 wage earners and expended \$301,516 for development.

The producing mining enterprises in Pennsylvania in 1919 are classified according to character of organization in Table 3 which shows that, although the corporations numbered less than one-third of the enterprises in the state, they conducted by far the largest operations, employing 92.4 per cent of the wage earners, and reporting 91.4 per cent of the total value of products. The petroleum and natural-gas industry which in-

cluded a majority of the enterprises in the state was unique in that incorporated enterprises numbered less than 10 per cent of the total in the industry. Nevertheless the corporations outclassed other forms of organization in both wage earners employed and value of products. The enterprises in the anthracite and bituminous coal-mining industries, in clay mining, and in most of the quarrying industries were largely in the hands of corporations.

The relatively large number of small enterprises as measured by the average number of wage earners employed is shown in Table 4. Of the total number of mining enterprises in Pennsylvania, 25.9 per cent employed no wage earners and 66.1 per cent of the enterprises had fewer than 101 each and the wage earners employed were only 15.3 per cent of the total number of wage earners. On the other hand, only 459 enterprises, or 7.9 per cent of the total number, had more than 100 wage earners each and employed 84.7 per cent of the total number of wage earners. The petroleum and natural-gas industry included practically all of the enterprises having no wage earners and two-thirds of the enterprises having less than 6. In this industry only 161 enterprises, or 5.1 per cent, employed 6 or more wage earners each. Very large enterprises having more than 1,000 wage earners each were reported only in the anthracite and bituminous coal-mining industries.

Table 5 shows that in a majority of enterprises employing wage earners and for 91.1 per cent of the wage earners the hours of labor were 44 to 53 per week. These hours were the rule in the anthracite and bituminous coal-mining industries in which the 8-hour day and 6-day week prevailed. In the petroleum and natural-gas industry a large number of enterprises which, however, employed few wage earners each, required less than 44 hours per week, while 62.1 per cent of the wage earners in this industry worked more than 53 hours per week. In the quarrying industries the prevailing hours of labor were 54 to 62 per week and a majority of the enterprises reported the 10-hour day and 6-day week.

The statistics for wage earners presented in Table 6, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year. The minimum shown for the bituminous coal industry in November, which was due to the great strike in that industry, was abnormal both as to the amount by which it differs from the maximum and as to the time of year. The normal minimum in this industry is to be expected in the spring. The degree of unemployment in the coal-mining industry in November, 1919, accounts for the minimum in that month in the statistics for all mining industries combined.

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

## MINES AND QUARRIES—PENNSYLVANIA.

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

	MINING INDUSTRIES.		Per cent of increase. <sup>1</sup>		MINING INDUSTRIES.		Per cent of increase. <sup>1</sup>
	1919	1909			1919	1909	
Number of enterprises.....	5,807	4,851	19.7	Capital.....	\$1,317,519,280	\$806,207,208	52.1
Number of mines and quarries.....	3,621	3,000	20.7	Principal expenses:			
Number of petroleum and natural-gas wells.....	77,325	59,780	29.3	Salaries.....	34,904,473	13,057,340	167.8
Number of natural-gas-gasoline plants.....	319			Wages.....	445,218,043	197,473,862	125.5
Persons engaged.....	350,338	381,865	-8.3	Contract work.....	7,970,125	5,970,932	33.4
Proprietors and firm members, total.....	8,822	9,130	-3.4	Supplies and materials.....	124,327,767	48,274,254	157.5
Number performing manual labor in or about the mines, quarries, and wells.....	2,126	2,113	0.6	Fuel and power.....	27,707,403	6,423,100	331.4
Salaried employees.....	18,110	11,722	54.6	Royalties and rents.....	24,082,827	15,379,127	60.5
Wage earners (average number).....	323,397	301,013	-10.4	Taxes.....	28,747,401	5,606,400	404.4
Power used (horsepower).....	1,000,422	1,618,806	23.5	Value of products.....	810,451,100	349,050,786	134.8

<sup>1</sup> A minus sign (-) denotes decrease.<sup>2</sup> Includes the cost of coal and natural gas purchased as material or for resale.

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.....	5,807	323,397	100.0	\$819,451,100	100.0	Slate.....	42	1,892	0.6	2,051,533	0.3
Coal, anthracite.....	254	147,372	45.6	304,084,142	44.4	Clay.....	62	1,337	0.4	2,540,485	0.3
Coal, bituminous.....	1,938	154,992	47.9	362,973,952	44.3	Basalt.....	20	721	0.2	2,208,791	0.3
Petroleum and natural gas.....	3,140	9,065	2.8	60,271,961	8.1	Granite.....	20	197	0.1	435,054	0.1
Limestone.....	184	5,573	1.7	12,881,213	1.6	Mineral pigments.....	13	115	(1)	344,730	(1)
Sandstone.....	100	1,673	0.5	3,534,503	0.4	Silica.....	4	43	(1)	54,867	(1)
						All other industries.....	12	417	0.1	1,373,209	0.2

<sup>1</sup> Less than one-tenth of 1 per cent.<sup>2</sup> Includes enterprises in industries as follows: Abrasive materials, 1; graphite, 3; iron ore, 5; lead and zinc, 1; talc and soapstone, 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.....	5,807	323,397	\$819,451,100	\$141,114	100.0	100.0	100.0
Corporation.....	1,702	208,807	748,797,805	439,052	29.3	92.4	91.4
Individual.....	1,799	10,872	28,401,348	16,080	30.5	3.2	3.5
Firm.....	2,056	12,265	34,778,898	16,916	35.4	3.8	4.2
Other.....	280	1,053	7,418,063	26,475	4.8	0.6	0.9
COAL, ANTHRACITE.....	254	147,372	304,084,142	1,433,402	100.0	100.0	100.0
Corporation.....	170	143,615	355,328,907	2,090,170	68.9	97.4	97.6
Individual.....	37	431	962,441	26,012	14.6	0.3	0.3
Firm.....	42	2,879	6,741,024	160,801	10.5	2.0	1.9
Other.....	5	447	1,051,770	210,354	2.0	0.3	0.3
COAL, BITUMINOUS.....	1,938	154,992	362,973,952	187,293	100.0	100.0	100.0
Corporation.....	1,000	130,535	328,381,065	328,382	51.6	90.0	90.5
Individual.....	487	7,700	17,487,290	35,908	25.1	5.0	4.8
Firm.....	440	6,870	15,352,035	34,891	22.7	4.4	4.2
Other.....	11	881	1,752,002	159,333	0.6	0.6	0.6
PETROLEUM AND NATURAL GAS.....	3,140	9,065	60,271,961	21,106	100.0	100.0	100.0
Corporation.....	205	6,220	44,010,627	149,209	9.4	68.6	66.4
Individual.....	1,102	1,094	7,847,083	7,121	35.1	12.1	11.8
Firm.....	1,485	1,425	10,085,470	7,196	47.3	15.7	16.1
Other.....	268	320	3,722,781	14,420	8.2	3.6	5.0
LIMESTONE.....	184	5,573	12,881,213	70,007	100.0	100.0	100.0
Corporation.....	69	4,352	10,611,380	153,788	37.5	78.1	82.4
Individual.....	76	682	1,203,417	16,624	41.3	12.2	9.8
Firm.....	39	539	1,060,416	26,806	21.2	9.7	7.8
SANDSTONE.....	100	1,673	3,534,503	35,340	100.0	100.0	100.0
Corporation.....	52	1,238	2,733,082	52,571	52.0	74.0	77.3
Individual.....	25	150	281,979	11,270	25.0	0.3	8.0
Firm.....	23	279	518,002	22,561	23.0	16.7	14.7

<sup>1</sup> Includes 2 other forms of organization.

## MINES AND QUARRIES—PENNSYLVANIA.

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

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.
SLATE.....	42	1,892	\$2,651,533	\$63,132	100.0	100.0	100.0
Corporation.....	34	1,706	2,451,467	72,102	81.0	90.2	92.5
Individual.....	3	88	74,715	24,905	7.1	3.6	2.8
Firm.....	5	118	125,351	25,070	11.9	6.2	4.7
CLAY.....	62	1,337	2,546,485	41,072	100.0	100.0	100.0
Corporation.....	43	1,122	2,107,899	49,021	69.4	83.9	82.8
Individual.....	8	63	111,079	13,997	12.9	4.7	4.4
Firm.....	11	152	326,607	29,692	17.7	11.4	12.8
BASALT.....	29	721	2,298,791	79,269	100.0	100.0	100.0
Corporation.....	16	660	2,108,543	131,784	55.2	91.5	91.7
Individual.....	10	48	104,690	10,469	34.5	6.7	7.2
Firm.....	3	13	25,558	8,519	10.3	1.8	1.1
GRANITE.....	29	197	435,654	15,023	100.0	100.0	100.0
Corporation.....	6	80	170,383	29,897	20.7	43.7	41.2
Individual.....	16	82	181,980	11,374	55.2	41.6	41.8
Firm.....	7	29	74,291	10,613	24.1	14.7	17.1
MINERAL PIGMENTS.....	13	115	344,739	26,518	100.0	100.0	100.0
Corporation.....	8	82	253,205	31,651	61.5	71.3	73.4
Firm.....	5	33	91,534	18,307	38.5	28.7	26.6

<sup>1</sup> Includes 2 other forms of organization.<sup>2</sup> Includes 1 other form of organization.<sup>3</sup> Includes 2 individuals.

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.....	5,807	100.0	323,397	100.0	SLATE.....	42	100.0	1,892	100.0
No wage earners.....	1,506	25.9	4,301	1.3	6 to 20.....	11	26.2	117	6.2
1 to 5.....	2,243	38.6	9,247	2.9	21 to 50.....	20	47.6	669	35.4
6 to 20.....	830	14.3	15,947	4.9	51 to 100.....	7	16.7	521	27.5
21 to 50.....	490	8.5	20,040	6.2	101 to 500.....	4	9.5	585	30.9
51 to 100.....	273	4.7	78,772	24.4					
101 to 500.....	355	6.1	42,817	13.2	SANDSTONE.....	100	100.0	1,073	100.0
501 to 1,000.....	63	1.1	152,264	47.1	No wage earners.....	2	2.0	106	6.8
Over 1,000.....	41	0.7			1 to 5.....	40	40.0	394	23.6
COAL, BITUMINOUS.....	1,038	100.0	154,902	100.0	6 to 20.....	36	36.0	455	27.2
No wage earners.....	11	0.6	1,557	1.0	21 to 50.....	14	14.0	342	20.4
1 to 5.....	554	28.0	5,702	3.7	51 to 100.....	5	5.0	370	22.5
6 to 20.....	480	25.1	11,764	7.6	101 to 500.....	3	3.0		
21 to 50.....	363	18.7	15,792	10.2					
51 to 100.....	216	11.1	55,281	35.7	CLAY.....	62	100.0	1,337	100.0
101 to 500.....	203	13.0	17,742	11.4	1 to 5.....	9	14.5	33	2.5
501 to 1,000.....	26	1.3	47,154	30.4	6 to 20.....	32	51.6	390	29.0
Over 1,000.....	19	1.0			21 to 50.....	16	25.8	519	38.8
COAL, ANTHRACITE.....	254	100.0	147,372	100.0	51 to 100.....	5	8.1	389	29.1
No wage earners.....	2	0.8	139	0.1					
1 to 5.....	62	24.4	409	0.3	BASALT.....	29	100.0	721	100.0
6 to 20.....	39	15.4	629	0.4	1 to 5.....	7	24.1	13	1.8
21 to 50.....	20	7.9	981	0.7	6 to 20.....	11	37.9	93	12.9
51 to 100.....	13	5.1	18,240	12.4	21 to 50.....	7	24.1	230	31.9
101 to 500.....	63	24.8	21,894	14.8	51 to 100.....	1	3.4	55	7.6
501 to 1,000.....	33	13.0	105,110	71.3	101 to 500.....	3	10.4	330	45.8
Over 1,000.....	22	8.7							
PETROLEUM AND NATURAL GAS.....	3,140	100.0	9,065	100.0	GRANITE.....	29	100.0	197	100.0
No wage earners.....	1,487	47.4	2,204	25.0	1 to 5.....	7	24.1	20	10.2
1 to 5.....	1,492	47.5	1,157	12.8	6 to 20.....	20	69.0	122	61.9
6 to 20.....	122	3.9	749	8.3	21 to 50.....	2	6.9	55	27.9
21 to 50.....	23	0.7	654	0.1					
51 to 100.....	7	0.2	1,070	11.8	MINERAL PIGMENTS.....	13	100.0	115	100.0
101 to 500.....	5	0.2	3,271	36.1	No wage earners.....	1	7.7	13	11.3
501 to 1,000.....	4	0.1			1 to 5.....	4	30.8	70	60.9
LIMESTONE.....	184	100.0	5,573	100.0	6 to 20.....	7	53.8	32	27.8
No wage earners.....	2	1.1	144	2.6	21 to 50.....	1	7.7		
1 to 5.....	64	34.8	635	11.4					
6 to 20.....	50	32.1	790	14.2					
21 to 50.....	28	15.2	1,415	25.4					
51 to 100.....	10	10.3	2,589	46.5					
101 to 500.....	12	6.5							





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

	Aggregate.	PRODUCING ENTERPRISES.				
		Total.	Coal.		Petroleum and natural gas. <sup>1</sup>	Limestone.
			Anthracite.	Bituminous.		
Number of enterprises.....	5,820	5,807	254	1,038	3,140	184
Number of mines and quarries.....	3,031	3,021	534	2,584		200
Number of petroleum and natural-gas wells.....	77,325	77,325			77,325	
Number of natural-gas gasoline plants.....	319	319			319	
Capital.....	\$1,320,703,501	\$1,317,510,289	\$433,808,039	\$648,020,810	\$201,180,270	\$12,941,060
Principal expenses:						
Salaries and wages—						
Officers.....	\$8,206,738	\$8,203,538	\$1,275,904	\$5,969,693	\$805,550	\$116,395
Superintendents and managers.....	\$13,608,305	\$13,605,082	\$6,149,017	\$6,054,702	\$849,044	\$234,033
Technical employees.....	\$2,570,708	\$2,561,190	\$1,423,614	\$998,268	\$102,775	\$21,508
Clerks, etc.....	\$10,476,102	\$10,474,657	\$4,146,934	\$5,018,500	\$900,580	\$148,860
Wage earners.....	\$145,353,348	\$145,218,043	\$210,289,473	\$211,340,693	\$10,219,433	\$6,824,104
Supplies and materials.....	\$118,083,907	\$118,817,334	\$50,738,376	\$44,012,367	\$8,962,063	\$2,758,379
Cost of coal and natural gas purchased as material and for resale.....	\$5,510,433	\$5,510,433	\$433,318		\$5,077,115	
Fuel.....	\$21,810,000	\$21,818,407	\$11,406,117	\$7,599,659	\$1,500,224	\$559,640
Power.....	\$5,890,320	\$5,888,990	\$1,899,835	\$3,522,701	\$21,825	\$255,957
Royalties and rents.....	\$24,083,877	\$24,082,827	\$11,766,598	\$6,003,627	\$6,170,090	\$294,488
Taxes.....	\$28,787,025	\$28,747,401	\$14,090,968	\$12,253,433	\$1,035,048	\$247,700
Contract work.....	\$8,011,041	\$7,070,425	\$1,557,845	\$618,094	\$5,523,072	\$194,748
Expenditures for development (included in the above items).....	\$25,232,489	\$24,030,973	\$6,189,990	\$8,344,445	\$9,704,215	\$109,199
Value of products.....	\$819,451,109	\$819,451,109	\$304,084,142	\$362,973,952	\$86,271,961	\$12,881,218
Persons engaged in industry.....	350,490	350,338	154,882	165,044	17,255	6,036
Proprietors and firm members (total).....	8,840	8,822	159	1,743	6,548	165
Number performing manual labor.....	2,129	2,126	34	575	1,429	44
Salaries officers.....	2,042	2,042	233	1,410	227	49
Superintendents and managers.....	0,083	0,077	2,821	2,480	451	113
Technical employees.....	1,593	1,550	907	572	54	7
Clerks, etc.....	8,453	8,450	3,390	3,847	910	129
Wage earners (average number).....	323,507	323,397	147,372	154,992	9,065	5,573
Wage earners by occupation (Dec. 15):						
Above ground (total).....	95,998	95,748	40,018	28,639	9,417	5,217
Below ground (total).....	250,844	250,822	105,625	143,458		663
Foremen, shift bosses, etc.—						
Above ground.....	2,000	2,003	435	1,219		194
Below ground.....	4,805	4,803	1,068	3,003		8
Engineers, hoistmen, electricians, mechanics, etc.—						
Above ground.....	27,316	27,305	10,488	8,966	6,453	720
Below ground.....	11,398	11,398	4,351	7,042		20
Miners, quarrymen, and drillmen, including their helpers—						
Above ground.....	5,330	5,310	143	1,009		2,072
Below ground.....	151,957	151,949	59,401	91,575		171
Timbermen, trackmen, and men engaged in hauling, tramming, etc.—						
Above ground.....	7,275	7,220	2,770	3,409		400
Below ground.....	41,010	41,006	17,325	23,457		78
Muckers, loaders, laborers, and others not classified—						
Above ground.....	32,255	32,106	12,285	13,202	2,904	1,769
Below ground.....	41,074	41,000	23,470	17,721		330
Wage earners employed in mills and beneficiating plants—						
Above ground.....	21,744	21,744	20,407	234		102
Number of wage earners under 16 years of age included in those reported above—						
Above ground.....	163	162	119	34		5
Mineral and oil land operated..... acres.....	4,361,129	4,352,082	261,355	1,491,919	2,506,879	31,175
Land controlled, total..... acres.....	4,734,037	4,724,927	432,055	1,682,398	2,506,879	33,431
Mineral and oil land owned.....	1,767,709	1,750,822	194,390	1,112,056	396,700	6,105
Mineral and oil land leased.....	2,017,152	2,015,052	77,955	381,720	2,110,179	25,045
Timber and other lands owned and leased.....	359,116	359,053	159,710	187,722		2,221
Power used: Aggregate horsepower.....	1,999,581	1,999,422	899,783	658,963	371,267	30,155
Prime movers (horsepower, total).....	1,638,707	1,638,599	782,090	444,690	365,082	15,041
Steam engines—						
Number.....	10,845	10,841	5,208	2,194	8,511	378
Horsepower.....	1,274,103	1,274,108	730,141	348,402	150,490	14,516
Steam turbines—						
Number.....	140	146	45	100		1
Horsepower.....	137,213	137,213	50,665	80,273		275
Internal-combustion engines—						
Number.....	14,435	14,433	73	319	13,910	55
Horsepower.....	226,536	226,513	1,284	10,015	208,552	800
Water wheels, turbines, and motors—						
Number.....	12	12			2	2
Horsepower.....	765	765			40	50
Purchased power (horsepower, total).....	300,874	300,823	117,693	214,273	6,185	14,514
Electric motors operated by purchased current—						
Number.....	8,526	8,521	1,881	5,953	41	358
Horsepower.....	355,221	355,170	117,693	214,208	637	14,514
Other equipment operated by purchased power—						
Horsepower.....	5,653	5,653		65	5,548	
Electric motors run by current generated by enterprise using:						
Number.....	12,140	12,146	3,801	8,045	203	9
Horsepower.....	471,216	471,210	185,723	278,780	2,841	225
Fuel used:						
Coal, anthracite..... tons, 2,240 pounds.....	8,561,045	8,561,045	8,548,201			702
Coal, bituminous..... tons, 2,000 pounds.....	3,574,852	3,574,674	4,006	3,304,925	0,602	130,886
Coke..... tons, 2,000 pounds.....	219	219				179
Wood..... cords.....	2,376	2,376			1,582	237
Fuel oils..... barrels.....	1,008	1,008	671	196		201
Gasoline and other volatile oils..... barrels.....	13,811	13,801	1,381	5,008	2,447	3,408
Natural gas..... 1,000 cubic feet.....	10,047,604	10,047,604		310,914	9,488,454	4,080

<sup>1</sup> Includes a small operation in New York inseparably combined with report on Pennsylvania operations.

<sup>2</sup> Includes 156 collieries embracing 374 mines, 245 breakers and 60 culm washeries; 19 enterprises operating 19 culm washeries; and 79 enterprises operating 81 river dredges.

<sup>3</sup> Includes 374 mines, 79 culm washeries and 81 river dredges.

<sup>4</sup> Includes 89,354 M. cu. ft. of manufactured (coke oven) gas reported as fuel used in the mining of iron ore.

## MINES AND QUARRIES—PENNSYLVANIA.

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

	PRODUCING ENTERPRISES—continued.							NONPRODUCING ENTERPRISES.		
	Slate.	Clay.	Basalt.	Granite.	Mineral pigments.	Silica.	All other. <sup>1</sup>	Total.	Coal, bituminous.	Petroleum and natural gas.
Number of enterprises.....	42	62	29	20	13	4	12	13	10	3
Number of mines and quarries.....	42	62	29	20	13	4	12	13	10	3
Number of petroleum and natural-gas wells.....										
Number of natural-gas gasoline plants.....										
Capital.....	\$2,820,020	\$1,357,640	\$4,552,049	\$475,238	\$315,792	\$117,505	\$2,213,551	\$4,211,212	\$3,191,812	\$52,400
Principal expenses:										
Salaries and wages—										
Officers.....	\$70,310	\$52,220	\$93,050	\$8,422	\$10,575	\$1,550	\$17,675	\$3,200	\$3,200	
Superintendents and managers.....	\$30,085	\$60,588	\$51,054	\$10,033	\$8,380	\$8,400	\$10,387	\$3,223	\$3,223	
Technical employees.....	\$300		\$7,500				\$10,031	\$18,512	\$17,497	\$1,015
Clerks, etc.....	\$32,580	\$14,111	\$30,400	\$1,021	\$7,207		\$11,137	\$1,445	\$1,445	
Wage earners.....	\$1,635,082	\$1,533,408	\$702,037	\$237,481	\$110,330	\$10,200	\$174,918	\$134,705	\$133,945	\$700
Supplies and materials.....	\$297,941	\$110,395	\$318,709	\$13,300	\$95,737	\$9,720	\$303,006	\$100,573	\$150,161	\$10,412
Cost of coal and natural gas purchased as material and for resale.....										
Fuel.....	\$104,491	\$66,840	\$162,792	\$20,685	\$11,511	\$1,775	\$51,331	\$1,191	\$195	\$908
Power.....	\$12,231	\$15,050	\$10,277	\$1,730	\$500	\$479	\$31,923	\$1,321	\$1,204	\$60
Royalties and rents.....	\$110,931	\$72,277	\$50,035	\$12,336	\$7,503		\$130,143	\$1,050	\$900	\$150
Taxes.....	\$33,108	\$30,271	\$61,046	\$4,771	\$1,672	\$1,371	\$42,748	\$10,221	\$10,204	\$20
Contract work.....	\$52,033	\$1,121	\$2,507	\$040	\$1,102		\$13,710	\$11,210	\$11,010	\$20,600
Expenditures for development (included in the above items).....	\$36,717	\$60,265	\$85,254	\$18,700	\$7,456	\$20,000	\$218,321	\$301,510	\$258,851	\$12,665
Value of products.....	\$2,651,533	\$2,546,485	\$2,208,701	\$135,054	\$344,739	\$51,807	\$1,373,200			
Persons engaged in industry.....	2,051	1,440	823	252	140	51	460	152	135	17
Proprietors and firm members (total).....	17	34	14	37	10	3	14	18	4	14
Number performing manual labor.....	9	4	4	5	1		1	3	2	1
Salaries officers.....	47	9	18	5	4	2	4	2	2	
Superintendents and managers.....	63	33	30	7	5	3	15	6	3	
Technical employees.....	1		1				8	13	11	2
Clerks, etc.....	31	27	30		0		3	3	3	
Wage earners (average number).....	1,802	1,337	721	197	115	43	417	110	109	1
Wage earners by occupation (Dec. 15):										
Above ground (total).....	1,724	777	710	237	106	39	392	250	219	1
Below ground (total).....	340	620			33		83	22	22	
Foremen, shift bosses, etc.—										
Above ground.....	48	28	28	12	6	2	14	6	6	
Below ground.....	10	12			3		3	2	2	
Engineers, hoistmen, electricians, mechanics, etc.—										
Above ground.....	168	97	121	12	7	2	107	11	10	1
Below ground.....		5								
Miners, quarrymen, and drillmen, including their helpers—										
Above ground.....	321	106	212	131	11	2	47	20	20	
Below ground.....	270	481			14		37	8	8	
Timbermen, trackmen, and men engaged in hauling, tramping, etc.—										
Above ground.....	127	210	40	18	3	18	48	55	55	
Below ground.....	33	100			10		3	4	4	
Muckers, loaders, laborers, and others not classified—										
Above ground.....	500	223	208	54	53	10	138	140	149	
Below ground.....	21	22			6		40	8	8	
Wage earners employed in mills and beneficiating plants—										
Above ground.....	500	53	32	10	26	5	38			
Number of wage earners under 16 years of age included in those reported above—										
Above ground.....	4							1	1	
Mineral and oil land operated..... acres.....	1,051	20,892	4,258	480	1,211	410	980	0,047	8,722	325
Land controlled, total..... acres.....	1,391	22,035	4,758	489	2,077	499	1,112	0,110	8,783	325
Mineral and oil land owned.....	029	11,129	733	402	825	410	230	0,047	0,940	1
Mineral and oil land leased.....	425	9,763	3,525	78	386		750	2,100	1,770	324
Timber and other lands owned and leased.....	337	1,143	500	9	1,766	80	132	63	133	
Power used: Aggregate horsepower.....	9,078	3,802	6,058	1,232	1,198	390	5,902	159	103	50
Prime movers (horsepower, total).....	7,393	2,638	5,147	852	1,183	305	5,250	108	73	55
Steam engines—										
Number.....	155	44	53	30	12	1	10	4	1	3
Horsepower.....	7,385	2,357	5,000	708	585	125	1,282	85	30	55
Steam turbines—										
Number.....										
Horsepower.....										
Internal-combustion engines—										
Number.....	1	17	0	9	0		5	2	2	
Horsepower.....	8	281	147	84	228	240	3,003	23	23	
Water wheels, turbines, and motors—										
Number.....					5		3			
Horsepower.....					370		305			
Purchased power (horsepower, total).....	2,285	1,254	911	380	15	25	712	51	50	1
Electric motors operated by purchased current—										
Number.....	95	35	28	5	2	2	30	5	4	1
Horsepower.....	2,285	1,214	911	380	15	25	712	51	50	1
Other equipment operated by purchased power—										
Horsepower.....		40								
Electric motors run by current generated by enterprise using:										
Number.....		14					51			
Horsepower.....		201					2,781			
Fuel used:										
Coal, anthracite..... tons, 2,240 pounds.....	8,504	337			803		50			
Coal, bituminous..... tons, 2,000 pounds.....	24,100	14,597	30,847	3,662	1,552	682	11,071	178	40	138
Coke..... tons, 2,000 pounds.....							40			
Wood..... cords.....		50			293		130			
Fuel oils..... barrels.....	30		303				30			
Gasoline and other volatile oils..... barrels.....	1	403	83	149	215	34	387	10	10	
Natural gas..... 1,000 cubic feet.....		7,747				1,428	80,354			

<sup>1</sup> Includes enterprises as follows: Abrasive materials, 1; graphite, 3; iron ore, 5; lead and zinc, 1; talc and soapstone, 2.

<sup>2</sup> Manufactured (coke oven) gas.